A. Facility Refinements Assessment

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.2: Delta Hydrology and Water Quality			
4.2.1: The project alternatives would not adversely alter deliveries of water to other users.	=	No change in effects related to the deliveries of water to other users, since a reduced Eastside Trail would not result in any changes in operations. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.2.2: The project alternatives would not result in significant adverse changes in Delta water quality causing the violation of a water quality standard.	=	No change in effects on Delta water quality, since a reduced Eastside Trail would not result in any in-Delta construction. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.2.3: The project alternatives would not result in changes to Delta water quality that would result in significant adverse effects on beneficial uses.	=	No change in effects on beneficial uses, since a reduced Eastside Trail would not result in any in-Delta construction. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.2.4: Diversions of Delta water under the project alternatives would not result in a significant reduction of Delta water levels.	=	No change in effects on Delta water levels, since a reduced Eastside Trail would not result in changes that would affect Delta water levels. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.2.5: The project alternatives would not result in a cumulatively considerable contribution to significant adverse cumulative effects on deliveries of water to other users, changes in Delta water quality, or change in Delta water levels.	=	No change in effects to cumulative Delta hydrology and water quality effects. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
Section 4.3: Delta Fisheries and Aquatic Resources			
4.3.1: In-channel construction activities associated with the proposed new Delta Intake structure would increase short-term localized suspended sediment, turbidity, and possibly contaminant concentrations within Old River, which would increase exposure of various life stages and species of fish to temporarily degraded water quality conditions.	=	No change in effects on Delta fisheries or aquatic resources, since a reduced Eastside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: NI Alternative 4: NI
4.3.2: Underwater sound-pressure levels generated during cofferdam installation for the new Delta Intake could result in behavioral avoidance or migration delays for special-status fish species.	=	No change in effects resulting in behavioral avoidance or migration delays for special-status fish species, since a reduced Eastside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: NI Alternative 4: NI
4.3.3: Dewatering of the cofferdam for the new Delta Intake could result in stranding of fish.	=	No change in effects on the stranding of fish associated with dewatering, since a reduced Eastside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: NI Alternative 4: NI
4.3.4: The new Delta Intake structure and associated fish screens in Old River would physically exclude fish from a small area of existing aquatic habitat and modify existing aquatic habitat.	=	No change in effects on the physical exclusion of fish from a small area of existing aquatic habitat or to the modification of existing aquatic habitat resulting from fish screens, since a reduced Eastside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: NI Alternative 4: NI

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.3: Delta Fisheries and Aquatic Resources (cont.)			
4.3.5: The new Delta Intake structure and associated fish screens in Old River would modify hydraulic conditions next to the intake structure, but would not disorient special-status fish or attract predatory fish.	=	No change in effects that would result in the disorientation of special-status fish or on the attraction of predatory fish, since a reduced Eastside Trail would not result in any modifications to the hydraulic conditions. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: NI Alternative 4: NI
4.3.6: Operation of the project alternatives would not result in changes to Delta hydrologic conditions that affect Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta.	=	No change in effects on Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta, since a reduced Eastside Trail would not result in any changes to Delta hydrologic conditions. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.3.7: Operation of the new screened intake, or changes to diversions at existing intakes, could affect direct entrainment or impingement of fish.	=	No change in effects on direct entrainment or impingement of fish, since a reduced Eastside Trail would not result in any changes in operations. No change in conclusions or mitigation.	Alternative 1: B Alternative 2: B Alternative 3: SU Alternative 4: LS
4.3.8: Fish screen maintenance activities would not significantly increase fish entrainment at the new Delta Intake or the expanded Old River Intake.	=	No change in effects on fish entrainment at the new Delta Intake or the expanded Old River Intake, since a reduced Eastside Trail would not result in any additional fish screen maintenance activities. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: NI
4.3.9: The project, when combined with other planned project alternatives, or projects under construction in the area, could cumulatively contribute to substantial adverse impacts to Delta fisheries and aquatic resources.	=	No change in effects to cumulative Delta fisheries and aquatic resources effects. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation for Alternatives 1, 2, and 4 and Significant and Unavoidable for Alternative 3. (See Draft EIS/EIR, Vol. 2, Section 4.3, Mitigation Measure 4.3.1, pp. 4.3-55 through 4.3-56, Mitigation Measure 4.3.2, pp. 4.3-58 through 4.3-59, and Mitigation Measure 4.3.3, pp. 4.3-59; Section 4.13, Mitigation Measure 4.13.2, pp. 4.13-18; Section 4.5, Mitigation Measure 4.5-1a, pp. 4.5-19 through 4.5-20; and Section 4.6, Mitigation Measure 4.6.2b, pp. 4.6-103).No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: SU Alternative 4: LS
Section 4.4: Geology, Soils and Seismicity			
4.4.1: The project facilities would be designed and engineered in accordance with seismic code requirements. As a result, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides.	=	No change in effects related to strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides, since no additional people or structures would be exposed to these types of risks. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.4.2: During construction and operations, the project could result in substantial soil erosion or the loss of topsoil.	<	Potential for slightly decreased effects on soil erosion and less potential loss of topsoil, since a reduced Eastside Trail would require slightly less construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.4.3: Project components could be located on expansive or corrosive soils or on a geologic unit or soil that is unstable or could become unstable as a result of the project or construction activities; however, those components would not likely result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse, and would not create substantial risks to life or property.	=	No change in effects related to expansive or corrosive soils or on a geologic unit or soil that is unstable or could become unstable, since a reduced Eastside Trail would not expose project components to these types of risks. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.4: Geology, Soils and Seismicity (cont.)			
4.4.4: The proposed project would not make a cumulatively considerable contribution to cumulative effects associated with erosion, topsoil loss or increased exposure to seismic or other geohazard risks.	<	Potential for slightly decreased cumulative effects related to soil erosion, topsoil loss and exposure to seismic or other geohazard risks, since a reduced Eastside Trail would require slightly less construction. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
Section 4.5: Local Hydrology, Drainage and Groundwater			
4.5.1: During construction, the project alternatives could violate water quality standards through increased erosion and sedimentation to local waterways, release of fuels or other hazardous materials during construction, or dewatering of excavated areas that could result in substantial water quality degradation.	<	Potential for slightly decreased effects on water quality. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.5.2: Construction and operation of the project alternatives would not deplete local groundwater supplies or interfere with groundwater recharge.	=	No change in effects on groundwater supplies or groundwater recharge. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.5.3: Project alternatives would not substantially alter drainage patterns but reservoir expansion would increase the reservoir shoreline area subject to erosion.	<	Potential for slightly decreased effects on drainage patterns. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.5.4: Project alternatives would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during operation.	<	Potential for slightly decreased effects related to runoff water. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.5.5: Project Alternatives 1, 2, and 3 could place structures within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map, which could impede or redirect flood flows.	=	No change in effects related to flood hazard, since a reduced Eastside Trail would not affect the exposure of project components to these types of risks. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.5.6: The project alternatives would not substantially increase the exposure of people and/or structures to risks associated with inundation by dam or levee failure.	=	No change in effects related to risk of inundation from dam or levee failure since a reduced Eastside Trail would not affect the exposure of project components to these types of risks. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.5.7: Construction and operation of the project alternatives would not make a cumulatively considerable contribution to cumulative effects on drainage, flooding, groundwater recharge or water quality degradation in the project area.	<	Potential for slightly decreased cumulative effects related to local hydrology, drainage and water quality associated with the potential for reduced effects identified above. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.6: Biological Resources			
4.6.1: Project construction would affect the following NCCP habitat types (CDFG sensitive plant communities in parentheses): Natural Seasonal Wetland (i.e., bulrush-cattail series, northern claypan vernal pool, bush seepweed and saltgrass series), Valley/Foothill Riparian (i.e., Fremont cottonwood series and valley oak series), Grassland (i.e., purple needlegrass series) and Valley/Foothill Woodland Forest (i.e., blue oak series).	<	Potential for slightly decreased effects on grassland habitat and associated sensitive plant communities, since a reduced Eastside Trail would require slightly less construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.2: Project construction could affect potentially jurisdictional wetlands or waters, and streambeds and banks regulated by CDFG.	<	Potential for slightly decreased effects on jurisdictional wetlands or waters, & streambeds & banks, since a reduced Eastside Trail would require slightly less construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.3: Project construction could affect populations of special-status plant species including brittlescale, San Joaquin spearscale, Brewer's dwarf-flax, and rose-mallow.	=	No change in effects since no special status plant species shown on Fig 4.6-12 (Draft EIS/EIR, Vol. 2, Section 4.6, pg. 4.6-60). No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.4: Project construction would result in impacts on California red-legged frog and California tiger salamander, including aquatic breeding habitat and upland aestivation habitat for these species.	<	Potential for slightly decreased effects on CTS habitat (grassland is CTS upland aestivation habitat) and RLF wetlands and stockponds located within trail area (see Figure 2-2, Eastside Trail Reduction, in Chapter 2 of this document). No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.5: Project construction would result in direct and indirect impacts on existing populations of and habitat for the western pond turtle.	<	Potential for slightly decreased effects on western pond turtle populations as a shorter Eastside Trail would cross fewer drainages in the watershed grassland areas. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.6: Project construction under Alternatives 1, 2, and 3 would result in direct and indirect impacts on listed vernal pool fairy shrimp and their habitat, and on the non-listed midvalley fairy shrimp and curved-foot hygrotus diving beetle.	<	Potential for slightly decreased effects on vernal pool fairy shrimp and their habitat, since the shorter Eastside Trail would not provide access to this habitat in the watershed. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.7: Project construction would have temporary and permanent impacts on potential San Joaquin kit fox habitat and permanently reduce potential regional movement opportunities in one location for this species.	<	Potential for slightly decreased effects on San Joaquin kit fox habitat & regional movement since grassland provides habitat for burrows and prey base. No change in conclusions or mitigation.	Alternative 1: LSM/SU Alternative 2: LSM/SU Alternative 3: LSM/SU Alternative 4: LSM/SU
4.6.8: Project construction would result in temporary and permanent loss of habitat for burrowing owls.	<	Potential for slightly decreased effects on burrowing owl habitat since grassland provides upland nesting and foraging habitat. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.9: Project construction and operation activities would result in direct and indirect impacts on existing populations of and habitat for the golden eagle, bald eagle, and Swainson's hawk.	=	No change on nesting habitat, since none is located in watershed grasslands. Potential for slightly decreased effects on foraging habitat for golden eagle and Swainson's hawk since foraging habitat is located in watershed grasslands. No change in effects on bald eagles or their habitat. No change in conclusions or mitigation.	Alternative 1: LSM/B Alternative 2: LSM/B Alternative 3: LSM/B Alternative 4: LSM/B

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.6: Biological Resources (cont.)			
4.6.10: Project construction and increased reservoir water levels would result in temporary and permanent loss of potential and occupied habitat for Alameda whipsnakes.	<	Potential for slightly decreased effects on Alameda whipsnake habitat in grassland areas of the watershed. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.11: Project construction activities could result in direct and indirect impacts on the valley elderberry longhorn beetle and its habitat.	=	No change in effects on VELB or their habitat since no VELB habitat is located in grassland trail area. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.12: Project construction activities could affect active breeding bird nest sites and new powerlines could affect migratory birds.	<	Potential for slightly decreased effects on breeding bird nest sites (grassland provides nesting and foraging habitat for some bird species). No change in effects related to migratory birds since reduction of the Eastside Trail would not require new powerlines. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.13: Project construction activities under Alternatives 1 and 2 could affect designated critical habitat for listed species (vernal pool fairy shrimp and Contra Costa goldfields).	=	No change in effects to designated critical habitat for listed species (vernal pool fairy shrimp and Contra Costa goldfields) since no critical habitat for listed species occurs in the watershed). No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: NI Alternative 4: NI
4.6.14: Project construction activities could affect nonlisted special-status reptile species (San Joaquin coachwhip and coast horned lizard).	<	Potential for slightly decreased effects on habitat for nonlisted special-status reptile species (San Joaquin coachwhip and coast horned lizard) that may occur in the watershed grasslands. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.15: Project construction activities could affect nonlisted special-status mammal species (American badger, special-status bats, and San Joaquin pocket mouse).	<	Potential for slightly decreased effects on nonlisted special-status mammal species (American badger, special-status bats, and San Joaquin pocket mouse), since grassland provides grassy open areas for badger and pocket mouse burrows. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.6.16: Draining the reservoir during project construction under Alternatives 1, 2, and 3 could affect Pacific Flyway species, including waterfowl and shorebirds.	=	No change in effects to Pacific Flyway species as reduction of the Eastside Trail would have no effect on the draining of the reservoir during construction. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.6.17: The project would not result in conflicts with local and regional conservation plans, or local plans or ordinances protecting biological resources.	=	No change in effects on local and regional conservation plans since a reduced Eastside Trail would not result in any changes related to local & regional conservation plans & ordinances protecting biological resources. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
4.6.18: Project construction would not make a cumulatively considerable contribution to cumulative effects on special-status species and habitats.	<	Potential for slightly decreased cumulative effects related to biological resources associated with the potential for reduced effects identified above. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.7: Land Use			
4.7.1: The proposed project and alternatives would not physically divide an existing community.	=	No change in effects related to existing communities, since a reduced Eastside Trail would not physically divide any existing communities. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
4.7.2: Facility siting and operation under the proposed project and alternatives would not conflict with any applicable land use plans.	=	No change in effects related to applicable land use plans, since a reduced Eastside Trail would not result in conflicts with applicable land use plans. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.7.3: Construction activities within designated Airport Land Use Compatibility Zones near the Byron Airport could cause potential temporary height impacts by conflicting with FAR Part 77 surfaces during construction.	=	No change in effects related to aviation policies, since a reduced Eastside Trail would not result in conflicts with any aviation policies. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.7.4: Construction activities within the AIA for Byron Airport could cause potential temporary flight hazards through the creation of glare or distracting lights; the generation of dust or smoke, which could impair pilot visibility; or could attract an increased number of birds.	=	No change in effects related to flight hazards, since a reduced Eastside Trail would not result in potential temporary flight hazards. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.7.5: The proposed project and alternatives would not contribute to cumulative land use impacts.	=	No change in cumulative effects related to land use. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
Section 4.8: Agriculture			
4.8.1: Project construction would temporarily impact the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	=	No change in effects to the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LS
4.8.2: The project would permanently convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use.	=	No change in effects related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 1: SU Alternative 2: SU Alternative 3: LSM Alternative 4: LS
4.8.3: The project would not conflict with zoning for agricultural use or a Williamson Act contract.	=	No change in effects to zoning for agricultural use or a Williamson Act contract since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: NI
4.8.4: The project would involve changes in the environment that, due to their location or nature, could contribute to cumulative impacts from conversion of Important Farmland to nonagricultural uses.	=	No change in cumulative effects related to agriculture. No change in conclusions or mitigation.	Alternative 1: SU Alternative 2: SU Alternative 3: LSM Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.9: Transportation and Circulation			
4.9.1: Project construction activities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.	=	No change in effects related to traffic congestion during construction, since a reduced Eastside Trail would not result in an increase in traffic congestion. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LS
4.9.2: Project construction activities under Alternatives 1, 2 and 3 would intermittently and temporarily impede access to local streets or adjacent uses, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or possible road wear.	=	No change in effects related to service disruptions, including access for emergency vehicles, a substantial increase traffic hazards due to construction in or adjacent to roads or possible road wear during construction, since a reduced Eastside Trail would not result in an increase in service disruptions related to construction. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LS
4.9.3: Traffic associated with operation of project facilities, including the expanded recreation facilities, would not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.	=	No change in effects related to level of service standard established by the county congestion management agency for designated roads or highways, since a reduced Eastside Trail would not result in a change of operations. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.9.4: Construction of project alternatives, when combined with construction of other future projects, could contribute to construction-related short-term cumulative impacts to traffic and transportation (traffic congestion, access, and traffic safety).	=	No change in cumulative effects related to transportation and circulation. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LS
Section 4.10: Air Quality			
4.10.1: Construction of project alternatives could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, and PM10 that could contribute to existing nonattainment conditions and further degrade air quality. However, project alternatives would not exceed federal general conformity *de minimis* standards for emissions.	<	Potential for slightly decreased effects related to criteria air pollution emissions due to slightly less trail construction activity. Impacts remain Less Than Significant With Mitigation. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.10.2: Operation of project alternatives would not result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	=	No change in effects related to violation of air quality standards, since a reduced Eastside Trail would not result in a change in operations. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.10.3: Construction and/or operation of project alternatives would not expose sensitive receptors to substantial pollutant concentrations.	=	No change in effects related to exposing sensitive receptors to pollutant concentrations, since a reduced Eastside Trail would not increase the exposure of sensitive receptors to substantial pollutant concentrations. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.10.4: Operation of project alternatives would not create objectionable odors affecting a substantial number of people.	=	No change in effects related to objectionable odors, since a reduced Eastside Trail would not increase the exposure of people to objectionable odors. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.10.5: Construction and operation of project alternatives would not result in a cumulatively considerable increase in greenhouse gas emissions.	=	No change in effects related to greenhouse gas emissions, since a reduced Eastside Trail would not increase the production greenhouse gas emissions from construction and operation of the alternatives. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.10: Air Quality (cont.)			
4.10.6: Construction and operation of the project alternatives could result in cumulatively considerable increases of criteria pollutant emissions.	=	No change in cumulative effects related to air quality. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
Section 4.11: Noise			
4.11.1: Construction of facilities under the proposed project and alternatives could generate noise levels that exceed the Contra Costa County or Alameda County noise standards at nearby sensitive receptors if construction activities are carried out during noise-sensitive hours, causing sleep disturbance and/or annoyance.	=	No change in effects related to exceeding noise standards during construction, since a reduced Eastside Trail would result in slightly less construction activity. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.11.2: Operation of the project and alternatives would generate traffic, stationary source, and area source noise similar to existing noise associated with operation of Los Vaqueros Reservoir system and would not exceed County noise requirements.	=	No change in effects related to exceeding noise standards during operations, since a reduced Eastside Trail would not result in a change in operations. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.11.3: Project construction would not expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.	=	No change in effects related to exposing persons to or generating excessive ground-borne vibration or ground-borne noise levels, since a reduced Eastside Trail would result in slightly less construction activity. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.11.4: The proposed project or alternatives would not make a cumulatively considerable contribution to noise levels during either construction or operation.	=	No change in cumulative effects related to noise. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
Section 4.12: Utilities and Public Service Systems			
4.12.1: Construction or operation of project alternatives could temporarily disrupt utilities and public service systems such that a public health hazard could be created or an extended service disruption could result.	=	No change in effects related to the temporary disruption of utilities and public service systems, since a reduced Eastside Trail would not result in any increase in temporary utility and public service disruptions. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.12.2: Project alternatives would not require or result in construction of new or expanded utility infrastructure or public service facilities that would result in substantial adverse physical impacts.	=	No change in effects related to the construction of new or expanded utility infrastructure or public service facilities since a reduced Eastside Trail would not require any new utility infrastructure or public service facilities. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.12.3: Construction of the project alternatives could increase solid waste generation such that the capacity of local landfills would be exceeded or the project would not comply with state regulations related to solid waste.	=	No change in effects related solid waste generation, since a reduced Eastside Trail would not result in an increase in solid waste generation. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.12.4: Construction of the project alternatives could make a cumulatively considerable contribution to cumulative effects on public services and utilities, or local landfill capacity.	=	No change in cumulative effects related to public services and utilities, or local landfill capacity. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.13: Hazardous Materials / Public Health			
4.13.1: Construction of the project and alternative components would disturb subsurface soils and groundwater; if hazardous substances are present in the disturbed areas, construction workers and the public could be exposed to these substances.	=	No change in effects related to exposing construction workers and the public to hazardous substances, since a reduced Eastside Trail would result not expose construction workers or the public to additional hazardous substances. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.13.2: Project construction and operation could, through routine transport, use or disposal, accidentally release hazardous materials, thereby exposing construction workers, project personnel, and the public to hazardous materials, or accidentally releasing hazardous materials into the soil, groundwater, and/or a nearby surface water body.	<	Potential for slightly decreased effects related to the accidental release of hazardous materials, since a reduced Eastside Trail would result in slightly less construction activity. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.13.3: Improper handling or use of flammable or combustible materials such as internal combustion equipment could result in wildland fires, exposing people or structures to a significant risk of loss, injury, or death.	<	Potential for slightly decreased effects related to wildland fires, since a reduced Eastside Trail would result in slightly less construction activity. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.13.4: Construction and operation of project power supply facilities would not locate electrical transmission facilities within 150 feet of a school.	=	No change in effects related to locating electrical transmission facilities within 150 feet of a school since a reduced Eastside Trail would not result in the placement of any power supply facilities. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
4.13.5: The project alternatives would not contribute to cumulative impacts associated with release of hazardous materials or other hazards.	<	Potential for slightly decreased cumulative effects related to hazardous materials and public health associated with the release of hazardous materials or other hazards. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
Section 4.14: Visual/Aesthetic Resources			
4.14.1: The project alternatives would not have a substantial, demonstrable negative aesthetic effect on a scenic vista or from a county-designated scenic highway or route.	=	No change in effects related to aesthetic effects on a scenic vista or from a county-designated scenic highway or route. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.14.2: The project alternatives would not substantially degrade the existing visual character or quality of the site and its surroundings, except Alternative 4 due to the borrow area in Kellogg Valley.	=	No change in effects related to degrading existing visual character or quality since a reduced Eastside Trail would not introduce any new components. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LSM
4.14.3: The project alternatives would not create a new source of substantial light but Alternatives 1, 2, and 3 could create a new source of substantial glare that could adversely affect views in the area.	=	No change in effects related to adding new light or glare since a reduced Eastside Trail would not result in any new source of substantial light or glare. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LS
4.14.4: The project alternatives would not make a cumulatively considerable contribution to adverse effects on visual/aesthetic resources in the project area or broader region.	=	No change in cumulative effects related to visual or aesthetic resources. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.15: Recreation			
4.15.1: Construction of the project alternatives would result in a short-term reduction of recreational opportunities in the project area due to construction activities outside the watershed and closure of the watershed to the public during the construction period, but would enhance recreational opportunities in the long-term.	=	No changes in effects related to loss of recreation areas. Although there would be a reduction in the length of the revised Eastside Trail as compared to the trail as originally proposed in Alternatives 1-4, there would be no adverse effects on existing recreation and long-term benefits would still occur. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.15.2: The project alternatives would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	=	No changes in effects related to increased use of existing parks or recreational facilities. Although there would be a reduction in the length of the revised Eastside Trail as compared to the trail as originally proposed in Alternatives 1-4, there would be no adverse effects on existing recreational opportunities that would result in increased use of other recreational facilities and long-term benefits would still occur. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.15.3: No other reasonably foreseeable future projects would also reduce recreational opportunities in the project area, similar to those opportunities affected by the project alternatives, or increase the use of existing neighborhood and regional parks or other recreational facilities; therefore, there does not appear to be the potential for the project alternatives to contribute to a cumulative effect on recreation facilities, opportunities or experience.	=	No changes in effects related to cumulative effects on recreational facilities, opportunities or experiences. Although there would be a reduction in the length of the revised Eastside Trail as compared to the trail as originally proposed in Alternatives 1-4, there would be no adverse effects on existing recreation and long-term benefits would still occur. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
Section 4.16: Cultural and Paleontological Resources			
4.16.1: Construction and management of project components would cause a substantial adverse change in the significance of a historical and/or unique archaeological resource as defined in Section 15064.5 or historic property or historic district, as defined in Section 106 of the NHPA (36 CFR 800), or in a previously undiscovered cultural resource.	<	Potential for slightly decreased effects on historical resources. A reduced Eastside Trail would avoid passing nearby two historic properties and would therefore result in decreased effects. However, impacts would remain less than significant with mitigation. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.16.2: Ground-disturbing activities could encounter and destroy paleontological resources in certain geologic formations underlying the project area.	<	Potential for slightly decreased effects on areas considered generally high for potential for paleontological resources since a reduced Eastside Trail would result in slightly less construction activity. However, impacts would remain less than significant with mitigation. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.16.3: Construction and management of project components could disturb human remains, including those interred outside of formal cemeteries.	=	No changes in effects related to potential disturbance of human remains since there is a low potential for undiscovered buried cultural resources (including human burials) and since a reduced Eastside Trail would result in slightly less construction activity. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM
4.16.4: Construction and management of project components would contribute to adverse cumulative impacts to cultural and/or paleontological resources.	<	Potential for slightly decreased cumulative effects associated with the disturbance of historical, archaeological or paleontological resources or disturbance of human remains. However, impacts would remain less than significant with mitigation. No change in conclusions or mitigation.	Alternative 1: LSM Alternative 2: LSM Alternative 3: LSM Alternative 4: LSM

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.17: Socioeconomic Effects			
4.17.1 Project construction could temporarily generate new income and local employment that could benefit Contra Costa County's economy.	<	Potential for slightly decreased beneficial effects on local income and employment. A reduced Eastside Trail would slightly decrease the amount of project construction which could reduce beneficial effects. This change would be minor and benefits similar to those described in the Draft EIS/EIR would still occur. No change in conclusions or mitigation.	Alternative 1: B Alternative 2: B Alternative 3: B Alternative 4: B
4.17.2: Loss of agricultural land use associated with project construction and development could affect Contra Costa County and Alameda County's economy.	=	No change in effects to the local agricultural economy since a reduced Eastside Trail would not affect agricultural land since there is no agricultural land inside the watershed. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.17.3: Short-term loss of recreation income associated with project construction could affect Contra Costa County's economy.	<	Potential for slightly decreased beneficial effects on the local economy since a reduced Eastside Trail would result in slightly less construction activity. This change would be very minor and benefits similar to those described in the Draft EIS/EIR would still occur. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.17.4 Construction of the project alternatives, when combined with construction of other future projects, could have a potentially beneficial effect on income and local employment.	<	Potential for slightly decreased beneficial effects on local income and employment, when combined with construction of other future projects since a reduced Eastside Trail would result in slightly less construction activity. This change would be minor and not affect impact levels. No change in conclusions or mitigation.	Alternative 1: B Alternative 2: B Alternative 3: B Alternative 4: B
4.17.5: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary loss of agricultural land uses.	=	No changes in effects to the local agricultural economy. A reduced Eastside Trail would not affect agricultural land uses since there is no agricultural land inside the watershed. No change in conclusions or mitigation.	Alternative 1: SU Alternative 2: SU Alternative 3: LS Alternative 4: LS
4.17.6 Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts.	=	No changes in cumulative related to socioeconomic effects. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
Section 4.18: Environmental Justice			
4.18.1: Construction and operation of the project alternatives would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No changes in effects of environmental impacts that would disproportionally affect minority and/or low income communities, since a reduced Eastside Trail would not result in any new impacts to nearby minority and/or low-income communities. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS
4.18.2: Construction and operation of the project alternatives would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	<	Potential for slightly decreased beneficial effects on local employment opportunities. A reduced Eastside Trail would slightly decrease the amount of project construction work which could reduce beneficial effects. This change would be minor and benefits similar to those described in the Draft EIS/EIR would still occur. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
4.18.3: Construction and operation of the project alternatives when combined with construction of other past, present, and probable future projects, would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No changes in effects of environmental impacts to minority and/or low income communities. No change in conclusions or mitigation.	Alternative 1: LS Alternative 2: LS Alternative 3: LS Alternative 4: LS

TABLE A-1
IMPACT ASSESSMENT FOR THE EASTSIDE TRAIL REDUCTION (ALTERNATIVES 1-4)

Environmental Impact		Project Update Comparison	Impact to Alternatives
Section 4.18: Environmental Justice (cont.)			
4.18.4: Construction and operation of the project, when combined with construction of other past, present, and probable future projects, would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	>	Potential for slightly increased cumulative effects related to environmental justice associated with the potential for increased beneficial effects identified above. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
Section 4.19: Indian Trust Assets			
4.19.1: The project would not affect Indian Trust Assets.	=	No change in effects to Indian Trust Assets since no additional land area would be affected. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI
Section 4.20: Growth-Inducing Effects			
4.20.1: Construction and operation of the proposed project would not result in direct or indirect growth-inducing effects.	=	No change in effects to growth-inducing effects. No change in conclusions or mitigation.	Alternative 1: NI Alternative 2: NI Alternative 3: NI Alternative 4: NI

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.2: Delta Hydrology and Water Quality				
4.2.1: The project alternatives would not adversely alter deliveries of water to other users.	=	No change in effects related to the deliveries of water to other users since a realigned Westside Trail would not result in any changes in operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.2: The project alternatives would not result in significant adverse changes in Delta water quality causing the violation of a water quality standard.	=	No change in effects on Delta water quality since a realigned Westside Trail would not result any in-Delta construction. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.3: The project alternatives would not result in changes to Delta water quality that would result in significant adverse effects on beneficial uses.	=	No change in effects on beneficial uses since a realigned Westside Trail would not result in any in-Delta construction. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.4: Diversions of Delta water under the project alternatives would not result in a significant reduction of Delta water levels.	=	No change in effects on Delta water levels since a realigned Westside Trail would not result in changes that would affect Delta water levels. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.5: The project alternatives would not result in a cumulatively considerable contribution to significant adverse cumulative effects on deliveries of water to other users, changes in Delta water quality, or change in Delta water levels.	=	No change in cumulative effects on deliveries of water to other users, changes in Delta Water Quality, or change in Delta water levels. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.3: Delta Fisheries and Aquatic Resources				
4.3.1: In-channel construction activities associated with the proposed new Delta Intake structure would increase short-term localized suspended sediment, turbidity, and possibly contaminant concentrations within Old River, which would increase exposure of various life stages and species of fish to temporarily degraded water quality conditions.	=	No change in effects on water quality conditions as a result of construction activities since a realigned Westside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.2: Underwater sound-pressure levels generated during cofferdam installation for the new Delta Intake could result in behavioral avoidance or migration delays for special-status fish species.	=	No change in effects on behavioral avoidance or migration delays for special-status fish species since a realigned Westside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.3: Dewatering of the cofferdam for the new Delta Intake could result in stranding of fish.	=	No change in effects on the stranding of fish associated with dewatering since a realigned Westside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.4: The new Delta Intake structure and associated fish screens in Old River would physically exclude fish from a small area of existing aquatic habitat and modify existing aquatic habitat.	=	No change in effects on the physical exclusion of fish from a small area of existing aquatic habitat or to the modification of existing aquatic habitat resulting from fish screens since a realigned Westside Trail would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.5: The new Delta Intake structure and associated fish screens in Old River would modify hydraulic conditions next to the intake structure, but would not disorient special-status fish or attract predatory fish.	=	No change in effects on the disorientation of special-status fish or on the attraction of predatory fish since a realigned Westside Trail would not result in any changes to Delta hydrologic conditions. No change in conclusions or mitigation.	Alternative 4:	NI

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.3: Delta Fisheries and Aquatic Resources (cont.)				
4.3.6: Operation of the project alternatives would not result in changes to Delta hydrologic conditions that affect Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta.	=	No change in effects on Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta a realigned Westside Trail would not result in any changes to Delta hydrologic conditions. No change in conclusions or mitigation.	Alternative 4:	LS
4.3.7: Operation of the new screened intake, or changes to diversions at existing intakes, could affect direct entrainment or impingement of fish.	=	No change in effects to direct entrainment or impingement of fish since a realigned Westside Trail would not result in any changes to operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.3.8: Fish screen maintenance activities would not significantly increase fish entrainment at the new Delta Intake or the expanded Old River Intake.	=	No change in effects on fish entrainment at the new Delta Intake or the expanded Old River Intake since a realigned Westside Trail would not result in any additional fish screen maintenance activities. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.9: The project, when combined with other planned project alternatives, or projects under construction in the area, could cumulatively contribute to substantial adverse impacts to Delta fisheries and aquatic resources.	=	No change in effects related to cumulative effects to Delta fisheries and aquatic resources. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.4: Geology, Soils and Seismicity				
4.4.1: The project facilities would be designed and engineered in accordance with seismic code requirements. As a result, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides.	=	No change in effects related to strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides, since no additional people or structures would be exposed to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.4.2: During construction and operations, the project could result in substantial soil erosion or the loss of topsoil.	>	Potential for slightly increased effects to soil erosion and loss of topsoil due to additional trail length. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21; Mitigation Measure 4.5.2, pg. 4.5-29; and Section 4.6, Mitigation Measures 4.6.2a-b, pp. 4.6-102 through 4.6-103).No change in conclusions or mitigation.	Alternative 4:	LSM
4.4.3: Project components could be located on expansive or corrosive soils or on a geologic unit or soil that is unstable or could become unstable as a result of the project or construction activities; however, those components would not likely result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse, and would not create substantial risks to life or property.	=	No change in effects related to unstable soils since a realigned Westside Trail would not expose project components to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.4.4: The proposed project would not make a cumulatively considerable contribution to cumulative effects associated with erosion, topsoil loss or increased exposure to seismic or other geohazard risks.	>	Potential for slightly increased cumulative effects. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21; Mitigation Measure 4.5.2, pg. 4.5-29; and Section 4.6, Mitigation Measures 4.6.2a-b, pp. 4.6-102 through 4.6-103). No change in conclusions or mitigation.	Alternative 4:	LS

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.5: Local Hydrology, Drainage and Groundwater				
4.5.1: During construction, the project alternatives could violate water quality standards through increased erosion and sedimentation to local waterways, release of fuels or other hazardous materials during construction, or dewatering of excavated areas that could result in substantial water quality degradation.	>	Potential for slightly increased effects on water quality associated with the larger area of disturbance. Impacts would remain less than significant with mitigation. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21).No change in conclusions or mitigation.	Alternative 4:	LSM
4.5.2: Construction and operation of the project alternatives would not deplete local groundwater supplies or interfere with groundwater recharge.	=	No change in effects related to groundwater supplies or groundwater recharge since a realigned Westside Trail would not require groundwater supplies or interfere with groundwater recharge. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.3: Project alternatives would not substantially alter drainage patterns but reservoir expansion would increase the reservoir shoreline area subject to erosion.	=	No change in effects related to drainage patterns since a realigned Westside Trail would not substantially alter existing drainage patterns. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.4: Project alternatives would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during operation.	>	Potential for slightly increased runoff water associated with the larger area of disturbance. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measure 4.5.2, pg. 4.5-29). No change in conclusions or mitigation.	Alternative 4:	LSM
4.5.5: Project Alternatives 1, 2, and 3 could place structures within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map, which could impede or redirect flood flows.	=	No change in effects related to flood hazard, since a realigned Westside Trail would not affect the exposure of project components to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.6: The project alternatives would not substantially increase the exposure of people and/or structures to risks associated with inundation by dam or levee failure.	=	No change in effects related to risk of inundation from dam or levee failure, since a realigned Westside Trail would not affect the exposure of project components to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.7: Construction and operation of the project alternatives would not make a cumulatively considerable contribution to cumulative effects on drainage, flooding, groundwater recharge or water quality degradation in the project area.	>	Potential for slightly increased cumulative effects; however, not to the level of cumulatively considerable and impacts would remain less than significant. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.6: Biological Resources				
4.6.1: Project construction would affect the following NCCP habitat types (CDFG sensitive plant communities in parentheses): Natural Seasonal Wetland (i.e., bulrush-cattail series, northern claypan vernal pool, bush seepweed and saltgrass series), Valley/Foothill Riparian (i.e., Fremont cottonwood series and valley oak series), Grassland (i.e., purple needlegrass series) and Valley/Foothill Woodland Forest (i.e., blue oak series).	>	Potential for slightly increased effects on NCCP habitat types and associated sensitive plant communities associated with realignment of the Westside Trail. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6-1a and b, pp. 4.6-91 through 4.6-92). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.2: Project construction could affect potentially jurisdictional wetlands or waters, and streambeds and banks regulated by CDFG.	>	Potential for slightly increased effects on wetland habitat and waters of the U.S associated with realignment of the Westside Trail. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.2a and b, pp. 4.6-102 through 4.6-103). No change in conclusions or mitigation.	Alternative 4:	LSM

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.6: Biological Resources (cont.)				
4.6.3: Project construction could affect populations of special-status plant species including brittlescale, San Joaquin spearscale, Brewer's dwarf-flax, and rose-mallow.	>	Potential for slightly increased effects to special status plant species. This impact was not previously identified under the original alignment of the Westside Trail under Alternative 4. Implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.3a and b, pp. 4.6-106 through 4.6-107). No change in conclusions or mitigation.	Alternative 4:	NI
4.6.4: Project construction would result in impacts on California red-legged frog and California tiger salamander, including aquatic breeding habitat and upland aestivation habitat for these species.	>	Potential for increased effects on CTS habitat (two additional ponds could be impacted, and grassland is CTS upland aestivation habitat) and RLF wetlands and stockponds located within trail area. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.4a and b, pp. 4.6-112 through pp. 4.6-115. No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.5: Project construction would result in direct and indirect impacts on existing populations of and habitat for the western pond turtle.	=	No change in effects on western pond turtle populations since no habitat is located along the realigned Westside Trail. No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.6: Project construction under Alternatives 1, 2, and 3 would result in direct and indirect impacts on listed vernal pool fairy shrimp and their habitat, and on the non-listed midvalley fairy shrimp and curved-foot hygrotus diving beetle.	=	No change in effects to vernal pool species and habitat since this habitat does not occur in the watershed. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.7: Project construction would have temporary and permanent impacts on potential San Joaquin kit fox habitat and permanently reduce potential regional movement opportunities in one location for this species.	>	Potential for slightly increased temporary effects on San Joaquin kit fox habitat and regional movement since the longer trail would impact more habitat. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.7a, b and c, pp. 4.6-139 through 4.6-140). No change in conclusions or mitigation related to permanent and temporary impacts.	Alternative 4:	LSM/SU
4.6.8: Project construction would result in temporary and permanent loss of habitat for burrowing owls.	>	Potential for slightly increased effects on burrowing owl habitat as a portion of the trail would occur through owl habitat. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measure 4.6.8a and b, pp. 4.6-145 through 4.6-146). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.9: Project construction and operation activities would result in direct and indirect impacts on existing populations of and habitat for the golden eagle, bald eagle, and Swainson's hawk.	>	Potential for slightly increased direct effects on golden eagle nesting habitat located along the Westside Trail. Potential for slightly increased effects on foraging habitat for golden eagle and Swainson's hawk, since foraging habitat is located in watershed grasslands. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.9a and b, pp.4.6-151 through 4.6-153). No change in conclusions or mitigation.	Alternative 4:	LSM/B
4.6.10: Project construction and increased reservoir water levels would result in temporary and permanent loss of potential and occupied habitat for Alameda whipsnakes.	>	Potential for slightly increased effects on Alameda whipsnake habitat in scrub habitat areas of the watershed. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.10a and b, pp. 4.6-157 through 4.6-158). No change in conclusions or mitigation.	Alternative 4:	LSM

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.6: Biological Resources (cont.)				
4.6.11: Project construction activities could result in direct and indirect impacts on the valley elderberry longhorn beetle and its habitat.	>	Potential for slightly increased effects on VELB habitat associated with the longer trail. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measure 4.6.11, pp. 4.6-160 through pp. 4.6-161). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.12: Project construction activities could affect active breeding bird nest sites and new powerlines could affect migratory birds.	>	Potential for slightly increased effects on breeding bird nest sites (grassland provides nesting and foraging habitat for some bird species). With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.12a, b and c, pp. 4.6-162 through 4.6-164). No change related to migratory birds since changes to the Westside Trail would not require new powerlines. No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.13: Project construction activities under Alternatives 1 and 2 could affect designated critical habitat for listed species (vernal pool fairy shrimp and Contra Costa goldfields).	=	No change in effects since no critical habitat is designated in watershed. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.14: Project construction activities could affect nonlisted special-status reptile species (San Joaquin coachwhip and coast horned lizard).	>	Potential for slightly increased effects on habitat for nonlisted special-status species that may occur in the watershed grasslands. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measure 4.6.14, pp. 4.6-168). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.15: Project construction activities could affect nonlisted special-status mammal species (American badger, special-status bats, and San Joaquin pocket mouse).	>	Potential for slightly increased effects on nonlisted special-status mammal species (grassland provides grassy open areas for badger and pocket mouse burrows). With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.15a and b, pp. 4.6-170 through 4.6-172). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.16: Draining the reservoir during project construction under Alternatives 1, 2, and 3 could affect Pacific Flyway species, including waterfowl and shorebirds.	=	No change in effects since changes to the Westside Trail would have no effect on the draining of the reservoir. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.17: The project would not result in conflicts with local and regional conservation plans, or local plans or ordinances protecting biological resources.	=	No change in effects related to local and regional conservation plans. The Draft EIS/EIR found that the proposed project would have no impact on this resource. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.18: Project construction would not make a cumulatively considerable contribution to cumulative effects on special-status species and habitats.	>	Potential for slightly increased cumulative effects related to biological resources; however, cumulatively considerable impacts remain less than significant. No change in conclusions or mitigation.	Alternative 4:	LS

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IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.7: Land Use				
4.7.1: The proposed project and alternatives would not physically divide an existing community.	=	No change in effects related to existing communities since a realigned Westside Trail would not divide an existing community. No change in conclusions or mitigation.	Alternative 4:	NI
4.7.2: Facility siting and operation under the proposed project and alternatives would not conflict with any applicable land use plans.	=	No change in effects related to applicable land use plans since a realigned Westside Trail would not result in conflicts with applicable land use plans. No change in conclusions or mitigation.	Alternative 4:	LS
4.7.3: Construction activities within designated Airport Land Use Compatibility Zones near the Byron Airport could cause potential temporary height impacts by conflicting with FAR Part 77 surfaces during construction.	=	No change in effects related to aviation policies since a realigned Westside Trail would not result in conflict with any aviation policies. No change in conclusions or mitigation.	Alternative 4:	LS
4.7.4: Construction activities within the AIA for Byron Airport could cause potential temporary flight hazards through the creation of glare or distracting lights; the generation of dust or smoke, which could impair pilot visibility; or could attract an increased number of birds.	=	No change in effects related to flight hazards since a realigned Westside Trail would not result in any temporary flight hazards. No change in conclusions or mitigation.	Alternative 4:	LSM
4.7.5: The proposed project and alternatives would not contribute to cumulative land use impacts.	=	No change in cumulative effects related to land use. No change in conclusions or mitigation.	Alternative 4:	NI
Section 4.8: Agriculture				
4.8.1: Project construction would temporarily impact the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	=	No change in effects to the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance since there are no agricultural lands within the watershed. No change in conclusions or mitigation.	Alternative 4:	LS
4.8.2: The project would permanently convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use.	=	No change in effects related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use since there are no agricultural lands within the watershed. No change in conclusions or mitigation.	Alternative 4:	LS
4.8.3: The project would not conflict with zoning for agricultural use or a Williamson Act contract.	=	No change in effects to zoning for agricultural use or a Williamson Act contract since there are no agricultural lands within the watershed. No change in conclusions or mitigation.	Alternative 4:	NI
4.8.4: The project would involve changes in the environment that, due to their location or nature, could contribute to cumulative impacts from conversion of Important Farmland to nonagricultural uses.	=	No change in cumulative effects related to agricultural effects. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.9: Transportation and Circulation				
4.9.1: Project construction activities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.	=	No change in effects related to traffic congestion during construction, since a realigned Westside Trail would not result in an increase in traffic congestion. No change in conclusions or mitigation.	Alternative 4:	LS
4.9.2: Project construction activities under Alternatives 1, 2 and 3 would intermittently and temporarily impede access to local streets or adjacent uses, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or possible road wear.	=	No change in effects related to service disruptions, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or possible road wear during construction, since a realigned Westside Trail would not result in an increase in service disruptions related to construction. No change in conclusions or mitigation.	Alternative 4:	LS

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.9: Transportation and Circulation				
4.9.3: Traffic associated with operation of project facilities, including the expanded recreation facilities, would not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.	=	No change in effects related to level of service standard established by the county congestion management agency for designated roads or highways, since a realigned Westside Trail would not result in a change in operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.9.4: Construction of project alternatives, when combined with construction of other future projects, could contribute to construction-related short-term cumulative impacts to traffic and transportation (traffic congestion, access, and traffic safety).	=	No change in cumulative effects related to traffic and transportation. No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.10: Air Quality				
4.10.1: Construction of project alternatives could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, and PM10 that could contribute to existing nonattainment conditions and further degrade air quality. However, project alternatives would not exceed federal general conformity *de minimis* standards for emissions.	>	Potential for slightly increased effects related to criteria air pollution emissions. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.10, Mitigation Measures 4.10.1, pg. 4.10-28 through 4.10-29). No change in conclusions or mitigation.	Alternative 4:	LS
4.10.2: Operation of project alternatives would not result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	=	No change in effects related to violation of air quality standards, since a realigned Westside Trail would not result in a change in operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.3: Construction and/or operation of project alternatives would not expose sensitive receptors to substantial pollutant concentrations.	=	No change in effects related to exposing sensitive receptors to pollutant concentrations, since a realigned Westside Trail would not increase the exposure of sensitive receptors to substantial pollutant concentrations. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.4: Operation of project alternatives would not create objectionable odors affecting a substantial number of people.	=	No change in effects related to objectionable odors, since a realigned Westside Trail would not increase the exposure of people to objectionable odors. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.5: Construction and operation of project alternatives would not result in a cumulatively considerable increase in greenhouse gas emissions.	=	No change in effects related to greenhouse gas emissions, since a realigned Westside Trail would not increase the production of greenhouse gas emissions from the construction and operation of the alternatives. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.6: Construction and operation of the project alternatives could result in cumulatively considerable increases of criteria pollutant emissions.	=	No change in cumulative effects related to air quality. No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.11: Noise				
4.11.1: Construction of facilities under the proposed project and alternatives could generate noise levels that exceed the Contra Costa County or Alameda County noise standards at nearby sensitive receptors if construction activities are carried out during noise-sensitive hours, causing sleep disturbance and/or annoyance.	=	No change in effects related to exceeding noise standards during construction, since a realigned Westside Trail would not result in an increase in noise during construction. No change in conclusions or mitigation.	Alternative 4:	LSM
4.11.2: Operation of the project and alternatives would generate traffic, stationary source, and area source noise similar to existing noise associated with operation of Los Vaqueros Reservoir system and would not exceed County noise requirements.	=	No change in effects related to exceeding noise standards during operations, since a realigned Westside Trail would not result in an increase in noise that would exceed noise standards. No change in conclusions or mitigation.	Alternative 4:	LS

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.11: Noise (cont.)				
4.11.3: Project construction would not expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.	=	No change in effects related to exposing persons to or generating excessive ground-borne vibration or ground-borne noise levels, since a realigned Westside Trail would not expose persons to or generate excessive ground-borne vibration or ground-borne noise level. No change in conclusions or mitigation.	Alternative 4:	LS
4.11.4: The proposed project or alternatives would not make a cumulatively considerable contribution to noise levels during either construction or operation.	=	No change in cumulative effects related to noise. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.12: Utilities and Public Service Systems				
4.12.1: Construction or operation of project alternatives could temporarily disrupt utilities and public service systems such that a public health hazard could be created or an extended service disruption could result.	=	No change in effects related to the temporary disruption of utilities and public service systems since the realigned Westside Trail would not result in any increase in temporary disruptions to utilities and public service disruptions. No change in conclusions or mitigation.	Alternative 4:	LSM
4.12.2: Project alternatives would not require or result in construction of new or expanded utility infrastructure or public service facilities that would result in substantial adverse physical impacts.	=	No change in effects related to requiring or resulting in the construction of new or expanded utility infrastructure or public service facilities since the realigned Westside Trail would not require any new utility infrastructure or public service facilities. No change in conclusions or mitigation.	Alternative 4:	LS
4.12.3: Construction of the project alternatives could increase solid waste generation such that the capacity of local landfills would be exceeded or the project would not comply with state regulations related to solid waste.	=	No change in effects related solid waste generation since the realigned Westside Trail would not increase solid waste generation. No change in conclusions or mitigation.	Alternative 4:	LSM
4.12.4: Construction of the project alternatives could make a cumulatively considerable contribution to cumulative effects on public services and utilities, or local landfill capacity.	=	No change in cumulative effects related to public services and utilities, or local landfill capacity. No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.13: Hazardous Materials / Public Health				
4.13.1: Construction of the project and alternative components would disturb subsurface soils and groundwater; if hazardous substances are present in the disturbed areas, construction workers and the public could be exposed to these substances.	=	No change in effects related to the exposure of hazardous substances present in the disturbed areas since the realigned Westside Trail would not expose construction workers or the public to additional hazardous substances. No change in conclusions or mitigation.	Alternative 4:	LS
4.13.2: Project construction and operation could, through routine transport, use or disposal, accidentally release hazardous materials, thereby exposing construction workers, project personnel, and the public to hazardous materials, or accidentally releasing hazardous materials into the soil, groundwater, and/or a nearby surface water body.	>	Potential for slightly increased effects related to the accidental release of hazardous materials. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21; Section 4.13, Mitigation Measure 4.13.2, pg. 4.13-19). No change in conclusions or mitigation.	Alternative 4:	LSM
4.13.3: Improper handling or use of flammable or combustible materials such as internal combustion equipment could result in wildland fires, exposing people or structures to a significant risk of loss, injury, or death.	>	Potential for slightly increased effects related to wildland fires. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.13, Mitigation Measure 4.13.3, pp. 4.13-20 through 4.13-21).No change in conclusions or mitigation.	Alternative 4:	LSM

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.13: Hazardous Materials / Public Health (cont.)				
4.13.4: Construction and operation of project power supply facilities would not locate electrical transmission facilities within 150 feet of a school.	=	No change in effects related to the placement of electrical transmission facilities within 150 feet of a school since the realigned Westside Trail would not result in the placement of any power supply facilities. No change in conclusions or mitigation.	Alternative 4:	NI
4.13.5: The project alternatives would not contribute to cumulative impacts associated with release of hazardous materials or other hazards.	>	Potential for slightly increased cumulative effects related to hazardous materials and public health; however, cumulatively considerable impacts remain less than significant. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.14: Visual/Aesthetic Resources				
4.14.1: The project alternatives would not have a substantial, demonstrable negative aesthetic effect on a scenic vista or from a county-designated scenic highway or route.	=	No change in effects related to aesthetic effects on a scenic vista or from a county-designated scenic highway or route. No change in conclusions or mitigation.	Alternative 4:	LS
4.14.2: The project alternatives would not substantially degrade the existing visual character or quality of the site and its surroundings, except Alternative 4 due to the borrow area in Kellogg Valley.	=	No change in effects related to degrading existing visual character or quality since the realigned Westside Trail would not introduce any new components. No change in conclusions or mitigation.	Alternative 4:	LSM
4.14.3: The project alternatives would not create a new source of substantial light but Alternatives 1, 2, and 3 could create a new source of substantial glare that could adversely affect views in the area.	=	No change in effects related to adding new light or glare since the realigned Westside Trail would not result in any new source of substantial light or glare. No change in conclusions or mitigation.	Alternative 4:	LS
4.14.4: The project alternatives would not make a cumulatively considerable contribution to adverse effects on visual/aesthetic resources in the project area or broader region.	=	No change in cumulative effects related to visual or aesthetic resources. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.15: Recreation				
4.15.1: Construction of the project alternatives would result in a short-term reduction of recreational opportunities in the project area due to construction activities outside the watershed and closure of the watershed to the public during the construction period, but would enhance recreational opportunities in the long-term.	=	No changes in effects related to loss of recreation areas since the realigned Westside Trail would not result in the loss of recreational opportunities there would be no adverse effects on existing recreation and long-term benefits would still occur. No change in conclusions or mitigation.	Alternative 4:	LSM
4.15.2: The project alternatives would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	=	No changes in effects related to increased use of existing parks or recreational facilities since the realigned Westside Trail would not result in increased use of existing parks or recreational facilities there would be no adverse effects on existing recreation and long-term benefits would still occur. No change in conclusions or mitigation.	Alternative 4:	LS
4.15.3: No other reasonably foreseeable future projects would also reduce recreational opportunities in the project area, similar to those opportunities affected by the project alternatives, or increase the use of existing neighborhood and regional parks or other recreational facilities; therefore, there does not appear to be the potential for the project alternatives to contribute to a cumulative effect on recreation facilities, opportunities or experience.	=	No change in cumulative effects related to recreational facilities, opportunities or experiences. No change in conclusions or mitigation.	Alternative 4:	LS

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.16: Cultural and Paleontological Resources				
4.16.1: Construction and management of project components would cause a substantial adverse change in the significance of a historical and/or unique archaeological resource as defined in Section 15064.5 or historic property or historic district, as defined in Section 106 of the NHPA (36 CFR 800), or in a previously undiscovered cultural resource.	<	Potential for slightly decreased effects on historical resources. A realigned Westside Trail would pass through or nearby five known historic properties, which is slightly less than the six known historic properties that would be passed through or nearby with an Alternative 4 (160 TAF) trail. Impacts would remain less than significant with mitigation. No change in conclusions or mitigation.	Alternative 4:	LSM
4.16.2: Ground-disturbing activities could encounter and destroy paleontological resources in certain geologic formations underlying the project area.	=	No change in effects on areas considered generally high for potential for paleontological resources, and impacts would remain less than significant with mitigation. Since there is a low potential for undiscovered buried cultural resources (including human burials) with the realigned Westside Trail, this potential impact would not change. No change in conclusions or mitigation.	Alternative 4:	LSM
4.16.3: Construction and management of project components could disturb human remains, including those interred outside of formal cemeteries.	=	No change in effects related to potential disturbance of human remains since there is a low potential for undiscovered buried cultural resources (including human burials) with the realigned Westside Trail, this potential impact would remain less than significant with mitigation. No change in conclusions or mitigation.	Alternative 4:	LSM
4.16.4: Construction and management of project components would contribute to adverse cumulative impacts to cultural and/or paleontological resources.	>	Potential for slightly increased cumulative impacts. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Mitigation Measures 4.16.1a-h, pp. 4.16-48 through 4.16-50; Mitigation Measures 4.16.2a and b, pp. 4.16-50 through 4.16-51; and Mitigation Measure 4.16.3, pg. 4.16-55). No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.17: Socioeconomic Effects				
4.17.1 Project construction could temporarily generate new income and local employment that could benefit Contra Costa County's economy.	>	Potential for slightly increased beneficial effects on local income and employment. A realigned Westside Trail would slightly increase the amount of construction, which could increase beneficial effects upon local income and employment. However, this change would be minor and would not change the socioeconomic level of effect. No change in conclusions or mitigation.	Alternative 4:	B
4.17.2: Loss of agricultural land use associated with project construction and development could affect Contra Costa County and Alameda County's economy.	=	No Change in effects to the local agricultural economy since a realigned Westside Trail would not affect agricultural land since there is no agricultural land inside the watershed. No change in conclusions or mitigation.	Alternative 4:	LS
4.17.3: Short-term loss of recreation income associated with project construction could affect Contra Costa County's economy.	=	No Change in effects. No change in conclusions or mitigation.	Alternative 4:	LS
4.17.4 Construction of the project alternatives, when combined with construction of other future projects, could have a potentially beneficial effect on income and local employment.	>	Potential for slightly increased beneficial effects on local income and employment. A realigned Westside Trail would slightly increase the amount of construction, which could increase beneficial effects upon local income and employment, when combined with construction of other future projects. However, this change would be minor and would not change the socioeconomic level of effect. No change in conclusions or mitigation.	Alternative 4:	B
4.17.5: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary loss of agricultural land uses.	=	No Change in effects on Contra Costa County's economy temporary loss of agricultural land uses associated with project construction. A realigned Westside Trail would not affect agricultural land uses since there is no agricultural land inside the watershed. No change in conclusions or mitigation.	Alternative 4:	LS

TABLE A-2
IMPACT ASSESSMENT FOR THE WESTSIDE TRAIL REALIGNMENT (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.17: Socioeconomic Effects (cont.)				
4.17.6 Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts.	>	Potential for slightly increased beneficial effects on local income and employment. A realigned Westside Trail would slightly increase the amount of construction, which could increase beneficial effects upon local income and employment as a result of temporary recreational impacts. However, this change would be minor and would not change the socioeconomic level of effect. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.18: Environmental Justice				
4.18.1: Construction and operation of the project alternatives would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No changes in effects related to environmental impacts that would not disproportionately affect nearby minority and/or low-income communities since a realigned Westside Trail would not disproportionately affect nearby minority and/or low-income communities. No change in conclusions or mitigation.	Alternative 4:	LS
4.18.2: Construction and operation of the project alternatives would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	>	Potential for slightly increased beneficial effects related to employment opportunities for identified minority &/or low income communities since a realigned Westside Trail would local employment opportunities for minority and/or low-income communities in the vicinity of the project. No change in conclusions or mitigation.	Alternative 4:	NI
4.18.3: Construction and operation of the project alternatives when combined with construction of other past, present, and probable future projects, would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No changes in effects related to cumulative environmental impacts that would not disproportionately affect nearby minority and/or low-income communities No change in conclusions or mitigation.	Alternative 4:	LS
4.18.4: Construction and operation of the project, when combined with construction of other past, present, and probable future projects, would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	>	Potential for slightly increased cumulative effects related to environmental justice associated with the potential for increased beneficial effects identified above. No change in conclusions or mitigation.	Alternative 4:	NI
Section 4.19: Indian Trust Assets				
4.19.1: The project would not affect Indian Trust Assets.	=	No change in effects to Indian Trust Assets since the realignment of the Westside Trail would not be located on any Indian Trust Assets. No change in conclusions or mitigation.	Alternative 4:	NI
Section 4.20: Growth-Inducing Effects				
4.20.1: Construction and operation of the proposed project would not result in direct or indirect growth-inducing effects.	=	No change in effects to growth-inducing effects since the realignment of the Westside Trail would not result in direct or indirect growth-inducing effects. No change in conclusions or mitigation.	Alternative 4:	NI

TABLE A-3
IMPACT ASSESSMENT FOR THE SECONDARY CORE BORROW AREA ZONE (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.2: Delta Hydrology and Water Quality				
4.2.1: The project alternatives would not adversely alter deliveries of water to other users.	=	No change in effects related to the deliveries of water to other users since the secondary core borrow area would not result in any changes in operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.2: The project alternatives would not result in significant adverse changes in Delta water quality causing the violation of a water quality standard.	=	No change in effects on Delta water quality since the secondary core borrow area would not result in any in-Delta construction. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.3: The project alternatives would not result in changes to Delta water quality that would result in significant adverse effects on beneficial uses.	=	No change in effects on beneficial uses since the secondary core borrow area would not result in any in-Delta construction. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.4: Diversions of Delta water under the project alternatives would not result in a significant reduction of Delta water levels.	=	No change in effects on Delta water levels since the secondary core borrow area would not result in changes that would affect Delta water levels. No change in conclusions or mitigation.	Alternative 4:	LS
4.2.5: The project alternatives would not result in a cumulatively considerable contribution to significant adverse cumulative effects on deliveries of water to other users, changes in Delta water quality, or change in Delta water levels.	=	No change in cumulative effects cumulative effects related to Delta hydrology and water quality. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.3: Delta Fisheries and Aquatic Resources				
4.3.1: In-channel construction activities associated with the proposed new Delta Intake structure would increase short-term localized suspended sediment, turbidity, and possibly contaminant concentrations within Old River, which would increase exposure of various life stages and species of fish to temporarily degraded water quality conditions.	=	No change in effects on Delta fisheries or aquatic resources since the secondary core borrow area would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.2: Underwater sound-pressure levels generated during cofferdam installation for the new Delta Intake could result in behavioral avoidance or migration delays for special-status fish species.	=	No change in effects to behavioral avoidance or migration delays for special-status fish species since a secondary core borrow area would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.3: Dewatering of the cofferdam for the new Delta Intake could result in stranding of fish.	=	No change in effects on the stranding of fish associated with dewatering since a secondary core borrow area would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.4: The new Delta Intake structure and associated fish screens in Old River would physically exclude fish from a small area of existing aquatic habitat and modify existing aquatic habitat.	=	No change in effects on the physical exclusion of fish from a small area of existing aquatic habitat or to the modification of existing aquatic habitat resulting from fish screens since a secondary core borrow area would not require any in-channel construction. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.5: The new Delta Intake structure and associated fish screens in Old River would modify hydraulic conditions next to the intake structure, but would not disorient special-status fish or attract predatory fish.	=	No change in effects that would result in the disorientation of special-status fish or on the attraction of predatory fish since a secondary core borrow area would not result in any modifications to the hydrologic conditions. No change in conclusions or mitigation.	Alternative 4:	NI

TABLE A-3
IMPACT ASSESSMENT FOR THE SECONDARY CORE BORROW AREA ZONE (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.3: Delta Fisheries and Aquatic Resources (cont.)				
4.3.6: Operation of the project alternatives would not result in changes to Delta hydrologic conditions that affect Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta.	=	No change in effects on Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta since a secondary core borrow area would not result in any changes to Delta hydrologic conditions. No change in conclusions or mitigation.	Alternative 4:	LS
4.3.7: Operation of the new screened intake, or changes to diversions at existing intakes, could affect direct entrainment or impingement of fish.	=	No change in effects on direct entrainment or impingement of fish since a secondary core borrow area would not result in any changes in operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.3.8: Fish screen maintenance activities would not significantly increase fish entrainment at the new Delta Intake or the expanded Old River Intake.	=	No change in effects on fish entrainment at the new Delta Intake or the expanded Old River Intake since a secondary core borrow area would not result in any additional fish screen maintenance activities. No change in conclusions or mitigation.	Alternative 4:	NI
4.3.9: The project, when combined with other planned project alternatives, or projects under construction in the area, could cumulatively contribute to substantial adverse impacts to Delta fisheries and aquatic resources.	=	No change in cumulative effects related to Delta fisheries and aquatic resources. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.4: Geology, Soils and Seismicity				
4.4.1: The project facilities would be designed and engineered in accordance with seismic code requirements. As a result, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides.	=	No change in effects related to strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides, since no additional people or structures would be exposed to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.4.2: During construction and operations, the project could result in substantial soil erosion or the loss of topsoil.	>	Potential for slightly increased effects to soil erosion and loss of topsoil due to additional borrow area. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21). No change in conclusions or mitigation.	Alternative 4:	LSM
4.4.3: Project components could be located on expansive or corrosive soils or on a geologic unit or soil that is unstable or could become unstable as a result of the project or construction activities; however, those components would not likely result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse, and would not create substantial risks to life or property.	=	No change in effects related to unstable soils, since a secondary core borrow area would not expose project components to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.4.4: The proposed project would not make a cumulatively considerable contribution to cumulative effects associated with erosion, topsoil loss or increased exposure to seismic or other geohazard risks.	>	Potential for slightly increased cumulative effects related to geology, soils, and seismicity; however, not to the level of cumulatively considerable. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21). No change in conclusions or mitigation.	Alternative 4:	LS

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Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.5: Local Hydrology, Drainage and Groundwater				
4.5.1: During construction, the project alternatives could violate water quality standards through increased erosion and sedimentation to local waterways, release of fuels or other hazardous materials during construction, or dewatering of excavated areas that could result in substantial water quality degradation.	>	Potential for slightly increased effects on water quality. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measures 4.5.1a and b, pp. 4.5-19 through 4.5-21). No change in conclusions or mitigation.	Alternative 4:	LSM
4.5.2: Construction and operation of the project alternatives would not deplete local groundwater supplies or interfere with groundwater recharge.	=	No change in effects related to groundwater supplies or groundwater recharge, since a secondary core borrow area would not deplete local groundwater supplies or interfere with groundwater recharge. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.3: Project alternatives would not substantially alter drainage patterns but reservoir expansion would increase the reservoir shoreline area subject to erosion.	=	No change in effects related to drainage patterns, since a secondary core borrow area would not alter substantially alter current drainage patterns. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.4: Project alternatives would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during operation.	>	Potential for slightly increased effects related to runoff water. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.5, Mitigation Measure 4.5.2, pg. 4.5-29). No change in conclusions or mitigation.	Alternative 4:	LSM
4.5.5: Project Alternatives 1, 2, and 3 could place structures within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map, which could impede or redirect flood flows.	=	No change in effects related to flood hazard since a secondary core borrow area would not place structures within a 100-year flood hazard area. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.6: The project alternatives would not substantially increase the exposure of people and/or structures to risks associated with inundation by dam or levee failure.	=	No change in effects related to risk of inundation from dam or levee failure since a secondary core borrow area would not affect the exposure of project components to these types of risks. No change in conclusions or mitigation.	Alternative 4:	LS
4.5.7: Construction and operation of the project alternatives would not make a cumulatively considerable contribution to cumulative effects on drainage, flooding, groundwater recharge or water quality degradation in the project area.	>	Potential for slightly increased cumulative effects related to local hydrology, drainage, and water quality; however, not to the level of cumulatively considerable. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.6: Biological Resources				
4.6.1: Project construction would affect the following NCCP habitat types (CDFG sensitive plant communities in parentheses): Natural Seasonal Wetland (i.e., bulrush-cattail series, northern claypan vernal pool, bush seepweed and saltgrass series), Valley/Foothill Riparian (i.e., Fremont cottonwood series and valley oak series), Grassland (i.e., purple needlegrass series) and Valley/Foothill Woodland Forest (i.e., blue oak series).	>	Potential for slightly increased effects on NCCP habitat types and associated sensitive plant communities. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6-1a and b, pp. 4.6-91 through 4.6-92). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.2: Project construction could affect potentially jurisdictional wetlands or waters, and streambeds and banks regulated by CDFG.	>	Potential for slightly increased effects on wetland habitat is located in the secondary core borrow area. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.2a and b, pp. 4.6-102 through 4.6-103). No change in conclusions or mitigation.	Alternative 4:	LSM

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IMPACT ASSESSMENT FOR THE SECONDARY CORE BORROW AREA ZONE (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.6: Biological Resources (cont.)				
4.6.3: Project construction could affect populations of special-status plant species including brittlescale, San Joaquin spearscale, Brewer's dwarf-flax, and rose-mallow.	=	No change in effects since no special status plant species were identified during appropriately-timed focused surveys. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.4: Project construction would result in impacts on California red-legged frog and California tiger salamander, including aquatic breeding habitat and upland aestivation habitat for these species.	>	Potential for slightly increased effects on CTS and CRLF habitat as grassland provide upland aestivation habitat. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.4a and b, pp. 4.6-112 through pp. 4.6-115. No change in effects on RLF habitat. No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.5: Project construction would result in direct and indirect impacts on existing populations of and habitat for the western pond turtle.	>	Potential for slightly increased effects on western pond turtle populations that may occur in the uplands along Kellogg Creek. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measure 4.6.5, pp. 4.6-119) No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.6: Project construction under Alternatives 1, 2, and 3 would result in direct and indirect impacts on listed vernal pool fairy shrimp and their habitat, and on the non-listed midvalley fairy shrimp and curved-foot hygrotus diving beetle.	=	No effect on vernal pool species and habitat, since it is not located in the core borrow area. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.7: Project construction would have temporary and permanent impacts on potential San Joaquin kit fox habitat and permanently reduce potential regional movement opportunities in one location for this species.	>	Potential for slightly increased temporary effects on San Joaquin kit fox habitat and regional movement since the borrow area is located along the kit fox movement corridor located northeast of Los Vaqueros Reservoir. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.7a, b and c, pp. 4.6-139 through 4.6-140) No change in effects on the western movement corridor. No change in conclusions or mitigation.	Alternative 4:	LSM/SU
4.6.8: Project construction would result in temporary and permanent loss of habitat for burrowing owls.	>	Potential for slightly increased effects on burrowing owl habitat as a portion of the secondary core borrow area is potential burrowing owl nesting habitat. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measure 4.6.8a and b, pp. 4.6-145 through 4.6-146). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.9: Project construction and operation activities would result in direct and indirect impacts on existing populations of and habitat for the golden eagle, bald eagle, and Swainson's hawk.	>	Potential for slightly increased effects to foraging habitat for golden eagle and Swainson's hawk, since habitat is located in borrow area grasslands. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.9a and b, pp.4.6-151 through 4.6-153). No change in effects on bald eagles or their habitat. No change in conclusions or mitigation.	Alternative 4:	LSM/B

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IMPACT ASSESSMENT FOR THE SECONDARY CORE BORROW AREA ZONE (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.6: Biological Resources (cont.)				
4.6.10: Project construction and increased reservoir water levels would result in temporary and permanent loss of potential and occupied habitat for Alameda whipsnakes.	>	Potential for slightly increased effects on Alameda whipsnake non-scrub habitat in the borrow area. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.10a and b, pp. 4.6-157 through 4.6-158). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.11: Project construction activities could result in direct and indirect impacts on the valley elderberry longhorn beetle and its habitat.	=	No change in effects to valley elderberry longhorn beetle habitat is not present in the borrow area. No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.12: Project construction activities could affect active breeding bird nest sites and new powerlines could affect migratory birds.	>	Potential for slightly increased effects on breeding bird nest sites (grassland provides nesting and foraging habitat for some bird species). With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.12a, b and c, pp. 4.6-162 through 4.6-164). No change related to migratory birds since use of the borrow area would not require new powerlines. No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.13: Project construction activities under Alternatives 1 and 2 could affect designated critical habitat for listed species (vernal pool fairy shrimp and Contra Costa goldfields).	=	No change in effects to critical habitat for listed species (vernal pool fairy shrimp and Contra Costa goldfields), since no critical habitat is designated in watershed. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.14: Project construction activities could affect nonlisted special-status reptile species (San Joaquin coachwhip and coast horned lizard).	>	Potential for slightly increased effects on habitat for nonlisted special-status species that may occur in the borrow area. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measure 4.6.14, pp. 4.6-168). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.15: Project construction activities could affect nonlisted special-status mammal species (American badger, special-status bats, and San Joaquin pocket mouse).	>	Potential for slightly increased effects on nonlisted special-status mammal species (borrow area provides grassy open areas for badger and pocket mouse burrows). With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6.15a and b, pp. 4.6-170 through 4.6-172). No change in conclusions or mitigation.	Alternative 4:	LSM
4.6.16: Draining the reservoir during project construction under Alternatives 1, 2, and 3 could affect Pacific Flyway species, including waterfowl and shorebirds.	=	No change in effects to Pacific Flyway species, including waterfowl and shorebirds. Use of the borrow area would have no effect on the draining of the reservoir. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.17: The project would not result in conflicts with local and regional conservation plans, or local plans or ordinances protecting biological resources.	=	No change in effects related to conflicts with local and regional conservation plans, or local plans or ordinances protecting biological resources. The Draft EIS/EIR found that the proposed project would have no impact on this resource. No change in conclusions or mitigation.	Alternative 4:	NI
4.6.18: Project construction would not make a cumulatively considerable contribution to cumulative effects on special-status species and habitats.	>	Potential for slightly increased cumulative biological effects. With implementation of mitigation measures in the Draft EIS/EIR, impacts to these resources would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.6, Mitigation Measures 4.6-1a and b, pp. 4.6-91 through 4.6-92; Mitigation Measures 4.6.2a and b, pp. 4.6-102 through 4.6-103; Mitigation Measures 4.6.4a and b, pp. 4.6-112 through	Alternative 4:	LS

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IMPACT ASSESSMENT FOR THE SECONDARY CORE BORROW AREA ZONE (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.6: Biological Resources (cont.)				
4.6.18 (cont.)		pp. 4.6-115; Mitigation Measure 4.6.5, pp. 4.6-119; Mitigation Measures 4.6.7a, b and c, pp. 4.6-139 through 4.6-140; Mitigation Measure 4.6.8a and b, pp. 4.6-145 through 4.6-146; Mitigation Measures 4.6.9a and b, pp.4.6-151 through 4.6-153; Mitigation Measures 4.6.10a and b, pp. 4.6-157 through 4.6-158; Mitigation Measures 4.6.12a, b and c, pp. 4.6-162 through 4.6-164; Mitigation Measure 4.6.14, pp. 4.6-168; and Mitigation Measures 4.6.15a and b, pp. 4.6-170 through 4.6-172). No change in conclusions or mitigation.		
Section 4.7: Land Use				
4.7.1: The proposed project and alternatives would not physically divide an existing community.	=	No change in effects related to existing communities, since a secondary core borrow area would not physically divide an existing community. No change in conclusions or mitigation.	Alternative 4:	NI
4.7.2: Facility siting and operation under the proposed project and alternatives would not conflict with any applicable land use plans.	=	No change in effects related to applicable land use plans, since a secondary core borrow area would not result in conflicts with applicable land use plans. No change in conclusions or mitigation.	Alternative 4:	LS
4.7.3: Construction activities within designated Airport Land Use Compatibility Zones near the Byron Airport could cause potential temporary height impacts by conflicting with FAR Part 77 surfaces during construction.	=	No change in effects related to aviation policies, since a secondary core borrow area would not result in conflicts with any aviation policies. No change in conclusions or mitigation.	Alternative 4:	LS
4.7.4: Construction activities within the AIA for Byron Airport could cause potential temporary flight hazards through the creation of glare or distracting lights; the generation of dust or smoke, which could impair pilot visibility; or could attract an increased number of birds.	=	No change in effects related to flight hazards, since a secondary core borrow area would not result in potential temporary flight hazards. No change in conclusions or mitigation.	Alternative 4:	LSM
4.7.5: The proposed project and alternatives would not contribute to cumulative land use impacts.	=	No change in cumulative effects related to land use. No change in conclusions or mitigation.	Alternative 4:	NI
Section 4.8: Agriculture				
4.8.1: Project construction would temporarily impact the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	=	No change in effects to the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 4:	LS
4.8.2: The project would permanently convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use.	=	No change in effects related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 4:	LS
4.8.3: The project would not conflict with zoning for agricultural use or a Williamson Act contract.	=	No change in effects to zoning for agricultural use or a Williamson Act contract since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 4:	NI
4.8.4: The project would involve changes in the environment that, due to their location or nature, could contribute to cumulative impacts from conversion of Important Farmland to nonagricultural uses.	=	No change in cumulative effects related to agricultural. No change in conclusions or mitigation.	Alternative 4:	LS

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Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.9: Transportation and Circulation				
4.9.1: Project construction activities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.	=	No change in effects related to traffic congestion during construction, since a secondary core borrow area would not result in an increase in traffic congestion. No change in conclusions or mitigation.	Alternative 4:	LS
4.9.2: Project construction activities under Alternatives 1, 2 and 3 would intermittently and temporarily impede access to local streets or adjacent uses, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or possible road wear.	=	No change in effects related to service disruptions, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or possible road wear during construction, since a secondary core borrow area would not result in an increase in service disruptions related to construction. No change in conclusions or mitigation.	Alternative 4:	LS
4.9.3: Traffic associated with operation of project facilities, including the expanded recreation facilities, would not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.	=	No change in effects related to level of service standard established by the county congestion management agency for designated roads or highways, since a secondary core borrow area would not result in a change of operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.9.4: Construction of project alternatives, when combined with construction of other future projects, could contribute to construction-related short-term cumulative impacts to traffic and transportation (traffic congestion, access, and traffic safety).	=	No change in cumulative effects related to transportation and circulation. No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.10: Air Quality				
4.10.1: Construction of project alternatives could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, and PM10 that could contribute to existing nonattainment conditions and further degrade air quality. However, project alternatives would not exceed federal general conformity *de minimis* standards for emissions.	>	Potential for slightly increased effects related to criteria air pollution emissions due to additional borrow material excavation. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Section 4.10, Mitigation Measures 4.10.1, pg. 4.10-28 through 4.10-29). No change in conclusions or mitigation.	Alternative 4:	LS
4.10.2: Operation of project alternatives would not result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	=	No change in effects related to violation of air quality standards, since a secondary core borrow area would not result in a change in operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.3: Construction and/or operation of project alternatives would not expose sensitive receptors to substantial pollutant concentrations.	=	No change in effects related to exposing sensitive receptors to pollutant concentrations, since a secondary core borrow area would not increase the exposure of sensitive receptors to substantial pollutant concentrations. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.4: Operation of project alternatives would not create objectionable odors affecting a substantial number of people.	=	No change in effects related to objectionable odors, since a secondary core borrow area would not result increase the exposure of people to objectionable odors. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.5: Construction and operation of project alternatives would not result in a cumulatively considerable increase in greenhouse gas emissions.	=	No change in effects related to greenhouse gas emissions, since a secondary core borrow area would not increase the production of greenhouse gas emissions from construction and operation of the alternatives. No change in conclusions or mitigation.	Alternative 4:	LS
4.10.6: Construction and operation of the project alternatives could result in cumulatively considerable increases of criteria pollutant emissions.	=	No change in cumulative effects related to air quality. No change in conclusions or mitigation.	Alternative 4:	LSM

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Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.11: Noise				
4.11.1: Construction of facilities under the proposed project and alternatives could generate noise levels that exceed the Contra Costa County or Alameda County noise standards at nearby sensitive receptors if construction activities are carried out during noise-sensitive hours, causing sleep disturbance and/or annoyance.	=	No change in effects related to exceeding noise standards during construction, since a secondary core borrow area would not result in noise levels that exceed local noise standards. No change in conclusions or mitigation.	Alternative 4:	LSM
4.11.2: Operation of the project and alternatives would generate traffic, stationary source, and area source noise similar to existing noise associated with operation of Los Vaqueros Reservoir system and would not exceed County noise requirements.	=	No change in effects related to exceeding noise standards during operations, since a secondary core borrow area would not result in changes to operations. No change in conclusions or mitigation.	Alternative 4:	LS
4.11.3: Project construction would not expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.	=	No change in effects related to exposing persons to or generating excessive ground-borne vibration or ground-borne noise levels, since a secondary core borrow area would not expose persons to or generate excessive ground-borne vibration or ground-borne noise levels. No change in conclusions or mitigation.	Alternative 4:	LS
4.11.4: The proposed project or alternatives would not make a cumulatively considerable contribution to noise levels during either construction or operation.	=	No change in cumulative effects related to noise. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.12: Utilities and Public Service Systems				
4.12.1: Construction or operation of project alternatives could temporarily disrupt utilities and public service systems such that a public health hazard could be created or an extended service disruption could result.	=	No change in effects related to the temporary disruption of utilities and public service systems, since a secondary core borrow area would not result in any increase in temporary utility and public service facilities. No change in conclusions or mitigation.	Alternative 4:	LSM
4.12.2: Project alternatives would not require or result in construction of new or expanded utility infrastructure or public service facilities that would result in substantial adverse physical impacts.	=	No change in effects related to requiring or resulting in the construction of new or expanded utility infrastructure or public service facilities, since a secondary core borrow area would not require any new utility infrastructure or public service facilities. No change in conclusions or mitigation.	Alternative 4:	LS
4.12.3: Construction of the project alternatives could increase solid waste generation such that the capacity of local landfills would be exceeded or the project would not comply with state regulations related to solid waste.	=	No change in effects related solid waste generation, since a secondary core borrow area would not result in an increase in solid waste generation. No change in conclusions or mitigation.	Alternative 4:	LSM
4.12.4: Construction of the project alternatives could make a cumulatively considerable contribution to cumulative effects on public services and utilities, or local landfill capacity.	=	No change in cumulative effects related to utilities and public service system. No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.13: Hazardous Materials / Public Health				
4.13.1: Construction of the project and alternative components would disturb subsurface soils and groundwater; if hazardous substances are present in the disturbed areas, construction workers and the public could be exposed to these substances.	=	No change in effects related to the exposure of hazardous substances present in the disturbed areas, since a secondary core borrow area would not result in exposing construction workers or the public to additional hazardous substances. No change in conclusions or mitigation.	Alternative 4:	LS

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Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.13: Hazardous Materials / Public Health (cont.)				
4.13.2: Project construction and operation could, through routine transport, use or disposal, accidentally release hazardous materials, thereby exposing construction workers, project personnel, and the public to hazardous materials, or accidentally releasing hazardous materials into the soil, groundwater, and/or a nearby surface water body.	=	No change in effects related to the accidental release of hazardous materials, since a secondary core borrow area would not result in an increase to the accidental release of hazardous materials. No change in conclusions or mitigation.	Alternative 4:	LSM
4.13.3: Improper handling or use of flammable or combustible materials such as internal combustion equipment could result in wildland fires, exposing people or structures to a significant risk of loss, injury, or death.	=	No change in effects related to wildland fires, since a secondary core borrow area would not expose people or structures to wildfires. No change in conclusions or mitigation.	Alternative 4:	LSM
4.13.4: Construction and operation of project power supply facilities would not locate electrical transmission facilities within 150 feet of a school.	=	No change in effects related to locating electrical transmission facilities within 150 feet of a school, since a secondary core borrow area would not result in the placement of any power supply facilities. No change in conclusions or mitigation.	Alternative 4:	NI
4.13.5: The project alternatives would not contribute to cumulative impacts associated with release of hazardous materials or other hazards.	=	No change in cumulative effects related to hazardous materials and public health. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.14: Visual/Aesthetic Resources				
4.14.1: The project alternatives would not have a substantial, demonstrable negative aesthetic effect on a scenic vista or from a county-designated scenic highway or route.	=	No change in effects related to aesthetic effects on a scenic vista or from a county-designated scenic highway or route. No change in conclusions or mitigation.	Alternative 4:	LS
4.14.2: The project alternatives would not substantially degrade the existing visual character or quality of the site and its surroundings, except Alternative 4 due to the borrow area in Kellogg Valley.	>	Potential for slightly increased effects on the existing visual character and quality, since a secondary core borrow area would result in the removal of soil. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Mitigation Measure 4.14.2a, pg. 4.14-33). No change in conclusions or mitigation.	Alternative 4:	LSM
4.14.3: The project alternatives would not create a new source of substantial light but Alternatives 1, 2, and 3 could create a new source of substantial glare that could adversely affect views in the area.	=	No change in effects related to adding new light or glare, since a secondary core borrow area would not result in new sources of substantial light or glare. No change in conclusions or mitigation.	Alternative 4:	LS
4.14.4: The project alternatives would not make a cumulatively considerable contribution to adverse effects on visual/aesthetic resources in the project area or broader region.	=	No change in effects related to cumulative effects related to visual or aesthetic resources. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.15: Recreation				
4.15.1: Construction of the project alternatives would result in a short-term reduction of recreational opportunities in the project area due to construction activities outside the watershed and closure of the watershed to the public during the construction period, but would enhance recreational opportunities in the long-term.	=	No changes in effects related to loss of recreation opportunities, since a secondary core borrow area would not result in the loss of any additional recreation opportunities. No change in conclusions or mitigation.	Alternative 4:	LSM

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Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.15: Recreation (cont.)				
4.15.2: The project alternatives would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	=	No changes in effects related to increased use of existing parks or recreational facilities, since a secondary core borrow area would not result in an increased use of existing recreational opportunities. No change in conclusions or mitigation.	Alternative 4:	LS
4.15.3: No other reasonably foreseeable future projects would also reduce recreational opportunities in the project area, similar to those opportunities affected by the project alternatives, or increase the use of existing neighborhood and regional parks or other recreational facilities; therefore, there does not appear to be the potential for the project alternatives to contribute to a cumulative effect on recreation facilities, opportunities or experience.	=	No changes in effects related to cumulative effects on recreational facilities, opportunities or experiences. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.16: Cultural and Paleontological Resources				
4.16.1: Construction and management of project components would cause a substantial adverse change in the significance of a historical and/or unique archaeological resource as defined in Section 15064.5 or historic property or historic district, as defined in Section 106 of the NHPA (36 CFR 800), or in a previously undiscovered cultural resource.	=	Potential for slightly increased effects on historical resources. There are no known cultural resources in the secondary core borrow area. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Mitigation Measures 4.16.1a-h, pp. 4.16-48 through 4.16-50). No change in conclusions or mitigation.	Alternative 4:	LSM
4.16.2: Ground-disturbing activities could encounter and destroy paleontological resources in certain geologic formations underlying the project area.	>	Potential for slightly increased effects on paleontological resources. There are no known paleontological resources in the secondary core borrow area, however this area has moderate (with a very small area of high) paleontological sensitivity. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Mitigation Measures 4.16.2a and b, pp. 4.16-50 through 4.16-51). No change in conclusions or mitigation.	Alternative 4:	LSM
4.16.3: Construction and management of project components could disturb human remains, including those interred outside of formal cemeteries.	>	Potential for slightly increased effects related to the disturbance of human remains and cumulative impacts. There are no known cultural resources in the secondary core borrow area. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Mitigation Measure 4.16.3, pg. 4.16-55). No change in conclusions or mitigation.	Alternative 4:	LSM
4.16.4: Construction and management of project components would contribute to adverse cumulative impacts to cultural and/or paleontological resources.	>	Potential for slightly increased cumulative impacts. With implementation of mitigation measures in the Draft EIS/EIR, these impacts would remain Less Than Significant With Mitigation. (See Draft EIS/EIR, Vol. 2, Mitigation Measures 4.16.1a-h, pp. 4.16-48 through 4.16-50; Mitigation Measures 4.16.2a and b, pp. 4.16-50 through 4.16-51; and Mitigation Measure 4.16.3, pg. 4.16-55). No change in conclusions or mitigation.	Alternative 4:	LSM
Section 4.17: Socioeconomic Effects				
4.17.1 Project construction could temporarily generate new income and local employment that could benefit Contra Costa County's economy.	=	No changes in effects to local employment, since a secondary core borrow area would not create a source of new income and local employment. No change in conclusions or mitigation.	Alternative 4:	B
4.17.2: Loss of agricultural land use associated with project construction and development could affect Contra Costa County and Alameda County's economy.	=	No changes in effects to agricultural land use associated with project construction and development of a secondary core borrow area, since there is no agricultural land inside the watershed. No change in conclusions or mitigation.	Alternative 4:	LS

TABLE A-3
IMPACT ASSESSMENT FOR THE SECONDARY CORE BORROW AREA ZONE (ALTERNATIVE 4 ONLY)

Environmental Impact		Project Update Comparison	Impact to Alternatives	
Section 4.17: Socioeconomic Effects (cont.)				
4.17.3: Short-term loss of recreation income associated with project construction could affect Contra Costa County's economy.	=	No changes in effects related to short-term loss of recreation income associated with project construction, since a secondary core borrow area would not result in the loss of recreation income. No change in conclusions or mitigation.	Alternative 4:	LS
4.17.4 Construction of the project alternatives, when combined with construction of other future projects, could have a potentially beneficial effect on income and local employment.	=	No changes in effects on income and local employment, since a secondary core borrow area would not have an effect on income and local employment. No change in conclusions or mitigation.	Alternative 4:	B
4.17.5: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary loss of agricultural land uses.	=	No changes in the cumulative effect on Contra Costa County's economy of a secondary core borrow area since there is no agricultural land within the watershed. No change in conclusions or mitigation.	Alternative 4:	LS
4.17.6 Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts.	=	No changes in the cumulative effect on Contra Costa County's economy. No change in conclusions or mitigation.	Alternative 4:	LS
Section 4.18: Environmental Justice				
4.18.1: Construction and operation of the project alternatives would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No changes in effects of environmental impacts that would disproportionally affect minority and/or low income communities, since a secondary core borrow area would not result in any new impacts to nearby minority and/or low-income communities. No change in conclusions or mitigation.	Alternative 4:	LS
4.18.2: Construction and operation of the project alternatives would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	=	No changes in effects on employment opportunities for minority &/or low income communities. No change in conclusions or mitigation.	Alternative 4:	NI
4.18.3: Construction and operation of the project alternatives when combined with construction of other past, present, and probable future projects, would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No changes in effects of environmental impacts to minority and/or low income communities. No change in conclusions or mitigation.	Alternative 4:	LS
4.18.4: Construction and operation of the project, when combined with+ construction of other past, present, and probable future projects, would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	=	No changes in to employment opportunities for minority &/or low income communities. No change in conclusions or mitigation.	Alternative 4:	NI
Section 4.19: Indian Trust Assets				
4.19.1: The project would not affect Indian Trust Assets.	=	No change in effects to Indian Trust Assets, since a secondary core borrow area would not be located on any Indian Trust Assets. No change in conclusions or mitigation.	Alternative 4:	NI
Section 4.20: Growth-Inducing Effects				
4.20.1: Construction and operation of the proposed project would not result in direct or indirect growth-inducing effects.	=	No change in effects to growth-inducing effects, since a secondary core borrow area would not result in direct or indirect growth-inducing effects. No change in conclusions or mitigation.	Alternative 4:	NI

B. Timing Variant Assessment

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.2: Delta Hydrology and Water Quality				
4.2.1: The project alternatives would not adversely alter deliveries of water to other users.	=	No change in effects relative to Alternative 1. Delivery of Delta water to the reservoir would be staged however deliveries of water to other users would not be affected. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.2.2: The project alternatives would not result in significant adverse changes in Delta water quality causing the violation of a water quality standard.	=	No change in effects relative to Alternative 1. Use of Delta water resources would be staged however Delta water quality would not be affected. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.2.3: The project alternatives would not result in changes to Delta water quality that would result in significant adverse effects on beneficial uses.	=	No change in effects relative to Alternative 1. Use of Delta water resources would be staged however changes to Delta water quality would not result in significant adverse effects on beneficial uses. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.2.4: Diversions of Delta water under the project alternatives would not result in a significant reduction of Delta water levels.	=	No change in effects relative to Alternative 1. Diversion of Delta water resources would be staged however deliveries of water to other users would not result in a significant reduction of Delta water levels. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.2.5: The project alternatives would not result in a cumulatively considerable contribution to significant adverse cumulative effects on deliveries of water to other users, changes in Delta water quality, or change in Delta water levels.	=	No change in effects relative to Alternative 1. Use of Delta water resources would be staged however changes would not result in a cumulatively considerable contribution to significant adverse cumulative effects on deliveries of water to other users, changes in Delta water quality, or change in Delta water levels. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
Section 4.3: Delta Fisheries and Aquatic Resources				
4.3.1: In-channel construction activities associated with the proposed new Delta Intake structure would increase short-term localized suspended sediment, turbidity, and possibly contaminant concentrations within Old River, which would increase exposure of various life stages and species of fish to temporarily degraded water quality conditions.	=	No change in effects relative to Alternative 1. In-channel construction activities would only occur during one construction period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.3.2: Underwater sound-pressure levels generated during cofferdam installation for the new Delta Intake could result in behavioral avoidance or migration delays for special-status fish species.	=	No change in effects relative to Alternative 1. In-channel construction activities generating underwater sound-pressure levels would only occur during one construction period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.3: Delta Fisheries and Aquatic Resources (cont.)				
4.3.3: Dewatering of the cofferdam for the new Delta Intake could result in stranding of fish.	=	No change in effects relative to Alternative 1. Dewatering of the coffer dam would only occur during one construction period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.3.4: The new Delta Intake structure and associated fish screens in Old River would physically exclude fish from a small area of existing aquatic habitat and modify existing aquatic habitat.	=	No change in effects relative to Alternative 1. Construction of a new Delta Intake structure would only occur during one implementation period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.3.5: The new Delta Intake structure and associated fish screens in Old River would modify hydraulic conditions next to the intake structure, but would not disorient special-status fish or attract predatory fish.	=	No change in effects relative to Alternative 1. Operation (after construction) of a new Delta Intake structure would only occur during one implementation period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LS
4.3.6: Operation of the project alternatives would not result in changes to Delta hydrologic conditions that affect Delta fish populations or quality and quantity of aquatic habitat within the Sacramento-San Joaquin River system, including the Delta.	=	No change in effects relative to Alternative 1. Use of Delta water resources would be staged however project operations would not result in changes to Delta hydrologic conditions that affect Delta fisheries and aquatic resources. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.3.7: Operation of the new screened intake, or changes to diversions at existing intakes, could affect direct entrainment or impingement of fish.	=	No change in effects relative to Alternative 1. Operation of a new screened intake or changes to diversions at existing intakes would only occur during one implementation period (Stage II) as under Alternative 1. Benefits would not be realized until after implementation of Stage II. No change in conclusions or mitigation.	Alternative 1:	B
4.3.8: Fish screen maintenance activities would not significantly increase fish entrainment at the new Delta Intake or the expanded Old River Intake.	=	No change in effects relative to Alternative 1. Maintenance of fish screens at a new Delta Intake structure would only occur during one implementation period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LS
4.3.9: The project, when combined with other planned project alternatives, or projects under construction in the area, could cumulatively contribute to substantial adverse impacts to Delta fisheries and aquatic resources.	=	No change in effects relative to Alternative 1. The project would be staged however this change would not cumulatively contribute to substantial adverse impacts to Delta fisheries and aquatic resources. No change in conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.4: Geology, Soils and Seismicity				
4.4.1: The project facilities would be designed and engineered in accordance with seismic code requirements. As a result, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides.	=	No change in effects relative to Alternative 1. Project facilities including the reservoir dam would be constructed under Stage I to the 160 TAF level identified in Alternative 4, and again under Stage II to the 275 TAF as identified under Alternative 1. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.4.2: During construction and operations, the project could result in substantial soil erosion or the loss of topsoil.	>	This construction impact would be similar in nature but greater in extent than under Alternative 1 because of the two separate construction periods. The Timing Variant would include construction-related activities and impacts associated with the 160 TAF borrow areas in addition to the 275 TAF borrow areas, which could result in increased potential for erosion and sedimentation impacts as compared to Alternative 1. Areas that would be disturbed during both construction stages (i.e., areas near the dam, Kellogg Creek) would potentially result in temporary impacts during both stages. Project elements that would be relocated or reconstructed during both construction stages (i.e., marina facilities) would potentially result in temporary soil-related impacts during both stages. Mitigation measures identified in the DEIS/EIR to address this impact would be applied to both stages of construction and all disturbed sites. These measures would reduce the effects of staging reservoir expansion to less than significant. No change in conclusions or mitigation.	Alternative 1:	LSM
4.4.3: Project components could be located on expansive or corrosive soils or on a geologic unit or soil that is unstable or could become unstable as a result of the project or construction activities; however, those components would not likely result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse, and would not create substantial risks to life or property.	=	Similar to Alternative 1. The marina would be re-located under Stage I to the location identified in Alternative 4, and again under Stage II to the location as identified under Alternative 1. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.4.4: The proposed project would not make a cumulatively considerable contribution to cumulative effects associated with erosion, topsoil loss or increased exposure to seismic or other geohazard risks.	=	Similar to Alternative 1. The project's contribution to cumulative effects associated with soil erosion or the loss of topsoil could increase due to the addition of a second construction stage. However, with mitigation of project effects, the project would not make a cumulatively considerable contribution to cumulative effects associated with soil erosion or the loss of topsoil. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.5: Local Hydrology, Drainage and Water Quality				
4.5.1: During construction, the project alternatives could violate water quality standards through increased erosion and sedimentation to local waterways, release of fuels or other hazardous materials during construction, or dewatering of excavated areas that could result in substantial water quality degradation.	>	This construction impact would be similar in nature but greater in extent than under Alternative 1 because of the two separate construction periods. Potential water quality impacts would occur twice within an approximately 7 – 10 year period. Mitigation measures would reduce impacts to LSM for both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.5.2: Construction and operation of the project alternatives would not deplete local groundwater supplies or interfere with groundwater recharge.	=	Similar to Alternative 1. The construction impacts would occur twice within an approximately 7 – 10 year period. This impact would be LS for both construction stages and the combined effect would remain LS. No change in conclusions or mitigation.	Alternative 1:	LS
4.5.3: Project alternatives would not substantially alter drainage patterns but reservoir expansion would increase the reservoir shoreline area subject to erosion.	=	No change in effects relative to Alternative 1. The reservoir would be constructed under Stage I to the 160 TAF level identified in Alternative 4, and again under Stage II to the 275 TAF as identified under Alternative 1. New and relocated trails in the watershed would be constructed to accommodate the 275 TAF reservoir level during Stage I in order to minimize repeating trail construction. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.5.4: Project alternatives would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during operation.	=	No change in effects relative to Alternative 1. The project would be staged however would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during operation. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM
4.5.5: Project Alternatives 1, 2, and 3 could place structures within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map, which could impede or redirect flood flows.	=	No change in effects relative to Alternative 1. The project would be staged however this would not increase placement of structures within a 100-year flood hazard areas in a way that could impede or redirect flood flows. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.5.6: The project alternatives would not substantially increase the exposure of people and/or structures to risks associated with inundation by dam or levee failure.	=	No change in effects relative to Alternative 1. The project would be staged however this would not increase the exposure of people and/or structures to risks associated with inundation by dam or levee failure. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.5: Local Hydrology, Drainage and Water Quality (cont.)				
4.5.7: Construction and operation of the project alternatives would not make a cumulatively considerable contribution to cumulative effects on drainage, flooding, groundwater recharge or water quality degradation in the project area.	=	Similar to Alternative 1. The project's contribution to cumulative effects associated with drainage, flooding, groundwater recharge or water quality degradation in the project area could increase due to the addition of a second construction stage. However, with mitigation, the project would not make a cumulatively considerable contribution to cumulative effects associated with local hydrology. No change in conclusions or mitigation.	Alternative 1:	LS
Section 4.6: Biological Resources				
4.6.1: Project construction would affect the following NCCP habitat types (CDFG sensitive plant communities in parentheses): Natural Seasonal Wetland (i.e., bulrush-cattail series, northern claypan vernal pool, bush seepweed and saltgrass series), Valley/Foothill Riparian (i.e., Fremont cottonwood series and valley oak series), Grassland (i.e., purple needlegrass series) and Valley/Foothill Woodland Forest (i.e., blue oak series).	>	The permanent impact to habitat would be the same as under Alternative 1. The temporary impacts due to construction would be similar in nature but greater in duration because construction would occur in two separate stages in some areas. Key assumptions (see Table 3.2-2) include locating all mitigation outside the 275 TAF impact areas. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages although with mitigation these impacts would remain LSM in each stage. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.2: Project construction could affect potentially jurisdictional wetlands or waters, and streambeds and banks regulated by CDFG.	>	Permanent impact to wetlands would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in some areas in two separate stages. Areas that would be disturbed during both construction stages (i.e., areas near the dam, Kellogg Creek) would experience temporary construction impacts during both stages. Mitigation measures would reduce impacts to LSM during both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.3: Project construction could affect populations of special-status plant species including brittlescale, San Joaquin spearscale, Brewer's dwarf-flax, and rose-mallow.	=	No change in effects relative to Alternative 1. Areas where these plant species might occur would only be affected during one construction period (Stage II), as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.4: Project construction would result in impacts on California red-legged frog and California tiger salamander, including aquatic breeding habitat and upland aestivation habitat for these species.	>	Permanent impacts to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM during both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.6: Biological Resources (cont.)				
4.6.5: Project construction would result in direct and indirect impacts on existing populations of and habitat for the western pond turtle.	>	Permanent impacts to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.6: Project construction under Alternatives 1, 2, and 3 would result in direct and indirect impacts on listed vernal pool fairy shrimp and their habitat, and on the non-listed midvalley fairy shrimp and curved-foot hygrotus diving beetle.	=	No change in effects relative to Alternative 1. Areas where these species might occur would only be affected during one construction period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.7: Project construction would have temporary and permanent impacts on potential San Joaquin kit fox habitat and permanently reduce potential regional movement opportunities in one location for this species.	>	Permanent impact to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. Permanently reducing potential regional movement opportunities in one location would remain SU in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM/SU
4.6.8: Project construction would result in temporary and permanent loss of habitat for burrowing owls.	>	Permanent impact to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.9: Project construction and operation activities would result in direct and indirect impacts on existing populations of and habitat for the golden eagle, bald eagle, and Swainson's hawk.	>	Permanent impacts to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. Beneficial effects for bald eagle would be similar to Alternative 1 however slightly reduced since extended over a longer implementation period. No change in conclusions or mitigation.	Alternative 1:	LSM/B (bald eagle)

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.6: Biological Resources (cont.)				
4.6.10: Project construction and increased reservoir water levels would result in temporary and permanent loss of potential and occupied habitat for Alameda whipsnakes.	>	Permanent impact to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.11: Project construction activities could result in direct and indirect impacts on the valley elderberry longhorn beetle and its habitat.	>	Permanent impact to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.12: Project construction activities could affect active breeding bird nest sites and new powerlines could affect migratory birds.	>	Permanent impacts to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.13: Project construction activities under Alternatives 1 and 2 could affect designated critical habitat for listed species (vernal pool fairy shrimp and Contra Costa goldfields).	=	No change in effects relative to Alternative 1. Areas where these species might occur would only be affected during one construction period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.14: Project construction activities could affect nonlisted special-status reptile species (San Joaquin coachwhip and coast horned lizard).	>	Permanent impacts to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.6.15: Project construction activities could affect nonlisted special-status mammal species (American badger, special-status bats, and San Joaquin pocket mouse).	>	Permanent impacts to habitat for these species would be the same as under Alternative 1. Temporary impacts due to construction would be similar in nature but greater in duration in some areas because construction would occur in two separate stages. Areas that would be disturbed during both construction stages would experience temporary impacts during both stages. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.6: Biological Resources (cont.)				
4.6.16: Draining the reservoir during project construction under Alternatives 1, 2, and 3 could affect Pacific Flyway species, including waterfowl and shorebirds.	=	No change in effects relative to Alternative 1. There would be no impact during Stage I construction. Impact would occur during Stage II construction, only. No change in conclusions or mitigation.	Alternative 1:	LS
4.6.17: The project would not result in conflicts with local and regional conservation plans, or local plans or ordinances protecting biological resources.	=	No change in effects relative to Alternative 1. The project would be staged however the alternatives would not cause conflicts with local and regional conservation plans protecting biological resources. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI
4.6.18: Project construction would not make a cumulatively considerable contribution to cumulative effects on special-status species and habitats.	=	Similar to Alternative 1. The project's contribution to cumulative effects on special-status species and habitats could increase due to the addition of a second construction stage. However, the combined effect would remain LS. The project would not make a cumulatively considerable contribution to cumulative effects on special-status species and habitats. No change in conclusions or mitigation.	Alternative 1:	LS
Section 4.7: Land Use				
4.7.1: The proposed project and alternatives would not physically divide an existing community.	=	No change in effects relative to Alternative 1. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI
4.7.2: Facility siting and operation under the proposed project and alternatives would not conflict with any applicable land use plans.	=	No change in effects relative to Alternative 1. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.7.3: Construction activities within designated Airport Land Use Compatibility Zones near the Byron Airport could cause potential temporary height impacts by conflicting with FAR Part 77 surfaces during construction.	=	No change in effects relative to Alternative 1. Construction activities would only occur in the designated Airport Land Use Compatibility Zones near the Byron Airport during one construction period (Stage II) as under Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
4.7.4: Construction activities within the AIA for Byron Airport could cause potential temporary flight hazards through the creation of glare or distracting lights; the generation of dust or smoke, which could impair pilot visibility; or could attract an increased number of birds.	=	This construction impact would be similar in nature but greater in extent than under Alternative 1 because of the two separate construction periods. This impact would occur twice within an approximately 7 – 10 year period. Mitigation measures would reduce impacts to LSM for both construction stages and the combined effect would remain LSM. No change in conclusions or mitigation.	Alternative 1:	LSM
4.7.5: The proposed project and alternatives would not contribute to cumulative land use impacts.	=	No change in effects relative to Alternative 1. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.8: Agriculture				
4.8.1: Project construction would temporarily impact the agricultural use of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	=	No change in effects relative to Alternative 1. There would be no temporary impacts to Important Farmlands during Stage I construction; Impacts would only occur during Stage II construction. No change in conclusions or mitigation.	Alternative 1:	LSM
4.8.2: The project would permanently convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use.	=	No change in effects relative to Alternative 1. There would be no permanent impacts to Important Farmlands during Stage I construction; Impacts would only occur during Stage II construction. No change in conclusions or mitigation.	Alternative 1:	SU
4.8.3: The project would not conflict with zoning for agricultural use or a Williamson Act contract.	=	No change in effects relative to Alternative 1. There would be no temporary or permanent conflicts with zoning for agricultural use or a Williamson Act contract during Stage I construction; Impacts would only occur during Stage II construction. No change in conclusions or mitigation.	Alternative 1:	LS
4.8.4: The project would involve changes in the environment that, due to their location or nature, could contribute to cumulative impacts from conversion of Important Farmland to nonagricultural uses.	=	No change in effects relative to Alternative 1. There would be no temporary or permanent impacts to Important Farmlands during Stage I construction; Impacts would only occur during Stage II construction. Resulting cumulative effects would remain unchanged for Alternative 1. No change in conclusions or mitigation.	Alternative 1:	LSM
Section 4.9: Transportation and Circulation				
4.9.1: Project construction activities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.	>	Construction traffic impacts would be similar in nature to those analyzed for Alternative 1 but greater in duration because project construction and related impacts would occur twice within an approximately 7 – 10 year period. Construction-related traffic during Stage I/ Alt 4 construction would be reduced in volume (as compared with State II / Alternative 1) due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 construction. Impacts during Stage I construction would remain LS. Construction-related traffic would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities would have already been built during Stage I). Overall, similar to Alternative 1, construction traffic impacts would be LSM. Key assumptions (see Table 3.2-2) include waste material resulting from partial teardown of 160 TAF dam constructed during Stage I would be disposed of within the 275 TAF reservoir inundation zone and not off-hauled. Mitigation measures would reduce impacts during Stage II construction to LSM. The combined effect would be LSM. No change in conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.9: Transportation and Circulation (cont.)				
4.9.2: Project construction activities under Alternatives 1, 2 and 3 would intermittently and temporarily impede access to local streets or adjacent uses, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or possible road wear.	=	Similar to Alternative 1. No facility construction activities would occur outside of the Los Vaqueros Watershed during the first stage of construction; traffic access impacts would only occur during Stage II construction. No change in conclusions or mitigation.	Alternative 1:	LSM
4.9.3: Traffic associated with operation of project facilities, including the expanded recreation facilities, would not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.	=	No change in effects relative to Alternative 1. Project facilities including recreational facilities would be constructed and operated under Stage I to the 160 TAF level identified in Alternative 4, and again under Stage II to the 275 TAF as identified under Alternative 1. Individually or collectively, post-construction traffic would not exceed County standards. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.9.4: Construction of project alternatives, when combined with construction of other future projects, could contribute to construction-related short-term cumulative impacts to traffic and transportation (traffic congestion, access, and traffic safety).	=	Impacts during each of the two construction stages would be less than under Alternative 1. Staged implementation would result in two time periods where construction traffic-related impacts would occur. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation. Impacts during Stage I construction would be LS because most construction would occur within Los Vaqueros reservoir watershed lands (as determined for Alternative 4). The project's contribution to construction-related short-term cumulative impacts to traffic and transportation could increase due to the addition of a second construction stage. Mitigation measures would reduce impacts during Stage II construction to LSM. The project would not result in cumulatively considerable impacts to traffic and transportation (traffic congestion, access, and traffic safety). No change in conclusions or mitigation.	Alternative 1:	LSM
Section 4.10: Air Quality				
4.10.1: Construction of project alternatives could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, and PM10 that could contribute to existing nonattainment conditions and further degrade air quality. However, project alternatives would not exceed federal general conformity *de minimis* standards for emissions.	>	Short-term emissions related to construction activities during Stage I construction would be reduced in volume due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 / Stage II construction. Short-term emissions related to construction activities would be expected to be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1. Due to the addition of second construction stage, the project would result in lower levels during each construction stage however potentially result in an overall greater emissions due to two rounds of equipment mobilization. Mitigation measures would reduce impacts to LSM under both construction stages and the combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.10: Air Quality (cont.)				
4.10.2: Operation of project alternatives would not result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	=	Similar to Alternative 1. Operation of the project after construction of Stage I and subsequently after Stage II would result in LS impacts in both cases. The effect of Stage II operation would be the same as those analyzed for Alternative 1. The effects of the two construction stages would not be additive no change in conclusions or mitigation.	Alternative 1:	LS
4.10.3: Construction and/or operation of project alternatives would not expose sensitive receptors to substantial pollutant concentrations.	=	Similar to Alternative 1. Construction and/or operation of Stage I and subsequently Stage II would not expose sensitive receptors to substantial pollutant concentrations. This would result in LS impacts in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
4.10.4: Operation of project alternatives would not create objectionable odors affecting a substantial number of people.	=	Similar to Alternative 1. Odor related impacts would be LS in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
4.10.5: Construction and operation of project alternatives would not result in a cumulatively considerable increase in greenhouse gas emissions.	>	Similar to Alternative 1. There could be a slight increase in greenhouse gas emissions due to the staging of construction. This impact would be LS in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
4.10.6: Construction and operation of the project alternatives could result in cumulatively considerable increases of criteria pollutant emissions.	>	Staged implementation would result in two time periods where construction-related air quality impacts would occur. These time periods would be separated by a temporal gap of a minimum of 7 years. Impacts during each construction stage would be reduced as compared to Alternative 1. The project's overall contribution to increases of criteria pollutant emissions could increase slightly compared to Alternative 1 due to the addition of a second construction stage. This impact would be LSM on the project level. The project would not result in cumulatively considerable increases of criteria pollutant emissions. The cumulative impacts would be LSM in both cases. The combined effects would not result in cumulatively considerable impacts to air quality of a magnitude to change the conclusions or mitigation.	Alternative 1:	LSM
Section 4.11: Noise				
4.11.1: Construction of facilities under the proposed project and alternatives could generate noise levels that exceed the Contra Costa County or Alameda County noise standards at nearby sensitive receptors if construction activities are carried out during noise-sensitive hours, causing sleep disturbance and/or annoyance.	=	Similar to Alternative 1. Construction-related noise during Stage I construction would be reduced in volume due to the reduced intensity of construction activities (including no blasting) and would occur for a shorter duration as compared to Alternative 1 and Stage II construction. Construction-related noise during Stage II construction would be similar to Alternative 1. This impact would be LSM in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.11: Noise (cont.)				
4.11.2: Operation of the project and alternatives would generate traffic, stationary source, and area source noise similar to existing noise associated with operation of Los Vaqueros Reservoir system and would not exceed County noise requirements.	=	No change in effects relative to Alternative 1. This impact would be LS in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
4.11.3: Project construction would not expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.	=	Similar to Alternative 1. Construction-related ground-borne vibration or ground-borne noise during Stage I construction would be reduced due to the reduced intensity of construction activities (including no blasting) and would occur for a shorter duration as compared to Alternative 1 and Stage II construction. Construction-related ground-borne vibration or ground-borne noise during Stage II construction would be similar to Alternative 1. This impact would be LS in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
4.11.4: The proposed project or alternatives would not make a cumulatively considerable contribution to noise levels during either construction or operation.	=	Construction-related noise impacts during Stage I construction would be reduced as compared to Alternative 1 and Stage II construction. Construction-related noise impacts during Stage II construction would be similar to Alternative 1. Staged implementation would result in two time periods where construction noise-related impacts would occur. Stage I and Stage II construction periods would be separated by a temporal gap of a minimum of 7 years. Mitigation measures would reduce impacts during both construction stages to LSM. The project would not make a cumulatively considerable contribution to cumulative construction-related short-term noise impacts. This impact would be LS in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
Section 4.12: Utilities and Public Service Systems				
4.12.1: Construction or operation of project alternatives could temporarily disrupt utilities and public service systems such that a public health hazard could be created or an extended service disruption could result.	=	No change in effects relative to Alternative 1. No facility construction activities would occur outside of the Los Vaqueros Watershed during Stage I construction. Utility and public service impacts would only potentially occur during the second stage of construction. This impact would be LSM in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LSM

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IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.12: Utilities and Public Service Systems (cont.)				
4.12.2: Project alternatives would not require or result in construction of new or expanded utility infrastructure or public service facilities that would result in substantial adverse physical impacts.	=	No change in effects relative to Alternative 1. Neither Stage I or Stage II would require or result in construction of new or expanded utility infrastructure or public service facilities that would result in substantial adverse physical impacts. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.12.3: Construction of the project alternatives could increase solid waste generation such that the capacity of local landfills would be exceeded or the project would not comply with state regulations related to solid waste.	=	Similar to Alternative 1. Neither Stage I or Stage II would require or result in increases to solid waste generation such that the capacity of local landfills would be exceeded or the project would not comply with state regulations related to solid waste. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM
4.12.4: Construction of the project alternatives could make a cumulatively considerable contribution to cumulative effects on public services and utilities, or local landfill capacity.	=	Similar to Alternative 1. Stage I and Stage II construction periods would be separated by a minimum of 7 years. Staged implementation would result in two time periods where cumulative construction-related impacts on public services and utilities, or local landfill capacity would potentially occur. The project would not make a cumulatively considerable contribution to cumulative effects on public services and utilities, or local landfill capacity. This impact would be LSM in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LSM
Section 4.13: Hazardous Materials / Public Health				
4.13.1: Construction of the project and alternative components would disturb subsurface soils and groundwater; if hazardous substances are present in the disturbed areas, construction workers and the public could be exposed to these substances.	=	Similar to Alternative 1. Project construction and related impacts would occur twice within an approximately 7 – 10 year period. Potential construction-related hazards during Stage I/ Alt 4 construction would be reduced in volume (as compared with State II / Alternative 1) due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 construction. Impacts during Stage I construction would remain LS. Potential construction-related hazards would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities already built during Stage I). Overall, similar to Alternative 1, potential construction-related hazards impacts would remain LS. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.13: Hazardous Materials / Public Health (cont.)				
4.13.2: Project construction and operation could, through routine transport, use or disposal, accidentally release hazardous materials, thereby exposing construction workers, project personnel, and the public to hazardous materials, or accidentally releasing hazardous materials into the soil, groundwater, and/or a nearby surface water body.	=	Project construction and related impacts would occur twice within an approximately 7 – 10 year period. Potential construction-related hazards during Stage I/ Alt 4 construction would be reduced in volume (as compared with State II / Alternative 1) due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 construction. Impacts during Stage I construction would be LSM. Potential construction-related hazards would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities already built during Stage I). Overall, similar to Alternative 1, potential construction-related hazards impacts would be LSM. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1	LSM
4.13.3: Improper handling or use of flammable or combustible materials such as internal combustion equipment could result in wildland fires, exposing people or structures to a significant risk of loss, injury, or death.	=	Project construction and related impacts would occur twice within an approximately 7 – 10 year period. Potential construction-related hazards during Stage I/ Alt 4 construction would be reduced in volume (as compared with State II / Alternative 1) due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 construction. Impacts during Stage I construction would be LSM. Potential construction-related hazards would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities already built during Stage I). Overall, similar to Alternative 1, potential construction-related hazards impacts would be LSM. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM
4.13.4: Construction and operation of project power supply facilities would not locate electrical transmission facilities within 150 feet of a school.	=	No change in effects relative to Alternative 1. Only Stage II includes new power supply options, and those would not be located within 150 feet of a school. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI
4.13.5: The project alternatives would not contribute to cumulative impacts associated with release of hazardous materials or other hazards.	=	Project construction and related impacts would occur twice within an approximately 7 – 10 year period. Potential cumulative construction-related hazards during Stage I/ Alt 4 construction would be reduced in volume (as compared with State II / Alternative 1) due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 construction. Impacts during Stage I construction would be LS. Potential cumulative construction-related hazards would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities already built during Stage I). The project would not result in cumulatively considerable impacts related to hazards and public health. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.14: Visual/Aesthetic Resources				
4.14.1: The project alternatives would not have a substantial, demonstrable negative aesthetic effect on a scenic vista or from a county-designated scenic highway or route.	=	No change in effects relative to Alternative 1. Neither Stage I or Stage II would result in a substantial, demonstrable negative aesthetic effect on a scenic vista or from a county-designated scenic highway or route. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.14.2: The project alternatives would not substantially degrade the existing visual character or quality of the site and its surroundings, except Alternative 4 due to the borrow area in Kellogg Valley.	>	Stage I construction would result in increased visual effects to visual resources associated with the 160 TAF borrow areas. The Stage I impacts would be greater than those that would result under Stage II / Alternative 1, which would not require use of borrow areas downstream of the existing dam mitigation would reduce this impact to less than significant as described in the Draft EIS/EIR for Alternative 4.	Alternative 1:	LS
4.14.3: The project alternatives would not create a new source of substantial light but Alternatives 1, 2, and 3 could create a new source of substantial glare that could adversely affect views in the area.	=	No change in effects relative to Alternative 1. Stage I construction would result in the same LS impacts related to new light and glare as Alternative 4. These impacts would be less than those that would result under Stage II / Alternative 1, which would require mitigation for creating a new source of glare that could adversely affect views in the area. Stage II impacts would be reduced to less than significant with mitigation, as described for Alternative 1 in the Draft EIS/EIR.	Alternative 1:	LSM
4.14.4: The project alternatives would not make a cumulatively considerable contribution to adverse effects on visual/aesthetic resources in the project area or broader region.	=	Project construction and related impacts would occur twice within an approximately 7 – 10 year period. Potential cumulative effects upon visual/aesthetic resources in the project area during Stage I/ Alt 4 construction would be increased (as compared with State II / Alternative 1) due to the addition of two core borrow areas as compared to Alternative 1 construction. Potential cumulative construction-related hazards would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities already built during Stage I). The project would not result in cumulatively considerable impacts related to hazards and public health. Cumulative impacts would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
Section 4.15: Recreation				
4.15.1: Construction of the project alternatives would result in a short-term reduction of recreational opportunities in the project area due to construction activities outside the watershed and closure of the watershed to the public during the construction period, but would enhance recreational opportunities in the long-term.	>	Interruption of recreational opportunities during Stage I construction would be reduced due the shorter construction period as compared to Alternative 1/ Stage II construction. Interruption of recreational opportunities during Stage II construction would be similar to Alternative 1. This impact would occur twice within an approximately 7 – 10 year time period and be LSM in both cases. However, the combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.15: Recreation (cont.)				
4.15.2: The project alternatives would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	=	Use of other recreational facilities during Stage I construction would be reduced due the shorter construction period as compared to Alternative 1/ Stage II construction. Use of other recreational facilities during Stage II construction would be similar to Alternative 1. This impact would occur twice within an approximately 7 – 10 year time period and be LS in both cases. The combined effect would not be of sufficient magnitude to change the conclusions or mitigation.	Alternative 1:	LS
4.15.3: No other reasonably foreseeable future projects would also reduce recreational opportunities in the project area, similar to those opportunities affected by the project alternatives, or increase the use of existing neighborhood and regional parks or other recreational facilities; therefore, there does not appear to be the potential for the project alternatives to contribute to a cumulative effect on recreation facilities, opportunities or experience.	=	Project effects upon recreation would occur twice within an approximately 7 – 10 year period. Potential cumulative recreation-related impacts during Stage I/ Alt 4 construction would be reduced in volume (as compared with State II / Alternative 1) due to the reduced intensity of construction activities and would occur for a shorter duration as compared to Alternative 1 construction. Potential cumulative recreation-related impacts would be slightly reduced in volume under Stage II due to the reduced intensity of construction activities as compared to Alternative 1 (i.e.- because some facilities already built during Stage I). With mitigation proposed for project-related recreation impacts, and LS impacts upon are facilities, the project would not result in cumulatively considerable impacts related to recreation. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
Section 4.16: Cultural and Paleontological Resources				
4.16.1: Construction and management of project components would cause a substantial adverse change in the significance of a historical and/or unique archaeological resource as defined in Section 15064.5 or historic property or historic district, as defined in Section 106 of the NHPA (36 CFR 800), or in a previously undiscovered cultural resource.	>	Similar to Alternative 1, both construction stages would have the potential to affect multiple historic resources and burial/reburial sites. Drawdown under Stage 1 would be similar to that which can occur under existing conditions at the reservoir; therefore, construction of Stage 1 would not result in any new erosion-related impacts. Both core borrow areas were designed to avoid known historic properties and lie in an area with primarily low potential for buried cultural resources and human remains. Overall, the total impact would be as described for Alternative 1. Mitigation measures implemented during both construction stages would reduce impacts to LSM. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM
4.16.2: Ground-disturbing activities could encounter and destroy paleontological resources in certain geologic formations underlying the project area.	>	Similar to Alternative 1, both construction stages would have the potential to affect paleontological resources. With use of core borrow areas for Stage I plus Stage II borrow pits upstream of the dam, there is some potential for increased effects on paleontological resources. Mitigation measures implemented during both construction stages would reduce impacts to LSM. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM
4.16.3: Construction and management of project components could disturb human remains, including those interred outside of formal cemeteries.	=	Similar to Alternative 1, both construction stages would have the potential to disturb human remains. The secondary core borrow area was designed to avoid known historic properties and lies in an area with primarily low potential for buried cultural resources and human remains. Overall, the total impact would be as described for Alternative 1.	Alternative 1:	LSM

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.16: Cultural and Paleontological Resources (cont.)				
4.16.3 (cont.)		Mitigation measures implemented during both construction stages would reduce impacts to LSM. The project's contribution to cumulative adverse effects associated with the disturbance of human remains would not be considerable. This impact would be LSM in both cases. No change in conclusions or mitigation.		
4.16.4: Construction and management of project components would contribute to adverse cumulative impacts to cultural and/or paleontological resources.	=	Similar to Alternative 1, staged implementation would result in two time periods where cumulative impacts to cultural and/or paleontological resources would potentially occur. Since the secondary core borrow area was designed to avoid known historic properties and lies in an area with primarily low potential for buried cultural resources and human remains, the cumulative impact would be as described for Alternative 1. Mitigation measures would reduce impacts during both construction stages to LSM. The combined effect would remain LSM. The project's contribution to cumulative adverse effects on historical and/or unique archaeological resources and paleontological resources would not be considerable. This impact would be LSM in both cases. No change in conclusions or mitigation.	Alternative 1:	LSM
Section 4.17: Socioeconomic Effects				
4.17.1 Project construction could temporarily generate new income and local employment that could benefit Contra Costa County's economy.	>	This beneficial effect would occur twice within an approximately 7 – 10 year period. The combined effect of multiple construction periods could result in some unquantified, but slight additive economic benefits. This impact would be B in both cases. No change in conclusions or mitigation.	Alternative 1:	B
4.17.2: Loss of agricultural land use associated with project construction and development could affect Contra Costa County and Alameda County's economy.	=	There are no effects to agriculture associated with Stage I / Alternative 4. The temporary and permanent loss of land associated with Stage II / Alternative I would not be of sufficient magnitude to result in a significant economic impact on the economy as a whole. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.17.3: Short-term loss of recreation income associated with project construction could affect Contra Costa County's economy.	>	The short-term loss of recreation income associated with project construction would occur twice within an approximately 7 – 10 year time period. However, the combined effect would not be of sufficient magnitude to result in a significant economic impact on the economy as a whole. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.17.4 Construction of the project alternatives, when combined with construction of other future projects, could have a potentially beneficial effect on income and local employment.	>	Beneficial effects upon income and local employment due to two construction phases would occur twice within an approximately 7 – 10 year period. The combined effect could result in some unquantified, but slight additive economic benefits. This impact would be B in both cases. No change in conclusions or mitigation.	Alternative 1:	B

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.17: Socioeconomic Effects (cont.)				
4.17.5: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of permanent loss of agricultural land uses.	=	There are no effects to agriculture associated with Stage I / Alternative 4. The temporary and permanent loss of land associated with Stage II / Alternative I would not be of sufficient magnitude to result in a significant economic impact on the economy as a whole. There would be no change in cumulative effects relative to Alternative 1 on County economy as a result of temporary loss of agricultural land uses.	Alternative 1:	LSM
4.17.6 Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts.	=	Potential cumulative effects on Contra Costa County's economy as a result of temporary recreational impacts would occur twice within an approximately 7 – 10 year period. However, the combined effect would not be of sufficient magnitude to result in a cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
Section 4.18: Environmental Justice				
4.18.1: Construction and operation of the project alternatives would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No change in effects relative to Alternative 1. Construction impacts would occur twice within an approximately 7 – 10 year period. Neither Stage I or Stage II construction and operation would disproportionally affect minority and/or low income communities. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.18.2: Construction and operation of the project alternatives would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	=	No change in effects relative to Alternative 1. Neither Stage I or Stage II construction and operation would disproportionally affect local employment opportunities for minority and/or low income communities. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI
4.18.3: Construction and operation of the project alternatives when combined with construction of other past, present, and probable future projects, would result in air quality, noise, and/or other environmental impacts related to traffic and other construction activities that would not disproportionately affect nearby minority and/or low-income communities.	=	No change in effects relative to Alternative 1. Neither Stage I or Stage II construction and operation would disproportionally affect minority and/or low income communities. This impact would be LS in both cases. No change in conclusions or mitigation.	Alternative 1:	LS
4.18.4: Construction and operation of the project, when combined with construction of other past, present, and probable future projects, would not disproportionately affect local employment opportunities for minority and/or low-income communities in the vicinity of the project.	=	No change in effects relative to Alternative 1. Neither Stage I or Stage II construction and operation, when combined with construction of other past, present, and probable future projects, would disproportionally affect employment opportunities for minority &/or low income communities. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI

TABLE B
IMPACT ASSESSMENT FOR TIMING VARIANT CEQA / ENVIRONMENTAL IMPACTS RELATIVE TO ALTERNATIVE 1

Environmental Impact		Timing Variant Comparison	Impact of Alternative 1	
Section 4.19: Indian Trust Assets				
4.19.1: The project would not affect Indian Trust Assets.	=	No change in effects relative to Alternative 1 to Indian Trust Assets since neither Stage I nor Stage II affects Indian Trust Assets. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI
Section 4.20: Growth-Inducing Effects				
4.20.1: Construction and operation of the proposed project would not result in direct or indirect growth-inducing effects.	=	No change in impacts relative to Alternative 1. Neither Stage I or Stage II construction and operation result in growth-inducing effects. This impact would be NI in both cases. No change in conclusions or mitigation.	Alternative 1:	NI

C-1 INTRODUCTION

This updated appendix presents the application and results of facility operations and hydrodynamic and water quality modeling in support of the Final Los Vaqueros Reservoir Expansion Project Environmental Impact Statement/Environmental Impact Report (Final EIS/EIR). The purpose of the analysis was to identify potential environmental impacts of the Los Vaqueros Reservoir Expansion Project (project) relative to baseline conditions. The analysis was undertaken using the California Department of Water Resources (DWR) and United States Department of the Interior, Bureau of Reclamation (Reclamation) joint planning model, CalSim II, and DWR's Sacramento-San Joaquin Delta (Delta) Simulation Model, Version 2 (DSM2). The modeling analysis for the Final EIS/EIR contains updated analysis of the changes in Delta operations associated with the biological opinions for the Operations Criteria and Plan (OCAP BOs) issued on December 15, 2008 and June 4, 2009. Additional modifications were made in updating the model analysis for the Final EIS/EIR in response to comments received on the Draft EIS/EIR.

Organization of Appendix

This appendix is organized into eight chapters:

Chapter C-1, Introduction,
includes background information and the organization of the appendix.

Chapter C-2, Model Description,
summarizes the models used and the modeling approach.

Chapter C-3, Modeling Assumptions,
documents the specifics of modeling implementation.

Chapter C-4, Model Results – Water Supply and Management,
summarizes system operations modeling results for the project alternatives.

Chapter C-5, Model Results – Delta Water Quality and Delta Water Level,
summarizes Delta water quality and water level modeling results for the project alternatives.

Chapter C-6, Statistical Water Quality Impact Analysis,
presents statistical tests used to evaluate potential water quality impacts.

Chapter C-7, Fishery Analyses,
provides detailed results and analysis of the methods used for evaluating both direct and indirect effects on the Delta fishery.

Chapter C-8, References,
lists the sources used in compiling this appendix.

C-2 MODEL DESCRIPTION

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Introduction

The purpose of the system operations modeling and Delta hydrodynamic, water quality and particle tracking modeling is to quantify environmental water management, water supply reliability, and water quality benefits and assess the potential environmental impacts of each project alternative. This chapter summarizes the models and modeling process applied to the project; additional details on modeling assumptions are also provided.

Evaluation of the project alternatives requires simulation of three key, interrelated systems: (1) the statewide operations of the CVP and California State Water Project (SWP), (2) Delta hydrodynamics and water quality, and (3) CCWD's local operations. Separate models are available, or have been developed as part of this project, for simulating each of these systems, and the information produced from each model can be integrated to assess the potential of each alternative to achieve project objectives, and the potential effects on CVP/SWP operations and the Delta and upstream environments. Tools used for the project include: (1) the Los Vaqueros operations model, (2) CalSim II, including the artificial neural network (ANN) module for the Delta, and (3) DSM2, including the "hydro", "qual", and particle tracking modules. The statewide and CCWD operations models were combined to run together in an integrated fashion, as described below. This integration was designed to improve sharing of information between the models and provide a more accurate representation of the interrelationship between statewide and CCWD operations.

Operations Models

The operations models used for the project are described below. Complete model output is available for review through CCWD by contacting Marguerite Naillon, Special Projects Manager, at mnaillon@ccwater.com or (925) 688-8018.

WRIMS

The Water Resources Integrated Modeling System (WRIMS) is a generalized water resources software program developed by DWR's Bay-Delta Office. WRIMS is entirely data driven and can be applied to most reservoir-river basin systems. WRIMS represents a given physical system (reservoirs, streams, canals, pumping plants, etc.) through a network of nodes and arcs. The model user describes system connectivity and various operational constraints using a modeling language known as Water Resources Simulation Language (WRESL). WRIMS simulates facility operations using optimization techniques to route water through the network based on mass balance accounting. A mixed integer programming solver determines an optimal set of decisions at each monthly time step for a set of user-defined priorities (weights) and system constraints. The model is described by DWR (2000a) and Draper et al. (2004).

CalSim II

As California's largest water projects, CVP and SWP operations influence and, at times, control flow in the Sacramento and San Joaquin river basins and the Delta. For this Draft EIS/EIR, water conditions and facility operations in the Delta and upstream areas are being simulated using the CalSim II model.

CalSim II is an application of the WRIMS software that was jointly developed by Reclamation and DWR for performing planning studies related to CVP and SWP operations. The primary purpose of CalSim II is to evaluate the water supply reliability of the CVP and SWP at current or future levels of development (e.g., 2005, 2030), with and without various assumed future facilities, and with different modes of facility operations. Geographically, the model covers the drainage basin of the Delta, and CVP/SWP exports to the San Francisco Bay Area (Bay Area), Central Coast, and Southern California. The model assumes that facilities, land use, water supply contracts, and regulatory requirements are constant over the period of simulation, representing a fixed level of development. The historical flow record of October 1921 to September 2003, adjusted for the influence of land use change and upstream flow regulation, is used to represent the possible range of water supply conditions. Major Central Valley rivers, reservoirs, and CVP/SWP facilities are represented by a network of arcs and nodes. CalSim II uses monthly mass balance accounting, and therefore cannot simulate the tidal hydrodynamics of the Delta, and has limited ability to represent Delta water quality.

There are many sources of information documenting the CalSim II model, including two peer reviews. Relevant reports include the following (Reclamation, 2008):

- External peer review commissioned by the CALFED Bay-Delta Program (CALFED) (Close et al., 2003)
- Analysis of an historical operations simulation (DWR, 2003)
- Analysis of the effect varying selected parameters has upon model results (sensitivity analysis study) (DWR, 2005)
- Analysis of the significance of the simulation time step to the estimated SWP delivery amounts (DWR, 2005).
- Peer review of San Joaquin River Valley application (Ford et al., 2006)

CalSim II can be used in either a comparative or an absolute mode. The comparative mode consists of comparing two model runs: one that contains a reservoir expansion project alternative and one that does not. Differences in certain factors, such as deliveries or reservoir storage levels, are analyzed to determine the effects of the project alternatives on system-wide operations. All of the assumptions are the same for the No Action/No Project and action alternative model runs, except the action itself, and the focus of the analysis is the differences in the results. In the absolute mode, results of a single model run, such as the amount of delivery or reservoir levels, are considered directly. In comparative analysis, model biases can cancel out. As such, the measured differences in comparative analysis can be more accurate than the absolute values of the individual studies. All model results used in this analysis were reviewed by model developers and experienced system operators at CCWD, Reclamation and DWR to ensure appropriate interpretation of the results.

Results from a single simulation may not necessarily correspond to actual system operations for a specific month or year, but are representative of general water supply conditions. Model results are best interpreted using various statistical measures such as long-term or year-type averages.

As described in section 4.2, CalSim II model operations are sensitive to threshold triggers. In a handful of months, CalSim II can simulate significantly different operations under similar conditions. The reasons for this are threshold triggers used in CalSim operations logic. For instance, in CalSim II, when Lake Oroville storage falls below 1 MAF, Oroville releases are made solely in support of in-basin use and in-stream flow requirements. Under such conditions, any release from Oroville that supports SOD exports is incidental. On the other hand, if Oroville storage is above 1 MAF, significant releases are allowed from Oroville to support SOD exports when needed. As such, CalSim II could determine a significantly different operation in a given month if Oroville begins the month at 1.001 MAF in one study and 0.999 MAF in another. Of course, in real-time, operators would be equally protective of Oroville storage in both cases given everything else in the system was roughly the same. This is just one example of a threshold trigger that can cause operational differences in CalSim II studies under comparison; many such threshold triggers exist in the CalSim II model. These threshold triggers, and the potential differences in modeled operations caused by them, are a typical example of why careful review of CalSim II modeling results by existing system operators is necessary.

Such a simulated change in operations is labeled a modeling artifact, and for the most part, differences due to these modeling artifacts tend to average out over time; while one study may have large exports in one month, the alternative will likely have increased exports in another. During wetter years, the measured impacts are typically minimal. However, during drought years, the response to the threshold triggers can cause significant differences in Delta water quality and project deliveries. When caused by modeling artifacts, the differences are not an accurate measure of project impacts. Therefore, operations are closely examined to determine when changes are "real", and when they are "artificial." In the few cases where artificial changes caused unrealistic project impacts (both positive and negative), the operations logic was changed to allow for more reasonably similar operations under similar conditions. All regulatory standards were left in place.

CalSim II Model Revisions and Updates

The Draft EIS/EIR analysis was based on a modified version of the CalSim II model developed for the DWR/Reclamation Surface Storage Investigations using the Common Assumptions Common Model Package (CACMP Version 8D). The analysis of operations in the Final EIS/EIR uses an updated version of the CalSim II model developed in August 2009. This version of CalSim II was based on CACMP Version 9B and was revised to include the OCAP BO restrictions on exports and other statewide water operations. This model was used to simulate both an existing condition as of 2005 and a future scenario[1], which are used in this Final EIS/EIR as the basis for the Existing Conditions and Future No Project scenarios, respectively.

Revisions to the CalSim II modeling were required to update the Existing Condition to account for new facilities, integrate existing CCWD and Los,Vaqueros Expansion project facilities and operations into the CalSim II model, and improve the efficiency of model simulation. These revisions are discussed in this section.

1 The Sacramento Valley hydrology used in the Future No Action CalSim II model reflects 2020 land-use assumptions associated with Bulletin 160-98 (DWR, 1998). The San Joaquin Valley hydrology reflects draft 2030 land-use assumptions developed by Reclamation to support Reclamation studies.

The CACMP model assumes an existing condition as of June 2004. The version of CalSim II used for these analyses has been updated to include the SBA Enlargement Project[2].

The analyses pertaining to operations of the SWP and CVP in the Draft EIS/EIR were based on the Interim Order issued by Judge Wanger and the 2004 OCAP. The interim measures rely upon real-time conditions and could not be simulated with one simple set of rules; therefore, modeling for the Draft EIS/EIR considered moderate and severe restrictions on Delta export operations to protect fisheries that captured the range of current and anticipated future operating rules, based on the terms of the interim remedial order. This bracketed approach to modeling fishery restrictions is updated with a single estimate in the Final EIS/EIR modeling.

The CalSim II model used for the Final EIS/EIR has two steps, a “conveyance” step in which the majority of the statewide water operations are computed, and a “transfer” step in which some water transfers are accounted for. To streamline the modeling process, the Final EIS/EIR modeling only used the conveyance step of the CalSim II model. The elements of statewide operations represented in the transfer step do not affect and are not affected by CCWD or Los Vaqueros Reservoir Expansion Project operations, so it was not necessary to include the transfer step in the analysis of the project alternatives.

Los Vaqueros Module

Using the WRIMS software, a model representing CCWD’s existing facilities and expansion project facility configurations was created, and then integrated with CalSim II. The Los Vaqueros Module represents the Los Vaqueros Reservoir, CCWD’s Delta intakes at Rock Slough, Old River, and Victoria Canal, CCWD’s intertie with the EBMUD Mokelumne Aqueduct, and new facilities as appropriate for the project alternatives (described in Chapter 3).

CCWD’s operations are determined in part by water quality considerations. The model used for this Final EIS/EIR uses an input timeseries of salinity at CCWD’s intakes. Baseline Delta salinity and other Delta conditions were developed for both existing and future levels of development using the following procedure: Monthly operations were simulated for without project conditions over an 82-year period using the CalSim II model with the Los Vaqueros module, using the default initial Delta conditions, including Delta water quality, that were provided with the CalSim II model. Then, the monthly CCWD/Los Vaqueros diversions and boundary flows output by CalSim II were used as input to simulate Delta tidal flows and salinity using DSM2 (described in the next section) for the 82-year period. The EC timeseries computed at CCWD’s intake locations in this DSM2 run was converted to chlorides and used as the input for the CalSim II model runs analyzed in this Final EIS/EIR.

The Los Vaqueros Module also contains more detailed operational rules that determine CCWD diversions at each intake. These rules capture the operational restrictions imposed by CCWD’s biological opinions and other permits and agreements, as described in Appendix C3.

[2] The SBA conveys water from Bethany Reservoir to ACWD, SCVWD, and Zone 7. The SBA was originally designed for a capacity of 300 cubic feet per second (cfs). The purpose of the SBA Enlargement Project is to increase the capacity of the SBA to 430 cfs to meet Zone 7 Water Agency’s future needs and provide operational flexibility to reduce SWP peak power consumption. This enlargement to 430 cfs total capacity is included in the existing conditions assumptions for these model studies.

Delta Hydrodynamic and Water Quality Modeling – DSM2

DSM2 is a branched, one-dimensional model for simulating hydrodynamics, water quality, and particle tracking in a network of riverine or estuarine channels (DWR, 2000b). The model is used by DWR and others to perform operational and planning studies of the Delta. Details of the model, including source codes, model calibration, and model performance, are available from the DWR Bay-Delta Office, Modeling Support Branch web site (DWR, 2000b). Documentation of model development is discussed in annual reports to the SWRCB.

The Hydro module of DSM2, applied to the Delta, simulates tidal hydrodynamics (channel stage, flow, and water velocity) using a 15-minute time step. For the project, DSM2 Hydro is used to evaluate changes in stage and flow in the south and central Delta.

The Qual module of DSM2 can simulate the movement of both conservative and non-conservative constituents. For the project, DSM2-Qual is used to assess changes in EC as a surrogate for salinity at key locations within the Delta. Additionally, a fingerprinting analysis is used to identify sources of EC and provide the basis for the EC-to-chloride conversion at CCWD's intakes.

The particle tracking module (PTM) simulates the movement of neutrally buoyant particles by advection and dispersion, using a random walk methodology. DSM2-PTM is a quasi three-dimensional extension of DSM2. Using the mean velocity from DSM2-Hydro, DSM2-PTM applies a logarithmic vertical velocity profile and a parabolic lateral velocity profile to allow longitudinal dispersion. For the project, DSM2-PTM is used to model the transport and fate of passive or non-mobile organisms within the Delta to help quantify circulation changes and resulting entrainment risks.

As in the Draft EIS/EIR, CACMP DSM2 Version 9 is used in this Final EIS/EIR to provide water quality data at CCWD's three Delta diversion locations (Rock Slough, Old River, Victoria Canal)[3] to simulate Los Vaqueros operations within CalSim II, and to evaluate Delta water quality impacts as a result of the project.

In this Final EIS/EIR, two different levels of development are considered, 2005 for existing conditions and 2030 for future conditions. The differences between these levels of development in the DSM2 model are the amount of agricultural diversions and agricultural return flows. The agricultural diversions and return flows (to approximately 250 diversion nodes and 200 drainage nodes) were calculated by the Delta Island Consumptive Use model with consideration of precipitation, seepage, evapotranspiration, irrigation, soil moisture, leach water, runoff, crop type, and acreage. The DSM2 model for both existing and future without project conditions includes the South Delta Temporary Barriers Project (DWR, 2008b), which consists of four rock barriers that are installed seasonally across south Delta channels (at the head of Old River, Middle River,

[3] The Los Vaqueros module within CalSim II relies on input chloride concentrations to determine CCWD operations. The DSM2 channel locations used for this purpose are as follows:
(1) Rock Slough - ROLD024 (Old River at Bacon Island near Contra Costa Canal) was used for future LOD and CHCCC006 (Contra Costa Pumping Plant No.1) was used for the existing LOD. This distinction is made to include the effects of the CCWD Canal Replacement Project in the future LOD conditions.
(2) Old River - ROLD034, Old River near Byron.
(3) Victoria Canal (AIP) - CHVCT000, Victoria Canal at AIP.

Old River near Tracy, and Grant Line Canal) as fish and agricultural barriers. This is a change from the Draft EIS/EIR, DSM2 modeling of future conditions, which included four proposed South Delta Improvement Program (SDIP) permanent operable gates instead of the temporary barriers. In the Final EIS/EIR, the temporary barriers are assumed in the DSM2 modeling of future conditions to reflect the NMFS OCAP BO.

Key DSM2 inputs include tidal stage, boundary inflow and salinity concentration, and operation of flow control structures. **Table C2-1** summarizes basic input requirements and assumptions for the CACMP DSM2 version. Results from CalSim II are used to define Delta boundary inflows, including the Sacramento River flow at Hood, San Joaquin River flow at Vernalis, inflow from the Yolo Bypass, and inflow from the east-side streams. In addition, net Delta outflow from CalSim II is used to calculate the DSM2 salinity boundary at Martinez.

TABLE C2-1:
DSM2 INPUT REQUIREMENTS AND ASSUMPTIONS

Parameters	Assumptions
Period of Simulation	October 1976 – September 1991
Boundary Flows	CalSim II output: Sacramento River flow at Hood San Joaquin River flow at Vernalis Inflow from the Yolo Bypass Inflow from the east-side streams Net Delta Outflow CCWD diversions
Boundary Stage	15-minute adjusted astronomical tide
Agricultural Diversion & Return Flows	Delta Island Consumptive Use model, 2005/2030 level of development
Salinity	
Martinez EC	Computed from modified G-model, adjusted astronomical tide and Net Delta Outflow from CalSim II
Sacramento River	Constant value = 175 µS/cm
Yolo Bypass	Constant value = 175 µS/cm
Mokelumne River	Constant value = 150 µS/cm
Cosumnes River	Constant value = 150 µS/cm
Calaveras River	Constant value = 150 µS/cm
San Joaquin River	CalSim II EC estimate using link-node salt balance model
Agricultural Drainage	Varying monthly values that are constant year to year
Facility Operations	
Delta Cross Channel	CalSim II output
South Delta Barriers	Temporary barriers/SDIP operation of permanent barriers

C-3 MODELING ASSUMPTIONS

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Introduction

This chapter discusses the modeling assumptions used to characterize the Existing Conditions, the Future No Action/No Project Alternative, and the project alternatives described previously in Chapter 3. The different assumptions for the 2005 (existing) and 2030 (future) levels of development are summarized in **Table C3-1**. Table 3-3 in Chapter 3 summarizes the major facility components of the project alternatives.

TABLE C3-1:
OPERATIONS MODEL ASSUMPTIONS FOR EXISTING AND FUTURE LEVELS OF DEVELOPMENT

Description	Units	Existing Level of Development	Future Level of Development
PROJECTS OR FACILITIES			
Rock Slough Intake and Contra Costa Canal Pumping Plant No.1	(cfs)	350	350
Rock Slough Canal Replacement Project		NA[1]	Included
Rock Slough Fish Screen Project		Not included in existing condition; included for Alternatives 1, 2 and 4	Included
CCWD/EBMUD Intertie			
Annual delivery[2]	(TAF)	3.2	3.2
Intertie capacity	(cfs)	155	155
South Bay Aqueduct Improvement and Enlargement[3] Brushy Creek Pipeline capacity	(cfs)	430	430
Freeport Regional Water Project[4,5]		included	Included
DMC-CA Intertie		NA	Included
South Delta Improvements Program, Phase 1 (barriers)		NA	Not Included
South Delta Improvements Program, Phase 2		NA	Not Included
City of Stockton Delta Water Supply Project		NA	Included
WATER DEMANDS			
CCWD demand[6 7]	(TAF/yr)		
Wet year		111	149
Above normal year		118	157
Below normal year		124	162
Dry year		135	175
Critical year		144	184
EBMUD - CCWD Settlement Agreement			

[1] NA = not applicable.
[2] Under the CCWD settlement agreement, FRWA and EBMUD will wheel CVP contract water for CCWD.
[3] Due to the current construction schedule of the SBA Improvement and Enlargement Project, the expanded SBA capacity of 430 cfs is included in the existing condition scenarios.

[5] The Freeport Regional Water Project is a joint venture of the Sacramento County Water Agency and East Bay Municipal Utility District to supply water from the Sacramento River to customers in Sacramento County and the East Bay. Final EIR has been certified, Final EIS has been released, and on January 4, 2005, Reclamation issued the Record of Decision.
[6] Derived from CCWD's Future Water Supply Study (CCWD, August 1996), with adjustments made for the future condition to estimate the demand distribution in 2030. Future condition demands represent Service Area C. Demands and demand pattern taken from April 2004 Planning Report.
[7] Water-years defined by Sacramento Valley Water Year Index.

TABLE C3-1:
OPERATIONS MODEL ASSUMPTIONS FOR EXISTING AND FUTURE LEVELS OF DEVELOPMENT

Description	Units	Existing Level of Development	Future Level of Development
Delivery amount[8]	(TAF/yr)	3.2	3.2
EBMUD-CCWD Settlement Delivery location		Preferential delivery to storage, also direct delivery	Preferential delivery to storage, also direct delivery
EBMUD-CCWD Settlement Period of diversion		When water quality at Rock Slough allows CCWD demand to be met from Rock Slough, allowing delivery to storage	When water quality at Rock Slough allows CCWD demand to be met from Rock Slough, allowing delivery to storage
WATER QUALITY INPUT DATA – chloride concentration			
Rock Slough at CCWD Pumping Plant No. 1	(mg/L)	DSM2 output (CHCCC006)	DSM2 output (ROLD024)
Old River at Old River Pumping Plant	(mg/L)	DSM2 output (ROLD034)	DSM2 output (ROLD034)
New Delta Intake	(mg/L)	DSM2 output (ROLD034)	DSM2 output (ROLD034)
Victoria Canal at AIP	(mg/L)	DSM2 output (229_3048)	DSM2 output (229_3048)
Kellogg Creek	(mg/L)	Varies, 11 - 300	Varies, 11 - 300
Precipitation inflow to Los Vaqueros	(mg/L)	7	7
Mokelumne Aqueduct	(mg/L)	7.5	7.5

CalSim II Model

The version of CalSim II used in this study is the August 2009 draft released by the Bay Delta Conservation Plan (BDCP) team. Biological opinions (BOs) from the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) impose restrictions on CVP and SWP operations for the protection of federally listed threatened and endangered species and their critical habitat. USFWS released a new BO in December 2008, and NMFS released a new BO in June 2009. The BDCP CalSim II modeling assumptions include the fishery restrictions on CVP and SWP operations imposed by the new BOs. For details on the implementation of the reasonable and prudent alternative actions in the CalSim II modeling assumptions, consult the BDCP modeling team.

Water Demand Assumptions

CCWD Demand

CCWD demands are summarized by water-year type in Table C3-1. CCWD has a delivered water quality goal of delivering water with less than or equal to 65 mg/L chloride concentration. The

[8] Included in CCWD's 195 TAF/year CVP contract

model delivers the best possible water quality to CCWD customers while optimizing reservoir storage. While CCWD demand varies between Existing and Future LOD, it does not vary between the base simulation and the alternatives for a given LOD.

Delta Supply Restoration Demand

The South Bay water agencies' demand for Delta Supply Restoration water from an expanded Los Vaqueros Reservoir system was estimated using CalSim II data for each of the three SBA water agencies (ACWD, SCVWD, and Zone 7) and the SCVWD CVP M&I water users, collectively referred to as the South Bay water agencies. Delta supply restoration deliveries to the South Bay water agencies in Alternative 1 were assumed to replace deliveries lost due to the implementation of the moderate level of fishery restrictions resulting from the *NRDC vs. Kempthorne* decision. The Delta Supply Restoration demands were estimated by taking the difference in deliveries for each participating agency as output from CalSim II simulations for both pre- and post-delta smelt protection actions. Dry and critical year demands were then increased by an additional 50 percent and 200 percent, respectively, to approximate the estimated level of water supply required by these agencies in all years (contract allocation values are lower in dry and critically dry years, requiring more reliability water to meet a minimum delivery requirement). These values may be refined in future studies if improved estimates of the reliability demands of these agencies are developed. **Table C3-2** summarizes by water-year type the assumed Bay Area reliability demand from an expanded Los Vaqueros Reservoir.

**TABLE C3-2:
DELTA SUPPLY RESTORATION DEMANDS BY WATER-YEAR TYPE**

	Total Demand (TAF/year) [2]	
Water-Year Type [1]	**Existing**	**Future**
Wet	36.5	45.9
Above Normal	50.6	63.0
Below Normal	53.2	62.1
Dry	69.5	66.5
Critical	82.3	71.4

Notes:
[1] Water-years defined by Sacramento Valley Index (October – September).
[2] TAF/year = thousand acre-feet per year

Environmental Water Demand

Environmental water demands applied in Alternatives 2 are represented in the model by incremental South-of-Delta Level 4 refuge demands, as provided by the Bureau of Reclamation for the North of Delta Offstream Storage Investigations. Separate incremental demands were used for the San Joaquin Valley and Tulare Basin. In Alternative 2, environmental water is delivered through the South Bay Connection to Bethany Reservoir, and then delivered to the refuges using existing conveyance facilities. Deliveries from the Los Vaqueros Reservoir system to the San Joaquin Valley refuges are made through the Delta-Mendota Canal, and deliveries from the Los Vaqueros Reservoir system to the Tulare Basin refuges are made through the California Aqueduct. **Table C3-3** summarizes monthly refuge demands to be met through deliveries from the project facilities in Alternatives 2. .

TABLE C3-3:
REFUGE DEMANDS BY MONTH (TAF)

Month	San Joaquin Valley	Tulare Basin	Total
January	3.36	0.00	3.36
February	3.29	0.00	3.29
March	3.10	0.00	3.10
April	4.54	0.00	4.54
May	6.74	3.82	10.56
June	8.53	1.56	10.09
July	3.22	0.00	3.22
August	3.83	0.00	3.83
September	11.62	4.68	16.30
October	17.13	2.43	19.56
November	10.95	3.64	14.59
December	5.01	3.64	8.65
Total Annual (TAF/yr)	**81.32**	**19.77**	**101.09**

Water Supply Assumptions

CCWD Supply

On May 10, 2005, CCWD signed a long-term contract with Reclamation for delivery of up to 195,000 acre-feet of water per year for M&I uses in the CCWD service area. The contract expires in 2045. Through a settlement agreement with EBMUD, CCWD may receive a portion of its CVP supplies from the existing intertie with the Mokelumne Aqueduct. This settlement agreement supply is outlined in Table C3-1. The CVP annual allocations to north-of-Delta (NOD) M&I water service contractors are assigned for the contract year beginning in March and ending in February and is taken from CalSim II. For allocation of shortages, CCWD is considered an NOD M&I contractor.

D-1629, issued on June 2, 1994, gives CCWD the rights to divert and store water for beneficial uses. Under SWRCB Water Right Permits No. 20749 and 20750, CCWD may fill Los Vaqueros Reservoir from the intake at Old River and divert and store water from Kellogg Creek. These rights are in addition to the contractual rights to divert and store CVP contract water. Up to 95,850 acre-feet per year may be diverted for storage between November 1 and June 30 at a maximum rate of 200 cfs. Diversion is limited to periods when the Delta is in excess water conditions, as defined in the Coordinated Operations Agreement, given that those diversions will not adversely impact the operations of the SWP and CVP. CCWD may also divert water under its CVP water supply contract to storage in Los Vaqueros Reservoir throughout the year. CCWD diversions and filling of the reservoir are also subject to the provisions of the 1993 delta smelt and chinook salmon BOs and the 2009 Incidental Take Permit .

The water right permit for filling Los Vaqueros Reservoir includes the diversion and storage of water from Kellogg Creek (up to 9,640 acre-feet per year). Diversion from Kellogg Creek is limited to flows above 5 cfs, since the first 5 cfs must be released downstream. The simulated inflow from Kellogg Creek was defined as part of the modeling effort conducted for the 2004 Project Planning Report (CCWD, DWR, Reclamation, 2004). For the period of October 1921 to September 2003, Kellogg Creek inflow varies between 0 and 9,000 acre-feet per year, with an average of approximately 1,400 acre-feet per year; 96 percent of the inflow occurs from December to April.

CCWD can divert up to 26,780 acre-feet per year of water from Mallard Slough under its own water rights (SWRCB Water Right License No. 317 and Permit No. 19856). Diversions under this water right are not explicitly modeled in this study. The City of Antioch and several industrial customers of CCWD have water right permits to divert water from the Delta. These diversions are included in the CalSim II model through CCWD's diversions, and to some extent through the Delta Island Consumptive Use (DICU) estimates.

Historically, CCWD has relied on water transfers to supplement its CVP contract allocation. For example, in 2003, CCWD purchased 5,000 acre-feet from Yuba County Water Agency and CCWD regularly uses water under its contract with East Contra Costa Irrigation District. In this modeling analysis, CCWD is assumed to acquire transfers of water in years when its CVP allocation and water available under CCWD's Los Vaqueros water right are insufficient to meet CCWD demand. For modeling purposes, water transfers are limited to in-Delta exchanges, with transfers to CCWD created through reductions in Delta consumptive use. This modeling analysis is consistent with CCWD's Future Water Supply Plan, which anticipates that water transfers plus demand management will be used to meet water supply shortfalls. While CCWD's Future Water Supply Plan also anticipates demand management can be used to partially make up for a water supply shortfall, the modeling analysis for the Draft EIS/EIR and Final EIS/EIR did not assume such rationing would occur in the CCWD service area. This was done intentionally so that the environmental effects of a maximum level of potential CCWD diversions were evaluated in the model analysis.

Operational Constraints

Los Vaqueros Reservoir

As described in Chapter 2.1.2, existing biological opinions for the Los Vaqueros Project impose certain restrictions on operations of the Los Vaqueros system and CCWD's Delta diversions, including an annual 75-day no-fill period and a concurrent 30-day no-diversion period. The default dates for the no-fill and no-diversion periods are March 15 through May 31 and April 1 through April 30, respectively. Per the biological opinions, these restrictions are waived if storage in Los Vaqueros Reservoir is at or below emergency levels of 70 TAF in wet, above-normal, or below normal water years, and 44 TAF in dry or critically dry water years. The DFG ITP requires an additional 15 no-fill days beginning February 15 if Los Vaqueros Reservoir storage is at or above 90 TAF on February 1, or 10 no-fill days beginning February 19 if storage is at or above 80 TAF, or 5 no-fill days beginning Feburary 24 if storage is at or above 70 TAF. In the CalSim II modeling for this Draft EIS/EIR, the default no-fill and no-diversion periods are applied in CCWD operations for the Existing and Future Without Project conditions. For the Existing and Future analysis of Alternatives 1, 2 and 4, the no-fill period is shifted to occur in half of February and all of March and June, and the no-diversion period is shifted to March. The additional February no-fill requirement based on Los Vaqueros Reservoir storage also applies in the alternatives.

In the Existing Without Project conditions, water is preferentially diverted at the Old River and AIP intakes over the Rock Slough intake from January through August, unless this preference results in a reduction in total diversions. This maximizes use of currently screened intakes. In all other scenarios, the Rock Slough Fish Screen project, which is currently under construction, is assumed to be completed, so all CCWD intakes are screened, eliminating the need for preferential use of the Old River and AIP intakes. In the Future Without Project conditions, diversions are determined based on water quality considerations alone. For the analysis of Alternatives 1, 2 and 4 at existing and future levels of development, the Rock Slough intake is preferentially used from December through March and in June.

The operations model fills Los Vaqueros Reservoir with water from the Delta of up to 65 mg/L chloride concentration. Due to evaporation, it is possible for Los Vaqueros Reservoir to exceed 65 mg/L chloride concentration; under such a circumstance, filling with water above 65 mg/L chloride concentration is allowed as long as it lowers the salinity in the reservoir.

Alternatives 1 & 2

To improve fish screening in Delta diversions, Alternative 1 shifts the pumping of SWP and CVP supplies for South Bay water agencies to the more effectively screened Los Vaqueros Reservoir system intakes from the existing SWP or CVP export facilities. Alternative 1 also provides Delta supply restoration for South Bay water agencies through direct diversions or by making releases from Los Vaqueros Reservoir. Alternative 2 performs the same improved fish screening operations as Alternative 1. It also provides environmental water supplies for refuges, wildlife areas, and wetlands in the San Joaquin Valley.

The operations in Alternatives 1 and 2 are governed by the following rules:

- The CCWD share of Los Vaqueros Reservoir is assumed to be 120 TAF. All CCWD operations for water supply and water quality occur as described in the No Action/No Project Alternative. The other 155 TAF of storage in the expanded Los Vaqueros Resevoir is reserved for use by potential project partners.

- Filling of the CCWD share of Los Vaqueros Reservoir is limited to 200 cfs, as it is in the No Action/No Project Alternative. Filling of the partner share of Los Vaqueros Reservoir occurs with the remaining 470 cfs of filling capacity and can use the full 670 cfs of filling capacity when CCWD is not using its share. All filling is limited by the restrictions imposed by the existing Los Vaqueros Project biological opinions and water quality criteria that govern filling in the No Action/No Project Alternative, including the 75-day no-fill period and X2 restrictions.

- Diversions at the Old River, Victoria Canal, and new Delta intakes for the use of potential partners for either direct delivery to meet Delta supply restoration demands in Alternative 1 or environmental water demands in Alternative 2, or diversion to storage, are limited to excess Delta outflow as defined in the Coordinated Operations Agreement and also cannot occur if SWP and CVP Delta exports are constrained by D1641[9] or the restrictions on OMR net flow contained in the OCAP BOs.

- A 30-day no-diversion period is observed in the spring of each year at CCWD intakes, other than to meet CCWD service area demands when storage in Los Vaqueros Reservoir is at or below emergency levels. Deliveries to the South Bay water agencies are made through releases from Los Vaqueros Reservoir during these no-diversion periods when storage is available in the partner share of Los Vaqueros Reservoir. The no diversion period is implemented in March in the Final EIS/EIR analysis of Alternatives 1 and 2.

- All deliveries made to the South Bay water agencies through the Los Vaqueros Reservoir system under the improved fish screen operation results in an equivalent reduction in exports at Banks and Jones pumping plants. Diversions for improved fish screen operations at CCWD intakes are limited by the same terms of D1641 and the OCAP BOs that limit exports through Banks and Jones Pumping Plants.

- During periods of suitable water quality (< 65 mg/L chloride at CCWD intakes), filling of the CCWD share Los Vaqueros Reservoir is given priority over deliveries to South Bay water agencies under improved fish screening operations. These operations are performed concurrently when system capacity and Delta water quality allow.

- Deliveries to South Bay water agencies under improved fish screening operations are given priority over deliveries from Los Vaqueros facilities for Delta supply restoration (Alternative 1) or environmental water supply (Alternative 2).

- Delivery of CVP or SWP water supply to South Bay water agencies through the Los Vaqueros system is limited to the exports at Banks Pumping Plant and Jones Pumping Plant that would have been made to the South Bay water agencies in the absence of the project. These deliveries are augmented with Delta Supply Restoration in Alternative 1 only, as described above in the discussion of water demand assumptions.

- Water deliveries to South Bay water agencies that are shifted from Banks and Jones pumping plants to the Los Vaqueros system are diverted from the Delta year-round, with the exception of the 30-day no-diversion period, as described above. Deliveries for Delta Supply Restoration or Environmental water demand are preferentially diverted directly from the Delta when water and diversion capacity are available, or released from the partner share of Los Vaqueros Reservoir when the option of direct delivery is not available.

[9] D-1641 specifies export limits in the form of an E/I ratio, and defines export as the combined inflow rate to Clifton Court Forebay and the export rate of the Jones Pumping Plant. CCWD is considered an in-Delta diverter, not an exporter; therefore the project diversions used by CCWD are not constrained by the E/I ratio. For modeling purposes, water deliveries to South Bay water agencies or San Joaquin Valley wildlife refuges through the Los Vaqueros system in Alternatives 1 and 2 are assumed to be limited by E/I requirements, since water delivered to South Bay water agencies or San Joaquin Valley wildlife refuges is subject to the E/I standard.

Alternative 3

Modeling analysis of Alternative 3 was not performed for the Final EIR/S, as described in the updated Section 4.2.

Alternative 4

Under Alternative 4, CCWD would operate an expanded Los Vaqueros Reservoir for blending purposes and water supply reliability. Operational criteria would be as described for the No Action/No Project Alternative.

C-4 MODEL RESULTS – WATER SUPPLY AND MANAGEMENT

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Tables

Figures

Introduction

This appendix presents a summary of CalSim II model results for the project alternatives. For 2005 level of development, the project alternatives are compared to the Existing Condition. For 2030 level of development, the project alternatives are compared to the Future Without Project condition. This section contains updated results that reflect the modeling assumptions listed in Appendix C3.

2005 Level of Development

Model results for each project alternative are presented in **Table C4-1(A-D)** as average values for the full hydrologic study period (1921 to 2003) and a six-year dry period (1987 to 1992). These results include upstream and Delta flows and diversions (e.g. flow in Sacramento River and major tributaries, San Joaquin River flow, exports at Banks and Jones Pumping Plants, Net Delta Outflow, X2 position and QWEST), CVP and SWP south of Delta deliveries, CVP and SWP reservoir carry-over storages (at Folsom, Oroville, San Luis, Shasta and Trinity Reservoirs), and parameters specific to project alternative operations (CCWD and Los Vaqueros Reservoir (LV) diversions; additional south of Delta Environmental Water Supply deliveries; and Delta Supply Restoration deliveries to South Bay water agencies).

Table C4-2 and **Table C4-3** present the change in Delta channel flows and indices, upstream reservoir storages and local operation parameters for each project alternative as compared to the Existing Condition. Results are summarized in these tables as averages by water year type and by month, respectively.

Table C4-4 (A-D) presents the changes from the Existing Condition in monthly Banks and Jones export diversions for each project alternative, and **Table C4-5 (A-D)** presents the changes from the Existing Condition in monthly CCWD and Los Vaqueros Reservoir (LV) diversions for each project alternative. These tables also indicate whether the Delta is in excess or balanced conditions.

Table C4-6 presents CCWD diversions for each intake and alternative for the 2005 level of development.

Monthly and year type average changes in various Delta parameters (Sacramento River flow at Hood, San Joaquin River flow at Vernalis, Delta Outflow, combined Banks and Jones diversions, and combined CCWD and LV diversions) are presented in **Figure C4-1** through **Figure C4-5** and **Figure C4-10** through **Figure C4-14**, respectively. **Figure C4-6** shows the monthly average Los Vaqueros storage and **Figure C4-7** through **Figure C4-9** show time-series of storage for each alternative and the Existing Conditions.

Figure C4-15 through **Figure C4-20** are exceedence plots of the end of September storage in upstream reservoirs (Trinity, Shasta, Oroville, and Folsom) and San Luis Reservoir (CVP and SWP).

TABLE C4-1:
SUMMARY COMPARISON OF ANNUAL AVERAGE DIVERSIONS, DELIVERIES, RIVER FLOWS, AND CARRYOVER STORAGE, 2005 LOD

(A) ALTERNATIVE 1 COMPARED TO EXISTING CONDITION (NO ACTION)

	Existing Condition		Alternative 1		Difference (Alt – Ex. Cond.)		Percent Difference	
	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92
Diversions (TAF/yr)								
CCWD and LV Diversions	125	130	281	187	157	57	126%	44%
Banks Pumping Plant	2,625	1,425	2,528	1,324	-97	-101	-4%	-7%
Jones Pumping Plant	2,191	1,675	2,147	1,588	-43	-87	-2%	-5%
Total	4,941	3,231	4,957	3,100	16	-131	0%	-4%
Delta (cfs)								
Sacramento River at Hood	22,329	12,370	22,328	12,390	-1	20	0%	0%
San Joaquin River at Vernalis	4,254	1,446	4,254	1,446	0	0	0%	0%
Delta Outflow	22,055	8,470	22,032	8,482	-23	12	0%	0%
QWEST	2,946	320	2,924	308	-22	-12	-1%	-4%
X2 Position (km)	74	82	74	82	0	0	0%	0%
Upstream River Flows (cfs)								
Sacramento River at Keswick Dam	8,628	6,125	8,628	6,139	0	15	0%	0%
American River below Nimbus Dam	3,428	1,655	3,428	1,656	0	1	0%	0%
Feather River below Thermalito	4,393	2,007	4,393	2,004	0	-4	0%	0%
Reservoir Carryover Storage (TAF)								
Trinity	1,403	817	1,405	823	2	6	0%	1%
Shasta	2,719	1,776	2,716	1,772	-2	-4	0%	0%
Oroville	1,767	1,045	1,767	1,027	0	-18	0%	-2%
Folsom	520	295	520	291	0	-4	0%	-1%
CVP San Luis	172	112	175	120	3	8	2%	7%
SWP San Luis	411	339	417	359	6	20	1%	6%
Deliveries (TAF/yr)								
CVP SOD Ag	1,181	346	1,188	339	6	-7	1%	-2%
CVP SOD M&I	160	128	160	128	0	0	0%	0%
SWP Table A + Article 56	3,428	1,771	3,437	1,770	8	-1	0%	0%
SWP Article 21	116	12	113	13	-3	0	-3%	4%
Delta Supply Restoration + Dry Year	0	0	7	1	7	1	NA	NA

(B) ALTERNATIVE 2 COMPARED TO EXISTING CONDITION (NO ACTION)

	Existing Condition		Alternative 2		Difference (Alt – Ex. Cond.)		Percent Difference	
	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92
Diversions (TAF/yr)								
CCWD and LV Diversions	125	130	280	186	155	56	125%	43%
Banks Pumping Plant	2,625	1,425	2,532	1,325	-93	-100	-4%	-7%
Jones Pumping Plant	2,191	1,675	2,149	1,562	-42	-114	-2%	-7%
Total	4,941	3,231	4,961	3,073	20	-158	0%	-5%
Delta (cfs)								
Sacramento River at Hood	22,329	12,370	22,327	12,339	-3	-30	0%	0%
San Joaquin River at Vernalis	4,254	1,446	4,254	1,446	0	0	0%	0%
Delta Outflow	22,055	8,470	22,025	8,469	-30	-2	0%	0%
QWEST	2,946	320	2,918	330	-28	10	-1%	3%
X2 Position (km)	74	82	74	82	0	0	0%	0%
Upstream River Flows (cfs)								
Sacramento River at Keswick Dam	8,628	6,125	8,627	6,132	0	7	0%	0%
American River below Nimbus Dam	3,428	1,655	3,427	1,613	-1	-43	0%	-3%
Feather River below Thermalito	4,393	2,007	4,393	2,002	0	-5	0%	0%
Reservoir Carryover Storage (TAF)								
Trinity	1,403	817	1,406	825	3	8	0%	1%
Shasta	2,719	1,776	2,716	1,771	-2	-5	0%	0%
Oroville	1,767	1,045	1,767	1,028	0	-17	0%	-2%
Folsom	520	295	521	313	1	18	0%	6%
CVP San Luis	172	112	175	120	3	8	1%	7%
SWP San Luis	411	339	417	358	6	19	1%	6%
Deliveries (TAF/yr)								
CVP SOD Ag	1,181	346	1,187	319	5	-27	0%	-8%
CVP SOD M&I	160	128	160	125	0	-3	0%	-2%
SWP Table A + Article 56	3,428	1,771	3,438	1,774	9	2	0%	0%
SWP Article 21	116	12	113	13	-3	0	-3%	4%

TABLE C4-1:
SUMMARY COMPARISON OF ANNUAL AVERAGE DIVERSIONS, DELIVERIES, RIVER FLOWS, AND CARRYOVER STORAGE, 2005 LOD

Additional SOD Env Water Supply	0	0	15	0	15	0	NA	NA

(D) ALTERNATIVE 4 COMPARED TO EXISTING CONDITION (NO ACTION)

	Existing Condition		Alternative 4		Difference (Alt – Ex. Cond.)		Percent Difference	
	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92
Diversions (TAF/yr)								
CCWD and LV Diversions	125	130	126	124	1	-6	1%	-4%
Banks Pumping Plant	2,625	1,425	2,634	1,361	9	-65	0%	-5%
Jones Pumping Plant	2,191	1,675	2,194	1,605	3	-70	0%	-4%
Total	4,941	3,231	4,954	3,090	14	-140	0%	-4%
Delta (cfs)								
Sacramento River at Hood	22,329	12,370	22,331	12,361	2	-9	0%	0%
San Joaquin River at Vernalis	4,254	1,446	4,254	1,446	0	0	0%	0%
Delta Outflow	22,055	8,470	22,035	8,464	-20	-6	0%	0%
QWEST	2,946	320	2,928	319	-18	-1	-1%	0%
X2 Position (km)	74	82	74	82	0	0	0%	0%
Upstream River Flows (cfs)								
Sacramento River at Keswick Dam	8,628	6,125	8,628	6,114	0	-10	0%	0%
American River below Nimbus Dam	3,428	1,655	3,428	1,659	0	3	0%	0%
Feather River below Thermalito	4,393	2,007	4,393	1,994	0	-13	0%	-1%
Reservoir Carryover Storage (TAF)								
Trinity	1,403	817	1,404	807	0	-10	0%	-1%
Shasta	2,719	1,776	2,715	1,777	-4	1	0%	0%
Oroville	1,767	1,045	1,765	1,017	-2	-28	0%	-3%
Folsom	520	295	520	298	0	2	0%	1%
CVP San Luis	172	112	175	116	3	4	2%	3%
SWP San Luis	411	339	418	354	7	15	2%	4%
Deliveries (TAF/yr)								
CVP SOD Ag	1,181	346	1,185	327	4	-18	0%	-5%
CVP SOD M&I	160	128	160	127	0	-1	0%	-1%
SWP Table A + Article 56	3,428	1,771	3,441	1,802	12	31	0%	2%
SWP Article 21	116	12	114	12	-2	0	-2%	1%

TABLE C4-2:
ANNUAL VALUES BY WATER YEAR TYPE, 2005 LOD

Parameter	Long Term Average	Wet	Above Normal	Below Normal	Dry	Critical
CCWD and LV Diversions (TAF/yr)						
Average Total Diversions Existing Condition	**125**	**140**	**131**	**112**	**123**	**125**
Changes under Alternative 1	157	224	177	139	116	71
Changes under Alternative 2	155	221	177	139	115	70
Changes under Alternative 4	1	7	12	2	-7	-12
Improved Fish Screening Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	145	193	168	134	116	75
Changes under Alternative 2	140	181	167	132	114	75
Changes under Alternative 4	0	0	0	0	0	0
Delta (cfs)						
Sacramento River at Hood Existing Condition	**22,329**	**25,754**	**17,928**	**14,969**	**10,973**	**22,329**
Changes under Alternative 1	-1	5	-6	-2	-2	-1
Changes under Alternative 2	-3	12	-6	-1	-23	-3
Changes under Alternative 4	2	10	2	-11	-19	2
San Joaquin River at Vernalis Existing Condition	**4,254**	**4,002**	**3,351**	**2,283**	**1,681**	**4,254**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
Delta Outflow Existing Condition	**22,055**	**24,279**	**14,194**	**10,400**	**7,076**	**22,055**
Changes under Alternative 1	-23	-25	-21	-6	1	-23
Changes under Alternative 2	-30	-24	-26	-10	-4	-30
Changes under Alternative 4	-20	-33	-30	-7	-9	-20
Banks Pumping Plant Existing Condition	**3,619**	**3,948**	**3,648**	**3,065**	**1,968**	**3,619**
Changes under Alternative 1	-135	-149	-135	-117	-63	-135

TABLE C4-2:
ANNUAL VALUES BY WATER YEAR TYPE, 2005 LOD

Parameter	Long Term Average	Wet	Above Normal	Below Normal	Dry	Critical
Changes under Alternative 2	-129	-145	-131	-114	-63	-129
Changes under Alternative 4	13	16	20	3	6	13
Jones Pumping Plant Existing Condition	**3,022**	**3,119**	**3,048**	**2,838**	**2,209**	**3,022**
Changes under Alternative 1	-60	-62	-43	-42	-40	-60
Changes under Alternative 2	-58	-60	-42	-38	-55	-58
Changes under Alternative 4	5	8	9	0	-6	5
Banks + Jones Exports Existing Condition	**6,642**	**7,067**	**6,696**	**5,902**	**4,177**	**6,642**
Changes under Alternative 1	-195	-211	-178	-159	-104	-195
Changes under Alternative 2	-186	-204	-173	-152	-118	-186
Changes under Alternative 4	18	24	28	3	0	18
Banks + Jones + CCWD + LV Diversions Existing Condition	**6,814**	**7,260**	**6,876**	**6,056**	**4,346**	**6,814**
Changes under Alternative 1	22	34	14	2	-5	22
Changes under Alternative 2	28	40	18	7	-21	28
Changes under Alternative 4	19	41	30	-6	-16	19
QWEST Existing Condition	**2,946**	**3,011**	**1,134**	**-8**	**172**	**2,946**
Changes under Alternative 1	-22	-32	-4	-5	-1	-22
Changes under Alternative 2	-28	-32	-8	-10	8	-28
Changes under Alternative 4	-18	-35	-20	4	3	-18
X2 Position (km) Existing Condition	**74**	**72**	**76**	**79**	**83**	**74**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
Upstream River Flows (cfs)						
Sacramento River at Keswick Existing Condition	**8,628**	**8,966**	**6,994**	**6,716**	**6,298**	**8,628**
Changes under Alternative 1	0	0	-3	0	6	0
Changes under Alternative 2	0	-6	-3	0	3	0
Changes under Alternative 4	0	2	-1	-9	-6	0
American River below Nimbus Existing Condition	**3,428**	**3,851**	**2,825**	**2,088**	**1,413**	**3,428**
Changes under Alternative 1	0	1	1	1	-3	0
Changes under Alternative 2	-1	15	1	1	-21	-1
Changes under Alternative 4	0	2	2	-1	-3	0
Feather River below Thermalito Existing Condition	**4,393**	**4,615**	**3,203**	**2,886**	**2,217**	**4,393**
Changes under Alternative 1	0	8	-3	-2	-8	0
Changes under Alternative 2	0	8	-1	-2	-9	0
Changes under Alternative 4	0	4	2	-2	-13	0
Reservoir Carryover Storage (TAF)						
Trinity Existing Condition	**1,403**	**1,644**	**1,267**	**1,134**	**724**	**1,403**
Changes under Alternative 1	2	-2	5	4	3	2
Changes under Alternative 2	3	4	5	4	8	3
Changes under Alternative 4	0	-1	5	2	-2	0
Shasta Existing Condition	**2,719**	**3,123**	**2,892**	**2,478**	**1,322**	**2,719**
Changes under Alternative 1	-2	0	-12	1	-2	-2
Changes under Alternative 2	-2	1	-13	0	-1	-2
Changes under Alternative 4	-4	-2	-14	1	3	-4
Oroville Existing Condition	**1,767**	**1,944**	**1,834**	**1,203**	**913**	**1,767**
Changes under Alternative 1	0	-2	5	2	-2	0
Changes under Alternative 2	0	-2	5	2	-2	0
Changes under Alternative 4	-2	-3	2	-1	-5	-2
Folsom Existing Condition	**520**	**582**	**606**	**451**	**257**	**520**
Changes under Alternative 1	0	0	0	-1	0	0
Changes under Alternative 2	1	0	0	-1	11	1
Changes under Alternative 4	0	-1	-1	1	3	0
CVP San Luis Existing Condition	**172**	**125**	**211**	**136**	**177**	**172**
Changes under Alternative 1	3	2	4	2	4	3
Changes under Alternative 2	3	2	4	2	3	3
Changes under Alternative 4	3	3	5	1	3	3
SWP San Luis Existing Condition	**411**	**445**	**272**	**378**	**268**	**411**
Changes under Alternative 1	6	8	16	0	1	6
Changes under Alternative 2	6	9	16	1	0	6
Changes under Alternative 4	7	7	19	2	-1	7
CVP and SWP Deliveries (TAF/year)						
CVP SOD Ag Existing Condition	**1,181**	**1,309**	**1,060**	**859**	**419**	**1,181**
Changes under Alternative 1	6	13	7	9	0	6

TABLE C4-2:
ANNUAL VALUES BY WATER YEAR TYPE, 2005 LOD

Parameter	Long Term Average	Wet	Above Normal	Below Normal	Dry	Critical
Changes under Alternative 2	5	15	7	9	-9	5
Changes under Alternative 4	4	7	7	3	-4	4
CVP SOD M&I Existing Condition	**160**	**163**	**158**	**151**	**130**	**160**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	0	1	0	0	-1	0
Changes under Alternative 4	0	0	0	0	0	0
SWP Table A + Article 56 Existing Condition	**3,428**	**3,579**	**3,672**	**2,970**	**1,953**	**3,428**
Changes under Alternative 1	8	4	6	12	8	8
Changes under Alternative 2	9	5	6	13	10	9
Changes under Alternative 4	12	9	1	15	24	12
SWP Article 21 Existing Condition	**116**	**111**	**68**	**59**	**40**	**116**
Changes under Alternative 1	-3	6	-20	-8	1	-3
Changes under Alternative 2	-3	6	-20	-8	1	-3
Changes under Alternative 4	0	4	0	-5	0	0
Improved Fish Screening for CVP South Bay	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	67	76	52	53	39	67
Changes under Alternative 2	63	75	51	49	39	63
Changes under Alternative 4	0	0	0	0	0	0
Improved Fish Screening for SWP South Bay	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	141	161	137	116	65	141
Changes under Alternative 2	136	159	134	113	65	136
Changes under Alternative 4	0	0	0	0	0	0
CVP Delta Supply Restoration Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	2	2	1	2	0	2
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
SWP Delta Supply Restoration Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	5	4	3	8	1	5
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
Additional CVP SOD Environmental Water from Dedicated Storage Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	15	34	7	8	9	0
Changes under Alternative 4	0	0	0	0	0	0

**TABLE C4-3:
AVERAGE MONTHLY VALUES, 2005 LOD**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
CCWD and LV Diversions (TAF)												
Average Total Diversions Existing Condition	**10**	**8**	**7**	**7**	**7**	**6**	**3**	**10**	**21**	**20**	**16**	**11**
Changes under Alternative 1	15	14	15	16	14	-5	18	14	10	18	14	15
Changes under Alternative 2	15	14	14	16	14	-5	18	14	9	18	14	15
Changes under Alternative 4	1	0	0	0	-1	-5	8	3	-8	1	1	1
Improved Fish Screening Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	14	11	13	15	14	0	9	10	17	15	12	14
Changes under Alternative 2	13	10	13	14	14	0	9	10	16	15	12	14
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Delta (cfs)												
Sacramento River at Hood Existing Condition	**11,607**	**15,153**	**26,079**	**32,967**	**39,046**	**33,535**	**23,278**	**19,083**	**16,245**	**18,904**	**15,666**	**16,390**
Changes under Alternative 1	-2	-31	-29	21	-4	14	-22	7	58	0	-16	-13
Changes under Alternative 2	5	-29	-29	20	-4	13	-20	11	57	-30	-15	-13
Changes under Alternative 4	2	-12	-2	-5	2	11	-19	13	42	-2	-10	1
San Joaquin River at Vernalis Existing Condition	**2,815**	**2,484**	**3,246**	**4,704**	**6,285**	**6,547**	**6,399**	**6,418**	**4,601**	**3,194**	**2,052**	**2,299**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Delta Outflow Existing Condition	**7,102**	**11,178**	**23,773**	**41,723**	**51,806**	**42,136**	**29,869**	**22,576**	**12,616**	**7,850**	**5,810**	**8,224**
Changes under Alternative 1	-27	-72	31	-65	-31	161	-170	-47	10	-44	-7	-13
Changes under Alternative 2	-31	-87	29	-74	-40	125	-171	-49	1	-36	-14	-15
Changes under Alternative 4	-19	-36	20	-71	-23	72	-160	-30	17	-16	-1	2
Banks Pumping Plant Existing Condition	**2,988**	**2,917**	**4,779**	**3,569**	**4,130**	**3,894**	**995**	**1,097**	**2,449**	**6,142**	**5,453**	**5,023**
Changes under Alternative 1	-137	-73	-138	-141	-192	-49	-108	-145	-99	-171	-179	-184
Changes under Alternative 2	-129	-59	-137	-131	-185	-32	-107	-143	-90	-171	-180	-181
Changes under Alternative 4	-3	20	5	37	32	6	0	-1	85	-3	-11	-14
Jones Pumping Plant Existing Condition	**3,365**	**3,687**	**3,750**	**3,207**	**3,145**	**2,794**	**997**	**1,078**	**2,364**	**3,975**	**3,896**	**4,010**
Changes under Alternative 1	-76	-120	-129	-48	-21	-24	-42	-24	-18	-82	-58	-74
Changes under Alternative 2	-72	-113	-117	-45	-18	-7	-42	-24	-9	-120	-50	-75
Changes under Alternative 4	14	-4	-22	15	13	10	0	0	74	-13	-22	-3
Banks + Jones Exports Existing Condition	**6,353**	**6,604**	**8,529**	**6,776**	**7,274**	**6,688**	**1,991**	**2,175**	**4,813**	**10,117**	**9,349**	**9,034**
Changes under Alternative 1	-213	-193	-268	-189	-213	-73	-151	-170	-116	-253	-238	-258
Changes under Alternative 2	-201	-172	-254	-176	-203	-38	-149	-167	-99	-290	-230	-256
Changes under Alternative 4	11	15	-17	52	45	15	0	-1	159	-17	-33	-17
Banks + Jones + CCWD + LV Diversions Existing Condition	**6,511**	**6,731**	**8,646**	**6,883**	**7,395**	**6,792**	**2,035**	**2,344**	**5,160**	**10,446**	**9,604**	**9,217**
Changes under Alternative 1	26	40	-31	69	33	-147	148	54	48	42	-15	-1
Changes under Alternative 2	36	58	-28	81	41	-112	152	60	56	3	-7	1
Changes under Alternative 4	22	23	-17	52	22	-66	140	43	26	7	-20	-3
QWEST Existing Condition	**310**	**139**	**452**	**5,850**	**7,993**	**7,001**	**9,030**	**7,479**	**3,201**	**-2,094**	**-2,350**	**-1,662**
Changes under Alternative 1	-22	-30	26	-66	-33	149	-151	-53	-33	-45	5	-4
Changes under Alternative 2	-26	-44	23	-78	-42	114	-154	-58	-41	-15	-3	-7
Changes under Alternative 4	-14	-4	18	-53	-22	67	-143	-41	-15	-14	7	1
X2 Position (km) Existing Condition	**83**	**83**	**80**	**76**	**69**	**64**	**64**	**66**	**69**	**74**	**79**	**83**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0

TABLE C4-3:
AVERAGE MONTHLY VALUES, 2005 LOD

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
E/I Ratio Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Upstream River Flows (cfs)												
Sacramento River at Keswick Existing Condition	**6,492**	**6,024**	**7,737**	**8,303**	**10,399**	**8,581**	**6,802**	**7,834**	**10,623**	**13,044**	**10,365**	**7,330**
Changes under Alternative 1	22	-24	3	-2	-5	-10	16	6	2	-11	-5	7
Changes under Alternative 2	21	-38	2	1	-4	-12	17	11	3	8	-17	4
Changes under Alternative 4	29	-20	3	-8	-15	-13	16	13	0	-5	-5	8
American River below Nimbus Existing Condition	**1,629**	**2,699**	**3,520**	**4,411**	**5,243**	**3,790**	**3,301**	**3,598**	**3,737**	**3,743**	**2,704**	**2,758**
Changes under Alternative 1	-3	1	1	1	0	-3	4	1	-10	6	-5	7
Changes under Alternative 2	4	17	1	2	0	-3	6	1	-11	-43	10	9
Changes under Alternative 4	15	3	3	-15	0	-3	6	2	-14	4	-12	11
Feather River below Thermalito Existing Condition	**2,997**	**2,244**	**4,276**	**4,026**	**5,380**	**5,561**	**3,024**	**3,592**	**3,646**	**7,543**	**5,975**	**4,451**
Changes under Alternative 1	-21	-8	-5	5	9	0	1	4	44	4	-10	-29
Changes under Alternative 2	-21	-9	-4	5	8	4	1	4	47	5	-12	-26
Changes under Alternative 4	-43	5	-3	5	16	-3	2	2	34	-1	2	-20
CVP and SWP Deliveries (TAF)												
CVP SOD Ag Existing Condition	**439**	**337**	**466**	**818**	**1,023**	**621**	**1,009**	**1,449**	**2,417**	**2,906**	**2,003**	**687**
Changes under Alternative 1	4	1	2	3	4	2	5	6	11	14	23	3
Changes under Alternative 2	4	1	2	4	4	2	5	7	11	-1	22	3
Changes under Alternative 4	3	1	1	2	2	1	2	4	6	8	14	2
CVP SOD M&I Existing Condition	**141**	**191**	**189**	**125**	**64**	**188**	**163**	**146**	**151**	**171**	**181**	**213**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	-2	1	0
Changes under Alternative 4	1	0	0	0	0	0	0	0	0	0	0	0
SWP Table A + Article 56 Existing Condition	**2,987**	**2,630**	**2,372**	**2,282**	**2,685**	**2,401**	**3,059**	**3,723**	**4,752**	**5,402**	**5,171**	**3,678**
Changes under Alternative 1	2	4	4	24	25	21	4	1	24	-3	-3	-2
Changes under Alternative 2	3	5	4	24	27	21	5	4	26	-2	-2	-2
Changes under Alternative 4	5	12	1	30	24	23	7	9	30	3	1	2
SWP Article 21 Existing Condition	**33**	**46**	**63**	**154**	**362**	**503**	**71**	**60**	**39**	**33**	**4**	**24**
Changes under Alternative 1	0	0	-4	4	-43	4	0	0	0	0	1	0
Changes under Alternative 2	0	0	-4	4	-43	1	0	0	0	0	1	0
Changes under Alternative 4	0	1	-4	5	-4	1	0	0	0	0	0	0
Improved Fish Screening for CVP South Bay Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	82	113	127	57	40	33	42	24	100	68	48	75
Changes under Alternative 2	82	105	116	56	38	16	42	24	91	67	47	75
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Improved Fish Screening for SWP South Bay Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	140	73	91	180	216	57	108	146	193	178	152	158
Changes under Alternative 2	136	60	91	172	208	40	107	143	185	178	152	155
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
CVP South Bay Delta Supply Restoration	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TABLE C4-3:
AVERAGE MONTHLY VALUES, 2005 LOD

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Existing Condition												
Changes under Alternative 1	1	3	3	3	2	4	1	1	2	0	1	1
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
SWP South Bay Delta Supply Restoration Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	5	10	10	1	2	4	1	4	14	1	6	7
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Additional CVP SOD Environmental Water from Dedicated Storage Existing Condition	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	12	45	27	13	19	8	1	10	29	2	2	14
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0

TABLE C4-4:
CHANGES IN BANKS + JONES EXPORTS (CFS), 2005 LOD

(A) Alternative 1

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	-338	-179	-24	-204	-90	88	-285	-308	-296	-400	-400	-400
1923	-313	-335	-308	-303	-307	0	-194	-181	-353	-382	-81	-124
1924	-123	-154	-211	-233	-205	0	0	0	4	-144	-44	-14
1925	-52	-56	-1372	1032	-106	64	-92	-51	-301	-153	-50	-115
1926	-208	-170	-105	-113	-164	0	-76	-174	-27	-130	88	-14
1927	-51	-30	-259	-134	-77	38	-104	-175	-131	-396	-343	-403
1928	-287	-292	-268	-317	-313	85	-114	-177	-255	-397	-395	-397
1929	-278	-278	-268	-221	-354	38	-60	-101	-72	-196	-39	-199
1930	-168	-177	-156	-114	74	38	-74	-115	68	-338	-137	-188
1931	-180	-88	-106	-111	-106	0	0	0	0	-457	0	-14
1932	-52	-86	-98	-151	-107	50	0	-125	55	-154	-150	-194
1933	-158	-88	-109	-113	-107	0	-79	-128	0	-205	-1	-201
1934	-56	-88	-93	-103	-6	52	0	0	5	-336	0	-162
1935	73	-114	-96	-103	-96	0	-103	-80	-44	-379	-177	-25
1936	-56	-96	-118	-135	-439	38	-168	-174	-58	-219	-45	-129
1937	-171	-183	-260	-180	-163	-270	-266	-300	-225	-401	-266	0
1938	-234	-153	-289	-285	-396	0	-347	0	-353	-400	-400	-400
1939	-400	-239	-351	-228	-397	-400	-197	-266	-159	1	-168	-211
1940	-203	-132	-104	-120	-176	38	-271	-196	-53	-385	-213	-561
1941	-317	-303	-232	-236	-258	-9	-320	-385	-322	-399	-400	-400
1942	-369	-230	-348	-324	-216	33	-297	-342	-306	-400	-400	-400
1943	-325	-344	-320	-333	-300	0	-310	-199	-381	-400	-400	-400
1944	-347	-231	-335	-221	-370	0	-96	-137	20	-332	-312	-348
1945	-189	-132	-3217	-228	-159	215	-108	-180	-80	-219	-10	837
1946	-180	-139	-122	-285	-539	38	-133	-174	-54	-251	28	-210
1947	324	-245	-229	-135	-400	0	-117	-93	-49	-63	-186	-360
1948	169	-16	-858	-111	-90	0	-78	-180	-192	-467	-8	6
1949	-48	-93	-114	-135	-149	0	-129	-184	-242	-207	-184	-226
1950	-177	-547	-92	-113	-169	38	-128	-183	189	-219	92	-107
1951	-55	-29	0	-170	-27	-267	-105	-182	-293	-208	-326	-400
1952	-318	-319	-299	-321	-315	0	-343	-400	-302	0	-400	-400
1953	-387	-238	-361	-310	-289	-334	-120	-161	-115	-374	-388	-391
1954	-289	-190	-281	-162	-108	-5	-126	-181	-241	-337	-320	-398
1955	-342	-331	-284	-175	-128	1	-68	-106	-207	-295	-515	-405
1956	-201	-218	-221	-179	-213	-7	-139	-216	-150	-400	-400	-400
1957	-366	-232	-347	-221	-400	0	-101	-145	200	-359	-369	-669
1958	-239	-151	-145	-150	-148	0	-347	-400	-359	-400	-400	-400
1959	-400	-238	-374	-224	-145	1	-103	-148	37	-371	-123	-151
1960	-182	-305	-207	-180	-162	0	-116	-166	89	1	-187	-346
1961	-353	-82	-90	-113	-199	38	-117	-157	1173	0	-194	-1917
1962	879	35	-106	-111	-191	0	-122	-132	189	-218	-32	59
1963	0	0	-198	-276	-134	-168	-120	-101	-262	-398	-195	-375
1964	-313	-302	231	-293	-226	-174	0	-33	-242	-24	-643	-200
1965	-217	-210	-235	-125	99	38	-151	-198	-80	-400	-400	-400
1966	-355	-364	-342	-317	-308	0	-189	-137	-177	-311	-17	-301
1967	-211	-213	-238	-160	61	38	-323	-321	-353	0	-400	-400
1968	-371	-393	-350	-226	-319	-378	-248	-164	-88	-374	-38	-123
1969	-211	-201	-153	-272	-222	-94	-348	0	-353	-400	-400	-405
1970	-398	-239	-367	0	-306	-391	-121	-180	-249	-398	-400	-482
1971	-300	-301	-294	-312	-302	-305	-139	-163	-219	-419	-319	-361
1972	-275	-131	0	-195	-136	-249	-124	-181	-161	-292	19	-157
1973	-194	-150	-267	-262	-217	38	-105	-111	-53	-390	-276	-531
1974	-286	0	258	-288	-293	-297	-158	-203	-257	-400	-400	-400
1975	-339	-215	-324	-207	-358	-27	-213	-175	-255	-399	-400	-399
1976	-383	-175	-281	-184	-217	0	-110	-157	-138	-138	-201	-351
1977	-10	-147	-89	-103	-112	-1	0	-31	0	0	-71	-14
1978	-50	-84	-102	-98	-32	0	-322	-321	-80	-400	-214	-244
1979	-391	-376	-351	-400	-314	0	-239	-309	-219	-381	-29	-125
1980	-169	-186	0	-275	-166	-4	-278	-268	-381	-400	-400	-400
1981	-384	-381	-294	-228	-230	109	-291	-155	-73	2	-180	-241
1982	-194	-134	-205	-129	-15	-102	-27	-321	-33	-400	-400	0
1983	0	0	-603	-395	-490	-422	-215	-365	-368	-372	-348	-361
1984	-362	-365	-367	-395	-414	-355	-122	-192	-249	-398	-400	-409
1985	-339	-107	-300	-309	-305	-269	-116	0	-146	-61	-532	-143
1986	-191	-183	-195	-388	-388	-357	-300	-321	-353	-400	-218	-224
1987	-634	-206	-326	-226	-162	-167	-55	-86	89	46	-197	-140
1988	-196	-210	-200	-159	-47	-1	-47	-79	-66	-63	-74	-4
1989	-166	-112	61	-103	-76	0	-107	-173	-38	-161	-49	419
1990	-49	-270	-106	-111	-313	0	0	-51	5	-42	-273	-14
1991	101	-85	-278	-70	-44	0	-57	-94	0	-521	110	-14
1992	-52	-85	-74	-86	-76	0	-53	0	91	1479	-1377	-197
1993	-52	-85	-103	-155	-105	0	-113	-188	-79	-394	-209	-233
1994	-312	-370	-128	-230	-400	38	-84	-125	79	-151	-211	-189
1995	-199	-186	-159	-214	-70	0	-329	0	-207	0	1	-252
1996	-456	-289	-367	-273	-206	-300	-223	-350	-260	-401	-401	-400
1997	-332	-344	-322	0	-398	-391	-122	-203	-249	-400	-400	-400
1998	-350	-435	-328	-296	-275	-331	-317	-400	-354	0	-1	0
1999	-698	-293	-361	-314	-302	-366	-249	-201	-254	-385	-398	-399
2000	-288	-169	-264	-220	-392	-265	-127	-171	-42	-411	-400	-400
2001	-292	-292	-267	-221	-335	-284	-54	-68	82	-535	-137	-135
2002	-196	-158	-206	-72	-45	-210	-108	-179	-58	1	-156	-347
2003	-350	95	-270	-350	-350	38	-101	-146	100	-246	-212	-266
Average	**-213**	**-193**	**-268**	**-189**	**-213**	**-73**	**-151**	**-170**	**-116**	**-253**	**-238**	**-258**

TABLE C4-4: CHANGES IN BANKS + JONES EXPORTS (CFS), 2005 LOD

(B) Alternative 2

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	-338	-179	-24	-204	-90	88	-285	-308	-296	-400	-400	-400
1923	-313	-334	-308	-303	-307	0	-194	-181	-353	-382	-81	-124
1924	-123	-154	-211	-233	-205	0	0	0	4	-142	-44	-14
1925	-52	-59	-1373	1032	-106	64	-92	-51	-301	-154	-51	-115
1926	-208	-170	-105	-113	-164	0	-76	-174	-27	-128	90	-15
1927	-51	0	-259	-134	-77	38	-104	-175	-131	-396	-343	-403
1928	-286	-292	-268	-317	-313	85	-114	-177	-255	-397	-395	-397
1929	-278	-279	-268	-221	-354	38	-60	-101	-72	-196	-39	-199
1930	-168	-181	-156	-114	74	38	-74	-115	68	-334	-137	-188
1931	-180	-88	-106	-111	-106	0	0	0	0	-456	0	-14
1932	-52	-86	-98	-151	-107	50	0	-125	55	-154	-150	-194
1933	-159	-88	-109	-113	-107	0	-79	-128	0	-205	-1	-201
1934	-56	-88	-94	-103	-6	51	0	0	5	-339	0	-162
1935	59	25	-98	-103	-97	0	-103	-80	-45	-380	-177	-24
1936	-55	-96	-119	-135	-438	38	-168	-174	-58	-219	-44	-129
1937	-172	-183	-260	-180	-109	-279	-265	-300	-225	-402	-265	1
1938	-234	0	-289	-285	-342	0	-347	0	-230	-400	-400	-400
1939	-400	-240	-259	-228	-341	-238	-305	-246	-159	1	-168	-203
1940	-203	-132	-105	-120	-176	38	-271	-196	-53	-385	-213	-559
1941	-318	-304	-229	-236	-258	0	-320	-385	-322	-399	-400	-400
1942	-370	-230	-348	-317	-216	39	-297	-342	-306	-400	-400	-400
1943	-326	-345	-320	-317	-308	0	-310	-199	-381	-400	-400	-400
1944	-347	-231	-335	-221	-370	0	-96	-137	20	-332	-312	-349
1945	-189	0	-3217	-228	-159	215	-108	-180	-80	-219	-10	837
1946	-180	0	-122	-285	-539	38	-132	-174	-55	-251	28	-210
1947	318	-252	-229	-135	-400	0	-117	-93	-49	-63	-186	-350
1948	164	-18	-826	-111	-90	0	-78	-180	-192	-469	-7	5
1949	-48	-93	-115	-135	-149	0	-129	-184	-242	-207	-183	-226
1950	-177	-549	-93	-113	-169	38	-128	-183	189	-219	88	-104
1951	-55	0	0	-170	-29	-141	-105	-182	-297	-210	-325	-400
1952	-318	-319	-299	-319	-315	0	-343	-400	-302	0	-400	-400
1953	-387	-155	-259	-264	-245	-148	-120	-161	-115	-374	-388	-392
1954	-290	-190	-269	-162	-108	84	-126	-181	-241	-340	-320	-398
1955	-341	-331	-282	-175	-128	1	-68	-106	-207	-295	-517	-403
1956	-201	-218	-221	-136	-213	2	-139	-216	-150	-400	-400	-400
1957	-366	-232	-347	-221	-400	0	-101	-145	200	-359	-369	-669
1958	-239	-148	-146	-150	-148	0	-347	-400	-359	-400	-400	-400
1959	-400	-238	-374	-224	-145	1	-103	-148	37	-371	-123	-151
1960	-182	-306	-206	-180	-162	0	-116	-166	89	1	-187	-346
1961	-352	-82	-90	-113	-199	38	-116	-157	1173	0	-195	-1917
1962	879	35	-106	-111	-191	0	-122	-132	189	-218	-32	59
1963	0	0	-198	-276	-134	-80	-120	-101	-275	-398	-195	-375
1964	-313	-154	231	-280	-226	1	0	-37	-242	-23	-663	-200
1965	-218	-215	-235	-125	99	38	-151	-198	-80	-400	-400	-400
1966	-355	-364	-342	-317	-308	0	-189	-137	-177	-311	-17	-301
1967	-211	-216	-238	-160	61	38	-323	-321	-230	0	-400	-400
1968	-371	-394	-259	-226	-264	-106	-248	-164	-88	-374	-41	-128
1969	-212	-203	-75	-272	-222	-92	-348	0	-230	-400	-400	-404
1970	-399	-239	-259	0	-249	-349	-121	-180	-127	-397	-400	-477
1971	-301	-261	-293	-318	-305	86	-139	-163	-219	-419	-321	-361
1972	-275	-129	0	-195	-136	-249	-124	-181	-211	-286	20	-157
1973	-194	0	-267	-262	-217	38	-105	-112	-53	-390	-276	-530
1974	-286	0	263	-250	-248	-98	-158	-203	-304	-400	-400	-400
1975	-339	-215	-324	-207	-360	0	-225	-175	-255	-399	-400	-399
1976	-436	-175	-281	-184	-217	0	-111	-159	-138	-140	-204	-360
1977	-9	-127	-62	-103	-113	-1	0	-30	1	0	-46	-14
1978	-50	-84	-99	-97	-32	0	-323	-321	-80	-400	-214	-244
1979	-391	-377	-351	-400	-314	0	-240	-309	-219	-381	-29	-128
1980	-173	-187	0	-290	-113	-5	-278	-268	-381	-400	-400	-400
1981	-385	-381	-294	-228	-230	109	-291	-155	-73	2	-180	-241
1982	-194	0	-205	-129	-15	-102	0	-321	90	-400	-400	0
1983	0	0	-495	0	-425	-339	0	-150	-230	-348	-338	-126
1984	-82	-155	-259	-345	-349	-350	-122	-192	-126	-397	-400	-409
1985	-339	0	-259	-263	-249	-237	-116	0	-84	-58	-531	-120
1986	-110	-176	-196	-345	-340	-122	-300	-321	-400	-400	-218	-228
1987	-575	-206	-326	-226	-163	0	-55	-86	89	45	-212	-143
1988	-196	-210	-200	-158	-47	-1	-47	-79	-66	-97	-97	-4
1989	-132	-134	90	-103	-76	0	-107	-173	-39	-157	-45	431
1990	-49	-280	-106	-111	-312	0	0	-51	5	-39	-281	-14
1991	106	-85	-285	-70	-44	0	-57	-94	0	-502	103	-14
1992	-50	-85	-75	270	-76	0	-54	0	89	-1645	-707	-197
1993	475	123	-49	-156	-106	0	-114	-189	-79	-390	-206	-227
1994	-316	-316	-127	-230	-400	38	-83	-125	79	-151	-213	-197
1995	-213	-175	-147	-213	-69	0	-329	0	-102	0	1	-252
1996	-450	-289	-259	-273	-206	-270	-223	-350	-137	-401	-401	-400
1997	-332	-336	-322	0	-341	-350	-122	-203	-126	-400	-400	-400
1998	-350	-420	-329	-298	-277	0	-317	-400	-231	0	-1	0
1999	-699	0	-259	-264	-245	-370	-236	-178	-131	-385	-398	-399
2000	-289	-169	-264	-220	-343	-338	-126	-171	51	-410	-399	-400
2001	-292	-291	-267	-221	-297	-285	-54	-68	82	-515	-136	-139
2002	-196	-165	-206	-72	-54	38	-108	-179	-58	1	-163	-332
2003	-326	-199	-270	-350	-350	38	-101	-147	100	-248	-213	-326
Average	**-201**	**-172**	**-254**	**-176**	**-203**	**-38**	**-149**	**-167**	**-99**	**-290**	**-230**	**-256**

TABLE C4-4:
CHANGES IN BANKS + JONES EXPORTS (CFS), 2005 LOD

(D) Alternative 4

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	-61	-177	171	-148	56	88	0	0	104	-1	0	0
1923	-7	-1	0	95	93	0	0	0	16	1	-22	2
1924	8	5	3	0	0	0	0	0	118	-165	0	171
1925	150	80	-35	203	0	63	0	0	-106	118	-67	30
1926	-157	28	0	-2	0	0	0	0	320	-128	-13	0
1927	0	0	0	120	131	38	0	0	250	0	-113	4
1928	-2	-4	2	-118	82	84	0	0	117	4	89	0
1929	5	-38	0	-10	0	38	0	-2	4	37	2	-38
1930	-20	-4	-14	0	149	38	0	0	320	-163	-42	47
1931	18	111	107	113	0	0	0	0	0	-781	0	0
1932	0	116	0	0	-1	60	0	0	164	16	-11	3
1933	13	0	-3	0	0	0	0	0	0	255	0	-67
1934	-4	44	3	0	100	51	0	0	111	-191	0	40
1935	10	-8	3	0	1	0	0	0	320	-2	-80	2
1936	-1	1	-1	0	-263	38	0	0	320	-1	0	0
1937	8	7	-6	13	-1	-227	0	0	176	-2	-52	1
1938	-29	0	0	115	-1	0	0	0	0	0	-121	0
1939	-2	-1	0	-7	1	0	0	0	0	-1	0	42
1940	-17	49	98	103	0	38	0	0	320	19	1	-304
1941	-4	5	84	74	0	0	0	0	78	1	0	0
1942	-4	0	0	48	84	40	0	0	94	0	0	0
1943	-1	0	0	58	92	0	0	0	19	0	0	0
1944	1	0	0	-1	30	0	0	0	320	0	-180	-155
1945	-3	0	0	0	15	8	0	0	320	0	18	970
1946	2	0	82	115	-139	38	0	0	320	2	48	-52
1947	669	107	0	91	0	0	0	0	320	0	0	-525
1948	55	493	-919	123	84	0	0	0	160	-111	44	4
1949	5	2	17	0	0	0	0	0	146	-1	-1	0
1950	-81	-1	2	0	45	38	0	0	320	1	-203	138
1951	1	0	0	115	116	88	0	0	103	13	0	0
1952	-11	-1	0	66	87	0	0	0	98	0	0	0
1953	1	0	0	81	96	0	0	0	99	2	1	3
1954	-2	0	-16	81	92	84	0	0	125	60	78	2
1955	-27	-23	-16	93	90	1	0	0	0	-8	-386	-235
1956	-8	-8	-5	0	0	2	0	0	250	0	0	0
1957	-2	0	1	0	0	0	0	0	320	1	4	-291
1958	34	-3	5	98	51	0	0	0	41	0	0	0
1959	-2	0	0	1	49	1	0	0	250	1	3	0
1960	1	-86	16	48	0	0	0	0	320	1	0	-102
1961	-144	45	0	121	0	38	-20	22	1546	1	1	-1815
1962	762	1	0	0	0	0	0	0	320	0	-47	84
1963	0	0	0	0	83	83	0	0	96	3	30	29
1964	-12	-200	692	56	87	1	0	0	0	-1	-898	-37
1965	-28	0	20	120	296	38	0	0	320	-1	-1	0
1966	3	1	0	81	92	0	0	0	127	1	56	-130
1967	-16	0	0	75	262	38	0	0	0	0	0	0
1968	-1	-137	0	-6	79	5	0	0	250	0	-7	31
1969	-20	-12	0	0	0	-93	0	0	0	0	0	-5
1970	0	-2	0	0	92	1	0	0	104	1	0	-33
1971	6	4	2	83	95	86	0	0	96	-69	30	2
1972	-3	18	0	-2	59	0	0	0	157	0	28	20
1973	-6	0	0	58	56	38	0	0	320	1	-62	-132
1974	2	0	370	95	93	83	0	0	96	0	0	0
1975	0	0	0	-3	40	0	0	0	130	1	0	1
1976	-135	10	0	-1	-2	0	0	0	-9	39	0	-173
1977	196	85	-203	129	-2	2	0	2	0	0	-39	0
1978	-1	0	103	0	49	0	0	0	320	0	0	0
1979	-18	1	0	0	86	0	0	0	160	1	-7	21
1980	-237	0	0	110	0	-24	0	0	19	0	0	0
1981	-4	0	0	-5	170	109	0	0	146	1	1	-32
1982	-10	0	52	137	296	-103	0	0	320	0	0	0
1983	0	0	-235	0	-80	0	0	0	0	0	0	0
1984	0	0	0	0	-8	0	0	0	104	8	0	-18
1985	-21	0	0	83	92	113	0	0	-1440	2	778	6
1986	-450	1594	299	0	0	1	0	0	174	3	623	779
1987	-172	-990	4	-3	0	0	0	0	320	-206	-113	-14
1988	-11	-10	0	0	0	2	0	-69	108	-376	-235	187
1989	213	418	-1067	130	23	0	0	0	320	-113	-53	423
1990	4	-291	0	0	-4	0	0	0	20	-54	57	0
1991	-62	-3	29	-134	0	0	0	0	0	-39	-621	0
1992	812	0	-777	1468	0	0	0	0	320	1016	-1233	-171
1993	0	0	-3	0	18	0	0	0	320	-1	-1	-3
1994	0	-179	0	-1	0	38	0	0	313	6	0	-6
1995	50	34	-20	0	111	0	0	0	146	0	0	0
1996	-170	-92	-200	-135	50	80	0	0	93	-4	-3	-2
1997	-1	-1	0	0	-1	0	0	0	104	2	1	0
1998	0	12	-1	29	0	0	0	0	0	0	0	0
1999	-2	0	0	81	96	0	0	0	99	0	0	1
2000	1	0	0	-1	0	12	0	0	282	-22	0	1
2001	1	0	0	-2	44	16	0	0	320	-504	-25	0
2002	-9	16	-7	103	92	38	0	0	320	1	1	-115
2003	-130	251	0	50	186	38	0	0	320	-29	3	6
Average	**11**	**15**	**-17**	**52**	**45**	**15**	**0**	**-1**	**159**	**-17**	**-33**	**-17**

TABLE C4-5: CHANGES IN CCWD + LV DIVERSIONS (CFS), 2005 LOD

(A) Alternative 1

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	470	179	170	204	170	-88	453	322	296	418	401	401
1923	319	334	323	400	397	-92	387	196	247	401	59	114
1924	125	155	211	230	201	-103	97	-12	-4	38	-8	14
1925	52	85	98	103	106	0	69	51	98	206	0	190
1926	208	89	107	113	168	0	76	174	147	0	148	16
1927	51	88	259	254	207	-38	104	175	181	396	219	490
1928	490	485	386	400	401	-84	235	180	255	480	398	401
1929	299	298	272	221	358	-182	240	99	71	205	49	194
1930	168	186	156	124	76	-148	236	115	52	221	122	204
1931	79	88	106	111	106	0	0	0	0	0	0	14
1932	52	85	98	151	106	0	-37	125	108	167	219	178
1933	159	88	106	113	107	0	79	128	0	173	1	205
1934	56	85	98	103	106	0	47	0	106	113	0	162
1935	52	85	98	103	96	0	103	80	164	327	95	103
1936	55	96	117	135	400	-38	412	374	178	219	44	93
1937	172	184	223	180	167	0	412	500	254	400	253	17
1938	169	213	289	400	402	-72	585	521	303	414	399	400
1939	399	238	351	228	402	-71	312	266	159	0	181	202
1940	203	132	106	120	130	-38	417	396	173	400	214	244
1941	409	345	297	334	298	-76	448	399	322	418	401	401
1942	367	231	362	406	308	-83	450	355	306	418	401	401
1943	325	344	323	416	391	-83	465	213	302	418	401	401
1944	349	231	337	221	400	-109	378	150	104	350	136	194
1945	189	189	221	227	174	-71	255	380	200	219	28	125
1946	162	104	122	400	271	-131	415	374	175	340	13	167
1947	190	193	225	135	354	-109	279	93	169	144	176	208
1948	213	112	106	111	65	0	78	180	192	389	38	42
1949	55	96	117	135	149	-45	227	185	242	245	163	208
1950	174	88	106	113	214	-38	128	183	-69	219	30	112
1951	55	96	470	286	128	-88	372	382	294	409	398	401
1952	316	321	307	401	402	-83	497	415	302	652	399	399
1953	388	238	370	393	380	-83	279	174	115	391	390	395
1954	289	191	251	245	200	-84	247	184	241	490	398	401
1955	314	310	271	273	218	-109	229	106	207	245	142	187
1956	201	209	221	191	255	-121	285	416	200	400	370	401
1957	366	232	347	221	396	-84	368	156	-77	379	375	380
1958	278	147	143	247	232	-67	461	400	359	401	401	401
1959	401	238	375	224	194	-93	349	163	39	389	126	136
1960	180	191	217	180	88	-109	278	166	31	19	176	205
1961	193	89	106	113	199	-38	349	200	173	45	176	61
1962	51	88	106	111	191	0	122	132	-69	219	28	71
1963	56	470	185	392	227	-83	176	105	262	530	403	520
1964	305	592	267	375	314	-109	162	33	242	53	178	200
1965	217	222	235	245	33	-121	412	317	200	364	401	401
1966	359	370	348	400	400	-92	325	137	177	401	71	178
1967	211	213	219	236	37	-121	584	521	200	508	400	400
1968	372	239	350	226	398	-97	484	178	164	392	36	164
1969	201	200	211	251	230	-121	601	620	200	400	263	400
1970	400	240	371	691	398	-83	278	193	249	413	399	399
1971	314	326	311	395	394	-86	299	175	219	367	359	364
1972	273	141	675	195	195	-92	259	181	161	401	9	178
1973	195	219	271	319	273	-123	226	112	173	391	276	525
1974	288	678	113	385	383	-83	312	217	257	417	401	401
1975	340	215	327	207	398	-83	394	189	255	418	401	401
1976	316	182	281	184	217	-80	258	165	138	188	102	91
1977	52	85	98	103	111	0	0	31	0	0	0	14
1978	52	85	98	98	82	0	469	521	200	400	214	244
1979	412	517	352	404	400	-92	460	324	219	401	29	140
1980	179	190	100	385	104	-82	488	282	297	418	401	401
1981	378	380	295	228	320	-109	424	162	74	25	183	211
1982	198	194	205	265	147	-121	784	521	153	470	463	661
1983	670	674	382	694	396	-32	784	413	312	414	406	407
1984	404	396	362	433	400	-83	275	203	249	407	396	397
1985	313	676	299	392	396	-113	278	17	147	124	137	182
1986	191	187	215	410	400	-121	446	521	153	400	219	283
1987	346	205	324	226	171	-109	214	99	31	97	141	171
1988	196	210	212	175	14	-144	192	50	174	32	-28	14
1989	21	85	98	103	75	0	107	173	158	24	188	21
1990	51	88	106	111	304	0	34	51	-5	7	0	14
1991	52	85	98	26	44	0	57	94	0	0	0	14
1992	52	85	98	103	76	0	53	0	29	209	114	184
1993	52	85	98	164	123	0	113	188	200	400	214	244
1994	410	517	330	230	397	-182	264	125	34	167	211	199
1995	212	171	99	214	181	-90	475	521	207	470	470	252
1996	502	348	377	356	295	-80	368	359	260	413	399	399
1997	332	346	341	684	396	-83	283	215	249	412	399	399
1998	348	357	332	379	290	-83	489	407	276	652	654	658
1999	386	670	355	396	394	-83	401	210	254	392	395	397
2000	284	169	262	220	395	-96	331	180	167	403	397	398
2001	294	288	266	221	379	-125	216	70	38	156	127	162
2002	196	198	206	176	-66	-148	269	200	178	1	199	215
2003	83	88	270	400	400	-38	301	146	20	227	260	432
Average	**239**	**234**	**237**	**258**	**246**	**-74**	**299**	**223**	**165**	**294**	**223**	**257**

TABLE C4-5:
CHANGES IN CCWD + LV DIVERSIONS (CFS), 2005 LOD

(B) Alternative 2

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	470	179	170	204	170	-88	453	322	296	418	401	401
1923	319	334	323	400	397	-92	387	196	247	401	59	114
1924	125	155	211	230	201	-103	97	-12	-4	41	-8	14
1925	52	85	98	103	106	0	69	51	98	206	0	190
1926	208	89	107	113	168	0	76	174	147	0	148	16
1927	51	88	259	254	208	-38	104	175	181	396	219	490
1928	490	485	386	400	401	-84	235	180	255	480	398	401
1929	299	298	272	221	358	-182	240	99	71	205	49	194
1930	168	186	156	124	76	-148	236	115	52	221	122	204
1931	80	88	106	111	106	0	0	0	0	0	0	14
1932	52	85	98	151	106	0	-37	125	108	167	219	178
1933	159	88	106	113	107	0	79	128	0	173	1	205
1934	56	85	98	103	106	0	47	0	106	113	0	162
1935	52	85	98	103	97	0	103	80	165	327	95	103
1936	55	96	117	135	400	-38	412	374	178	219	44	93
1937	172	184	223	180	167	0	412	500	254	400	253	17
1938	169	213	289	400	402	-72	585	521	303	414	399	400
1939	399	238	259	228	347	-71	420	246	159	0	181	202
1940	203	132	106	120	130	-38	417	396	173	400	214	244
1941	409	346	297	334	343	-76	448	399	322	418	401	401
1942	367	231	362	399	308	-83	450	355	306	418	401	401
1943	325	344	323	399	400	-83	466	213	302	418	401	401
1944	349	231	337	221	400	-109	378	150	104	350	136	194
1945	189	189	221	227	174	-71	255	380	200	219	28	125
1946	162	104	122	400	271	-131	414	374	175	340	13	167
1947	190	193	225	135	354	-109	279	93	169	144	176	208
1948	213	112	106	111	65	0	78	180	193	389	38	42
1949	55	96	117	135	149	-45	226	184	242	245	163	208
1950	174	88	106	113	214	-38	128	183	-69	219	30	112
1951	55	96	470	286	129	-88	372	382	297	409	398	401
1952	316	321	307	399	402	-83	497	415	302	652	399	399
1953	388	155	268	347	337	-83	281	175	115	393	391	396
1954	290	191	252	245	200	-84	247	184	241	491	398	401
1955	313	309	271	273	218	-109	229	106	207	245	142	187
1956	201	209	221	191	301	-121	285	416	200	400	371	401
1957	366	232	347	221	396	-84	368	156	-77	379	375	380
1958	278	147	143	247	232	-67	461	400	359	401	401	401
1959	401	238	375	224	194	-93	349	163	39	389	126	136
1960	180	191	217	180	88	-109	278	166	31	19	176	205
1961	193	89	106	113	199	-38	349	200	173	45	176	61
1962	51	88	106	111	191	0	122	132	-69	219	28	71
1963	56	470	185	392	227	-83	174	105	275	530	403	525
1964	305	438	267	363	314	-109	162	37	242	53	178	200
1965	217	222	235	245	33	-121	412	342	200	364	401	401
1966	359	370	348	400	400	-92	325	137	177	401	71	178
1967	211	213	215	236	37	-121	584	521	200	508	416	400
1968	372	239	259	226	343	-97	486	178	164	392	36	164
1969	201	200	211	250	284	-121	601	620	200	400	271	400
1970	400	240	263	691	341	-83	279	194	127	414	401	401
1971	315	284	311	400	396	-86	301	176	219	368	360	365
1972	273	141	675	195	195	-92	259	181	211	401	9	178
1973	195	219	269	319	273	-123	226	112	173	391	276	537
1974	288	678	113	347	338	-83	314	217	304	418	401	401
1975	341	216	327	207	400	-83	408	190	255	418	401	401
1976	316	182	281	184	217	-80	257	164	138	188	102	91
1977	52	85	98	103	112	0	0	30	0	0	0	14
1978	52	85	98	97	81	0	469	521	200	400	214	244
1979	412	520	352	403	400	-92	462	324	219	401	29	140
1980	179	190	100	400	104	-82	491	282	297	418	401	401
1981	378	380	295	228	320	-109	424	162	74	25	183	211
1982	198	194	205	265	147	-121	784	521	30	470	463	661
1983	670	674	274	708	436	-32	784	670	312	414	410	407
1984	404	396	254	542	399	-83	275	203	126	408	397	397
1985	313	676	260	345	341	-113	278	16	84	124	137	157
1986	110	180	215	366	400	-121	446	521	200	400	219	286
1987	348	206	324	226	171	-109	213	98	31	97	141	171
1988	196	210	210	173	14	-144	192	48	174	32	-33	14
1989	21	85	98	103	74	0	107	173	159	24	188	21
1990	51	88	106	111	303	0	34	51	-5	7	0	14
1991	52	85	98	26	44	0	57	94	0	0	0	14
1992	52	85	98	103	76	0	54	0	31	119	114	184
1993	52	85	98	165	124	0	114	189	200	400	214	244
1994	413	521	330	230	396	-182	264	125	33	167	211	199
1995	212	171	99	213	180	-90	475	521	101	470	470	252
1996	502	352	268	356	294	-80	370	360	137	417	401	401
1997	333	339	341	684	396	-83	285	216	126	416	401	401
1998	350	340	332	381	342	-83	497	409	276	652	654	658
1999	386	670	268	347	337	-83	390	188	131	395	396	398
2000	284	169	262	220	346	-96	336	182	74	407	398	400
2001	295	288	267	221	341	-125	216	70	38	156	127	162
2002	196	198	206	176	30	-148	269	196	178	1	199	215
2003	83	88	270	400	400	-38	301	147	20	227	260	432
Average	**238**	**230**	**226**	**257**	**244**	**-74**	**301**	**226**	**155**	**294**	**223**	**257**

TABLE C4-5:
CHANGES IN CCWD + LV DIVERSIONS (CFS), 2005 LOD

(D) Alternative 4

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	193	177	-4	148	32	-88	267	200	-104	181	4	3
1923	1	-1	-2	-1	-3	-92	169	42	-122	23	4	-6
1924	-5	-4	-3	-2	-2	-103	102	-6	-118	-117	-194	-171
1925	-150	-101	-52	-3	-4	0	-23	0	-200	0	0	27
1926	157	1	0	2	4	0	0	0	-200	0	148	0
1927	0	0	0	0	0	-38	0	0	-200	0	0	90
1928	200	197	202	201	7	-84	121	4	-117	182	184	85
1929	2	-1	-1	10	9	-182	181	0	0	0	20	27
1930	20	16	14	22	-8	-148	162	0	-200	0	33	25
1931	-113	-111	-107	-113	-93	-144	-7	-54	-96	-52	0	0
1932	0	0	0	0	0	-10	-37	0	0	0	0	18
1933	-13	0	0	0	0	0	0	0	0	0	-45	48
1934	4	0	0	0	0	0	47	0	0	0	0	-40
1935	0	0	0	0	0	0	0	0	-200	-52	0	77
1936	0	0	0	0	0	-38	243	200	-200	0	0	-8
1937	-8	-6	-4	-13	0	0	146	200	-146	0	39	17
1938	1	1	0	0	2	-72	260	200	-97	182	184	86
1939	1	1	0	7	8	-71	119	0	0	0	20	17
1940	17	-49	-98	-103	-46	-123	146	200	-200	0	0	0
1941	93	106	-3	-2	-1	-76	129	15	-78	24	4	3
1942	1	0	-1	-2	0	-83	154	15	-94	24	4	3
1943	2	0	-1	-2	0	-83	157	17	-98	24	4	3
1944	2	1	0	1	0	-109	282	15	-196	23	3	2
1945	3	3	2	2	1	-131	146	200	-200	0	0	1
1946	1	-96	-82	0	-129	-131	282	200	-200	121	13	4
1947	3	3	1	-91	-40	-109	162	0	-200	0	10	8
1948	8	-88	-121	-123	-105	0	0	0	-160	0	0	-107
1949	0	0	0	0	0	-45	107	0	-146	0	2	1
1950	79	0	0	0	0	-38	0	0	-200	0	0	87
1951	0	0	0	0	-63	-88	267	200	-103	182	184	188
1952	195	172	-2	-2	0	-83	157	17	-98	23	4	3
1953	2	0	-2	0	-4	-83	165	16	-99	23	4	3
1954	2	0	0	0	0	-84	121	3	-125	99	4	3
1955	2	0	-1	-1	0	-109	162	0	0	-27	11	9
1956	8	7	5	6	-194	-121	146	200	-200	0	23	109
1957	1	1	0	0	0	-84	261	12	-197	24	4	3
1958	1	-1	0	-1	-2	-67	114	0	-41	8	4	3
1959	2	1	0	-1	0	-93	244	17	-174	24	4	-4
1960	-3	-2	-2	-48	-71	-109	162	0	-200	0	0	1
1961	-11	-110	-128	-121	-69	-148	233	6	-200	0	-1	-131
1962	-4	0	0	0	-7	0	0	0	-200	0	0	45
1963	1	0	0	115	9	-83	60	0	-96	130	184	188
1964	195	202	199	27	1	-109	162	0	0	0	41	36
1965	28	24	-20	0	-164	-121	260	124	-200	-30	4	3
1966	2	-1	-1	0	0	-92	136	0	-127	100	4	22
1967	16	15	-4	0	-164	-121	260	200	-200	-23	4	3
1968	2	0	0	6	0	-97	241	16	-174	24	3	17
1969	13	12	-3	-20	4	-121	253	200	-200	0	-131	3
1970	1	2	-3	-3	0	-83	164	17	-104	23	4	3
1971	2	-2	-1	0	-4	-86	165	15	-96	24	4	3
1972	2	0	-1	2	0	-92	136	0	-157	127	4	7
1973	6	4	5	0	0	-123	121	1	-200	0	62	136
1974	1	-1	-1	-1	-3	-83	159	17	-96	23	4	3
1975	1	1	-1	3	0	-83	184	17	-130	24	4	3
1976	0	2	0	1	2	-80	147	5	9	8	-101	-93
1977	-152	-124	-117	-129	-107	-92	-70	-52	0	0	0	0
1978	0	0	0	0	0	0	146	200	-200	0	0	0
1979	39	201	200	6	0	-92	282	200	-160	165	4	11
1980	10	8	0	0	-83	-82	212	16	-103	24	4	3
1981	2	1	0	5	-80	-109	137	14	-146	0	15	11
1982	14	13	-52	0	-164	-121	260	200	-200	70	141	2
1983	0	-1	-1	-2	-2	-32	114	0	-88	18	4	3
1984	2	-2	-2	0	0	-83	165	17	-104	24	4	3
1985	1	-2	0	0	0	-113	162	8	-146	41	15	12
1986	11	10	7	9	0	-121	146	200	-200	0	0	-1
1987	2	1	0	3	4	-109	157	4	-200	1	15	14
1988	11	9	6	10	-34	-144	143	-35	0	0	-138	-176
1989	-152	-119	-122	-52	-25	-1	0	0	-200	0	164	5
1990	0	0	0	0	0	0	34	0	-20	7	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	-200	0	2	171
1993	0	0	0	9	0	0	0	0	-200	0	0	0
1994	93	200	202	1	1	-182	181	0	-200	11	7	10
1995	8	-39	-93	0	0	-90	146	200	-146	0	0	0
1996	102	197	209	218	39	-80	260	20	-93	24	4	3
1997	1	-1	-2	-3	-4	-83	169	16	-104	23	4	3
1998	1	-1	-1	-2	2	-83	183	10	-124	24	4	3
1999	2	0	-2	0	-4	-83	165	16	-99	23	4	3
2000	2	0	1	1	1	-96	228	15	-156	23	4	3
2001	0	2	0	2	0	-125	162	1	-200	76	13	12
2002	9	8	7	0	-200	-148	162	12	-200	0	27	22
2003	-115	-118	-80	0	-136	-123	199	0	-200	0	46	188
Average	**10**	**8**	**-1**	**0**	**-23**	**-81**	**141**	**44**	**-133**	**23**	**14**	**14**

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
10/31/1921	0	0	200	420	0	250	420	0	250	70	73	250
11/30/1921	0	0	144	73	0	250	73	0	250	70	1	250
12/31/1921	0	0	80	0	0	250	0	0	250	0	0	77
01/31/1922	0	97	0	204	97	0	204	97	0	148	97	0
02/28/1922	56	2	0	145	82	0	145	82	0	0	90	0
03/31/1922	88	0	0	0	0	0	0	0	0	0	0	0
04/30/1922	0	0	0	332	121	0	332	121	0	146	121	0
05/31/1922	0	0	149	221	0	250	221	0	250	70	29	250
06/30/1922	104	218	0	400	218	0	400	218	0	0	218	0
07/31/1922	250	0	11	420	243	16	420	243	16	198	243	0
08/31/1922	16	256	0	417	256	0	417	256	0	20	256	0
09/30/1922	0	0	238	389	0	250	389	0	250	0	0	241
10/31/1922	6	193	0	325	193	0	325	193	0	7	193	0
11/30/1922	0	141	0	332	144	0	332	144	0	0	141	0
12/31/1922	0	115	0	308	130	0	308	130	0	0	113	0
01/31/1923	95	0	0	398	97	0	398	97	0	0	94	0
02/28/1923	93	0	0	400	90	0	400	90	0	0	90	0
03/31/1923	0	92	0	0	0	0	0	0	0	0	0	0
04/30/1923	0	0	0	251	136	0	251	136	0	33	136	0
05/31/1923	0	0	170	116	0	250	116	0	250	0	0	213
06/30/1923	122	221	0	369	221	0	369	221	0	0	221	0
07/31/1923	19	0	250	420	0	250	420	0	250	43	0	250
08/31/1923	22	0	250	81	0	250	81	0	250	26	0	250
09/30/1923	0	0	136	0	0	250	0	0	250	0	0	129
10/31/1923	0	0	125	0	0	250	0	0	250	0	0	119
11/30/1923	0	0	95	0	0	250	0	0	250	0	0	91
12/31/1923	0	0	39	0	0	250	0	0	250	0	0	36
01/31/1924	0	0	20	0	0	250	0	0	250	0	0	18
02/29/1924	0	29	0	205	25	0	205	25	0	0	27	0
03/31/1924	0	103	0	0	0	0	0	0	0	0	0	0
04/30/1924	0	0	0	0	97	0	0	97	0	0	102	0
05/31/1924	0	111	0	0	99	0	0	99	0	0	105	0
06/30/1924	0	0	201	0	0	198	0	0	198	0	0	84
07/31/1924	0	0	205	0	0	243	0	0	246	0	0	87
08/31/1924	8	0	250	0	0	250	0	0	250	0	0	64
09/30/1924	0	0	236	0	0	250	0	0	250	0	0	66
10/31/1924	0	0	198	0	0	250	0	0	250	0	0	47
11/30/1924	0	0	166	0	0	250	0	0	250	0	0	64
12/31/1924	0	0	152	0	0	250	0	0	250	0	53	47

**TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD**

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1925	0	0	147	0	0	250	0	0	250	0	0	144
02/28/1925	0	161	0	106	161	0	106	161	0	0	157	0
03/31/1925	0	109	0	0	109	0	0	109	0	0	109	0
04/30/1925	131	0	0	200	0	0	200	0	0	108	0	0
05/31/1925	0	0	199	0	0	250	0	0	250	0	0	199
06/30/1925	250	113	70	298	233	0	298	233	0	0	233	0
07/31/1925	70	144	250	420	0	250	420	0	250	70	144	250
08/31/1925	1	0	250	1	0	250	1	0	250	1	0	250
09/30/1925	0	0	60	0	0	250	0	0	250	0	0	87
10/31/1925	0	0	42	0	0	250	0	0	250	0	0	199
11/30/1925	0	0	161	0	0	250	0	0	250	0	0	162
12/31/1925	0	0	143	0	0	250	0	0	250	0	0	144
01/31/1926	0	0	137	0	0	250	0	0	250	0	0	139
02/28/1926	0	128	0	164	132	0	164	132	0	0	132	0
03/31/1926	0	57	0	0	57	0	0	57	0	0	57	0
04/30/1926	0	162	0	76	162	0	76	162	0	0	162	0
05/31/1926	0	199	0	174	199	0	174	199	0	0	199	0
06/30/1926	250	113	70	347	233	0	347	233	0	0	233	0
07/31/1926	15	0	250	15	0	250	15	0	250	15	0	250
08/31/1926	0	0	109	8	0	250	8	0	250	8	0	250
09/30/1926	0	0	234	0	0	250	0	0	250	0	0	234
10/31/1926	0	0	199	0	0	250	0	0	250	0	0	199
11/30/1926	0	0	162	0	0	250	0	0	250	0	0	162
12/31/1926	0	144	0	9	144	250	9	144	250	0	144	0
01/31/1927	250	19	70	420	139	34	420	139	34	200	139	0
02/28/1927	131	1	0	207	132	0	208	132	0	0	132	0
03/31/1927	38	83	0	0	83	0	0	83	0	0	83	0
04/30/1927	51	63	0	104	114	0	104	114	0	0	114	0
05/31/1927	0	149	0	175	149	0	175	149	0	0	149	0
06/30/1927	250	146	0	381	196	0	381	196	0	0	196	0
07/31/1927	250	118	70	420	238	176	420	238	176	200	238	0
08/31/1927	70	131	250	420	0	250	420	0	250	70	131	250
09/30/1927	110	218	0	420	218	180	420	218	180	200	218	0
10/31/1927	0	185	0	420	185	70	420	185	70	200	185	0
11/30/1927	3	134	0	420	134	68	420	134	68	200	134	0
12/31/1927	0	90	0	383	92	0	383	92	0	200	92	0
01/31/1928	82	0	0	399	83	0	399	83	0	200	83	0
02/29/1928	88	0	0	401	88	0	401	88	0	7	88	0
03/31/1928	84	0	0	0	0	0	0	0	0	0	0	0
04/30/1928	0	0	0	114	121	0	114	121	0	0	121	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1928	0	137	0	177	140	0	177	140	0	0	141	0
06/30/1928	117	218	0	373	218	0	373	218	0	0	218	0
07/31/1928	11	0	250	248	243	250	248	243	250	0	243	200
08/31/1928	22	0	250	420	0	250	420	0	250	70	136	250
09/30/1928	0	0	238	389	0	250	389	0	250	70	3	250
10/31/1928	7	193	0	306	193	0	306	193	0	9	193	0
11/30/1928	0	142	0	296	144	0	296	144	0	0	141	0
12/31/1928	0	0	126	148	0	250	148	0	250	0	84	41
01/31/1929	0	0	29	0	0	250	0	0	250	0	0	39
02/28/1929	0	60	0	354	64	0	354	64	0	0	69	0
03/31/1929	38	144	0	0	0	0	0	0	0	0	0	0
04/30/1929	0	0	0	60	181	0	60	181	0	0	181	0
05/31/1929	5	217	0	99	222	0	99	222	0	0	222	0
06/30/1929	110	145	0	71	255	0	71	255	0	0	255	0
07/31/1929	70	145	250	420	0	250	420	0	250	70	145	250
08/31/1929	0	0	201	0	0	250	0	0	250	0	0	221
09/30/1929	0	0	56	0	0	250	0	0	250	0	0	83
10/31/1929	0	0	35	0	0	203	0	0	203	0	0	55
11/30/1929	0	0	26	0	0	212	0	0	212	0	0	42
12/31/1929	0	0	22	0	0	179	0	0	179	0	0	37
01/31/1930	0	60	0	114	70	0	114	70	0	0	82	0
02/28/1930	149	12	0	76	161	0	76	161	0	0	153	0
03/31/1930	38	109	0	0	0	0	0	0	0	0	0	0
04/30/1930	0	0	0	74	162	0	74	162	0	0	162	0
05/31/1930	78	121	0	115	199	0	115	199	0	0	199	0
06/30/1930	250	113	70	252	233	0	252	233	0	0	233	0
07/31/1930	70	129	250	420	0	250	420	0	250	70	129	250
08/31/1930	0	0	128	0	0	250	0	0	250	0	0	161
09/30/1930	0	0	46	0	0	250	0	0	250	0	0	72
10/31/1930	0	0	164	0	0	243	0	0	243	0	0	50
11/30/1930	0	0	162	0	0	250	0	0	250	0	0	51
12/31/1930	0	0	144	0	0	250	0	0	250	0	0	37
01/31/1931	0	0	139	0	0	250	0	0	250	0	0	26
02/28/1931	0	132	0	106	132	0	106	132	0	0	39	0
03/31/1931	0	144	0	0	144	0	0	144	0	0	0	0
04/30/1931	0	181	0	0	181	0	0	181	0	0	174	0
05/31/1931	0	222	0	0	222	0	0	222	0	0	169	0
06/30/1931	0	0	201	0	130	71	0	130	71	0	0	105
07/31/1931	15	0	250	15	0	250	15	0	250	0	0	213
08/31/1931	8	0	250	8	0	250	8	0	250	8	0	250

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1931	0	0	236	0	0	250	0	0	250	0	0	236
10/31/1931	0	0	198	0	0	250	0	0	250	0	0	198
11/30/1931	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1931	0	0	152	0	0	250	0	0	250	0	0	152
01/31/1932	0	147	0	151	147	0	151	147	0	0	147	0
02/29/1932	124	31	0	106	155	0	106	155	0	0	155	0
03/31/1932	0	109	0	0	109	0	0	109	0	0	99	0
04/30/1932	0	145	0	0	108	0	0	108	0	0	108	0
05/31/1932	0	199	0	0	199	125	0	199	125	0	199	0
06/30/1932	164	69	0	108	233	0	108	233	0	0	233	0
07/31/1932	250	144	70	367	264	0	367	264	0	200	264	0
08/31/1932	70	59	250	348	0	250	348	0	250	70	59	250
09/30/1932	0	0	72	0	0	250	0	0	250	0	0	90
10/31/1932	0	0	91	0	0	250	0	0	250	0	0	78
11/30/1932	0	0	162	0	0	250	0	0	250	0	0	162
12/31/1932	0	0	144	0	0	250	0	0	250	0	0	144
01/31/1933	0	0	137	0	0	250	0	0	250	0	0	137
02/28/1933	0	132	0	107	132	0	107	132	0	0	132	0
03/31/1933	0	144	0	0	144	0	0	144	0	0	144	0
04/30/1933	30	151	0	79	181	0	79	181	0	0	181	0
05/31/1933	17	205	0	128	222	0	128	222	0	0	222	0
06/30/1933	0	255	0	0	255	0	0	255	0	0	255	0
07/31/1933	70	145	250	387	0	250	387	0	250	70	145	250
08/31/1933	0	0	249	0	0	250	0	0	250	0	0	203
09/30/1933	0	0	45	0	0	250	0	0	250	0	0	93
10/31/1933	0	0	194	0	0	250	0	0	250	0	0	198
11/30/1933	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1933	0	0	152	0	0	250	0	0	250	0	0	152
01/31/1934	0	0	147	0	0	250	0	0	250	0	0	147
02/28/1934	100	61	0	106	161	0	106	161	0	0	161	0
03/31/1934	0	144	0	0	144	0	0	144	0	0	144	0
04/30/1934	66	68	0	0	181	0	0	181	0	0	181	0
05/31/1934	106	117	0	0	222	0	0	222	0	0	222	0
06/30/1934	192	63	0	106	255	0	106	255	0	0	255	0
07/31/1934	70	145	250	328	0	250	328	0	250	70	145	250
08/31/1934	0	0	250	0	0	250	0	0	250	0	0	250
09/30/1934	0	0	88	0	0	250	0	0	250	0	0	48
10/31/1934	0	0	198	0	0	250	0	0	250	0	0	198
11/30/1934	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1934	0	0	152	0	0	250	0	0	250	0	0	152

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1935	0	0	147	0	0	250	0	0	250	0	0	147
02/28/1935	67	94	0	96	161	0	97	161	0	0	161	0
03/31/1935	0	92	0	0	92	0	0	92	0	0	92	0
04/30/1935	136	0	0	239	0	0	239	0	0	136	0	0
05/31/1935	0	0	170	0	0	250	0	0	250	0	0	170
06/30/1935	250	101	70	364	221	0	365	221	0	0	221	0
07/31/1935	70	131	250	277	251	250	277	251	250	0	251	148
08/31/1935	70	48	250	212	0	250	212	0	250	70	48	250
09/30/1935	0	0	147	0	0	250	0	0	250	0	0	225
10/31/1935	0	0	195	0	0	250	0	0	250	0	0	195
11/30/1935	0	0	154	0	0	250	0	0	250	0	0	154
12/31/1935	0	0	133	0	0	250	0	0	250	0	0	133
01/31/1936	0	0	115	0	0	250	0	0	250	0	0	115
02/29/1936	10	87	0	400	97	0	400	97	0	0	97	0
03/31/1936	38	92	0	0	92	0	0	92	0	0	92	0
04/30/1936	0	0	39	64	136	250	64	136	250	0	136	146
05/31/1936	0	0	170	124	170	250	124	170	250	0	170	200
06/30/1936	250	101	70	378	221	0	378	221	0	0	221	0
07/31/1936	70	131	250	420	0	250	420	0	250	70	131	250
08/31/1936	70	30	250	144	0	250	144	0	250	70	30	250
09/30/1936	0	0	157	0	0	250	0	0	250	0	0	149
10/31/1936	0	0	78	0	0	250	0	0	250	0	0	71
11/30/1936	0	0	66	0	0	250	0	0	250	0	0	60
12/31/1936	0	0	27	0	0	250	0	0	250	0	0	24
01/31/1937	0	0	70	0	0	250	0	0	250	0	0	57
02/28/1937	0	0	83	0	0	250	0	0	250	0	0	83
03/31/1937	0	74	0	0	74	0	0	74	0	0	74	0
04/30/1937	0	0	136	162	136	250	162	136	250	0	136	146
05/31/1937	0	0	170	420	0	250	420	0	250	70	50	250
06/30/1937	146	221	0	400	221	0	400	221	0	0	221	0
07/31/1937	250	131	70	420	251	180	420	251	180	200	251	0
08/31/1937	70	97	250	420	0	250	420	0	250	70	136	250
09/30/1937	0	0	237	4	0	250	4	0	250	4	0	250
10/31/1937	0	0	81	0	0	250	0	0	250	0	0	82
11/30/1937	0	0	38	0	0	250	0	0	250	0	0	38
12/31/1937	0	133	0	289	133	0	289	133	0	0	133	0
01/31/1938	250	0	65	420	115	180	420	115	180	200	115	0
02/28/1938	99	0	0	400	101	0	400	101	0	0	101	0
03/31/1938	72	0	0	0	0	0	0	0	0	0	0	0
04/30/1938	0	0	0	221	114	250	221	114	250	0	114	146

**TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD**

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1938	149	0	0	420	0	250	420	0	250	250	29	70
06/30/1938	97	196	0	400	196	0	400	196	0	0	196	0
07/31/1938	250	0	6	420	238	12	420	238	12	200	238	0
08/31/1938	16	251	0	415	251	0	415	251	0	200	251	0
09/30/1938	12	218	0	411	218	0	411	218	0	98	218	0
10/31/1938	5	185	0	405	185	0	405	185	0	7	185	0
11/30/1938	2	134	0	240	134	0	240	134	0	3	134	0
12/31/1938	0	0	92	101	92	250	9	92	250	0	92	0
01/31/1939	0	0	22	0	0	250	0	0	250	0	0	29
02/28/1939	0	25	0	396	31	0	341	31	0	0	33	0
03/31/1939	0	71	0	0	0	0	0	0	0	0	0	0
04/30/1939	0	0	0	312	0	0	420	0	0	119	0	0
05/31/1939	0	0	199	215	0	250	195	0	250	0	0	199
06/30/1939	0	233	0	159	233	0	159	233	0	0	233	0
07/31/1939	10	0	250	10	0	250	10	0	250	10	0	250
08/31/1939	0	0	69	0	0	250	0	0	250	0	0	89
09/30/1939	0	0	48	0	0	250	0	0	250	0	0	64
10/31/1939	0	0	47	0	0	250	0	0	250	0	0	63
11/30/1939	0	0	118	0	0	250	0	0	250	0	0	70
12/31/1939	0	0	144	0	0	250	0	0	250	0	0	45
01/31/1940	0	0	130	0	0	250	0	0	250	0	0	27
02/29/1940	0	118	0	176	72	0	176	72	0	0	72	0
03/31/1940	38	84	0	0	84	0	0	84	0	0	0	0
04/30/1940	0	0	121	167	121	250	167	121	250	0	121	146
05/31/1940	0	0	149	295	0	250	295	0	250	70	29	250
06/30/1940	250	98	70	373	218	0	373	218	0	0	218	0
07/31/1940	250	123	70	420	243	180	420	243	180	200	243	0
08/31/1940	70	136	250	420	0	250	420	0	250	70	136	250
09/30/1940	70	106	250	420	0	250	420	0	250	70	106	250
10/31/1940	107	193	0	420	193	96	420	193	96	200	193	0
11/30/1940	2	144	0	347	144	0	348	144	0	109	144	0
12/31/1940	0	103	0	270	130	0	270	130	0	0	100	0
01/31/1941	74	0	0	310	97	0	310	97	0	0	72	0
02/28/1941	41	24	0	272	90	0	317	90	0	0	63	0
03/31/1941	0	0	76	0	0	0	0	0	0	0	0	0
04/30/1941	0	0	0	84	114	250	84	114	250	0	114	15
05/31/1941	0	0	149	298	0	250	298	0	250	0	0	165
06/30/1941	78	196	0	400	196	0	400	196	0	0	196	0
07/31/1941	250	0	6	420	238	16	420	238	16	41	238	0
08/31/1941	16	251	0	417	251	0	417	251	0	20	251	0

**TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD**

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1941	0	0	230	381	0	250	381	0	250	0	0	233
10/31/1941	5	185	0	373	185	0	373	185	0	7	185	0
11/30/1941	0	134	0	231	134	0	231	134	0	0	134	0
12/31/1941	0	78	0	348	92	0	348	92	0	0	76	0
01/31/1942	48	0	0	372	83	0	365	83	0	0	46	0
02/28/1942	84	0	0	300	92	0	300	92	0	0	83	0
03/31/1942	83	0	0	0	0	0	0	0	0	0	0	0
04/30/1942	0	0	0	336	114	0	336	114	0	40	114	0
05/31/1942	0	0	149	255	0	250	255	0	250	0	0	164
06/30/1942	94	196	0	400	196	0	400	196	0	0	196	0
07/31/1942	250	0	6	420	238	16	420	238	16	41	238	0
08/31/1942	16	251	0	417	251	0	417	251	0	20	251	0
09/30/1942	12	218	0	413	218	0	413	218	0	15	218	0
10/31/1942	6	185	0	332	185	0	332	185	0	8	185	0
11/30/1942	0	132	0	343	134	0	343	134	0	0	132	0
12/31/1942	0	90	0	320	92	0	320	92	0	0	90	0
01/31/1943	58	0	0	391	83	0	375	83	0	0	56	0
02/28/1943	92	0	0	391	92	0	400	92	0	0	92	0
03/31/1943	0	0	83	0	0	0	0	0	0	0	0	0
04/30/1943	0	0	0	101	114	250	102	114	250	0	114	43
05/31/1943	0	0	149	113	0	250	113	0	250	0	0	166
06/30/1943	98	196	0	400	196	0	400	196	0	0	196	0
07/31/1943	250	0	6	420	238	16	420	238	16	41	238	0
08/31/1943	0	17	250	400	18	250	400	18	250	0	21	250
09/30/1943	0	0	230	381	0	250	381	0	250	0	0	233
10/31/1943	7	185	0	355	185	0	355	185	0	8	185	0
11/30/1943	2	134	0	233	134	0	233	134	0	3	134	0
12/31/1943	0	0	91	85	92	250	85	92	250	0	91	0
01/31/1944	0	0	29	0	0	250	0	0	250	0	0	30
02/29/1944	30	58	0	400	88	0	400	88	0	0	88	0
03/31/1944	0	109	0	0	0	0	0	0	0	0	0	0
04/30/1944	0	0	0	216	162	0	216	162	0	120	162	0
05/31/1944	0	0	199	99	0	250	99	0	250	0	0	214
06/30/1944	250	109	70	300	233	0	300	233	0	0	233	0
07/31/1944	32	0	250	382	0	250	382	0	250	55	0	250
08/31/1944	0	0	114	0	0	250	0	0	250	0	0	117
09/30/1944	0	0	56	0	0	250	0	0	250	0	0	59
10/31/1944	0	0	61	0	0	250	0	0	250	0	0	64
11/30/1944	0	0	61	0	0	250	0	0	250	0	0	64
12/31/1944	0	0	30	0	0	250	0	0	250	0	0	31

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1945	0	55	0	228	54	0	228	54	0	0	57	0
02/28/1945	15	116	0	174	132	0	174	132	0	0	132	0
03/31/1945	38	92	0	0	60	0	0	59	0	0	0	0
04/30/1945	0	0	136	5	136	250	5	136	250	0	136	146
05/31/1945	0	0	170	300	0	250	300	0	250	70	50	250
06/30/1945	250	101	70	400	221	0	400	221	0	0	221	0
07/31/1945	70	131	250	420	0	250	420	0	250	70	131	250
08/31/1945	70	21	250	119	0	250	119	0	250	70	21	250
09/30/1945	0	0	125	0	0	250	0	0	250	0	0	125
10/31/1945	0	0	88	0	0	250	0	0	250	0	0	89
11/30/1945	0	0	146	0	0	250	0	0	250	0	0	50
12/31/1945	0	0	128	0	0	250	0	0	250	0	0	46
01/31/1946	250	0	65	420	115	180	420	115	180	200	115	0
02/28/1946	229	0	0	400	101	0	400	101	0	0	101	0
03/31/1946	38	92	0	0	0	0	0	0	0	0	0	0
04/30/1946	0	0	0	279	136	0	278	136	0	146	136	0
05/31/1946	0	0	170	294	0	250	294	0	250	70	50	250
06/30/1946	250	101	70	375	221	0	375	221	0	0	221	0
07/31/1946	70	10	250	420	0	250	420	0	250	70	131	250
08/31/1946	22	0	250	35	0	250	35	0	250	35	0	250
09/30/1946	0	0	83	0	0	250	0	0	250	0	0	87
10/31/1946	0	0	60	0	0	250	0	0	250	0	0	63
11/30/1946	0	0	57	0	0	250	0	0	250	0	0	60
12/31/1946	0	0	25	0	0	250	0	0	250	0	0	26
01/31/1947	0	0	115	0	0	250	0	0	250	0	0	24
02/28/1947	0	101	0	400	55	0	400	55	0	0	61	0
03/31/1947	0	109	0	0	0	0	0	0	0	0	0	0
04/30/1947	0	0	0	117	162	0	117	162	0	0	162	0
05/31/1947	37	162	0	93	199	0	93	199	0	0	199	0
06/30/1947	250	113	70	369	233	0	369	233	0	0	233	0
07/31/1947	70	63	250	277	0	250	277	0	250	70	63	250
08/31/1947	0	0	74	0	0	250	0	0	250	0	0	84
09/30/1947	0	0	42	0	0	250	0	0	250	0	0	50
10/31/1947	0	0	37	0	0	250	0	0	250	0	0	45
11/30/1947	0	0	138	0	0	250	0	0	250	0	0	50
12/31/1947	0	0	144	0	0	250	0	0	250	0	0	22
01/31/1948	0	0	139	0	0	250	0	0	250	0	0	15
02/29/1948	0	127	0	0	127	65	0	127	65	0	22	0
03/31/1948	0	92	0	0	92	0	0	92	0	0	92	0
04/30/1948	19	117	0	78	136	0	78	136	0	0	136	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1948	0	170	0	180	170	0	180	170	0	0	170	0
06/30/1948	160	221	0	352	221	0	352	221	0	0	221	0
07/31/1948	250	131	70	420	251	169	420	251	169	200	251	0
08/31/1948	70	26	250	134	0	250	134	0	250	70	26	250
09/30/1948	0	0	208	0	0	250	0	0	250	0	0	101
10/31/1948	0	0	195	0	0	250	0	0	250	0	0	195
11/30/1948	0	0	154	0	0	250	0	0	250	0	0	154
12/31/1948	0	0	133	0	0	250	0	0	250	0	0	133
01/31/1949	0	0	115	0	0	250	0	0	250	0	0	115
02/28/1949	0	0	101	0	0	250	0	0	250	0	0	101
03/31/1949	0	45	0	0	0	0	0	0	0	0	0	0
04/30/1949	0	0	0	129	98	0	129	98	0	0	107	0
05/31/1949	6	193	0	184	199	0	184	199	0	0	199	0
06/30/1949	146	233	0	388	233	0	388	233	0	0	233	0
07/31/1949	70	105	250	420	0	250	420	0	250	70	105	250
08/31/1949	0	0	87	0	0	250	0	0	250	0	0	89
09/30/1949	0	0	42	0	0	250	0	0	250	0	0	43
10/31/1949	0	0	76	0	0	250	0	0	250	0	0	155
11/30/1949	0	0	162	0	0	250	0	0	250	0	0	162
12/31/1949	0	0	144	0	0	250	0	0	250	0	0	144
01/31/1950	0	0	137	0	0	250	0	0	250	0	0	137
02/28/1950	45	87	0	214	132	0	214	132	0	0	132	0
03/31/1950	38	92	0	0	92	0	0	92	0	0	92	0
04/30/1950	127	9	0	128	136	0	128	136	0	0	136	0
05/31/1950	73	98	0	183	170	0	183	170	0	0	170	0
06/30/1950	250	101	70	131	221	0	131	221	0	0	221	0
07/31/1950	70	131	250	420	0	250	420	0	250	70	131	250
08/31/1950	70	22	250	122	0	250	122	0	250	70	22	250
09/30/1950	0	0	138	0	0	250	0	0	250	0	0	225
10/31/1950	0	0	195	0	0	250	0	0	250	0	0	195
11/30/1950	0	0	154	0	0	250	0	0	250	0	0	154
12/31/1950	200	133	0	420	133	250	420	133	250	200	133	0
01/31/1951	250	0	65	420	115	66	420	115	66	200	115	0
02/28/1951	192	0	0	219	101	0	221	101	0	29	101	0
03/31/1951	88	0	0	0	0	0	0	0	0	0	0	0
04/30/1951	0	0	0	252	121	0	252	121	0	146	121	0
05/31/1951	0	0	149	281	0	250	281	0	250	70	29	250
06/30/1951	103	218	0	397	218	0	400	218	0	0	218	0
07/31/1951	11	0	250	420	0	250	420	0	250	70	123	250
08/31/1951	22	0	250	420	0	250	420	0	250	70	136	250

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1951	0	0	238	389	0	250	389	0	250	70	106	250
10/31/1951	5	193	0	321	193	0	321	193	0	200	193	0
11/30/1951	0	143	0	320	144	0	320	144	0	171	144	0
12/31/1951	0	122	0	299	130	0	299	130	0	0	120	0
01/31/1952	66	17	0	387	97	0	385	97	0	0	81	0
02/29/1952	87	0	0	402	87	0	402	87	0	0	87	0
03/31/1952	83	0	0	0	0	0	0	0	0	0	0	0
04/30/1952	0	0	0	383	114	0	383	114	0	43	114	0
05/31/1952	0	0	149	314	0	250	314	0	250	0	0	166
06/30/1952	98	196	0	400	196	0	400	196	0	0	196	0
07/31/1952	250	0	6	420	238	250	420	238	250	41	238	0
08/31/1952	16	251	0	415	251	0	415	251	0	20	251	0
09/30/1952	0	0	230	379	0	250	379	0	250	0	0	233
10/31/1952	7	185	0	395	185	0	395	185	0	9	185	0
11/30/1952	0	134	0	238	134	0	155	134	0	0	134	0
12/31/1952	0	84	0	361	92	0	259	92	0	0	81	0
01/31/1953	81	0	0	391	83	0	345	83	0	0	81	0
02/28/1953	96	0	0	384	92	0	341	92	0	0	92	0
03/31/1953	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1953	0	0	0	165	114	0	167	114	0	51	114	0
05/31/1953	0	0	149	73	0	250	74	0	250	0	0	165
06/30/1953	99	196	0	214	196	0	214	196	0	0	196	0
07/31/1953	250	0	6	409	238	0	411	238	0	40	238	0
08/31/1953	17	0	250	407	0	250	408	0	250	21	0	250
09/30/1953	0	0	230	375	0	250	375	0	250	0	0	233
10/31/1953	7	185	0	296	185	0	297	185	0	9	185	0
11/30/1953	0	134	0	191	134	0	191	134	0	0	134	0
12/31/1953	2	92	0	253	92	0	253	92	0	2	92	0
01/31/1954	81	0	0	243	83	0	243	83	0	0	80	0
02/28/1954	92	0	0	200	92	0	200	92	0	0	92	0
03/31/1954	84	0	0	0	0	0	0	0	0	0	0	0
04/30/1954	0	0	0	126	121	0	126	121	0	0	121	0
05/31/1954	0	130	0	181	133	0	181	133	0	0	134	0
06/30/1954	125	218	0	365	218	0	365	218	0	0	218	0
07/31/1954	11	0	250	400	101	250	400	101	250	0	110	250
08/31/1954	22	0	250	420	0	250	420	0	250	26	0	250
09/30/1954	0	0	238	389	0	250	389	0	250	0	0	241
10/31/1954	7	193	0	321	193	0	321	193	0	9	193	0
11/30/1954	0	144	0	309	144	0	309	144	0	0	143	0
12/31/1954	0	125	0	267	130	0	267	130	0	0	124	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1955	93	0	0	269	97	0	269	97	0	0	92	0
02/28/1955	90	0	0	218	90	0	218	90	0	0	90	0
03/31/1955	0	109	0	0	0	0	0	0	0	0	0	0
04/30/1955	0	0	0	68	162	0	68	162	0	0	162	0
05/31/1955	2	197	0	106	199	0	106	199	0	0	199	0
06/30/1955	0	233	0	207	233	0	207	233	0	0	233	0
07/31/1955	70	101	250	416	0	250	416	0	250	70	74	250
08/31/1955	0	0	108	0	0	250	0	0	250	0	0	119
09/30/1955	0	0	63	0	0	250	0	0	250	0	0	72
10/31/1955	0	0	49	0	0	250	0	0	250	0	0	57
11/30/1955	0	0	41	0	0	250	0	0	250	0	0	48
12/31/1955	0	0	29	0	0	250	0	0	250	0	0	34
01/31/1956	0	0	59	0	0	250	0	0	250	0	0	65
02/29/1956	70	7	250	205	127	250	251	127	250	0	127	7
03/31/1956	38	83	0	0	0	0	0	0	0	0	0	0
04/30/1956	114	0	0	285	114	0	285	114	0	146	114	0
05/31/1956	0	0	149	316	0	250	316	0	250	70	29	250
06/30/1956	250	146	0	400	196	0	400	196	0	0	196	0
07/31/1956	250	118	70	420	238	180	420	238	180	200	238	0
08/31/1956	177	251	0	420	251	128	420	251	128	200	251	0
09/30/1956	0	0	229	380	0	250	380	0	250	70	18	250
10/31/1956	6	185	0	372	185	0	372	185	0	7	185	0
11/30/1956	3	134	0	235	134	0	235	134	0	4	134	0
12/31/1956	94	0	0	348	92	0	348	92	0	2	92	0
01/31/1957	0	0	29	0	0	250	0	0	250	0	0	30
02/28/1957	0	45	0	400	41	0	400	41	0	0	45	0
03/31/1957	0	84	0	0	0	0	0	0	0	0	0	0
04/30/1957	0	0	0	247	121	0	247	121	0	140	121	0
05/31/1957	0	0	149	55	0	250	55	0	250	0	0	161
06/30/1957	250	94	70	120	218	0	120	218	0	0	218	0
07/31/1957	11	0	250	389	0	250	389	0	250	34	0	250
08/31/1957	22	0	250	396	0	250	396	0	250	26	0	250
09/30/1957	0	0	238	367	0	250	367	0	250	0	0	240
10/31/1957	0	0	197	226	0	250	226	0	250	0	0	199
11/30/1957	0	0	103	0	0	250	0	0	250	0	0	102
12/31/1957	0	96	0	0	90	149	0	90	149	0	95	0
01/31/1958	164	0	0	313	97	0	314	97	0	65	97	0
02/28/1958	51	6	0	199	90	0	199	90	0	0	54	0
03/31/1958	53	14	0	0	0	0	0	0	0	0	0	0
04/30/1958	0	0	0	347	114	0	347	114	0	0	114	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1958	0	0	149	150	149	250	150	149	250	0	149	0
06/30/1958	41	196	0	400	196	0	400	196	0	0	196	0
07/31/1958	250	0	6	418	238	0	418	238	0	26	238	0
08/31/1958	16	251	0	417	251	0	417	251	0	19	251	0
09/30/1958	12	218	0	413	218	0	413	218	0	15	218	0
10/31/1958	7	185	0	408	185	0	408	185	0	9	185	0
11/30/1958	3	134	0	242	134	0	242	134	0	4	134	0
12/31/1958	0	0	92	125	92	250	125	92	250	0	92	0
01/31/1959	0	0	26	0	0	250	0	0	250	0	0	25
02/28/1959	49	43	0	194	92	0	194	92	0	0	92	0
03/31/1959	1	92	0	0	0	0	0	0	0	0	0	0
04/30/1959	0	0	0	213	136	0	213	136	0	109	136	0
05/31/1959	0	0	170	83	0	250	83	0	250	0	0	187
06/30/1959	250	145	0	213	221	0	213	221	0	0	221	0
07/31/1959	19	0	250	408	0	250	408	0	250	43	0	250
08/31/1959	22	0	250	148	0	250	148	0	250	26	0	250
09/30/1959	0	0	114	0	0	250	0	0	250	0	0	110
10/31/1959	0	0	70	0	0	250	0	0	250	0	0	67
11/30/1959	0	0	59	0	0	250	0	0	250	0	0	56
12/31/1959	0	0	33	0	0	250	0	0	250	0	0	32
01/31/1960	0	0	64	0	0	244	0	0	244	0	0	17
02/29/1960	0	92	0	0	18	162	0	18	162	0	21	0
03/31/1960	0	109	0	0	0	0	0	0	0	0	0	0
04/30/1960	0	0	0	116	162	0	116	162	0	0	162	0
05/31/1960	70	129	0	166	199	0	166	199	0	0	199	0
06/30/1960	250	113	70	231	233	0	231	233	0	0	233	0
07/31/1960	70	16	250	105	0	250	105	0	250	70	16	250
08/31/1960	0	0	74	0	0	250	0	0	250	0	0	75
09/30/1960	0	0	45	0	0	250	0	0	250	0	0	46
10/31/1960	0	0	57	0	0	250	0	0	250	0	0	47
11/30/1960	0	0	161	0	0	250	0	0	250	0	0	51
12/31/1960	0	0	144	0	0	250	0	0	250	0	0	16
01/31/1961	0	0	137	0	0	250	0	0	250	0	0	16
02/28/1961	0	132	0	199	132	0	199	132	0	0	63	0
03/31/1961	38	109	0	0	109	0	0	109	0	0	0	0
04/30/1961	75	0	0	262	162	0	262	162	0	146	162	0
05/31/1961	199	0	0	200	199	0	200	199	0	6	199	0
06/30/1961	250	183	0	373	233	0	373	233	0	0	233	0
07/31/1961	70	30	250	144	0	250	144	0	250	70	30	250
08/31/1961	0	0	74	0	0	250	0	0	250	0	0	73

**TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD**

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1961	0	0	189	0	0	250	0	0	250	0	0	58
10/31/1961	0	0	199	0	0	250	0	0	250	0	0	195
11/30/1961	0	0	162	0	0	250	0	0	250	0	0	162
12/31/1961	0	0	144	0	0	250	0	0	250	0	0	144
01/31/1962	0	0	139	0	0	250	0	0	250	0	0	139
02/28/1962	0	117	0	0	117	191	0	117	191	0	111	0
03/31/1962	0	92	0	0	92	0	0	92	0	0	92	0
04/30/1962	45	91	0	122	136	0	122	136	0	0	136	0
05/31/1962	0	170	0	132	170	0	132	170	0	0	170	0
06/30/1962	250	101	70	131	221	0	131	221	0	0	221	0
07/31/1962	70	131	250	420	0	250	420	0	250	70	131	250
08/31/1962	70	21	250	119	0	250	119	0	250	70	21	250
09/30/1962	0	0	179	0	0	250	0	0	250	0	0	225
10/31/1962	0	0	194	0	0	250	0	0	250	0	0	195
11/30/1962	200	154	0	420	154	250	420	154	250	200	154	0
12/31/1962	70	13	250	268	0	250	268	0	250	70	13	250
01/31/1963	200	0	0	420	115	56	420	115	56	200	115	0
02/28/1963	83	8	0	218	101	0	218	101	0	0	101	0
03/31/1963	83	0	0	0	0	0	0	0	0	0	0	0
04/30/1963	0	0	0	120	56	0	120	54	0	0	60	0
05/31/1963	0	0	145	0	0	250	0	0	250	0	0	145
06/30/1963	96	196	0	357	196	0	371	196	0	0	196	0
07/31/1963	250	0	6	420	238	128	420	238	128	148	238	0
08/31/1963	17	0	250	420	0	250	420	0	250	70	131	250
09/30/1963	12	218	0	420	218	111	420	218	117	200	218	0
10/31/1963	5	185	0	310	185	0	310	185	0	200	185	0
11/30/1963	0	132	0	420	134	170	420	134	16	200	134	0
12/31/1963	1	92	0	269	92	0	269	92	0	200	92	0
01/31/1964	79	0	0	372	83	0	360	83	0	24	83	0
02/29/1964	92	0	0	318	88	0	318	88	0	5	88	0
03/31/1964	0	109	0	0	0	0	0	0	0	0	0	0
04/30/1964	0	0	0	0	162	0	0	162	0	0	162	0
05/31/1964	61	138	0	33	199	0	37	199	0	0	199	0
06/30/1964	0	233	0	242	233	0	242	233	0	0	233	0
07/31/1964	70	34	250	158	0	250	158	0	250	70	34	250
08/31/1964	0	0	72	0	0	250	0	0	250	0	0	114
09/30/1964	0	0	50	0	0	250	0	0	250	0	0	86
10/31/1964	0	0	33	0	0	250	0	0	250	0	0	61
11/30/1964	0	0	28	0	0	250	0	0	250	0	0	52
12/31/1964	200	144	0	420	144	15	420	144	15	180	144	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1965	250	19	70	420	139	25	420	139	25	200	139	0
02/28/1965	250	0	46	197	132	0	197	132	0	0	132	0
03/31/1965	38	83	0	0	0	0	0	0	0	0	0	0
04/30/1965	0	0	0	298	114	0	298	114	0	146	114	0
05/31/1965	0	0	149	216	0	250	241	0	250	23	0	250
06/30/1965	250	76	70	400	196	0	400	196	0	0	196	0
07/31/1965	250	0	60	420	238	16	420	238	16	41	238	0
08/31/1965	16	0	250	418	0	250	418	0	250	20	0	250
09/30/1965	0	0	230	381	0	250	381	0	250	0	0	233
10/31/1965	7	185	0	366	185	0	366	185	0	9	185	0
11/30/1965	0	131	0	366	134	0	366	134	0	0	130	0
12/31/1965	0	87	0	342	92	0	342	92	0	0	86	0
01/31/1966	81	0	0	398	83	0	398	83	0	0	81	0
02/28/1966	92	0	0	400	92	0	400	92	0	0	92	0
03/31/1966	0	92	0	0	0	0	0	0	0	0	0	0
04/30/1966	0	0	0	189	136	0	189	136	0	0	136	0
05/31/1966	10	160	0	137	170	0	137	170	0	0	170	0
06/30/1966	127	221	0	304	221	0	304	221	0	0	221	0
07/31/1966	19	0	250	420	0	250	420	0	250	70	49	250
08/31/1966	22	0	250	93	0	250	93	0	250	26	0	250
09/30/1966	0	0	72	0	0	250	0	0	250	0	0	94
10/31/1966	0	0	39	0	0	250	0	0	250	0	0	55
11/30/1966	0	0	37	0	0	250	0	0	250	0	0	52
12/31/1966	0	71	0	238	52	0	238	48	0	0	67	0
01/31/1967	75	40	0	236	115	0	236	115	0	0	115	0
02/28/1967	250	3	12	201	101	0	201	101	0	0	101	0
03/31/1967	38	83	0	0	0	0	0	0	0	0	0	0
04/30/1967	0	0	0	420	114	50	420	114	50	146	114	0
05/31/1967	0	0	149	420	0	250	420	0	250	70	29	250
06/30/1967	250	76	70	400	196	0	400	196	0	0	196	0
07/31/1967	250	80	70	420	238	250	420	238	250	139	238	0
08/31/1967	16	251	0	415	251	0	420	251	12	20	251	0
09/30/1967	0	0	230	379	0	250	380	0	250	0	0	233
10/31/1967	7	185	0	379	185	0	379	185	0	9	185	0
11/30/1967	0	134	0	239	134	0	239	134	0	0	134	0
12/31/1967	0	0	92	100	92	250	9	92	250	0	92	0
01/31/1968	0	0	24	0	0	250	0	0	250	0	0	30
02/29/1968	79	10	0	398	88	0	343	88	0	0	88	0
03/31/1968	5	92	0	0	0	0	0	0	0	0	0	0
04/30/1968	0	0	0	348	136	0	351	136	0	105	136	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1968	0	0	170	99	0	250	99	0	250	0	0	187
06/30/1968	250	145	0	338	221	0	338	221	0	0	221	0
07/31/1968	19	0	250	411	0	250	412	0	250	43	0	250
08/31/1968	20	0	250	56	0	250	56	0	250	24	0	250
09/30/1968	0	0	86	0	0	250	0	0	250	0	0	103
10/31/1968	0	0	49	0	0	250	0	0	250	0	0	62
11/30/1968	0	0	50	0	0	250	0	0	250	0	0	62
12/31/1968	0	0	39	0	0	250	0	0	250	0	0	36
01/31/1969	0	88	0	272	67	0	272	66	0	0	69	0
02/28/1969	84	0	0	314	0	0	368	0	0	87	0	0
03/31/1969	38	83	0	0	0	0	0	0	0	0	0	0
04/30/1969	7	0	0	420	114	74	420	114	74	146	114	0
05/31/1969	0	0	149	420	99	250	420	99	250	70	29	250
06/30/1969	250	76	70	400	196	0	400	196	0	0	196	0
07/31/1969	250	118	70	420	238	180	420	238	180	200	238	0
08/31/1969	155	251	0	418	251	0	420	251	5	24	251	0
09/30/1969	12	218	0	412	218	0	412	218	0	15	218	0
10/31/1969	5	185	0	405	185	0	405	185	0	6	185	0
11/30/1969	0	134	0	240	134	0	240	134	0	2	134	0
12/31/1969	0	89	0	367	92	0	259	92	0	0	86	0
01/31/1970	0	0	62	420	83	250	420	83	250	0	60	0
02/28/1970	92	0	0	398	92	0	341	92	0	0	92	0
03/31/1970	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1970	0	0	0	164	114	0	165	114	0	50	114	0
05/31/1970	0	0	149	92	0	250	93	0	250	0	0	166
06/30/1970	104	196	0	353	196	0	230	196	0	0	196	0
07/31/1970	6	0	250	419	0	250	420	0	250	29	0	250
08/31/1970	17	0	250	416	0	250	418	0	250	21	0	250
09/30/1970	0	218	12	161	218	250	162	218	250	0	218	15
10/31/1970	6	185	0	320	185	0	321	185	0	8	185	0
11/30/1970	0	127	0	319	134	0	276	134	0	0	125	0
12/31/1970	0	80	0	299	92	0	299	92	0	0	78	0
01/31/1971	83	0	0	395	83	0	400	83	0	0	83	0
02/28/1971	95	0	0	398	92	0	400	92	0	0	92	0
03/31/1971	86	0	0	0	0	0	0	0	0	0	0	0
04/30/1971	0	0	0	185	114	0	188	114	0	52	114	0
05/31/1971	0	0	149	74	0	250	75	0	250	0	0	164
06/30/1971	96	196	0	315	196	0	315	196	0	0	196	0
07/31/1971	250	0	6	384	238	0	385	238	0	41	238	0
08/31/1971	17	0	250	377	0	250	377	0	250	21	0	250

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1971	0	0	230	344	0	250	344	0	250	0	0	233
10/31/1971	7	185	0	280	185	0	280	185	0	9	185	0
11/30/1971	2	134	0	143	134	0	143	134	0	2	134	0
12/31/1971	87	0	0	420	92	250	420	92	250	0	86	0
01/31/1972	0	0	55	0	0	250	0	0	250	0	0	56
02/29/1972	59	30	0	195	88	0	195	88	0	0	88	0
03/31/1972	0	92	0	0	0	0	0	0	0	0	0	0
04/30/1972	0	0	0	124	136	0	124	136	0	0	136	0
05/31/1972	89	82	0	181	170	0	181	170	0	0	170	0
06/30/1972	157	221	0	318	221	0	368	221	0	0	221	0
07/31/1972	19	0	250	420	0	250	420	0	250	70	76	250
08/31/1972	22	0	250	31	0	250	31	0	250	26	0	250
09/30/1972	0	0	72	0	0	250	0	0	250	0	0	80
10/31/1972	0	0	55	0	0	250	0	0	250	0	0	61
11/30/1972	0	0	31	0	0	250	0	0	250	0	0	35
12/31/1972	0	64	0	267	68	0	267	66	0	0	69	0
01/31/1973	58	58	0	319	115	0	319	115	0	0	115	0
02/28/1973	56	45	0	273	101	0	273	101	0	0	101	0
03/31/1973	38	84	0	0	0	0	0	0	0	0	0	0
04/30/1973	0	0	0	105	121	0	105	121	0	0	121	0
05/31/1973	0	0	138	0	0	250	0	0	250	0	0	139
06/30/1973	250	98	70	373	218	0	373	218	0	0	218	0
07/31/1973	250	123	70	420	243	171	420	243	171	200	243	0
08/31/1973	70	74	250	420	0	250	420	0	250	70	136	250
09/30/1973	0	0	238	400	113	250	400	125	250	0	124	250
10/31/1973	4	193	0	292	193	0	292	193	0	5	193	0
11/30/1973	0	136	0	420	144	250	420	144	250	0	135	0
12/31/1973	0	121	0	105	130	0	105	130	0	0	120	0
01/31/1974	95	0	0	383	97	0	345	97	0	0	95	0
02/28/1974	93	0	0	386	90	0	341	90	0	0	90	0
03/31/1974	83	0	0	0	0	0	0	0	0	0	0	0
04/30/1974	0	0	0	0	114	198	0	114	200	0	114	45
05/31/1974	0	0	149	116	0	250	117	0	250	0	0	166
06/30/1974	96	196	0	353	196	0	400	196	0	0	196	0
07/31/1974	250	0	5	420	238	13	420	238	14	40	238	0
08/31/1974	17	0	250	418	0	250	418	0	250	21	0	250
09/30/1974	12	218	0	413	218	0	413	218	0	15	218	0
10/31/1974	6	185	0	346	185	0	346	185	0	7	185	0
11/30/1974	2	134	0	218	134	0	218	134	0	3	134	0
12/31/1974	0	90	0	324	92	0	324	92	0	0	89	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1975	0	0	43	0	0	250	0	0	250	0	0	46
02/28/1975	40	52	0	398	92	0	400	92	0	0	92	0
03/31/1975	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1975	0	0	0	30	114	250	44	114	250	0	114	70
05/31/1975	0	0	149	89	0	250	89	0	250	0	0	166
06/30/1975	129	196	0	384	196	0	384	196	0	0	196	0
07/31/1975	250	0	6	420	238	16	420	238	16	41	238	0
08/31/1975	0	17	250	400	18	250	400	18	250	0	20	250
09/30/1975	0	0	230	381	0	250	381	0	250	0	0	233
10/31/1975	0	185	0	316	185	0	316	185	0	0	185	0
11/30/1975	6	134	0	189	134	0	189	134	0	8	134	0
12/31/1975	1	92	0	282	92	0	282	92	0	2	92	0
01/31/1976	0	0	66	0	0	250	0	0	250	0	0	67
02/29/1976	0	0	33	0	0	250	0	0	250	0	0	35
03/31/1976	0	80	0	0	0	0	0	0	0	0	0	0
04/30/1976	0	0	0	110	148	0	111	147	0	0	147	0
05/31/1976	0	162	0	0	170	157	0	167	159	0	167	0
06/30/1976	0	0	112	0	0	250	0	0	250	0	0	121
07/31/1976	0	0	62	0	0	250	0	0	250	0	0	70
08/31/1976	0	0	148	0	0	250	0	0	250	0	0	47
09/30/1976	0	0	159	0	0	250	0	0	250	0	0	66
10/31/1976	0	0	198	0	0	250	0	0	250	0	0	46
11/30/1976	0	0	166	0	0	250	0	0	250	0	0	41
12/31/1976	0	0	152	0	0	250	0	0	250	0	0	35
01/31/1977	0	0	147	0	0	250	0	0	250	0	0	19
02/28/1977	0	161	0	0	161	111	0	161	112	0	54	0
03/31/1977	0	92	0	0	92	0	0	92	0	0	0	0
04/30/1977	0	181	0	0	181	0	0	181	0	0	110	0
05/31/1977	0	222	0	0	222	31	0	222	30	0	170	0
06/30/1977	5	0	250	5	0	250	5	0	250	5	0	250
07/31/1977	15	0	250	15	0	250	15	0	250	15	0	250
08/31/1977	8	0	250	8	0	250	8	0	250	8	0	250
09/30/1977	0	0	236	0	0	250	0	0	250	0	0	236
10/31/1977	0	0	198	0	0	250	0	0	250	0	0	198
11/30/1977	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1977	0	0	152	0	0	250	0	0	250	0	0	152
01/31/1978	0	147	0	98	147	0	97	147	0	0	147	0
02/28/1978	49	112	0	82	161	0	81	161	0	0	161	0
03/31/1978	0	84	0	0	84	0	0	84	0	0	84	0
04/30/1978	121	0	0	420	121	49	420	121	49	146	121	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1978	0	0	149	420	0	250	420	0	250	70	29	250
06/30/1978	250	98	70	400	218	0	400	218	0	0	218	0
07/31/1978	250	123	70	420	243	180	420	243	180	200	243	0
08/31/1978	70	136	250	420	0	250	420	0	250	70	136	250
09/30/1978	70	106	250	420	0	250	420	0	250	70	106	250
10/31/1978	161	193	0	420	193	152	420	193	152	200	193	0
11/30/1978	0	143	0	420	144	96	420	144	99	200	144	0
12/31/1978	0	0	130	102	130	250	102	130	250	0	130	200
01/31/1979	0	42	0	150	45	250	150	45	250	0	47	0
02/28/1979	86	4	0	400	90	0	400	90	0	0	90	0
03/31/1979	0	92	0	0	0	0	0	0	0	0	0	0
04/30/1979	0	0	0	75	136	250	76	136	250	0	136	146
05/31/1979	0	0	170	244	0	250	244	0	250	70	50	250
06/30/1979	160	221	0	379	221	0	379	221	0	0	221	0
07/31/1979	19	0	250	420	0	250	420	0	250	70	114	250
08/31/1979	22	0	250	51	0	250	51	0	250	26	0	250
09/30/1979	0	0	110	0	0	250	0	0	250	0	0	121
10/31/1979	0	0	71	0	0	250	0	0	250	0	0	81
11/30/1979	0	0	60	0	0	250	0	0	250	0	0	68
12/31/1979	70	13	250	100	83	250	100	83	250	0	83	250
01/31/1980	110	5	0	385	115	0	400	115	0	0	115	0
02/29/1980	0	0	187	41	0	250	41	0	250	0	0	104
03/31/1980	0	0	82	0	0	0	0	0	0	0	0	0
04/30/1980	0	0	0	117	121	250	120	121	250	0	121	92
05/31/1980	0	0	149	181	0	250	181	0	250	0	0	165
06/30/1980	103	218	0	400	218	0	400	218	0	0	218	0
07/31/1980	250	0	10	420	243	15	420	243	15	41	243	0
08/31/1980	16	256	0	417	256	0	417	256	0	20	256	0
09/30/1980	0	0	238	389	0	250	389	0	250	0	0	241
10/31/1980	7	193	0	385	193	0	385	193	0	9	193	0
11/30/1980	3	144	0	384	144	0	384	144	0	4	144	0
12/31/1980	0	0	128	173	0	250	173	0	250	0	33	94
01/31/1981	0	0	22	0	0	250	0	0	250	0	0	27
02/28/1981	170	0	0	400	90	0	400	90	0	0	90	0
03/31/1981	109	0	0	0	0	0	0	0	0	0	0	0
04/30/1981	0	0	0	291	133	0	291	133	0	0	137	0
05/31/1981	129	0	0	291	0	0	291	0	0	143	0	0
06/30/1981	146	233	0	220	233	0	220	233	0	0	233	0
07/31/1981	70	19	250	114	0	250	114	0	250	70	19	250
08/31/1981	0	0	67	0	0	250	0	0	250	0	0	82

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1981	0	0	39	0	0	250	0	0	250	0	0	50
10/31/1981	0	0	52	0	0	250	0	0	250	0	0	66
11/30/1981	0	0	56	0	0	250	0	0	250	0	0	69
12/31/1981	200	144	0	405	144	0	405	144	0	148	144	0
01/31/1982	137	2	0	265	139	0	265	139	0	0	139	0
02/28/1982	250	0	46	311	132	0	311	132	0	0	132	0
03/31/1982	0	83	38	0	0	0	0	0	0	0	0	0
04/30/1982	0	0	0	420	114	250	420	114	250	146	114	0
05/31/1982	0	0	149	420	0	250	420	0	250	70	29	250
06/30/1982	250	76	70	353	196	0	230	196	0	0	196	0
07/31/1982	250	49	70	420	238	180	420	238	180	200	238	0
08/31/1982	16	251	0	420	251	58	420	251	59	157	251	0
09/30/1982	9	218	0	420	218	250	420	218	250	11	218	0
10/31/1982	0	185	0	420	185	250	420	185	250	0	185	0
11/30/1982	0	131	0	420	134	250	420	134	250	0	130	0
12/31/1982	0	0	77	117	92	250	9	92	250	0	77	0
01/31/1983	45	0	0	420	83	236	420	83	250	0	43	0
02/28/1983	55	0	0	400	51	0	400	92	0	0	54	0
03/31/1983	32	0	0	0	0	0	0	0	0	0	0	0
04/30/1983	0	0	0	420	114	250	420	114	250	0	114	0
05/31/1983	0	0	149	163	149	250	420	149	250	0	149	0
06/30/1983	0	196	88	150	196	250	150	196	250	0	196	0
07/31/1983	250	0	6	420	238	11	420	238	11	36	238	0
08/31/1983	16	251	0	420	251	1	420	251	6	19	251	0
09/30/1983	11	218	0	418	218	0	418	218	0	13	218	0
10/31/1983	6	185	0	411	185	0	411	185	0	8	185	0
11/30/1983	0	0	127	273	0	250	273	0	250	0	0	126
12/31/1983	0	0	84	117	79	250	9	79	250	0	82	0
01/31/1984	0	0	84	185	83	250	293	83	250	0	83	2
02/29/1984	88	0	0	400	88	0	400	88	0	0	88	0
03/31/1984	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1984	0	0	0	161	114	0	161	114	0	51	114	0
05/31/1984	0	0	149	102	0	250	102	0	250	0	0	166
06/30/1984	104	196	0	353	196	0	230	196	0	0	196	0
07/31/1984	6	0	250	175	238	250	175	238	250	0	238	41
08/31/1984	17	0	250	413	0	250	414	0	250	21	0	250
09/30/1984	0	218	12	159	218	250	159	218	250	0	218	15
10/31/1984	4	185	0	317	185	0	318	185	0	5	185	0
11/30/1984	0	128	0	420	134	250	420	134	250	0	126	0
12/31/1984	0	92	0	300	91	0	259	92	0	0	91	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1985	83	0	0	392	83	0	345	83	0	0	83	0
02/28/1985	92	0	0	396	92	0	341	92	0	0	92	0
03/31/1985	113	0	0	0	0	0	0	0	0	0	0	0
04/30/1985	0	0	0	116	162	0	116	162	0	0	162	0
05/31/1985	0	155	0	0	172	0	0	172	0	0	163	0
06/30/1985	146	233	0	293	233	0	230	233	0	0	233	0
07/31/1985	70	5	250	199	0	250	199	0	250	70	45	250
08/31/1985	0	0	113	0	0	250	0	0	250	0	0	128
09/30/1985	0	0	68	0	0	250	0	0	225	0	0	80
10/31/1985	0	0	59	0	0	250	0	0	169	0	0	70
11/30/1985	0	0	63	0	0	250	0	0	243	0	0	74
12/31/1985	0	0	35	0	0	250	0	0	250	0	0	43
01/31/1986	0	53	0	138	75	250	95	74	250	0	62	0
02/28/1986	11	120	0	400	132	0	400	132	0	0	132	0
03/31/1986	38	83	0	0	0	0	0	0	0	0	0	0
04/30/1986	0	0	114	196	114	250	196	114	250	0	114	146
05/31/1986	0	0	149	420	0	250	420	0	250	70	29	250
06/30/1986	250	76	70	353	196	0	400	196	0	0	196	0
07/31/1986	250	118	70	420	238	180	420	238	180	200	238	0
08/31/1986	70	131	250	420	0	250	420	0	250	70	131	250
09/30/1986	126	218	0	410	218	0	412	218	0	125	218	0
10/31/1986	7	185	0	354	185	0	355	185	0	9	185	0
11/30/1986	3	134	0	209	134	0	209	134	0	4	134	0
12/31/1986	0	0	92	74	92	250	74	92	250	0	92	0
01/31/1987	0	0	24	0	0	250	0	0	250	0	0	27
02/28/1987	0	56	0	162	65	0	163	64	0	0	60	0
03/31/1987	0	109	0	0	0	0	0	0	0	0	0	0
04/30/1987	0	0	0	55	158	0	55	158	0	0	157	0
05/31/1987	0	148	0	86	161	0	86	160	0	0	152	0
06/30/1987	250	113	70	231	233	0	231	233	0	0	233	0
07/31/1987	70	48	250	215	0	250	215	0	250	70	50	250
08/31/1987	0	0	109	0	0	250	0	0	250	0	0	124
09/30/1987	0	0	79	0	0	250	0	0	250	0	0	93
10/31/1987	0	0	54	0	0	250	0	0	250	0	0	65
11/30/1987	0	0	40	0	0	250	0	0	250	0	0	49
12/31/1987	0	0	25	0	0	237	0	0	235	0	0	31
01/31/1988	0	62	0	159	79	0	158	77	0	0	72	0
02/29/1988	0	105	0	47	72	0	47	72	0	0	72	0
03/31/1988	0	144	0	0	0	0	0	0	0	0	0	0
04/30/1988	0	22	0	47	168	0	47	167	0	0	165	0

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1988	0	222	0	79	193	0	79	191	0	0	187	0
06/30/1988	108	147	0	174	255	0	174	255	0	0	255	0
07/31/1988	70	23	250	126	0	250	126	0	250	70	23	250
08/31/1988	0	0	217	0	0	189	0	0	184	0	0	79
09/30/1988	0	0	236	0	0	250	0	0	250	0	0	60
10/31/1988	0	0	198	0	0	219	0	0	219	0	0	46
11/30/1988	0	0	166	0	0	250	0	0	250	0	0	46
12/31/1988	0	0	152	0	0	250	0	0	250	0	0	30
01/31/1989	0	0	147	0	0	250	0	0	250	0	78	17
02/28/1989	0	161	0	0	161	75	0	161	74	0	136	0
03/31/1989	0	57	0	0	57	0	0	57	0	0	57	0
04/30/1989	37	125	0	107	162	0	107	162	0	0	162	0
05/31/1989	151	48	0	173	199	0	173	199	0	0	199	0
06/30/1989	250	113	70	358	233	0	359	233	0	0	233	0
07/31/1989	70	19	250	113	0	250	113	0	250	70	19	250
08/31/1989	0	0	62	0	0	250	0	0	250	0	0	226
09/30/1989	0	0	229	0	0	250	0	0	250	0	0	234
10/31/1989	0	0	199	0	0	250	0	0	250	0	0	199
11/30/1989	0	0	162	0	0	250	0	0	250	0	0	162
12/31/1989	0	0	144	0	0	250	0	0	250	0	0	144
01/31/1990	0	0	139	0	0	250	0	0	250	0	0	139
02/28/1990	0	132	0	304	132	0	303	132	0	0	132	0
03/31/1990	0	144	0	0	144	0	0	144	0	0	144	0
04/30/1990	89	59	0	0	181	0	0	181	0	0	181	0
05/31/1990	129	94	0	51	222	0	51	222	0	0	222	0
06/30/1990	5	0	250	0	0	250	0	0	250	0	0	235
07/31/1990	8	0	250	15	0	250	15	0	250	15	0	250
08/31/1990	8	0	250	8	0	250	8	0	250	8	0	250
09/30/1990	0	0	236	0	0	250	0	0	250	0	0	236
10/31/1990	0	0	198	0	0	250	0	0	250	0	0	198
11/30/1990	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1990	0	0	152	0	0	250	0	0	250	0	0	152
01/31/1991	0	0	147	0	0	173	0	0	173	0	0	147
02/28/1991	0	161	0	0	161	44	0	161	44	0	161	0
03/31/1991	0	92	0	0	92	0	0	92	0	0	92	0
04/30/1991	1	180	0	57	181	0	57	181	0	0	181	0
05/31/1991	102	121	0	94	222	0	94	222	0	0	222	0
06/30/1991	5	0	250	5	0	250	5	0	250	5	0	250
07/31/1991	15	0	250	15	0	250	15	0	250	15	0	250
08/31/1991	8	0	250	8	0	250	8	0	250	8	0	250

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/1991	0	0	236	0	0	250	0	0	250	0	0	236
10/31/1991	0	0	198	0	0	250	0	0	250	0	0	198
11/30/1991	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1991	0	0	152	0	0	250	0	0	250	0	0	152
01/31/1992	0	0	147	0	0	250	0	0	250	0	0	147
02/29/1992	0	0	155	0	0	231	0	0	231	0	0	155
03/31/1992	0	144	0	0	144	0	0	144	0	0	144	0
04/30/1992	101	80	0	53	181	0	54	181	0	0	181	0
05/31/1992	211	12	0	0	222	0	0	222	0	0	222	0
06/30/1992	70	135	250	0	255	229	0	255	231	0	255	0
07/31/1992	70	141	250	420	0	250	330	0	250	70	141	250
08/31/1992	0	0	136	0	0	250	0	0	250	0	0	138
09/30/1992	0	0	66	0	0	250	0	0	250	0	0	236
10/31/1992	0	0	198	0	0	250	0	0	250	0	0	198
11/30/1992	0	0	166	0	0	250	0	0	250	0	0	166
12/31/1992	0	0	152	0	0	250	0	0	250	0	0	152
01/31/1993	0	132	0	0	141	155	0	141	156	0	141	0
02/28/1993	18	143	0	123	161	0	124	161	0	0	161	0
03/31/1993	0	84	0	0	84	0	0	84	0	0	84	0
04/30/1993	28	92	0	113	121	0	114	121	0	0	121	0
05/31/1993	3	146	0	188	149	0	189	149	0	0	149	0
06/30/1993	250	98	70	400	218	0	400	218	0	0	218	0
07/31/1993	250	123	70	420	243	180	420	243	180	200	243	0
08/31/1993	70	136	250	420	0	250	420	0	250	70	136	250
09/30/1993	70	106	250	420	0	250	420	0	250	70	106	250
10/31/1993	107	193	0	420	193	97	420	193	100	200	193	0
11/30/1993	0	144	0	420	144	97	420	144	101	200	144	0
12/31/1993	0	0	128	208	0	250	208	0	250	70	10	250
01/31/1994	0	0	20	0	0	250	0	0	250	0	0	21
02/28/1994	0	40	0	400	36	0	400	36	0	0	40	0
03/31/1994	38	144	0	0	0	0	0	0	0	0	0	0
04/30/1994	0	0	0	84	181	0	83	181	0	0	181	0
05/31/1994	162	61	0	125	222	0	125	222	0	0	222	0
06/30/1994	250	142	63	234	255	0	233	255	0	0	255	0
07/31/1994	0	0	84	0	0	250	0	0	250	0	0	95
08/31/1994	0	0	39	0	0	250	0	0	250	0	0	47
09/30/1994	0	0	51	0	0	250	0	0	250	0	0	61
10/31/1994	0	0	38	0	0	250	0	0	250	0	0	45
11/30/1994	0	0	79	0	0	250	0	0	250	0	0	40
12/31/1994	0	0	151	0	0	250	0	0	250	0	0	57

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
01/31/1995	0	95	0	0	95	214	0	95	213	0	95	0
02/28/1995	111	50	0	181	161	0	180	161	0	0	161	0
03/31/1995	0	0	173	0	10	73	0	10	73	0	10	73
04/30/1995	0	0	114	225	114	250	225	114	250	0	114	146
05/31/1995	149	0	0	420	0	250	420	0	250	250	29	70
06/30/1995	146	196	0	353	196	0	248	196	0	0	196	0
07/31/1995	70	118	250	420	238	250	420	238	250	0	238	200
08/31/1995	200	251	0	420	251	250	420	251	250	200	251	0
09/30/1995	70	98	250	420	0	250	420	0	250	70	98	250
10/31/1995	98	185	0	420	185	180	420	185	180	200	185	0
11/30/1995	3	134	0	352	134	0	356	134	0	200	134	0
12/31/1995	0	83	0	367	92	0	259	92	0	200	92	0
01/31/1996	65	0	0	338	83	0	338	83	0	200	83	0
02/29/1996	50	0	0	256	88	0	256	88	0	0	88	0
03/31/1996	80	0	0	0	0	0	0	0	0	0	0	0
04/30/1996	0	0	0	4	114	250	6	114	250	0	114	146
05/31/1996	0	0	149	258	0	250	259	0	250	0	0	169
06/30/1996	93	196	0	353	196	0	230	196	0	0	196	0
07/31/1996	250	0	6	420	238	11	420	238	14	41	238	0
08/31/1996	17	0	250	416	0	250	418	0	250	21	0	250
09/30/1996	0	0	230	379	0	250	381	0	250	0	0	233
10/31/1996	6	185	0	337	185	0	338	185	0	7	185	0
11/30/1996	0	132	0	344	134	0	336	134	0	0	131	0
12/31/1996	0	74	0	72	92	250	72	92	250	0	72	0
01/31/1997	68	0	0	420	83	250	420	83	250	0	65	0
02/28/1997	0	0	95	150	92	250	150	92	250	0	92	0
03/31/1997	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1997	0	0	0	0	114	169	0	114	171	0	114	55
05/31/1997	0	0	149	114	0	250	116	0	250	0	0	166
06/30/1997	104	196	0	353	196	0	230	196	0	0	196	0
07/31/1997	6	0	250	400	18	250	400	22	250	0	29	250
08/31/1997	16	0	250	415	0	250	417	0	250	20	0	250
09/30/1997	0	0	230	379	0	250	381	0	250	0	0	233
10/31/1997	6	185	0	354	185	0	355	185	0	7	185	0
11/30/1997	0	129	0	352	134	0	335	134	0	0	128	0
12/31/1997	0	90	0	330	92	0	330	92	0	0	90	0
01/31/1998	29	0	0	326	83	0	328	83	0	0	27	0
02/28/1998	40	0	0	330	0	0	382	0	0	42	0	0
03/31/1998	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1998	0	0	0	125	114	250	133	114	250	0	114	69

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
05/31/1998	0	0	149	306	0	250	308	0	250	0	0	159
06/30/1998	124	196	0	400	196	0	400	196	0	0	196	0
07/31/1998	6	0	250	420	238	250	420	238	250	0	238	41
08/31/1998	16	251	0	420	251	250	420	251	250	20	251	0
09/30/1998	12	218	0	420	218	250	420	218	250	15	218	0
10/31/1998	7	185	0	393	185	0	393	185	0	9	185	0
11/30/1998	0	134	0	420	134	250	420	134	250	0	134	0
12/31/1998	0	84	0	361	78	0	259	92	0	0	81	0
01/31/1999	81	0	0	395	83	0	345	83	0	0	81	0
02/28/1999	96	0	0	398	92	0	341	92	0	0	92	0
03/31/1999	0	83	0	0	0	0	0	0	0	0	0	0
04/30/1999	0	0	0	287	114	0	276	114	0	51	114	0
05/31/1999	0	0	149	110	0	250	87	0	250	0	0	165
06/30/1999	99	196	0	353	196	0	230	196	0	0	196	0
07/31/1999	250	0	6	410	238	0	412	238	0	40	238	0
08/31/1999	17	0	250	412	0	250	413	0	250	21	0	250
09/30/1999	0	218	12	159	218	250	160	218	250	0	218	15
10/31/1999	7	185	0	291	185	0	291	185	0	9	185	0
11/30/1999	0	134	0	169	134	0	169	134	0	0	134	0
12/31/1999	0	0	95	15	92	250	15	92	250	0	92	4
01/31/2000	0	0	30	0	0	250	0	0	250	0	0	31
02/29/2000	0	74	0	392	77	0	343	77	0	0	75	0
03/31/2000	12	84	0	0	0	0	0	0	0	0	0	0
04/30/2000	0	0	0	0	121	210	0	121	216	0	121	107
05/31/2000	0	0	149	79	0	250	81	0	250	0	0	164
06/30/2000	250	54	70	324	218	0	230	218	0	0	218	0
07/31/2000	250	0	11	420	243	0	420	243	4	41	243	0
08/31/2000	22	0	250	419	0	250	420	0	250	26	0	250
09/30/2000	0	0	238	386	0	250	388	0	250	0	0	241
10/31/2000	0	193	0	294	193	0	295	193	0	0	193	0
11/30/2000	7	144	0	295	144	0	295	144	0	9	144	0
12/31/2000	0	0	131	148	0	250	148	0	250	0	0	132
01/31/2001	0	0	29	0	0	250	0	0	250	0	0	31
02/28/2001	44	46	0	379	90	0	341	90	0	0	90	0
03/31/2001	16	109	0	0	0	0	0	0	0	0	0	0
04/30/2001	0	0	0	54	162	0	54	162	0	0	162	0
05/31/2001	0	190	0	68	193	0	68	192	0	0	191	0
06/30/2001	250	113	70	238	233	0	238	233	0	0	233	0
07/31/2001	39	0	250	195	0	250	195	0	250	70	45	250
08/31/2001	0	0	123	0	0	250	0	0	250	0	0	135

TABLE C4-6:
CCWD DIVERSIONS (CFS), 2005 LOD

	Existing No Project			2005 LOD Alternative 1			2005 LOD Alternative 2			2005 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
09/30/2001	0	0	88	0	0	250	0	0	250	0	0	100
10/31/2001	0	0	54	0	0	250	0	0	250	0	0	63
11/30/2001	0	0	52	0	0	250	0	0	250	0	0	60
12/31/2001	0	0	44	0	0	250	0	0	250	0	0	52
01/31/2002	103	35	0	176	139	0	176	139	0	0	139	0
02/28/2002	250	12	70	134	132	0	230	132	0	0	132	0
03/31/2002	38	109	0	0	0	0	0	0	0	0	0	0
04/30/2002	0	0	0	108	162	0	108	162	0	0	162	0
05/31/2002	0	139	0	179	160	0	179	156	0	0	151	0
06/30/2002	250	113	70	378	233	0	378	233	0	0	233	0
07/31/2002	10	0	250	11	0	250	11	0	250	11	0	250
08/31/2002	0	0	51	0	0	250	0	0	250	0	0	77
09/30/2002	0	0	35	0	0	250	0	0	250	0	0	57
10/31/2002	0	0	167	0	0	250	0	0	250	0	0	52
11/30/2002	0	0	162	0	0	250	0	0	250	0	0	43
12/31/2002	0	134	0	20	134	250	20	134	250	0	55	0
01/31/2003	250	89	0	420	139	180	420	139	180	200	139	0
02/28/2003	250	82	0	420	132	180	420	132	180	64	132	0
03/31/2003	38	84	0	0	84	0	0	84	0	0	0	0
04/30/2003	68	0	0	248	121	0	248	121	0	146	121	0
05/31/2003	83	67	0	146	149	0	147	149	0	0	149	0
06/30/2003	250	98	70	220	218	0	220	218	0	0	218	0
07/31/2003	70	123	250	420	0	250	420	0	250	70	123	250
08/31/2003	70	90	250	420	0	250	420	0	250	70	136	250
09/30/2003	0	0	238	420	0	250	420	0	250	70	106	250

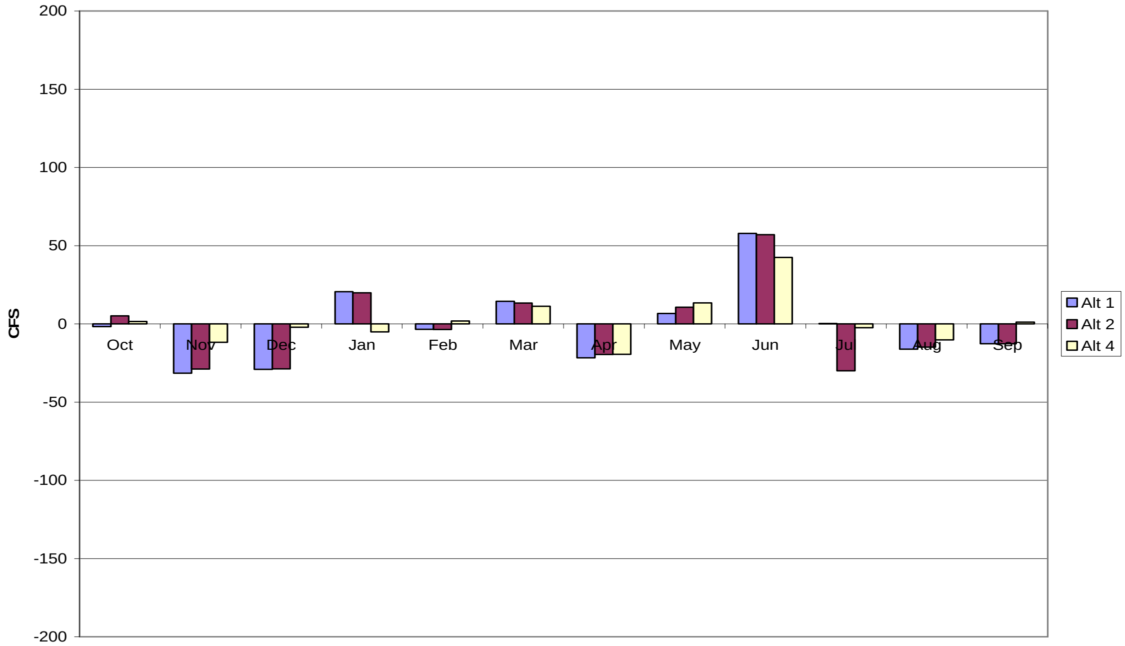


Figure C4-1: Changes in Average Monthly Sacramento River at Hood flow, 2005 LOD

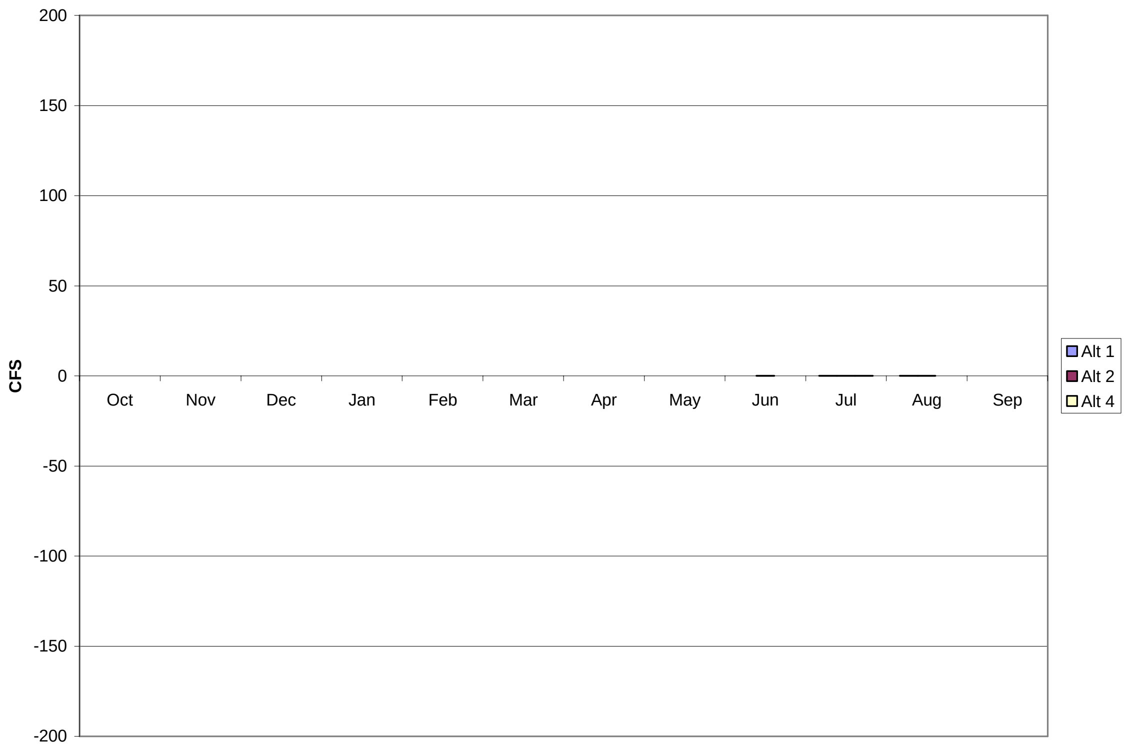


Figure C4-2: Changes in Average Monthly San Joaquin River at Vernalis Flow, 2005 LOD

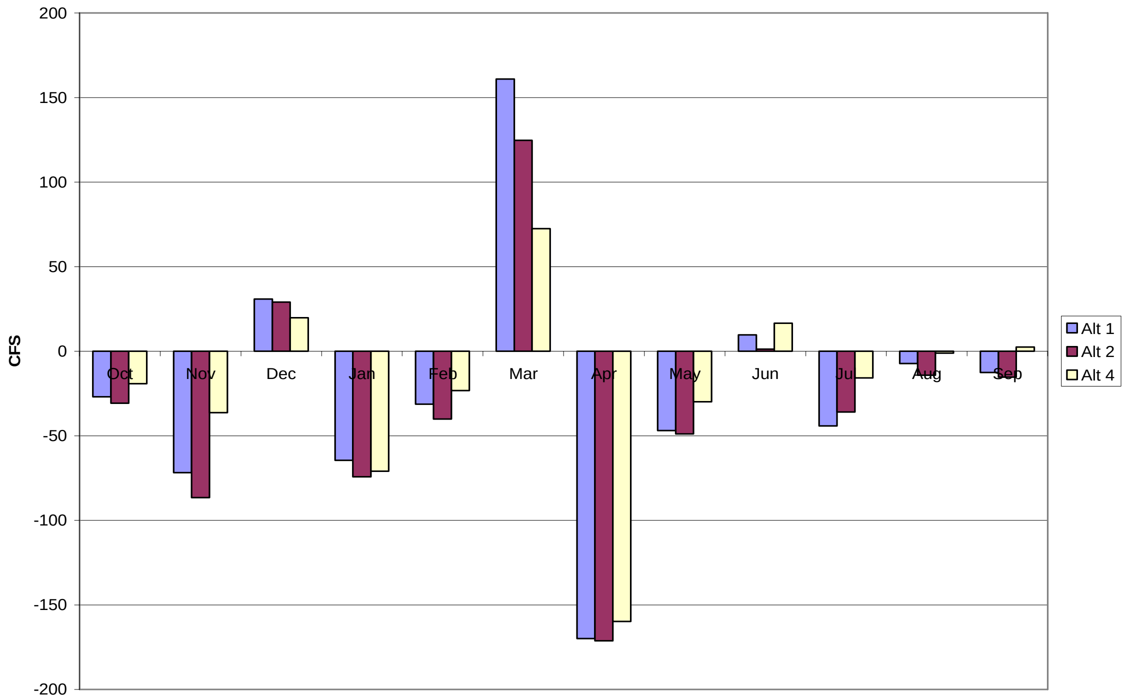


Figure C4-3: Changes in Average Monthly Delta Outflow, 2005 LOD

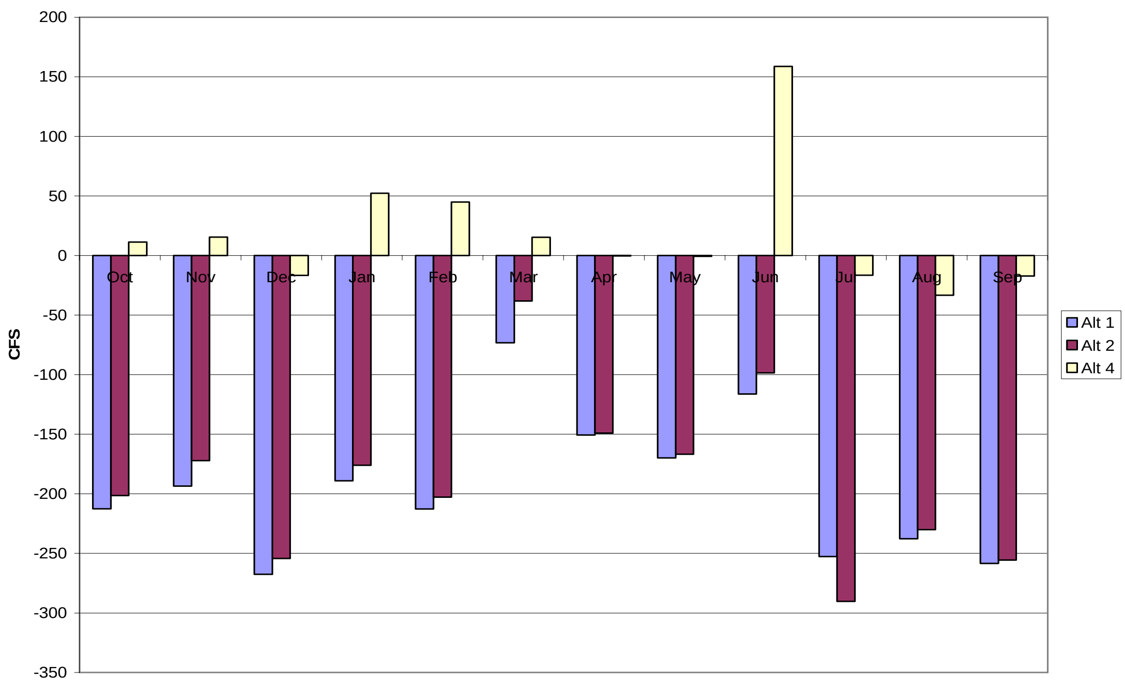


Figure C4-4: Changes in Average Monthly Banks + Jones Diversions, 2005 LOD

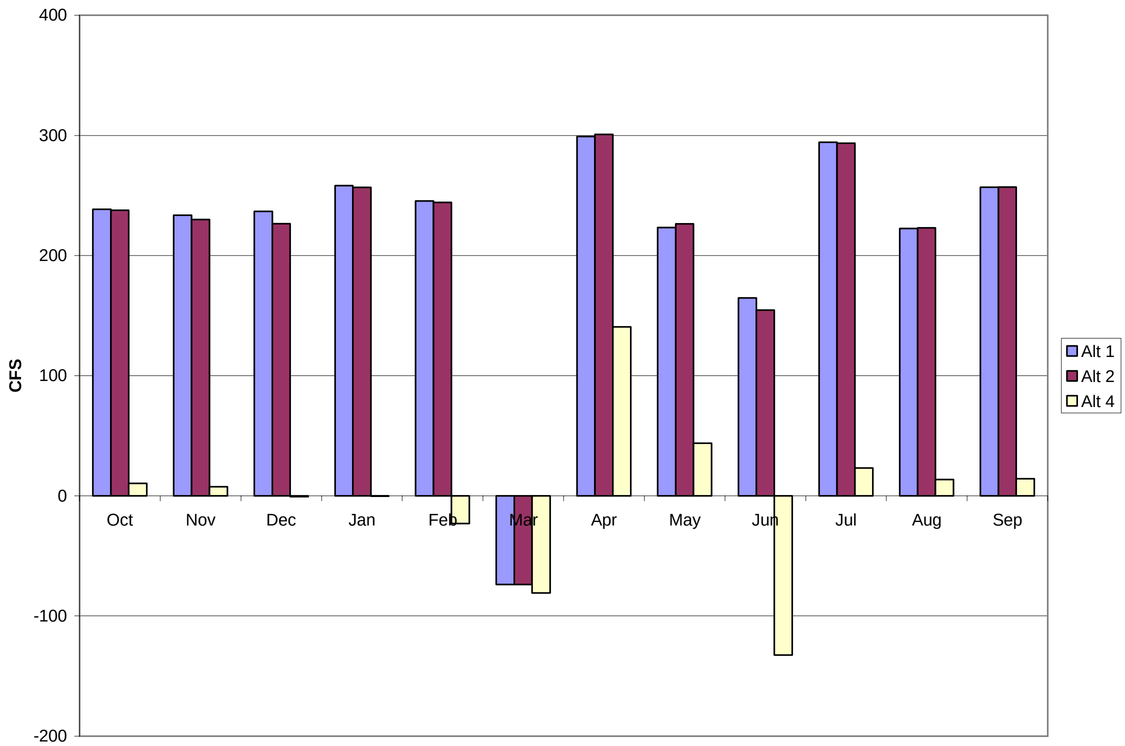


Figure C4-5: Changes in Average Monthly CCWD + LV Diversions, 2005 LOD

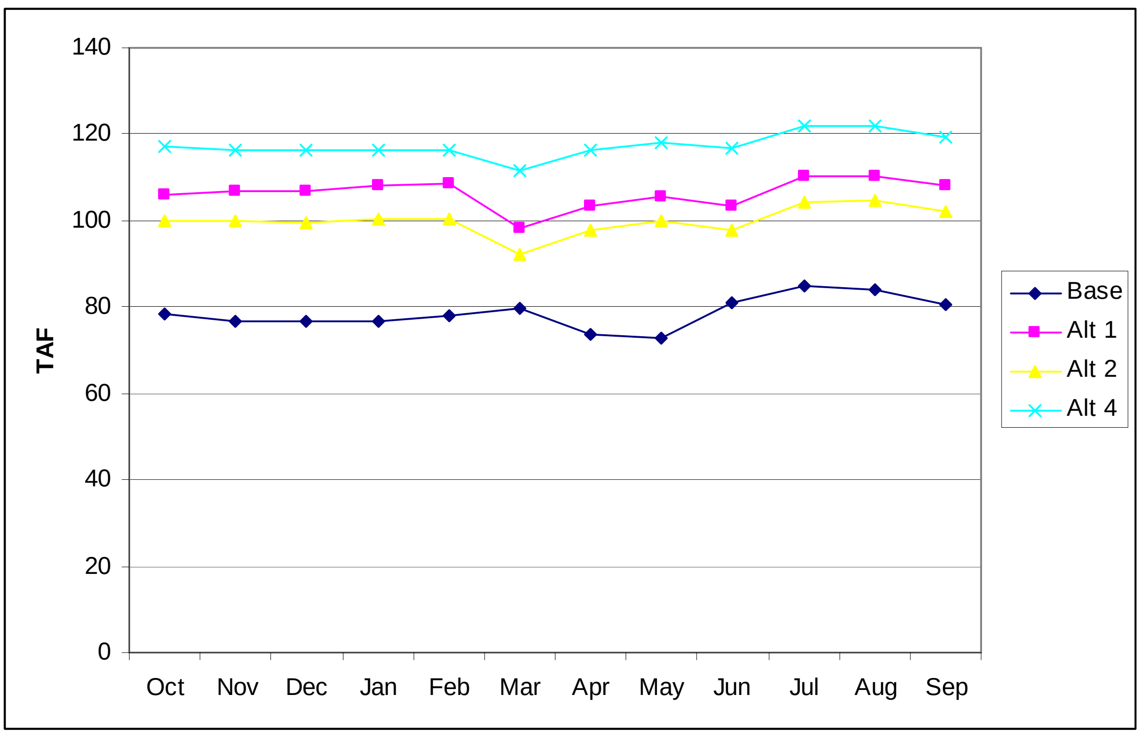


Figure C4-6: Average Los Vaqueros storage 2005 LOD

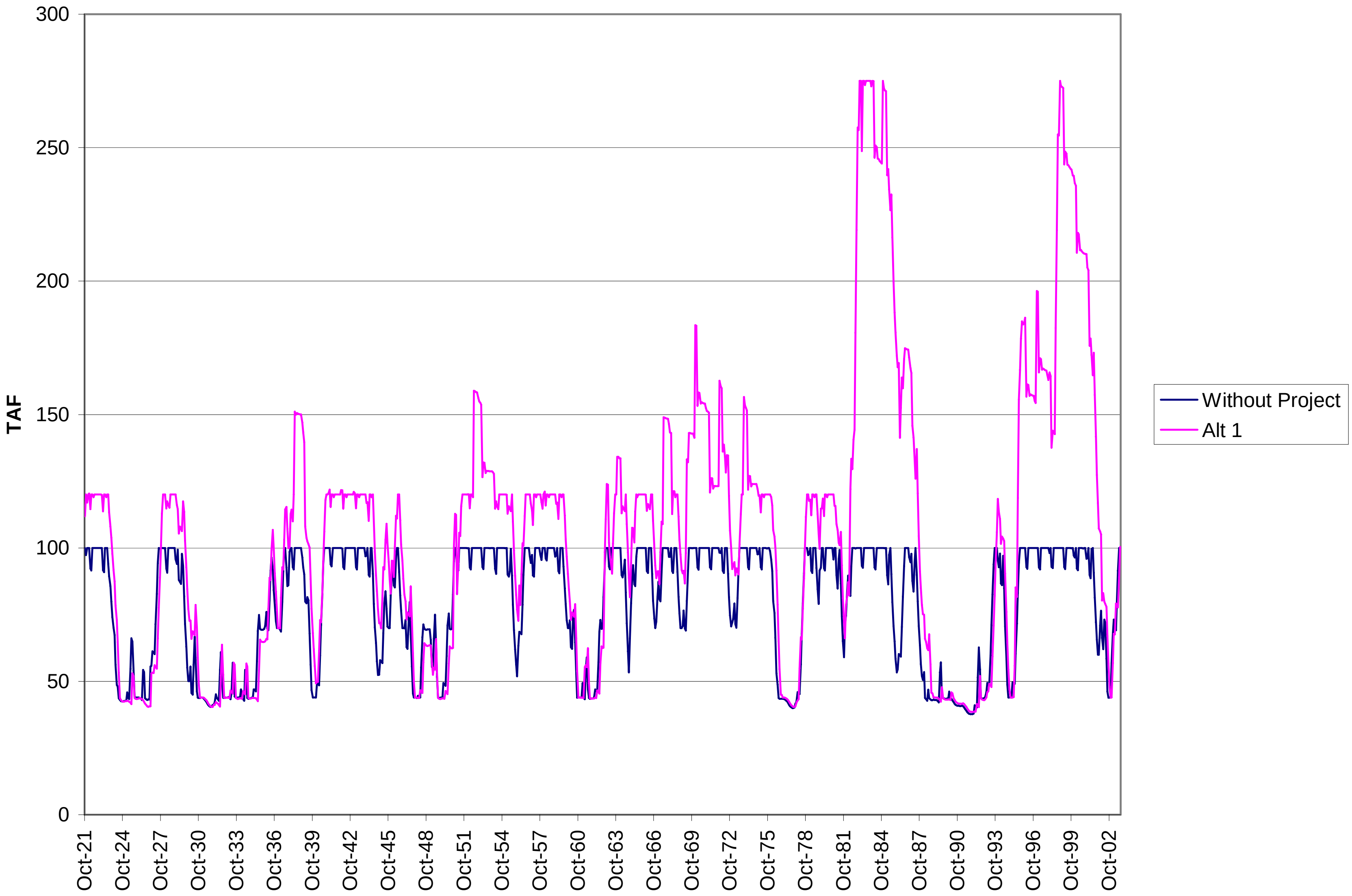


Figure C4-7: Timeseries of Alternative 1 and Base Los Vaqueros storage 2005 LOD

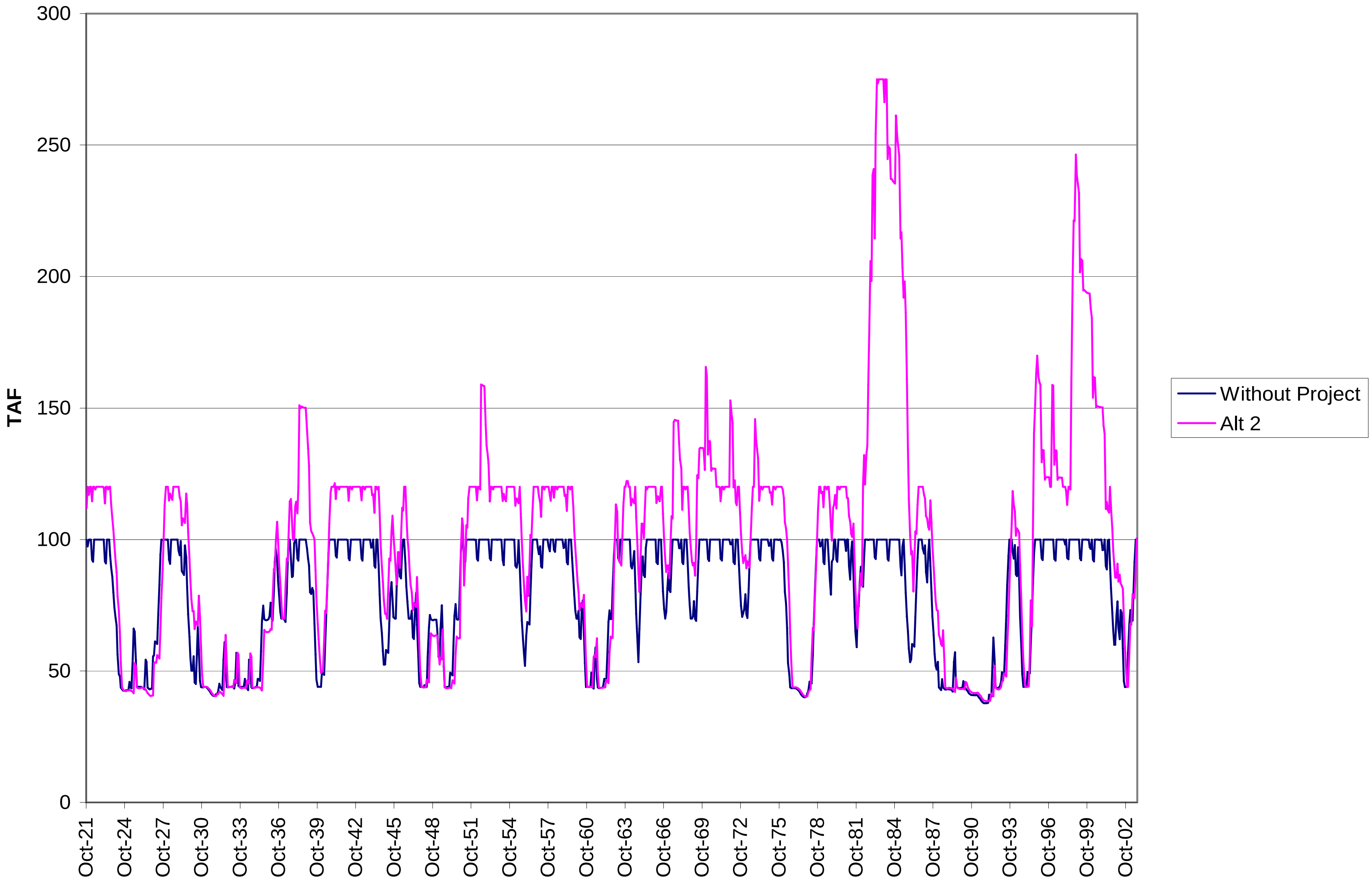


Figure C4-8: Timeseries of Alternative 2 and Base Los Vaqueros storage 2005 LOD

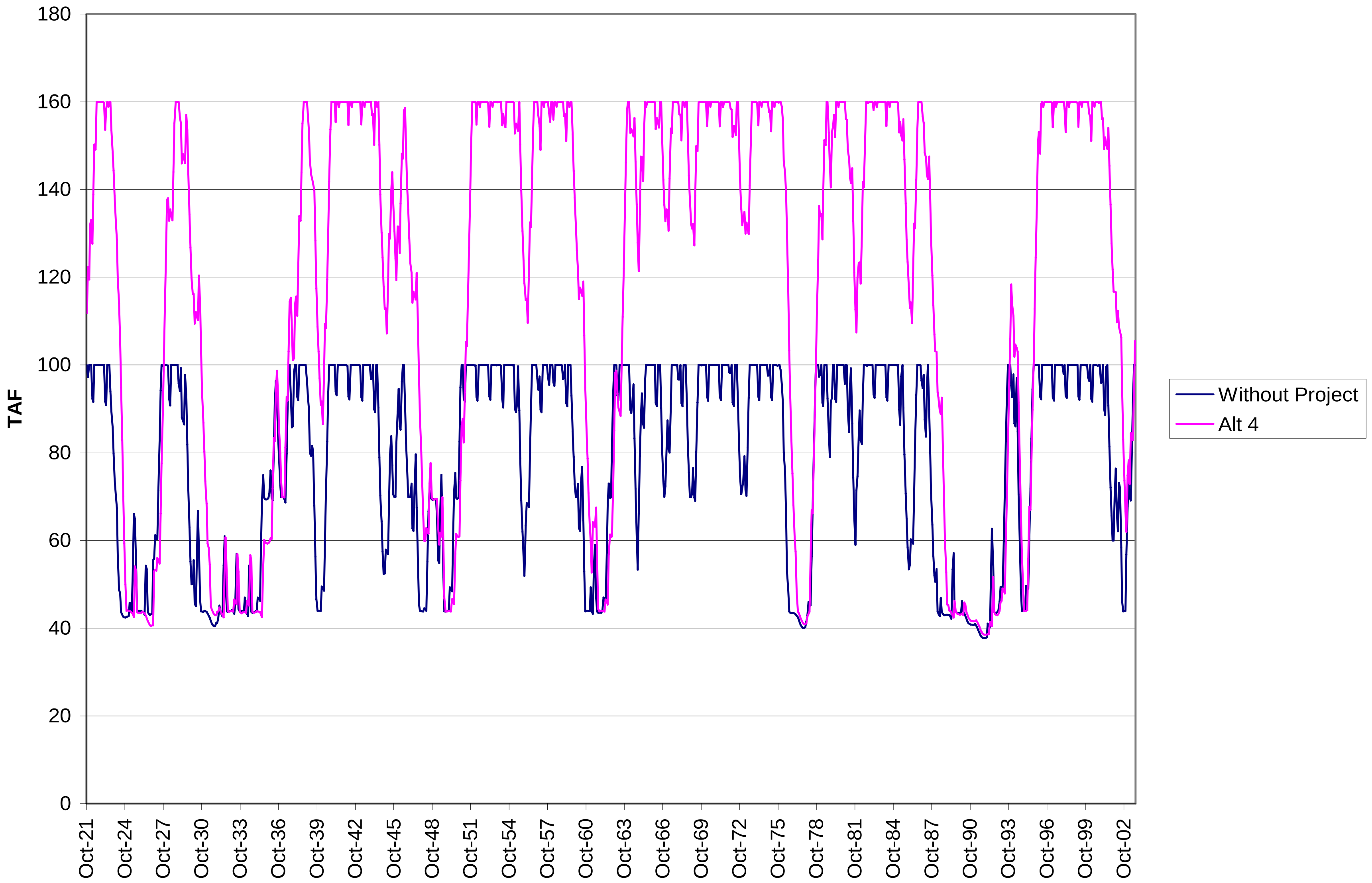


Figure C4-9: Timeseries of Alternative 4 and Base Los Vaqueros storage 2005 LOD

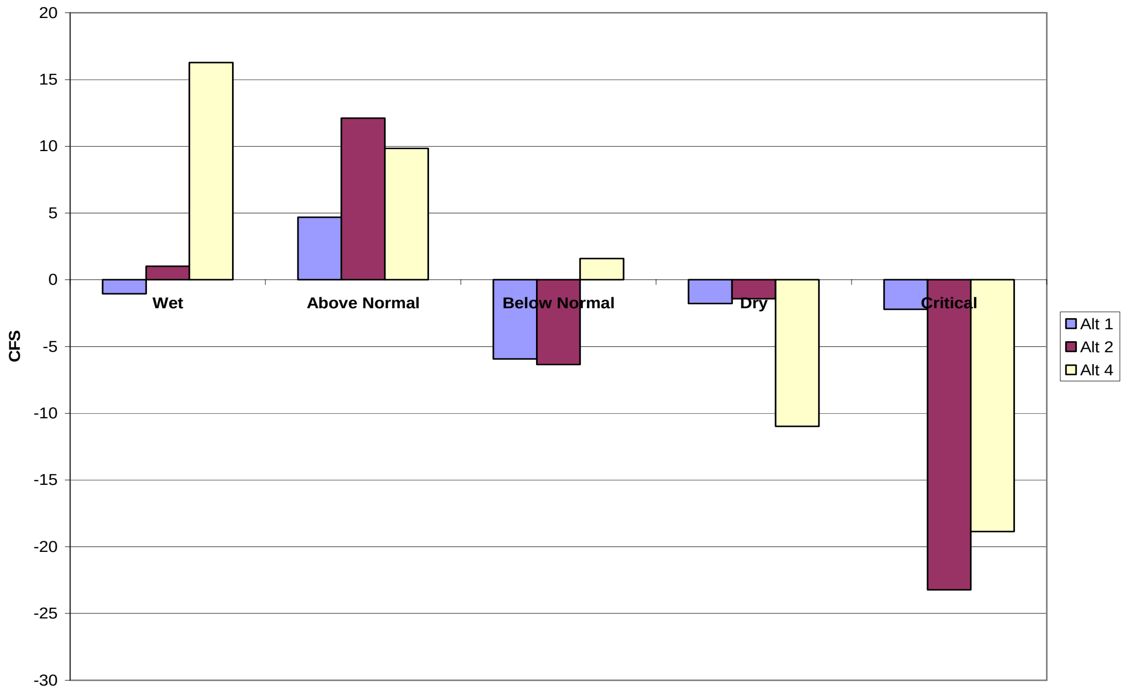


Figure C4-10: Changes in Sacramento River at Hood flow by water year type, 2005 LOD

Figure C4-11: Changes in San Joaquin River at Vernalis flow by water year type, 2005 LOD

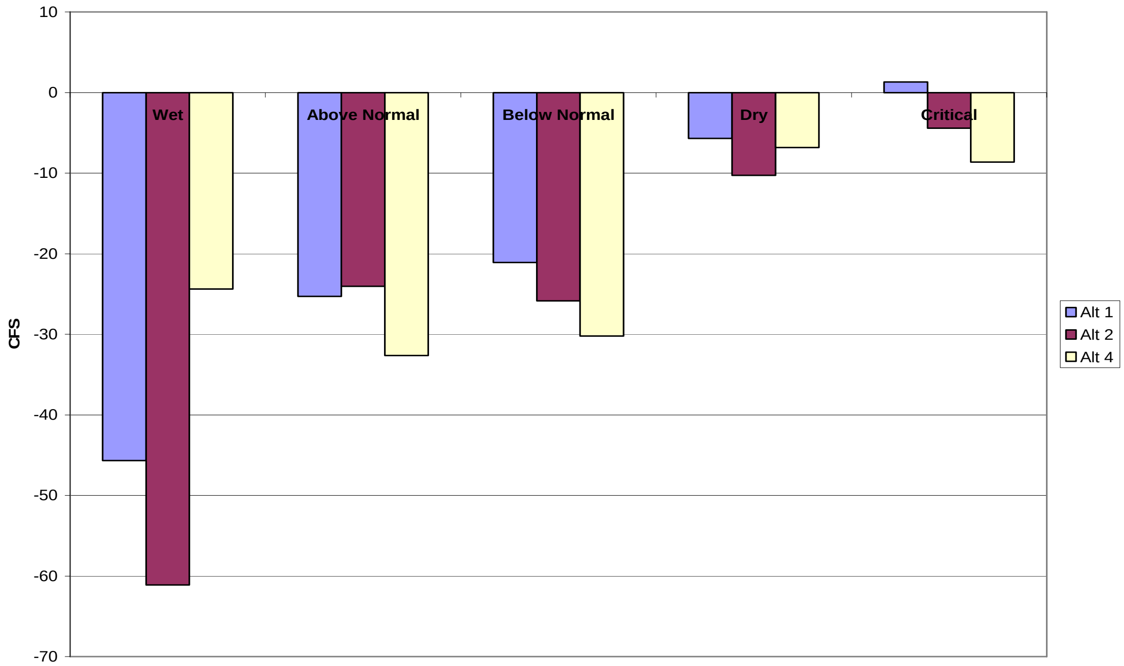


Figure C4-12: Changes in Delta Outflow by Year Type, 2005 LOD

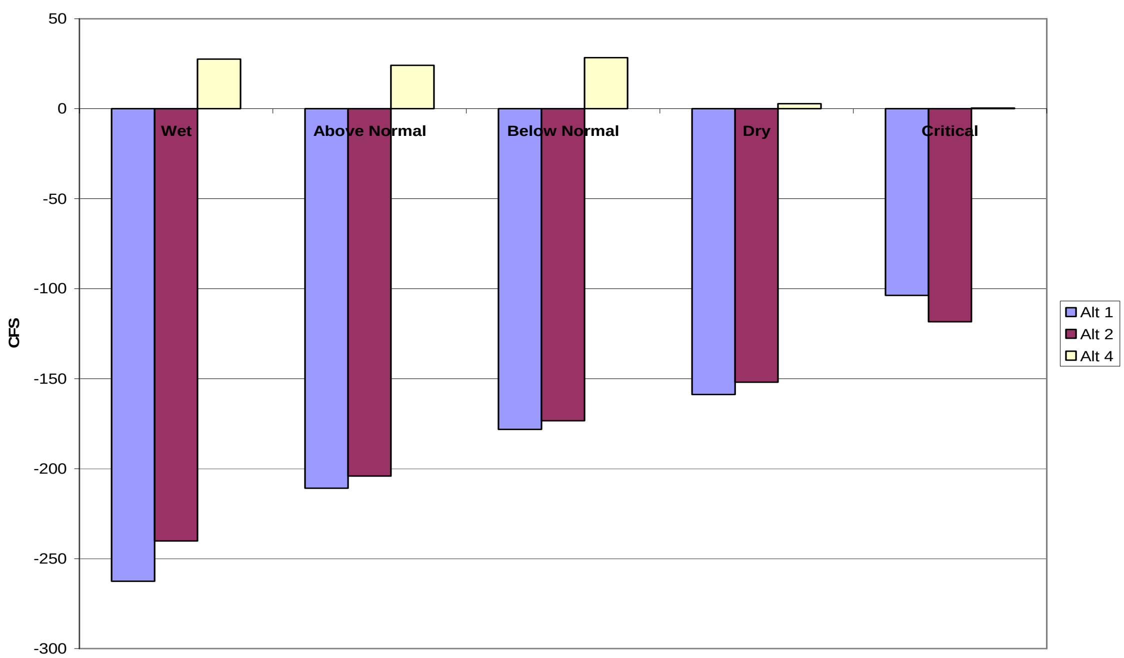


Figure C4-13: Changes in Banks + Jones Diversions by Year Type, 2005 LOD

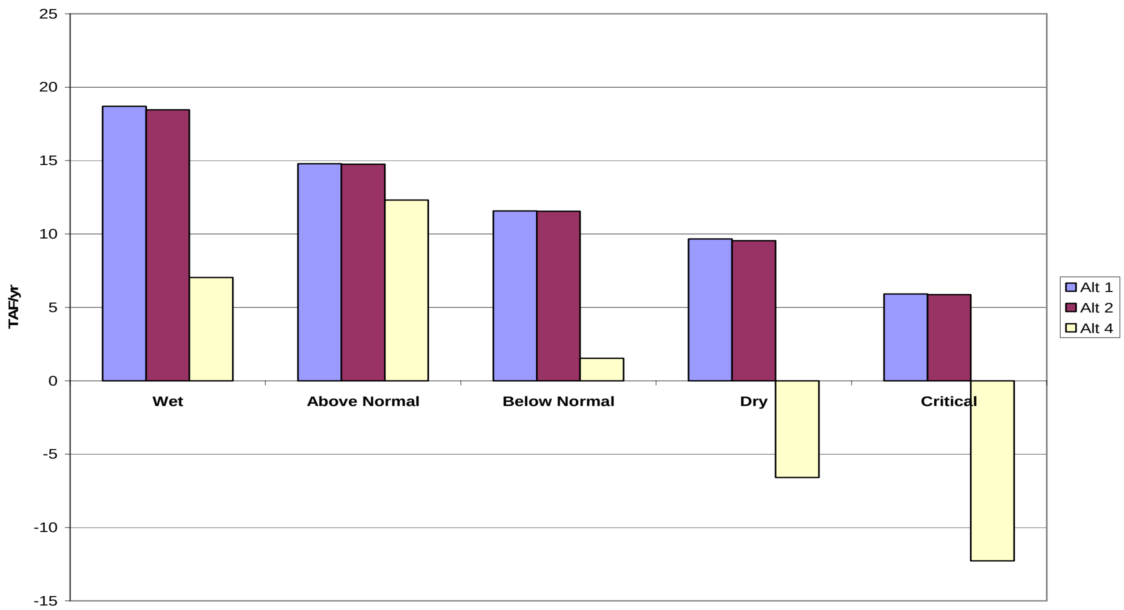


Figure C4-14: Changes in Project diversions by water year type, 2005 LOD

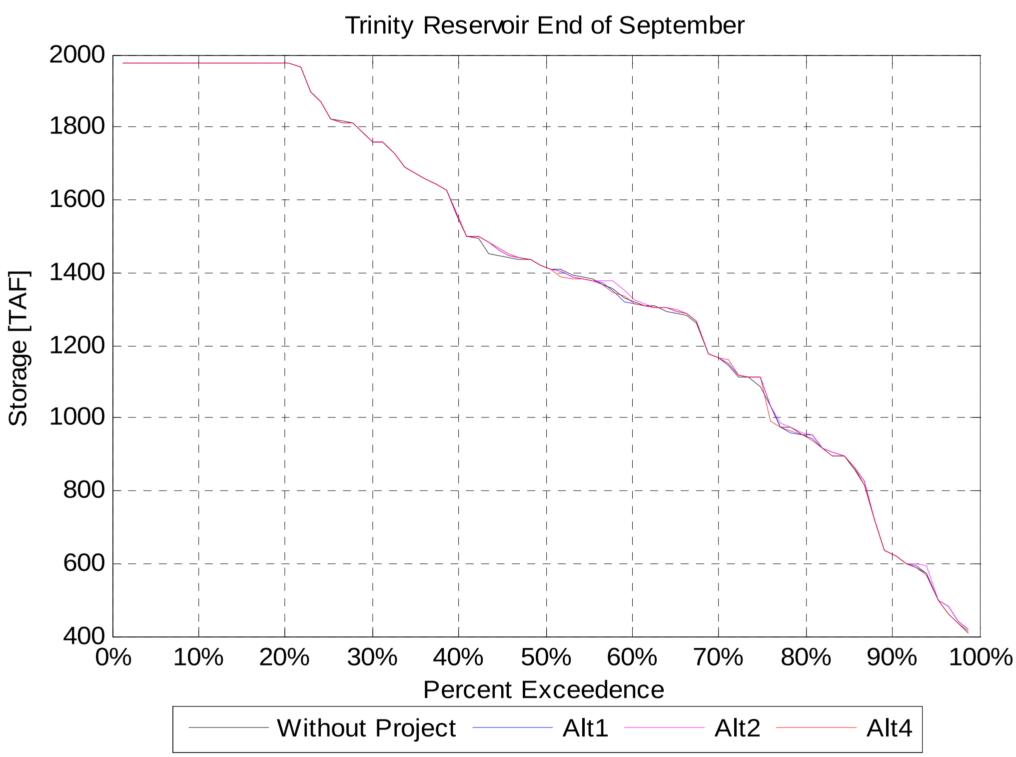


Figure C4-15: Trinity Reservoir end of September storage, 2005 LOD

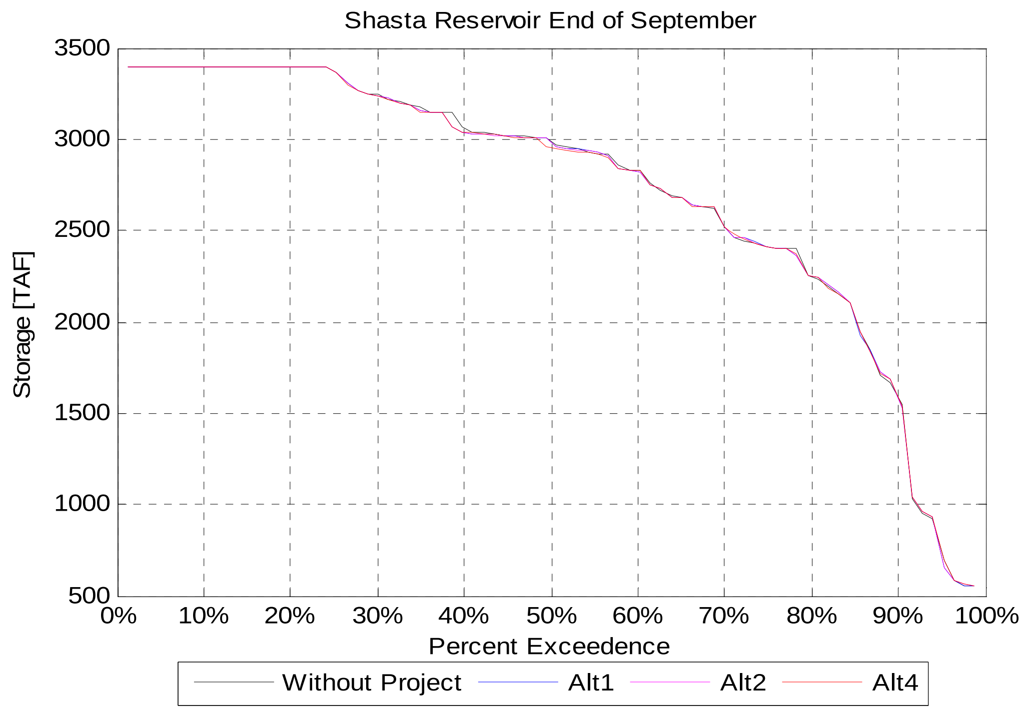


Figure C4-16: Shasta Reservoir end of September storage, 2005 LOD

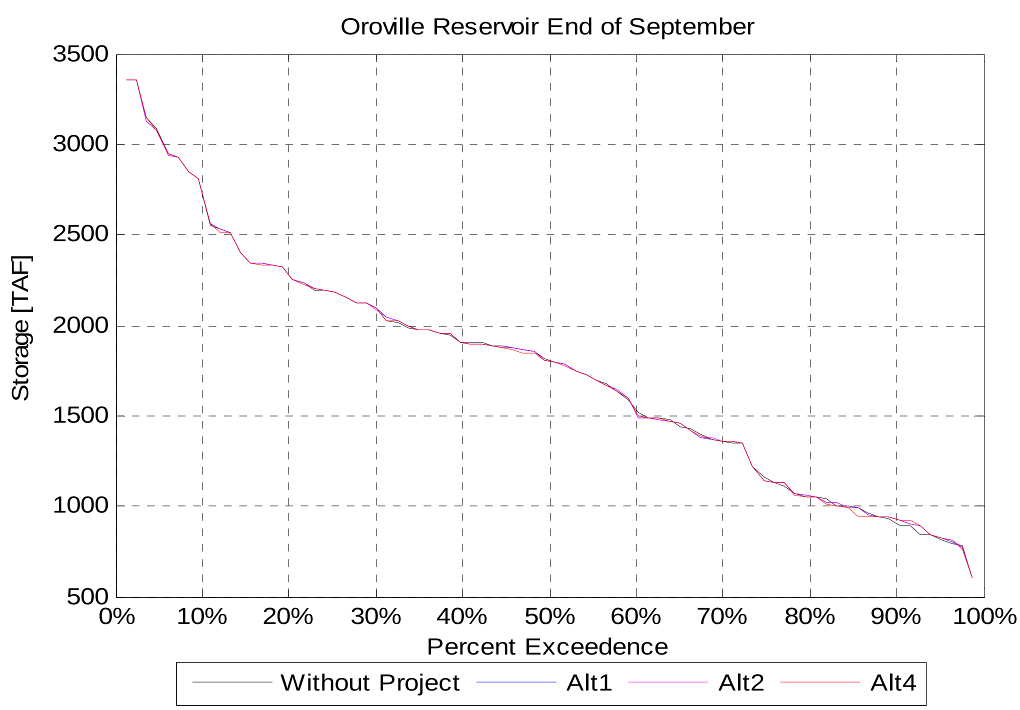


Figure C4-17: Oroville Reservoir end of September storage, 2005 LOD

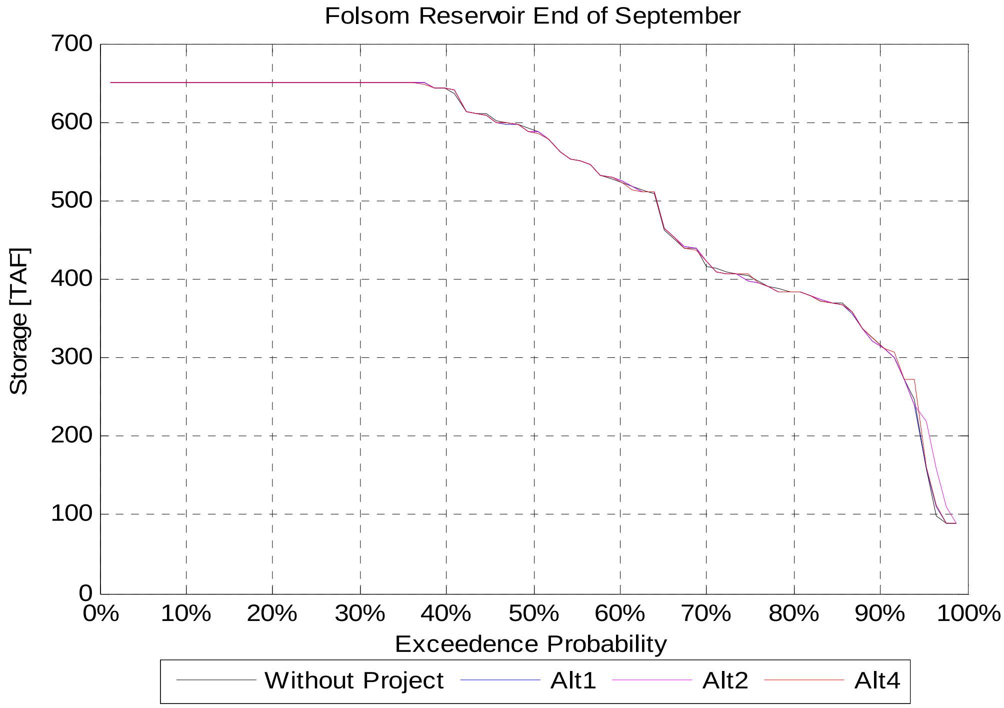


Figure C4-18: Folsom Reservoir end of September storage, 2005 LOD

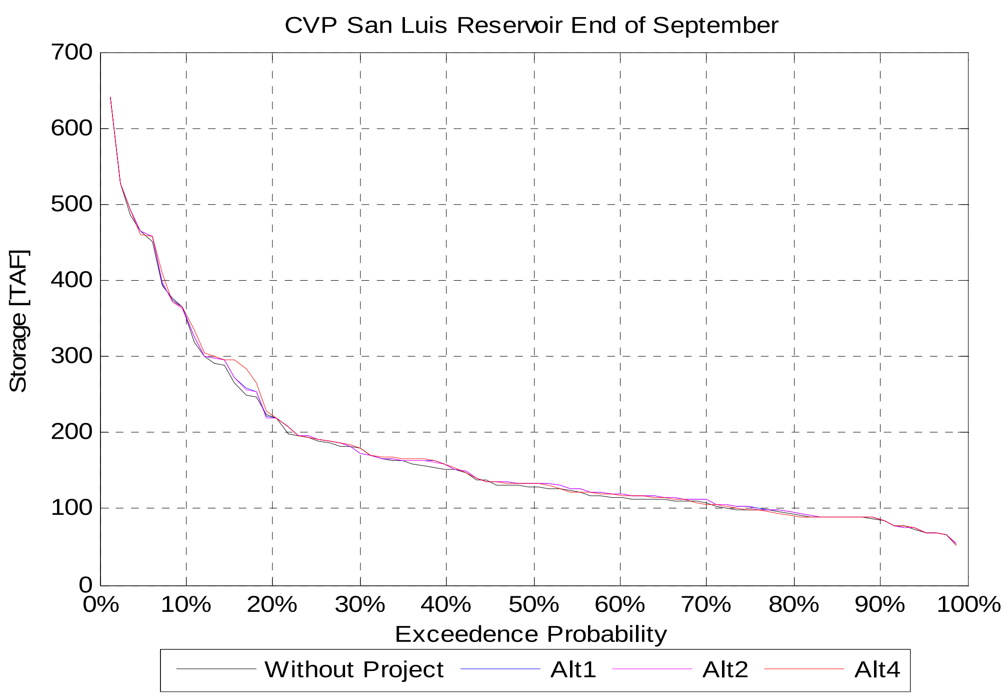


Figure C4-19: CVP San Luis Reservoir end of September storage, 2005 LOD

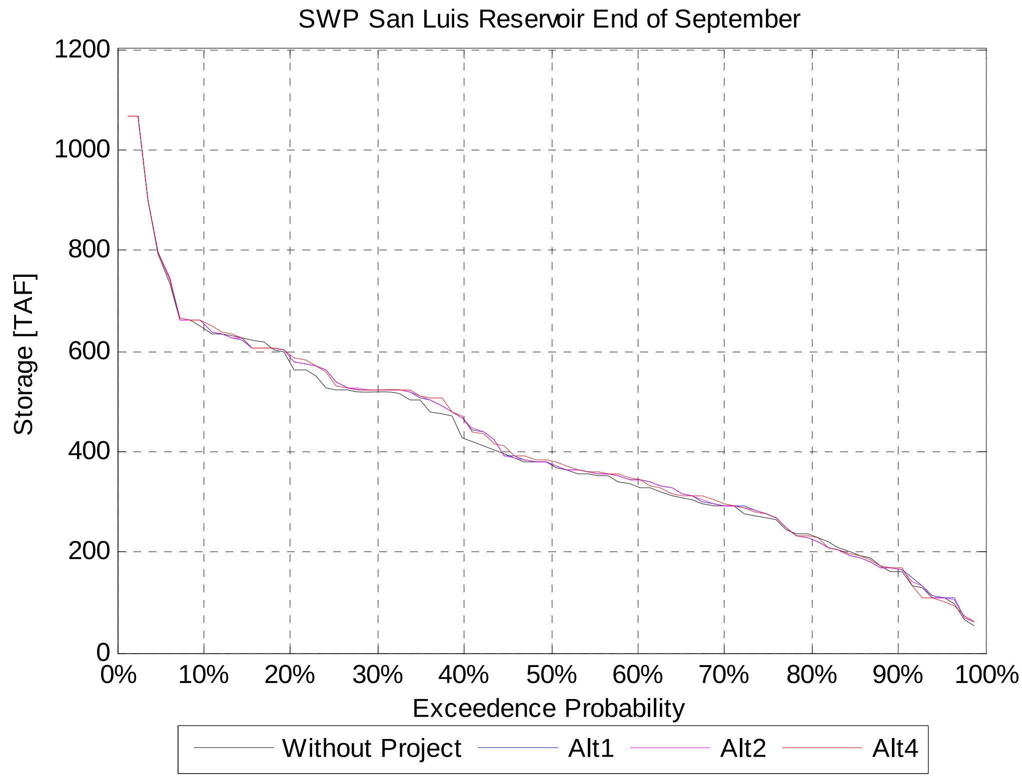


Figure C4-20: SWP San Luis Reservoir end of September storage, 2005 LOD

2030 Level of Development

Model results for each project alternative are presented in **Table C4-7 (A-D)** as average values for full hydrologic study period (1921 to 2003) and a six-year dry period (1987 to 1992). These results include upstream and Delta flows and diversions (e.g. flow in Sacramento River and major tributaries, San Joaquin River flow, exports at Banks and Jones Pumping Plants, Net Delta Outflow, X2 position and QWEST), CVP and SWP south of Delta deliveries, CVP and SWP reservoir carry-over storages (at Folsom, Oroville, San Luis, Shasta and Trinity Reservoirs), and parameters specific to project alternative operations (CCWD and Los Vaqueros Reservoir (LV) diversions; additional south of Delta Environmental Water Supply deliveries; and Delta Supply Restoration deliveries to South Bay water agencies).

Table C4-8 and **Table C4-9** present the change in Delta channel flows and indices, upstream reservoir storages and local operation parameters for each project alternative as compared to the Future Without Project condition. Results are summarized in these tables as averages by water year type and by month, respectively.

Table C4-10 (A-D) presents the changes from the Future Without Project condition in monthly Banks and Jones export diversions for each project alternative, and **Table C4-11 (A-D)** presents changes from the Future Without Project condition in monthly CCWD and Los Vaqueros Reservoir (LV) diversions for each project alternative. These tables also indicate whether the Delta is in excess or balanced conditions.

Table C4-12 presents CCWD diversions for each alternative and intake for 2030 level of development.

Monthly and year type average changes in various Delta parameters (Sacramento River flow at Hood, San Joaquin River flow at Vernalis, Delta Outflow, combined Banks/Jones diversions, and combined CCWD and LV diversions) are presented in **Figure C4-21** through **Figure C4-25** and **Figure C4-30** through **Figure C4-34**, respectively. **Figure C4-26** shows the monthly average Los Vaqueros storage and **Figure C4-27** through **Figure C4-29** show time-series of storage for each alternative and the Future Without Project condition.

Figure C4-35 through **Figure C4-40** are exceedence plots of the end of September storage in upstream reservoirs (Trinity, Shasta, Oroville, and Folsom) and San Luis Reservoir (CVP and SWP).

TABLE C4-7:
SUMMARY COMPARISON OF ANNUAL AVERAGE DIVERSIONS, DELIVERIES, RIVER FLOWS, AND CARRYOVER STORAGE, 2030 LOD

(A) ALTERNATIVE 1 COMPARED TO FUTURE WITHOUT PROJECT (NO ACTION)

	Future Without Project		Alternative 1		Difference (Alt – Fut. W.P.)		Percent Difference	
	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92
Diversions (TAF/yr)								
CCWD and LV Diversions	164	175	311	211	148	36	90%	21%
Banks Pumping Plant	2,634	1,347	2,545	1,319	-89	-29	-3%	-2%
Jones Pumping Plant	2,193	1,545	2,144	1,528	-49	-16	-2%	-1%
Total	4,990	3,067	5,000	3,058	10	-9	0%	0%
Delta (cfs)								
Sacramento River at Hood	22,342	12,363	22,344	12,349	2	-14	0%	0%
San Joaquin River at Vernalis	4,416	1,529	4,416	1,529	0	0	0%	0%
Delta Outflow	22,208	8,674	22,194	8,668	-14	-6	0%	0%
QWEST	3,080	487	3,065	490	-15	3	0%	1%
X2 Position (km)	74	82	74	82	0	0	0%	0%
Upstream River Flows (cfs)								
Sacramento River at Keswick Dam	8,627	6,066	8,628	6,063	1	-3	0%	0%
American River below Nimbus Dam	3,326	1,587	3,327	1,592	0	4	0%	0%
Feather River below Thermalito	4,395	1,995	4,395	1,979	0	-16	0%	-1%
Reservoir Carryover Storage (TAF)								
Trinity	1,403	874	1,405	870	2	-4	0%	0%
Shasta	2,720	1,897	2,716	1,892	-4	-5	0%	0%
Oroville	1,742	999	1,743	999	1	0	0%	0%
Folsom	507	302	509	303	1	0	0%	0%
CVP San Luis (August)	203	138	205	137	1	-1	1%	-1%
SWP San Luis (August)	350	181	352	179	3	-2	1%	-1%
Deliveries (TAF/yr)								
CVP SOD Ag	1,184	272	1,185	276	2	3	0%	1%
CVP SOD M&I	160	123	160	123	0	0	0%	0%
SWP Table A + Article 56	3,500	1,717	3,499	1,716	-1	-1	0%	0%
SWP Article 21	95	13	97	13	3	0	3%	0%
Delta Supply Restoration + Dry Year	0	0	9	7	9	7	NA	NA

(B) ALTERNATIVE 2 COMPARED TO FUTURE WITHOUT PROJECT (NO ACTION)

	Future Without Project		Alternative 2		Difference (Alt – Fut. W.P.)		Percent Difference	
	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92
Diversions (TAF/yr)								
CCWD and LV Diversions	164	175	310	211	147	36	90%	21%
Banks Pumping Plant	2,634	1,347	2,547	1,319	-87	-29	-3%	-2%
Jones Pumping Plant	2,193	1,545	2,147	1,529	-46	-16	-2%	-1%
Total	4,990	3,067	5,004	3,058	14	-9	0%	0%
Delta (cfs)								
Sacramento River at Hood	22,342	12,363	22,345	12,348	3	-14	0%	0%
San Joaquin River at Vernalis	4,416	1,529	4,416	1,529	0	0	0%	0%
Delta Outflow	22,208	8,674	22,190	8,667	-19	-7	0%	0%
QWEST	3,080	487	3,060	489	-20	2	-1%	0%
X2 Position (km)	74	82	74	82	0	0	0%	0%
Upstream River Flows (cfs)								
Sacramento River at Keswick Dam	8,627	6,066	8,628	6,062	2	-3	0%	0%
American River below Nimbus Dam	3,326	1,587	3,327	1,591	0	4	0%	0%
Feather River below Thermalito	4,395	1,995	4,395	1,982	0	-12	0%	-1%
Reservoir Carryover Storage (TAF)								
Trinity	1,403	874	1,405	870	2	-4	0%	0%
Shasta	2,720	1,897	2,716	1,892	-4	-4	0%	0%
Oroville	1,742	999	1,742	1,000	1	1	0%	0%
Folsom	507	302	509	303	1	0	0%	0%
CVP San Luis (August)	203	138	205	137	1	-1	1%	-1%
SWP San Luis (August)	350	181	352	179	2	-2	1%	-1%
Deliveries (TAF/yr)								
CVP SOD Ag	1,184	272	1,186	275	2	3	0%	1%
CVP SOD M&I	160	123	160	123	0	0	0%	0%
SWP Table A + Article 56	3,500	1,717	3,500	1,717	-1	-1	0%	0%
SWP Article 21	95	13	95	13	0	0	0%	0%

TABLE C4-7:
SUMMARY COMPARISON OF ANNUAL AVERAGE DIVERSIONS, DELIVERIES, RIVER FLOWS, AND CARRYOVER STORAGE, 2030 LOD

Additional SOD Env Water Supply	0	0	16	0	16	0	NA	NA

(D) ALTERNATIVE 4 COMPARED TO FUTURE WITHOUT PROJECT (NO ACTION)

	Future Without Project		Alternative 4		Difference (Alt – Fut. W.P.)		Percent Difference	
	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92	Avg	87 - 92
Diversions (TAF/yr)								
CCWD and LV Diversions	164	175	310	211	147	36	90%	21%
Banks Pumping Plant	2,634	1,347	2,547	1,319	-87	-29	-3%	-2%
Jones Pumping Plant	2,193	1,545	2,147	1,529	-46	-16	-2%	-1%
Total	4,990	3,067	5,004	3,058	14	-9	0%	0%
Delta (cfs)								
Sacramento River at Hood	22,342	12,363	22,345	12,348	3	-14	0%	0%
San Joaquin River at Vernalis	4,416	1,529	4,416	1,529	0	0	0%	0%
Delta Outflow	22,208	8,674	22,190	8,667	-19	-7	0%	0%
QWEST	3,080	487	3,060	489	-20	2	-1%	0%
X2 Position (km)	74	82	74	82	0	0	0%	0%
Upstream River Flows (cfs)								
Sacramento River at Keswick Dam	8,627	6,066	8,628	6,062	2	-3	0%	0%
American River below Nimbus Dam	3,326	1,587	3,327	1,591	0	4	0%	0%
Feather River below Thermalito	4,395	1,995	4,395	1,982	0	-12	0%	-1%
Reservoir Carryover Storage (TAF)								
Trinity	1,403	874	1,405	863	1	-11	0%	-1%
Shasta	2,720	1,897	2,715	1,883	-5	-13	0%	-1%
Oroville	1,742	999	1,740	995	-2	-4	0%	0%
Folsom	507	302	509	302	1	0	0%	0%
CVP San Luis (August)	203	138	205	138	2	0	1%	0%
SWP San Luis (August)	350	181	353	184	3	3	1%	2%
Deliveries (TAF/yr)								
CVP SOD Ag	1,184	272	1,186	275	2	3	0%	1%
CVP SOD M&I	160	123	160	123	0	0	0%	0%
SWP Table A + Article 56	3,500	1,717	3,500	1,717	-1	-1	0%	0%
SWP Article 21	95	13	95	13	0	0	0%	0

TABLE C4-8:
ANNUAL VALUES BY WATER YEAR TYPE, 2030 LOD

Parameter	Long Term Average	Wet	Above Normal	Below Normal	Dry	Critical
CCWD and LV Diversions (TAF/yr)						
Average Total Diversions Future Without Project	**164**	**164**	**180**	**169**	**149**	**161**
Changes under Alternative 1	148	224	166	128	104	53
Changes under Alternative 2	147	222	166	127	104	53
Changes under Alternative 4	1	8	12	3	-7	-14
CVP and SWP Improved Fish Screening Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	136	190	159	121	105	57
Changes under Alternative 2	279	179	158	120	104	57
Changes under Alternative 4	0	0	0	0	0	0
Delta (cfs)						
Sacramento River at Hood Future Without Project	**22,342**	**33,446**	**25,809**	**17,951**	**14,932**	**11,053**
Changes under Alternative 1	2	3	7	-4	10	-8
Changes under Alternative 2	3	3	10	-3	9	-8
Changes under Alternative 4	3	4	10	1	10	-12
San Joaquin River at Vernalis Future Without Project	**4,416**	**7,601**	**4,213**	**3,531**	**2,428**	**1,737**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
Delta Outflow Future Without Project	**22,208**	**40,299**	**24,482**	**14,357**	**10,639**	**7,252**
Changes under Alternative 1	-14	-34	-10	-26	17	-8

TABLE C4-8:
ANNUAL VALUES BY WATER YEAR TYPE, 2030 LOD

Parameter	Long Term Average	Wet	Above Normal	Below Normal	Dry	Critical
Changes under Alternative 2	-19	-49	-20	-13	15	-8
Changes under Alternative 4	-13	-13	-25	-32	7	-10
Banks Pumping Plant Future Without Project	**3,632**	**4,623**	**3,932**	**3,656**	**3,024**	**2,071**
Changes under Alternative 1	-123	-183	-139	-92	-104	-40
Changes under Alternative 2	-120	-171	-131	-107	-104	-40
Changes under Alternative 4	4	1	5	19	-4	4
Jones Pumping Plant Future Without Project	**3,024**	**3,521**	**3,175**	**3,089**	**2,775**	**2,094**
Changes under Alternative 1	-67	-89	-73	-66	-53	-35
Changes under Alternative 2	-63	-82	-68	-65	-51	-35
Changes under Alternative 4	7	4	8	4	12	7
Banks + Jones Exports Future Without Project	**6,656**	**8,144**	**7,106**	**6,745**	**5,799**	**4,165**
Changes under Alternative 1	-190	-272	-212	-159	-157	-75
Changes under Alternative 2	-183	-253	-199	-171	-154	-75
Changes under Alternative 4	11	5	13	24	8	11
Banks + Jones + CCWD + LV Diversions Future Without Project	**6,882**	**8,370**	**7,355**	**6,978**	**6,005**	**4,386**
Changes under Alternative 1	14	37	18	17	-13	-2
Changes under Alternative 2	19	53	30	5	-11	-2
Changes under Alternative 4	12	16	29	27	-2	-8
QWEST Future Without Project	**3,080**	**7,296**	**3,165**	**1,254**	**239**	**251**
Changes under Alternative 1	-15	-37	-15	-17	8	0
Changes under Alternative 2	-20	-53	-26	-4	6	-1
Changes under Alternative 4	-14	-16	-24	-33	-2	5
X2 Position (km) Future Without Project	**74**	**67**	**72**	**76**	**78**	**83**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
Upstream River Flows (cfs)						
Sacramento River at Keswick Dam Future Without Project	**8,627**	**11,760**	**9,037**	**6,985**	**6,671**	**6,276**
Changes under Alternative 1	1	-2	-3	3	13	-5
Changes under Alternative 2	2	-2	-2	3	13	-5
Changes under Alternative 4	2	-3	5	5	13	-12
American River below Nimbus Dam Future Without Project	**3,326**	**5,284**	**3,735**	**2,738**	**1,997**	**1,355**
Changes under Alternative 1	0	1	0	4	-1	-5
Changes under Alternative 2	0	1	0	4	-1	-5
Changes under Alternative 4	0	1	0	5	-1	-7
Feather River below Thermalito Future Without Project	**4,395**	**7,002**	**4,619**	**3,218**	**2,857**	**2,200**
Changes under Alternative 1	0	6	10	-9	-13	7
Changes under Alternative 2	0	5	12	-10	-13	9
Changes under Alternative 4	0	4	3	-8	-9	12
Reservoir Carryover Storage (TAF)						
Trinity Future Without Project	**1,403**	**1,852**	**1,629**	**1,257**	**1,143**	**745**
Changes under Alternative 1	2	2	0	13	-3	-2
Changes under Alternative 2	2	2	0	13	-3	-2
Changes under Alternative 4	1	0	-1	12	-3	-1
Shasta Future Without Project	**2,720**	**3,223**	**3,060**	**2,928**	**2,485**	**1,382**
Changes under Alternative 1	-4	-1	2	-17	-4	-1
Changes under Alternative 2	-4	-1	1	-17	-4	0
Changes under Alternative 4	-5	-2	-1	-18	-5	-1
Oroville Future Without Project	**1,742**	**2,364**	**1,920**	**1,822**	**1,194**	**897**
Changes under Alternative 1	1	0	-2	-5	11	-2
Changes under Alternative 2	1	0	-3	-6	12	-3
Changes under Alternative 4	-2	0	-3	-11	6	-3
Folsom Future Without Project	**507**	**607**	**565**	**584**	**430**	**256**
Changes under Alternative 1	1	0	0	4	0	5
Changes under Alternative 2	1	0	0	4	0	5
Changes under Alternative 4	1	-1	-1	3	0	6
CVP San Luis (August) Future Without Project	**203**	**208**	**136**	**251**	**180**	**237**
Changes under Alternative 1	1	0	1	6	2	-2
Changes under Alternative 2	1	0	1	5	3	-2
Changes under Alternative 4	2	0	1	7	3	0
SWP San Luis (August) Future Without Project	**350**	**508**	**393**	**223**	**288**	**199**
Changes under Alternative 1	3	4	4	7	-6	7
Changes under Alternative 2	2	4	5	4	-6	7

TABLE C4-8:
ANNUAL VALUES BY WATER YEAR TYPE, 2030 LOD

Parameter	Long Term Average	Wet	Above Normal	Below Normal	Dry	Critical
Changes under Alternative 4	3	3	3	7	-4	9
CVP and SWP Deliveries (TAF/year)						
CVP SOD Ag Future Without Project	**1,184**	**1,799**	**1,331**	**1,101**	**832**	**327**
Changes under Alternative 1	2	0	8	-6	4	3
Changes under Alternative 2	2	0	12	-5	4	3
Changes under Alternative 4	6	5	10	-3	12	5
CVP SOD M&I Future Without Project	**160**	**182**	**165**	**159**	**150**	**123**
Changes under Alternative 1	0	0	0	1	0	1
Changes under Alternative 2	0	0	0	1	0	1
Changes under Alternative 4	0	0	0	1	1	0
SWP Table A + Article 56 Future Without Project	**3,500**	**4,377**	**3,682**	**3,618**	**3,007**	**2,021**
Changes under Alternative 1	-1	-2	-3	9	-10	4
Changes under Alternative 2	-1	-1	0	8	-11	5
Changes under Alternative 4	3	-4	-4	22	-2	8
SWP Article 21 Future Without Project	**95**	**170**	**87**	**46**	**55**	**58**
Changes under Alternative 1	3	2	1	6	3	-1
Changes under Alternative 2	0	2	1	-7	2	-1
Changes under Alternative 4	2	1	1	6	2	-2
Improved Fish Screening for CVP South Bay Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	69	89	80	67	58	37
Changes under Alternative 2	66	82	79	66	56	37
Changes under Alternative 4	0	0	0	0	0	0
Improved Fish Screening for SWP South Bay Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	125	188	147	103	91	41
Changes under Alternative 2	120	175	143	102	90	41
Changes under Alternative 4	0	0	0	0	0	0
LV CVP Delta Supply Restoration Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	2	3	2	1	2	0
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
SWP South Bay Delta Supply Restoration Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	7	10	4	5	8	3
Changes under Alternative 2	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0
Additional CVP SOD Environmental Water from Dedicated Storage Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	0	0	0	0	0	0
Changes under Alternative 2	15	34	7	8	9	0
Changes under Alternative 4	0	0	0	0	0	0

TABLE C4-9:
AVERAGE MONTHLY VALUES, 2030 LOD

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
CCWD and LV Diversions (TAF)												
Average Total Diversions Future Without Project	**14**	**10**	**9**	**9**	**9**	**9**	**4**	**14**	**26**	**25**	**20**	**15**
Changes under Alternative 1	13	13	14	12	9	-6	26	17	9	16	11	13
Changes under Alternative 2	13	13	13	12	10	-6	26	17	8	16	11	12
Changes under Alternative 4	0	0	0	-1	-2	-6	12	5	-9	1	1	0
CVP and SWP Improved Fish Screening Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	13	10	13	11	10	0	13	12	18	14	10	12
Changes under Alternative 2	13	9	13	10	10	0	12	12	17	14	10	12
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Delta (cfs)												
Sacramento River at Hood Future Without Project	**11,444**	**15,210**	**26,159**	**33,192**	**39,127**	**33,665**	**23,357**	**18,930**	**16,236**	**18,792**	**15,697**	**16,292**
Changes under Alternative 1	21	-6	-20	4	61	31	-34	14	26	-16	-40	-16
Changes under Alternative 2	23	4	-20	5	61	29	-34	7	25	-16	-39	-12
Changes under Alternative 4	22	7	-28	-7	40	25	-31	13	27	-1	-35	8
San Joaquin River at Vernalis Future Without Project	**2,899**	**2,675**	**3,280**	**4,701**	**6,094**	**6,968**	**7,529**	**6,514**	**4,716**	**3,209**	**2,072**	**2,342**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Delta Outflow Future Without Project	**7,142**	**11,334**	**23,912**	**41,921**	**51,793**	**42,484**	**30,921**	**22,479**	**12,549**	**7,917**	**5,847**	**8,199**
Changes under Alternative 1	1	-70	-33	-33	94	222	-263	-61	37	-42	-27	7
Changes under Alternative 2	-2	-79	7	-35	86	182	-267	-76	28	-44	-26	3
Changes under Alternative 4	8	12	-86	-15	74	133	-243	-62	39	-16	-21	17
Banks Pumping Plant Future Without Project	**2,824**	**2,942**	**4,637**	**3,599**	**4,215**	**4,080**	**1,120**	**1,105**	**2,522**	**6,122**	**5,462**	**4,958**
Changes under Alternative 1	-135	-53	-101	-42	-142	-59	-158	-187	-138	-182	-133	-145
Changes under Alternative 2	-131	-45	-133	-42	-147	-36	-155	-182	-124	-179	-132	-136
Changes under Alternative 4	-3	-4	24	28	-25	-8	2	0	79	-13	-12	-20
Jones Pumping Plant Future Without Project	**3,331**	**3,730**	**3,857**	**3,230**	**2,971**	**2,835**	**1,062**	**1,080**	**2,407**	**3,887**	**3,879**	**4,021**
Changes under Alternative 1	-72	-95	-120	-119	-46	-28	-52	-14	-24	-69	-76	-90
Changes under Alternative 2	-71	-80	-120	-116	-37	-12	-52	-14	-21	-70	-75	-89
Changes under Alternative 4	7	0	23	-15	35	2	0	0	61	-5	-26	1
Banks + Jones Exports Future Without Project	**6,155**	**6,672**	**8,494**	**6,828**	**7,187**	**6,915**	**2,182**	**2,185**	**4,928**	**10,009**	**9,341**	**8,979**
Changes under Alternative 1	-207	-148	-221	-161	-188	-87	-210	-201	-161	-251	-208	-235
Changes under Alternative 2	-201	-125	-254	-158	-185	-48	-206	-196	-145	-249	-208	-225
Changes under Alternative 4	4	-4	47	13	10	-7	2	0	140	-18	-38	-20
Banks + Jones + CCWD + LV Diversions Future Without Project	**6,381**	**6,841**	**8,646**	**6,970**	**7,351**	**7,056**	**2,243**	**2,416**	**5,371**	**10,413**	**9,660**	**9,232**
Changes under Alternative 1	10	66	5	36	-21	-185	229	75	-10	16	-26	-24
Changes under Alternative 2	15	85	-35	38	-14	-146	233	83	-2	18	-25	-16
Changes under Alternative 4	3	-1	44	1	-21	-111	211	75	-11	1	-26	-15

TABLE C4-9:
AVERAGE MONTHLY VALUES, 2030 LOD

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
QWEST Future Without Project	**554**	**236**	**520**	**5,802**	**7,870**	**7,193**	**9,994**	**7,524**	**3,150**	**-1,937**	**-2,316**	**-1,631**
Changes under Alternative 1	2	-64	-2	-35	29	189	-234	-73	17	-32	1	18
Changes under Alternative 2	-3	-80	38	-37	22	150	-238	-82	9	-34	1	12
Changes under Alternative 4	-4	1	-39	-2	29	114	-215	-73	18	-16	3	14
X2 Position (km)												
Future Without Project	**83**	**83**	**80**	**76**	**69**	**64**	**63**	**65**	**68**	**74**	**79**	**83**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
E/I Ratio Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Upstream River Flows (cfs)												
Sacramento River at Keswick Dam												
Future Without Project	**6,448**	**5,901**	**7,665**	**8,336**	**10,434**	**8,570**	**6,716**	**7,804**	**10,726**	**13,074**	**10,461**	**7,387**
Changes under Alternative 1	-23	-3	-6	-12	52	-5	8	18	-15	-4	-1	8
Changes under Alternative 2	-23	-4	-6	-12	52	-5	8	18	-15	-3	-1	10
Changes under Alternative 4	-14	14	-16	-25	30	-10	8	19	-14	-1	2	25
American River below Nimbus Dam												
Future Without Project	**1,547**	**2,591**	**3,467**	**4,348**	**5,136**	**3,742**	**3,243**	**3,484**	**3,593**	**3,634**	**2,574**	**2,559**
Changes under Alternative 1	19	3	2	4	1	-2	4	-9	-18	10	-15	3
Changes under Alternative 2	19	2	2	4	1	-2	4	-9	-18	10	-15	3
Changes under Alternative 4	24	-2	2	3	0	-3	4	-9	-18	10	-15	3
Feather River below Thermalito												
Future Without Project	**2,870**	**2,232**	**4,097**	**4,028**	**5,320**	**5,527**	**3,017**	**3,585**	**3,737**	**7,602**	**6,147**	**4,572**
Changes under Alternative 1	24	-6	-48	10	19	21	0	5	36	-23	-13	-23
Changes under Alternative 2	24	2	-48	10	18	24	-1	-1	35	-23	-13	-25
Changes under Alternative 4	24	-5	-50	7	19	11	1	4	37	-11	-16	-19
CVP and SWP Deliveries (TAF)												
CVP SOD Ag Future Without Project	**446**	**341**	**471**	**827**	**1,034**	**600**	**936**	**1,464**	**2,445**	**2,938**	**2,006**	**695**
Changes under Alternative 1	1	0	0	0	0	-1	0	1	1	3	14	0
Changes under Alternative 2	1	0	0	0	0	0	0	2	3	4	16	1
Changes under Alternative 4	2	1	2	3	4	0	2	6	10	13	24	3
CVP SOD M&I												
Future Without Project	**142**	**191**	**189**	**125**	**63**	**185**	**163**	**146**	**151**	**171**	**182**	**213**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	2	0
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	2	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	1	0
SWP Table A + Article 56												
Future Without Project	**3,076**	**2,767**	**2,754**	**1,652**	**2,372**	**2,524**	**3,291**	**4,057**	**4,896**	**5,561**	**5,235**	**3,818**
Changes under Alternative 1	-2	-20	-2	7	-1	20	-1	-4	15	-7	-10	-6
Changes under Alternative 2	-1	-20	-1	7	0	14	0	-3	17	-6	-9	-5
Changes under Alternative 4	3	-13	-3	7	-4	13	6	4	39	-2	-10	-7
SWP Article 21												
Future Without Project	**29**	**40**	**20**	**136**	**313**	**407**	**72**	**53**	**29**	**26**	**3**	**10**
Changes under Alternative 1	0	0	2	9	5	15	0	0	0	0	0	0
Changes under Alternative 2	0	0	2	8	-7	-2	0	0	0	0	0	0

TABLE C4-9:
AVERAGE MONTHLY VALUES, 2030 LOD

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Changes under Alternative 4	0	0	1	8	0	9	0	0	0	0	0	0
Improved Fish Screening for CVP South Bay Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	75	102	115	106	67	31	52	14	86	61	49	77
Changes under Alternative 2	73	92	111	104	65	15	51	14	84	60	49	79
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Improved Fish Screening for SWP South Bay Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	140	63	98	67	111	50	158	187	214	166	114	128
Changes under Alternative 2	137	60	95	65	109	38	155	182	200	162	114	120
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
CVP South Bay Delta Supply Restoration Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	1	3	3	3	2	4	1	1	2	0	1	1
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
SWP South Bay Delta Supply Restoration Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	5	15	15	2	4	7	1	4	17	2	7	6
Changes under Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0
Additional CVP SOD Environmental Water from Dedicated Storage Future Without Project	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Changes under Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Changes under Alternative 2	12	45	27	13	19	8	1	10	29	2	2	14
Changes under Alternative 4	0	0	0	0	0	0	0	0	0	0	0	0

TABLE C4-10: CHANGES IN BANKS + JONES EXPORTS (CFS), 2030 LOD

(A) Alternative 1

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	-408	-176	227	-205	-236	4	-377	-400	-254	-400	-400	-359
1923	-391	-397	-148	-396	-254	0	-256	-176	-330	-304	-553	319
1924	-60	-118	-140	-140	-88	0	0	0	0	-67	0	43
1925	0	-6	-56	-68	-93	0	-181	-157	-142	-374	0	-1740
1926	-348	702	-67	-74	-97	2	-88	-185	-302	-21	-6	-133
1927	-20	0	-248	-118	-83	38	-246	-264	-200	-400	-135	-617
1928	-396	-342	-732	-170	-118	0	-261	-295	-254	-501	-322	-329
1929	-395	-161	-366	-133	-94	29	-57	-97	0	-781	102	-141
1930	-156	-134	-179	-73	-53	38	-86	-135	-194	-226	-34	-197
1931	-4	-43	-67	-74	-61	0	0	0	-40	52	0	0
1932	-3	-20	-58	-90	-64	49	-92	-141	-101	-574	426	-184
1933	6	-43	-69	-74	-110	0	-83	-140	-10	1517	-130	-94
1934	71	94	-625	-63	-51	35	0	0	-111	-365	224	-229
1935	42	-204	-76	-66	-184	38	-331	-285	-200	108	-209	270
1936	770	852	-107	-107	12	38	-387	-280	-200	-418	-86	-52
1937	180	-134	-326	-19	-214	-702	-368	-245	-386	-461	-183	92
1938	-160	-118	-394	-234	-325	-352	-400	0	-360	-400	-400	-400
1939	-417	-230	-326	-214	-310	-194	-98	-148	-151	0	-247	-204
1940	-144	-44	-32	-1	-79	38	-302	-242	-200	-429	-133	-172
1941	-322	-366	-123	-271	-283	0	-400	-400	-285	-400	-400	-366
1942	-401	-230	-384	-383	-299	0	-343	-372	-268	-400	-400	-400
1943	-374	-388	-341	-207	-332	0	-400	-307	-381	-400	-318	-366
1944	-489	-278	-398	-193	-127	12	-110	-162	-124	-402	-6	-48
1945	-235	-88	-164	-124	-81	3	-383	-245	-200	-139	-175	-227
1946	-6	-108	-83	-369	-258	38	-179	-215	-200	-139	88	-6
1947	-134	-297	-206	-107	-130	0	-177	0	-200	55	-142	-87
1948	-3	-41	-71	-74	-97	0	-99	-184	-129	-536	-30	-42
1949	0	-58	-60	-107	-90	0	-188	-245	-254	-128	-148	-123
1950	-52	-49	-91	-74	-111	38	-136	-201	74	-130	-53	-126
1951	-32	0	-278	-327	-380	-128	-302	-266	-254	-142	-316	-359
1952	-487	-401	-367	-366	-314	0	-400	-400	-265	0	-400	-400
1953	-554	-202	-351	-391	-153	-223	-142	-146	-93	-384	-319	-396
1954	-298	-285	-334	-139	-97	-125	-136	-201	-248	-233	-240	-360
1955	-488	-222	-344	-141	-846	-79	-74	-119	-117	-473	-2504	-176
1956	-205	-189	-201	-325	-514	-111	-400	-264	-200	-400	-400	-277
1957	-405	-233	-400	-199	-149	0	-137	-192	75	-316	-402	-359
1958	-267	-86	-151	-138	-266	-16	-400	-400	-321	-400	-400	-400
1959	-400	-239	-395	-205	-158	11	-115	-170	-41	-303	-34	-192
1960	-139	-174	-168	-25	-76	0	-121	-178	-46	0	-349	-231
1961	4	-43	-68	-134	-88	38	-145	-213	970	0	-126	0
1962	345	-1810	175	-74	-90	0	-129	-190	68	-139	5	-298
1963	0	0	-68	-373	-227	-258	-154	-186	-203	-400	-357	-396
1964	-332	-320	-171	-158	-210	-2	-92	-158	-162	-296	-160	-155
1965	-176	-195	-234	-284	-95	38	-376	-264	-200	-400	-306	-366
1966	-398	-394	-197	-203	-301	0	-124	-131	-221	-290	-48	-355
1967	-176	-189	-272	-144	-228	38	-400	-264	-348	0	-400	-368
1968	-399	-274	-351	-207	-152	-208	-102	-151	-32	-304	-12	-90
1969	-165	-154	-97	-314	-378	0	-47	0	-365	-400	-400	-400
1970	-398	-239	-351	0	-339	-374	-231	-254	-191	-308	-322	-621
1971	-343	-355	-200	-362	-277	-245	-134	-167	-193	-424	-331	-368
1972	-295	-149	0	-151	-238	-315	-122	-180	-117	-297	33	-105
1973	-160	-110	-272	-149	-287	-30	-277	-253	-200	-400	-211	-506
1974	-365	0	-9	-364	-317	-374	-400	-261	-198	-400	-318	-400
1975	-389	-216	-392	-171	-297	0	-368	-231	-240	-400	-400	-366
1976	-364	-197	-384	-181	-124	0	-152	-217	-48	-107	-140	-154
1977	263	-488	-28	-46	-197	-18	0	0	-6	13	386	0
1978	-82	-40	23	-77	-63	0	-400	-266	-200	-400	-133	-172
1979	-440	-448	-398	-210	-110	0	-388	-400	-254	-304	-4	-60
1980	-119	-127	0	-154	-243	-239	-400	-400	-381	-400	-400	-359
1981	-403	-400	-227	-202	-195	0	-122	-181	-218	-39	-142	-395
1982	-117	-93	-271	-251	-167	-48	-47	-289	-161	-400	-400	-347
1983	0	0	-351	7	-398	-375	-205	-394	-394	-286	-321	-391
1984	-379	-347	-351	-391	-400	-374	-384	-266	-190	-389	-323	-370
1985	-423	-34	-362	-227	-130	-236	-264	0	-152	-56	-93	-135
1986	-39	-139	-181	-143	-96	-463	-336	-264	-332	-400	-202	-225
1987	-452	-140	-324	-167	-109	-146	-73	-116	-63	-224	-296	-106
1988	-160	-169	-200	-116	-23	-1	-46	-73	-163	4	-82	74
1989	90	-172	113	-63	-50	0	-177	-238	-254	-103	43	278
1990	-24	-42	165	-74	-76	0	-12	-89	13	-8	-420	0
1991	-59	-40	-52	0	-48	0	-48	-77	26	255	35	0
1992	-68	140	-545	672	-51	0	-46	-74	29	-1553	-86	-97
1993	-107	-40	-95	-113	-272	38	-197	-18	-200	-400	-133	-172
1994	-398	-399	-122	-176	-110	38	-111	-164	-125	-137	-369	-162
1995	-105	702	-1119	-144	-295	0	-400	0	-193	0	0	-179
1996	-345	-243	-351	-391	-246	-374	-400	-400	-201	-400	-320	-368
1997	-395	-348	-351	0	-336	-374	-237	-308	-190	-359	-321	-368
1998	-397	-350	-350	-191	-177	-374	-400	-400	-332	0	0	0
1999	-711	0	-245	-391	-315	-365	-363	-257	-195	-400	-323	-530
2000	-359	-180	-337	-168	-259	-340	-237	-226	-170	-377	-320	-362
2001	-362	-359	-316	-162	-105	-173	-78	-124	-78	-239	-57	-36
2002	-54	-120	-174	-127	113	-129	-263	-298	-200	0	-134	-509
2003	-608	861	-72	-145	-108	38	-116	-172	-48	-145	-133	-256
Average	**-207**	**-148**	**-221**	**-161**	**-188**	**-87**	**-210**	**-201**	**-161**	**-251**	**-208**	**-235**

TABLE C4-10: CHANGES IN BANKS + JONES EXPORTS (CFS), 2030 LOD

(B) Alternative 2

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	-408	-176	228	-205	-236	4	-377	-400	-254	-400	-400	-359
1923	-391	-397	-148	-396	-254	0	-256	-176	-330	-304	-553	319
1924	-60	-118	-140	-140	-88	0	0	0	0	-67	0	43
1925	0	-8	-57	-69	-93	0	-181	-157	-142	-374	0	-1740
1926	-348	702	-68	-74	-97	2	-88	-185	-303	-22	-8	-132
1927	-19	0	-248	-118	-83	38	-246	-264	-200	-400	-135	-615
1928	-396	-343	-732	-170	-118	0	-261	-295	-254	-501	-322	-329
1929	-395	-161	-366	-133	-94	29	-57	-97	0	-781	102	-141
1930	-156	-134	-179	-73	-53	38	-86	-135	-194	-226	-34	-197
1931	-3	-43	-67	-74	-61	0	0	0	-40	52	0	0
1932	-3	-20	-58	-90	-64	50	-92	-141	-101	-575	427	-184
1933	6	-43	-67	-74	-110	0	-83	-140	-10	1516	-130	-94
1934	71	94	-623	-63	-51	36	0	0	-111	-365	224	-229
1935	43	-199	-73	-66	-182	38	-332	-285	-200	111	-209	268
1936	768	852	-107	-107	13	38	-387	-280	-200	-406	-85	-53
1937	178	-134	-326	-19	-186	-700	-343	-245	-386	-458	-184	91
1938	-162	0	-394	-234	-324	-342	-400	0	-230	-400	-400	-400
1939	-417	-228	-259	-214	-309	-85	-98	-148	-151	0	-245	-263
1940	-157	-44	-31	-1	-79	38	-302	-242	-200	-430	-133	-172
1941	-319	-365	-124	-271	-283	0	-400	-400	-285	-400	-400	-366
1942	-399	-230	-384	-365	-299	0	-343	-372	-268	-400	-400	-400
1943	-374	-387	-341	-207	-332	0	-400	-307	-381	-400	-318	-366
1944	-489	-278	-397	-193	-127	12	-110	-162	-124	-401	-6	-46
1945	-235	0	-3649	-122	-79	872	-386	-245	-200	-139	-184	-227
1946	36	0	-83	-367	-256	38	-176	-214	-200	-139	88	-5
1947	-134	-298	-206	-102	-130	0	-178	0	-200	55	-138	-82
1948	4	-41	-60	-74	-96	0	-99	-184	-91	-535	-30	-42
1949	0	-58	-60	-107	-90	0	-189	-246	-254	-128	-148	-123
1950	-39	-28	-97	-74	-110	38	-136	-201	74	-130	-53	-126
1951	-32	0	-278	-327	-336	-82	-302	-266	-254	-142	-316	-359
1952	-487	-401	-367	-366	-314	0	-400	-400	-265	0	-400	-400
1953	-554	-119	-259	-345	-153	-97	-142	-146	-93	-384	-319	-403
1954	-298	-286	-330	-139	-97	0	-136	-201	-248	-235	-240	-360
1955	-488	-222	-344	-141	-846	-79	-74	-119	-117	-473	-2506	-176
1956	-205	-189	-201	-275	-479	-73	-400	-264	-200	-400	-400	-277
1957	-405	-233	-400	-199	-149	0	-137	-192	75	-316	-402	-359
1958	-267	-85	-151	-138	-266	0	-400	-400	-321	-400	-400	-400
1959	-400	-239	-396	-205	-158	11	-115	-170	-41	-303	-34	-191
1960	-139	-174	-168	-25	-76	0	-121	-178	-46	0	-348	-233
1961	5	-43	-68	-134	-88	38	-145	-213	970	0	-126	0
1962	345	-1813	176	-74	-90	0	-129	-190	68	-139	5	-298
1963	0	0	-68	-373	-227	-163	-154	-186	-256	-400	-357	-396
1964	-332	-275	-171	-158	-210	0	-92	-158	-162	-296	-166	-155
1965	-179	-200	-234	-284	-95	38	-376	-264	-200	-400	-287	-366
1966	-398	-394	-194	-203	-301	0	-124	-131	-221	-290	-48	-355
1967	-175	-189	-272	-144	-228	38	-400	-264	-230	0	-400	-368
1968	-399	-275	-259	-207	-152	-95	-102	-151	-32	-303	-12	-90
1969	-165	-155	-32	-314	-370	0	0	0	-230	-400	-400	-400
1970	-399	-240	-259	0	-339	-350	-231	-254	-89	-309	-320	-619
1971	-343	-163	-200	-363	-277	-46	-134	-167	-193	-424	-328	-366
1972	-295	-148	0	-150	-238	-315	-122	-180	-193	-290	45	-100
1973	-159	0	-272	-149	-287	38	-277	-253	-200	-400	-191	-504
1974	-365	0	-5	-345	-317	-181	-400	-261	-266	-400	-318	-400
1975	-389	-216	-397	-171	-298	0	-368	-231	-240	-400	-400	-366
1976	-364	-202	-340	-181	-123	0	-152	-217	-48	-111	-144	-158
1977	263	-490	-28	-67	-197	-18	0	0	-6	6	383	0
1978	-70	-40	10	-77	-63	0	-400	-266	-200	-400	-133	-172
1979	-443	-449	-399	-210	-110	0	-388	-400	-254	-304	-4	-63
1980	-121	-128	0	-154	-193	-107	-400	-400	-381	-400	-400	-359
1981	-402	-400	-227	-202	-195	0	-122	-181	-218	-39	-141	-395
1982	-117	0	-271	-251	-167	-48	0	-293	-30	-400	-400	-126
1983	0	0	-259	7	-341	-350	0	0	-230	0	-338	-126
1984	-82	-155	-259	-345	-352	-350	-384	-266	-89	-390	-323	-370
1985	-423	0	-294	-227	-130	-236	-264	0	-84	-52	-89	-126
1986	40	-139	-179	-143	-96	-269	-320	-264	-295	-400	-203	-259
1987	-421	-140	-399	-169	-109	0	-73	-116	-63	-224	-296	-105
1988	-160	-169	-200	-116	-23	-1	-46	-73	-163	4	-82	74
1989	82	-170	127	-63	-51	0	-177	-238	-254	-100	39	273
1990	-23	-42	162	-74	-76	0	-12	-89	13	-9	-403	0
1991	-57	-40	-52	0	-48	0	-48	-77	24	242	30	0
1992	-62	125	-499	672	-51	0	-46	-74	29	-1564	-83	-97
1993	-106	-40	-95	-113	-273	38	-197	-18	-200	-400	-133	-172
1994	-398	-399	-122	-176	-110	38	-111	-164	-125	-137	-369	-162
1995	-105	698	-1113	-144	-295	0	-400	0	-159	0	0	-179
1996	-345	-243	-259	-345	-246	-349	-400	-400	-100	-400	-319	-366
1997	-395	-374	-380	0	-336	-350	-237	-308	-89	-360	-319	-367
1998	-397	-340	-397	-191	-128	0	-400	-400	-230	0	0	0
1999	-711	0	-156	-345	-315	-350	-363	-257	-94	-400	-322	-530
2000	-359	-180	-337	-167	-259	-333	-237	-226	-106	-378	-318	-361
2001	-362	-360	-316	-161	-105	-173	-78	-124	-78	-225	-63	-46
2002	-54	-127	-174	-127	17	38	-263	-298	-200	0	-141	-495
2003	-606	1675	-72	-145	-108	38	-116	-171	-49	-250	-133	148
Average	**-201**	**-125**	**-254**	**-158**	**-185**	**-48**	**-206**	**-196**	**-145**	**-249**	**-208**	**-225**

TABLE C4-10:
CHANGES IN BANKS + JONES EXPORTS (CFS), 2030 LOD

(D) Alternative 4

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	-168	-151	348	-148	0	4	0	0	146	0	0	0
1923	-6	0	166	0	3	0	0	0	16	0	-524	351
1924	1	1	54	1	0	0	0	0	125	-199	0	249
1925	52	199	2	-180	0	0	0	0	188	-249	0	-1556
1926	-176	860	1	2	0	1	0	0	41	-18	-41	-137
1927	-14	0	0	0	100	38	0	0	200	0	0	-195
1928	-2	38	-318	0	115	0	0	0	146	-106	-82	4
1929	20	135	0	-4	0	29	0	0	0	-28	-1	-18
1930	-11	-57	0	0	200	38	0	0	79	-19	0	0
1931	38	149	127	144	0	0	0	0	54	-109	0	0
1932	-1	24	0	0	-3	47	0	0	0	-458	544	0
1933	54	0	-4	2	0	0	0	0	-10	1690	-130	-92
1934	129	132	-568	0	0	32	0	0	51	-236	223	-151
1935	49	-172	-20	-3	-5	38	0	0	200	255	-128	396
1936	776	913	-5	2	53	38	0	0	200	-258	-35	-9
1937	306	6	-45	125	-101	-702	-19	0	-25	-57	-24	91
1938	3	0	0	0	-19	-391	0	0	0	0	0	0
1939	-70	8	0	-10	0	0	0	0	146	0	-121	122
1940	33	72	87	128	0	38	0	0	200	-20	0	0
1941	39	-11	267	0	0	0	0	0	116	0	0	0
1942	-4	0	0	-1	0	0	0	0	131	0	0	0
1943	-1	-1	0	0	0	0	0	0	18	0	0	0
1944	-71	-43	0	-2	0	12	0	0	200	-116	0	70
1945	-82	0	0	-3	0	1	0	0	200	0	-223	-13
1946	115	0	82	0	129	38	0	0	200	0	88	91
1947	-3	-157	3	107	0	0	0	0	200	32	-13	277
1948	54	115	460	0	-4	0	0	0	160	8	-32	6
1949	0	0	-3	0	0	0	0	0	146	0	0	0
1950	-197	-210	224	0	0	38	0	0	200	10	1	0
1951	0	0	0	-87	4	0	0	0	146	16	0	0
1952	-2	-7	0	0	14	0	0	0	135	0	0	0
1953	-2	-1	0	0	4	0	0	0	137	0	0	-65
1954	-1	0	-55	0	0	0	0	0	146	73	77	0
1955	-139	107	-66	0	-766	-79	0	0	154	-185	-2415	-31
1956	-4	-1324	-1	203	495	0	0	0	200	0	0	0
1957	-174	0	1	0	0	0	0	0	200	-8	-86	0
1958	61	-4	2	3	0	0	0	0	79	0	0	0
1959	-2	-3	-2	2	0	11	0	0	200	0	2	-91
1960	5	0	30	102	0	0	0	0	200	0	-189	-171
1961	343	-1915	4338	0	0	38	157	0	1371	0	0	0
1962	-149	0	-43	0	0	0	0	0	200	0	0	-201
1963	0	0	0	-54	0	0	0	0	129	0	-27	14
1964	-54	-646	20	0	-1	-1	0	0	151	-137	-9	4
1965	17	0	20	0	164	38	0	0	200	0	0	0
1966	1	0	136	0	0	0	0	0	154	0	-43	-229
1967	-7	0	0	0	164	38	0	0	0	0	0	0
1968	-1	-70	0	-4	0	15	0	0	200	0	-7	14
1969	-8	-3	0	0	-96	0	0	0	0	0	0	0
1970	-1	-2	0	0	0	0	0	0	141	88	0	-206
1971	35	0	-3	0	4	4	0	0	133	-58	-6	0
1972	-3	-4	0	0	0	0	0	0	179	0	55	33
1973	-2	0	0	0	0	38	0	0	200	0	0	-143
1974	12	0	171	0	3	0	0	0	134	0	0	0
1975	-1	0	0	1	0	0	0	0	160	0	0	0
1976	0	-7	68	0	2	0	0	0	0	1	0	0
1977	438	-334	-147	42	-156	-21	0	0	0	52	485	0
1978	-358	37	107	0	0	0	0	0	200	0	0	0
1979	-14	-41	10	0	38	0	0	0	146	0	158	19
1980	15	0	0	0	-125	0	0	0	19	0	0	0
1981	-8	-1	0	-6	93	0	0	0	154	0	0	-185
1982	-15	0	0	0	129	-52	0	0	200	0	0	0
1983	0	0	9	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	142	5	0	0
1985	-31	0	-32	0	0	3	0	0	146	0	0	0
1986	43	1	0	0	0	-78	4	0	0	0	-76	-71
1987	-170	299	-67	-1	0	0	0	0	200	-173	60	-1
1988	-8	33	0	0	-1	-2	0	0	0	1	2	309
1989	349	-134	44	0	4	0	0	0	147	-99	53	394
1990	-1	1	163	0	2	0	-12	0	13	14	-550	0
1991	-69	0	3	0	0	0	0	0	41	359	77	0
1992	-109	236	-650	735	0	0	0	0	120	-1445	-21	-87
1993	-131	0	-43	0	0	38	0	0	200	0	0	0
1994	-14	-4	0	1	62	38	0	0	200	0	-169	-4
1995	29	728	-940	0	0	0	0	0	146	0	0	0
1996	-60	-44	-200	0	0	0	0	0	131	0	0	0
1997	0	2	0	0	0	0	0	0	141	32	0	0
1998	7	-11	7	0	0	0	0	0	0	0	0	0
1999	-2	0	-5	0	4	0	0	0	137	0	0	-168
2000	1	0	0	-3	0	16	0	0	125	17	0	0
2001	1	0	0	-4	0	34	0	0	200	-114	0	33
2002	86	30	-9	0	200	38	0	0	200	0	0	-319
2003	-445	889	119	0	136	38	0	0	200	0	0	54
Average	**4**	**-4**	**47**	**13**	**10**	**-7**	**2**	**0**	**140**	**-18**	**-38**	**-20**

TABLE C4-11:
CHANGES IN CCWD + LV DIVERSIONS (CFS), 2030 LOD

(A) Alternative 1

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	408	176	131	205	261	-119	624	414	254	415	401	360
1923	398	400	378	398	254	-127	532	191	193	305	27	24
1924	60	118	189	140	61	-99	134	-63	-23	-52	0	0
1925	0	40	58	63	93	0	338	357	143	128	-5	173
1926	39	43	68	74	97	0	88	185	200	28	100	0
1927	0	43	248	118	83	-38	430	464	200	400	182	553
1928	397	396	374	171	118	-115	502	310	254	413	317	360
1929	394	400	369	133	94	-210	289	97	0	93	-3	148
1930	157	175	146	-19	53	-185	301	135	57	128	15	184
1931	60	43	68	74	61	0	5	-38	40	0	0	0
1932	0	40	58	90	63	0	262	96	101	199	38	125
1933	-6	43	68	74	110	0	83	140	0	129	-5	67
1934	-5	40	58	63	50	0	42	0	-37	129	-6	183
1935	37	40	59	66	180	-38	478	485	200	139	81	7
1936	-3	62	83	107	56	-52	627	480	200	139	50	22
1937	121	136	178	20	113	-19	651	445	161	400	181	-1
1938	133	193	394	234	236	-103	698	464	265	415	400	400
1939	400	238	326	214	319	-111	513	148	151	3	141	178
1940	129	43	68	1	33	-38	448	442	200	400	133	172
1941	466	359	334	294	309	-107	598	413	285	418	401	367
1942	400	231	399	418	307	-114	565	385	268	418	401	401
1943	375	390	343	232	332	-114	625	321	265	418	320	367
1944	401	226	400	193	127	-158	471	199	124	264	0	142
1945	153	140	211	124	81	-38	529	445	200	139	43	14
1946	-3	62	83	369	258	-165	509	415	200	213	1	88
1947	134	145	185	107	75	-147	316	0	200	62	147	155
1948	0	43	68	74	95	0	245	384	128	400	39	-44
1949	0	62	83	107	90	-110	298	245	254	207	112	134
1950	0	43	68	74	111	-38	283	401	-74	139	56	-11
1951	-3	62	278	470	308	-119	616	466	254	324	317	360
1952	388	400	375	381	314	-114	624	415	265	652	399	399
1953	400	238	359	392	153	-114	371	159	93	399	320	367
1954	299	286	253	141	97	-115	378	215	248	322	317	360
1955	351	332	286	145	93	-147	392	119	118	264	98	147
1956	164	171	202	163	189	-85	546	464	200	400	400	284
1957	400	233	400	199	142	-115	450	242	-75	283	317	361
1958	335	83	151	138	299	-98	552	413	321	418	401	401
1959	401	238	400	205	158	-138	445	197	41	300	36	78
1960	139	159	192	25	-10	-147	336	178	46	6	138	121
1961	0	43	68	134	88	-38	374	234	200	33	84	0
1962	0	43	68	74	90	0	276	390	-68	139	11	-44
1963	-1	470	45	373	236	-114	452	320	203	418	320	401
1964	339	446	170	162	210	-147	307	158	162	261	126	175
1965	185	178	234	284	95	-152	673	464	200	476	320	367
1966	401	400	400	205	301	-127	404	131	221	301	0	128
1967	176	168	200	144	228	-152	698	464	200	472	445	367
1968	400	239	351	207	152	-142	432	168	32	301	4	106
1969	164	156	136	298	280	-152	763	620	200	400	364	399
1970	399	239	354	691	339	-114	457	266	191	411	320	399
1971	379	354	199	363	277	-117	362	177	193	383	320	367
1972	292	141	675	151	238	-127	418	180	117	302	1	136
1973	160	153	195	149	287	-153	563	453	200	400	178	360
1974	378	678	182	366	317	-114	624	275	198	417	320	401
1975	390	216	395	171	297	-114	615	246	240	418	401	367
1976	364	201	340	181	124	-171	385	217	48	123	152	2
1977	-5	40	58	63	26	0	0	0	0	0	0	0
1978	0	40	58	77	63	0	546	466	200	400	133	172
1979	434	541	401	212	110	-127	693	414	254	298	0	71
1980	133	130	354	154	205	-125	710	414	254	415	401	360
1981	401	400	229	202	195	-147	483	249	218	49	136	177
1982	117	141	271	251	167	-152	822	464	161	377	400	636
1983	670	674	366	708	405	-63	822	415	275	330	411	407
1984	404	396	345	450	400	-114	606	277	190	408	320	367
1985	384	676	325	227	130	-150	579	0	152	61	123	161
1986	158	143	198	93	96	-99	670	464	132	400	135	281
1987	320	187	326	167	113	-147	288	116	63	239	60	122
1988	160	179	205	125	23	-181	132	47	163	69	-117	-52
1989	-5	40	58	63	52	0	177	238	254	29	98	0
1990	0	43	68	74	77	0	27	89	-20	7	0	0
1991	0	40	58	0	48	0	48	77	0	0	0	0
1992	0	40	58	63	51	0	46	117	-109	182	56	106
1993	0	40	58	113	272	-38	197	95	200	400	133	172
1994	510	596	275	176	121	-219	344	164	125	130	190	165
1995	15	42	59	144	295	-90	546	464	193	470	470	179
1996	502	351	360	408	164	-111	692	409	201	414	320	367
1997	394	349	369	684	343	-114	468	320	190	413	320	367
1998	399	352	353	245	195	-116	664	408	221	652	654	658
1999	398	670	359	392	315	-114	585	266	195	407	320	397
2000	358	180	335	168	260	-131	527	235	95	407	317	360
2001	364	356	316	162	105	-181	439	124	78	113	82	97
2002	151	164	174	127	-113	-185	624	304	200	6	163	-1
2003	-6	43	72	145	108	-38	315	372	48	144	179	360
Average	**217**	**214**	**226**	**197**	**166**	**-98**	**440**	**276**	**151**	**267**	**183**	**211**

TABLE C4-11:
CHANGES IN CCWD + LV DIVERSIONS (CFS), 2030 LOD

(B) Alternative 2

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	408	176	131	205	261	-119	624	414	254	415	401	360
1923	398	400	378	398	254	-127	532	191	193	305	27	24
1924	60	118	189	140	61	-99	134	-63	-23	-52	0	0
1925	0	40	58	63	93	0	338	357	143	128	-5	173
1926	39	43	68	74	97	0	88	185	200	28	100	0
1927	0	43	248	118	83	-38	430	464	200	400	182	553
1928	397	396	374	171	118	-115	502	310	254	413	317	360
1929	394	400	369	133	94	-210	289	97	0	93	-3	148
1930	157	175	146	-19	53	-185	301	135	57	128	15	184
1931	60	43	68	74	61	0	5	-38	40	0	0	0
1932	0	40	58	90	63	0	262	96	101	199	38	125
1933	-6	43	68	74	110	0	83	140	0	129	-5	67
1934	-5	40	58	63	50	0	42	0	-37	129	-6	183
1935	37	40	59	66	180	-38	478	485	200	139	81	7
1936	-3	62	83	107	98	-52	628	480	200	139	50	22
1937	121	136	178	20	132	-19	626	445	161	400	181	-1
1938	133	193	394	234	279	-103	698	464	265	415	400	400
1939	400	238	259	214	319	-111	513	148	151	3	141	178
1940	129	43	68	1	33	-38	449	442	200	400	133	172
1941	466	362	334	294	352	-107	598	413	285	418	401	367
1942	400	231	399	399	307	-114	566	385	268	418	401	401
1943	375	390	343	232	332	-114	625	321	265	418	320	367
1944	401	226	400	193	127	-158	471	199	124	264	0	142
1945	153	140	211	122	79	-38	532	445	200	139	43	14
1946	-3	62	83	367	256	-165	506	414	200	213	1	88
1947	134	145	185	102	75	-147	317	0	200	62	147	155
1948	0	43	68	74	95	0	245	384	90	400	39	-44
1949	0	62	83	107	90	-110	299	246	254	207	112	134
1950	0	43	68	74	111	-38	283	401	-74	139	56	-11
1951	-3	62	278	470	308	-119	616	466	254	324	317	360
1952	388	400	375	381	314	-114	624	415	265	652	399	399
1953	400	155	268	347	153	-114	373	160	93	401	320	367
1954	300	286	254	141	97	-115	379	215	248	322	317	360
1955	351	332	286	145	93	-147	392	119	118	264	98	147
1956	164	171	202	163	189	-88	546	464	200	400	400	284
1957	400	233	400	199	142	-115	450	242	-75	283	317	361
1958	335	83	151	138	299	-98	552	413	321	418	401	401
1959	401	238	400	205	158	-138	445	197	41	300	36	78
1960	139	159	192	25	-10	-147	336	178	46	6	138	121
1961	0	43	68	134	88	-38	374	234	200	33	84	0
1962	0	43	68	74	90	0	276	390	-68	139	11	-44
1963	-1	470	45	373	236	-114	452	322	256	418	320	401
1964	339	400	170	162	210	-147	307	158	162	261	126	175
1965	185	178	234	284	95	-152	673	464	200	476	320	367
1966	401	400	400	205	301	-127	404	131	221	301	0	128
1967	176	168	200	144	228	-152	698	464	200	472	447	367
1968	400	239	259	207	152	-142	432	169	32	301	4	106
1969	164	156	136	298	316	-152	763	620	200	400	366	399
1970	399	239	263	691	339	-114	458	267	89	413	320	400
1971	380	162	201	363	277	-117	366	179	193	387	320	367
1972	293	141	675	150	238	-127	422	180	193	302	1	136
1973	160	153	192	149	287	-153	563	453	200	400	178	360
1974	378	678	182	347	317	-114	626	275	266	418	320	401
1975	390	216	400	171	298	-114	617	246	240	418	401	367
1976	364	201	340	181	123	-171	385	217	48	123	152	2
1977	-5	40	58	63	26	0	0	0	0	0	0	0
1978	0	40	58	77	63	0	546	466	200	400	133	172
1979	434	541	401	212	110	-127	693	414	254	298	0	71
1980	133	130	354	154	205	-125	713	414	254	415	401	360
1981	401	400	229	202	195	-147	483	248	218	49	136	177
1982	117	141	271	251	167	-152	822	464	30	377	400	415
1983	670	674	274	708	436	-63	822	670	275	330	419	407
1984	404	396	254	542	400	-114	606	277	89	408	320	367
1985	384	676	260	227	130	-150	580	0	84	61	123	156
1986	110	143	198	95	96	-100	654	464	94	400	135	304
1987	321	187	400	169	114	-147	288	116	63	239	60	122
1988	160	179	205	125	23	-181	132	47	163	69	-117	-52
1989	-5	40	58	63	52	0	177	238	254	29	98	0
1990	0	43	68	74	77	0	27	89	-20	7	0	0
1991	0	40	58	0	48	0	48	77	0	0	0	0
1992	0	40	58	63	51	0	46	117	-109	182	56	106
1993	0	40	58	113	272	-38	197	95	200	400	133	172
1994	510	596	275	176	121	-219	344	164	125	130	190	165
1995	15	42	59	144	295	-90	546	464	159	470	470	179
1996	502	354	268	363	161	-111	697	410	100	417	320	367
1997	395	376	399	684	392	-114	470	322	89	416	320	367
1998	400	340	400	245	195	-116	669	409	221	652	654	658
1999	399	670	268	347	315	-114	586	267	94	409	320	398
2000	358	180	335	167	260	-131	531	237	30	411	317	360
2001	365	357	316	161	105	-181	439	124	78	113	82	97
2002	151	164	174	127	-17	-185	624	302	200	5	163	-1
2003	-6	43	72	145	108	-38	315	371	49	144	179	360
Average	**217**	**210**	**218**	**196**	**171**	**-98**	**440**	**279**	**143**	**268**	**183**	**209**

TABLE C4-11: CHANGES IN CCWD + LV DIVERSIONS (CFS), 2030 LOD

(D) Alternative 4

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	168	151	-3	148	36	-119	313	200	-146	179	76	3
1923	1	-1	-2	-1	-3	-127	217	76	-153	7	1	-2
1924	-1	-1	-1	-1	-22	-99	144	-49	-148	-224	-243	-206
1925	-52	-7	-3	0	-4	0	157	200	-200	0	-2	-11
1926	-146	-28	0	-2	0	0	0	0	-146	28	100	0
1927	0	0	0	0	-100	-38	184	200	-200	0	46	188
1928	200	197	202	-111	7	-115	313	164	-146	19	4	3
1929	2	-1	-1	4	0	-210	233	0	0	0	3	13
1930	10	9	6	-71	-208	-185	215	0	-200	0	17	19
1931	-126	-128	-132	-144	-83	0	5	-19	20	0	0	0
1932	0	0	0	0	0	0	163	-31	0	0	0	-35
1933	-86	0	0	-2	0	0	0	0	0	0	-1	65
1934	-62	0	0	0	-2	0	42	0	-200	0	1	107
1935	37	0	1	3	0	-38	146	200	-200	0	0	-91
1936	-10	0	0	-2	0	-49	240	200	-200	0	0	-6
1937	-7	-5	-30	-124	-18	-19	213	200	-200	0	21	0
1938	1	1	0	0	-85	-103	298	200	-135	182	184	188
1939	48	1	0	10	12	-111	364	0	-146	5	28	23
1940	-14	-71	-100	-128	-46	-153	146	200	-200	0	0	0
1941	93	139	-3	-2	-53	-107	247	15	-115	24	4	3
1942	1	0	-1	-2	0	-114	224	15	-132	24	4	3
1943	2	0	-1	-2	0	-114	226	17	-135	24	4	3
1944	2	1	0	2	0	-158	361	38	-200	-24	1	6
1945	6	5	3	3	4	-165	146	200	-200	0	0	-38
1946	-116	-122	-82	0	-129	-165	330	200	-200	73	0	4
1947	3	3	-18	-107	-49	-147	148	0	-200	0	10	-14
1948	-181	-115	-33	0	0	0	46	200	-160	0	0	-42
1949	0	0	0	0	0	-110	124	0	-146	0	-7	88
1950	0	0	0	0	0	-38	146	200	-200	0	0	-108
1951	0	0	0	0	-92	-119	313	200	-146	179	184	188
1952	195	83	-2	-2	-44	-114	269	17	-135	23	4	3
1953	2	0	-2	0	-4	-114	235	16	-137	23	4	3
1954	2	0	0	0	0	-115	245	16	-146	19	4	3
1955	2	0	-1	-1	0	-147	215	0	-153	30	2	2
1956	2	2	2	1	-194	-152	146	200	-200	0	0	105
1957	168	1	0	0	0	-115	313	40	-200	-20	4	3
1958	1	1	0	-3	-2	-98	152	15	-79	23	4	3
1959	2	1	0	-2	0	-138	330	26	-200	2	4	-5
1960	-5	-3	-3	-102	-80	-147	215	0	-200	0	-2	-57
1961	-188	-116	-159	-109	0	-38	229	6	-200	0	3	0
1962	0	0	0	0	0	0	146	200	-200	0	0	-108
1963	-1	0	0	54	9	-114	298	200	-129	182	184	188
1964	88	-1	0	-1	1	-147	215	0	-151	20	18	15
1965	14	14	-20	0	-164	-152	298	200	-200	65	4	3
1966	2	-1	-1	0	0	-127	282	0	-154	19	0	2
1967	2	-8	-60	0	-164	-152	298	200	-200	2	89	3
1968	2	0	0	4	0	-142	330	24	-200	3	0	7
1969	6	5	-36	-15	-17	-152	240	200	-200	0	-16	3
1970	1	2	-3	-3	0	-114	234	17	-141	23	4	3
1971	2	-2	-1	0	-4	-117	235	15	-133	24	4	3
1972	2	0	-1	0	0	-127	307	0	-179	20	0	1
1973	1	-42	-81	0	0	-153	286	200	-200	0	10	3
1974	1	-1	-1	-1	-3	-114	228	17	-134	23	4	3
1975	1	1	-1	-1	0	-114	251	17	-160	24	4	3
1976	0	2	0	0	-2	-171	233	0	0	1	2	-161
1977	-179	-141	-95	-156	-166	-61	0	-52	0	0	0	0
1978	0	0	0	0	0	0	146	200	-200	0	0	0
1979	34	201	200	-36	-160	-127	330	200	-146	159	1	10
1980	10	7	0	0	-90	-125	313	186	-146	20	4	3
1981	2	1	0	6	-93	-147	361	64	-153	0	15	13
1982	15	12	0	0	-129	-152	298	125	-200	-14	4	2
1983	0	-1	-1	-2	-2	-63	161	16	-125	24	4	3
1984	2	-2	-2	0	0	-114	234	17	-142	24	4	3
1985	1	-2	0	0	0	-150	268	0	-146	0	4	4
1986	4	4	3	-64	0	-152	146	200	-200	0	0	0
1987	113	11	0	1	1	-147	215	0	-200	0	9	9
1988	8	6	5	5	0	-181	83	-29	0	0	-210	-218
1989	-191	-54	-35	0	0	0	0	0	-146	0	126	0
1990	0	0	0	0	0	0	27	0	-20	7	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	13	-200	0	53	106
1993	0	0	0	9	0	-38	0	77	-200	0	0	0
1994	130	200	182	-1	-1	-219	233	0	-200	8	6	7
1995	-117	-64	0	0	0	-90	146	200	-146	0	0	0
1996	102	197	209	-59	-86	-111	298	200	-131	182	87	3
1997	1	-1	-2	-3	-4	-114	239	16	-141	23	4	3
1998	1	-1	-1	-2	5	-116	271	10	-179	24	4	3
1999	2	0	-2	0	-4	-114	235	16	-137	23	4	3
2000	2	0	1	3	1	-131	309	15	-200	21	4	3
2001	0	2	0	4	0	-181	361	0	-200	0	13	13
2002	11	10	9	0	-200	-185	361	3	-200	4	18	-169
2003	-140	-105	-119	0	-136	-138	199	200	-200	0	46	188
Average	**-1**	**3**	**-3**	**-12**	**-31**	**-104**	**209**	**75**	**-151**	**18**	**12**	**4**

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
10/31/1921	12	0	250	420	0	250	420	0	250	70	110	250
11/30/1921	0	0	181	106	0	250	106	0	250	70	12	250
12/31/1921	0	0	119	0	0	250	0	0	250	0	0	116
01/31/1922	0	131	0	205	131	0	205	131	0	148	131	0
02/28/1922	0	86	0	236	110	0	236	110	0	0	122	0
03/31/1922	4	115	0	0	0	0	0	0	0	0	0	0
04/30/1922	0	0	0	420	167	37	420	167	37	146	167	0
05/31/1922	0	0	204	368	0	250	368	0	250	70	84	250
06/30/1922	146	296	0	400	296	0	400	296	0	0	296	0
07/31/1922	21	326	0	420	326	16	420	326	16	200	326	0
08/31/1922	16	337	0	417	337	0	417	337	0	92	337	0
09/30/1922	60	0	250	420	0	250	420	0	250	63	0	250
10/31/1922	6	255	0	404	255	0	404	255	0	7	255	0
11/30/1922	0	178	0	397	181	0	397	181	0	0	177	0
12/31/1922	0	150	0	364	165	0	364	165	0	0	148	0
01/31/1923	0	128	0	396	131	0	396	131	0	0	128	0
02/28/1923	3	122	0	256	122	0	256	122	0	0	122	0
03/31/1923	0	127	0	0	0	0	0	0	0	0	0	0
04/30/1923	0	0	0	348	184	0	348	184	0	33	184	0
05/31/1923	0	0	225	166	0	250	166	0	250	0	52	250
06/30/1923	153	296	0	346	296	0	346	296	0	0	296	0
07/31/1923	70	45	250	420	0	250	420	0	250	70	52	250
08/31/1923	70	30	250	126	0	250	126	0	250	70	31	250
09/30/1923	0	0	226	0	0	250	0	0	250	0	0	224
10/31/1923	0	0	190	0	0	250	0	0	250	0	0	188
11/30/1923	0	0	132	0	0	250	0	0	250	0	0	131
12/31/1923	0	0	61	0	0	250	0	0	250	0	0	60
01/31/1924	0	0	29	0	0	169	0	0	169	0	0	28
02/29/1924	0	60	0	0	34	88	0	34	88	0	38	0
03/31/1924	0	99	0	0	0	0	0	0	0	0	0	0
04/30/1924	0	0	0	0	134	0	0	134	0	0	144	0
05/31/1924	0	186	0	0	123	0	0	123	0	0	136	0
06/30/1924	0	23	250	0	0	250	0	0	250	0	0	125
07/31/1924	70	21	250	38	0	250	38	0	250	0	0	117
08/31/1924	70	11	250	81	0	250	81	0	250	0	0	88
09/30/1924	52	0	250	52	0	250	52	0	250	0	0	96
10/31/1924	5	0	250	5	0	250	5	0	250	0	0	203
11/30/1924	0	0	210	0	0	250	0	0	250	0	0	203

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1924	0	0	192	0	0	250	0	0	250	0	0	189
01/31/1925	0	0	187	0	0	250	0	0	250	0	0	187
02/28/1925	0	206	0	93	206	0	93	206	0	0	202	0
03/31/1925	0	147	0	0	147	0	0	147	0	0	147	0
04/30/1925	204	0	0	328	215	0	328	215	0	146	215	0
05/31/1925	0	261	0	107	261	250	107	261	250	0	261	200
06/30/1925	200	306	0	343	306	0	343	306	0	0	306	0
07/31/1925	70	222	250	420	0	250	420	0	250	70	222	250
08/31/1925	8	0	250	3	0	250	3	0	250	5	0	250
09/30/1925	0	0	77	0	0	250	0	0	250	0	0	66
10/31/1925	0	0	211	0	0	250	0	0	250	0	0	65
11/30/1925	0	0	207	0	0	250	0	0	250	0	0	179
12/31/1925	0	0	182	0	0	250	0	0	250	0	0	182
01/31/1926	0	0	176	0	0	250	0	0	250	0	0	174
02/28/1926	0	169	0	97	169	0	97	169	0	0	169	0
03/31/1926	0	147	0	0	147	0	0	147	0	0	147	0
04/30/1926	215	0	0	303	0	0	303	0	0	215	0	0
05/31/1926	0	261	0	0	261	185	0	261	185	0	261	0
06/30/1926	146	306	0	346	306	0	346	306	0	0	306	0
07/31/1926	43	0	250	72	0	250	72	0	250	70	2	250
08/31/1926	0	0	232	82	0	250	82	0	250	70	12	250
09/30/1926	51	0	250	51	0	250	51	0	250	51	0	250
10/31/1926	6	0	250	6	0	250	6	0	250	6	0	250
11/30/1926	0	0	207	0	0	250	0	0	250	0	0	207
12/31/1926	0	182	0	0	182	248	0	182	248	0	182	0
01/31/1927	200	176	0	318	176	0	318	176	0	200	176	0
02/28/1927	200	173	0	283	173	0	283	173	0	100	173	0
03/31/1927	38	114	0	0	114	0	0	114	0	0	114	0
04/30/1927	114	0	0	392	152	0	392	152	0	146	152	0
05/31/1927	0	0	206	420	0	250	420	0	250	70	86	250
06/30/1927	200	273	0	400	273	0	400	273	0	0	273	0
07/31/1927	200	322	0	420	322	180	420	322	180	200	322	0
08/31/1927	70	168	250	420	0	250	420	0	250	70	215	250
09/30/1927	12	291	0	420	291	145	420	291	145	200	291	0
10/31/1927	0	247	0	397	247	0	397	247	0	200	247	0
11/30/1927	3	166	0	399	166	0	399	166	0	200	166	0
12/31/1927	0	116	0	371	119	0	371	119	0	200	119	0
01/31/1928	0	111	0	170	112	0	170	112	0	0	0	0
02/29/1928	0	124	0	118	124	0	118	124	0	7	124	0
03/31/1928	0	115	0	0	0	0	0	0	0	0	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1928	0	0	0	335	167	0	335	167	0	146	167	0
05/31/1928	0	204	0	310	204	0	310	204	0	164	204	0
06/30/1928	146	296	0	400	296	0	400	296	0	0	296	0
07/31/1928	0	98	250	400	112	250	400	112	250	0	117	250
08/31/1928	70	33	250	420	0	250	420	0	250	70	37	250
09/30/1928	60	0	250	420	0	250	420	0	250	63	0	250
10/31/1928	7	255	0	401	255	0	401	255	0	9	255	0
11/30/1928	0	178	0	398	181	0	398	181	0	0	178	0
12/31/1928	0	0	161	280	0	250	280	0	250	0	142	18
01/31/1929	0	0	56	0	0	189	0	0	189	0	0	60
02/28/1929	0	122	0	94	122	0	94	122	0	0	122	0
03/31/1929	29	181	0	0	0	0	0	0	0	0	0	0
04/30/1929	0	0	0	57	233	0	57	233	0	0	233	0
05/31/1929	0	284	0	97	284	0	97	284	0	0	284	0
06/30/1929	0	326	0	0	326	0	0	326	0	0	326	0
07/31/1929	70	208	250	371	0	250	371	0	250	70	208	250
08/31/1929	3	0	250	0	0	250	0	0	250	6	0	250
09/30/1929	0	0	102	0	0	250	0	0	250	0	0	115
10/31/1929	0	0	66	0	0	223	0	0	223	0	0	76
11/30/1929	0	0	55	0	0	230	0	0	230	0	0	64
12/31/1929	0	0	33	0	0	179	0	0	179	0	0	39
01/31/1930	0	160	0	73	68	0	73	68	0	0	89	0
02/28/1930	200	206	0	253	206	0	253	206	0	0	198	0
03/31/1930	38	147	0	0	0	0	0	0	0	0	0	0
04/30/1930	0	0	0	86	215	0	86	215	0	0	215	0
05/31/1930	0	261	0	135	261	0	135	261	0	0	261	0
06/30/1930	200	306	0	257	306	0	257	306	0	0	306	0
07/31/1930	70	222	250	420	0	250	420	0	250	70	222	250
08/31/1930	0	0	235	0	0	250	0	0	250	1	0	250
09/30/1930	0	0	66	0	0	250	0	0	250	0	0	85
10/31/1930	0	0	190	0	0	250	0	0	250	0	0	64
11/30/1930	0	0	207	0	0	250	0	0	250	0	0	79
12/31/1930	0	0	182	0	0	250	0	0	250	0	0	50
01/31/1931	0	0	176	0	0	250	0	0	250	0	0	32
02/28/1931	0	173	0	61	173	0	61	173	0	0	90	0
03/31/1931	0	181	0	0	181	0	0	181	0	0	181	0
04/30/1931	0	227	0	0	233	0	0	233	0	0	233	0
05/31/1931	0	284	0	0	246	0	0	246	0	0	266	0
06/30/1931	36	0	250	76	0	250	76	0	250	0	74	232
07/31/1931	70	21	250	91	0	250	91	0	250	70	21	250

**TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD**

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1931	70	11	250	81	0	250	81	0	250	70	11	250
09/30/1931	52	0	250	52	0	250	52	0	250	52	0	250
10/31/1931	5	0	250	5	0	250	5	0	250	5	0	250
11/30/1931	0	0	210	0	0	250	0	0	250	0	0	210
12/31/1931	0	0	192	0	0	250	0	0	250	0	0	192
01/31/1932	0	187	0	90	187	0	90	187	0	0	187	0
02/29/1932	0	199	0	63	199	0	63	199	0	0	199	0
03/31/1932	0	147	0	0	147	0	0	147	0	0	147	0
04/30/1932	191	0	0	238	215	0	238	215	0	140	215	0
05/31/1932	0	261	0	0	216	141	0	216	141	0	230	0
06/30/1932	0	306	0	101	306	0	101	306	0	0	306	0
07/31/1932	200	342	0	399	342	0	399	342	0	200	342	0
08/31/1932	70	31	250	139	0	250	139	0	250	70	31	250
09/30/1932	0	0	125	0	0	250	0	0	250	0	0	90
10/31/1932	6	0	250	0	0	250	0	0	250	0	0	170
11/30/1932	0	0	207	0	0	250	0	0	250	0	0	207
12/31/1932	0	0	182	0	0	250	0	0	250	0	0	182
01/31/1933	0	0	176	0	0	250	0	0	250	0	0	174
02/28/1933	0	173	0	110	173	0	110	173	0	0	173	0
03/31/1933	0	181	0	0	181	0	0	181	0	0	181	0
04/30/1933	0	233	0	83	233	0	83	233	0	0	233	0
05/31/1933	0	284	0	140	284	0	140	284	0	0	284	0
06/30/1933	0	326	0	0	326	0	0	326	0	0	326	0
07/31/1933	70	221	250	420	0	250	420	0	250	70	221	250
08/31/1933	5	0	250	0	0	250	0	0	250	4	0	250
09/30/1933	0	0	183	0	0	250	0	0	250	0	0	248
10/31/1933	5	0	250	0	0	250	0	0	250	0	0	193
11/30/1933	0	0	210	0	0	250	0	0	250	0	0	210
12/31/1933	0	0	192	0	0	250	0	0	250	0	0	192
01/31/1934	0	0	187	0	0	250	0	0	250	0	0	187
02/28/1934	0	206	0	51	206	0	51	206	0	0	204	0
03/31/1934	0	181	0	0	181	0	0	181	0	0	181	0
04/30/1934	0	191	0	0	233	0	0	233	0	0	233	0
05/31/1934	0	284	0	0	284	0	0	284	0	0	284	0
06/30/1934	200	326	0	163	326	0	163	326	0	0	326	0
07/31/1934	70	221	250	420	0	250	420	0	250	70	221	250
08/31/1934	9	0	250	3	0	250	3	0	250	11	0	250
09/30/1934	0	0	67	0	0	250	0	0	250	0	0	174
10/31/1934	0	0	218	5	0	250	5	0	250	5	0	250
11/30/1934	0	0	210	0	0	250	0	0	250	0	0	210

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1934	0	0	191	0	0	250	0	0	250	0	0	192
01/31/1935	0	0	184	0	0	250	0	0	250	0	0	187
02/28/1935	0	206	0	180	206	0	180	206	0	0	206	0
03/31/1935	38	127	0	0	127	0	0	127	0	0	127	0
04/30/1935	184	0	0	420	184	58	420	184	58	146	184	0
05/31/1935	0	225	0	235	225	250	235	225	250	0	225	200
06/30/1935	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1935	70	211	250	420	0	250	420	0	250	70	211	250
08/31/1935	70	61	250	212	0	250	212	0	250	70	61	250
09/30/1935	0	0	243	0	0	250	0	0	250	0	0	152
10/31/1935	3	0	250	0	0	250	0	0	250	0	0	243
11/30/1935	0	0	188	0	0	250	0	0	250	0	0	188
12/31/1935	0	0	167	0	0	250	0	0	250	0	0	167
01/31/1936	0	0	143	0	0	250	0	0	250	0	0	141
02/29/1936	0	128	0	54	131	0	96	131	0	0	128	0
03/31/1936	38	127	0	0	113	0	0	113	0	0	117	0
04/30/1936	0	0	90	283	184	250	283	184	250	0	184	146
05/31/1936	0	225	0	230	225	250	230	225	250	0	225	200
06/30/1936	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1936	70	211	250	420	0	250	420	0	250	70	211	250
08/31/1936	70	48	250	168	0	250	168	0	250	70	48	250
09/30/1936	0	0	228	0	0	250	0	0	250	0	0	222
10/31/1936	0	0	129	0	0	250	0	0	250	0	0	122
11/30/1936	0	0	114	0	0	250	0	0	250	0	0	109
12/31/1936	0	0	72	0	0	250	0	0	250	0	0	42
01/31/1937	0	0	140	0	0	160	0	0	160	0	0	15
02/28/1937	0	0	118	0	0	231	0	0	250	0	0	99
03/31/1937	0	127	0	0	108	0	0	108	0	0	108	0
04/30/1937	0	0	117	334	184	250	309	184	250	0	184	146
05/31/1937	0	0	225	420	0	250	420	0	250	70	105	250
06/30/1937	200	296	0	361	296	0	361	296	0	0	296	0
07/31/1937	200	331	0	420	331	180	420	331	180	200	331	0
08/31/1937	70	169	250	420	0	250	420	0	250	70	190	250
09/30/1937	14	0	250	13	0	250	13	0	250	14	0	250
10/31/1937	0	0	117	0	0	250	0	0	250	0	0	119
11/30/1937	0	0	57	0	0	250	0	0	250	0	0	58
12/31/1937	0	167	0	394	167	0	394	167	0	0	167	0
01/31/1938	200	143	0	420	143	14	420	143	14	200	143	0
02/28/1938	221	0	0	359	97	0	402	97	0	38	97	0
03/31/1938	103	0	0	0	0	0	0	0	0	0	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1938	0	0	0	296	152	250	296	152	250	0	152	146
05/31/1938	206	0	0	420	0	250	420	0	250	250	86	70
06/30/1938	135	273	0	400	273	0	400	273	0	0	273	0
07/31/1938	18	322	0	420	322	13	420	322	13	200	322	0
08/31/1938	16	335	0	416	335	0	416	335	0	200	335	0
09/30/1938	12	291	0	412	291	0	412	291	0	200	291	0
10/31/1938	5	247	0	405	247	0	405	247	0	54	247	0
11/30/1938	2	166	0	240	166	0	240	166	0	3	166	0
12/31/1938	0	0	119	76	119	250	9	119	250	0	119	0
01/31/1939	0	0	36	0	0	250	0	0	250	0	0	46
02/28/1939	0	48	0	310	57	0	310	57	0	0	60	0
03/31/1939	0	111	0	0	0	0	0	0	0	0	0	0
04/30/1939	0	0	0	420	0	93	420	0	93	250	44	70
05/31/1939	11	0	250	159	0	250	159	0	250	11	0	250
06/30/1939	146	306	0	297	306	0	297	306	0	0	306	0
07/31/1939	33	0	250	36	0	250	36	0	250	39	0	250
08/31/1939	0	0	109	0	0	250	0	0	250	0	0	137
09/30/1939	0	0	72	0	0	250	0	0	250	0	0	96
10/31/1939	0	0	121	0	0	250	0	0	250	0	0	107
11/30/1939	0	0	207	0	0	250	0	0	250	0	0	136
12/31/1939	0	0	182	0	0	250	0	0	250	0	0	82
01/31/1940	0	0	171	0	0	172	0	0	172	0	0	43
02/29/1940	0	157	0	79	111	0	79	111	0	0	111	0
03/31/1940	38	115	0	0	115	0	0	115	0	0	0	0
04/30/1940	0	0	167	198	167	250	199	167	250	0	167	146
05/31/1940	0	0	204	242	154	250	242	154	250	0	154	250
06/30/1940	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1940	200	326	0	420	326	180	420	326	180	200	326	0
08/31/1940	70	217	250	420	0	250	420	0	250	70	217	250
09/30/1940	70	178	250	420	0	250	420	0	250	70	178	250
10/31/1940	107	255	0	420	255	153	420	255	153	200	255	0
11/30/1940	2	181	0	361	181	0	364	181	0	141	181	0
12/31/1940	0	138	0	306	165	0	307	165	0	0	135	0
01/31/1941	0	107	0	271	131	0	271	131	0	0	106	0
02/28/1941	0	97	0	299	106	0	342	106	0	0	44	0
03/31/1941	0	107	0	0	0	0	0	0	0	0	0	0
04/30/1941	0	0	0	196	152	250	197	152	250	0	152	96
05/31/1941	0	0	206	369	0	250	369	0	250	0	0	221
06/30/1941	115	273	0	400	273	0	400	273	0	0	273	0
07/31/1941	18	322	0	420	322	16	420	322	16	41	322	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1941	16	335	0	417	335	0	417	335	0	20	335	0
09/30/1941	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1941	5	247	0	406	247	0	406	247	0	7	247	0
11/30/1941	0	166	0	231	166	0	231	166	0	0	166	0
12/31/1941	0	104	0	384	119	0	384	119	0	0	103	0
01/31/1942	0	77	0	383	112	0	365	112	0	0	76	0
02/28/1942	0	121	0	299	129	0	299	129	0	0	121	0
03/31/1942	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1942	0	0	0	414	152	0	414	152	0	72	152	0
05/31/1942	0	0	206	341	0	250	341	0	250	0	0	221
06/30/1942	132	273	0	400	273	0	400	273	0	0	273	0
07/31/1942	18	322	0	420	322	16	420	322	16	41	322	0
08/31/1942	16	335	0	417	335	0	417	335	0	20	335	0
09/30/1942	12	291	0	413	291	0	413	291	0	15	291	0
10/31/1942	6	247	0	382	247	0	382	247	0	8	247	0
11/30/1942	0	164	0	388	166	0	388	166	0	0	163	0
12/31/1942	0	116	0	341	119	0	341	119	0	0	116	0
01/31/1943	0	87	0	208	112	0	208	112	0	0	86	0
02/28/1943	0	129	0	332	129	0	332	129	0	0	129	0
03/31/1943	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1943	0	0	0	223	152	250	223	152	250	0	152	75
05/31/1943	0	0	206	277	0	250	277	0	250	0	0	223
06/30/1943	135	273	0	400	273	0	400	273	0	0	273	0
07/31/1943	18	322	0	420	322	16	420	322	16	41	322	0
08/31/1943	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1943	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1943	7	247	0	407	247	0	407	247	0	8	247	0
11/30/1943	2	166	0	228	166	0	228	166	0	3	166	0
12/31/1943	0	0	117	149	119	250	149	119	250	0	117	0
01/31/1944	0	0	46	0	0	239	0	0	239	0	0	48
02/29/1944	0	124	0	127	124	0	127	124	0	0	124	0
03/31/1944	12	147	0	0	0	0	0	0	0	0	0	0
04/30/1944	0	0	0	256	215	0	256	215	0	146	215	0
05/31/1944	11	0	250	210	0	250	210	0	250	49	0	250
06/30/1944	200	306	0	324	306	0	324	306	0	0	306	0
07/31/1944	70	86	250	420	0	250	420	0	250	70	62	250
08/31/1944	2	0	250	2	0	250	2	0	250	4	0	250
09/30/1944	0	0	108	0	0	250	0	0	250	0	0	114
10/31/1944	0	0	97	0	0	250	0	0	250	0	0	103
11/30/1944	0	0	110	0	0	250	0	0	250	0	0	115

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1944	0	0	39	0	0	250	0	0	250	0	0	42
01/31/1945	0	0	37	0	0	161	0	0	160	0	0	40
02/28/1945	0	109	0	81	110	0	79	110	0	0	113	0
03/31/1945	38	127	0	0	127	0	0	127	0	0	0	0
04/30/1945	0	0	184	279	184	250	282	184	250	0	184	146
05/31/1945	0	0	225	420	0	250	420	0	250	70	105	250
06/30/1945	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1945	70	211	250	420	0	250	420	0	250	70	211	250
08/31/1945	70	44	250	157	0	250	157	0	250	70	44	250
09/30/1945	0	0	236	0	0	250	0	0	250	0	0	198
10/31/1945	3	0	250	0	0	250	0	0	250	0	0	138
11/30/1945	0	0	188	0	0	250	0	0	250	0	0	66
12/31/1945	0	0	167	0	0	250	0	0	250	0	0	85
01/31/1946	200	143	0	420	143	149	420	143	147	200	143	0
02/28/1946	129	136	0	387	136	0	384	136	0	0	136	0
03/31/1946	38	127	0	0	0	0	0	0	0	0	0	0
04/30/1946	0	0	0	325	184	0	322	184	0	146	184	0
05/31/1946	0	0	225	391	0	250	389	0	250	70	105	250
06/30/1946	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1946	70	137	250	420	0	250	420	0	250	70	211	250
08/31/1946	70	3	250	73	0	250	73	0	250	70	3	250
09/30/1946	0	0	162	0	0	250	0	0	250	0	0	165
10/31/1946	0	0	116	0	0	250	0	0	250	0	0	120
11/30/1946	0	0	105	0	0	250	0	0	250	0	0	108
12/31/1946	0	0	65	0	0	250	0	0	250	0	0	47
01/31/1947	0	0	143	0	0	250	0	0	245	0	0	36
02/28/1947	0	136	0	130	81	0	130	81	0	0	87	0
03/31/1947	0	147	0	0	0	0	0	0	0	0	0	0
04/30/1947	0	0	0	177	139	0	178	139	0	0	148	0
05/31/1947	0	261	0	0	261	0	0	261	0	0	261	0
06/30/1947	200	306	0	400	306	0	400	306	0	0	306	0
07/31/1947	70	55	250	186	0	250	186	0	250	70	55	250
08/31/1947	0	0	103	0	0	250	0	0	250	0	0	114
09/30/1947	0	0	95	0	0	250	0	0	250	0	0	81
10/31/1947	6	0	250	6	0	250	6	0	250	0	0	75
11/30/1947	0	0	207	0	0	250	0	0	250	0	0	92
12/31/1947	0	0	182	0	0	250	0	0	250	0	0	148
01/31/1948	0	0	176	0	0	250	0	0	250	0	0	176
02/29/1948	0	167	0	0	167	95	0	167	95	0	167	0
03/31/1948	0	127	0	0	127	0	0	127	0	0	127	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1948	184	0	0	245	184	0	245	184	0	46	184	0
05/31/1948	0	225	0	134	225	250	134	225	250	0	225	200
06/30/1948	160	296	0	288	296	0	250	296	0	0	296	0
07/31/1948	0	281	250	400	281	250	400	281	250	0	281	250
08/31/1948	70	41	250	150	0	250	150	0	250	70	41	250
09/30/1948	44	0	250	0	0	250	0	0	250	2	0	250
10/31/1948	3	0	250	3	0	250	3	0	250	3	0	250
11/30/1948	0	0	188	0	0	250	0	0	250	0	0	188
12/31/1948	0	0	167	0	0	250	0	0	250	0	0	167
01/31/1949	0	0	143	0	0	250	0	0	250	0	0	143
02/28/1949	0	136	0	0	136	90	0	136	90	0	136	0
03/31/1949	0	110	0	0	0	0	0	0	0	0	0	0
04/30/1949	0	0	0	188	110	0	189	110	0	0	124	0
05/31/1949	0	261	0	245	261	0	246	261	0	0	261	0
06/30/1949	146	306	0	400	306	0	400	306	0	0	306	0
07/31/1949	70	143	250	420	0	250	420	0	250	70	143	250
08/31/1949	0	0	138	0	0	250	0	0	250	0	0	130
09/30/1949	0	0	116	0	0	250	0	0	250	0	0	205
10/31/1949	6	0	250	6	0	250	6	0	250	6	0	250
11/30/1949	0	0	207	0	0	250	0	0	250	0	0	207
12/31/1949	0	0	182	0	0	250	0	0	250	0	0	182
01/31/1950	0	0	176	0	0	250	0	0	250	0	0	176
02/28/1950	0	173	0	111	173	0	111	173	0	0	173	0
03/31/1950	38	127	0	0	127	0	0	127	0	0	127	0
04/30/1950	0	184	0	283	184	0	283	184	0	146	184	0
05/31/1950	0	225	0	401	225	0	401	225	0	200	225	0
06/30/1950	200	296	0	126	296	0	126	296	0	0	296	0
07/31/1950	70	211	250	420	0	250	420	0	250	70	211	250
08/31/1950	70	52	250	178	0	250	178	0	250	70	52	250
09/30/1950	11	0	250	0	0	250	0	0	250	0	0	153
10/31/1950	3	0	250	0	0	250	0	0	250	3	0	250
11/30/1950	0	0	188	0	0	250	0	0	250	0	0	188
12/31/1950	200	167	0	420	167	58	420	167	58	200	167	0
01/31/1951	200	143	0	420	143	250	420	143	250	200	143	0
02/28/1951	92	136	0	400	136	0	400	136	0	0	136	0
03/31/1951	4	115	0	0	0	0	0	0	0	0	0	0
04/30/1951	0	0	0	420	167	28	420	167	28	146	167	0
05/31/1951	0	0	204	420	0	250	420	0	250	70	84	250
06/30/1951	146	296	0	400	296	0	400	296	0	0	296	0
07/31/1951	70	26	250	420	0	250	420	0	250	70	206	250

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1951	70	33	250	420	0	250	420	0	250	70	217	250
09/30/1951	60	0	250	420	0	250	420	0	250	70	178	250
10/31/1951	5	255	0	394	255	0	394	255	0	200	255	0
11/30/1951	0	179	0	399	181	0	399	181	0	82	181	0
12/31/1951	0	157	0	367	165	0	367	165	0	0	155	0
01/31/1952	0	117	0	366	131	0	366	131	0	0	114	0
02/29/1952	0	118	0	314	118	0	314	118	0	0	74	0
03/31/1952	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1952	0	0	0	420	152	52	420	152	52	117	152	0
05/31/1952	0	0	206	370	0	250	370	0	250	0	0	223
06/30/1952	135	273	0	400	273	0	400	273	0	0	273	0
07/31/1952	18	322	0	420	322	250	420	322	250	41	322	0
08/31/1952	16	335	0	415	335	0	415	335	0	20	335	0
09/30/1952	12	291	0	411	291	0	411	291	0	15	291	0
10/31/1952	7	247	0	407	247	0	407	247	0	9	247	0
11/30/1952	0	166	0	238	166	0	155	166	0	0	166	0
12/31/1952	0	110	0	351	119	0	259	119	0	0	108	0
01/31/1953	0	110	0	391	112	0	345	112	0	0	110	0
02/28/1953	4	129	0	157	129	0	157	129	0	0	129	0
03/31/1953	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1953	0	0	0	220	152	0	222	152	0	83	152	0
05/31/1953	0	0	206	115	0	250	116	0	250	0	0	222
06/30/1953	137	273	0	230	273	0	230	273	0	0	273	0
07/31/1953	18	322	0	417	322	0	419	322	0	40	322	0
08/31/1953	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1953	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1953	7	247	0	306	247	0	307	247	0	9	247	0
11/30/1953	0	166	0	286	166	0	286	166	0	0	166	0
12/31/1953	2	119	0	255	119	0	255	119	0	2	119	0
01/31/1954	0	110	0	139	112	0	139	112	0	0	110	0
02/28/1954	0	129	0	97	129	0	97	129	0	0	129	0
03/31/1954	0	115	0	0	0	0	0	0	0	0	0	0
04/30/1954	0	0	0	211	167	0	212	167	0	78	167	0
05/31/1954	0	204	0	0	204	215	0	204	215	0	204	16
06/30/1954	146	296	0	394	296	0	394	296	0	0	296	0
07/31/1954	70	28	250	420	0	250	420	0	250	70	47	250
08/31/1954	70	33	250	420	0	250	420	0	250	70	37	250
09/30/1954	60	0	250	420	0	250	420	0	250	63	0	250
10/31/1954	7	255	0	358	255	0	358	255	0	9	255	0
11/30/1954	180	0	0	420	0	92	420	0	92	180	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1954	0	160	0	281	165	0	281	165	0	0	159	0
01/31/1955	0	127	0	141	131	0	141	131	0	0	126	0
02/28/1955	0	122	0	93	122	0	93	122	0	0	122	0
03/31/1955	0	147	0	0	0	0	0	0	0	0	0	0
04/30/1955	0	0	0	177	215	0	177	215	0	0	215	0
05/31/1955	0	261	0	0	261	119	0	261	119	0	261	0
06/30/1955	153	306	0	271	306	0	271	306	0	0	306	0
07/31/1955	70	86	250	420	0	250	420	0	250	70	116	250
08/31/1955	0	0	152	0	0	250	0	0	250	0	0	154
09/30/1955	0	0	103	0	0	250	0	0	250	0	0	105
10/31/1955	0	0	86	0	0	250	0	0	250	0	0	88
11/30/1955	0	0	79	0	0	250	0	0	250	0	0	82
12/31/1955	0	0	48	0	0	250	0	0	250	0	0	50
01/31/1956	0	0	87	0	0	250	0	0	250	0	0	88
02/29/1956	0	167	200	139	167	250	139	167	250	0	166	7
03/31/1956	38	114	0	0	67	0	0	64	0	0	0	0
04/30/1956	0	0	152	296	152	250	296	152	250	0	152	146
05/31/1956	0	0	206	420	0	250	420	0	250	70	86	250
06/30/1956	200	273	0	400	273	0	400	273	0	0	273	0
07/31/1956	200	322	0	420	322	180	420	322	180	200	322	0
08/31/1956	200	335	0	420	335	180	420	335	180	200	335	0
09/30/1956	70	66	250	420	0	250	420	0	250	70	171	250
10/31/1956	6	247	0	406	247	0	406	247	0	173	247	0
11/30/1956	3	166	0	236	166	0	236	166	0	4	166	0
12/31/1956	120	0	0	401	119	0	401	119	0	2	119	0
01/31/1957	0	0	51	0	0	250	0	0	250	0	0	50
02/28/1957	0	88	0	149	81	0	149	81	0	0	88	0
03/31/1957	0	115	0	0	0	0	0	0	0	0	0	0
04/30/1957	0	0	0	283	167	0	283	167	0	146	167	0
05/31/1957	0	0	204	197	0	250	196	0	250	0	0	244
06/30/1957	200	296	0	125	296	0	125	296	0	0	296	0
07/31/1957	70	67	250	420	0	250	420	0	250	70	47	250
08/31/1957	70	33	250	420	0	250	420	0	250	70	37	250
09/30/1957	59	0	250	420	0	250	420	0	250	62	0	250
10/31/1957	10	0	250	344	0	250	344	0	250	11	0	250
11/30/1957	0	0	183	16	0	250	16	0	250	0	0	184
12/31/1957	0	152	0	0	148	154	0	148	154	0	151	0
01/31/1958	3	131	0	141	131	0	141	131	0	0	131	0
02/28/1958	0	89	0	266	122	0	266	122	0	0	87	0
03/31/1958	0	98	0	0	0	0	0	0	0	0	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1958	0	0	0	401	152	0	401	152	0	1	152	0
05/31/1958	0	0	206	369	0	250	369	0	250	0	0	221
06/30/1958	79	273	0	400	273	0	400	273	0	0	273	0
07/31/1958	18	322	0	420	322	16	420	322	16	41	322	0
08/31/1958	16	335	0	417	335	0	417	335	0	19	335	0
09/30/1958	12	291	0	413	291	0	413	291	0	15	291	0
10/31/1958	7	247	0	408	247	0	408	247	0	9	247	0
11/30/1958	3	166	0	242	166	0	242	166	0	4	166	0
12/31/1958	0	0	119	150	119	250	150	119	250	0	119	0
01/31/1959	0	0	45	0	0	250	0	0	250	0	0	42
02/28/1959	0	129	0	158	129	0	158	129	0	0	129	0
03/31/1959	11	127	0	0	0	0	0	0	0	0	0	0
04/30/1959	0	0	0	261	184	0	261	184	0	146	184	0
05/31/1959	0	225	0	197	225	0	197	225	0	26	225	0
06/30/1959	200	296	0	241	296	0	241	296	0	0	296	0
07/31/1959	70	50	250	420	0	250	420	0	250	70	52	250
08/31/1959	70	30	250	136	0	250	136	0	250	70	34	250
09/30/1959	0	0	172	0	0	250	0	0	250	0	0	166
10/31/1959	0	0	111	0	0	250	0	0	250	0	0	106
11/30/1959	0	0	91	0	0	250	0	0	250	0	0	88
12/31/1959	0	0	58	0	0	250	0	0	250	0	0	55
01/31/1960	0	0	132	0	0	157	0	0	158	0	0	30
02/29/1960	0	126	0	76	40	0	76	40	0	0	46	0
03/31/1960	0	147	0	0	0	0	0	0	0	0	0	0
04/30/1960	0	0	0	121	215	0	121	215	0	0	215	0
05/31/1960	0	261	0	178	261	0	178	261	0	0	261	0
06/30/1960	200	306	0	246	306	0	246	306	0	0	306	0
07/31/1960	70	13	250	89	0	250	89	0	250	70	13	250
08/31/1960	0	0	112	0	0	250	0	0	250	0	0	110
09/30/1960	0	0	129	0	0	250	0	0	250	0	0	73
10/31/1960	6	0	250	6	0	250	6	0	250	0	0	68
11/30/1960	0	0	207	0	0	250	0	0	250	0	0	92
12/31/1960	0	0	182	0	0	250	0	0	250	0	0	23
01/31/1961	0	176	0	134	176	0	134	176	0	0	66	0
02/28/1961	0	173	0	88	173	0	88	173	0	0	173	0
03/31/1961	38	147	0	0	147	0	0	147	0	0	147	0
04/30/1961	0	132	0	292	215	0	292	215	0	146	215	0
05/31/1961	0	261	0	234	261	0	234	261	0	6	261	0
06/30/1961	200	306	0	400	306	0	400	306	0	0	306	0
07/31/1961	70	36	250	139	0	250	139	0	250	70	36	250

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1961	0	0	166	0	0	250	0	0	250	0	0	169
09/30/1961	51	0	250	51	0	250	51	0	250	51	0	250
10/31/1961	6	0	250	6	0	250	6	0	250	6	0	250
11/30/1961	0	0	207	0	0	250	0	0	250	0	0	207
12/31/1961	0	0	182	0	0	250	0	0	250	0	0	182
01/31/1962	0	0	176	0	0	250	0	0	250	0	0	176
02/28/1962	0	168	0	0	168	90	0	168	90	0	168	0
03/31/1962	0	127	0	0	127	0	0	127	0	0	127	0
04/30/1962	184	0	0	276	184	0	276	184	0	146	184	0
05/31/1962	0	0	225	190	175	250	190	175	250	0	175	250
06/30/1962	200	296	0	132	296	0	132	296	0	0	296	0
07/31/1962	70	211	250	420	0	250	420	0	250	70	211	250
08/31/1962	70	16	250	97	0	250	97	0	250	70	16	250
09/30/1962	44	0	250	0	0	250	0	0	250	0	0	185
10/31/1962	3	0	250	3	0	250	3	0	250	3	0	250
11/30/1962	200	188	0	420	188	250	420	188	250	200	188	0
12/31/1962	70	23	250	138	0	250	138	0	250	70	23	250
01/31/1963	146	143	0	420	143	98	420	143	98	200	143	0
02/28/1963	0	127	0	227	136	0	227	136	0	0	136	0
03/31/1963	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1963	0	0	0	301	152	0	301	152	0	146	152	0
05/31/1963	0	0	206	276	0	250	278	0	250	70	86	250
06/30/1963	129	273	0	332	273	0	385	273	0	0	273	0
07/31/1963	18	322	0	420	322	15	420	322	16	200	322	0
08/31/1963	70	30	250	420	0	250	420	0	250	70	215	250
09/30/1963	12	291	0	412	291	0	412	291	0	200	291	0
10/31/1963	5	247	0	344	247	0	344	247	0	94	247	0
11/30/1963	0	163	0	420	166	24	397	166	0	0	163	0
12/31/1963	1	119	0	171	119	0	171	119	0	2	119	0
01/31/1964	0	109	0	158	112	0	158	112	0	0	108	0
02/29/1964	4	124	0	214	124	0	214	124	0	5	124	0
03/31/1964	0	147	0	0	0	0	0	0	0	0	0	0
04/30/1964	0	0	0	92	215	0	92	215	0	0	215	0
05/31/1964	0	261	0	158	261	0	158	261	0	0	261	0
06/30/1964	151	306	0	313	306	0	313	306	0	0	306	0
07/31/1964	70	89	250	420	0	250	420	0	250	70	108	250
08/31/1964	0	0	124	0	0	250	0	0	250	0	0	142
09/30/1964	0	0	75	0	0	250	0	0	250	0	0	90
10/31/1964	0	0	65	0	0	250	0	0	250	0	0	80
11/30/1964	0	0	72	0	0	250	0	0	250	0	0	86

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1964	200	182	0	420	182	14	420	182	14	180	182	0
01/31/1965	200	176	0	420	176	64	420	176	64	200	176	0
02/28/1965	164	173	0	259	173	0	259	173	0	0	173	0
03/31/1965	38	114	0	0	0	0	0	0	0	0	0	0
04/30/1965	0	0	0	420	152	102	420	152	102	146	152	0
05/31/1965	0	0	206	420	0	250	420	0	250	70	86	250
06/30/1965	200	273	0	400	273	0	400	273	0	0	273	0
07/31/1965	124	322	0	420	322	180	420	322	180	189	322	0
08/31/1965	70	30	250	420	0	250	420	0	250	70	33	250
09/30/1965	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1965	7	247	0	408	247	0	408	247	0	9	247	0
11/30/1965	0	162	0	396	166	0	396	166	0	0	161	0
12/31/1965	0	113	0	394	119	0	394	119	0	0	112	0
01/31/1966	0	111	0	203	112	0	203	112	0	0	110	0
02/28/1966	0	129	0	301	129	0	301	129	0	0	129	0
03/31/1966	0	127	0	0	0	0	0	0	0	0	0	0
04/30/1966	0	0	0	219	184	0	219	184	0	98	184	0
05/31/1966	0	225	0	0	225	131	0	225	131	0	225	0
06/30/1966	154	296	0	375	296	0	374	296	0	0	296	0
07/31/1966	70	49	250	420	0	250	420	0	250	70	68	250
08/31/1966	70	2	250	73	0	250	73	0	250	70	2	250
09/30/1966	0	0	122	0	0	250	0	0	250	0	0	124
10/31/1966	0	0	74	0	0	250	0	0	250	0	0	76
11/30/1966	0	0	82	0	0	250	0	0	250	0	0	74
12/31/1966	0	164	0	22	92	250	22	91	250	0	103	0
01/31/1967	0	143	0	144	143	0	144	143	0	0	143	0
02/28/1967	164	136	0	392	136	0	392	136	0	0	136	0
03/31/1967	38	114	0	0	0	0	0	0	0	0	0	0
04/30/1967	0	0	0	420	152	126	420	152	126	146	152	0
05/31/1967	0	0	206	420	0	250	420	0	250	70	86	250
06/30/1967	200	273	0	400	273	0	400	273	0	0	273	0
07/31/1967	198	322	0	420	322	250	420	322	250	200	322	0
08/31/1967	16	335	0	420	335	40	420	335	43	105	335	0
09/30/1967	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1967	7	247	0	407	247	0	407	247	0	9	247	0
11/30/1967	0	166	0	239	166	0	239	166	0	0	166	0
12/31/1967	0	0	119	101	119	250	9	119	250	0	119	0
01/31/1968	0	0	43	0	0	250	0	0	250	0	0	46
02/29/1968	0	124	0	152	124	0	152	124	0	0	124	0
03/31/1968	15	127	0	0	0	0	0	0	0	0	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1968	0	0	0	248	184	0	248	184	0	146	184	0
05/31/1968	0	0	225	143	0	250	144	0	250	0	0	249
06/30/1968	200	296	0	232	296	0	232	296	0	0	296	0
07/31/1968	70	49	250	420	0	250	420	0	250	70	52	250
08/31/1968	70	9	250	83	0	250	83	0	250	70	9	250
09/30/1968	0	0	144	0	0	250	0	0	250	0	0	151
10/31/1968	0	0	86	0	0	250	0	0	250	0	0	92
11/30/1968	0	0	94	0	0	250	0	0	250	0	0	99
12/31/1968	0	0	114	0	0	250	0	0	250	0	0	79
01/31/1969	0	116	0	314	100	0	314	100	0	0	101	0
02/28/1969	104	0	0	384	0	0	420	0	0	88	0	0
03/31/1969	38	114	0	0	0	0	0	0	0	0	0	0
04/30/1969	58	0	0	420	152	250	420	152	250	146	152	0
05/31/1969	0	0	206	420	156	250	420	156	250	70	86	250
06/30/1969	70	153	250	150	273	250	150	273	250	0	273	0
07/31/1969	200	322	0	420	322	180	420	322	180	200	322	0
08/31/1969	155	335	0	420	335	99	420	335	100	139	335	0
09/30/1969	12	291	0	411	291	0	411	291	0	15	291	0
10/31/1969	5	247	0	404	247	0	404	247	0	6	247	0
11/30/1969	0	166	0	239	166	0	239	166	0	2	166	0
12/31/1969	0	115	0	351	119	0	259	119	0	0	112	0
01/31/1970	0	91	0	420	112	250	420	112	250	0	89	0
02/28/1970	0	129	0	339	129	0	339	129	0	0	129	0
03/31/1970	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1970	0	0	0	55	152	250	56	152	250	0	152	82
05/31/1970	0	206	0	16	206	250	17	206	250	0	206	17
06/30/1970	141	273	0	332	273	0	230	273	0	0	273	0
07/31/1970	0	90	250	400	101	250	400	103	250	0	113	250
08/31/1970	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1970	0	53	250	400	51	250	400	52	250	0	55	250
10/31/1970	6	247	0	385	247	0	386	247	0	8	247	0
11/30/1970	0	159	0	347	166	0	155	166	0	0	157	0
12/31/1970	0	106	0	187	119	0	189	119	0	0	105	0
01/31/1971	0	112	0	363	112	0	363	112	0	0	112	0
02/28/1971	4	129	0	281	129	0	281	129	0	0	129	0
03/31/1971	4	114	0	0	0	0	0	0	0	0	0	0
04/30/1971	0	0	0	210	152	0	214	152	0	84	152	0
05/31/1971	0	0	206	133	0	250	135	0	250	0	0	220
06/30/1971	133	273	0	326	273	0	326	273	0	0	273	0
07/31/1971	18	322	0	400	322	0	405	322	0	41	322	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1971	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1971	53	0	250	420	0	250	420	0	250	55	0	250
10/31/1971	7	247	0	299	247	0	300	247	0	9	247	0
11/30/1971	2	166	0	143	166	0	143	166	0	2	166	0
12/31/1971	113	0	0	420	119	250	420	119	250	0	112	0
01/31/1972	0	0	89	0	0	240	0	0	239	0	0	90
02/29/1972	0	124	0	238	124	0	238	124	0	0	124	0
03/31/1972	0	127	0	0	0	0	0	0	0	0	0	0
04/30/1972	0	0	0	233	184	0	238	184	0	123	184	0
05/31/1972	0	225	0	180	225	0	180	225	0	0	225	0
06/30/1972	179	296	0	297	296	0	372	296	0	0	296	0
07/31/1972	70	48	250	420	0	250	420	0	250	70	68	250
08/31/1972	42	0	250	43	0	250	43	0	250	42	0	250
09/30/1972	0	0	114	0	0	250	0	0	250	0	0	115
10/31/1972	0	0	90	0	0	250	0	0	250	0	0	92
11/30/1972	0	0	97	0	0	250	0	0	250	0	0	55
12/31/1972	0	166	0	21	89	250	22	87	250	0	85	0
01/31/1973	0	143	0	149	143	0	149	143	0	0	143	0
02/28/1973	0	136	0	287	136	0	287	136	0	0	136	0
03/31/1973	38	115	0	0	0	0	0	0	0	0	0	0
04/30/1973	27	0	0	420	167	3	420	167	3	146	167	0
05/31/1973	0	0	204	407	0	250	407	0	250	70	84	250
06/30/1973	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1973	200	326	0	420	326	180	420	326	180	200	326	0
08/31/1973	70	172	250	420	0	250	420	0	250	70	182	250
09/30/1973	60	0	250	420	0	250	420	0	250	62	0	250
10/31/1973	4	255	0	382	255	0	382	255	0	5	255	0
11/30/1973	0	172	0	420	181	250	420	181	250	0	171	0
12/31/1973	0	156	0	174	165	0	174	165	0	0	155	0
01/31/1974	0	129	0	363	131	0	345	131	0	0	128	0
02/28/1974	3	122	0	320	122	0	320	122	0	0	122	0
03/31/1974	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1974	0	0	0	222	152	250	224	152	250	0	152	77
05/31/1974	0	0	206	231	0	250	231	0	250	0	0	223
06/30/1974	134	273	0	332	273	0	400	273	0	0	273	0
07/31/1974	17	322	0	420	322	14	420	322	14	40	322	0
08/31/1974	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1974	12	291	0	413	291	0	413	291	0	15	291	0
10/31/1974	6	247	0	395	247	0	395	247	0	7	247	0
11/30/1974	2	166	0	219	166	0	219	166	0	3	166	0

**TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD**

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1974	0	116	0	392	119	0	397	119	0	0	115	0
01/31/1975	0	0	79	0	0	250	0	0	250	0	0	78
02/28/1975	0	129	0	297	129	0	298	129	0	0	129	0
03/31/1975	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1975	0	0	0	213	152	250	215	152	250	0	152	99
05/31/1975	0	0	206	201	0	250	202	0	250	0	0	223
06/30/1975	160	273	0	400	273	0	400	273	0	0	273	0
07/31/1975	17	322	0	420	322	16	420	322	16	41	322	0
08/31/1975	0	100	250	400	101	250	400	101	250	0	103	250
09/30/1975	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1975	0	247	0	364	247	0	364	247	0	0	247	0
11/30/1975	6	166	0	207	166	0	207	166	0	8	166	0
12/31/1975	1	119	0	341	119	0	341	119	0	2	119	0
01/31/1976	0	0	113	44	0	250	44	0	250	0	0	114
02/29/1976	0	0	74	0	0	199	0	0	197	0	0	72
03/31/1976	0	171	0	0	0	0	0	0	0	0	0	0
04/30/1976	0	0	0	152	233	0	152	233	0	0	233	0
05/31/1976	0	284	0	0	284	217	0	284	217	0	284	0
06/30/1976	0	0	202	0	0	250	0	0	250	0	0	202
07/31/1976	0	0	127	0	0	250	0	0	250	0	0	128
08/31/1976	0	0	98	0	0	250	0	0	250	0	0	100
09/30/1976	0	0	248	0	0	250	0	0	250	0	0	87
10/31/1976	5	0	250	0	0	250	0	0	250	0	0	76
11/30/1976	0	0	210	0	0	250	0	0	250	0	0	69
12/31/1976	0	0	192	0	0	250	0	0	250	0	0	97
01/31/1977	0	0	187	0	0	250	0	0	250	0	0	31
02/28/1977	0	206	0	0	206	26	0	206	26	0	40	0
03/31/1977	0	129	0	0	129	0	0	129	0	0	67	0
04/30/1977	0	233	0	0	233	0	0	233	0	0	233	0
05/31/1977	0	284	0	0	284	0	0	284	0	0	232	0
06/30/1977	70	6	250	76	0	250	76	0	250	70	6	250
07/31/1977	70	21	250	91	0	250	91	0	250	70	21	250
08/31/1977	70	11	250	81	0	250	81	0	250	70	11	250
09/30/1977	52	0	250	52	0	250	52	0	250	52	0	250
10/31/1977	5	0	250	5	0	250	5	0	250	5	0	250
11/30/1977	0	0	210	0	0	250	0	0	250	0	0	210
12/31/1977	0	0	192	0	0	250	0	0	250	0	0	192
01/31/1978	0	187	0	77	187	0	77	187	0	0	187	0
02/28/1978	0	206	0	63	206	0	63	206	0	0	206	0
03/31/1978	0	115	0	0	115	0	0	115	0	0	115	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1978	167	0	0	420	167	126	420	167	126	146	167	0
05/31/1978	0	0	204	420	0	250	420	0	250	70	84	250
06/30/1978	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1978	200	326	0	420	326	180	420	326	180	200	326	0
08/31/1978	70	217	250	420	0	250	420	0	250	70	217	250
09/30/1978	70	178	250	420	0	250	420	0	250	70	178	250
10/31/1978	166	255	0	420	255	180	420	255	180	200	255	0
11/30/1978	0	180	0	420	181	120	420	181	120	200	181	0
12/31/1978	0	0	165	151	165	250	151	165	250	0	165	200
01/31/1979	0	77	0	0	79	210	0	79	210	0	41	0
02/28/1979	38	122	0	147	122	0	147	122	0	0	0	0
03/31/1979	0	127	0	0	0	0	0	0	0	0	0	0
04/30/1979	0	0	0	259	184	250	259	184	250	0	184	146
05/31/1979	0	0	225	390	0	250	390	0	250	70	105	250
06/30/1979	146	296	0	400	296	0	400	296	0	0	296	0
07/31/1979	70	52	250	420	0	250	420	0	250	70	211	250
08/31/1979	69	0	250	69	0	250	69	0	250	70	0	250
09/30/1979	0	0	179	0	0	250	0	0	250	0	0	189
10/31/1979	0	0	117	0	0	250	0	0	250	0	0	127
11/30/1979	0	0	120	0	0	250	0	0	250	0	0	127
12/31/1979	70	47	250	420	51	250	420	51	250	70	47	250
01/31/1980	0	143	0	154	143	0	154	143	0	0	143	0
02/29/1980	0	0	228	183	0	250	183	0	250	0	0	138
03/31/1980	0	0	125	0	0	0	0	0	0	0	0	0
04/30/1980	0	0	0	293	167	250	296	167	250	0	167	146
05/31/1980	0	0	204	368	0	250	368	0	250	70	70	250
06/30/1980	146	296	0	400	296	0	400	296	0	0	296	0
07/31/1980	20	326	0	420	326	15	420	326	15	41	326	0
08/31/1980	16	337	0	417	337	0	417	337	0	20	337	0
09/30/1980	60	0	250	420	0	250	420	0	250	63	0	250
10/31/1980	7	255	0	408	255	0	408	255	0	9	255	0
11/30/1980	3	181	0	404	181	0	404	181	0	4	181	0
12/31/1980	0	0	163	142	0	250	142	0	250	0	38	125
01/31/1981	0	0	37	0	0	239	0	0	239	0	0	43
02/28/1981	93	122	0	288	122	0	288	122	0	0	122	0
03/31/1981	0	147	0	0	0	0	0	0	0	0	0	0
04/30/1981	0	0	0	268	215	0	268	215	0	146	215	0
05/31/1981	0	261	0	249	261	0	248	261	0	64	261	0
06/30/1981	153	306	0	371	306	0	371	306	0	0	306	0
07/31/1981	70	47	250	167	0	250	167	0	250	70	47	250

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1981	0	0	114	0	0	250	0	0	250	0	0	129
09/30/1981	0	0	73	0	0	250	0	0	250	0	0	86
10/31/1981	0	0	133	0	0	250	0	0	250	0	0	148
11/30/1981	0	0	109	0	0	250	0	0	250	0	0	121
12/31/1981	200	182	0	420	182	51	420	182	51	200	182	0
01/31/1982	200	176	0	420	176	31	420	176	31	200	176	0
02/28/1982	129	173	0	295	173	0	295	173	0	0	173	0
03/31/1982	38	114	0	0	0	0	0	0	0	0	0	0
04/30/1982	0	0	0	420	152	250	420	152	250	146	152	0
05/31/1982	0	0	206	420	0	250	420	0	250	70	11	250
06/30/1982	200	273	0	361	273	0	230	273	0	0	273	0
07/31/1982	55	322	0	420	322	12	420	322	12	41	322	0
08/31/1982	16	335	0	415	335	0	416	335	0	20	335	0
09/30/1982	9	291	0	420	291	225	420	291	4	11	291	0
10/31/1982	0	247	0	420	247	250	420	247	250	0	247	0
11/30/1982	0	162	0	420	166	250	420	166	250	0	161	0
12/31/1982	0	0	104	101	119	250	9	119	250	0	103	0
01/31/1983	74	0	0	420	112	250	420	112	250	0	72	0
02/28/1983	93	0	0	400	98	0	400	129	0	0	91	0
03/31/1983	63	0	0	0	0	0	0	0	0	0	0	0
04/30/1983	0	0	0	420	152	250	420	152	250	0	152	10
05/31/1983	0	0	206	165	206	250	420	206	250	0	0	222
06/30/1983	0	273	125	150	273	250	150	273	250	0	273	0
07/31/1983	250	20	70	420	0	250	420	0	250	250	43	70
08/31/1983	0	335	16	176	335	250	185	335	250	0	335	19
09/30/1983	11	291	0	418	291	0	418	291	0	13	291	0
10/31/1983	6	247	0	411	247	0	411	247	0	8	247	0
11/30/1983	0	0	159	305	0	250	305	0	250	0	0	158
12/31/1983	0	0	110	101	105	250	9	105	250	0	108	0
01/31/1984	0	112	1	202	112	250	293	112	250	0	112	2
02/29/1984	0	124	0	150	124	250	150	124	250	0	124	0
03/31/1984	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1984	0	0	0	420	152	34	420	152	34	83	152	0
05/31/1984	0	0	206	232	0	250	232	0	250	0	0	223
06/30/1984	142	273	0	332	273	0	230	273	0	0	273	0
07/31/1984	0	90	250	400	97	250	400	97	250	0	113	250
08/31/1984	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1984	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1984	4	247	0	388	247	0	389	247	0	5	247	0
11/30/1984	0	159	0	420	166	250	420	166	250	0	158	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1984	0	118	0	326	117	0	259	119	0	0	117	0
01/31/1985	0	112	0	227	112	0	227	112	0	0	112	0
02/28/1985	0	129	0	130	129	0	130	129	0	0	129	0
03/31/1985	3	147	0	0	0	0	0	0	0	0	0	0
04/30/1985	0	0	0	364	215	0	365	215	0	53	215	0
05/31/1985	0	261	0	0	261	0	0	261	0	0	261	0
06/30/1985	146	306	0	298	306	0	230	306	0	0	306	0
07/31/1985	70	53	250	184	0	250	184	0	250	70	53	250
08/31/1985	0	0	127	0	0	250	0	0	250	0	0	131
09/30/1985	0	0	89	0	0	250	0	0	245	0	0	93
10/31/1985	0	0	92	0	0	250	0	0	202	0	0	96
11/30/1985	0	0	107	0	0	250	0	0	250	0	0	110
12/31/1985	0	0	52	0	0	250	0	0	250	0	0	55
01/31/1986	0	124	0	0	75	143	0	77	143	0	60	0
02/28/1986	0	173	0	96	173	0	96	173	0	0	173	0
03/31/1986	38	114	0	0	53	0	0	52	0	0	0	0
04/30/1986	0	0	152	420	152	250	404	152	250	0	152	146
05/31/1986	0	0	206	420	0	250	420	0	250	70	86	250
06/30/1986	200	273	0	332	273	0	294	273	0	0	273	0
07/31/1986	200	322	0	420	322	180	420	322	180	200	322	0
08/31/1986	70	215	250	420	0	250	420	0	250	70	215	250
09/30/1986	200	291	0	420	291	61	420	291	84	200	291	0
10/31/1986	87	247	0	406	247	0	408	247	0	200	247	0
11/30/1986	3	166	0	190	166	0	191	166	0	14	166	0
12/31/1986	0	0	119	76	119	250	150	119	250	0	119	0
01/31/1987	0	0	40	0	0	208	0	0	209	0	0	41
02/28/1987	0	102	0	109	106	0	109	107	0	0	103	0
03/31/1987	0	147	0	0	0	0	0	0	0	0	0	0
04/30/1987	0	0	0	73	215	0	73	215	0	0	215	0
05/31/1987	0	261	0	116	261	0	116	261	0	0	261	0
06/30/1987	200	306	0	263	306	0	263	306	0	0	306	0
07/31/1987	70	111	250	420	0	250	420	0	250	70	111	250
08/31/1987	0	0	190	0	0	250	0	0	250	0	0	199
09/30/1987	0	0	128	0	0	250	0	0	250	0	0	137
10/31/1987	0	0	90	0	0	250	0	0	250	0	0	98
11/30/1987	0	0	71	0	0	250	0	0	250	0	0	77
12/31/1987	0	0	45	0	0	250	0	0	250	0	0	50
01/31/1988	0	121	0	116	129	0	116	130	0	0	125	0
02/29/1988	0	167	0	23	167	0	23	167	0	0	167	0
03/31/1988	0	181	0	0	0	0	0	0	0	0	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1988	0	116	0	46	201	0	46	202	0	0	198	0
05/31/1988	0	284	0	73	258	0	73	258	0	0	255	0
06/30/1988	0	326	0	0	326	163	0	326	163	0	326	0
07/31/1988	70	57	250	196	0	250	196	0	250	70	57	250
08/31/1988	70	11	250	0	0	214	0	0	214	0	0	120
09/30/1988	52	0	250	0	0	250	0	0	250	0	0	83
10/31/1988	5	0	250	0	0	250	0	0	250	0	0	63
11/30/1988	0	0	210	0	0	250	0	0	250	0	0	156
12/31/1988	0	0	192	0	0	250	0	0	250	0	0	157
01/31/1989	0	0	187	0	0	250	0	0	250	0	0	187
02/28/1989	0	206	0	0	206	52	0	206	52	0	206	0
03/31/1989	0	147	0	0	147	0	0	147	0	0	147	0
04/30/1989	0	215	0	177	215	0	177	215	0	0	215	0
05/31/1989	0	261	0	238	261	0	238	261	0	0	261	0
06/30/1989	146	306	0	400	306	0	400	306	0	0	306	0
07/31/1989	70	33	250	131	0	250	131	0	250	70	33	250
08/31/1989	0	0	188	35	0	250	35	0	250	63	0	250
09/30/1989	51	0	250	51	0	250	51	0	250	51	0	250
10/31/1989	6	0	250	6	0	250	6	0	250	6	0	250
11/30/1989	0	0	207	0	0	250	0	0	250	0	0	207
12/31/1989	0	0	182	0	0	250	0	0	250	0	0	182
01/31/1990	0	0	176	0	0	250	0	0	250	0	0	176
02/28/1990	0	173	0	77	173	0	77	173	0	0	173	0
03/31/1990	0	181	0	0	181	0	0	181	0	0	181	0
04/30/1990	0	206	0	0	233	0	0	233	0	0	233	0
05/31/1990	0	284	0	89	284	0	89	284	0	0	284	0
06/30/1990	70	6	250	57	0	250	57	0	250	57	0	250
07/31/1990	70	14	250	91	0	250	91	0	250	70	21	250
08/31/1990	70	11	250	81	0	250	81	0	250	70	11	250
09/30/1990	52	0	250	52	0	250	52	0	250	52	0	250
10/31/1990	5	0	250	5	0	250	5	0	250	5	0	250
11/30/1990	0	0	210	0	0	250	0	0	250	0	0	210
12/31/1990	0	0	192	0	0	250	0	0	250	0	0	192
01/31/1991	0	0	187	0	0	187	0	0	187	0	0	187
02/28/1991	0	206	0	0	206	48	0	206	48	0	206	0
03/31/1991	0	129	0	0	129	0	0	129	0	0	129	0
04/30/1991	0	233	0	48	233	0	48	233	0	0	233	0
05/31/1991	0	284	0	77	284	0	77	284	0	0	284	0
06/30/1991	70	6	250	76	0	250	76	0	250	70	6	250
07/31/1991	70	21	250	91	0	250	91	0	250	70	21	250

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/1991	70	11	250	81	0	250	81	0	250	70	11	250
09/30/1991	52	0	250	52	0	250	52	0	250	52	0	250
10/31/1991	5	0	250	5	0	250	5	0	250	5	0	250
11/30/1991	0	0	210	0	0	250	0	0	250	0	0	210
12/31/1991	0	0	192	0	0	250	0	0	250	0	0	192
01/31/1992	0	0	187	0	0	250	0	0	250	0	0	187
02/29/1992	0	0	199	0	0	250	0	0	250	0	0	199
03/31/1992	0	181	0	0	181	0	0	181	0	0	181	0
04/30/1992	0	233	0	46	233	0	46	233	0	0	233	0
05/31/1992	0	284	0	117	284	0	117	284	0	13	284	0
06/30/1992	0	276	250	0	326	91	0	326	91	0	326	0
07/31/1992	70	168	250	420	0	250	420	0	250	70	168	250
08/31/1992	0	0	194	0	0	250	0	0	250	0	0	246
09/30/1992	0	0	196	52	0	250	51	0	250	52	0	250
10/31/1992	5	0	250	5	0	250	5	0	250	5	0	250
11/30/1992	0	0	210	0	0	250	0	0	250	0	0	210
12/31/1992	0	0	192	0	0	250	0	0	250	0	0	192
01/31/1993	0	172	0	0	173	113	0	172	113	0	181	0
02/28/1993	0	206	0	272	206	0	272	206	0	0	206	0
03/31/1993	38	115	0	0	115	0	0	115	0	0	115	0
04/30/1993	0	167	0	197	167	0	197	167	0	0	167	0
05/31/1993	0	0	204	18	31	250	18	31	250	0	31	250
06/30/1993	200	296	0	400	296	0	400	296	0	0	296	0
07/31/1993	200	326	0	420	326	180	420	326	180	200	326	0
08/31/1993	70	217	250	420	0	250	420	0	250	70	217	250
09/30/1993	70	178	250	420	0	250	420	0	250	70	178	250
10/31/1993	70	255	0	420	255	160	420	255	160	200	255	0
11/30/1993	0	181	0	420	181	176	420	181	176	200	181	0
12/31/1993	0	0	163	188	0	250	188	0	250	70	25	250
01/31/1994	0	0	34	0	0	211	0	0	211	0	0	33
02/28/1994	0	88	0	127	83	0	127	83	0	0	87	0
03/31/1994	38	181	0	0	0	0	0	0	0	0	0	0
04/30/1994	0	0	0	111	233	0	111	233	0	0	233	0
05/31/1994	0	284	0	164	284	0	164	284	0	0	284	0
06/30/1994	200	326	0	325	326	0	325	326	0	0	326	0
07/31/1994	0	0	120	0	0	250	0	0	250	0	0	128
08/31/1994	0	0	60	0	0	250	0	0	250	0	0	66
09/30/1994	0	0	85	0	0	250	0	0	250	0	0	93
10/31/1994	0	0	187	0	0	203	0	0	202	0	0	70
11/30/1994	0	0	208	0	0	250	0	0	250	0	0	144

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
12/31/1994	0	0	191	0	0	250	0	0	250	0	0	191
01/31/1995	0	135	0	0	135	144	0	135	144	0	135	0
02/28/1995	0	206	0	295	206	0	295	206	0	0	206	0
03/31/1995	0	0	204	0	58	56	0	58	56	0	58	56
04/30/1995	0	0	152	296	152	250	296	152	250	0	152	146
05/31/1995	206	0	0	420	0	250	420	0	250	250	86	70
06/30/1995	146	273	0	339	273	0	306	273	0	0	273	0
07/31/1995	0	322	200	420	322	250	420	322	250	0	322	200
08/31/1995	200	335	0	420	335	250	420	335	250	200	335	0
09/30/1995	70	171	250	420	0	250	420	0	250	70	171	250
10/31/1995	98	247	0	420	247	180	420	247	180	200	247	0
11/30/1995	3	166	0	355	166	0	357	166	0	200	166	0
12/31/1995	0	110	0	351	119	0	259	119	0	200	119	0
01/31/1996	0	94	0	391	112	0	345	112	0	0	35	0
02/29/1996	0	86	0	246	4	0	246	1	0	0	0	0
03/31/1996	0	111	0	0	0	0	0	0	0	0	0	0
04/30/1996	0	0	0	290	152	250	295	152	250	0	152	146
05/31/1996	0	0	206	365	0	250	366	0	250	70	86	250
06/30/1996	131	273	0	332	273	0	230	273	0	0	273	0
07/31/1996	18	322	0	420	322	12	420	322	15	200	322	0
08/31/1996	70	30	250	420	0	250	420	0	250	70	117	250
09/30/1996	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1996	6	247	0	399	247	0	400	247	0	7	247	0
11/30/1996	0	163	0	347	166	0	374	166	0	0	163	0
12/31/1996	0	100	0	351	119	0	380	119	0	0	98	0
01/31/1997	98	0	0	420	112	250	420	112	250	0	95	0
02/28/1997	0	0	132	97	129	250	146	129	250	0	129	0
03/31/1997	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1997	0	0	0	67	152	250	68	152	250	0	152	87
05/31/1997	0	0	206	276	0	250	278	0	250	0	0	222
06/30/1997	141	273	0	332	273	0	230	273	0	0	273	0
07/31/1997	0	322	18	181	322	250	184	322	250	0	322	41
08/31/1997	70	30	250	420	0	250	420	0	250	70	33	250
09/30/1997	53	0	250	420	0	250	420	0	250	56	0	250
10/31/1997	6	247	0	405	247	0	406	247	0	7	247	0
11/30/1997	0	161	0	347	166	0	335	166	0	0	160	0
12/31/1997	0	117	0	351	119	0	398	119	0	0	116	0
01/31/1998	0	59	0	192	112	0	192	112	0	0	56	0
02/28/1998	0	0	55	0	0	250	0	0	250	0	0	60
03/31/1998	0	114	2	0	0	0	0	0	0	0	0	0

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
04/30/1998	0	0	0	263	152	250	268	152	250	0	152	119
05/31/1998	0	0	206	364	0	250	364	0	250	0	0	216
06/30/1998	179	273	0	400	273	0	400	273	0	0	273	0
07/31/1998	0	322	18	420	322	250	420	322	250	0	322	41
08/31/1998	16	335	0	420	335	250	420	335	250	20	335	0
09/30/1998	12	291	0	420	291	250	420	291	250	15	291	0
10/31/1998	7	247	0	406	247	0	406	247	0	9	247	0
11/30/1998	0	166	0	420	166	250	420	166	250	0	166	0
12/31/1998	0	110	0	351	119	0	259	119	0	0	108	0
01/31/1999	0	110	0	391	112	0	345	112	0	0	110	0
02/28/1999	4	129	0	319	129	0	319	129	0	0	129	0
03/31/1999	0	114	0	0	0	0	0	0	0	0	0	0
04/30/1999	0	0	0	420	152	13	420	152	15	83	152	0
05/31/1999	0	0	206	222	0	250	223	0	250	0	0	222
06/30/1999	137	273	0	332	273	0	230	273	0	0	273	0
07/31/1999	18	322	0	420	322	5	420	322	7	40	322	0
08/31/1999	70	30	250	420	0	250	420	0	250	70	34	250
09/30/1999	0	291	12	159	291	250	160	291	250	0	291	15
10/31/1999	7	247	0	365	247	0	365	247	0	9	247	0
11/30/1999	0	166	0	180	166	0	180	166	0	0	166	0
12/31/1999	0	0	122	88	119	250	88	119	250	0	119	4
01/31/2000	0	0	46	0	0	214	0	0	213	0	0	49
02/29/2000	0	119	0	259	120	0	259	120	0	0	120	0
03/31/2000	16	115	0	0	0	0	0	0	0	0	0	0
04/30/2000	0	0	0	110	167	250	114	167	250	0	167	142
05/31/2000	0	0	204	189	0	250	191	0	250	0	0	219
06/30/2000	200	296	0	295	296	0	230	296	0	0	296	0
07/31/2000	20	326	0	420	326	8	420	326	11	41	326	0
08/31/2000	70	33	250	420	0	250	420	0	250	70	36	250
09/30/2000	60	0	250	420	0	250	420	0	250	63	0	250
10/31/2000	0	255	0	364	255	0	365	255	0	0	255	0
11/30/2000	7	181	0	363	181	0	364	181	0	9	181	0
12/31/2000	0	0	167	232	0	250	233	0	250	0	0	167
01/31/2001	0	0	44	0	0	206	0	0	205	0	0	48
02/28/2001	0	122	0	105	122	0	105	122	0	0	122	0
03/31/2001	34	147	0	0	0	0	0	0	0	0	0	0
04/30/2001	0	0	0	224	215	0	224	215	0	146	215	0
05/31/2001	0	261	0	124	261	0	124	261	0	0	261	0
06/30/2001	200	306	0	278	306	0	278	306	0	0	306	0
07/31/2001	70	77	250	259	0	250	259	0	250	70	77	250

TABLE C4-12:
CCWD DIVERSIONS (CFS), 2030 LOD

	Future No Project			2030 LOD Alternative 1			2030 LOD Alternative 2			2030 LOD Alternative 4		
Date	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River & New Delta Intakes [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]	Old River [CFS]	Rock Slough [CFS]	Victoria Canal / AIP [CFS]
08/31/2001	0	0	168	0	0	250	0	0	250	0	0	181
09/30/2001	0	0	153	0	0	250	0	0	250	0	0	166
10/31/2001	0	0	99	0	0	250	0	0	250	0	0	110
11/30/2001	0	0	86	0	0	250	0	0	250	0	0	96
12/31/2001	0	0	76	0	0	250	0	0	250	0	0	85
01/31/2002	0	176	0	127	176	0	127	176	0	0	176	0
02/28/2002	200	173	0	87	173	0	183	173	0	0	173	0
03/31/2002	38	147	0	0	0	0	0	0	0	0	0	0
04/30/2002	0	0	0	409	215	0	409	215	0	146	215	0
05/31/2002	0	232	0	298	238	0	298	236	0	0	234	0
06/30/2002	200	306	0	400	306	0	400	306	0	0	306	0
07/31/2002	30	0	250	36	0	250	35	0	250	34	0	250
08/31/2002	0	0	87	0	0	250	0	0	250	0	0	105
09/30/2002	1	0	250	0	0	250	0	0	250	0	0	82
10/31/2002	6	0	250	0	0	250	0	0	250	0	0	116
11/30/2002	0	0	207	0	0	250	0	0	250	0	0	102
12/31/2002	0	0	178	0	0	250	0	0	250	0	0	59
01/31/2003	200	176	0	345	176	0	345	176	0	200	176	0
02/28/2003	200	173	0	308	173	0	308	173	0	64	173	0
03/31/2003	38	115	0	0	115	0	0	115	0	0	15	0
04/30/2003	0	114	0	262	167	0	262	167	0	146	167	0
05/31/2003	0	204	0	122	204	250	121	204	250	0	204	200
06/30/2003	200	296	0	248	296	0	249	296	0	0	296	0
07/31/2003	70	206	250	420	0	250	420	0	250	70	206	250
08/31/2003	70	171	250	420	0	250	420	0	250	70	217	250
09/30/2003	60	0	250	420	0	250	420	0	250	70	178	250

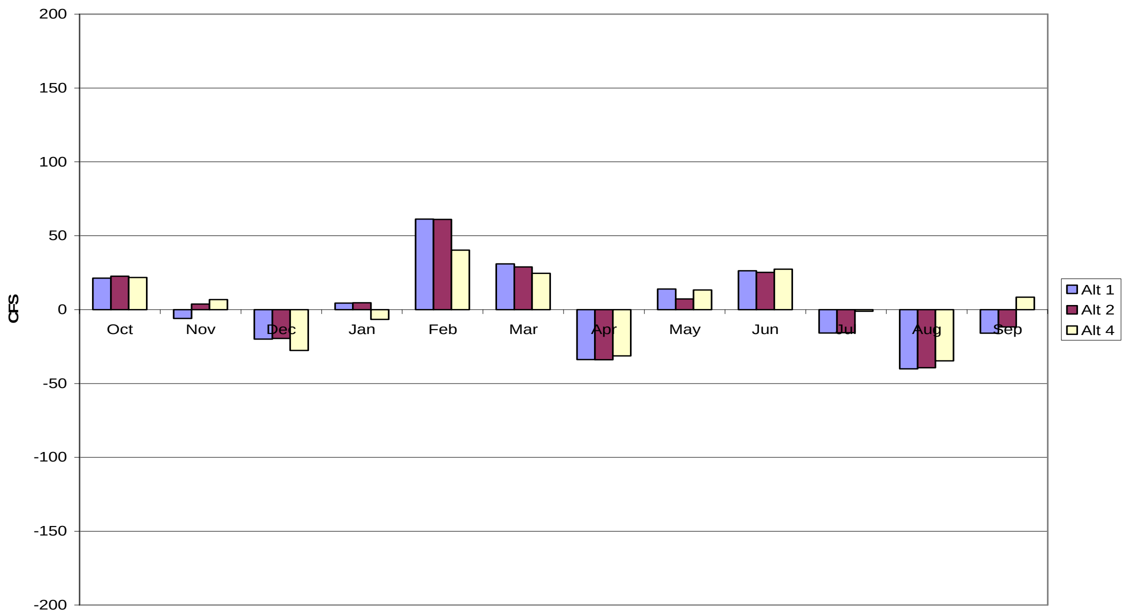


Figure C4-21: Changes in Average Monthly Sacramento River at Hood flow, 2030 LOD

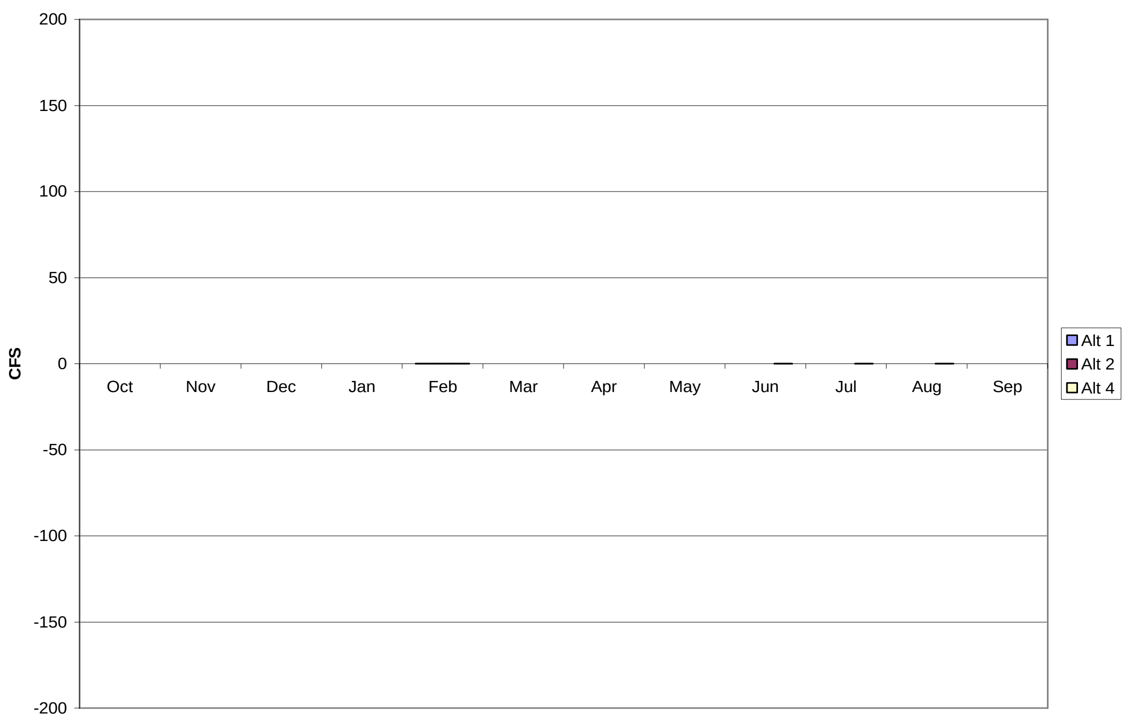


Figure C4-22: Changes in Average Monthly San Joaquin River at Vernalis Flow, 2030 LOD

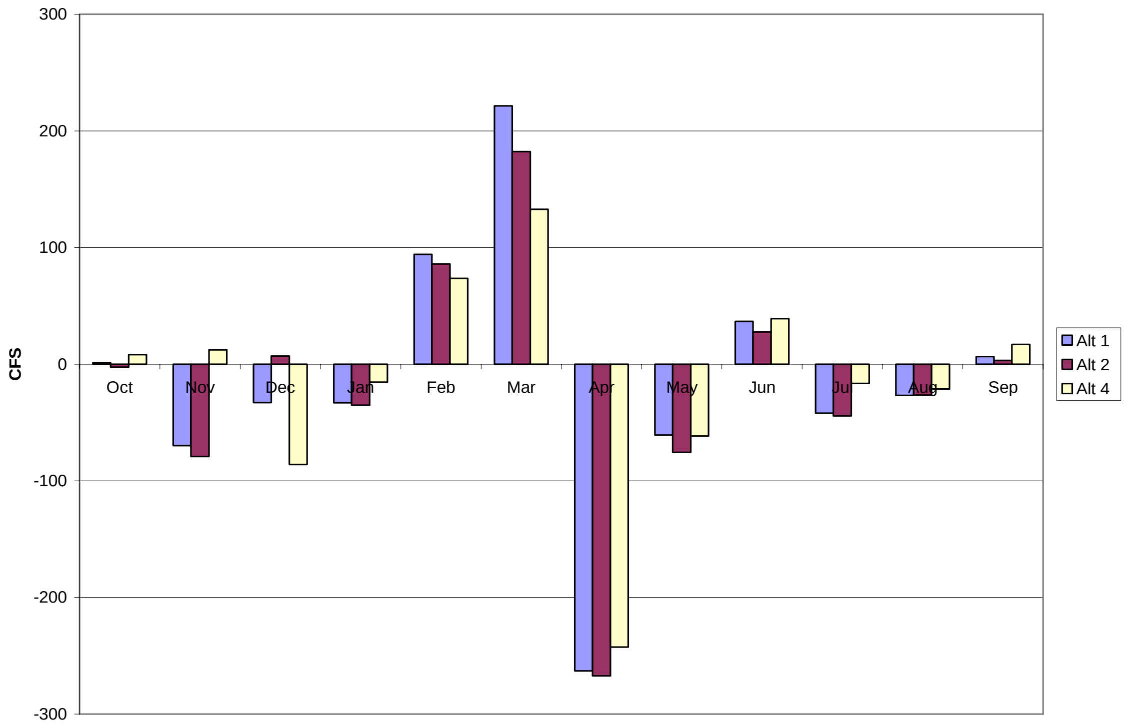


Figure C4-23: Changes in Average Monthly Delta Outflow, 2030 LOD

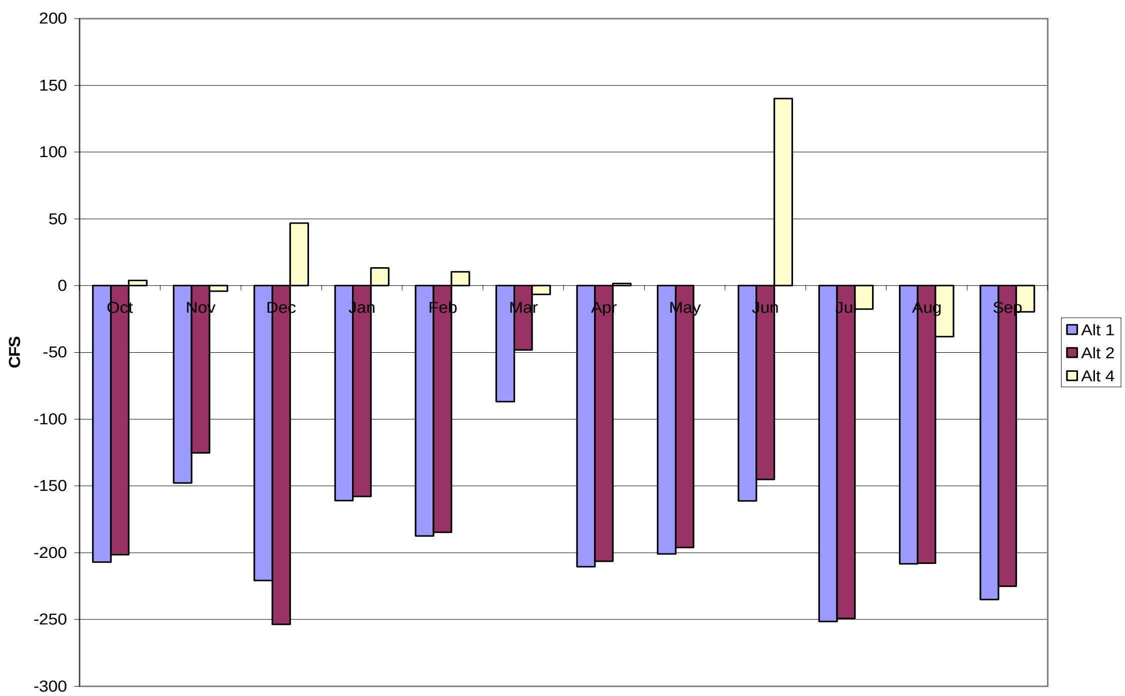


Figure C4-24: Changes in Average Monthly Banks + Jones Diversions, 2030 LOD

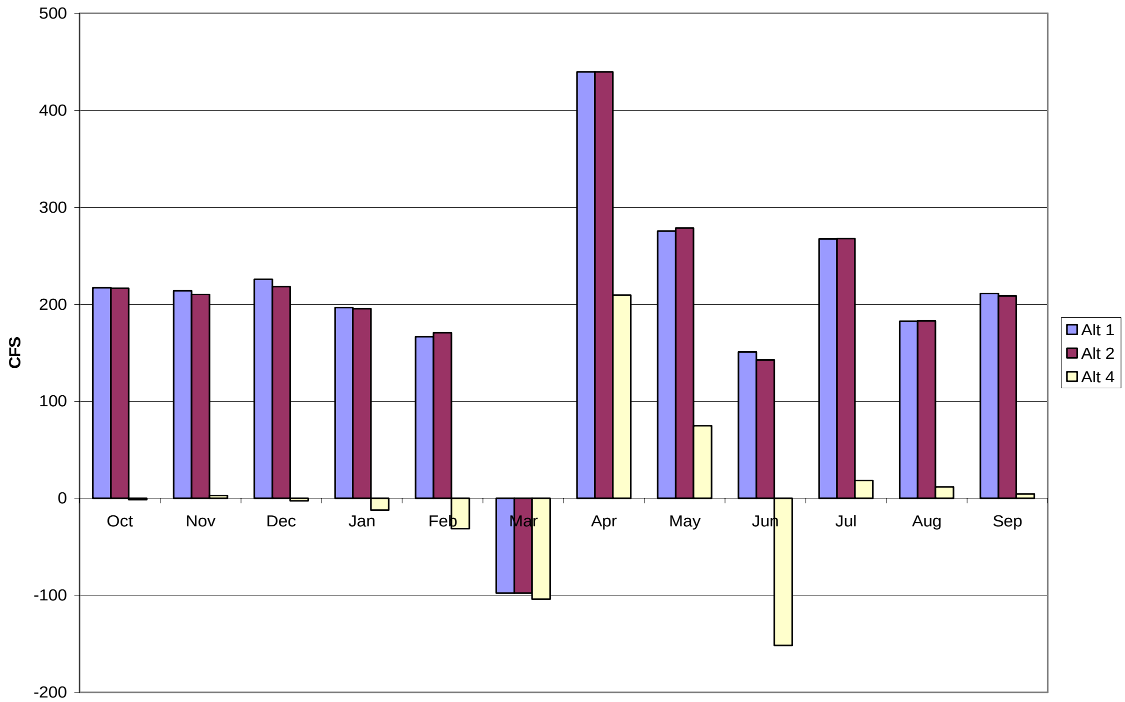


Figure C4-25: Changes in Average Monthly CCWD + LV Diversions, 2030 LOD

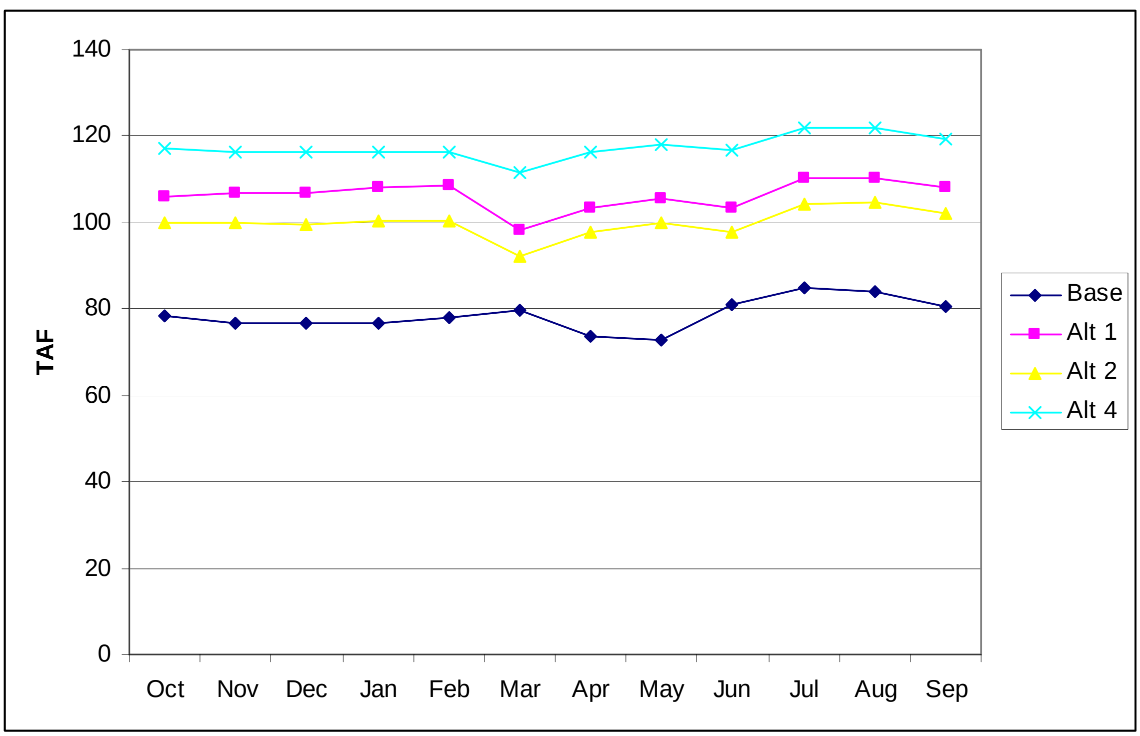


Figure C4-26: Monthly Average Los Vaqueros storage, 2030 LOD

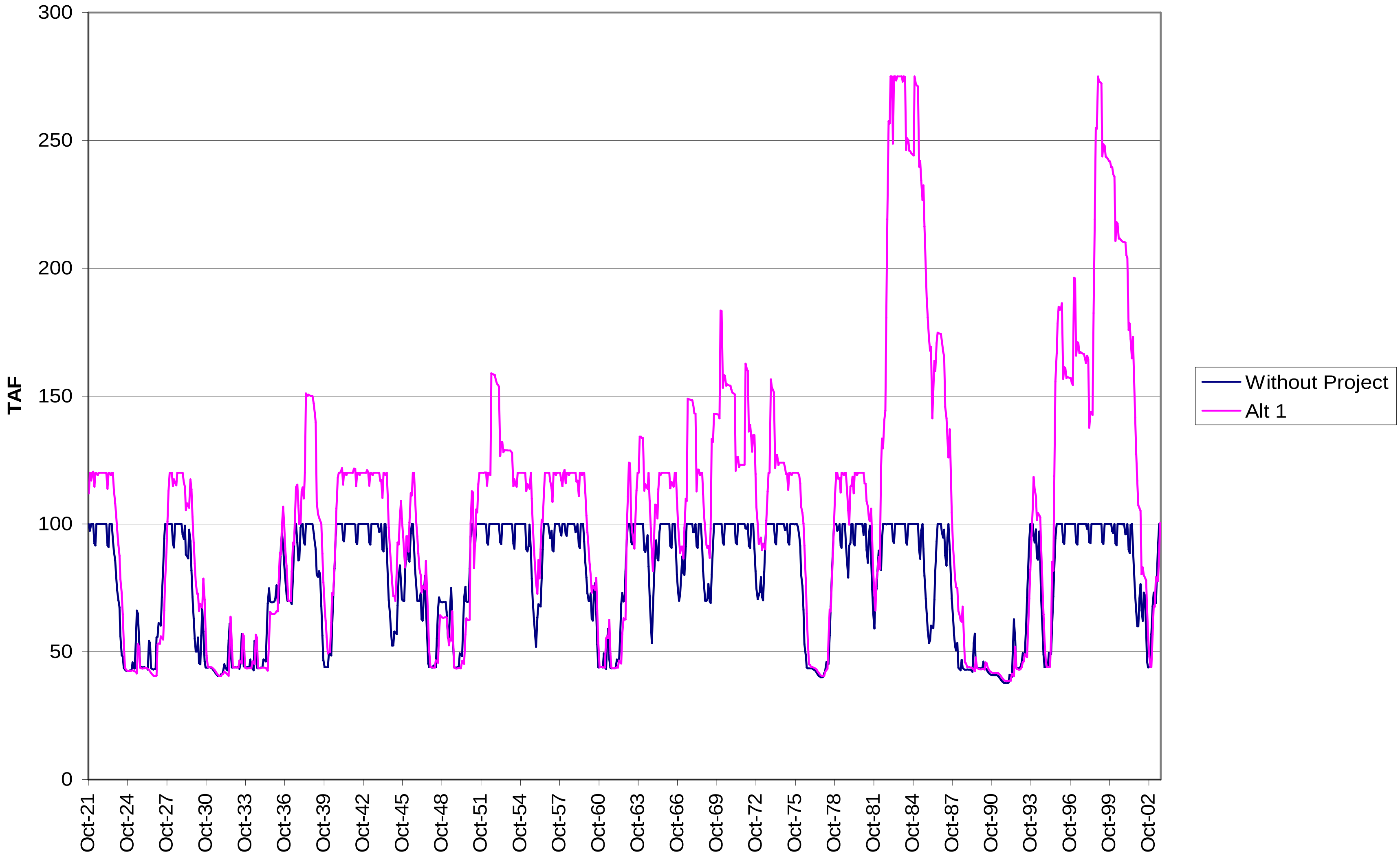


Figure C4-27: Timeseries of Alternative 1 and Base Los Vaqueros storage 2030 LOD

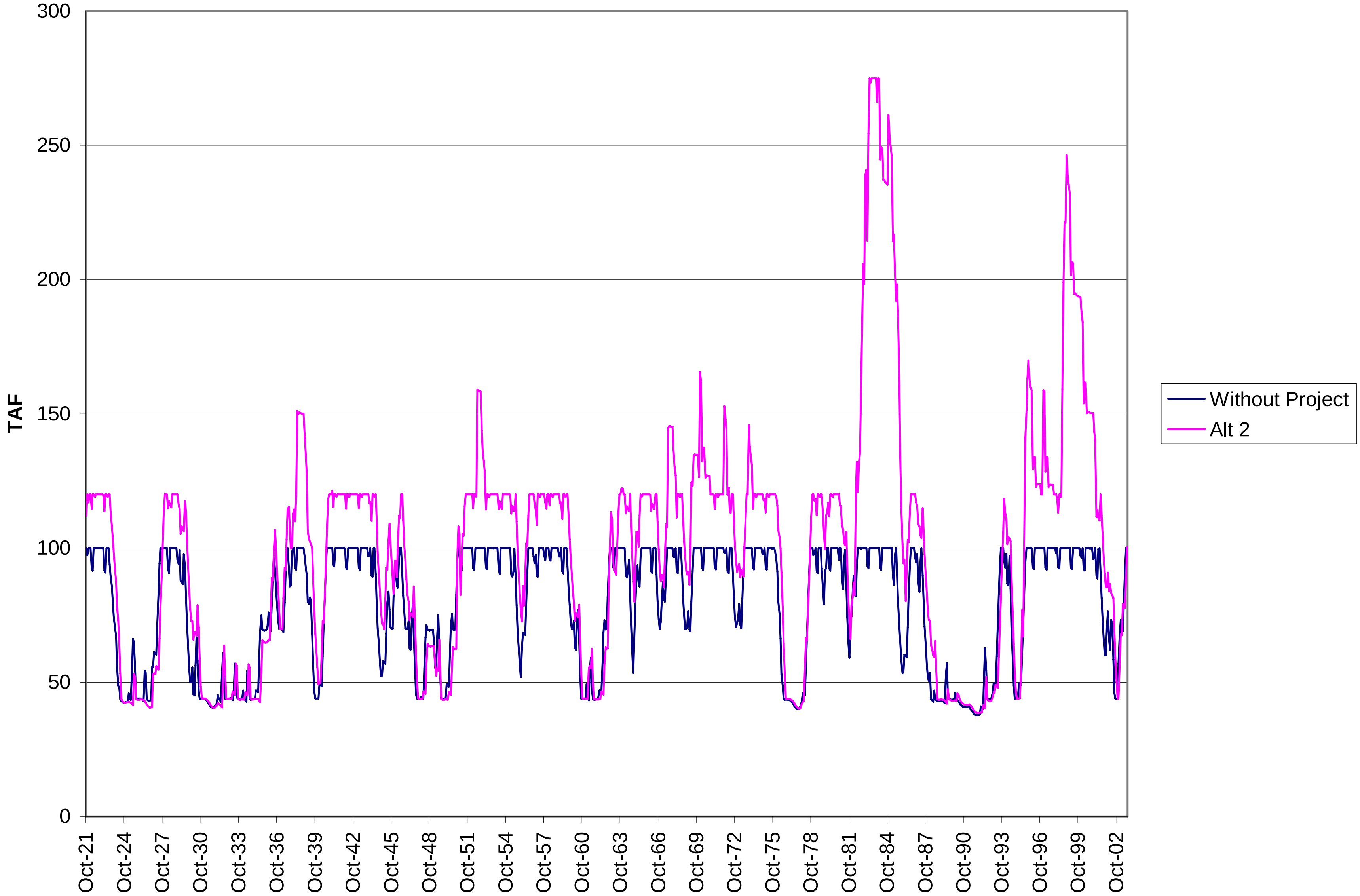


Figure C4-28: Timeseries of Alternative 2 and Base Los Vaqueros storage 2030 LOD

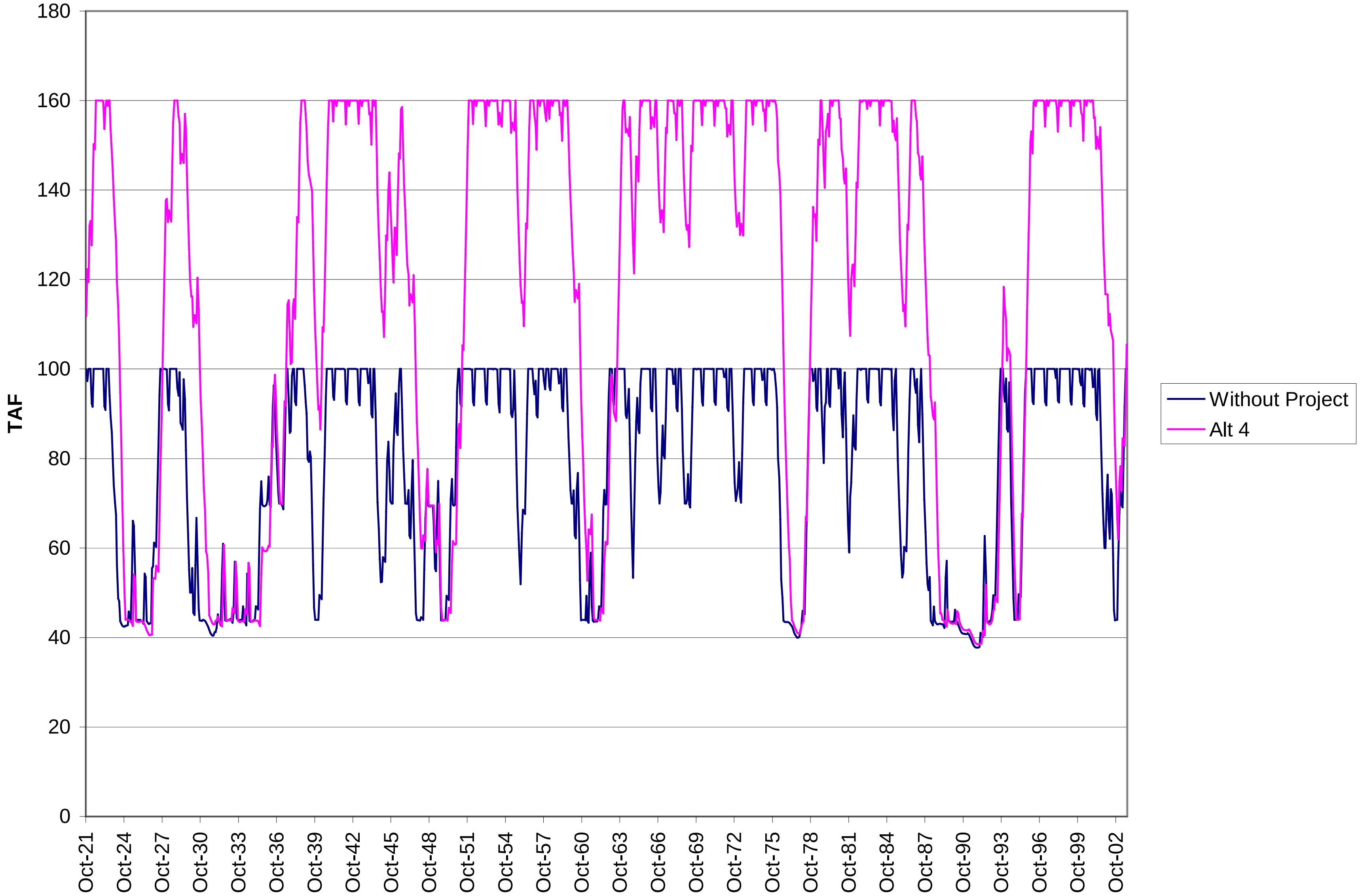


Figure C4-29: Timeseries of Alternative 4 and Base Los Vaqueros storage 2030 LOD

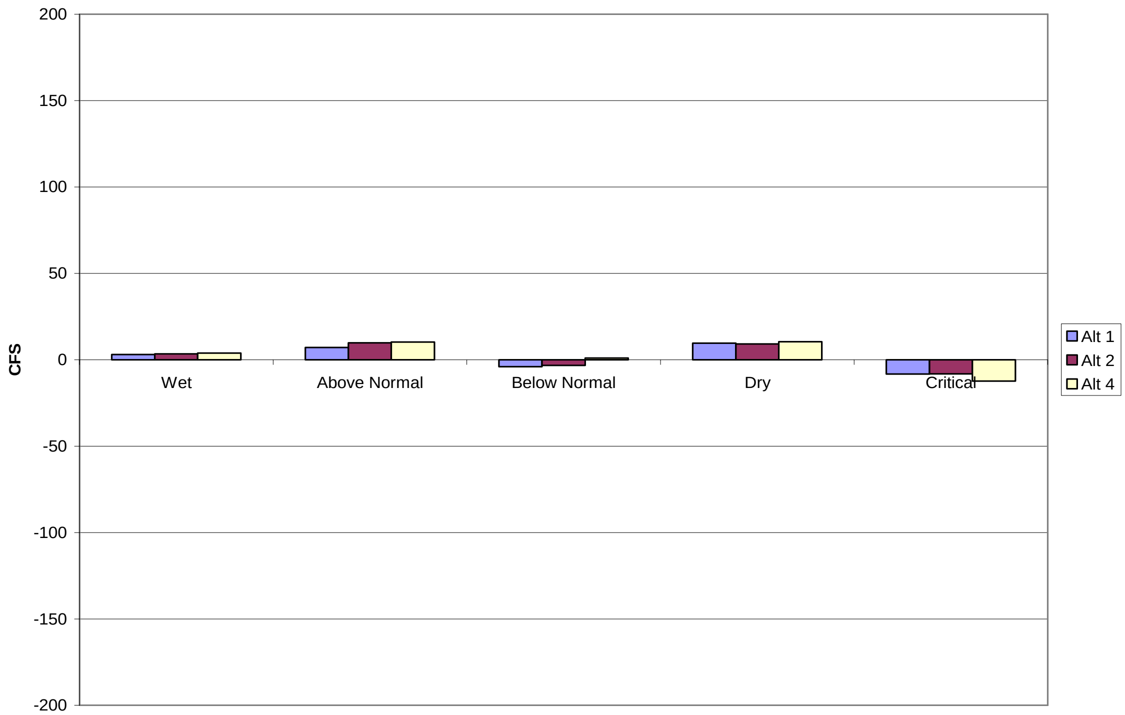


Figure C4-30: Changes in Sacramento River at Hood flow by water year type, 2030 LOD

Figure C4-31: Changes in San Joaquin River at Vernalis flow by water year type, 2030 LOD

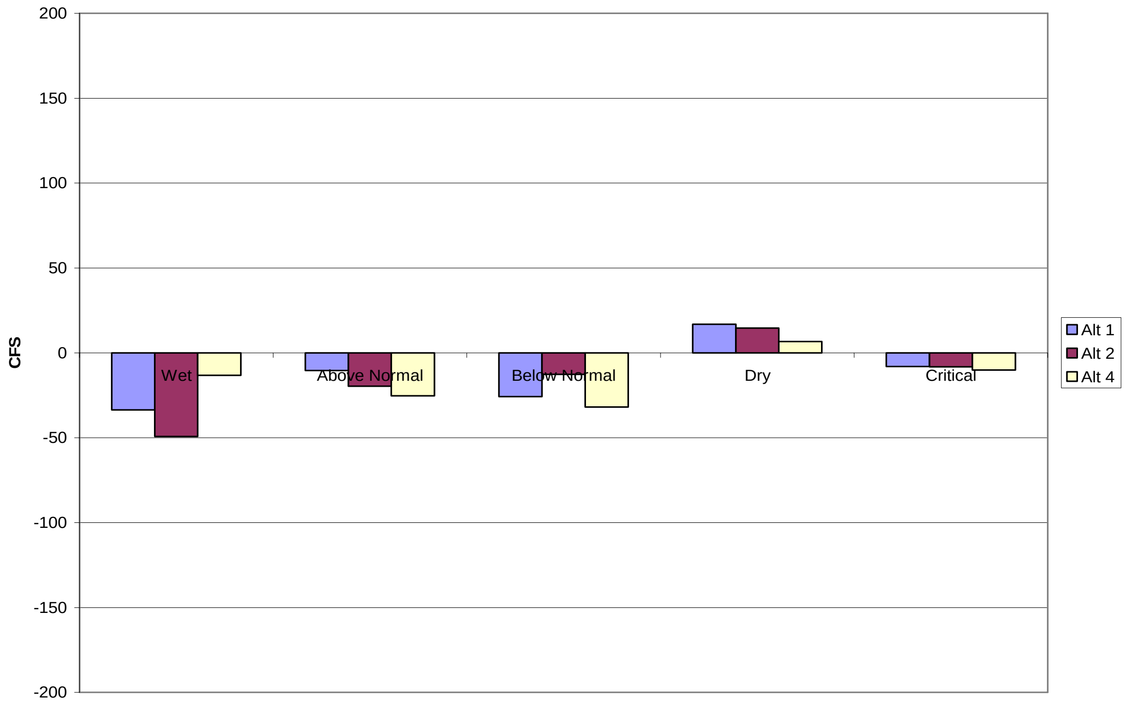


Figure C4-32: Changes in Delta Outflow by Year Type, 2030 LOD

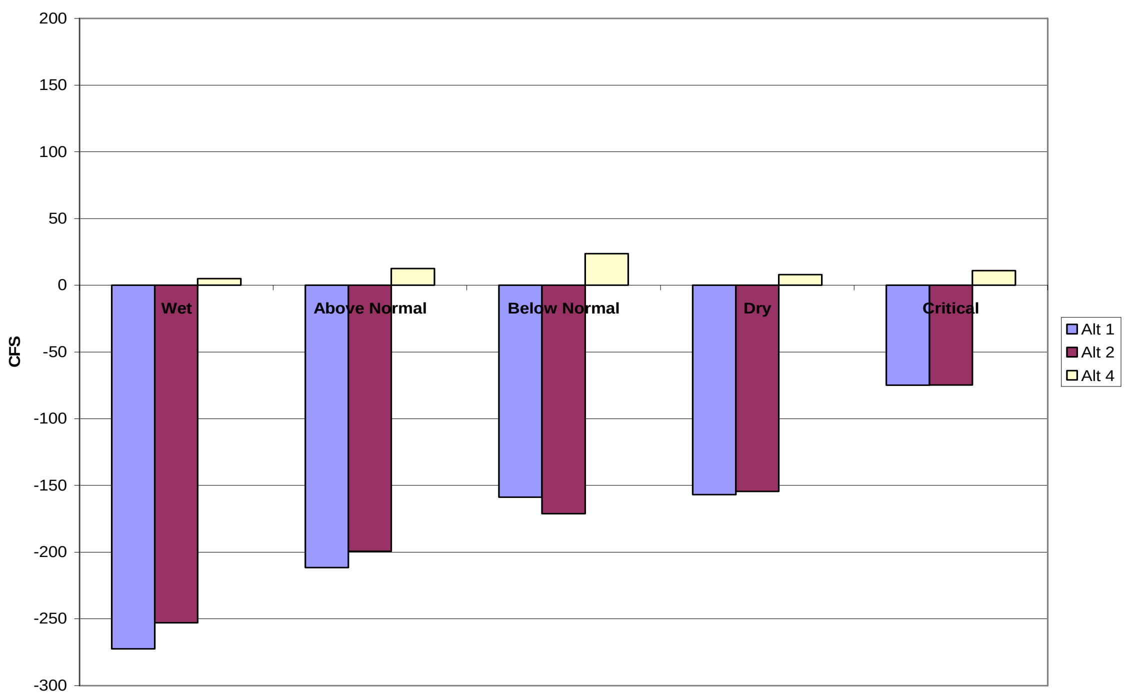


Figure C4-33: Changes in Banks + Jones Diversions by Year Type, 2030 LOD

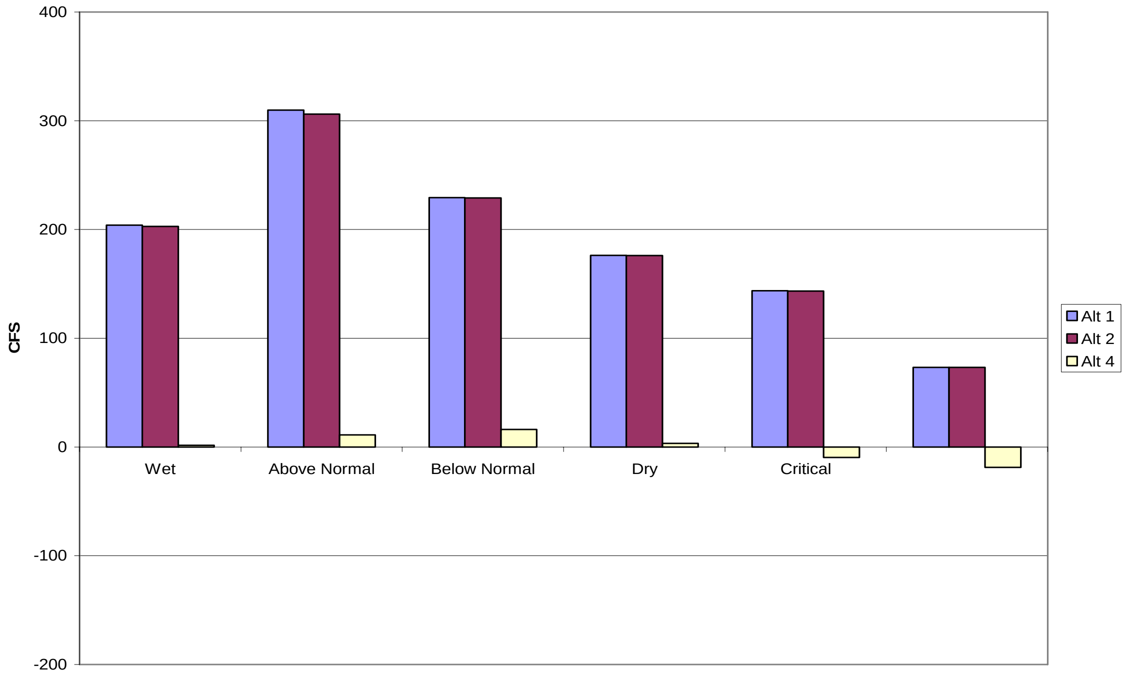


Figure C4-34: Changes in Project diversions by water year type, 2030 LOD

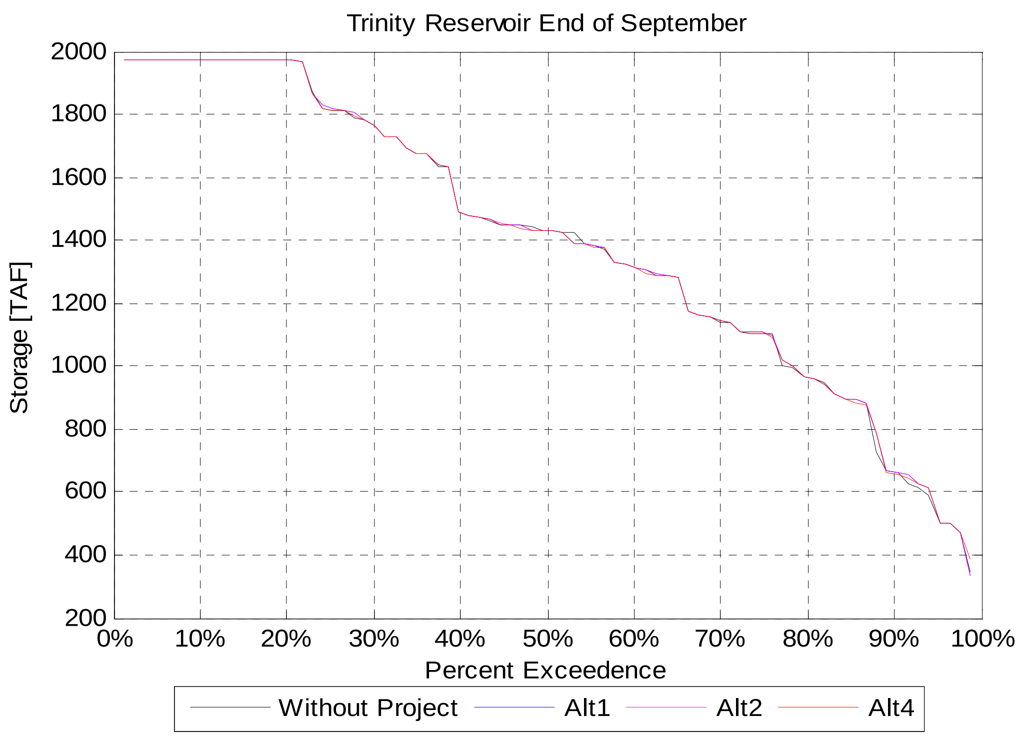


Figure C4-35: Trinity Reservoir end of September storage, 2030 LOD

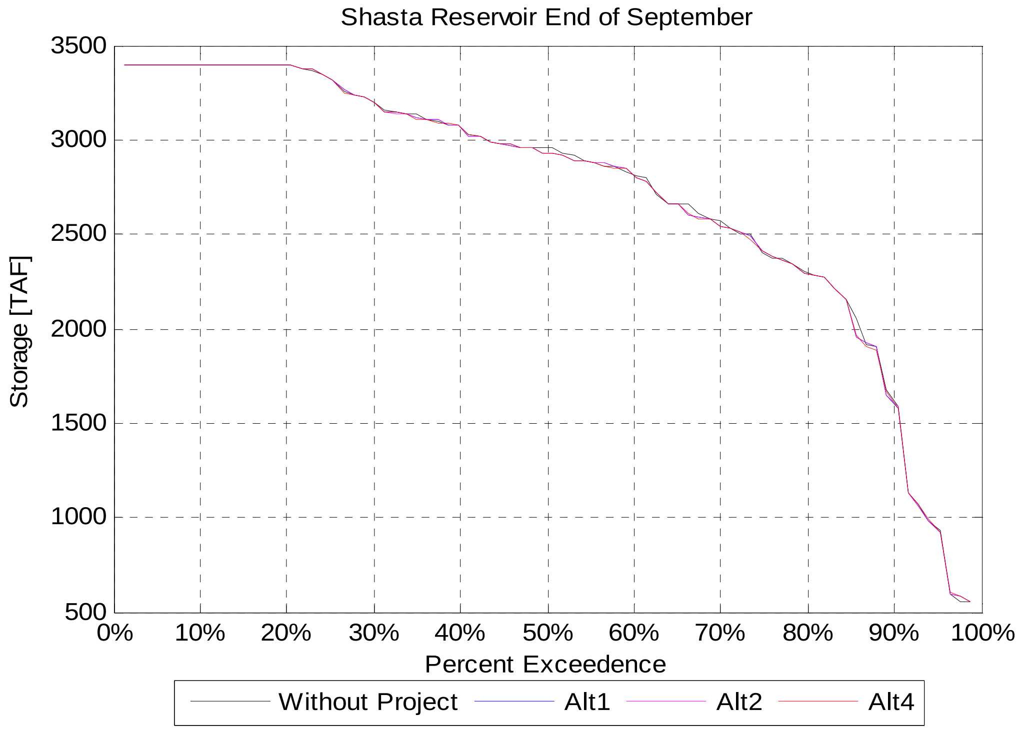


Figure C4-36: Shasta Reservoir end of September storage, 2030 LOD

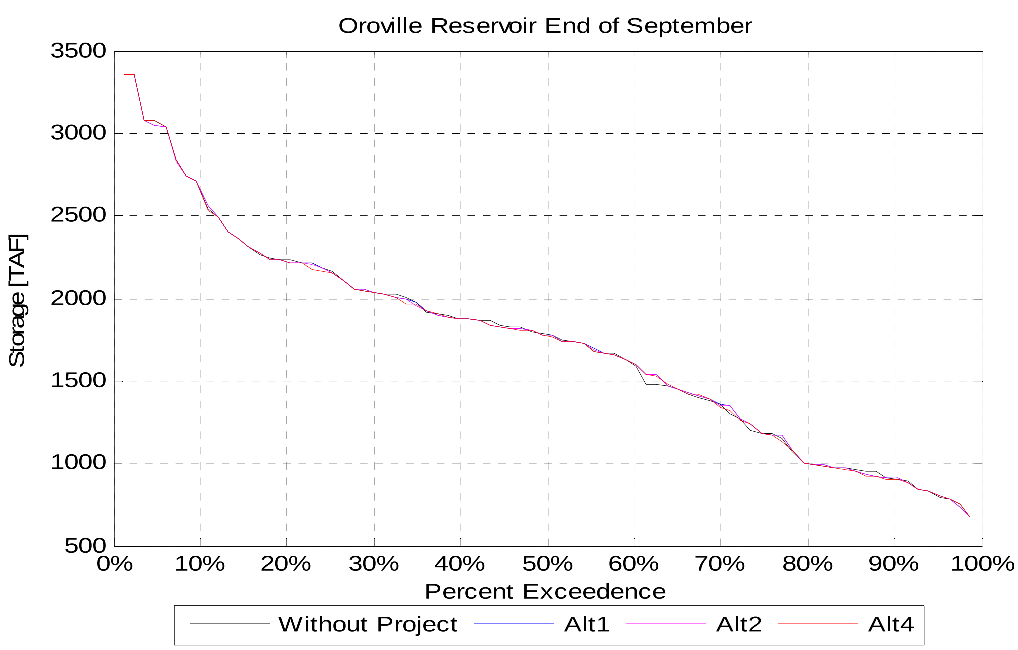


Figure C4-37: Oroville Reservoir end of September storage, 2030 LOD

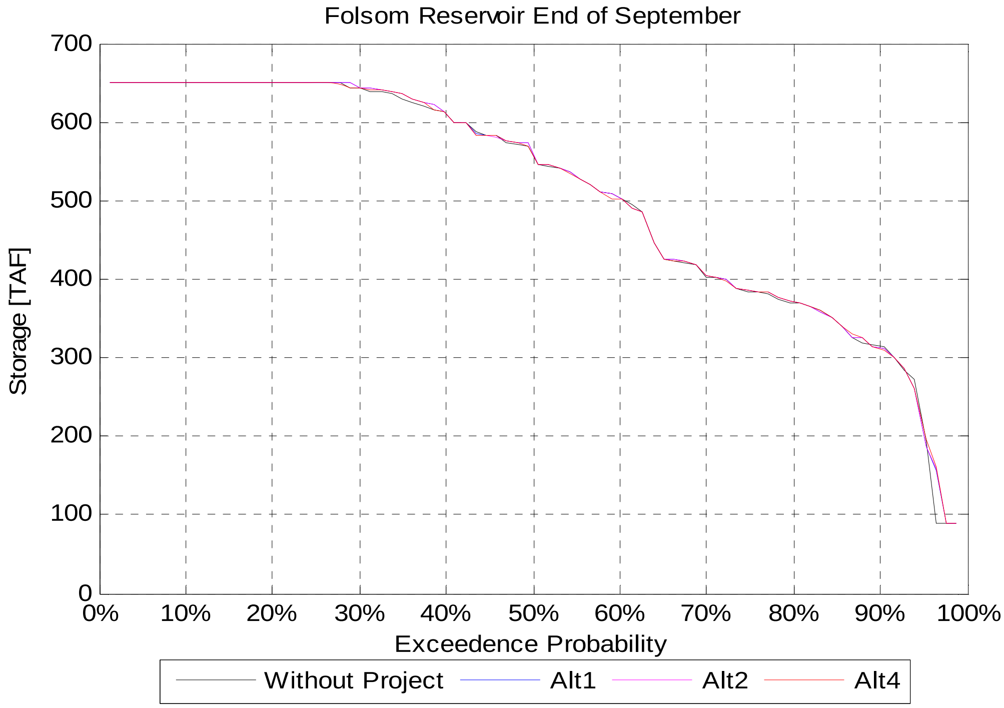


Figure C4-38: Folsom Reservoir end of September storage, 2030 LOD

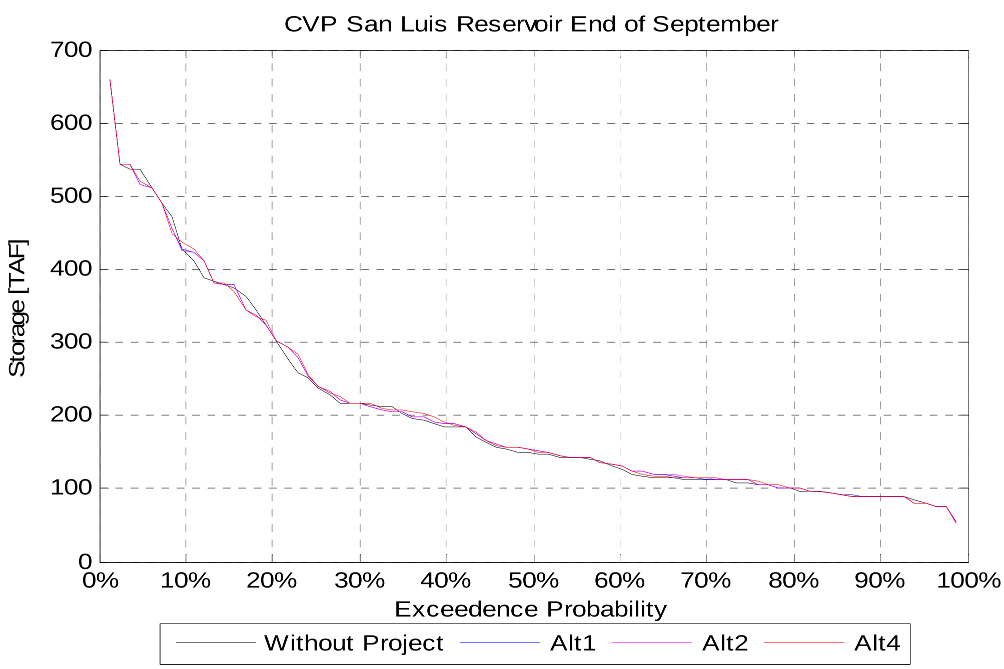


Figure C4-39: CVP San Luis Reservoir end of September storage, 2030 LOD

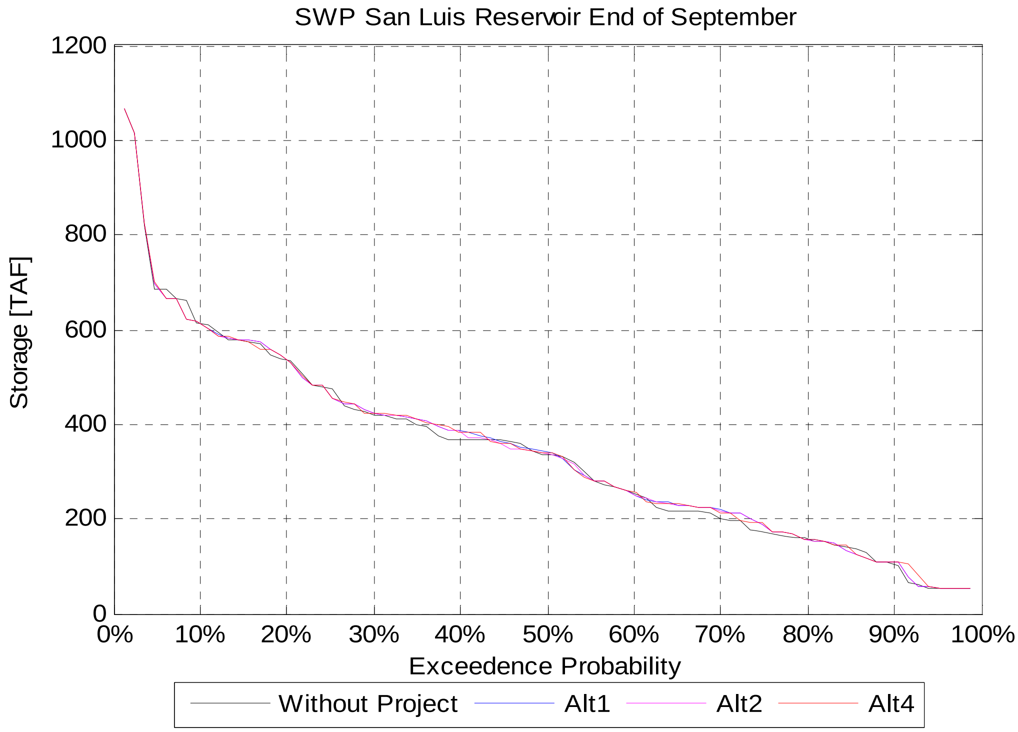


Figure C4-40: SWP San Luis Reservoir end of September storage, 2030 LOD

C-5 MODEL RESULTS - WATER QUALITY AND WATER LEVEL

Table of Contents

Introduction

This section contains tables and graphics of water quality and water levels derived from the DSM2 modeling for the Los Vaqueros Reservoir Expansion Project. These results are summarized and discussed in the updated Section 4.2 in the Final EIS/EIR. The modeling approach and methodology is documented in the updated Section 4.2 and in the updated Appendix C-2. Model assumptions are documented in the updated Appendix C-3.

Model results for water quality and water levels are presented in this appendix for without project conditions and with the project alternatives for both 2005 level of development and 2030 level of development.

For each set of conditions, water quality and water level data are presented at a variety of locations within the Delta for the water years 1976 through 1991. The tables and figures provided are described below in the sequence in which they appear for each set of conditions.

Water quality

Water quality results are reported as simulated Electrical Conductivity (EC), a measure of salinity, at the following key locations throughout the Delta:

- water quality compliance locations at Chipps Island, Collinsville, Emmaton, Jersey Point, Rock Slough (reported as Old River at Rock Slough data), Old River at Tracy Road Bridge, Old River at Middle River, San Joaquin River at Brandt Bridge, and San Joaquin River at Vernalis; and

- locations near the intakes of Delta water users at Jones Pumping Plant, Clifton Court Forebay, City of Stockton Intake at Empire Tract, San Joaquin River at Antioch, Barker Slough at North Bay Aqueduct, and Cache Slough at City of Vallejo Intake.

Tables of Salinity. The monthly average of the simulated electrical conductivity (EC) is presented for each month of the 16 year simulation, covering water years 1976 through 1991. At the bottom of the table, the long-term monthly averages are provided for the entire 16 year period, along with average monthly values for wetter water year types[1] (wet, above normal and below normal water years), and for dryer water year types (dry and critical water years). The 16-year study period does not include sufficient years in each water year type category to present average values for each water year type (e.g. there is only one below normal water year type from 1976 to 1991). Grouping the year types into wetter and dryer water year categories reduces the uneven weighting that would occur by taking long term averages over individual water year types.

A table is presented for the without project condition (Existing Condition for the 2005 level of development and Future Without Project for the 2030 level of development) and for each alternative. Following the same format, another table presents differences in the monthly averages of simulated EC between the alternative and the without project conditions. In the table of

[1] Water year types are defined using the Sacramento Valley Water Year Hydrologic Classification, as defined in D-1641 with a 40-30-30 index.

differences, a positive value means that salinity increased in the alternative, relative to the without project condition.

Figures Comparing Salinity in each Alternative to the Without Project Condition. Four figures are provided for each project alternative to illustrate the change in simulated EC compared to the without project condition.

- The first figure illustrates the long-term (16-year) monthly average simulated EC for the without project condition and the project alternative.
- The second figure illustrates the long-term (16-year) monthly average difference in simulated EC between the project alternative and the without project condition
- The third figure presents time series of daily average simulated EC for the project alternative and without project condition; the changes between the alternative and without project condition are also shown.
- The fourth figure presents the probability of exceedence for the daily average of simulated EC for both the without project condition and the project alternative.

Water level

Water level (stage) data are reported at the following locations:

- locations within the southern Delta: Middle River near Howard Road Bridge, Old River near Tracy Road Bridge, Doughty Cut above Grant Line Canal Barrier, and East of Coney Island; and
- locations directly in front of CCWD's intakes on Old River and Victoria Canal. The largest change in water level would be expected to occur at these locations.

Figures Comparing Water Level in each Alternative to the Without Project Condition. Four figures are provided for each project alternative to illustrate the change in water level compared to the without project condition.

Water level data at each station the 16-year DSM2 modeling results include:

- The first figure presents the probability of exceedence for the tidal water level, simulated every 15-minutes, for both the without project condition and the project alternative.
- The second figure presents the probability of exceedence for the water level at lower-low tide for both the without project condition and the project alternative.
- The third figure illustrates the long-term (16-year) monthly average water level at lower-low tide for both the without project condition and the project alternative.
- The fourth figure shows the long-term (16-year) monthly average difference in water level at lower-low tide between the project alternative and the without project condition.

2005 Level of Development

Water Quality

Chipps Island

Existing Condition

Chipps Island Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,383	3,406	4,826	7,352	7,792	6,623	6,009	8,657	11,456	12,367	12,697	13,901
1977	14,594	14,859	13,210	11,906	10,137	8,461	8,497	10,770	12,567	13,357	13,721	14,354
1978	13,516	13,313	9,698	484	215	204	231	427	1,776	4,629	6,717	6,530
1979	6,653	6,812	6,254	2,445	436	451	1,113	1,269	3,365	6,590	9,631	12,614
1980	13,443	7,494	4,703	306	201	200	509	1,076	2,698	5,115	6,880	6,719
1981	6,662	6,786	7,605	3,408	1,200	886	1,806	3,855	6,425	8,944	11,227	12,180
1982	13,134	2,651	188	200	190	203	188	196	729	3,613	5,581	2,718
1983	2,299	468	193	220	210	201	192	184	187	283	1,125	898
1984	2,331	290	188	196	236	246	902	1,908	4,711	5,164	6,045	3,514
1985	3,677	2,071	435	2,465	3,858	3,806	3,476	4,444	6,399	8,587	11,108	13,315
1986	13,340	13,176	8,544	2,242	203	201	364	906	3,356	5,764	6,583	3,612
1987	3,668	4,033	7,385	7,409	3,584	1,142	3,113	5,425	6,648	8,565	11,578	13,559
1988	14,390	13,993	8,361	1,514	1,832	4,980	5,731	6,928	7,853	10,111	12,752	14,181
1989	14,819	14,140	12,852	9,871	8,389	760	701	2,787	6,066	8,738	10,586	12,357
1990	13,646	13,581	13,315	6,385	4,018	4,139	5,027	7,792	10,493	12,241	13,150	14,382
1991	14,372	14,334	14,651	12,110	9,625	1,506	2,303	7,053	10,608	12,068	12,970	14,290
Avg	9,620	8,213	7,025	4,282	3,258	2,126	2,510	3,980	5,959	7,883	9,522	9,945
W/AN/BN	9,245	6,315	4,252	870	242	244	500	852	2,403	4,451	6,080	5,229
D/C	9,912	9,689	9,182	6,936	5,604	3,589	4,074	6,412	8,724	10,553	12,199	13,613

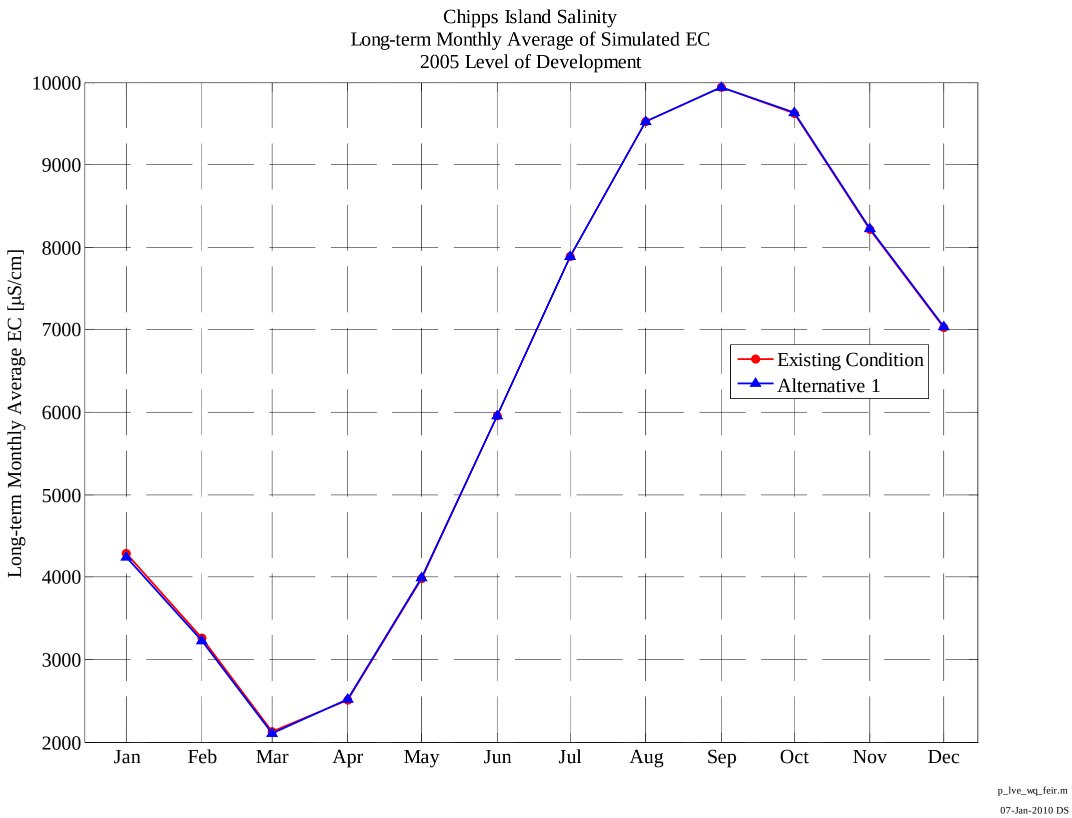
Alternative 1

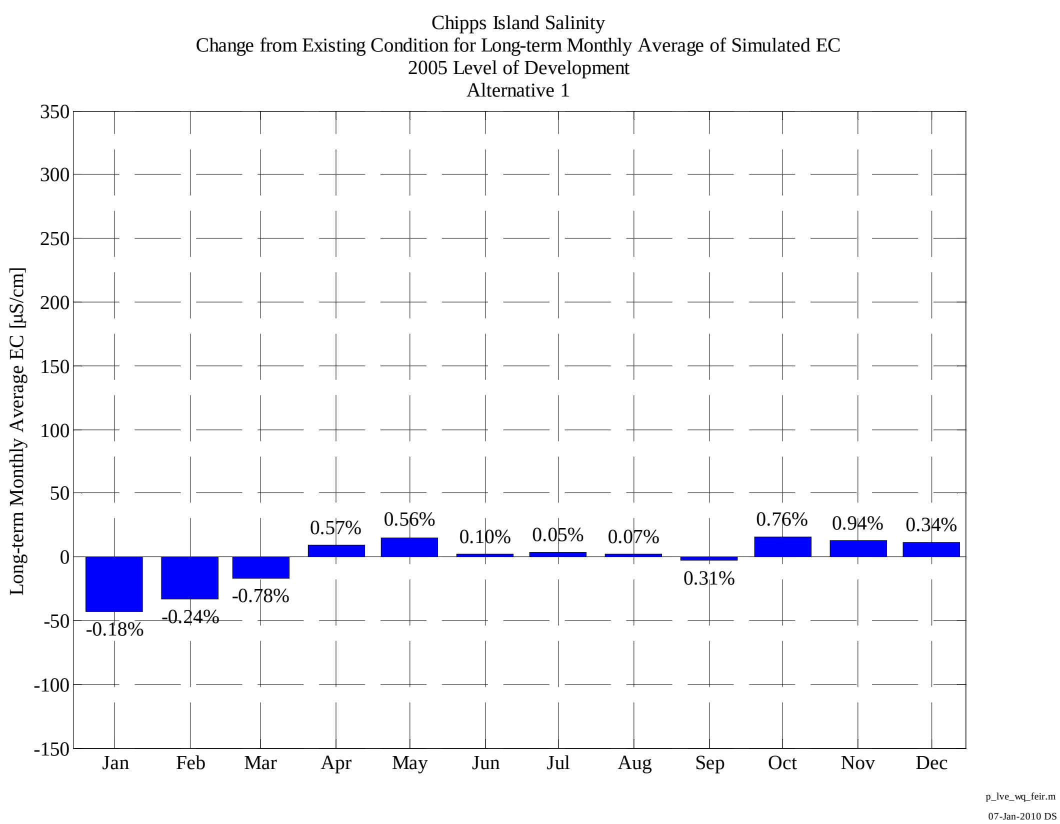
Chipps Island Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

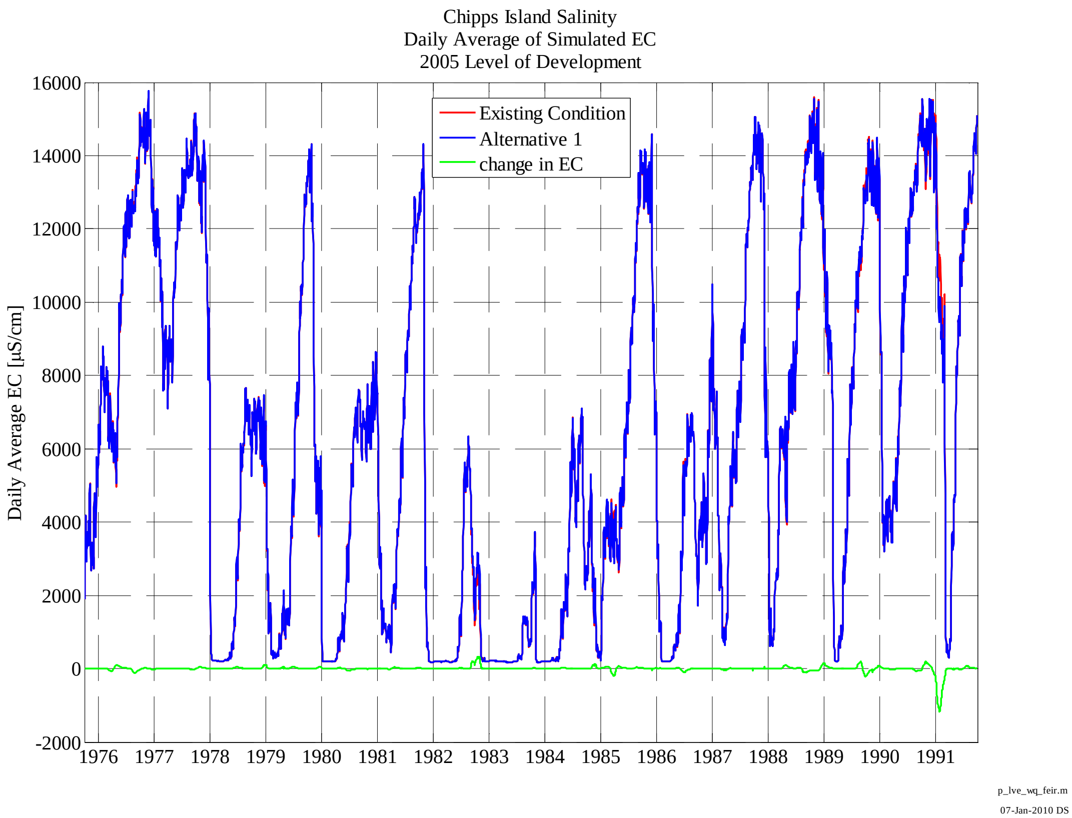
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,383	3,404	4,823	7,349	7,789	6,577	6,050	8,722	11,483	12,372	12,622	13,835
1977	14,592	14,869	13,200	11,898	10,137	8,459	8,497	10,771	12,567	13,356	13,712	14,342
1978	13,538	13,339	9,707	484	215	204	231	433	1,804	4,656	6,726	6,534
1979	6,654	6,805	6,327	2,478	438	447	1,141	1,281	3,400	6,623	9,641	12,618
1980	13,443	7,495	4,744	308	201	201	520	1,084	2,662	5,083	6,873	6,718
1981	6,657	6,784	7,606	3,407	1,209	878	1,827	3,878	6,433	8,945	11,229	12,195
1982	13,147	2,656	188	200	190	203	188	196	738	3,625	5,584	2,876
1983	2,574	513	193	219	210	201	191	184	187	284	1,133	905
1984	2,345	291	188	196	236	243	918	1,923	4,713	5,172	6,051	3,514
1985	3,676	2,165	447	2,487	3,906	3,689	3,466	4,484	6,414	8,584	11,134	13,344
1986	13,351	13,183	8,553	2,250	203	202	368	925	3,309	5,709	6,571	3,607
1987	3,668	4,031	7,384	7,410	3,588	1,113	3,104	5,436	6,647	8,559	11,580	13,556
1988	14,389	13,993	8,368	1,517	1,832	4,982	5,802	6,984	7,866	10,134	12,691	14,102
1989	14,772	14,085	12,924	9,958	8,418	761	702	2,788	6,061	8,738	10,710	12,301
1990	13,521	13,541	13,355	6,420	4,022	4,122	5,014	7,790	10,490	12,244	13,118	14,327
1991	14,470	14,459	14,580	11,244	8,998	1,456	2,295	7,043	10,595	12,108	13,011	14,306
Avg	9,636	8,226	7,037	4,239	3,224	2,109	2,520	3,995	5,961	7,887	9,524	9,942
W/AN/BN	9,293	6,326	4,271	876	242	243	508	861	2,402	4,450	6,083	5,253
D/C	9,903	9,703	9,187	6,854	5,544	3,560	4,084	6,433	8,728	10,560	12,201	13,590

Percent (%) Change from Existing Condition for Chipps Island Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

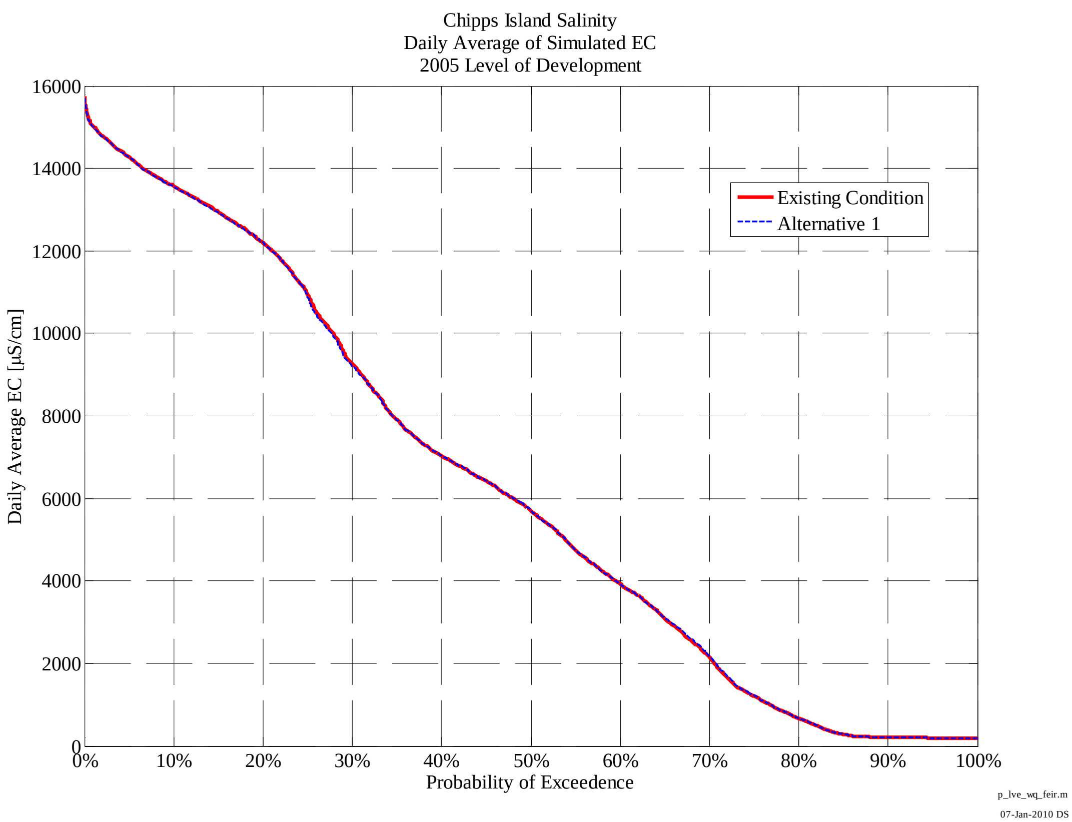
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.7%	0.7%	0.8%	0.2%	0.0%	-0.6%	-0.5%
1977	0.0%	0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1978	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	-0.1%	1.2%	1.6%	0.6%	0.1%	0.1%
1979	0.0%	-0.1%	1.2%	1.3%	0.4%	-0.8%	2.5%	1.0%	1.1%	0.5%	0.1%	0.0%
1980	0.0%	0.0%	0.9%	0.7%	0.0%	0.1%	2.2%	0.7%	-1.3%	-0.6%	-0.1%	0.0%
1981	-0.1%	0.0%	0.0%	0.0%	0.7%	-1.0%	1.2%	0.6%	0.1%	0.0%	0.0%	0.1%
1982	0.1%	0.2%	0.0%	-0.1%	-0.1%	0.1%	0.0%	0.1%	1.2%	0.3%	0.1%	5.8%
1983	12.0%	9.7%	0.1%	-0.4%	-0.1%	0.0%	-0.1%	-0.1%	0.0%	0.2%	0.7%	0.7%
1984	0.6%	0.3%	0.0%	0.0%	-0.1%	-1.4%	1.7%	0.8%	0.1%	0.1%	0.1%	0.0%
1985	0.0%	4.5%	2.7%	0.9%	1.3%	-3.1%	-0.3%	0.9%	0.2%	0.0%	0.2%	0.2%
1986	0.1%	0.0%	0.1%	0.4%	0.0%	0.3%	1.0%	2.1%	-1.4%	-0.9%	-0.2%	-0.2%
1987	0.0%	-0.1%	0.0%	0.0%	0.1%	-2.5%	-0.3%	0.2%	0.0%	-0.1%	0.0%	0.0%
1988	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	1.2%	0.8%	0.2%	0.2%	-0.5%	-0.6%
1989	-0.3%	-0.4%	0.6%	0.9%	0.3%	0.3%	0.1%	0.0%	-0.1%	0.0%	1.2%	-0.5%
1990	-0.9%	-0.3%	0.3%	0.5%	0.1%	-0.4%	-0.3%	0.0%	0.0%	0.0%	-0.2%	-0.4%
1991	0.7%	0.9%	-0.5%	-7.1%	-6.5%	-3.3%	-0.3%	-0.1%	-0.1%	0.3%	0.3%	0.1%
Avg	0.8%	0.9%	0.3%	-0.2%	-0.2%	-0.8%	0.6%	0.6%	0.1%	0.0%	0.1%	0.3%
W/AN/BN	1.8%	1.5%	0.3%	0.3%	0.0%	-0.3%	1.0%	0.8%	0.2%	0.0%	0.1%	0.9%
D/C	-0.1%	0.5%	0.3%	-0.5%	-0.4%	-1.2%	0.2%	0.3%	0.1%	0.1%	0.0%	-0.2%


Chipps Island Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
10000
9000
8000
7000
6000
5000
4000
3000
2000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.18%
-0.24%
-0.78%
0.57%
0.56%
0.10%
0.05%
0.07%
0.31%
0.76%
0.94%
0.34%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Chipps Island Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Chipps Island Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

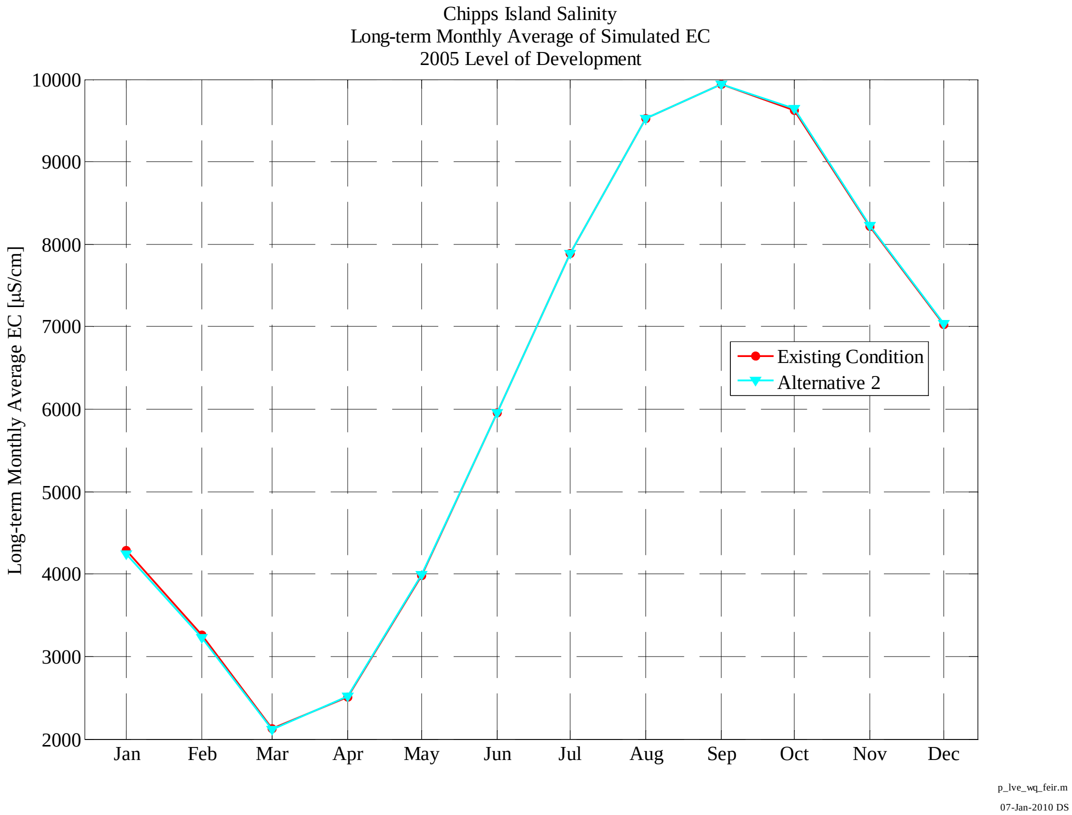
Alternative 2

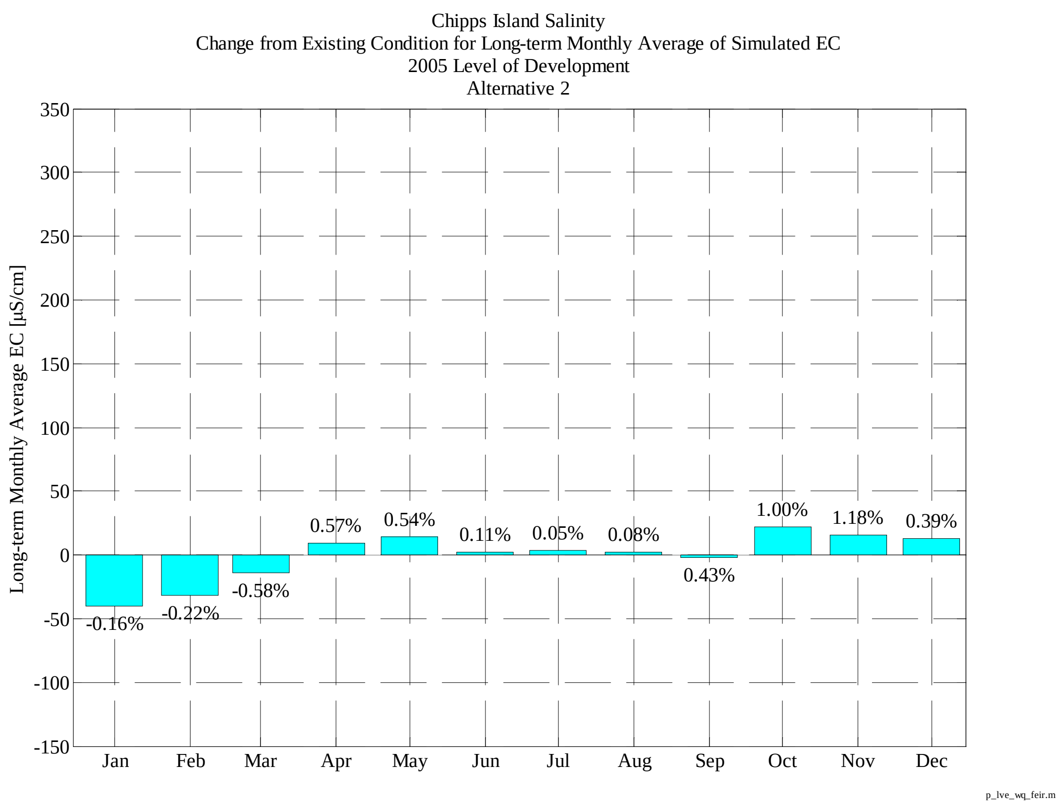
Chipps Island Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

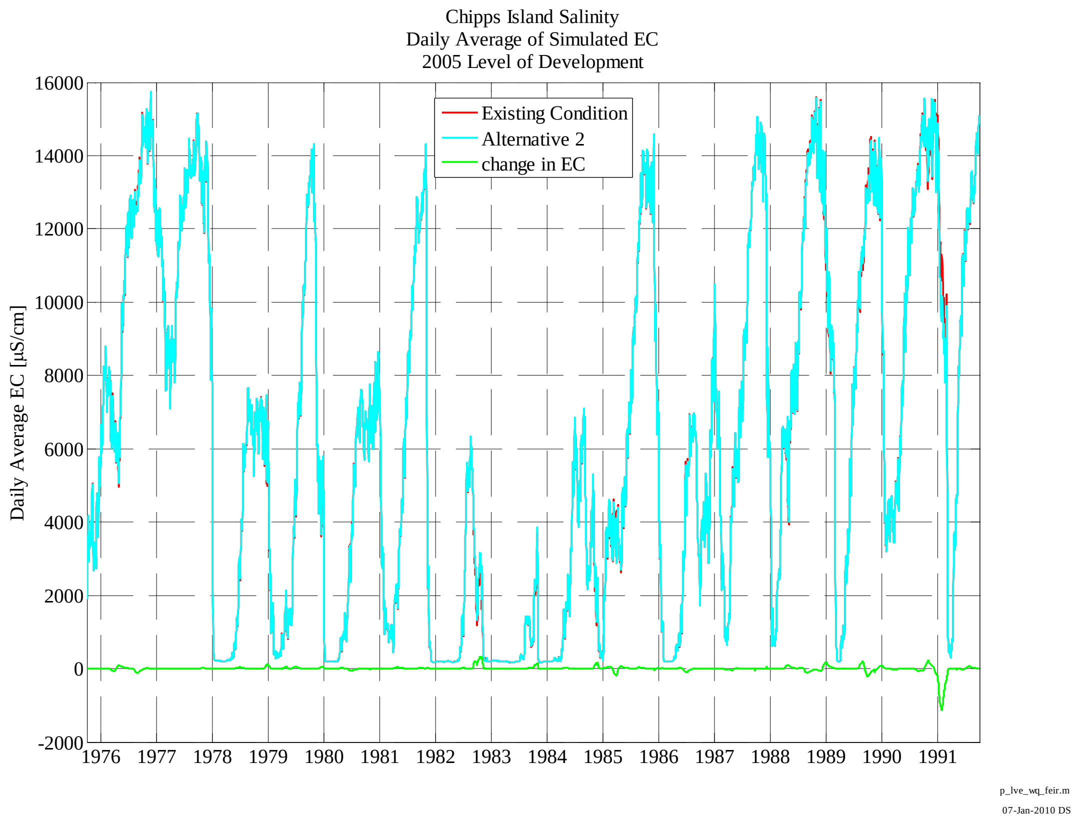
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,384	3,404	4,823	7,349	7,789	6,576	6,049	8,720	11,481	12,372	12,619	13,833
1977	14,592	14,868	13,206	11,907	10,140	8,461	8,497	10,771	12,567	13,357	13,717	14,347
1978	13,529	13,328	9,705	484	215	204	231	433	1,804	4,656	6,726	6,533
1979	6,654	6,805	6,330	2,479	438	447	1,141	1,281	3,401	6,623	9,641	12,618
1980	13,443	7,495	4,743	308	201	201	520	1,084	2,662	5,083	6,873	6,718
1981	6,657	6,783	7,606	3,407	1,209	890	1,835	3,879	6,433	8,945	11,229	12,195
1982	13,147	2,670	188	200	190	203	188	196	738	3,625	5,584	2,875
1983	2,574	513	193	219	210	201	191	184	187	284	1,135	923
1984	2,430	297	188	195	236	243	918	1,923	4,713	5,172	6,051	3,514
1985	3,676	2,185	449	2,487	3,906	3,701	3,473	4,485	6,415	8,584	11,134	13,343
1986	13,350	13,183	8,553	2,250	203	202	368	925	3,309	5,710	6,571	3,607
1987	3,668	4,031	7,384	7,410	3,588	1,128	3,083	5,422	6,653	8,560	11,581	13,557
1988	14,389	13,993	8,367	1,517	1,832	4,981	5,801	6,983	7,865	10,136	12,687	14,096
1989	14,791	14,095	12,938	9,975	8,424	762	702	2,788	6,061	8,738	10,713	12,299
1990	13,517	13,541	13,360	6,423	4,023	4,122	5,014	7,790	10,490	12,244	13,117	14,325
1991	14,473	14,463	14,577	11,263	9,015	1,458	2,295	7,043	10,595	12,107	13,009	14,305
Avg	9,642	8,228	7,038	4,242	3,226	2,111	2,519	3,994	5,961	7,887	9,524	9,943
W/AN/BN	9,304	6,327	4,272	876	242	243	508	861	2,402	4,450	6,083	5,256
D/C	9,905	9,707	9,190	6,860	5,547	3,564	4,083	6,431	8,729	10,560	12,201	13,589

Percent (%) Change from Existing Condition for Chipps Island Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

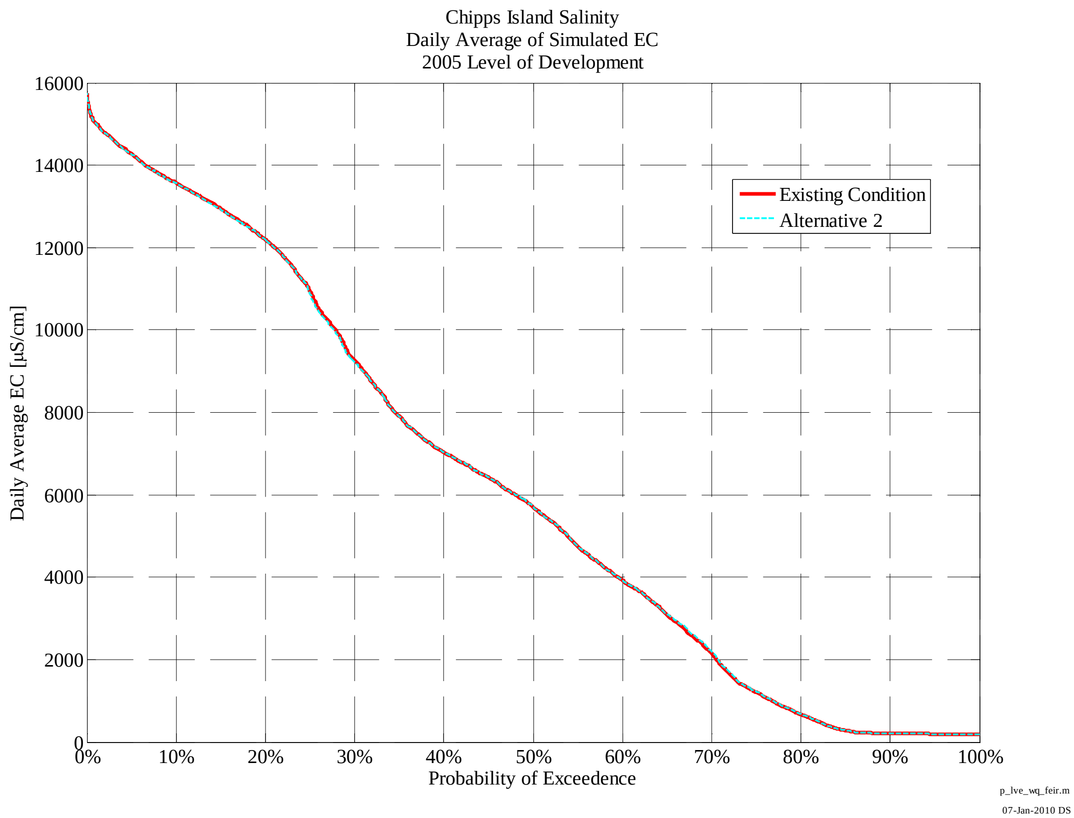
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.7%	0.7%	0.7%	0.2%	0.0%	-0.6%	-0.5%
1977	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	-0.1%	1.2%	1.6%	0.6%	0.1%	0.1%
1979	0.0%	-0.1%	1.2%	1.4%	0.5%	-0.8%	2.5%	1.0%	1.1%	0.5%	0.1%	0.0%
1980	0.0%	0.0%	0.9%	0.7%	0.0%	0.0%	2.2%	0.7%	-1.3%	-0.6%	-0.1%	0.0%
1981	-0.1%	0.0%	0.0%	0.0%	0.7%	0.4%	1.6%	0.6%	0.1%	0.0%	0.0%	0.1%
1982	0.1%	0.7%	0.1%	-0.1%	-0.1%	0.1%	0.0%	0.1%	1.2%	0.3%	0.1%	5.8%
1983	12.0%	9.7%	0.1%	-0.6%	-0.1%	0.0%	-0.2%	-0.1%	-0.1%	0.3%	0.9%	2.7%
1984	4.2%	2.7%	0.0%	-0.1%	0.0%	-1.3%	1.7%	0.8%	0.1%	0.2%	0.1%	0.0%
1985	0.0%	5.5%	3.3%	0.9%	1.3%	-2.8%	-0.1%	0.9%	0.2%	0.0%	0.2%	0.2%
1986	0.1%	0.1%	0.1%	0.3%	-0.1%	0.2%	1.0%	2.1%	-1.4%	-0.9%	-0.2%	-0.1%
1987	0.0%	0.0%	0.0%	0.0%	0.1%	-1.2%	-1.0%	-0.1%	0.1%	-0.1%	0.0%	0.0%
1988	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	1.2%	0.8%	0.2%	0.2%	-0.5%	-0.6%
1989	-0.2%	-0.3%	0.7%	1.1%	0.4%	0.3%	0.1%	0.0%	-0.1%	0.0%	1.2%	-0.5%
1990	-0.9%	-0.3%	0.3%	0.6%	0.1%	-0.4%	-0.3%	0.0%	0.0%	0.0%	-0.3%	-0.4%
1991	0.7%	0.9%	-0.5%	-7.0%	-6.3%	-3.2%	-0.3%	-0.1%	-0.1%	0.3%	0.3%	0.1%
Avg	1.0%	1.2%	0.4%	-0.2%	-0.2%	-0.6%	0.6%	0.5%	0.1%	0.1%	0.1%	0.4%
W/AN/BN	2.4%	1.9%	0.3%	0.2%	0.0%	-0.3%	1.0%	0.8%	0.2%	0.0%	0.1%	1.2%
D/C	-0.1%	0.6%	0.4%	-0.5%	-0.4%	-0.8%	0.2%	0.3%	0.1%	0.1%	0.0%	-0.2%


Chipps Island Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
10000
9000
8000
7000
6000
5000
4000
3000
2000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.16%
-0.22%
-0.58%
0.57%
0.54%
0.11%
0.05%
0.08%
0.43%
1.00%
1.18%
0.39%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Chipps Island Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
change in EC
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Chipps Island Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

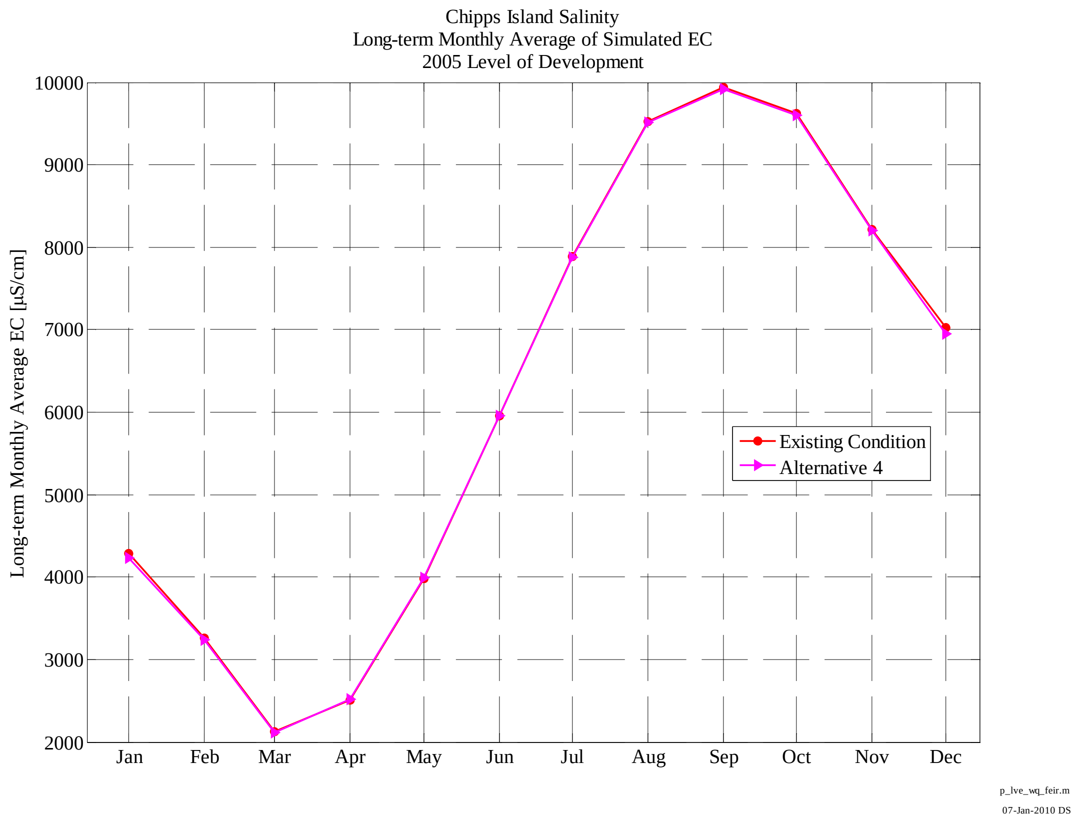
Alternative 4

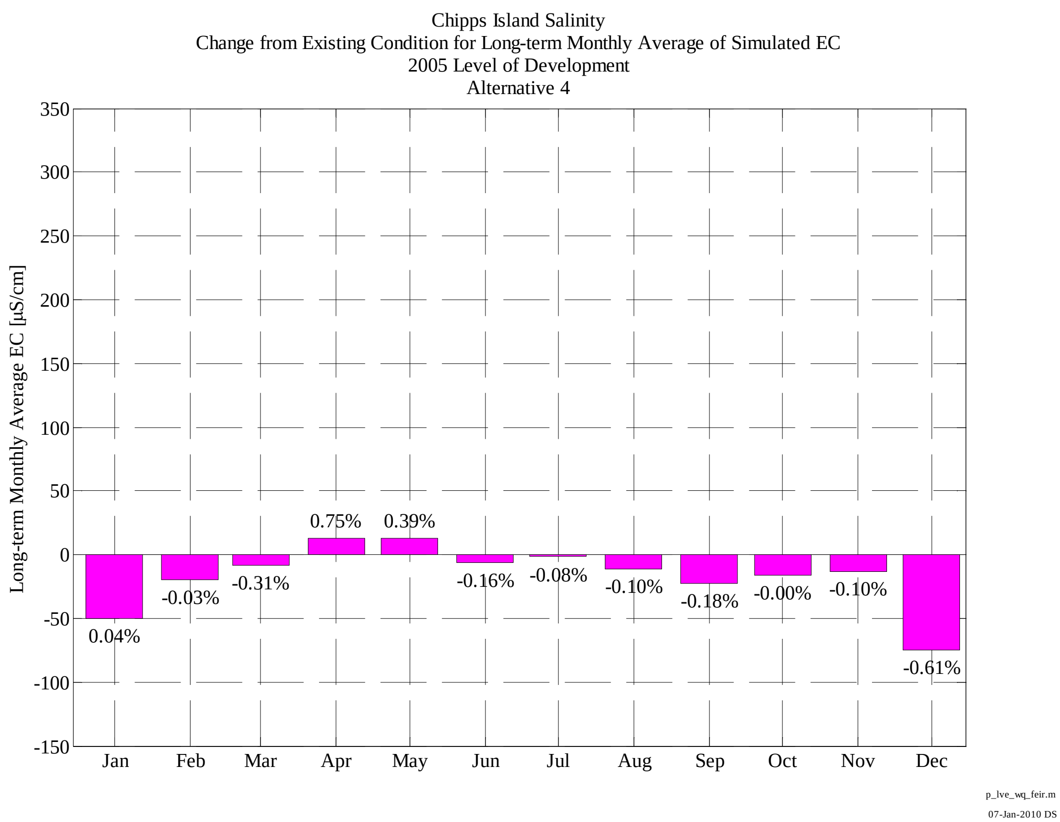
Chipps Island Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

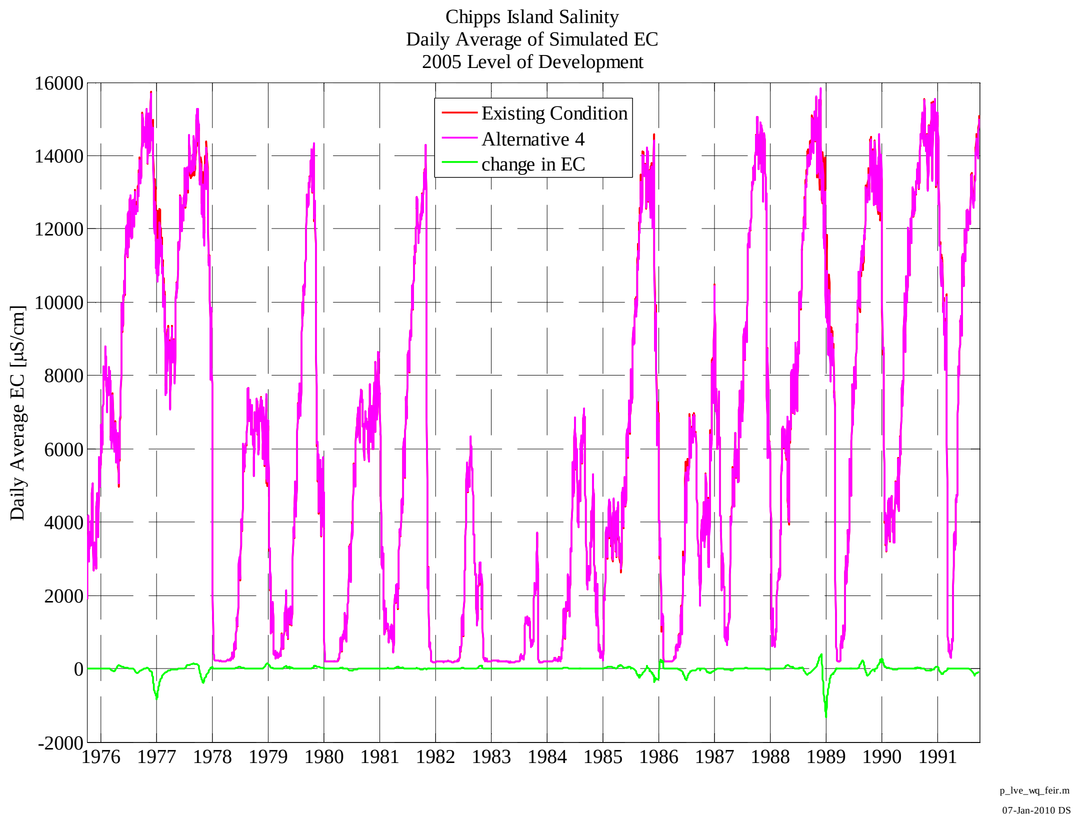
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,384	3,405	4,826	7,352	7,792	6,579	6,047	8,717	11,481	12,373	12,621	13,837
1977	14,595	14,818	12,679	11,447	9,977	8,396	8,472	10,758	12,561	13,421	13,840	14,479
1978	13,335	13,076	9,680	487	215	204	231	433	1,806	4,656	6,724	6,532
1979	6,655	6,808	6,353	2,497	439	447	1,148	1,307	3,378	6,583	9,629	12,610
1980	13,463	7,558	4,731	306	201	201	520	1,084	2,664	5,083	6,870	6,716
1981	6,661	6,786	7,605	3,407	1,210	887	1,831	3,882	6,437	8,948	11,237	12,175
1982	13,122	2,643	188	200	190	203	188	196	738	3,624	5,582	2,719
1983	2,350	475	193	220	210	201	192	184	187	283	1,126	899
1984	2,331	290	188	196	236	245	922	1,925	4,718	5,175	6,052	3,515
1985	3,678	2,066	435	2,487	3,908	3,830	3,550	4,487	6,441	8,590	10,940	13,175
1986	13,347	13,061	8,273	2,385	204	202	368	883	3,165	5,608	6,531	3,599
1987	3,667	3,956	7,296	7,395	3,591	1,129	3,082	5,417	6,650	8,578	11,587	13,558
1988	14,390	13,993	8,338	1,505	1,830	4,981	5,798	6,984	7,861	10,135	12,660	14,059
1989	14,815	14,391	12,281	9,284	8,247	750	701	2,787	6,063	8,740	10,730	12,328
1990	13,534	13,566	13,476	6,505	4,040	4,128	5,015	7,789	10,491	12,248	13,165	14,396
1991	14,343	14,296	14,668	12,037	9,517	1,495	2,299	7,045	10,602	12,066	12,885	14,164
Avg	9,604	8,199	6,950	4,232	3,238	2,117	2,523	3,992	5,953	7,882	9,511	9,923
W/AN/BN	9,229	6,273	4,229	898	242	243	510	859	2,379	4,430	6,073	5,227
D/C	9,896	9,698	9,067	6,824	5,568	3,575	4,088	6,430	8,732	10,566	12,185	13,574

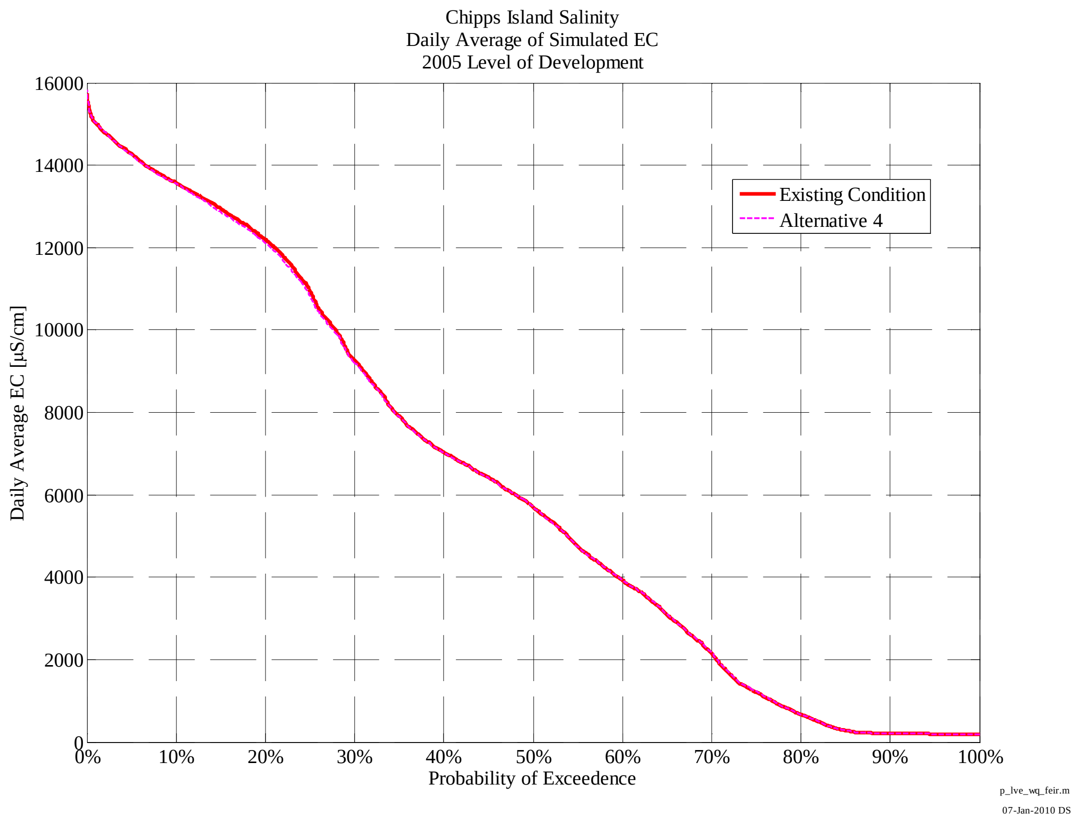
Percent (%) Change from Existing Condition for Chipps Island Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	0.0%	0.0%	0.0%	0.0%	-0.7%	0.6%	0.7%	0.2%	0.0%	-0.6%	-0.5%
1977	0.0%	-0.3%	-4.0%	-3.9%	-1.6%	-0.8%	-0.3%	-0.1%	-0.1%	0.5%	0.9%	0.9%
1978	-1.3%	-1.8%	-0.2%	0.7%	0.0%	0.0%	-0.1%	1.3%	1.7%	0.6%	0.1%	0.0%
1979	0.0%	0.0%	1.6%	2.1%	0.7%	-0.8%	3.1%	3.0%	0.4%	-0.1%	0.0%	0.0%
1980	0.1%	0.9%	0.6%	0.1%	0.0%	0.1%	2.2%	0.8%	-1.3%	-0.6%	-0.1%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	1.4%	0.7%	0.2%	0.1%	0.1%	0.0%
1982	-0.1%	-0.3%	0.0%	-0.1%	-0.2%	0.1%	0.0%	0.1%	1.2%	0.3%	0.0%	0.0%
1983	2.2%	1.5%	0.1%	-0.1%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.1%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	2.2%	0.9%	0.2%	0.2%	0.1%	0.0%
1985	0.0%	-0.2%	0.0%	0.9%	1.3%	0.6%	2.1%	1.0%	0.6%	0.0%	-1.5%	-1.0%
1986	0.1%	-0.9%	-3.2%	6.4%	0.6%	0.1%	1.1%	-2.5%	-5.7%	-2.7%	-0.8%	-0.4%
1987	0.0%	-1.9%	-1.2%	-0.2%	0.2%	-1.1%	-1.0%	-0.2%	0.0%	0.1%	0.1%	0.0%
1988	0.0%	0.0%	-0.3%	-0.6%	-0.1%	0.0%	1.2%	0.8%	0.1%	0.2%	-0.7%	-0.9%
1989	0.0%	1.8%	-4.4%	-5.9%	-1.7%	-1.3%	-0.1%	0.0%	0.0%	0.0%	1.4%	-0.2%
1990	-0.8%	-0.1%	1.2%	1.9%	0.5%	-0.3%	-0.2%	0.0%	0.0%	0.1%	0.1%	0.1%
1991	-0.2%	-0.3%	0.1%	-0.6%	-1.1%	-0.8%	-0.2%	-0.1%	-0.1%	0.0%	-0.7%	-0.9%
Avg	0.0%	-0.1%	-0.6%	0.0%	0.0%	-0.3%	0.8%	0.4%	-0.2%	-0.1%	-0.1%	-0.2%
W/AN/BN	0.1%	-0.1%	-0.2%	1.3%	0.2%	-0.1%	1.2%	0.5%	-0.5%	-0.3%	-0.1%	0.0%
D/C	-0.1%	-0.1%	-1.0%	-0.9%	-0.2%	-0.5%	0.4%	0.3%	0.1%	0.1%	-0.1%	-0.3%


Chipps Island Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
10000
9000
8000
7000
6000
5000
4000
3000
2000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.04%
-0.03%
-0.31%
0.75%
0.39%
-0.16%
-0.08%
-0.10%
-0.18%
-0.00%
-0.10%
-0.61%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Collinsville

Existing Condition

Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,139	1,176	1,893	3,618	3,793	2,891	2,577	4,814	7,164	7,501	7,905	9,072
1977	9,898	10,240	8,369	7,017	5,546	4,123	4,254	6,481	8,173	8,770	9,034	9,673
1978	8,750	8,568	5,016	301	206	201	218	232	569	1,856	3,035	2,865
1979	3,004	3,144	2,615	861	247	233	364	403	1,267	2,958	5,257	7,980
1980	8,753	3,582	1,707	224	194	196	234	348	910	2,114	3,147	2,966
1981	3,018	3,101	3,579	1,222	350	280	560	1,482	3,018	4,623	6,453	7,263
1982	8,480	1,096	185	199	187	200	183	184	267	1,424	2,315	865
1983	675	228	190	213	193	184	188	183	186	204	361	270
1984	733	204	182	194	195	187	310	576	1,992	2,055	2,637	1,236
1985	1,331	605	201	896	1,361	1,327	1,195	1,752	2,982	4,333	6,447	8,637
1986	8,611	8,279	4,129	731	186	190	234	321	1,302	2,462	2,956	1,238
1987	1,313	1,491	3,753	3,556	1,247	354	1,206	2,404	3,132	4,349	7,188	9,012
1988	9,694	9,305	4,115	519	597	2,174	2,475	3,367	3,928	5,660	8,330	9,643
1989	10,138	9,278	7,927	5,094	4,235	361	264	972	2,825	4,449	5,915	7,728
1990	8,920	8,698	8,618	2,756	1,429	1,521	2,057	4,127	6,355	7,506	8,519	9,833
1991	9,654	9,670	10,013	7,278	5,131	685	866	3,664	6,481	7,258	8,319	9,666
Avg	5,882	4,917	3,906	2,167	1,569	944	1,074	1,957	3,159	4,220	5,489	6,122
W/AN/BN	5,572	3,586	2,003	389	201	199	247	321	927	1,868	2,816	2,489
D/C	6,123	5,952	5,385	3,551	2,632	1,524	1,717	3,229	4,895	6,050	7,568	8,948

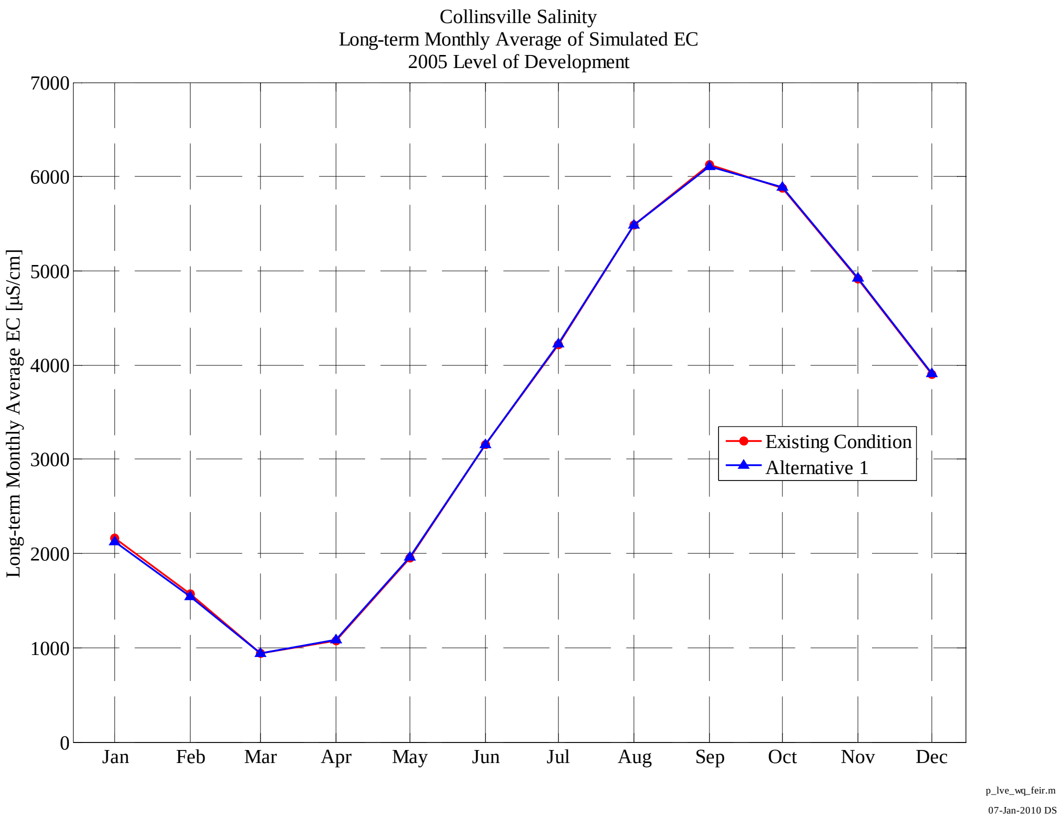
Alternative 1

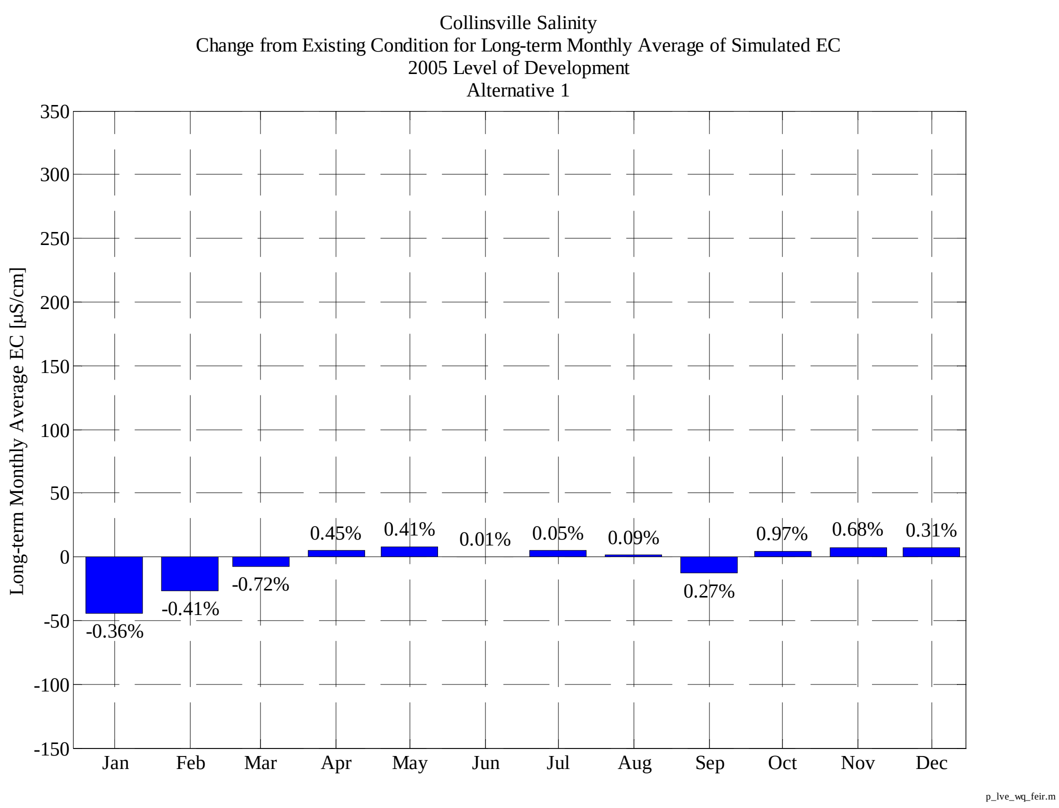
Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

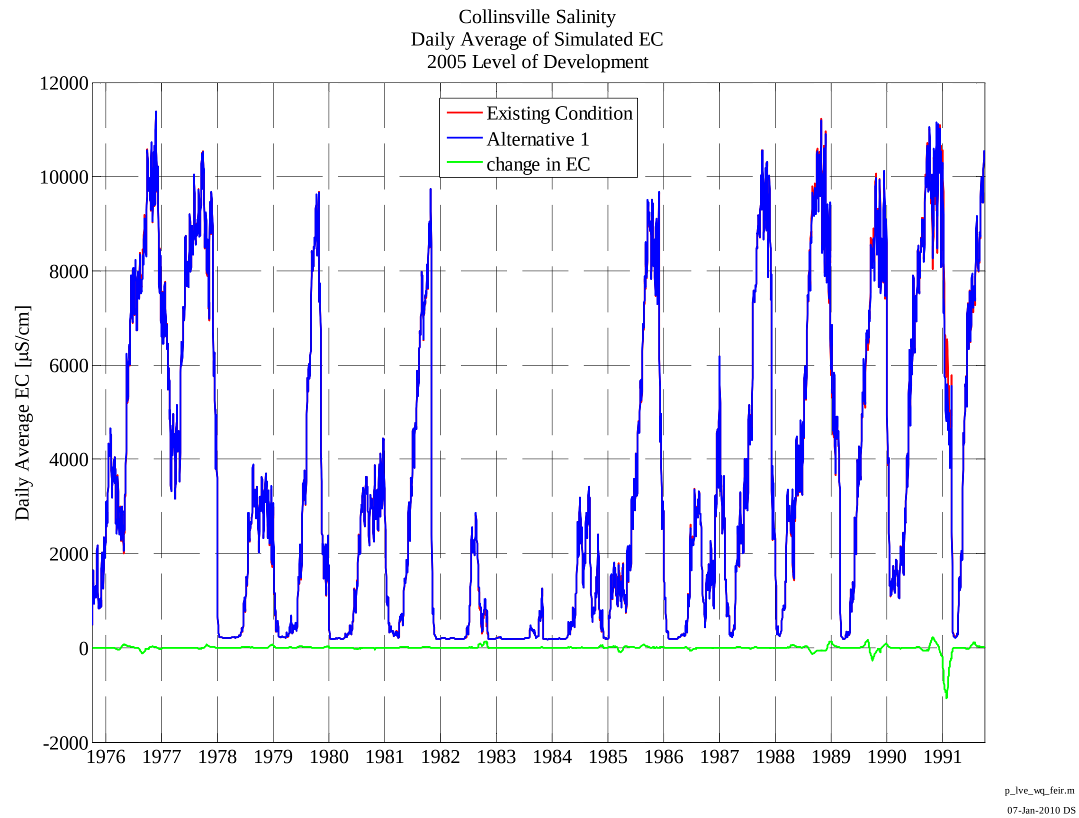
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,140	1,175	1,891	3,615	3,791	2,863	2,606	4,865	7,187	7,501	7,830	9,023
1977	9,900	10,255	8,358	7,009	5,546	4,121	4,254	6,482	8,172	8,768	9,026	9,659
1978	8,776	8,594	5,022	301	206	201	218	232	578	1,869	3,040	2,867
1979	3,005	3,137	2,664	876	247	233	372	405	1,286	2,977	5,264	7,983
1980	8,752	3,582	1,727	225	194	196	235	349	893	2,097	3,143	2,966
1981	3,013	3,101	3,579	1,222	351	278	567	1,491	3,021	4,622	6,453	7,280
1982	8,491	1,096	185	199	187	200	183	184	269	1,429	2,316	926
1983	779	240	190	213	193	184	188	182	186	204	363	271
1984	739	204	182	193	195	187	315	580	1,993	2,059	2,641	1,236
1985	1,330	634	203	907	1,385	1,269	1,192	1,772	2,991	4,327	6,491	8,666
1986	8,616	8,283	4,136	734	186	190	235	325	1,272	2,429	2,948	1,235
1987	1,314	1,491	3,753	3,556	1,248	349	1,206	2,411	3,130	4,339	7,191	9,011
1988	9,692	9,305	4,119	520	598	2,177	2,521	3,404	3,935	5,684	8,258	9,538
1989	10,082	9,219	8,001	5,163	4,256	362	264	973	2,819	4,454	6,017	7,625
1990	8,789	8,668	8,668	2,779	1,430	1,512	2,050	4,127	6,353	7,512	8,495	9,776
1991	9,766	9,800	9,928	6,455	4,658	660	862	3,657	6,467	7,330	8,360	9,679
Avg	5,886	4,924	3,913	2,123	1,542	936	1,079	1,965	3,159	4,225	5,490	6,109
W/AN/BN	5,594	3,591	2,015	392	201	199	249	322	925	1,866	2,816	2,498
D/C	6,114	5,961	5,389	3,470	2,585	1,510	1,725	3,242	4,897	6,060	7,569	8,917

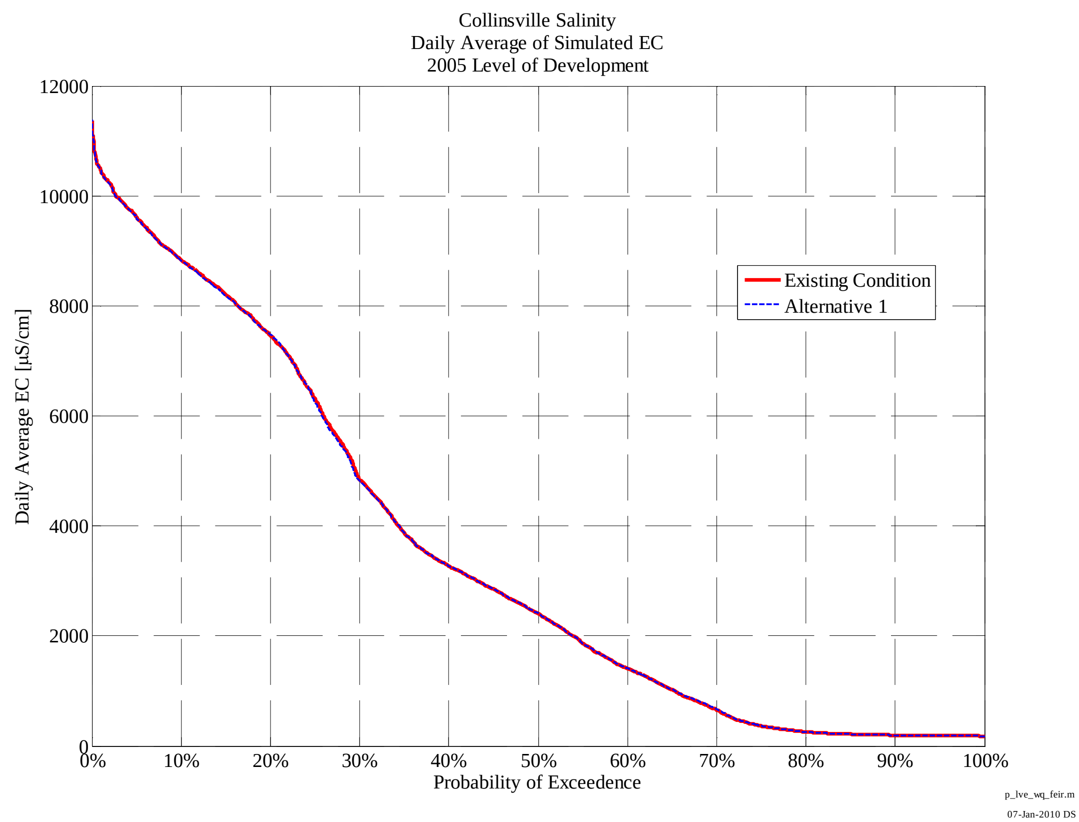
Percent (%) Change from Existing Condition for Collinsville Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-1.0%	1.1%	1.1%	0.3%	0.0%	-0.9%	-0.5%
1977	0.0%	0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1978	0.3%	0.3%	0.1%	0.0%	0.0%	0.0%	-0.2%	0.0%	1.7%	0.7%	0.2%	0.1%
1979	0.0%	-0.2%	1.8%	1.8%	0.1%	-0.2%	2.1%	0.5%	1.5%	0.6%	0.1%	0.0%
1980	0.0%	0.0%	1.2%	0.4%	0.0%	0.1%	0.6%	0.2%	-1.9%	-0.8%	-0.1%	0.0%
1981	-0.2%	0.0%	0.0%	0.0%	0.5%	-0.7%	1.4%	0.7%	0.1%	0.0%	0.0%	0.2%
1982	0.1%	0.1%	0.0%	-0.1%	-0.1%	0.1%	0.0%	-0.1%	0.7%	0.3%	0.1%	7.1%
1983	15.4%	5.3%	0.0%	-0.3%	0.0%	0.0%	-0.1%	-0.1%	0.0%	-0.1%	0.6%	0.5%
1984	0.7%	0.2%	0.0%	0.0%	-0.1%	0.0%	1.4%	0.7%	0.0%	0.2%	0.1%	0.0%
1985	-0.1%	4.8%	1.0%	1.2%	1.7%	-4.4%	-0.3%	1.2%	0.3%	-0.2%	0.7%	0.3%
1986	0.1%	0.0%	0.2%	0.3%	0.0%	0.1%	0.1%	1.1%	-2.3%	-1.3%	-0.3%	-0.2%
1987	0.1%	0.0%	0.0%	0.0%	0.1%	-1.5%	0.0%	0.3%	-0.1%	-0.2%	0.0%	0.0%
1988	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	1.9%	1.1%	0.2%	0.4%	-0.9%	-1.1%
1989	-0.6%	-0.6%	0.9%	1.4%	0.5%	0.3%	0.1%	0.1%	-0.2%	0.1%	1.7%	-1.3%
1990	-1.5%	-0.3%	0.6%	0.8%	0.1%	-0.6%	-0.4%	0.0%	0.0%	0.1%	-0.3%	-0.6%
1991	1.2%	1.3%	-0.8%	-11.3%	-9.2%	-3.6%	-0.5%	-0.2%	-0.2%	1.0%	0.5%	0.1%
Avg	1.0%	0.7%	0.3%	-0.4%	-0.4%	-0.7%	0.5%	0.4%	0.0%	0.1%	0.1%	0.3%
W/AN/BN	2.4%	0.8%	0.5%	0.3%	0.0%	0.0%	0.6%	0.3%	0.0%	0.0%	0.1%	1.1%
D/C	-0.1%	0.6%	0.2%	-0.9%	-0.7%	-1.3%	0.4%	0.5%	0.0%	0.1%	0.1%	-0.3%


Collinsville Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
7000
6000
5000
4000
3000
2000
1000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.36%
-0.41%
-0.72%
0.45%
0.41%
0.01%
0.05%
0.09%
0.27%
0.97%
0.68%
0.31%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

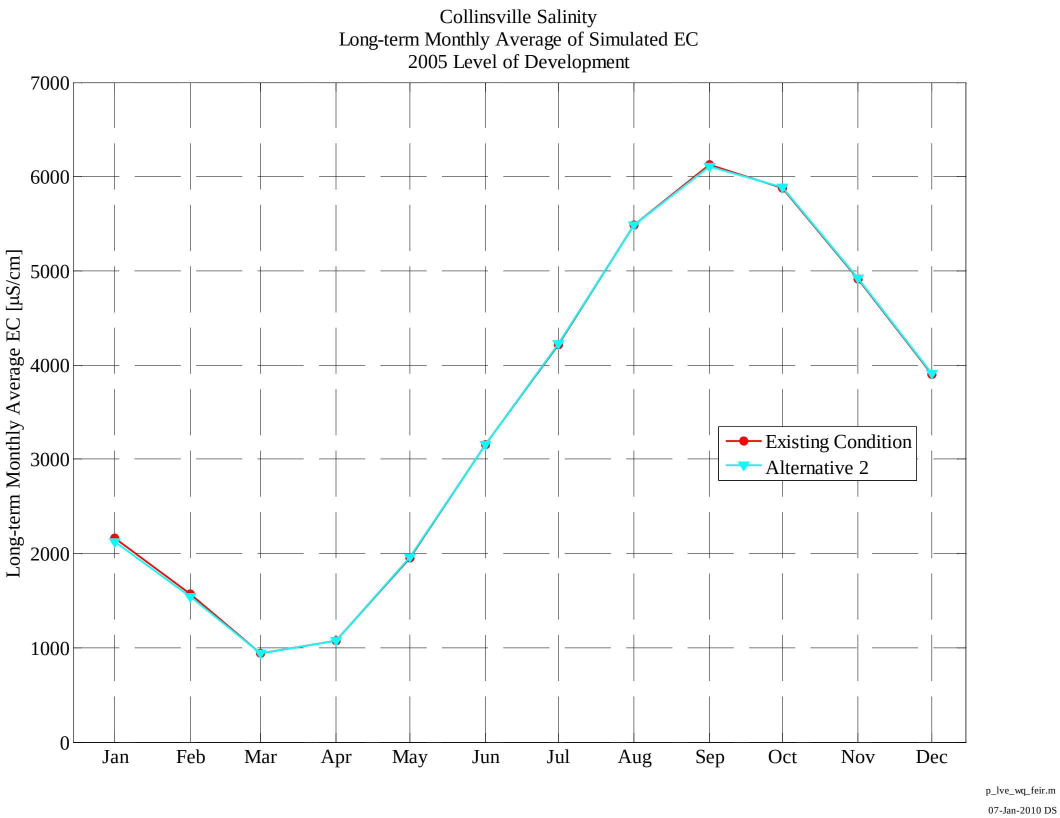
Alternative 2

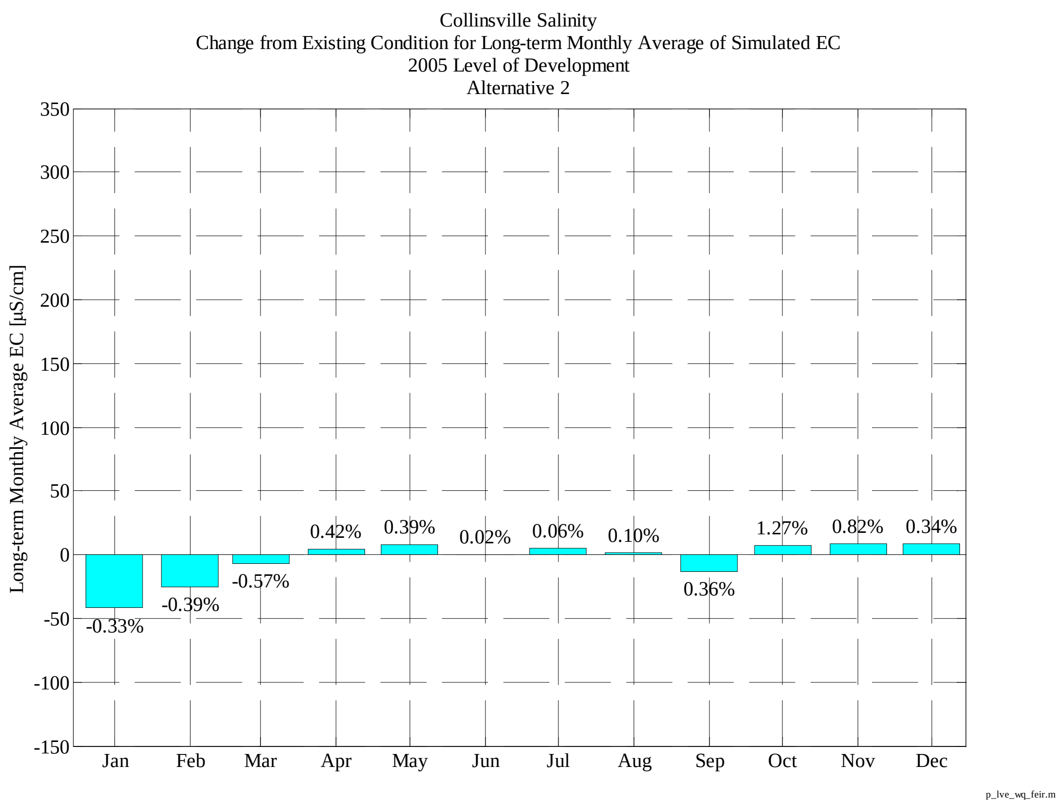
Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

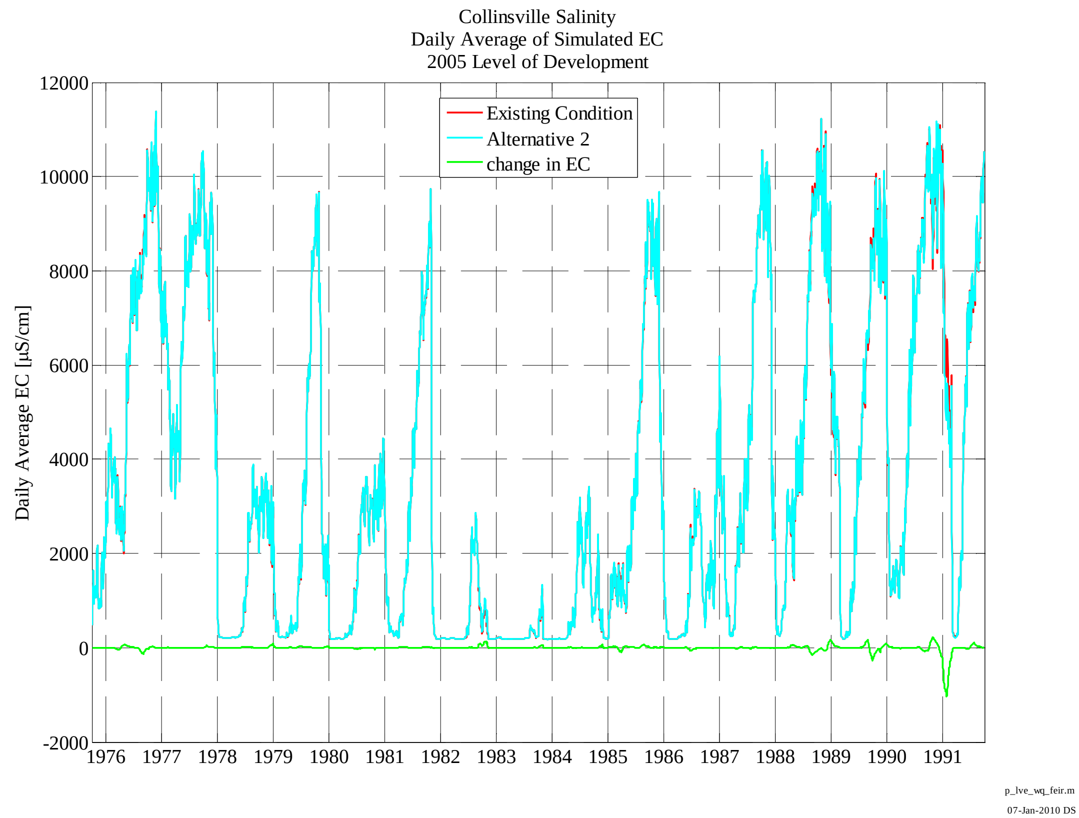
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,141	1,175	1,891	3,615	3,790	2,862	2,605	4,863	7,186	7,501	7,828	9,022
1977	9,901	10,253	8,363	7,017	5,549	4,122	4,254	6,482	8,172	8,769	9,031	9,665
1978	8,767	8,583	5,022	301	206	201	218	232	578	1,870	3,040	2,867
1979	3,005	3,137	2,665	877	247	233	372	405	1,287	2,977	5,264	7,983
1980	8,752	3,582	1,727	225	194	196	235	349	893	2,097	3,143	2,966
1981	3,013	3,101	3,580	1,223	351	281	570	1,492	3,022	4,622	6,453	7,280
1982	8,491	1,099	185	199	187	200	183	184	269	1,429	2,316	926
1983	779	240	190	212	193	184	188	182	186	204	363	275
1984	772	206	182	193	194	187	315	580	1,993	2,060	2,641	1,236
1985	1,330	640	204	907	1,385	1,275	1,195	1,773	2,991	4,326	6,491	8,666
1986	8,615	8,284	4,136	734	186	190	235	325	1,272	2,430	2,948	1,235
1987	1,313	1,491	3,753	3,556	1,248	351	1,191	2,403	3,134	4,339	7,192	9,012
1988	9,693	9,306	4,118	519	598	2,177	2,521	3,404	3,934	5,687	8,254	9,532
1989	10,104	9,228	8,013	5,177	4,260	362	264	973	2,819	4,453	6,020	7,623
1990	8,786	8,668	8,674	2,781	1,431	1,512	2,050	4,127	6,352	7,511	8,494	9,774
1991	9,770	9,805	9,925	6,471	4,670	661	862	3,657	6,467	7,328	8,358	9,677
Avg	5,889	4,925	3,914	2,125	1,543	937	1,079	1,964	3,160	4,225	5,490	6,109
W/AN/BN	5,597	3,590	2,015	392	201	199	249	322	925	1,866	2,816	2,498
D/C	6,117	5,963	5,391	3,474	2,587	1,511	1,723	3,241	4,898	6,060	7,569	8,917

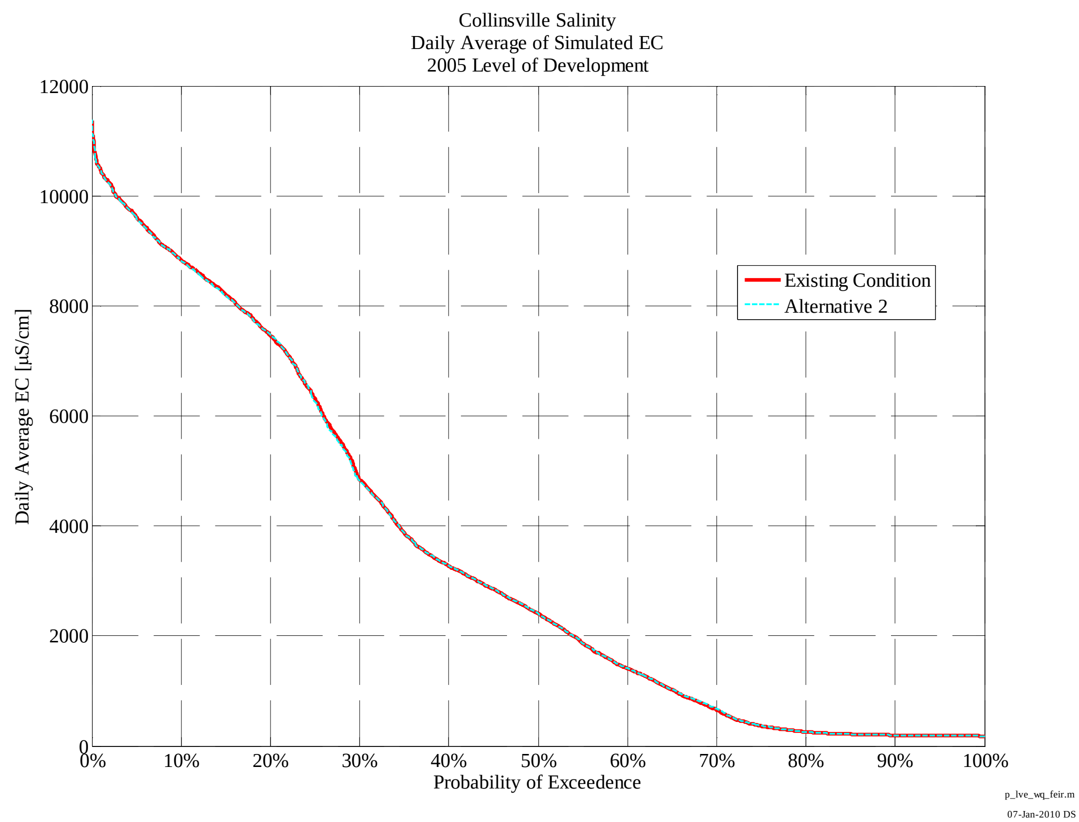
Percent (%) Change from Existing Condition for Collinsville Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-1.0%	1.1%	1.0%	0.3%	0.0%	-1.0%	-0.6%
1977	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1978	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	-0.2%	0.0%	1.7%	0.7%	0.2%	0.1%
1979	0.0%	-0.2%	1.9%	1.9%	0.1%	-0.2%	2.1%	0.5%	1.5%	0.6%	0.1%	0.0%
1980	0.0%	0.0%	1.2%	0.4%	0.0%	0.0%	0.6%	0.2%	-1.9%	-0.8%	-0.1%	0.0%
1981	-0.2%	0.0%	0.0%	0.0%	0.5%	0.3%	1.8%	0.7%	0.1%	0.0%	0.0%	0.2%
1982	0.1%	0.3%	0.1%	-0.1%	-0.1%	0.1%	0.0%	-0.1%	0.7%	0.3%	0.0%	7.1%
1983	15.4%	5.3%	0.0%	-0.4%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.7%	1.8%
1984	5.3%	1.3%	0.0%	-0.1%	-0.1%	0.0%	1.4%	0.7%	0.0%	0.2%	0.1%	0.0%
1985	-0.1%	5.8%	1.2%	1.2%	1.7%	-3.9%	0.0%	1.2%	0.3%	-0.2%	0.7%	0.3%
1986	0.0%	0.1%	0.2%	0.3%	0.0%	0.1%	0.2%	1.1%	-2.3%	-1.3%	-0.3%	-0.2%
1987	0.0%	0.0%	0.0%	0.0%	0.1%	-0.7%	-1.3%	0.0%	0.1%	-0.2%	0.1%	0.0%
1988	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	1.9%	1.1%	0.2%	0.5%	-0.9%	-1.2%
1989	-0.3%	-0.5%	1.1%	1.6%	0.6%	0.3%	0.1%	0.1%	-0.2%	0.1%	1.8%	-1.4%
1990	-1.5%	-0.3%	0.6%	0.9%	0.1%	-0.6%	-0.4%	0.0%	0.0%	0.1%	-0.3%	-0.6%
1991	1.2%	1.4%	-0.9%	-11.1%	-9.0%	-3.6%	-0.5%	-0.2%	-0.2%	1.0%	0.5%	0.1%
Avg	1.3%	0.8%	0.3%	-0.3%	-0.4%	-0.6%	0.4%	0.4%	0.0%	0.1%	0.1%	0.4%
W/AN/BN	3.0%	1.0%	0.5%	0.3%	0.0%	0.0%	0.6%	0.3%	0.0%	0.0%	0.1%	1.3%
D/C	-0.1%	0.7%	0.2%	-0.8%	-0.7%	-1.0%	0.3%	0.4%	0.1%	0.1%	0.1%	-0.3%


Collinsville Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
7000
6000
5000
4000
3000
2000
1000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.33%
-0.39%
-0.57%
0.42%
0.39%
0.02%
0.06%
0.10%
0.36%
1.27%
0.82%
0.34%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
change in EC
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

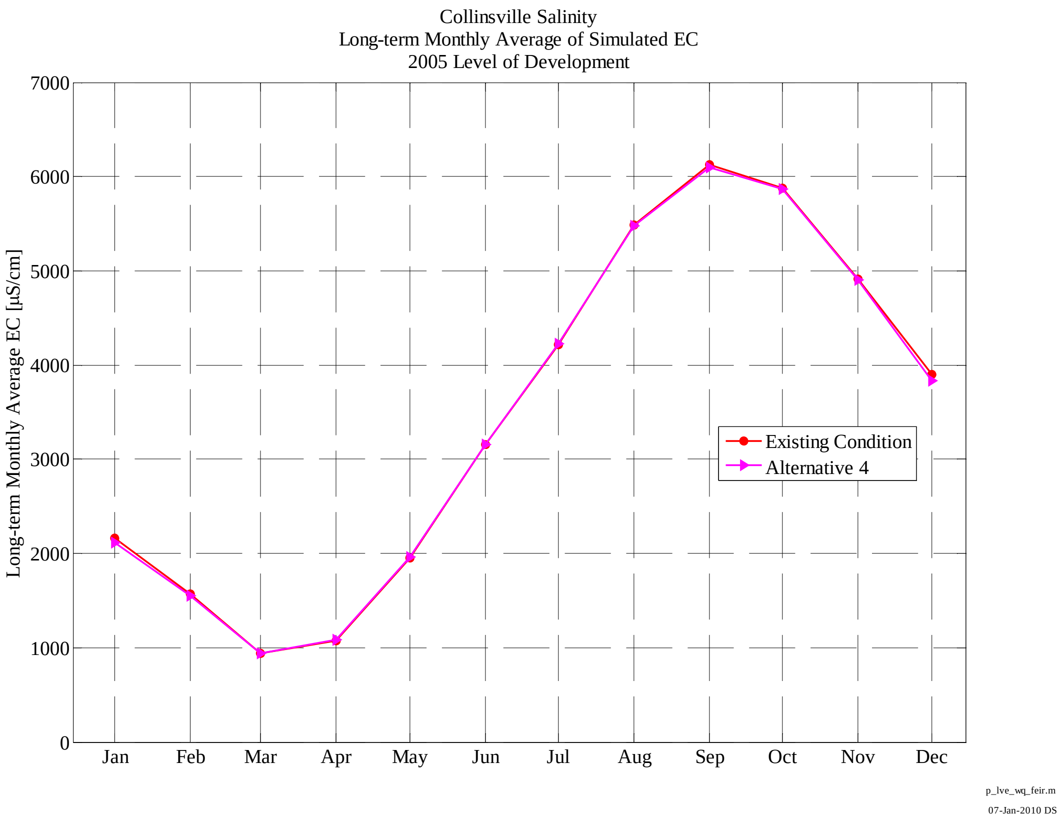
Alternative 4

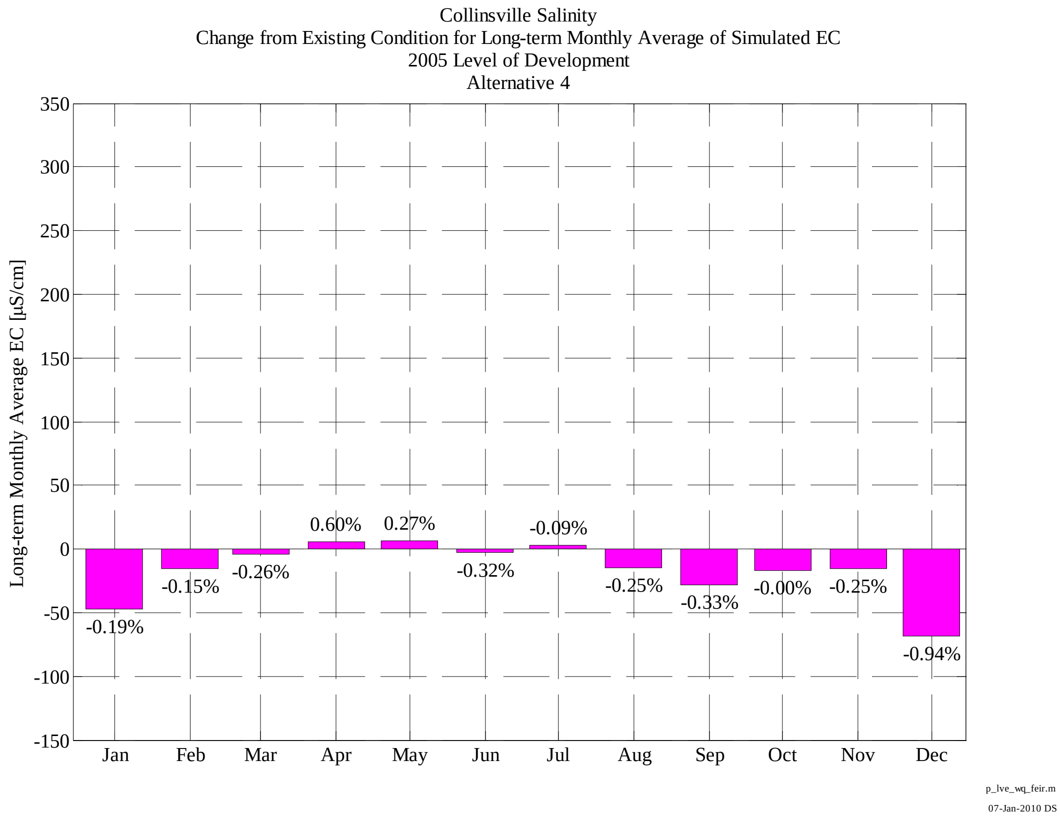
Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

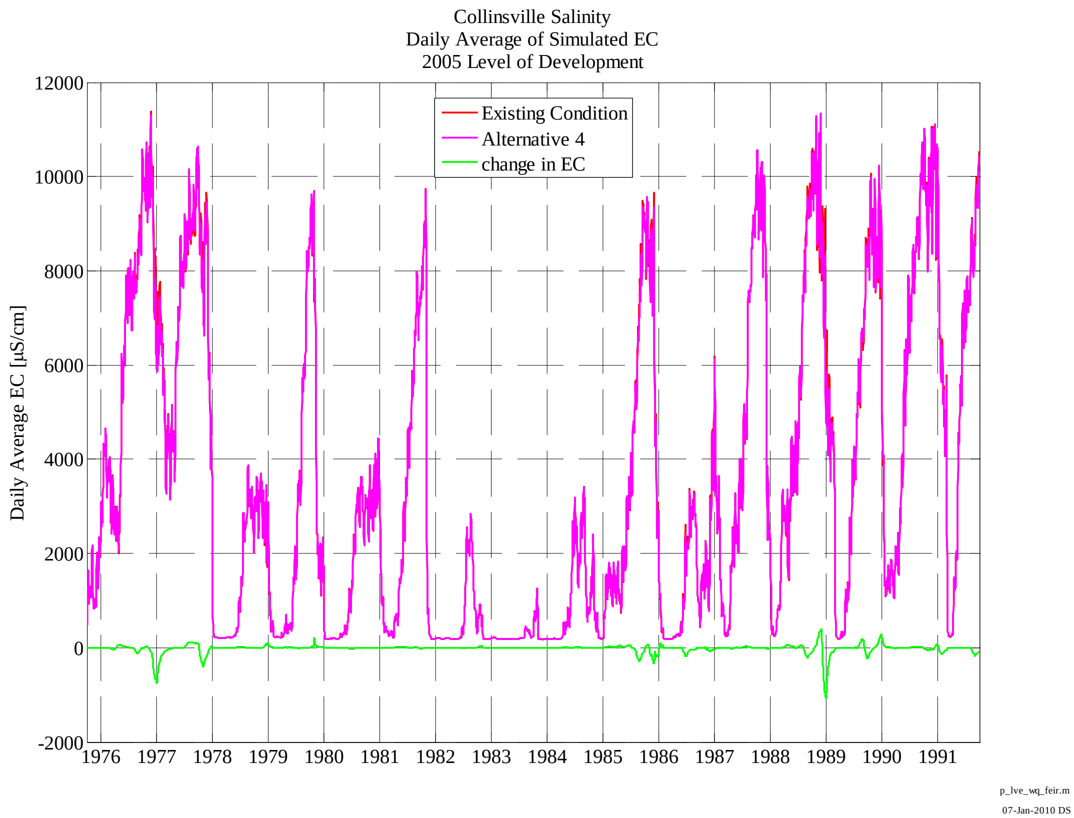
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,141	1,175	1,893	3,617	3,793	2,864	2,603	4,860	7,185	7,501	7,830	9,026
1977	9,905	10,195	7,838	6,629	5,433	4,084	4,240	6,473	8,167	8,840	9,142	9,770
1978	8,536	8,327	5,001	302	206	201	218	232	579	1,869	3,039	2,866
1979	3,006	3,139	2,676	885	248	233	373	411	1,271	2,949	5,256	7,975
1980	8,801	3,620	1,718	224	194	196	235	349	894	2,097	3,142	2,965
1981	3,018	3,101	3,578	1,222	352	280	568	1,493	3,024	4,626	6,460	7,258
1982	8,468	1,092	185	199	187	200	183	184	269	1,429	2,313	866
1983	695	230	190	213	193	184	188	182	186	204	361	270
1984	733	204	182	193	195	187	315	581	1,996	2,062	2,641	1,237
1985	1,331	604	201	907	1,387	1,338	1,230	1,770	3,025	4,331	6,237	8,496
1986	8,648	8,083	3,939	775	186	190	235	314	1,197	2,372	2,914	1,233
1987	1,313	1,457	3,692	3,547	1,250	352	1,191	2,399	3,131	4,367	7,199	9,011
1988	9,694	9,305	4,099	515	597	2,177	2,518	3,405	3,931	5,698	8,228	9,491
1989	10,130	9,547	7,366	4,643	4,144	356	264	973	2,821	4,454	6,038	7,652
1990	8,801	8,708	8,802	2,835	1,439	1,515	2,050	4,125	6,353	7,517	8,533	9,847
1991	9,622	9,634	10,034	7,211	5,045	679	865	3,658	6,476	7,258	8,247	9,535
Avg	5,865	4,901	3,837	2,120	1,553	940	1,080	1,963	3,157	4,223	5,474	6,094
W/AN/BN	5,555	3,528	1,984	399	201	199	250	322	913	1,855	2,810	2,487
D/C	6,106	5,970	5,278	3,458	2,604	1,516	1,725	3,240	4,902	6,066	7,546	8,899

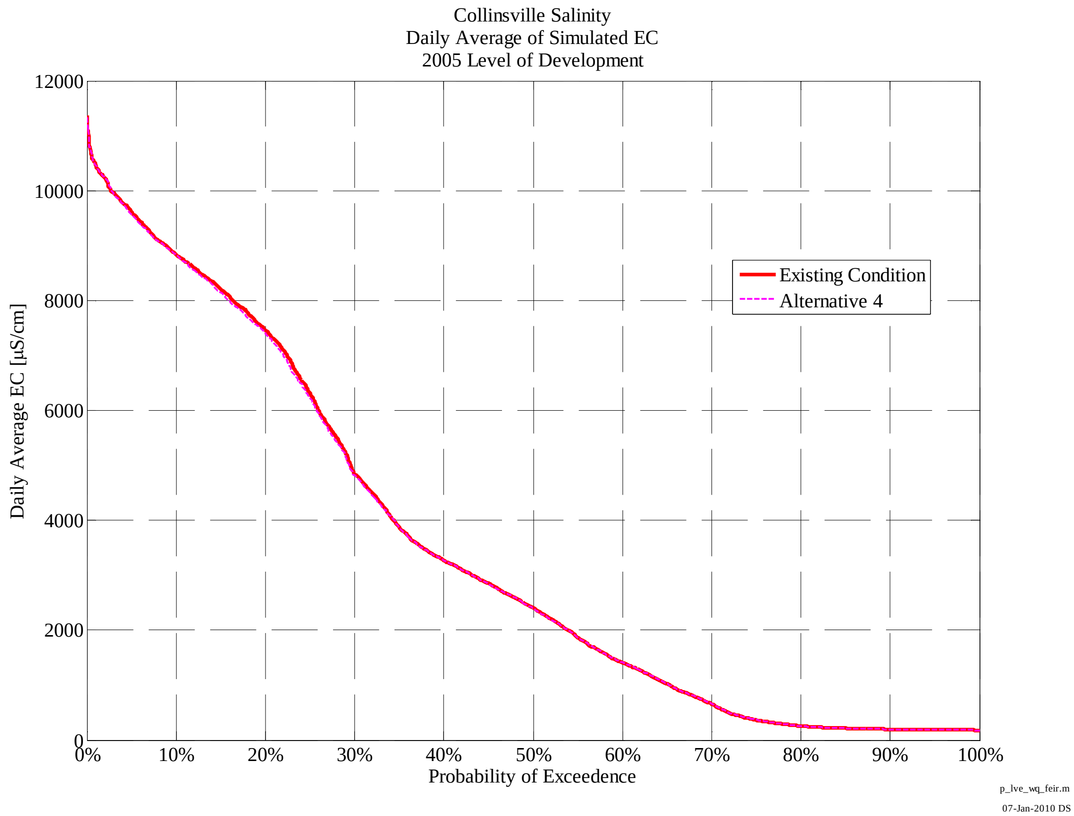
Percent (%) Change from Existing Condition for Collinsville Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.2%	-0.1%	0.0%	0.0%	0.0%	-0.9%	1.0%	0.9%	0.3%	0.0%	-0.9%	-0.5%
1977	0.1%	-0.4%	-6.3%	-5.5%	-2.1%	-0.9%	-0.3%	-0.1%	-0.1%	0.8%	1.2%	1.0%
1978	-2.5%	-2.8%	-0.3%	0.5%	0.0%	0.0%	-0.2%	0.0%	1.8%	0.7%	0.1%	0.0%
1979	0.0%	-0.2%	2.3%	2.8%	0.2%	-0.2%	2.5%	2.1%	0.3%	-0.3%	0.0%	-0.1%
1980	0.5%	1.1%	0.7%	0.1%	0.0%	0.1%	0.6%	0.3%	-1.8%	-0.8%	-0.2%	-0.1%
1981	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	1.5%	0.8%	0.2%	0.1%	0.1%	-0.1%
1982	-0.1%	-0.3%	0.0%	-0.1%	-0.1%	0.1%	0.0%	-0.1%	0.7%	0.3%	-0.1%	0.1%
1983	3.0%	0.9%	0.1%	-0.1%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	0.2%	0.3%	0.2%	0.1%
1985	0.0%	-0.2%	0.0%	1.2%	1.9%	0.9%	3.0%	1.0%	1.5%	-0.1%	-3.3%	-1.6%
1986	0.4%	-2.4%	-4.6%	5.9%	0.1%	0.1%	0.2%	-2.1%	-8.1%	-3.6%	-1.4%	-0.4%
1987	0.0%	-2.3%	-1.6%	-0.3%	0.2%	-0.7%	-1.3%	-0.2%	0.0%	0.4%	0.2%	0.0%
1988	0.0%	0.0%	-0.4%	-0.6%	-0.1%	0.1%	1.8%	1.1%	0.1%	0.7%	-1.2%	-1.6%
1989	-0.1%	2.9%	-7.1%	-8.9%	-2.2%	-1.4%	-0.1%	0.0%	-0.1%	0.1%	2.1%	-1.0%
1990	-1.3%	0.1%	2.1%	2.9%	0.7%	-0.4%	-0.3%	0.0%	0.0%	0.1%	0.2%	0.1%
1991	-0.3%	-0.4%	0.2%	-0.9%	-1.7%	-0.9%	-0.2%	-0.2%	-0.1%	0.0%	-0.9%	-1.4%
Avg	0.0%	-0.3%	-0.9%	-0.2%	-0.1%	-0.3%	0.6%	0.3%	-0.3%	-0.1%	-0.2%	-0.3%
W/AN/BN	0.2%	-0.5%	-0.3%	1.3%	0.0%	0.0%	0.7%	0.1%	-1.0%	-0.5%	-0.2%	0.0%
D/C	-0.2%	0.0%	-1.5%	-1.3%	-0.3%	-0.5%	0.6%	0.4%	0.2%	0.2%	-0.3%	-0.6%


Collinsville Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
7000
6000
5000
4000
3000
2000
1000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.19%
-0.15%
-0.26%
0.60%
0.27%
-0.32%
-0.09%
-0.25%
-0.33%
-0.00%
-0.25%
-0.94%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Emmaton

Existing Condition

Emmaton Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	245	259	329	744	736	509	514	1,357	2,497	2,090	2,496	3,078
1977	3,763	3,781	2,613	1,755	1,433	925	938	2,021	3,016	3,354	3,332	3,812
1978	3,336	3,099	1,091	208	194	191	194	198	219	359	585	540
1979	601	609	442	269	213	197	210	216	319	561	1,316	2,574
1980	2,931	795	338	188	187	184	195	211	265	420	612	554
1981	604	588	648	318	196	188	221	352	668	1,015	1,729	2,036
1982	2,917	311	180	192	181	191	179	180	187	333	422	225
1983	201	184	181	194	185	181	181	178	180	189	191	180
1984	209	178	179	184	185	181	203	229	450	381	509	271
1985	276	203	182	236	268	273	284	376	635	911	1,756	2,907
1986	2,858	2,562	892	252	183	183	203	209	330	446	579	275
1987	292	296	747	724	278	196	317	497	672	923	2,519	3,352
1988	3,442	3,126	843	226	226	488	480	723	920	1,384	3,152	3,828
1989	3,861	2,931	2,223	1,020	992	194	191	239	577	958	1,498	2,523
1990	2,823	2,514	2,727	541	304	308	387	1,024	2,052	2,127	2,966	3,951
1991	3,635	3,476	3,616	2,110	1,173	245	262	911	2,057	1,985	3,007	3,791
Avg	2,000	1,557	1,077	573	433	290	310	558	940	1,090	1,667	2,119
W/AN/BN	1,865	1,105	472	212	190	187	195	203	278	384	602	660
D/C	2,105	1,908	1,547	853	623	370	400	833	1,455	1,638	2,495	3,253

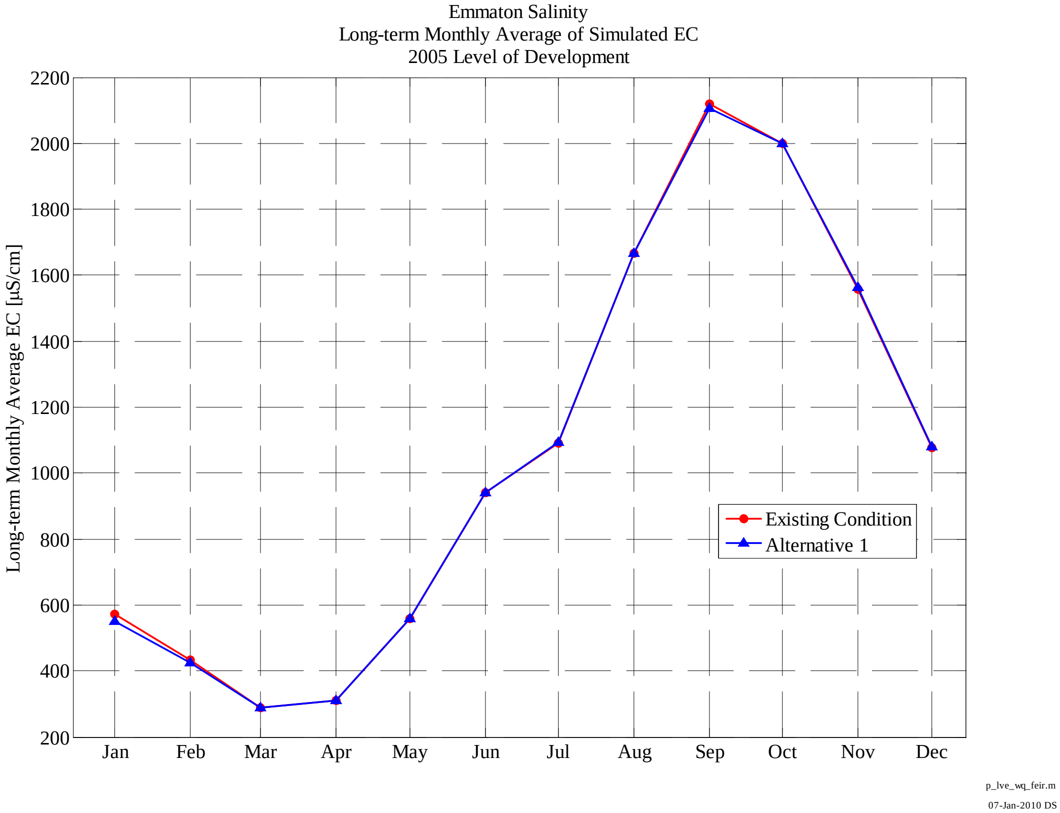
Alternative 1

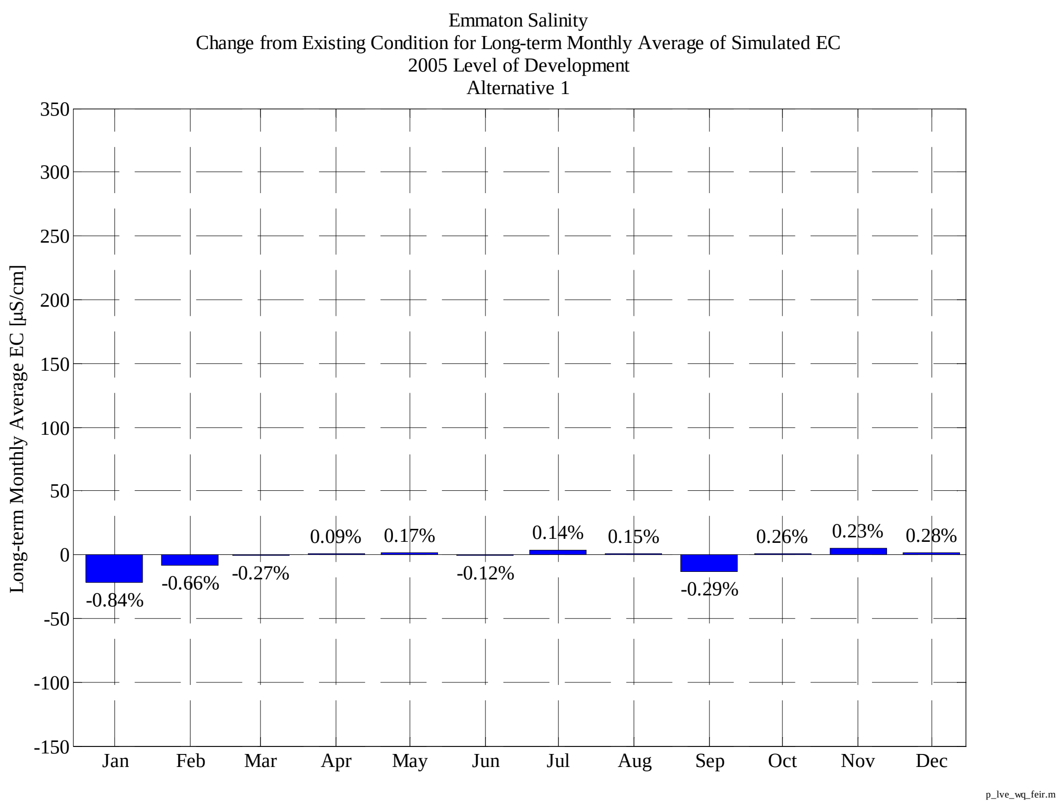
Emmaton Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

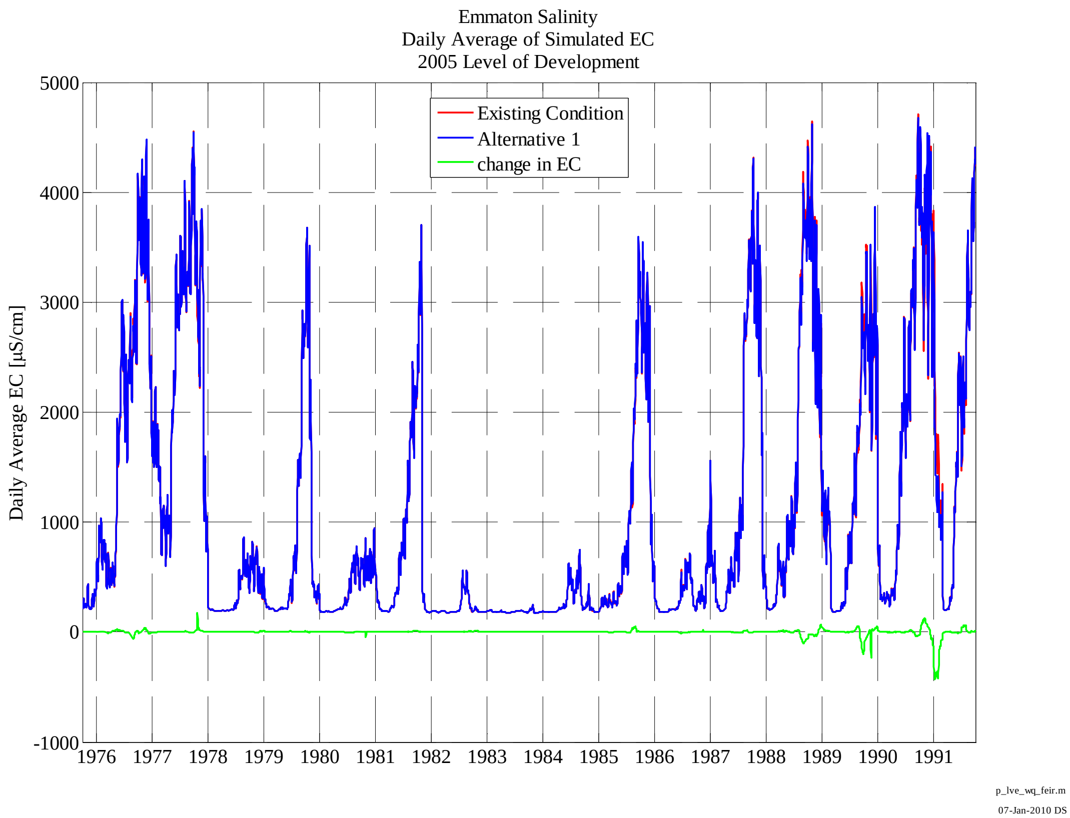
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	245	259	329	743	735	504	519	1,375	2,509	2,087	2,459	3,075
1977	3,763	3,806	2,606	1,752	1,433	924	938	2,022	3,016	3,353	3,335	3,805
1978	3,367	3,113	1,093	208	194	191	194	197	219	361	586	541
1979	601	604	451	271	213	196	210	216	323	564	1,319	2,574
1980	2,930	795	341	188	187	184	195	210	263	417	612	554
1981	600	589	648	318	196	188	221	353	668	1,014	1,729	2,046
1982	2,922	312	180	192	180	191	179	180	187	333	422	230
1983	209	185	182	194	185	181	181	178	180	189	191	180
1984	210	178	179	184	185	181	203	229	450	381	510	271
1985	276	205	182	237	271	268	283	379	637	908	1,790	2,915
1986	2,861	2,563	894	252	183	183	203	209	324	440	578	274
1987	295	298	747	724	278	196	317	497	668	919	2,529	3,348
1988	3,440	3,126	843	226	226	493	489	733	918	1,395	3,105	3,749
1989	3,837	2,901	2,253	1,043	999	194	191	239	573	961	1,535	2,417
1990	2,757	2,504	2,758	547	304	307	385	1,024	2,050	2,132	2,975	3,917
1991	3,697	3,553	3,574	1,731	1,027	240	261	908	2,050	2,035	3,012	3,795
Avg	2,001	1,562	1,079	551	425	289	311	559	940	1,093	1,668	2,106
W/AN/BN	1,871	1,107	474	213	189	187	195	203	278	384	602	661
D/C	2,101	1,916	1,549	813	608	368	401	837	1,454	1,645	2,497	3,229

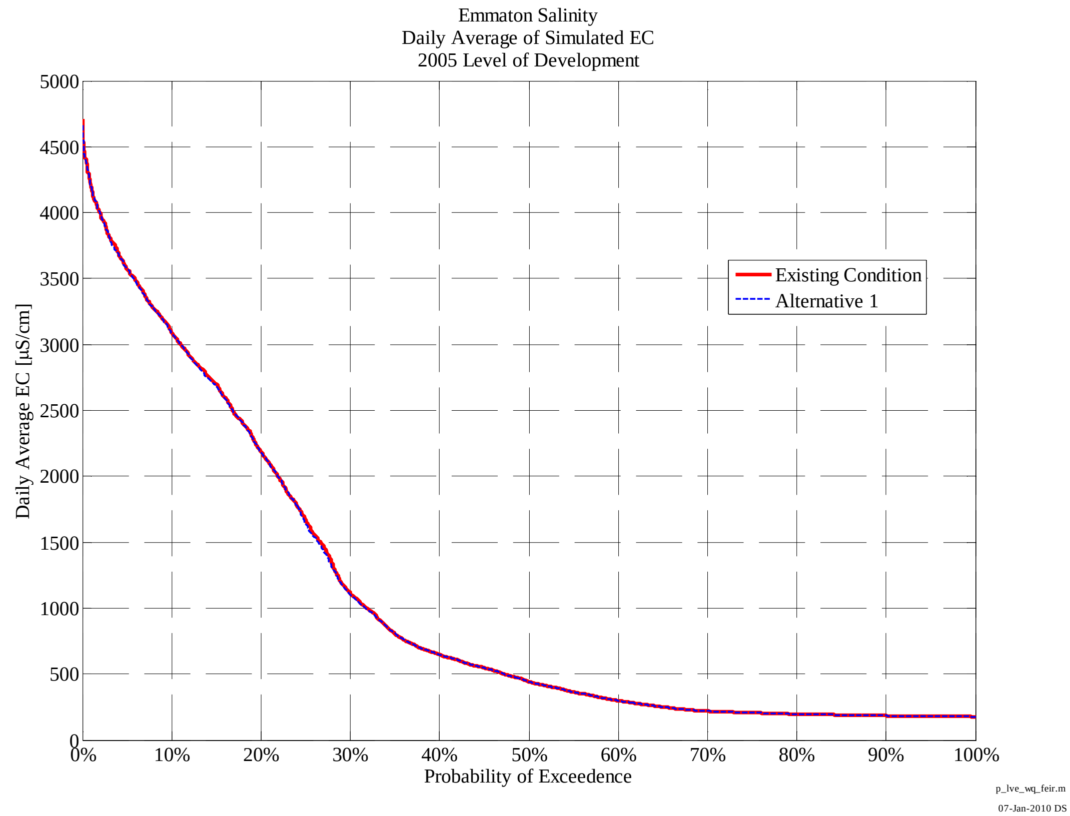
Percent (%) Change from Existing Condition for Emmaton Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-1.1%	0.8%	1.3%	0.5%	-0.1%	-1.5%	-0.1%
1977	0.0%	0.7%	-0.3%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.2%
1978	0.9%	0.5%	0.2%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.3%	0.5%	0.2%	0.1%
1979	0.0%	-0.7%	2.0%	0.9%	0.0%	0.0%	0.0%	-0.2%	1.3%	0.7%	0.2%	0.0%
1980	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.8%	-0.7%	-0.1%	0.0%
1981	-0.7%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.1%	-0.1%	0.0%	0.5%
1982	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	2.1%
1983	3.8%	0.3%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.2%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.2%	0.0%	0.0%	0.2%	0.1%	0.0%
1985	0.0%	1.3%	0.2%	0.5%	1.0%	-1.9%	-0.2%	0.7%	0.3%	-0.3%	1.9%	0.3%
1986	0.1%	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%	-0.1%	-1.7%	-1.3%	-0.3%	-0.2%
1987	0.8%	0.6%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	-0.5%	-0.4%	0.4%	-0.1%
1988	0.0%	0.0%	0.1%	0.1%	0.1%	0.9%	1.8%	1.3%	-0.2%	0.8%	-1.5%	-2.1%
1989	-0.6%	-1.0%	1.4%	2.3%	0.8%	0.1%	0.0%	0.1%	-0.5%	0.3%	2.5%	-4.2%
1990	-2.3%	-0.4%	1.2%	1.0%	0.2%	-0.4%	-0.4%	0.0%	-0.1%	0.2%	0.3%	-0.9%
1991	1.7%	2.2%	-1.2%	-18.0%	-12.5%	-1.8%	-0.4%	-0.3%	-0.4%	2.5%	0.1%	0.1%
Avg	0.3%	0.2%	0.3%	-0.8%	-0.7%	-0.3%	0.1%	0.2%	-0.1%	0.1%	0.2%	-0.3%
W/AN/BN	0.8%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.1%	0.0%	0.3%
D/C	-0.1%	0.4%	0.1%	-1.6%	-1.2%	-0.5%	0.2%	0.4%	-0.1%	0.3%	0.3%	-0.7%


Emmaton Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.84%
-0.66%
-0.27%
0.09%
0.17%
-0.12%
0.14%
0.15%
-0.29%
0.26%
0.23%
0.28%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

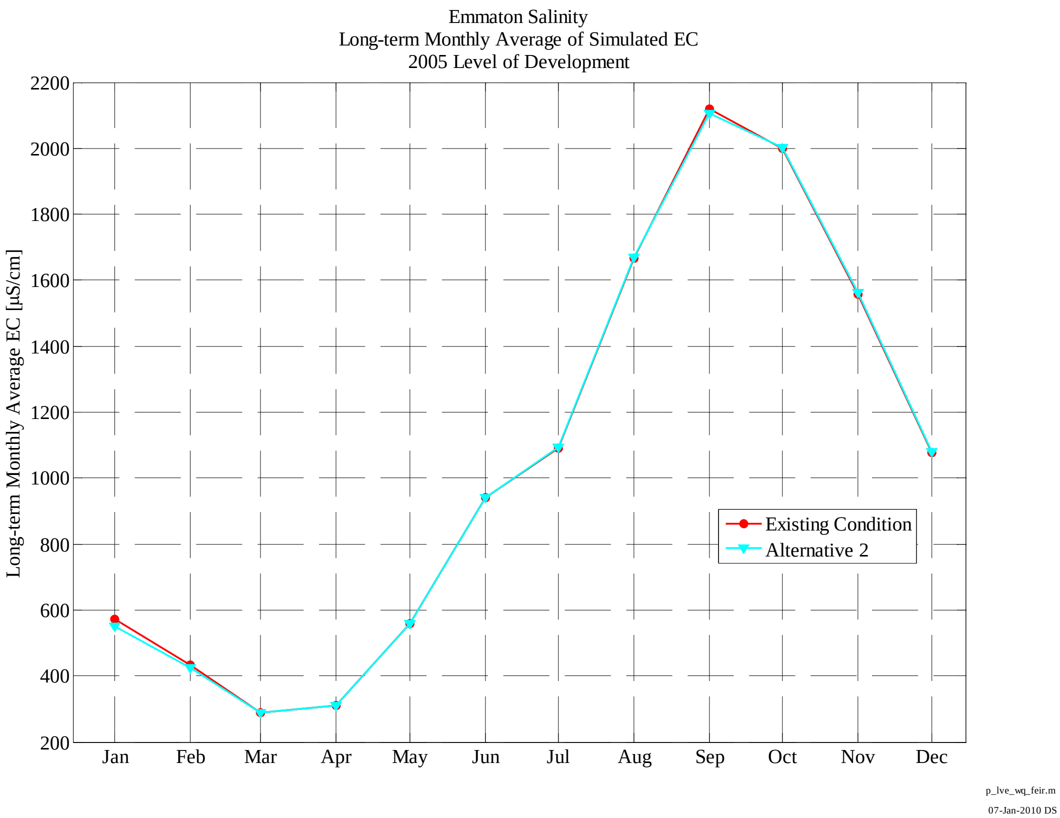
Alternative 2

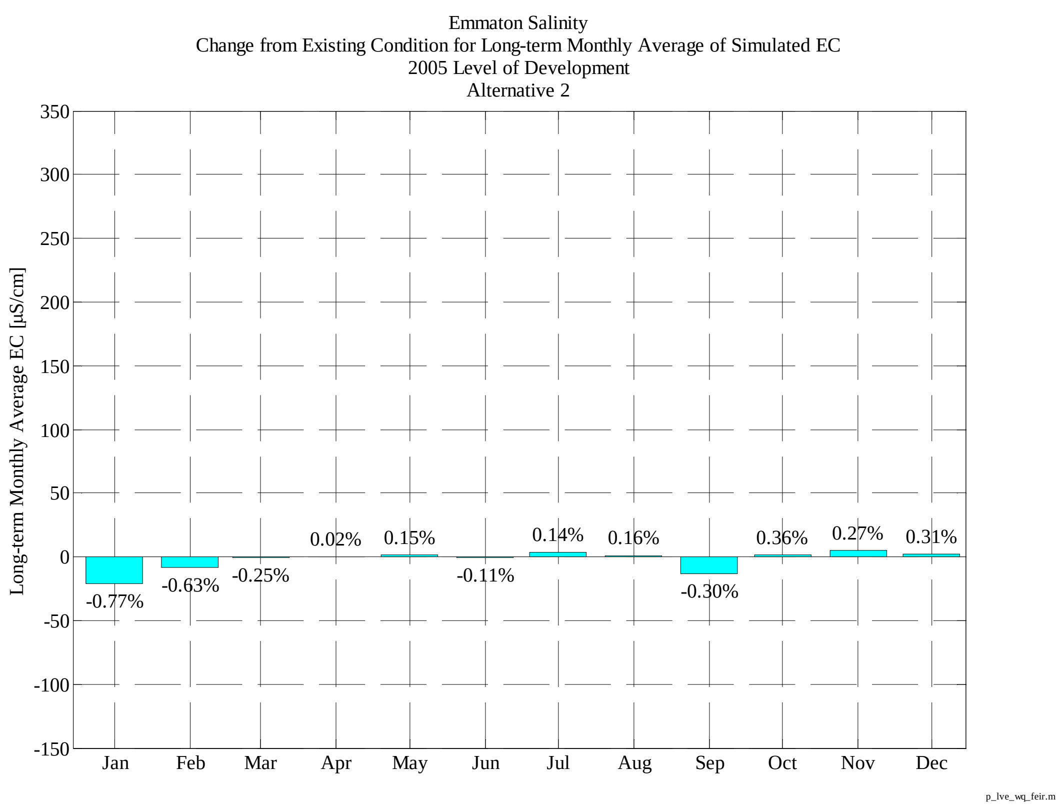
Emmaton Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 2
2005 Level of Development

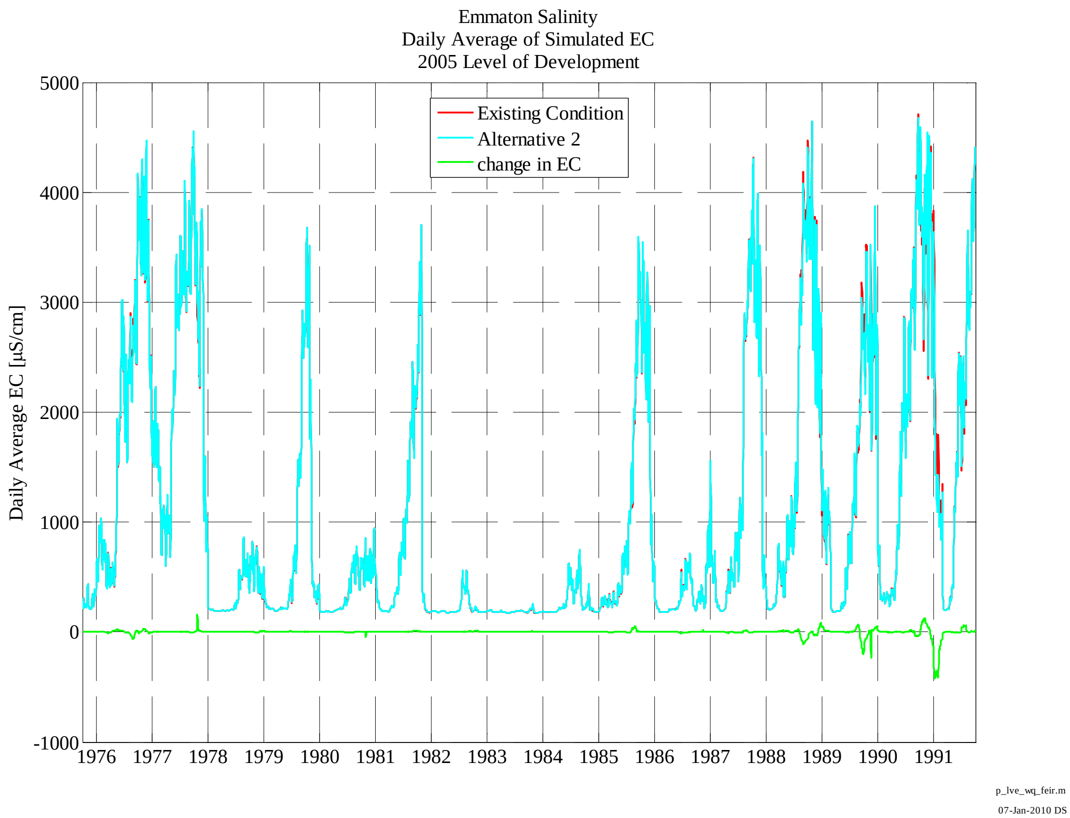
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	245	258	329	743	735	504	518	1,374	2,508	2,087	2,458	3,075
1977	3,763	3,801	2,606	1,755	1,434	925	939	2,022	3,016	3,353	3,335	3,808
1978	3,360	3,106	1,093	208	194	191	194	197	219	361	586	541
1979	601	604	452	272	213	196	210	216	323	565	1,319	2,574
1980	2,930	795	341	188	187	184	195	210	263	417	612	554
1981	600	589	648	318	196	188	221	353	668	1,014	1,729	2,046
1982	2,922	313	180	192	180	191	179	180	187	333	422	230
1983	209	185	182	194	185	181	181	178	179	189	191	180
1984	213	178	179	184	185	181	203	229	450	382	510	271
1985	276	206	182	237	271	269	284	379	637	908	1,790	2,915
1986	2,861	2,564	894	252	183	183	203	209	324	441	578	274
1987	294	298	747	724	278	196	313	496	669	919	2,530	3,349
1988	3,441	3,126	843	226	226	493	489	733	918	1,397	3,105	3,745
1989	3,850	2,906	2,257	1,047	1,001	194	191	239	573	961	1,536	2,414
1990	2,755	2,505	2,761	548	304	307	385	1,024	2,050	2,132	2,975	3,916
1991	3,699	3,556	3,572	1,738	1,030	240	261	909	2,050	2,033	3,012	3,794
Avg	2,001	1,562	1,079	552	425	289	310	559	940	1,093	1,668	2,105
W/AN/BN	1,871	1,107	474	213	189	187	195	203	278	384	602	661
D/C	2,103	1,916	1,550	815	608	368	400	836	1,454	1,645	2,497	3,229

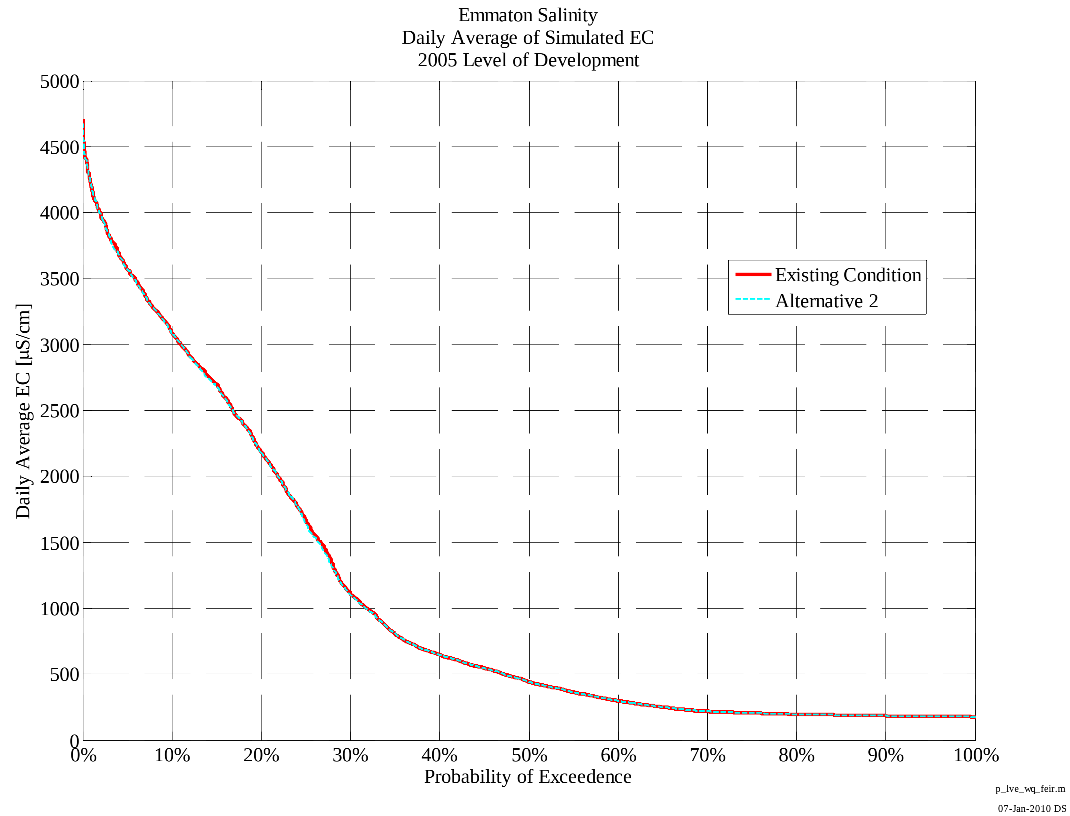
Percent (%) Change from Existing Condition for Emmaton Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-1.1%	0.8%	1.3%	0.4%	-0.1%	-1.5%	-0.1%
1977	0.0%	0.5%	-0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%
1978	0.7%	0.2%	0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.3%	0.5%	0.2%	0.1%
1979	0.0%	-0.8%	2.1%	0.9%	0.0%	0.0%	0.0%	-0.2%	1.3%	0.7%	0.2%	0.0%
1980	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.8%	-0.7%	-0.1%	0.0%
1981	-0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	-0.1%	0.0%	0.5%
1982	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	2.1%
1983	3.9%	0.3%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1984	1.8%	0.1%	0.0%	0.0%	-0.1%	0.1%	0.2%	0.0%	0.0%	0.2%	0.1%	0.0%
1985	0.0%	1.6%	0.3%	0.5%	1.0%	-1.7%	-0.1%	0.7%	0.4%	-0.3%	1.9%	0.3%
1986	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	-0.1%	-1.7%	-1.3%	-0.3%	-0.2%
1987	0.7%	0.5%	0.0%	0.0%	0.0%	0.0%	-1.4%	-0.2%	-0.4%	-0.4%	0.4%	-0.1%
1988	0.0%	0.0%	0.1%	0.0%	0.1%	0.9%	1.7%	1.3%	-0.2%	0.9%	-1.5%	-2.2%
1989	-0.3%	-0.8%	1.5%	2.7%	0.9%	0.1%	0.0%	0.1%	-0.5%	0.3%	2.6%	-4.3%
1990	-2.4%	-0.4%	1.3%	1.1%	0.2%	-0.4%	-0.4%	0.0%	-0.1%	0.2%	0.3%	-0.9%
1991	1.8%	2.3%	-1.2%	-17.6%	-12.2%	-1.8%	-0.4%	-0.3%	-0.3%	2.5%	0.2%	0.1%
Avg	0.4%	0.3%	0.3%	-0.8%	-0.6%	-0.2%	0.0%	0.2%	-0.1%	0.1%	0.2%	-0.3%
W/AN/BN	0.9%	0.1%	0.5%	0.1%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.1%	0.0%	0.3%
D/C	-0.1%	0.4%	0.2%	-1.5%	-1.1%	-0.4%	0.0%	0.4%	-0.1%	0.3%	0.3%	-0.8%


Emmaton Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.77%
-0.63%
-0.25%
0.02%
0.15%
-0.11%
0.14%
0.16%
-0.30%
0.36%
0.27%
0.31%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

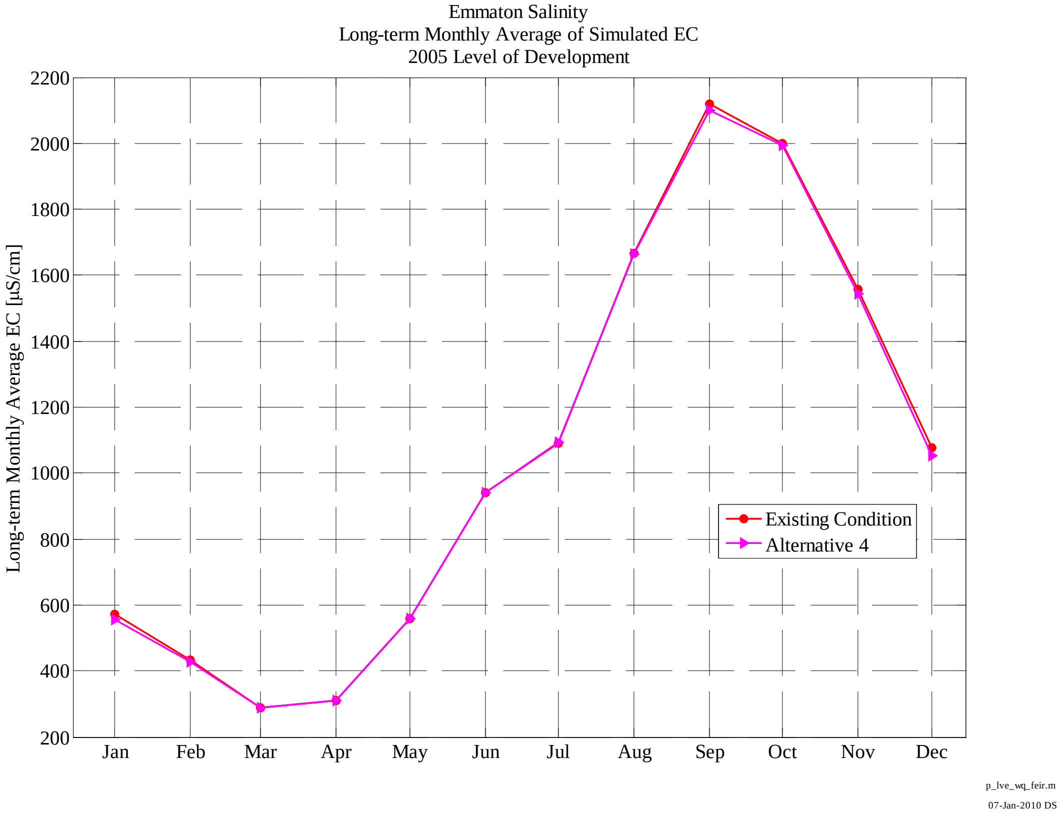
Alternative 4

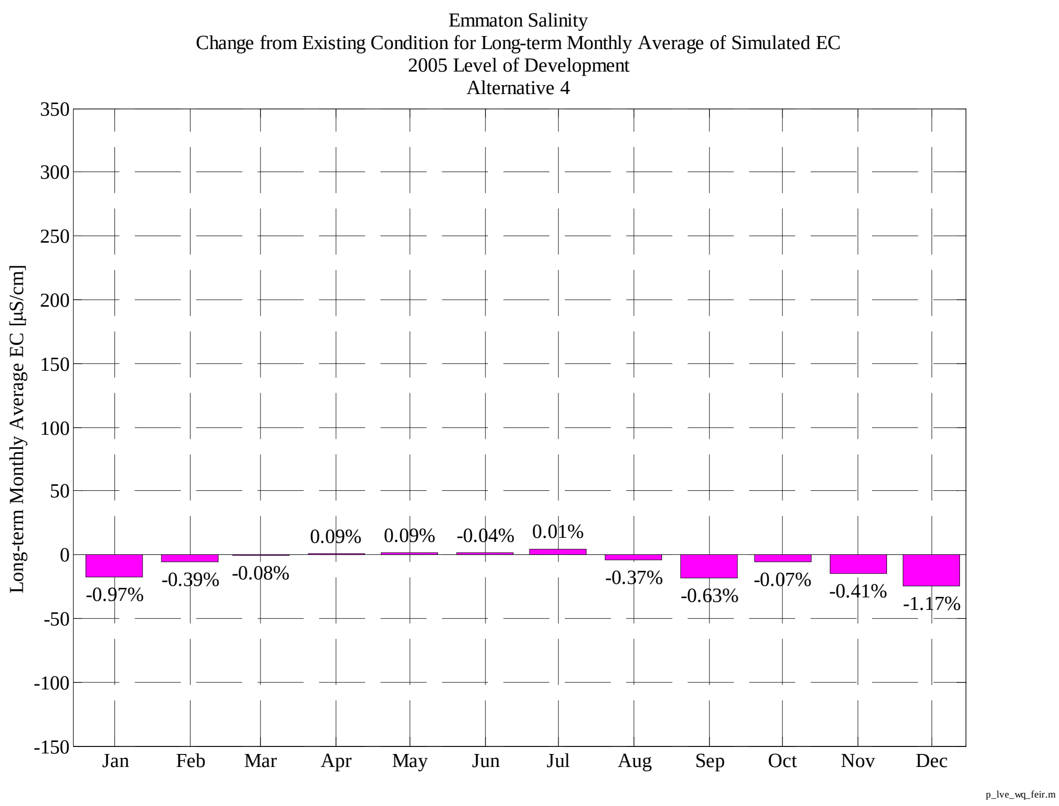
Emmaton Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

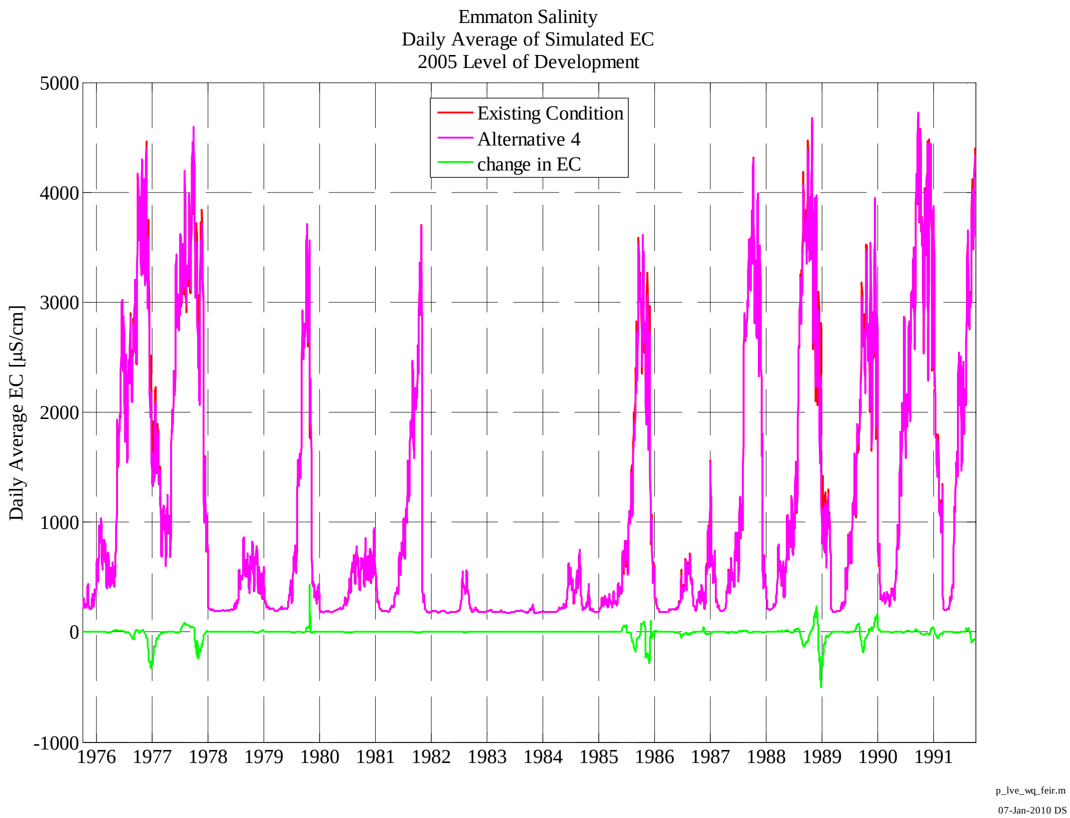
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	245	259	329	744	736	504	518	1,372	2,507	2,087	2,458	3,077
1977	3,765	3,754	2,355	1,611	1,399	918	939	2,024	3,013	3,405	3,398	3,860
1978	3,187	2,960	1,085	208	194	191	194	197	219	361	585	541
1979	601	604	454	273	213	197	210	216	318	558	1,317	2,569
1980	3,006	795	339	188	187	184	195	210	263	417	611	554
1981	604	588	648	318	196	188	221	353	669	1,015	1,732	2,034
1982	2,910	311	180	192	180	191	179	180	187	333	421	225
1983	203	184	182	194	185	181	181	178	180	189	191	180
1984	209	178	179	184	185	181	203	229	451	382	510	271
1985	276	202	182	237	271	275	288	377	681	906	1,638	2,845
1986	2,928	2,349	860	258	183	183	203	208	308	430	565	273
1987	293	305	732	721	279	196	313	495	668	930	2,530	3,351
1988	3,441	3,126	839	226	226	493	488	736	917	1,407	3,106	3,721
1989	3,849	3,069	2,015	881	958	193	191	239	574	961	1,545	2,430
1990	2,762	2,540	2,830	560	306	307	385	1,024	2,050	2,135	2,969	3,963
1991	3,621	3,457	3,631	2,087	1,146	244	262	909	2,055	1,986	3,024	3,714
Avg	1,994	1,542	1,052	555	428	289	311	559	941	1,094	1,663	2,100
W/AN/BN	1,863	1,054	468	214	189	187	195	202	275	382	600	659
D/C	2,095	1,922	1,507	821	613	369	401	837	1,460	1,648	2,489	3,222

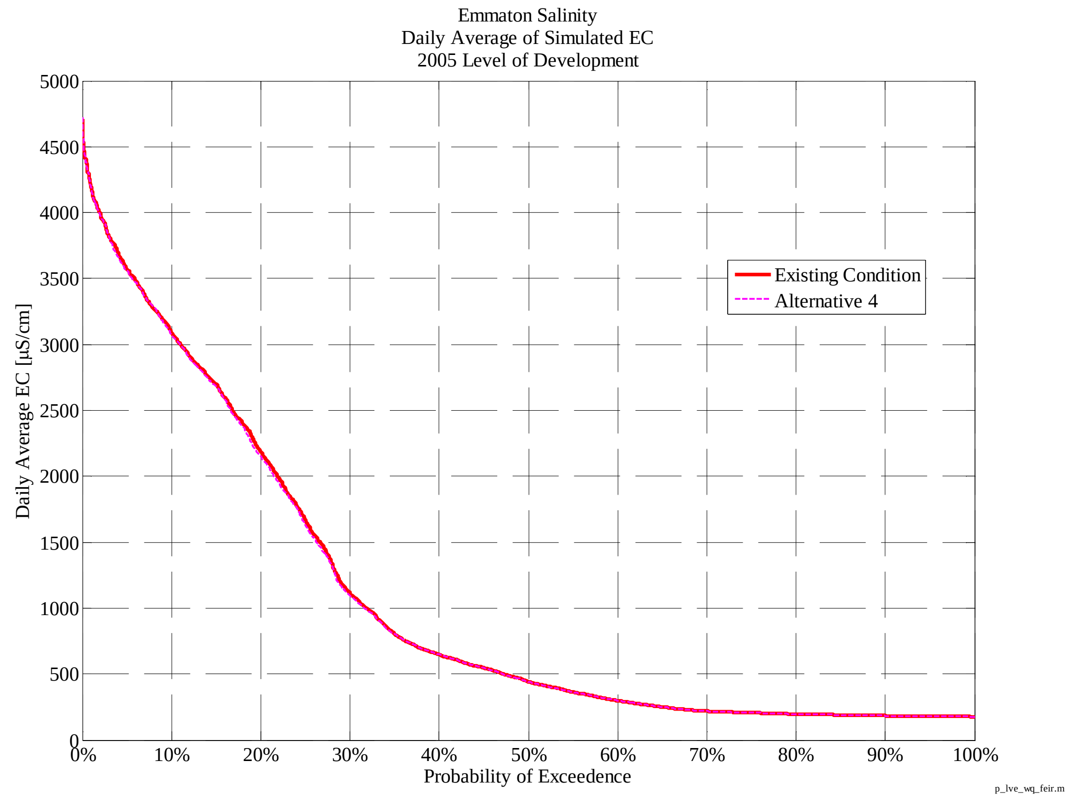
Percent (%) Change from Existing Condition for Emmaton Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.2%	-0.1%	0.0%	0.0%	0.0%	-1.0%	0.7%	1.1%	0.4%	-0.1%	-1.5%	0.0%
1977	0.1%	-0.7%	-9.9%	-8.2%	-2.4%	-0.7%	0.1%	0.1%	-0.1%	1.5%	2.0%	1.2%
1978	-4.5%	-4.5%	-0.6%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.3%	0.5%	0.1%	0.1%
1979	0.0%	-0.9%	2.5%	1.6%	0.0%	0.0%	0.0%	-0.3%	-0.1%	-0.5%	0.1%	-0.2%
1980	2.5%	0.0%	0.3%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.8%	-0.7%	-0.2%	-0.1%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%	0.2%	-0.1%
1982	-0.2%	-0.1%	0.0%	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	-0.3%	0.1%
1983	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.3%	0.2%	0.1%
1985	0.1%	-0.1%	0.0%	0.5%	1.1%	0.5%	1.3%	0.4%	7.4%	-0.6%	-6.7%	-2.1%
1986	2.5%	-8.3%	-3.6%	2.4%	0.0%	0.0%	0.0%	-0.8%	-6.5%	-3.5%	-2.5%	-0.8%
1987	0.3%	2.9%	-2.0%	-0.4%	0.1%	0.0%	-1.4%	-0.3%	-0.5%	0.8%	0.4%	0.0%
1988	0.0%	0.0%	-0.4%	-0.1%	0.0%	0.9%	1.6%	1.8%	-0.3%	1.6%	-1.5%	-2.8%
1989	-0.3%	4.7%	-9.3%	-13.6%	-3.4%	-0.5%	-0.1%	0.0%	-0.5%	0.3%	3.2%	-3.7%
1990	-2.2%	1.0%	3.8%	3.4%	0.7%	-0.3%	-0.4%	-0.1%	-0.1%	0.4%	0.1%	0.3%
1991	-0.4%	-0.5%	0.4%	-1.1%	-2.3%	-0.4%	-0.1%	-0.2%	-0.1%	0.1%	0.5%	-2.0%
Avg	-0.1%	-0.4%	-1.2%	-1.0%	-0.4%	-0.1%	0.1%	0.1%	0.0%	0.0%	-0.4%	-0.6%
W/AN/BN	0.2%	-2.0%	-0.2%	0.6%	0.0%	0.0%	0.0%	-0.2%	-1.0%	-0.6%	-0.4%	-0.1%
D/C	-0.3%	0.8%	-1.9%	-2.2%	-0.7%	-0.2%	0.2%	0.3%	0.7%	0.5%	-0.4%	-1.0%


Emmaton Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.97%
-0.39%
-0.08%
0.09%
0.09%
-0.04%
0.01%
-0.37%
-0.63%
-0.07%
-0.41%
-1.17%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Jersey Point

Existing Condition

Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	304	231	506	848	910	673	383	721	1,467	2,915	2,513	3,089
1977	2,531	2,733	2,027	1,949	1,155	639	609	1,094	1,870	2,099	2,278	2,634
1978	2,094	2,151	1,794	356	259	256	274	242	225	380	757	700
1979	397	396	779	413	279	242	243	263	259	808	1,568	2,603
1980	2,783	1,208	673	263	251	228	227	253	246	321	658	681
1981	384	390	1,226	677	240	208	253	306	449	1,586	2,488	2,836
1982	2,568	1,033	208	235	219	240	205	187	197	256	390	219
1983	210	200	219	279	273	244	208	192	201	212	199	187
1984	249	193	212	227	215	199	232	257	316	551	637	323
1985	221	283	204	233	290	264	267	309	436	1,387	2,261	2,976
1986	2,593	2,466	1,518	388	263	254	253	239	256	563	615	260
1987	219	243	1,039	1,048	427	234	271	368	471	1,412	1,771	2,407
1988	2,481	2,396	1,559	359	246	342	365	462	562	1,725	2,165	2,636
1989	2,514	2,544	2,072	1,465	784	280	223	232	445	1,556	2,295	2,491
1990	2,499	2,784	2,571	1,067	351	275	299	562	1,199	2,563	2,554	2,785
1991	2,345	2,363	2,733	1,661	948	360	267	536	1,342	2,747	2,298	2,600
Avg	1,524	1,351	1,209	717	444	308	286	389	621	1,317	1,590	1,839
W/AN/BN	1,556	1,092	772	309	251	237	235	233	243	441	689	710
D/C	1,500	1,552	1,549	1,034	595	364	326	510	916	1,999	2,292	2,717

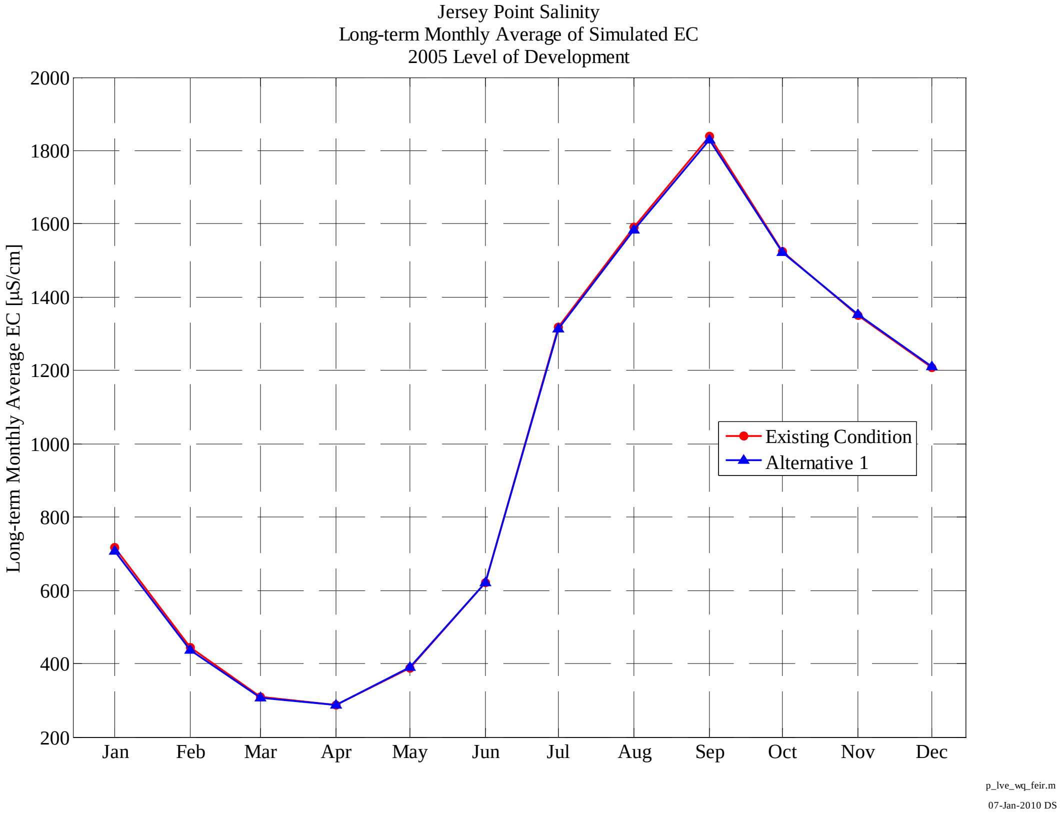
Alternative 1

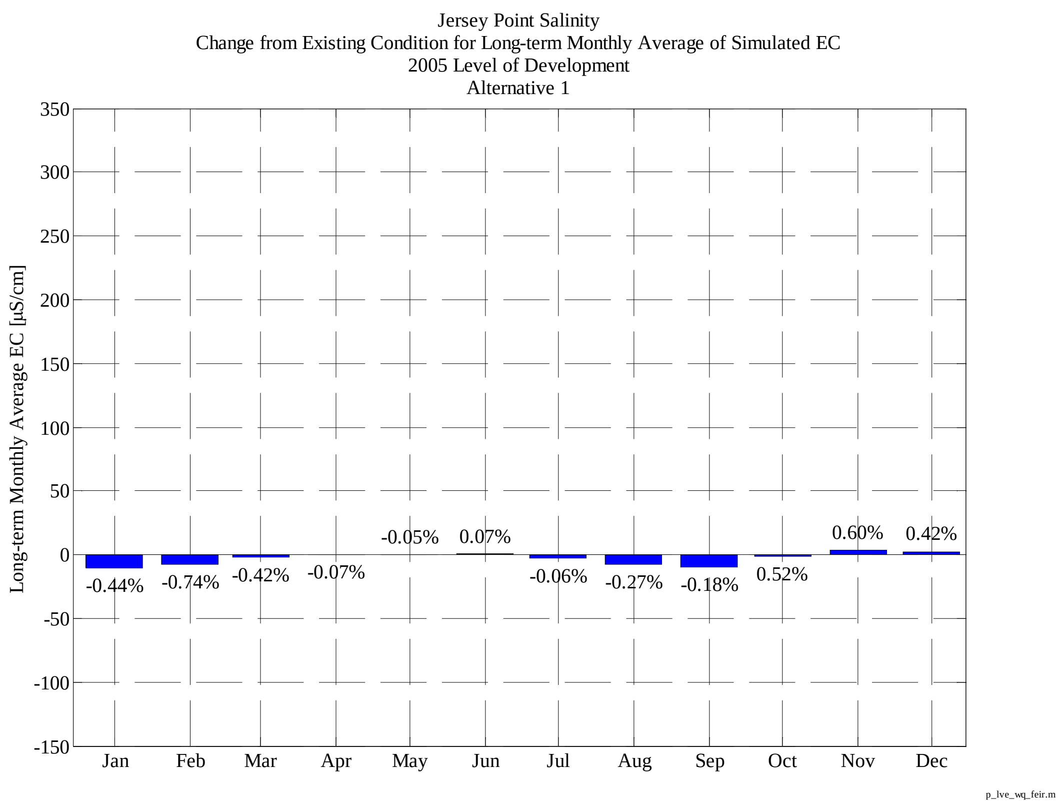
Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

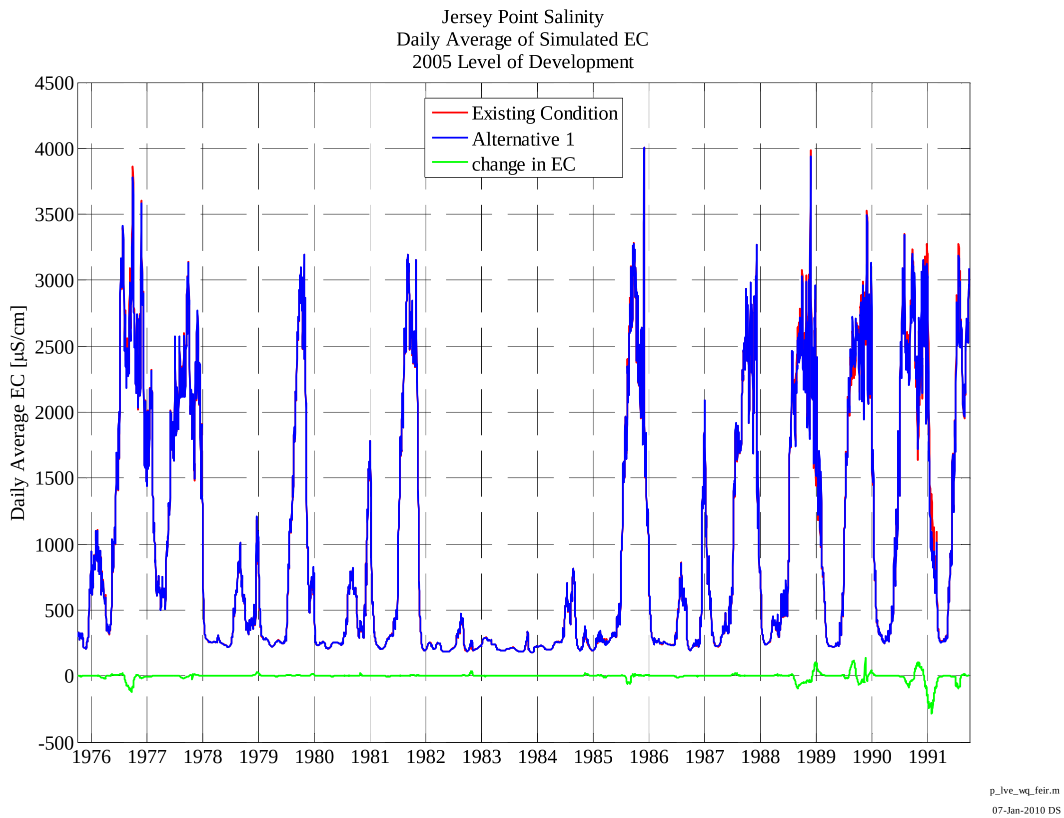
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	231	506	847	909	660	384	730	1,475	2,927	2,462	2,990
1977	2,519	2,725	2,018	1,945	1,155	638	609	1,094	1,869	2,098	2,267	2,626
1978	2,098	2,161	1,797	356	259	256	274	241	224	382	760	702
1979	398	399	797	420	279	242	242	262	260	817	1,572	2,608
1980	2,787	1,209	684	264	251	228	225	252	245	319	658	682
1981	386	393	1,227	677	241	208	251	304	449	1,589	2,491	2,840
1982	2,573	1,038	208	234	218	240	205	187	197	256	393	224
1983	227	202	220	277	273	244	208	192	201	212	199	187
1984	251	193	212	227	215	199	232	256	316	553	638	323
1985	221	297	208	235	296	259	266	309	438	1,391	2,217	2,974
1986	2,599	2,469	1,522	389	263	255	253	238	254	554	613	261
1987	220	243	1,038	1,048	427	234	272	368	473	1,427	1,775	2,410
1988	2,481	2,396	1,561	359	246	343	371	465	565	1,732	2,120	2,566
1989	2,464	2,507	2,119	1,511	793	281	224	232	448	1,543	2,361	2,532
1990	2,447	2,771	2,588	1,080	353	275	299	562	1,198	2,560	2,503	2,743
1991	2,401	2,431	2,675	1,433	809	343	265	535	1,336	2,677	2,299	2,604
Avg	1,523	1,354	1,211	706	437	307	286	389	622	1,315	1,583	1,829
W/AN/BN	1,562	1,096	777	310	251	238	234	233	243	442	690	712
D/C	1,494	1,555	1,549	1,015	581	360	327	511	917	1,994	2,277	2,698

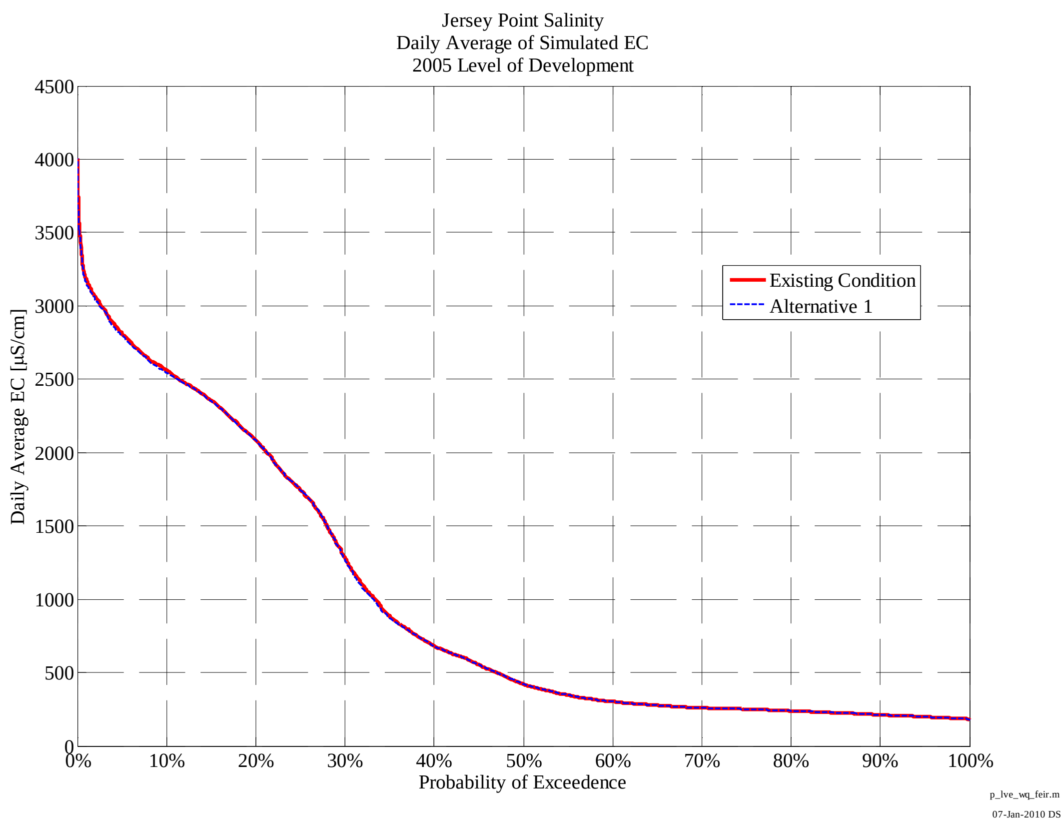
Percent (%) Change from Existing Condition for Jersey Point Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.5%	-0.2%	-0.1%	-0.1%	-0.1%	-2.0%	0.1%	1.2%	0.5%	0.4%	-2.0%	-3.2%
1977	-0.5%	-0.3%	-0.4%	-0.2%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.5%	-0.3%
1978	0.2%	0.5%	0.2%	0.0%	-0.1%	-0.1%	-0.3%	-0.4%	-0.1%	0.6%	0.3%	0.2%
1979	0.2%	0.7%	2.3%	1.8%	-0.1%	0.0%	-0.6%	-0.5%	0.5%	1.1%	0.3%	0.2%
1980	0.1%	0.1%	1.6%	0.4%	0.0%	0.1%	-0.5%	-0.5%	-0.1%	-0.3%	0.0%	0.1%
1981	0.5%	0.7%	0.1%	0.1%	0.0%	-0.1%	-0.7%	-0.5%	0.0%	0.2%	0.1%	0.1%
1982	0.2%	0.5%	0.1%	-0.3%	-0.3%	0.2%	-0.1%	0.0%	-0.1%	0.1%	0.8%	2.1%
1983	8.2%	1.0%	0.1%	-0.6%	-0.2%	0.1%	-0.3%	-0.2%	0.0%	-0.2%	-0.1%	0.0%
1984	0.6%	0.1%	-0.1%	-0.1%	-0.1%	0.4%	0.1%	-0.3%	-0.1%	0.4%	0.2%	0.0%
1985	0.0%	5.1%	1.6%	0.7%	1.8%	-2.1%	-0.1%	0.2%	0.3%	0.3%	-2.0%	0.0%
1986	0.3%	0.1%	0.3%	0.4%	0.0%	0.6%	-0.2%	-0.4%	-0.8%	-1.6%	-0.4%	0.1%
1987	0.6%	0.2%	0.0%	0.0%	0.1%	0.3%	0.5%	-0.1%	0.5%	1.0%	0.2%	0.1%
1988	0.0%	0.0%	0.1%	0.2%	0.1%	0.3%	1.8%	0.8%	0.6%	0.4%	-2.1%	-2.6%
1989	-2.0%	-1.5%	2.3%	3.1%	1.2%	0.4%	0.0%	0.1%	0.6%	-0.8%	2.8%	1.6%
1990	-2.1%	-0.5%	0.7%	1.3%	0.4%	-0.1%	-0.1%	0.0%	-0.1%	-0.1%	-2.0%	-1.5%
1991	2.4%	2.9%	-2.1%	-13.7%	-14.6%	-4.7%	-0.7%	-0.2%	-0.4%	-2.6%	0.1%	0.2%
Avg	0.5%	0.6%	0.4%	-0.4%	-0.7%	-0.4%	-0.1%	0.0%	0.1%	-0.1%	-0.3%	-0.2%
W/AN/BN	1.4%	0.4%	0.6%	0.2%	-0.1%	0.2%	-0.3%	-0.3%	-0.1%	0.0%	0.2%	0.4%
D/C	-0.2%	0.7%	0.2%	-1.0%	-1.2%	-0.9%	0.1%	0.2%	0.2%	-0.1%	-0.6%	-0.6%


Jersey Point Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.44%
-0.74%
-0.42%
-0.07%
-0.05%
0.07%
-0.06%
-0.27%
-0.18%
0.52%
0.60%
0.42%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
4500
4000
3500
3000
2500
2000
1500
1000
500
0
-500
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

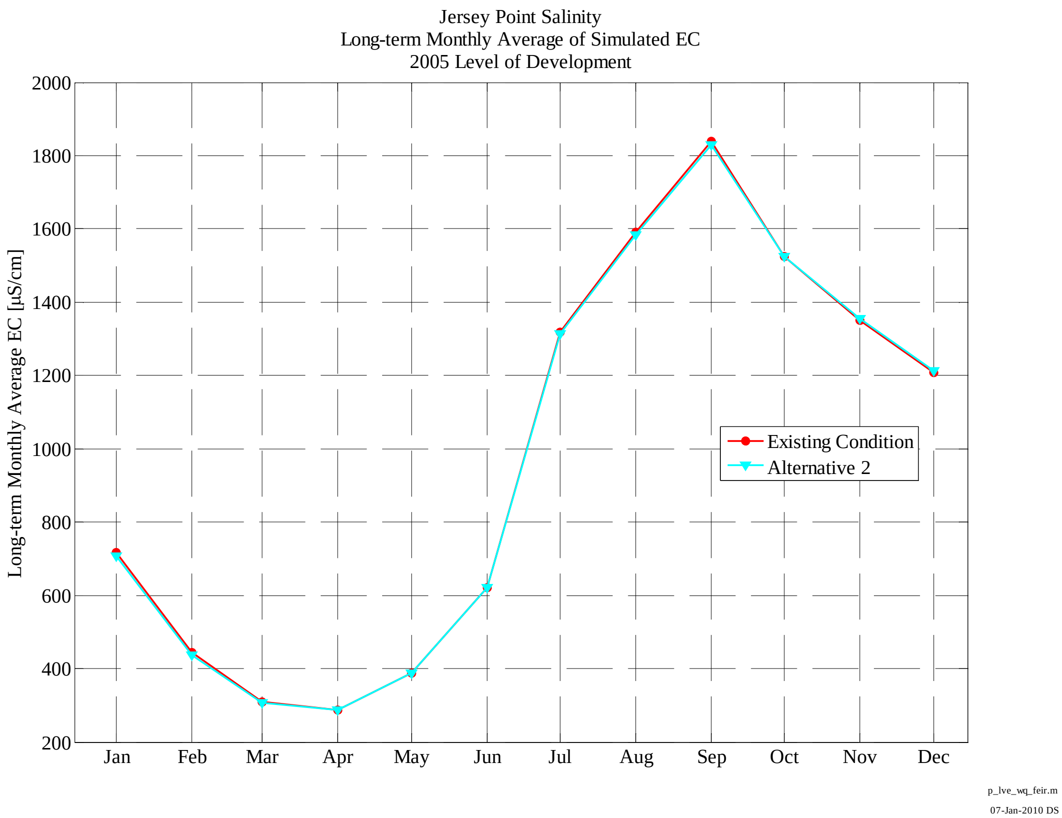
Alternative 2

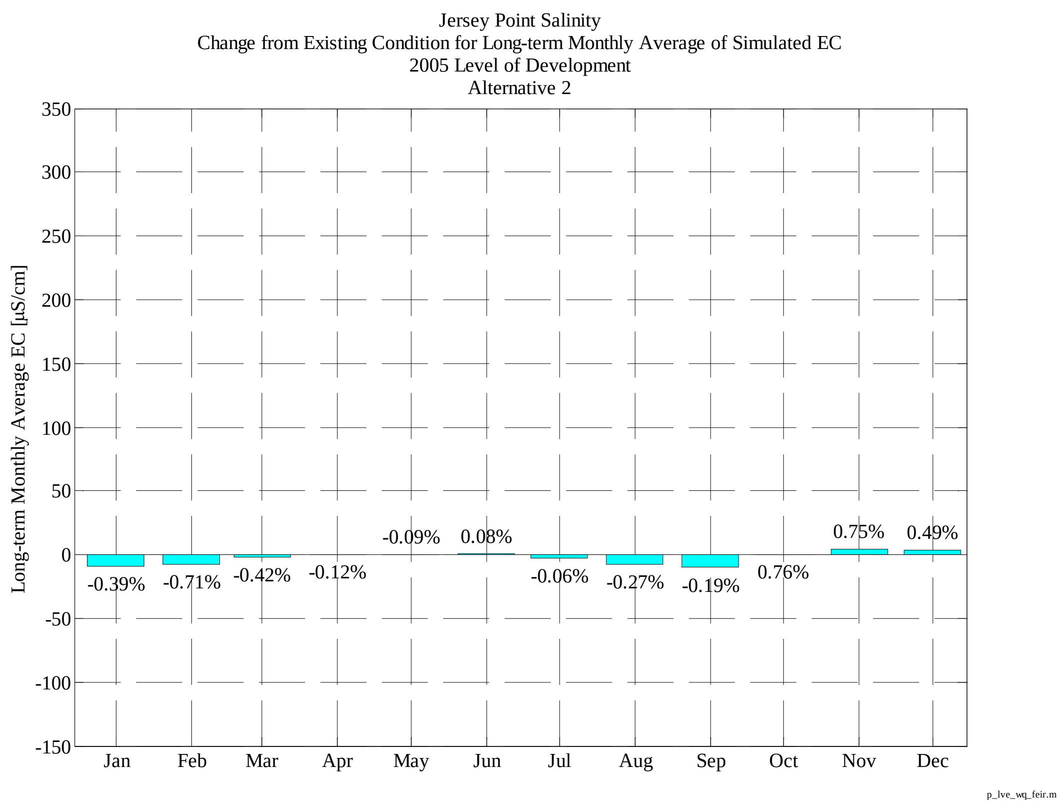
Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

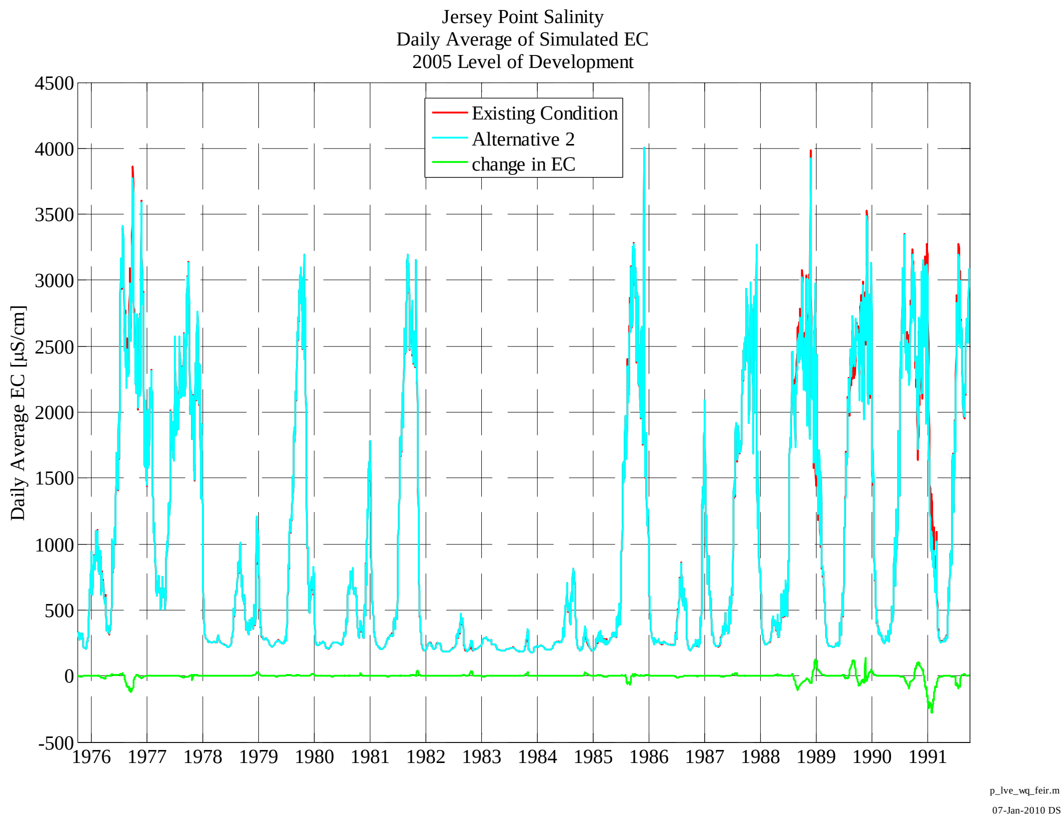
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	301	231	506	847	909	660	384	729	1,475	2,926	2,460	2,987
1977	2,519	2,726	2,024	1,950	1,156	639	609	1,094	1,869	2,098	2,271	2,629
1978	2,094	2,155	1,797	357	259	256	274	241	224	382	760	702
1979	398	399	797	421	279	242	242	262	260	817	1,572	2,608
1980	2,786	1,209	684	264	251	228	225	252	245	319	658	682
1981	386	393	1,227	678	241	208	251	304	449	1,589	2,491	2,840
1982	2,573	1,050	208	234	218	240	205	187	197	256	393	224
1983	227	202	220	276	273	244	208	191	201	212	199	187
1984	261	194	212	226	215	199	232	256	316	553	638	323
1985	221	300	208	235	296	259	266	309	438	1,391	2,217	2,974
1986	2,598	2,469	1,522	389	262	255	253	238	254	554	613	261
1987	220	243	1,038	1,048	427	234	270	366	473	1,427	1,774	2,410
1988	2,481	2,396	1,561	359	246	343	371	465	565	1,728	2,114	2,562
1989	2,476	2,508	2,127	1,519	795	281	224	232	448	1,543	2,362	2,534
1990	2,446	2,769	2,589	1,081	353	275	299	562	1,198	2,560	2,502	2,741
1991	2,403	2,434	2,672	1,436	812	343	265	535	1,336	2,680	2,299	2,604
Avg	1,524	1,355	1,212	707	437	307	286	389	622	1,315	1,583	1,829
W/AN/BN	1,562	1,097	777	309	251	238	234	233	243	442	690	712
D/C	1,495	1,556	1,550	1,017	582	360	327	511	917	1,994	2,277	2,698

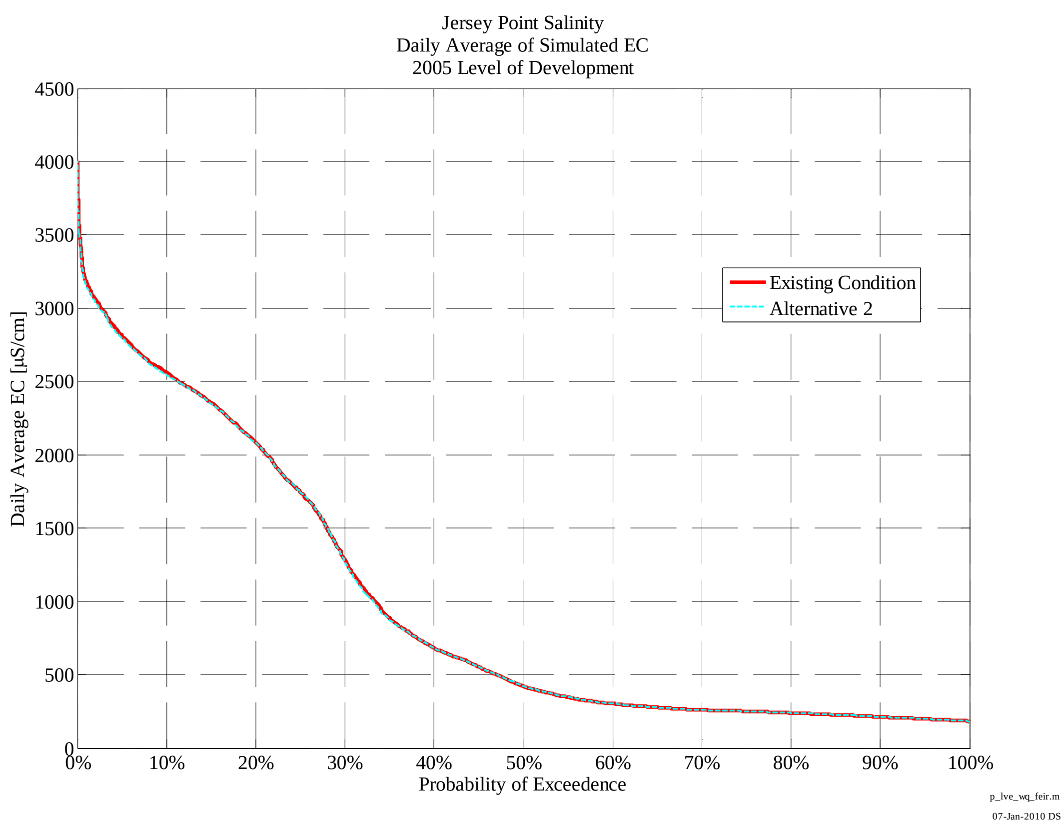
Percent (%) Change from Existing Condition for Jersey Point Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.8%	-0.3%	-0.1%	-0.1%	-0.1%	-2.0%	0.1%	1.2%	0.5%	0.4%	-2.1%	-3.3%
1977	-0.5%	-0.3%	-0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.2%
1978	0.0%	0.2%	0.1%	0.1%	-0.1%	-0.1%	-0.3%	-0.4%	-0.1%	0.7%	0.3%	0.2%
1979	0.2%	0.7%	2.4%	1.8%	0.0%	0.0%	-0.6%	-0.5%	0.5%	1.1%	0.3%	0.2%
1980	0.1%	0.1%	1.6%	0.4%	0.0%	0.1%	-0.6%	-0.5%	-0.1%	-0.3%	0.0%	0.1%
1981	0.5%	0.7%	0.1%	0.1%	0.1%	-0.1%	-0.7%	-0.5%	0.0%	0.2%	0.1%	0.1%
1982	0.2%	1.7%	0.3%	-0.3%	-0.3%	0.2%	-0.1%	0.0%	-0.1%	0.1%	0.8%	2.1%
1983	8.2%	1.0%	0.1%	-0.8%	-0.2%	0.0%	-0.3%	-0.3%	-0.1%	-0.2%	-0.1%	0.1%
1984	4.7%	0.8%	-0.1%	-0.3%	-0.2%	0.4%	0.1%	-0.3%	0.0%	0.4%	0.2%	0.0%
1985	0.0%	6.1%	2.0%	0.7%	1.9%	-1.9%	-0.1%	0.1%	0.3%	0.3%	-1.9%	-0.1%
1986	0.2%	0.2%	0.3%	0.4%	-0.1%	0.4%	-0.1%	-0.3%	-0.7%	-1.6%	-0.3%	0.1%
1987	0.5%	0.1%	0.0%	0.0%	0.1%	0.1%	-0.5%	-0.6%	0.6%	1.0%	0.2%	0.1%
1988	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	1.8%	0.8%	0.6%	0.2%	-2.3%	-2.8%
1989	-1.5%	-1.4%	2.6%	3.7%	1.5%	0.5%	0.1%	0.1%	0.6%	-0.8%	2.9%	1.7%
1990	-2.1%	-0.6%	0.7%	1.4%	0.4%	-0.1%	-0.1%	0.0%	-0.1%	-0.1%	-2.0%	-1.6%
1991	2.5%	3.0%	-2.2%	-13.6%	-14.3%	-4.7%	-0.6%	-0.2%	-0.4%	-2.5%	0.0%	0.2%
Avg	0.8%	0.8%	0.5%	-0.4%	-0.7%	-0.4%	-0.1%	-0.1%	0.1%	-0.1%	-0.3%	-0.2%
W/AN/BN	1.9%	0.7%	0.7%	0.2%	-0.1%	0.1%	-0.3%	-0.3%	-0.1%	0.0%	0.2%	0.4%
D/C	-0.2%	0.8%	0.3%	-0.8%	-1.2%	-0.9%	0.0%	0.1%	0.2%	-0.1%	-0.6%	-0.7%


Jersey Point Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.39%
-0.71%
-0.42%
-0.12%
-0.09%
0.08%
-0.06%
-0.27%
-0.19%
0.76%
0.75%
0.49%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
change in EC
Daily Average EC [µS/cm]
4500
4000
3500
3000
2500
2000
1500
1000
500
0
-500
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
Daily Average EC [µS/cm]
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

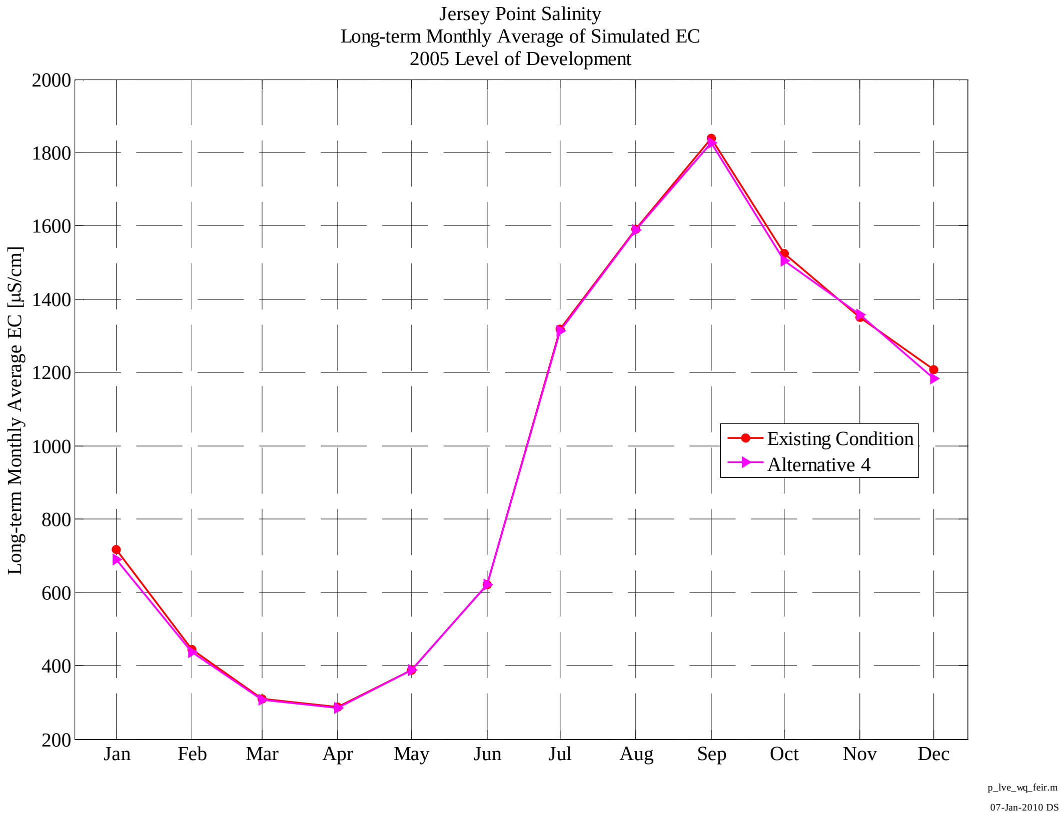
Alternative 4

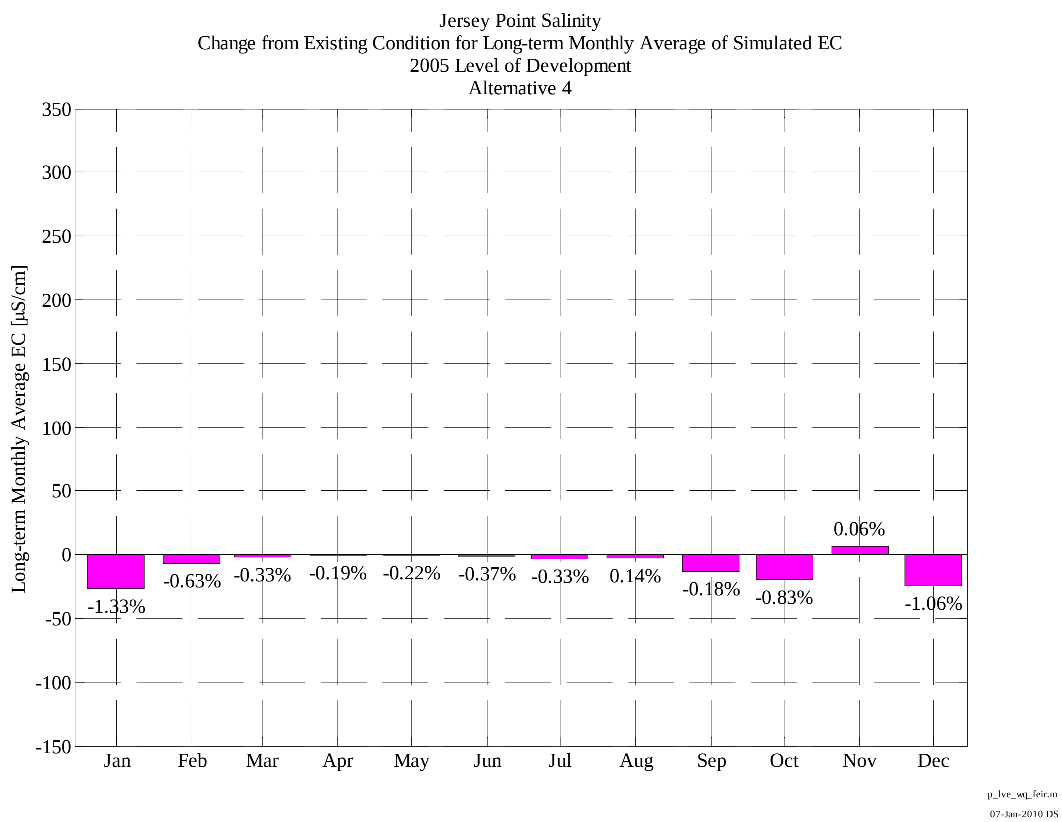
Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

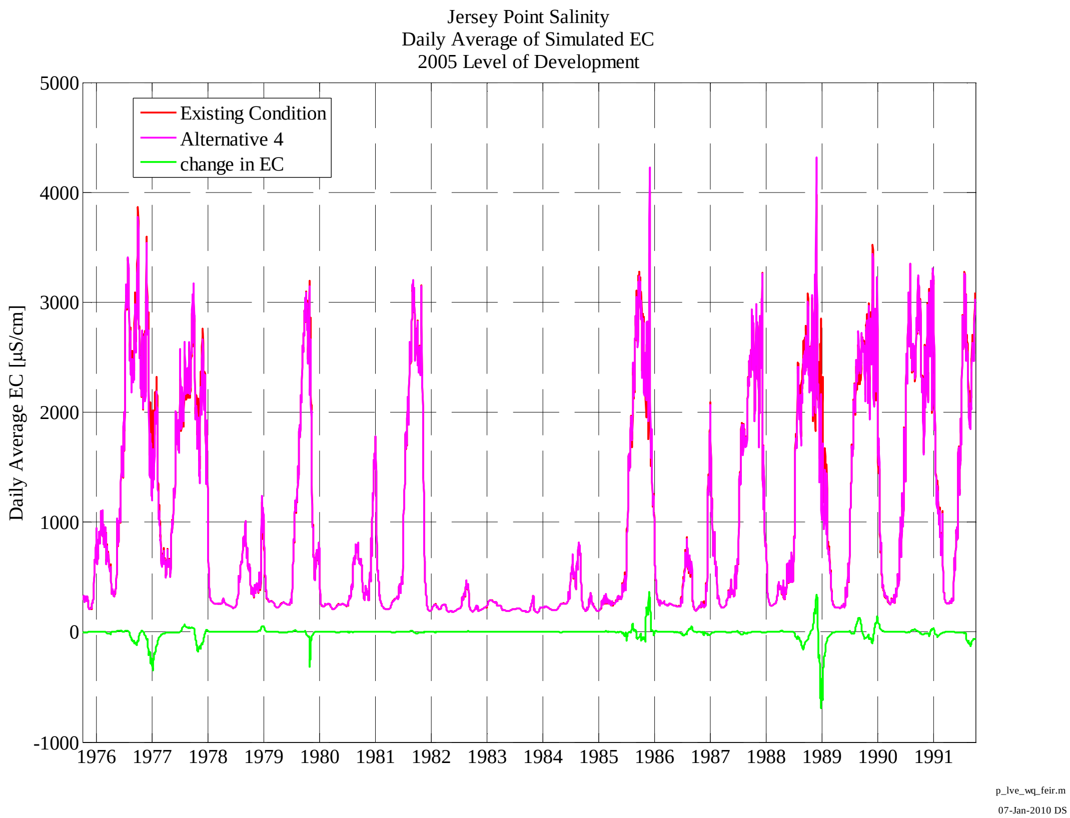
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	301	231	506	848	910	661	383	728	1,474	2,926	2,461	2,991
1977	2,521	2,697	1,805	1,749	1,098	624	604	1,090	1,868	2,131	2,324	2,671
1978	1,999	2,031	1,787	358	259	256	274	242	224	382	759	701
1979	397	401	816	427	279	242	241	261	258	818	1,571	2,607
1980	2,712	1,168	676	263	251	228	225	252	246	319	657	681
1981	384	390	1,226	677	241	208	251	304	449	1,588	2,495	2,832
1982	2,561	1,031	208	234	218	240	205	187	197	256	395	220
1983	211	200	220	278	273	244	208	192	201	212	199	187
1984	249	193	212	227	215	199	231	256	316	555	639	323
1985	221	282	204	235	296	266	266	308	418	1,373	2,291	2,934
1986	2,534	2,662	1,560	393	263	254	253	238	249	538	641	271
1987	218	238	1,018	1,040	427	234	270	365	473	1,398	1,760	2,404
1988	2,481	2,396	1,556	358	246	343	371	464	564	1,687	2,065	2,535
1989	2,503	2,735	1,779	1,194	738	274	223	232	448	1,547	2,366	2,543
1990	2,452	2,716	2,628	1,112	356	276	299	562	1,198	2,560	2,568	2,797
1991	2,329	2,347	2,741	1,645	925	357	267	535	1,340	2,739	2,211	2,522
Avg	1,505	1,357	1,184	690	437	307	286	388	620	1,314	1,588	1,826
W/AN/BN	1,523	1,098	783	311	251	238	234	232	242	440	694	713
D/C	1,490	1,559	1,496	984	582	360	326	510	915	1,994	2,282	2,692

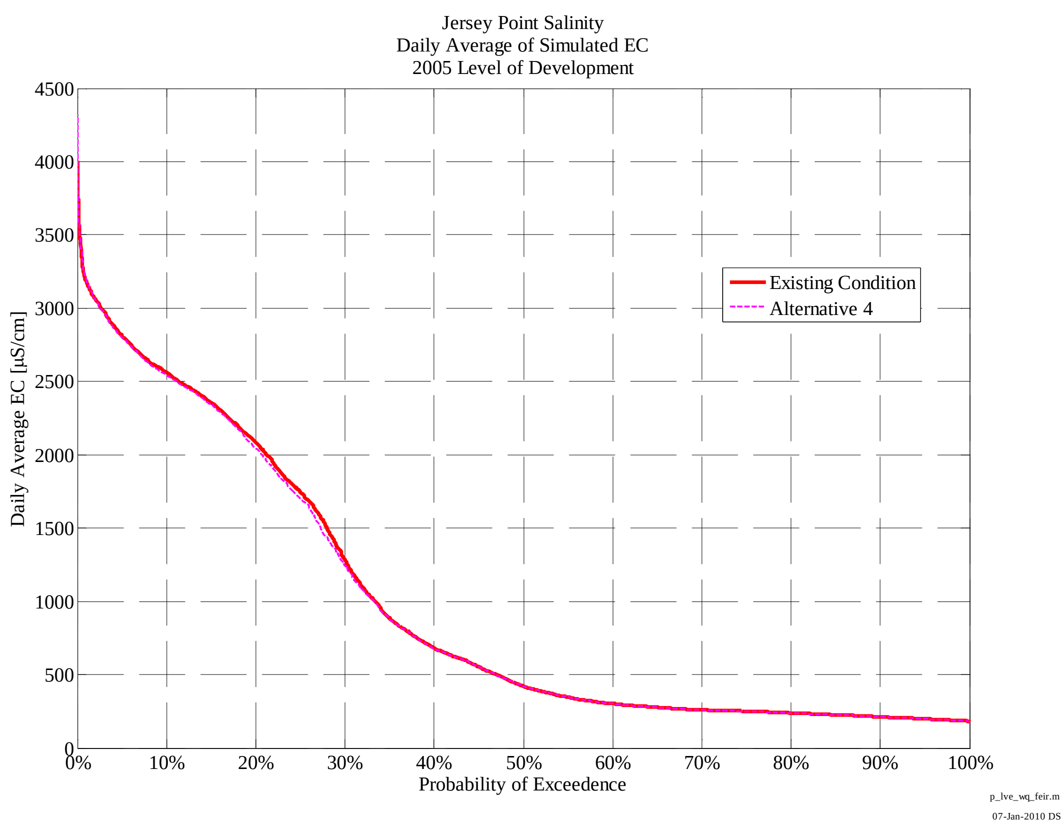
Percent (%) Change from Existing Condition for Jersey Point Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-1.0%	-0.3%	0.0%	0.0%	0.0%	-1.8%	0.0%	1.0%	0.5%	0.4%	-2.1%	-3.2%
1977	-0.4%	-1.3%	-11.0%	-10.3%	-5.0%	-2.4%	-0.9%	-0.4%	-0.1%	1.5%	2.0%	1.4%
1978	-4.5%	-5.5%	-0.4%	0.4%	-0.1%	-0.1%	-0.3%	-0.3%	-0.2%	0.6%	0.2%	0.1%
1979	0.2%	1.2%	4.9%	3.4%	0.1%	0.0%	-0.7%	-0.9%	-0.3%	1.3%	0.2%	0.2%
1980	-2.6%	-3.3%	0.4%	0.0%	0.1%	0.2%	-0.5%	-0.4%	-0.1%	-0.3%	-0.2%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.7%	-0.5%	0.1%	0.1%	0.3%	-0.2%
1982	-0.3%	-0.1%	0.0%	-0.3%	-0.3%	0.2%	0.0%	-0.1%	-0.1%	0.1%	1.4%	0.5%
1983	0.8%	0.1%	0.2%	-0.2%	-0.1%	0.0%	-0.2%	-0.2%	0.0%	-0.1%	-0.1%	0.0%
1984	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.1%	-0.4%	-0.3%	0.0%	0.7%	0.3%	0.0%
1985	0.0%	-0.1%	0.0%	0.7%	1.9%	0.7%	-0.1%	-0.4%	-4.3%	-1.0%	1.3%	-1.4%
1986	-2.3%	8.0%	2.8%	1.4%	0.2%	0.3%	-0.1%	-0.5%	-2.7%	-4.4%	4.2%	4.2%
1987	-0.2%	-2.0%	-2.0%	-0.8%	0.0%	0.1%	-0.5%	-0.7%	0.5%	-1.0%	-0.6%	-0.1%
1988	0.0%	0.0%	-0.2%	-0.3%	0.0%	0.3%	1.7%	0.6%	0.4%	-2.2%	-4.6%	-3.8%
1989	-0.4%	7.5%	-14.1%	-18.5%	-5.8%	-2.2%	-0.2%	0.0%	0.7%	-0.5%	3.1%	2.1%
1990	-1.9%	-2.4%	2.2%	4.2%	1.4%	0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.5%	0.4%
1991	-0.7%	-0.7%	0.3%	-1.0%	-2.4%	-0.8%	0.0%	-0.2%	-0.1%	-0.3%	-3.8%	-3.0%
Avg	-0.8%	0.1%	-1.1%	-1.3%	-0.6%	-0.3%	-0.2%	-0.2%	-0.4%	-0.3%	0.1%	-0.2%
W/AN/BN	-1.2%	0.0%	1.1%	0.7%	0.0%	0.1%	-0.3%	-0.4%	-0.5%	-0.3%	0.9%	0.7%
D/C	-0.5%	0.1%	-2.8%	-2.9%	-1.1%	-0.7%	-0.1%	-0.1%	-0.3%	-0.3%	-0.4%	-0.9%


Jersey Point Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-1.33%
-0.63%
-0.33%
-0.19%
-0.22%
-0.37%
-0.33%
0.14%
-0.18%
-0.83%
0.06%
-1.06%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Clifton Court Forebay

Existing Condition

Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	305	321	347	519	624	612	506	466	517	694	790	715
1977	781	734	850	778	910	876	660	609	618	675	692	717
1978	784	727	820	742	581	551	288	260	365	303	292	304
1979	318	334	376	566	419	345	382	310	365	289	409	581
1980	696	626	442	375	336	230	339	367	379	354	288	288
1981	314	341	440	629	591	692	443	374	394	396	629	758
1982	673	546	443	573	350	323	187	177	329	349	276	244
1983	207	221	273	288	289	246	191	200	212	230	216	222
1984	245	176	230	302	253	314	338	314	383	280	273	287
1985	302	296	343	455	532	626	422	393	400	369	575	727
1986	728	637	715	688	507	284	256	256	373	301	325	340
1987	358	344	401	650	632	709	438	376	394	372	530	630
1988	705	723	778	680	907	851	565	501	448	401	633	737
1989	774	722	808	756	868	835	651	536	312	389	618	676
1990	695	704	857	817	679	726	574	590	456	615	756	752
1991	824	720	829	928	882	870	704	593	440	656	790	718
Avg	544	511	559	609	585	568	434	395	399	417	506	543
W/AN/BN	522	467	471	505	391	328	283	269	344	301	297	323
D/C	562	545	628	690	736	755	552	493	442	507	668	715

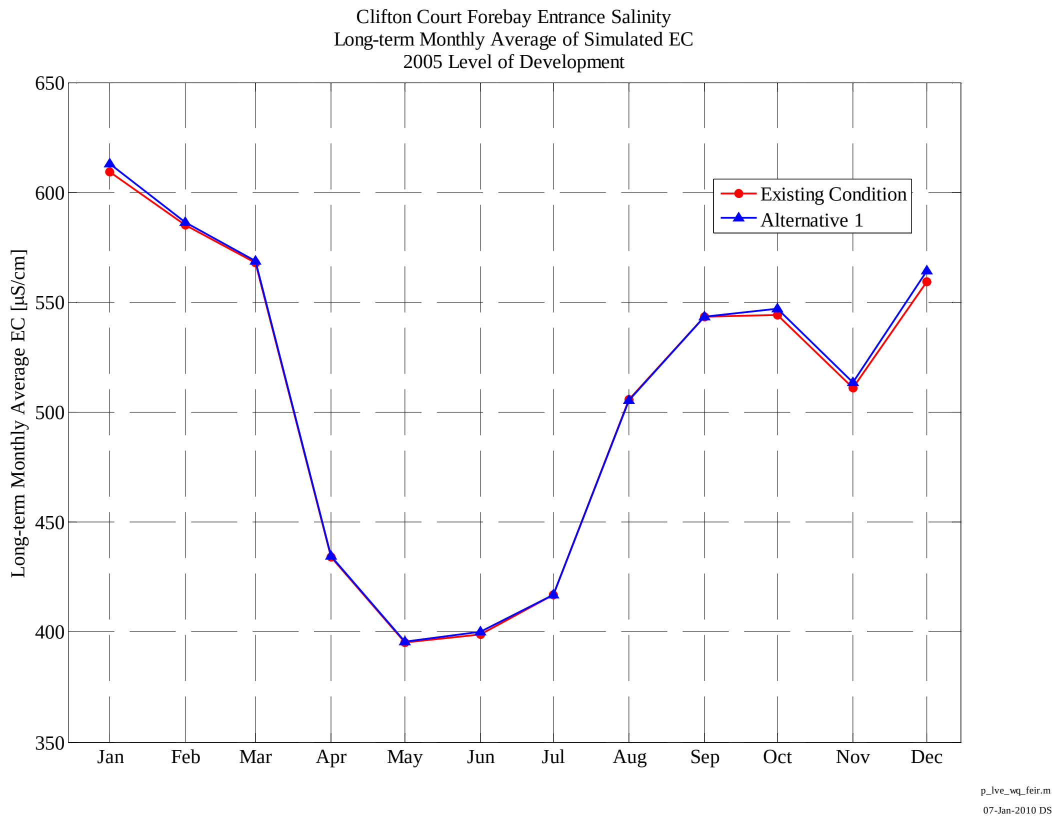
Alternative 1

Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

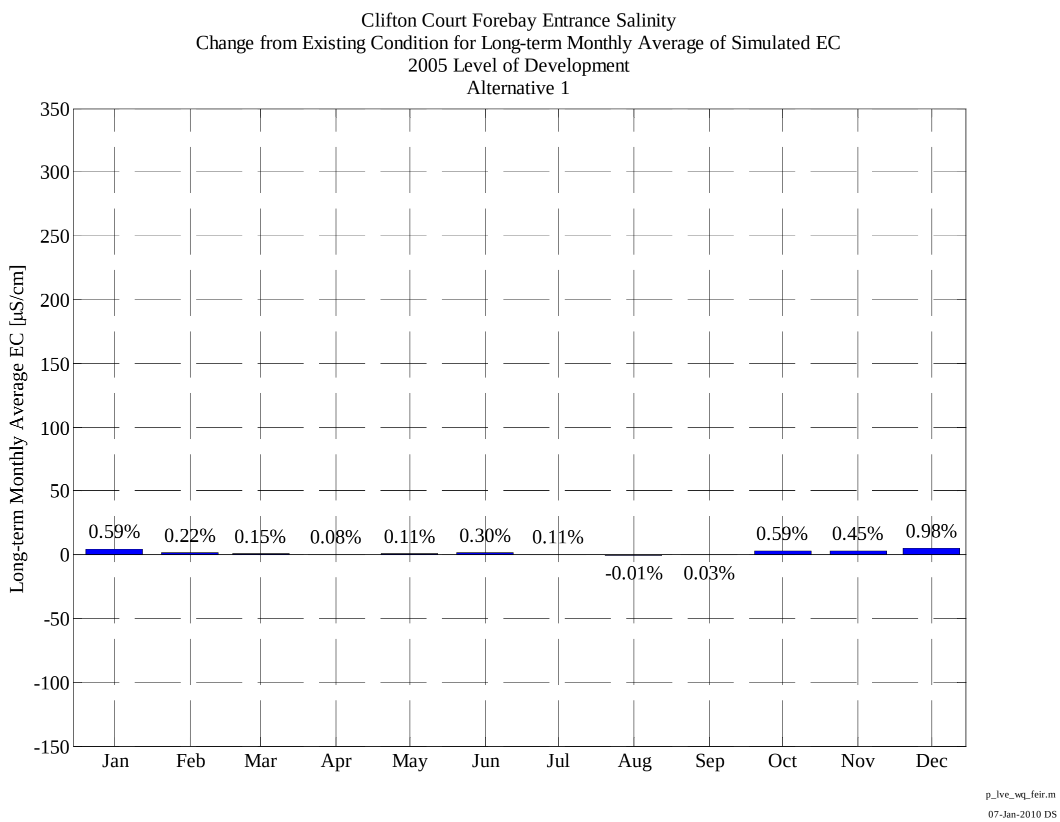
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	307	322	356	521	627	612	507	465	520	701	790	698
1977	777	736	853	778	914	876	660	609	616	674	692	716
1978	788	729	824	744	581	551	289	260	366	304	292	304
1979	321	333	384	572	419	345	381	310	367	290	410	584
1980	702	632	443	375	335	230	340	367	380	358	289	288
1981	317	344	446	632	594	687	443	374	393	397	633	763
1982	680	549	451	576	350	322	187	178	329	350	277	243
1983	206	220	273	288	289	246	191	200	212	230	215	222
1984	246	176	230	301	252	316	338	314	385	281	273	288
1985	307	295	351	461	538	637	423	393	401	370	569	725
1986	747	644	720	693	506	284	256	256	376	303	324	342
1987	368	349	407	655	637	718	438	376	393	375	539	638
1988	716	732	784	687	909	853	566	500	449	402	631	721
1989	762	718	807	771	876	837	655	542	315	386	629	696
1990	685	702	862	823	689	727	576	593	458	614	752	745
1991	825	737	839	932	864	859	700	595	441	639	768	716
Avg	547	514	564	613	586	569	434	396	400	417	505	543
W/AN/BN	527	469	475	507	390	328	283	269	345	302	297	325
D/C	563	548	634	696	739	756	552	494	443	506	667	713

Percent (%) Change from Existing Condition for Clifton Court Forebay Entrance Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

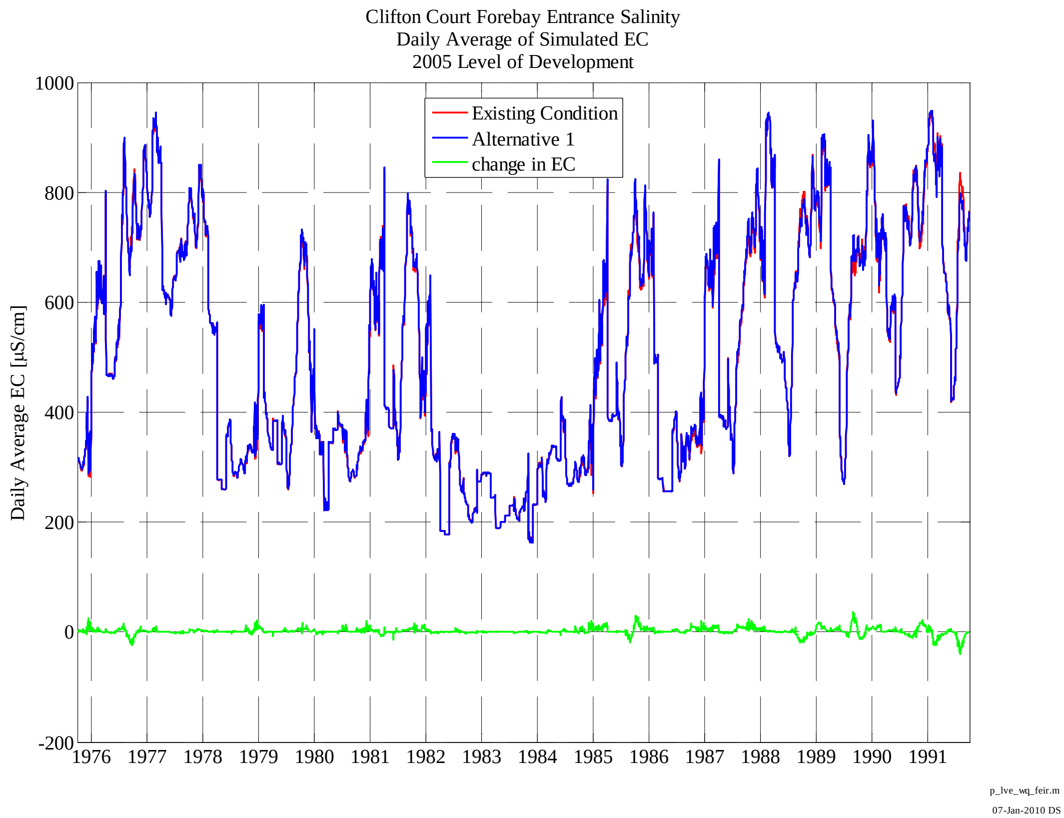
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.5%	0.4%	2.4%	0.5%	0.6%	0.0%	0.1%	-0.2%	0.5%	1.0%	0.0%	-2.3%
1977	-0.6%	0.3%	0.3%	0.0%	0.5%	0.1%	0.0%	0.0%	-0.2%	-0.2%	-0.1%	-0.2%
1978	0.5%	0.3%	0.5%	0.2%	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	0.2%	0.2%
1979	0.9%	-0.1%	2.2%	1.2%	0.0%	0.0%	-0.2%	0.1%	0.7%	0.4%	0.3%	0.6%
1980	0.9%	0.9%	0.3%	-0.2%	-0.2%	0.0%	0.2%	0.1%	0.4%	1.3%	0.3%	0.1%
1981	0.9%	0.9%	1.3%	0.5%	0.4%	-0.8%	0.0%	-0.1%	-0.1%	0.2%	0.6%	0.7%
1982	1.0%	0.6%	1.7%	0.5%	-0.2%	-0.1%	0.1%	0.1%	0.1%	0.5%	0.3%	-0.6%
1983	-0.6%	-0.3%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.4%	0.2%
1984	0.4%	-0.3%	0.1%	-0.3%	-0.4%	0.5%	0.1%	0.0%	0.6%	0.3%	0.1%	0.4%
1985	1.5%	-0.5%	2.3%	1.3%	1.2%	1.8%	0.3%	0.0%	0.2%	0.2%	-1.1%	-0.2%
1986	2.6%	1.1%	0.7%	0.7%	0.0%	0.0%	0.1%	0.1%	1.0%	0.5%	-0.2%	0.7%
1987	2.8%	1.5%	1.5%	0.8%	0.9%	1.4%	0.0%	-0.2%	-0.3%	0.7%	1.8%	1.2%
1988	1.6%	1.2%	0.7%	0.9%	0.2%	0.2%	0.0%	-0.1%	0.2%	0.1%	-0.3%	-2.1%
1989	-1.6%	-0.6%	-0.1%	1.9%	0.9%	0.3%	0.5%	1.1%	0.9%	-0.7%	1.8%	3.0%
1990	-1.4%	-0.3%	0.7%	0.8%	1.5%	0.2%	0.4%	0.5%	0.5%	-0.1%	-0.5%	-1.0%
1991	0.1%	2.3%	1.2%	0.5%	-2.1%	-1.2%	-0.5%	0.3%	0.2%	-2.5%	-2.8%	-0.3%
Avg	0.6%	0.5%	1.0%	0.6%	0.2%	0.1%	0.1%	0.1%	0.3%	0.1%	0.0%	0.0%
W/AN/BN	0.8%	0.3%	0.8%	0.3%	-0.1%	0.1%	0.1%	0.1%	0.4%	0.5%	0.1%	0.2%
D/C	0.4%	0.6%	1.1%	0.8%	0.5%	0.2%	0.1%	0.2%	0.2%	-0.2%	-0.1%	-0.1%

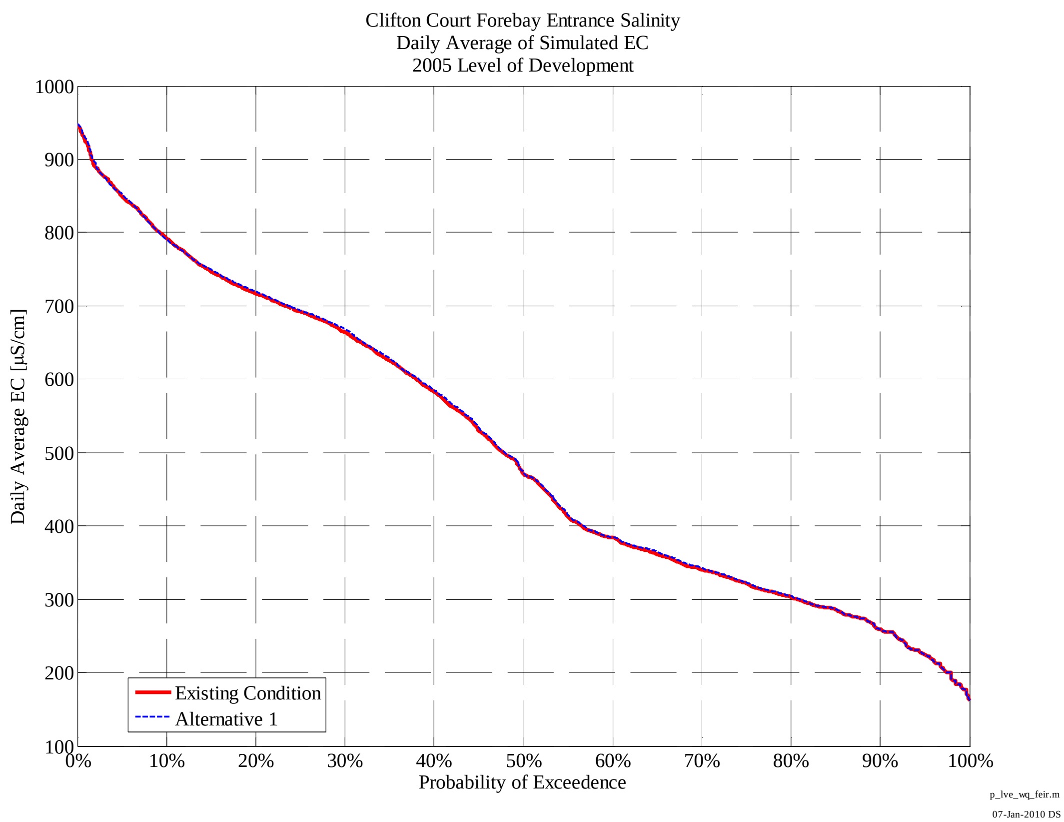


Clifton Court Forebay Entrance Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS



Clifton Court Forebay Entrance Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.59%
0.22%
0.15%
0.08%
0.11%
0.30%
0.11%
-0.01%
0.03%
0.59%
0.45%
0.98%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

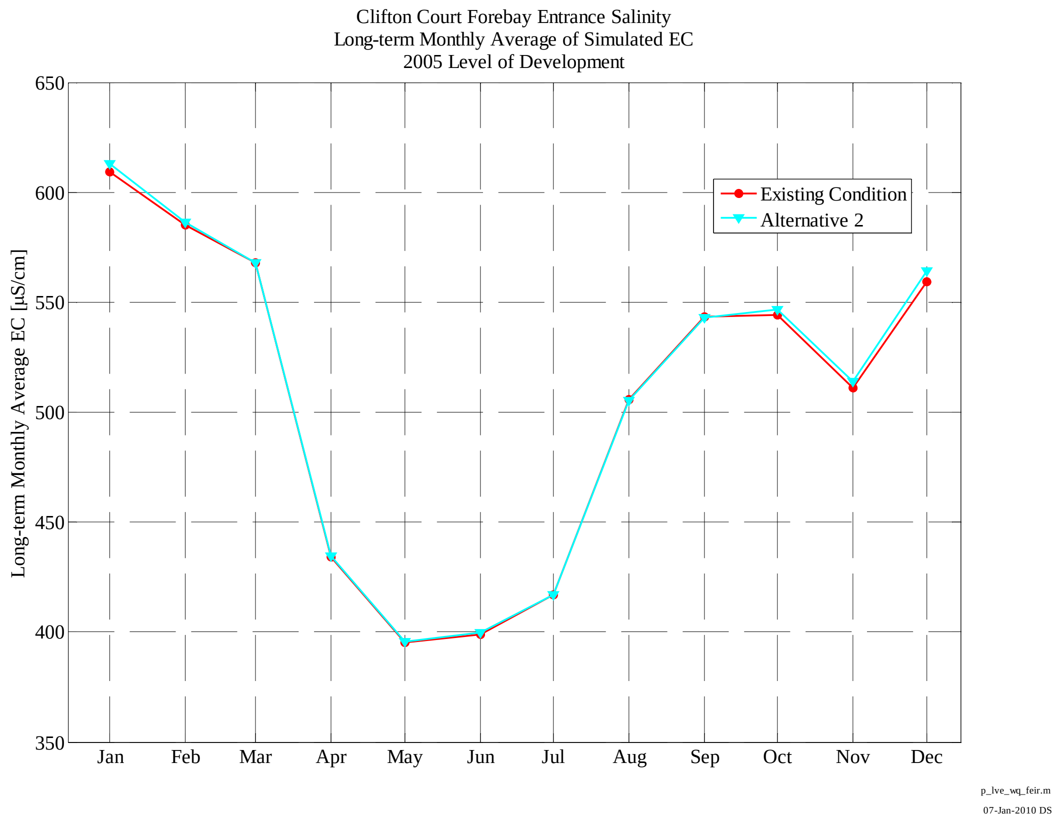
Alternative 2

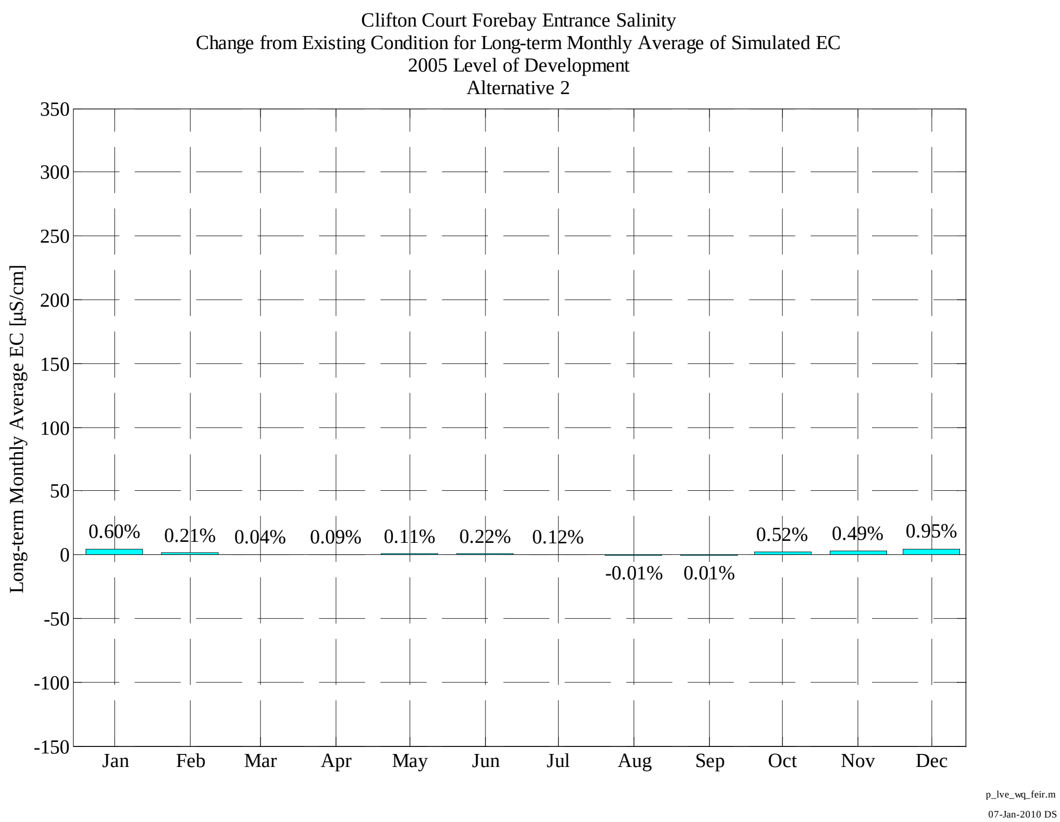
Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

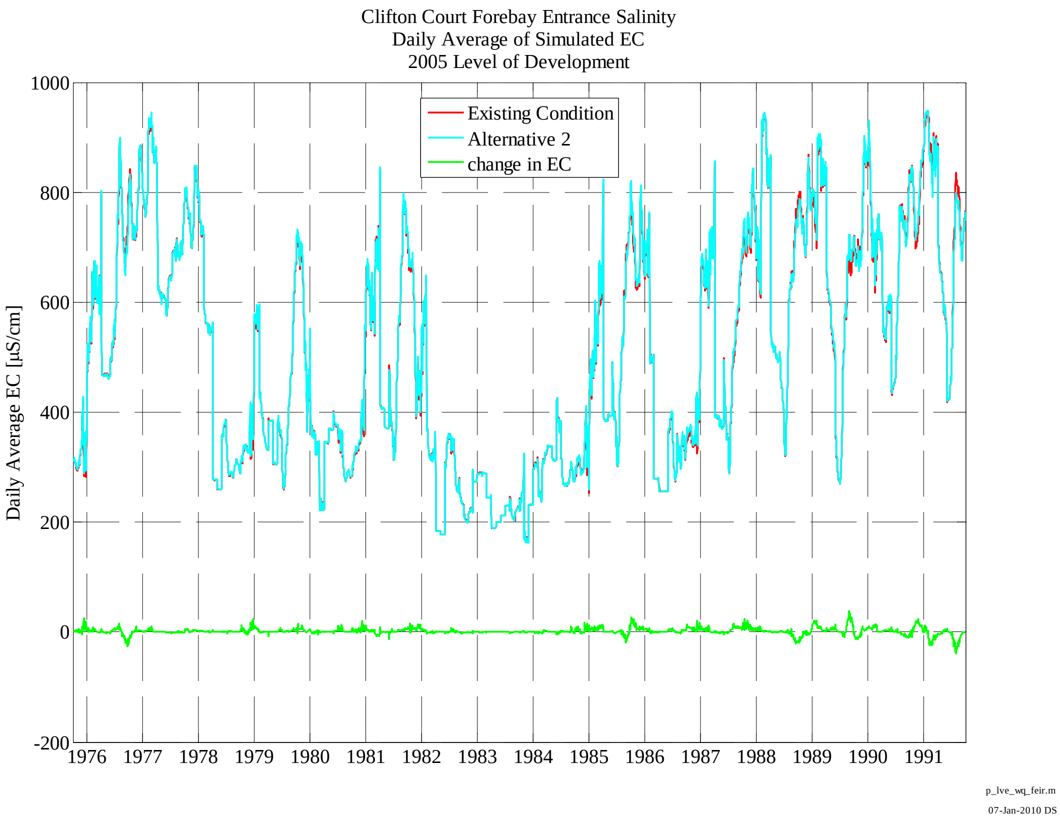
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	307	323	356	521	627	612	507	465	520	700	790	698
1977	775	736	853	779	914	877	661	609	616	674	692	717
1978	788	728	823	744	581	551	289	260	366	304	292	304
1979	321	333	384	572	419	345	381	310	367	290	410	584
1980	702	632	443	375	336	229	340	367	380	358	289	288
1981	317	344	446	632	594	687	443	374	393	397	633	763
1982	680	551	451	576	350	322	187	178	328	350	277	243
1983	206	220	273	288	289	246	191	200	212	230	216	222
1984	245	176	230	301	252	316	338	314	382	281	273	288
1985	307	294	350	460	537	635	423	393	399	370	569	724
1986	744	644	720	692	506	284	257	256	377	303	324	342
1987	367	349	407	655	637	709	438	376	393	375	539	638
1988	716	732	783	686	909	853	566	500	449	401	630	720
1989	762	720	806	773	877	838	655	542	315	386	630	697
1990	685	701	862	824	689	727	576	593	458	614	752	745
1991	825	737	839	932	864	859	700	595	441	640	769	716
Avg	547	514	564	613	586	568	434	396	400	417	505	543
W/AN/BN	527	469	475	507	390	328	283	269	345	302	297	324
D/C	562	549	633	696	739	755	552	494	443	506	667	713

Percent (%) Change from Existing Condition for Clifton Court Forebay Entrance Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

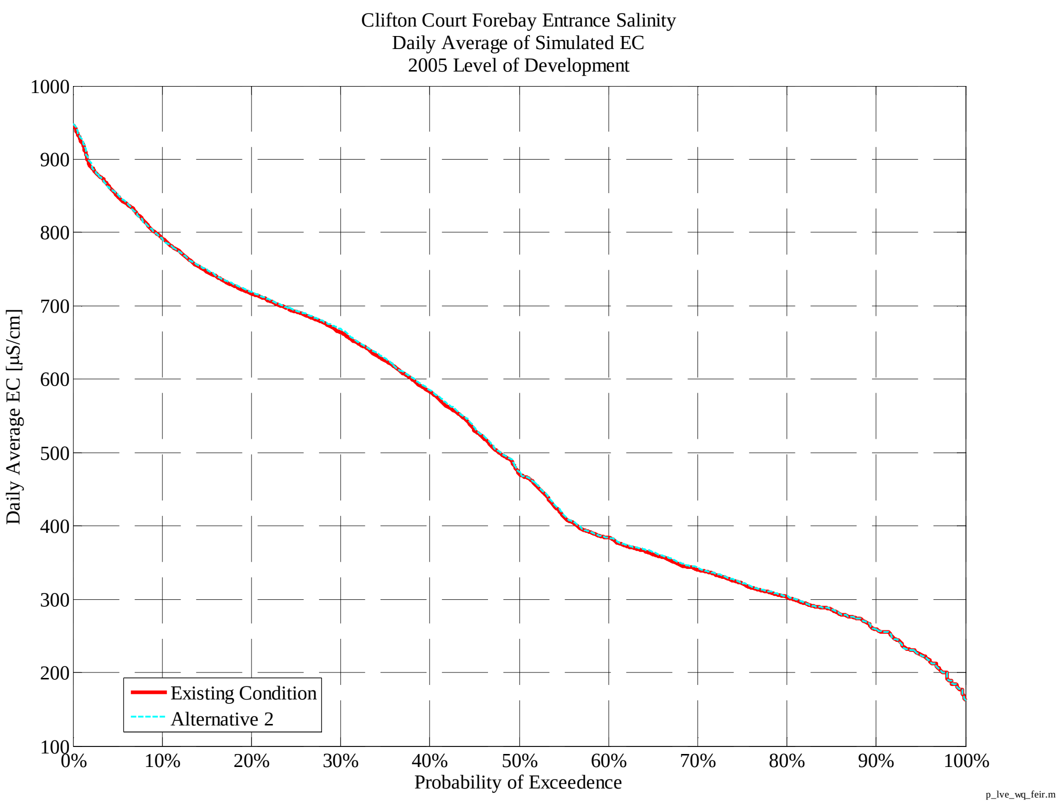
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.5%	0.5%	2.4%	0.5%	0.6%	0.0%	0.1%	-0.2%	0.5%	1.0%	-0.1%	-2.4%
1977	-0.7%	0.3%	0.3%	0.1%	0.5%	0.1%	0.0%	0.0%	-0.2%	-0.2%	-0.1%	0.0%
1978	0.6%	0.2%	0.4%	0.2%	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	0.2%	0.2%
1979	0.9%	-0.1%	2.2%	1.2%	0.0%	0.0%	-0.2%	0.1%	0.7%	0.4%	0.3%	0.6%
1980	0.8%	0.9%	0.3%	-0.2%	-0.1%	-0.1%	0.2%	0.1%	0.4%	1.3%	0.3%	0.1%
1981	0.9%	0.9%	1.3%	0.5%	0.4%	-0.8%	0.0%	-0.1%	-0.1%	0.2%	0.6%	0.7%
1982	1.0%	0.9%	1.8%	0.5%	-0.2%	-0.2%	0.1%	0.1%	-0.2%	0.4%	0.3%	-0.6%
1983	-0.6%	-0.3%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.4%	0.0%
1984	0.0%	-0.2%	0.1%	-0.3%	-0.5%	0.5%	0.1%	0.0%	-0.2%	0.3%	0.1%	0.5%
1985	1.5%	-0.6%	1.9%	1.0%	1.0%	1.5%	0.2%	0.0%	-0.1%	0.2%	-1.0%	-0.4%
1986	2.2%	1.1%	0.7%	0.6%	0.0%	0.0%	0.2%	0.1%	1.2%	0.5%	-0.2%	0.8%
1987	2.5%	1.4%	1.5%	0.8%	0.9%	0.0%	-0.1%	-0.2%	-0.4%	0.7%	1.8%	1.2%
1988	1.6%	1.3%	0.7%	0.9%	0.2%	0.2%	0.0%	-0.1%	0.2%	0.0%	-0.6%	-2.2%
1989	-1.6%	-0.3%	-0.1%	2.2%	1.0%	0.4%	0.5%	1.1%	0.9%	-0.7%	1.9%	3.1%
1990	-1.5%	-0.4%	0.6%	0.9%	1.6%	0.2%	0.4%	0.5%	0.5%	0.0%	-0.5%	-1.0%
1991	0.1%	2.3%	1.2%	0.5%	-2.1%	-1.2%	-0.5%	0.3%	0.2%	-2.4%	-2.7%	-0.3%
Avg	0.5%	0.5%	1.0%	0.6%	0.2%	0.0%	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%
W/AN/BN	0.7%	0.4%	0.8%	0.3%	-0.1%	0.0%	0.1%	0.1%	0.3%	0.5%	0.1%	0.2%
D/C	0.4%	0.6%	1.1%	0.8%	0.4%	0.0%	0.1%	0.2%	0.2%	-0.1%	-0.1%	-0.2%


Clifton Court Forebay Entrance Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
Existing Condition
Alternative 2
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.60%
0.21%
0.04%
0.09%
0.11%
0.22%
0.12%
-0.01%
0.01%
0.52%
0.49%
0.95%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
Existing Condition
Alternative 2
change in EC
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS



Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
Existing Condition
Alternative 2
Probability of Exceedence
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
p_lve_wq_feir.m
07-Jan-2010 DS

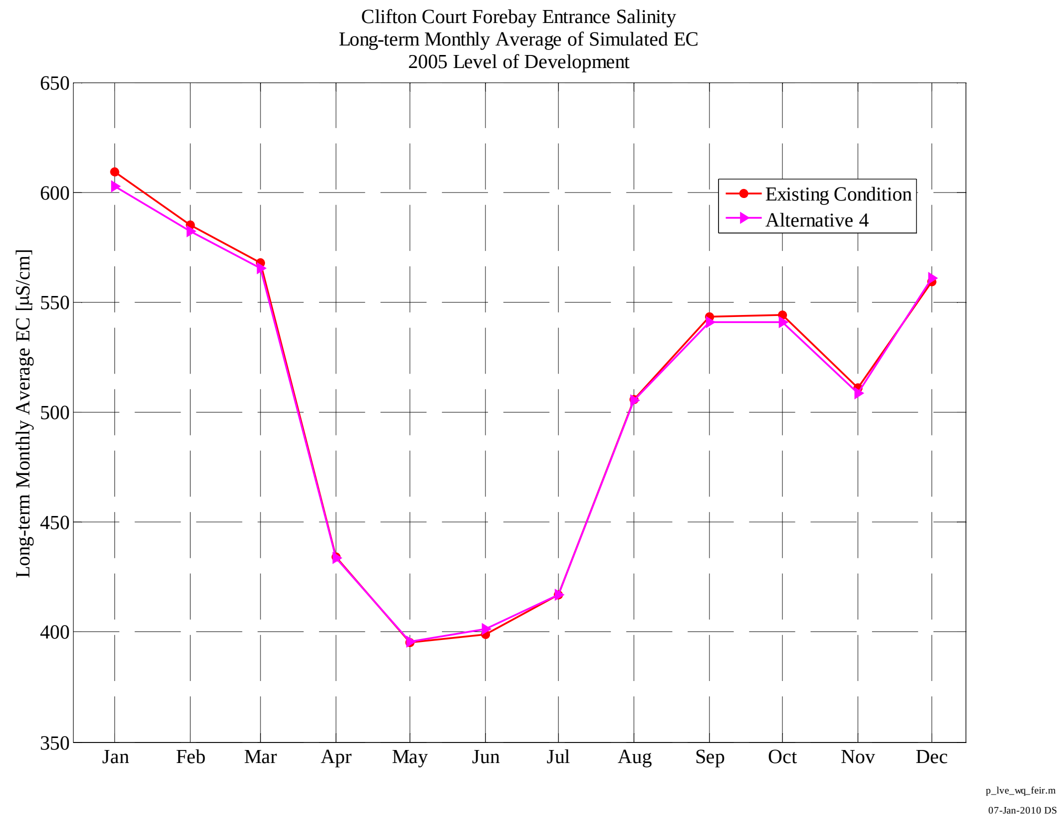
Alternative 4

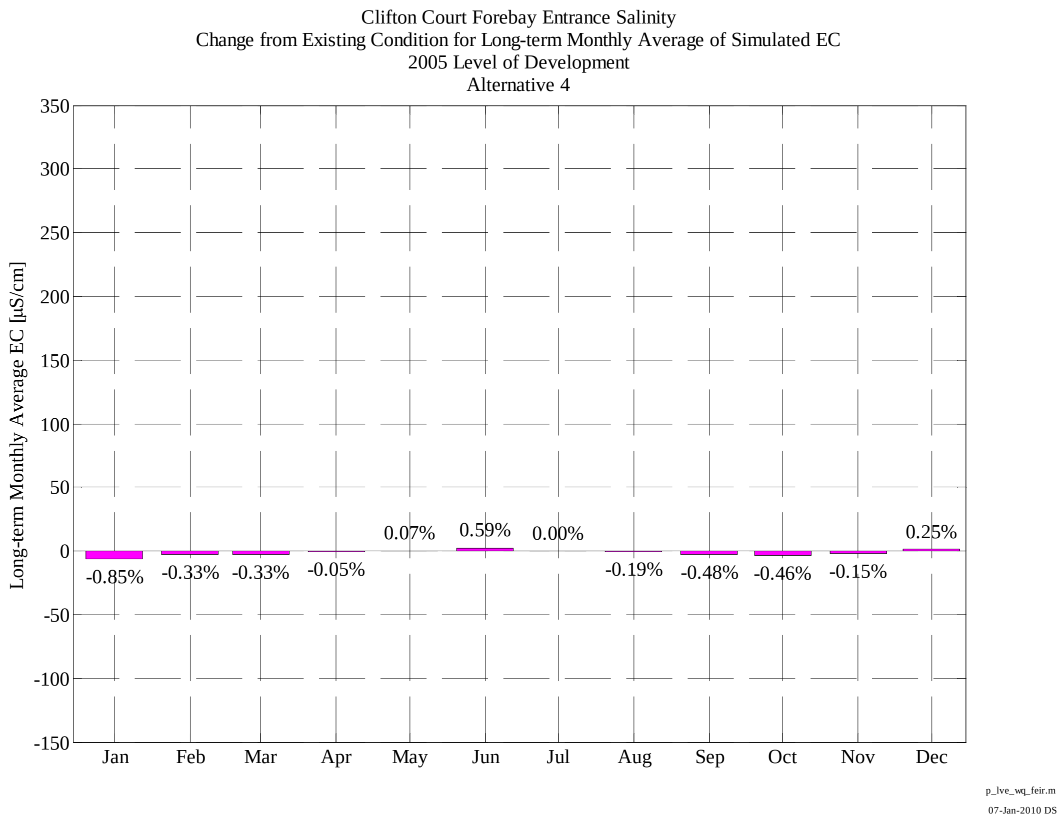
Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

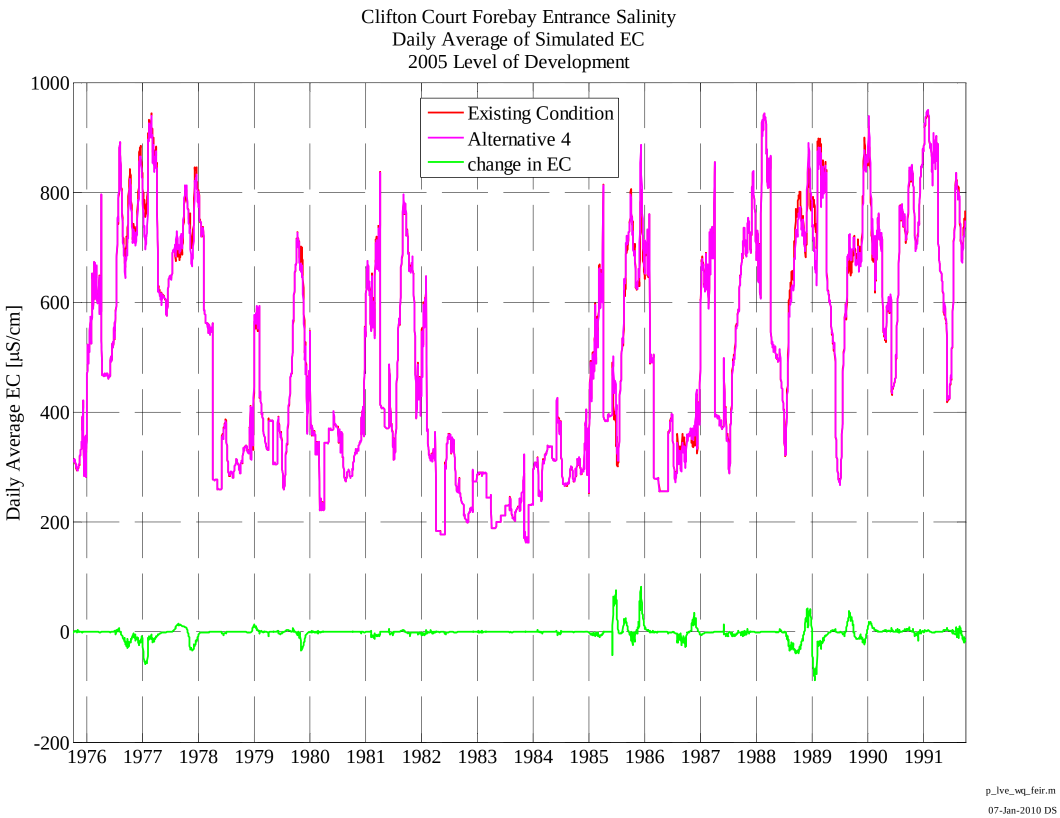
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	306	322	347	519	624	612	506	466	518	697	784	693
1977	767	726	834	727	898	862	656	608	618	677	704	729
1978	787	697	803	741	580	551	288	260	363	304	292	304
1979	319	333	379	572	419	345	381	310	363	290	412	582
1980	693	602	439	375	336	229	339	367	379	355	288	288
1981	314	341	440	629	584	686	443	375	392	396	630	759
1982	671	545	442	569	350	322	188	177	327	349	276	244
1983	207	221	273	288	289	246	191	200	212	230	216	222
1984	245	176	230	302	253	314	338	314	381	281	273	287
1985	302	296	343	452	528	620	421	393	448	374	587	731
1986	719	649	755	692	507	284	256	256	371	300	313	324
1987	358	363	403	646	631	708	438	376	391	369	525	629
1988	705	724	778	680	907	851	566	501	449	395	606	701
1989	749	734	831	689	845	821	649	539	312	387	630	698
1990	685	693	847	832	684	727	576	592	457	615	758	757
1991	826	717	829	930	883	869	704	596	444	654	790	708
Avg	541	509	561	603	582	566	434	396	401	417	505	541
W/AN/BN	520	460	474	506	391	327	283	269	342	301	296	321
D/C	557	546	628	678	732	751	551	494	448	507	668	712

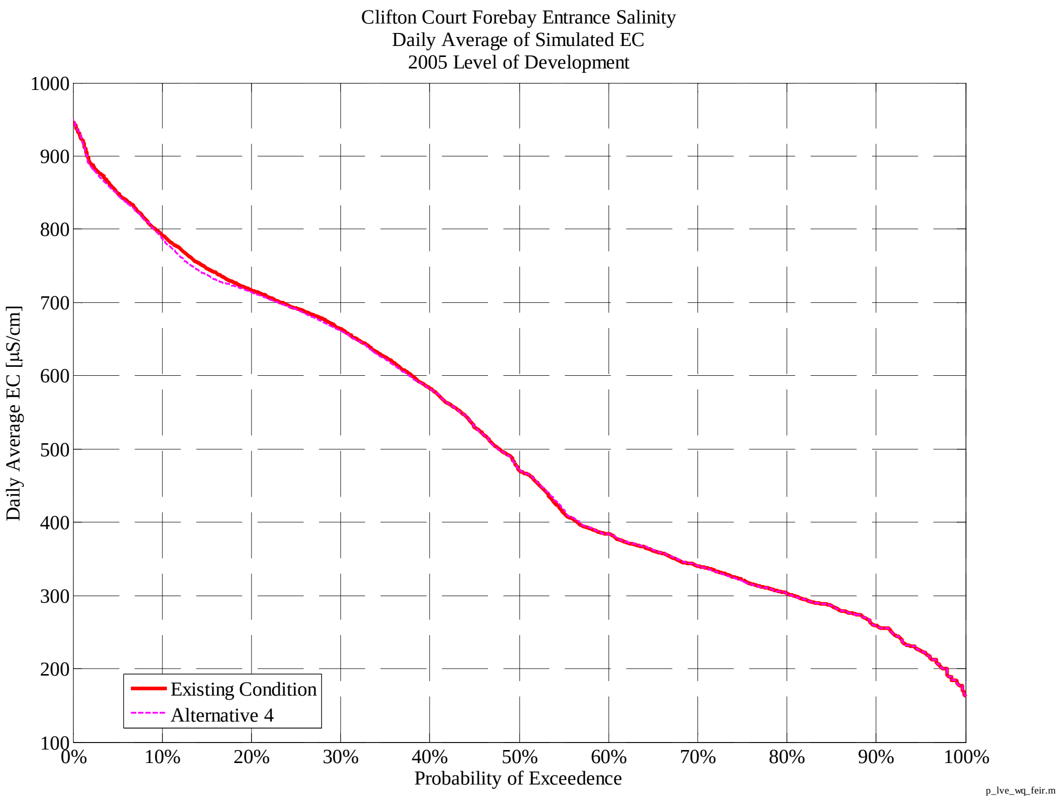
Percent (%) Change from Existing Condition for Clifton Court Forebay Entrance Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	-0.8%	-3.0%
1977	-1.8%	-1.2%	-1.9%	-6.6%	-1.3%	-1.5%	-0.7%	-0.1%	0.0%	0.2%	1.7%	1.6%
1978	0.4%	-4.1%	-2.1%	-0.2%	-0.1%	0.0%	0.0%	0.0%	-0.7%	0.2%	0.1%	0.0%
1979	0.1%	-0.2%	1.0%	1.2%	0.1%	0.0%	-0.2%	0.0%	-0.6%	0.3%	0.6%	0.2%
1980	-0.5%	-3.8%	-0.6%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	-1.2%	-0.9%	0.0%	0.0%	-0.5%	0.1%	0.3%	0.1%
1982	-0.3%	-0.1%	-0.4%	-0.7%	-0.1%	-0.1%	0.1%	0.0%	-0.6%	0.2%	-0.1%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%
1984	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	-0.5%	0.3%	0.2%	0.1%
1985	0.2%	0.0%	0.0%	-0.6%	-0.7%	-0.9%	0.0%	0.0%	12.0%	1.4%	2.1%	0.5%
1986	-1.2%	1.8%	5.7%	0.6%	0.1%	0.0%	0.0%	0.0%	-0.3%	-0.4%	-3.8%	-4.8%
1987	0.0%	5.4%	0.6%	-0.6%	-0.2%	-0.1%	0.0%	0.0%	-0.9%	-0.9%	-1.0%	-0.2%
1988	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.3%	-1.4%	-4.3%	-4.8%
1989	-3.3%	1.7%	2.9%	-8.8%	-2.7%	-1.6%	-0.4%	0.5%	0.1%	-0.5%	1.9%	3.2%
1990	-1.4%	-1.6%	-1.1%	1.8%	0.7%	0.1%	0.4%	0.3%	0.4%	0.1%	0.2%	0.6%
1991	0.2%	-0.5%	0.1%	0.2%	0.1%	0.0%	0.0%	0.5%	0.8%	-0.2%	0.0%	-1.5%
Avg	-0.5%	-0.2%	0.3%	-0.9%	-0.3%	-0.3%	0.0%	0.1%	0.6%	0.0%	-0.2%	-0.5%
W/AN/BN	-0.2%	-0.9%	0.5%	0.1%	0.0%	-0.1%	0.0%	0.0%	-0.4%	0.1%	-0.4%	-0.6%
D/C	-0.7%	0.4%	0.1%	-1.6%	-0.6%	-0.6%	-0.1%	0.1%	1.4%	-0.1%	0.0%	-0.4%


Clifton Court Forebay Entrance Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
-0.85%
-0.33%
-0.33%
-0.05%
0.07%
0.59%
0.00%
-0.19%
-0.48%
-0.46%
-0.15%
0.25%
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Existing Condition
Alternative 4
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Jones Pumping Plant

Existing Condition

Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	331	350	446	563	666	646	541	476	522	694	765	714
1977	744	722	845	792	938	929	673	613	618	674	692	714
1978	779	728	825	762	599	574	304	279	394	377	338	341
1979	357	368	464	599	414	343	392	333	380	324	435	583
1980	656	614	519	381	351	232	351	384	390	408	332	329
1981	350	367	507	653	633	723	487	396	413	420	631	743
1982	660	563	496	622	344	340	195	193	363	387	306	252
1983	201	221	280	354	319	278	206	207	223	239	209	232
1984	281	177	254	303	247	325	361	340	403	332	325	331
1985	333	341	428	505	581	661	471	412	420	399	584	713
1986	701	638	726	710	545	304	265	273	403	359	372	374
1987	374	363	456	669	671	735	480	393	406	395	541	631
1988	695	723	784	705	930	929	595	504	455	408	637	728
1989	757	720	809	772	911	893	683	561	327	398	624	674
1990	697	713	853	831	706	825	635	625	465	616	746	740
1991	812	717	829	933	906	914	727	620	450	659	790	717
Avg	545	520	595	635	610	603	460	413	415	443	521	551
W/AN/BN	519	473	509	533	403	342	296	287	365	347	331	349
D/C	566	557	662	714	771	806	588	511	453	518	668	708

Alternative 1

Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	333	353	449	564	668	646	542	475	524	700	766	700
1977	739	724	847	793	939	929	673	613	616	673	691	713
1978	783	730	829	764	599	574	305	280	394	379	338	342
1979	359	370	469	603	414	343	391	336	382	325	436	586
1980	661	619	520	381	351	232	352	385	390	410	333	330
1981	353	372	509	655	634	717	487	396	413	420	635	748
1982	665	566	502	624	344	342	195	193	363	388	307	251
1983	201	221	280	354	319	278	207	207	223	239	209	232
1984	282	178	254	304	247	326	361	341	404	333	326	332
1985	336	340	432	508	585	670	471	412	420	399	579	712
1986	717	644	730	715	545	306	267	274	405	360	371	376
1987	384	368	459	674	675	746	481	393	405	397	550	638
1988	703	731	789	712	930	929	595	504	456	408	635	713
1989	745	715	809	785	915	895	685	565	329	395	634	690
1990	689	711	859	838	715	826	637	626	467	615	743	734
1991	814	731	838	941	894	909	725	621	451	643	770	714
Avg	548	523	598	638	611	604	461	414	415	443	520	551
W/AN/BN	524	475	512	535	403	343	297	288	366	348	331	350
D/C	566	560	666	719	773	808	588	512	454	517	667	707

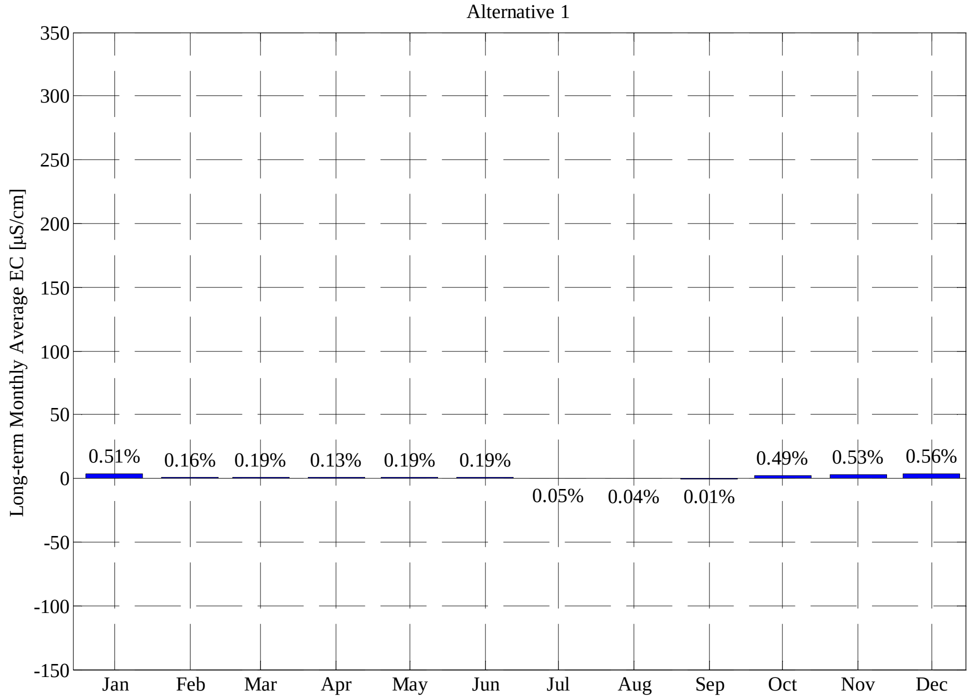
Percent (%) Change from Existing Condition for Jones Pumping Plant Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.7%	0.8%	0.8%	0.2%	0.3%	0.0%	0.0%	-0.1%	0.5%	0.9%	0.1%	-2.0%
1977	-0.6%	0.2%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	-0.2%	-0.3%	-0.1%	-0.2%
1978	0.5%	0.3%	0.5%	0.3%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%	0.1%	0.1%
1979	0.6%	0.7%	1.0%	0.7%	0.1%	0.0%	-0.1%	0.7%	0.4%	0.6%	0.2%	0.5%
1980	0.7%	0.8%	0.2%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.5%	0.3%	0.3%
1981	0.8%	1.2%	0.5%	0.3%	0.3%	-0.8%	0.0%	0.0%	-0.1%	0.1%	0.6%	0.7%
1982	0.9%	0.5%	1.3%	0.4%	0.0%	0.3%	0.0%	0.2%	0.0%	0.3%	0.2%	-0.3%
1983	-0.3%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	-0.1%	0.1%
1984	0.3%	0.1%	0.1%	0.1%	-0.1%	0.5%	0.0%	0.1%	0.4%	0.4%	0.4%	0.4%
1985	0.9%	-0.3%	0.9%	0.7%	0.7%	1.3%	0.1%	0.0%	0.1%	0.2%	-0.8%	-0.2%
1986	2.2%	0.9%	0.6%	0.8%	0.1%	0.4%	0.7%	0.4%	0.5%	0.3%	-0.1%	0.5%
1987	2.7%	1.3%	0.6%	0.7%	0.6%	1.5%	0.2%	0.0%	-0.3%	0.6%	1.6%	1.1%
1988	1.0%	1.1%	0.6%	0.9%	0.1%	0.1%	0.0%	0.0%	0.2%	0.1%	-0.3%	-2.0%
1989	-1.6%	-0.7%	-0.1%	1.7%	0.5%	0.2%	0.3%	0.7%	0.8%	-0.6%	1.6%	2.4%
1990	-1.2%	-0.3%	0.7%	0.8%	1.3%	0.2%	0.2%	0.2%	0.5%	-0.1%	-0.4%	-0.9%
1991	0.3%	2.0%	1.1%	0.8%	-1.3%	-0.6%	-0.3%	0.2%	0.2%	-2.6%	-2.6%	-0.3%
Avg	0.5%	0.5%	0.6%	0.5%	0.2%	0.2%	0.1%	0.2%	0.2%	0.1%	0.0%	0.0%
W/AN/BN	0.7%	0.5%	0.5%	0.3%	0.0%	0.2%	0.2%	0.3%	0.2%	0.4%	0.1%	0.2%
D/C	0.3%	0.6%	0.6%	0.7%	0.3%	0.2%	0.1%	0.1%	0.2%	-0.2%	0.0%	-0.2%

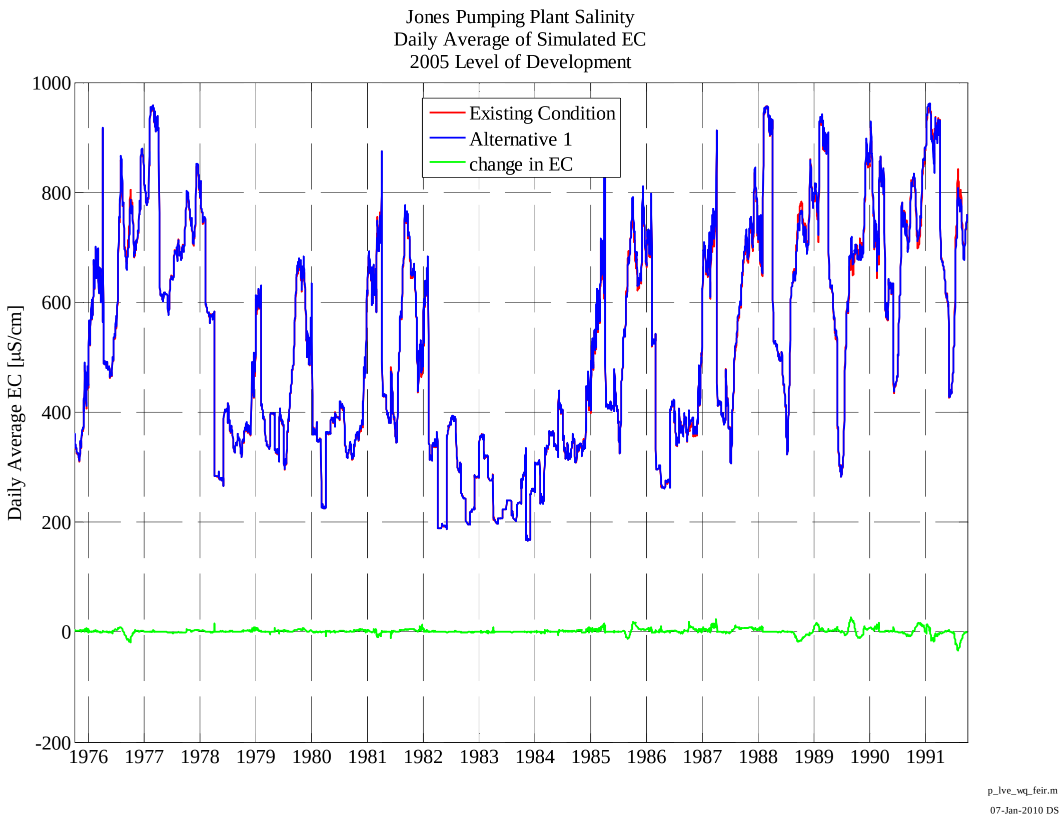
Jones Pumping Plant Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development

p_lve_wq_feir.m
07-Jan-2010 DS

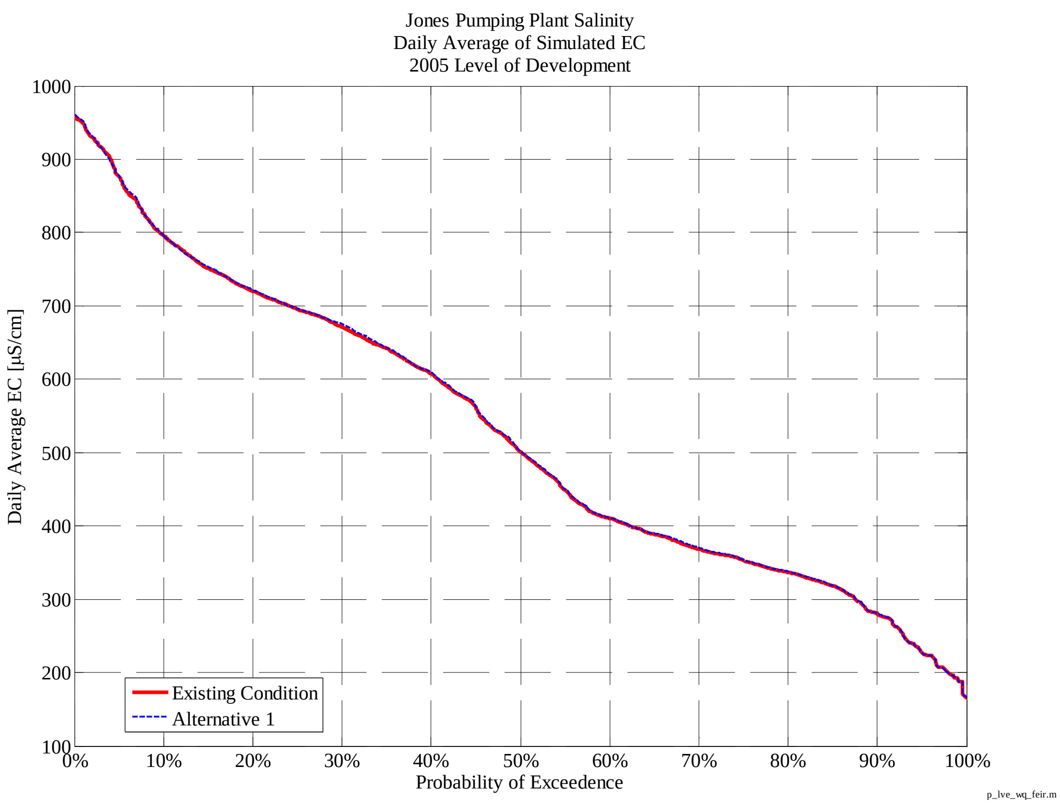
Jones Pumping Plant Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1



p_lve_wq_feir.m
07-Jan-2010 DS



Jones Pumping Plant Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Jones Pumping Plant Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Existing Condition
Alternative 1
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

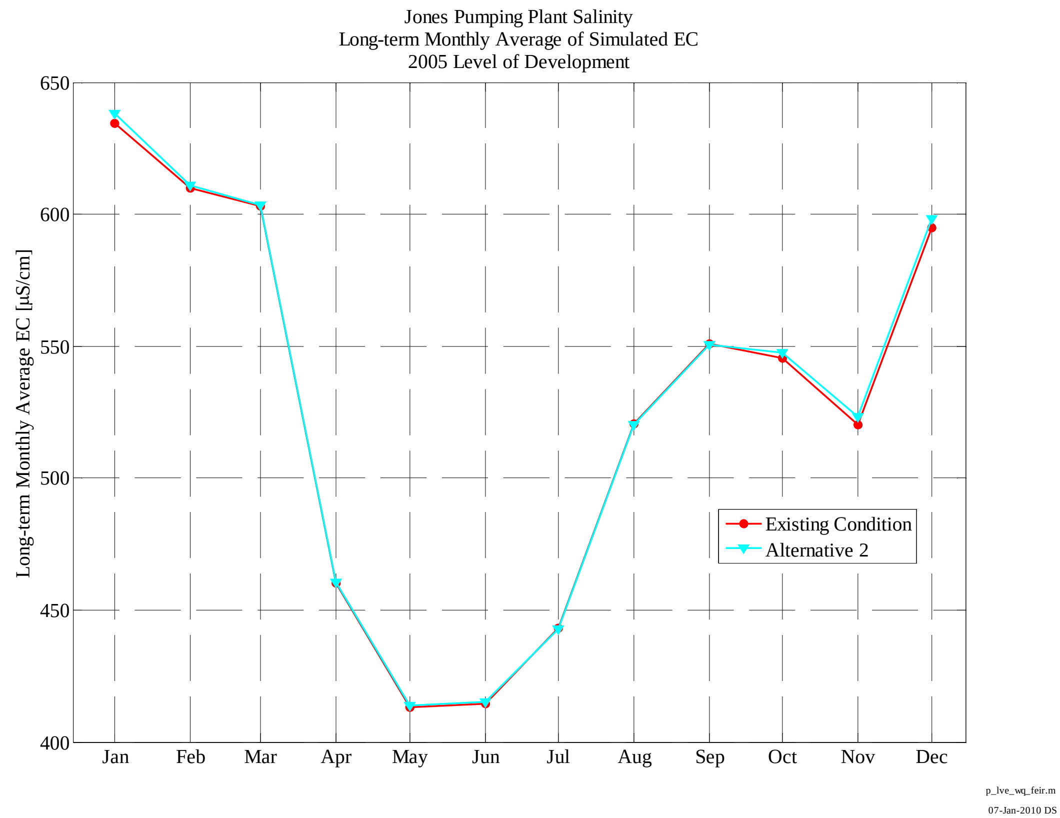
Alternative 2

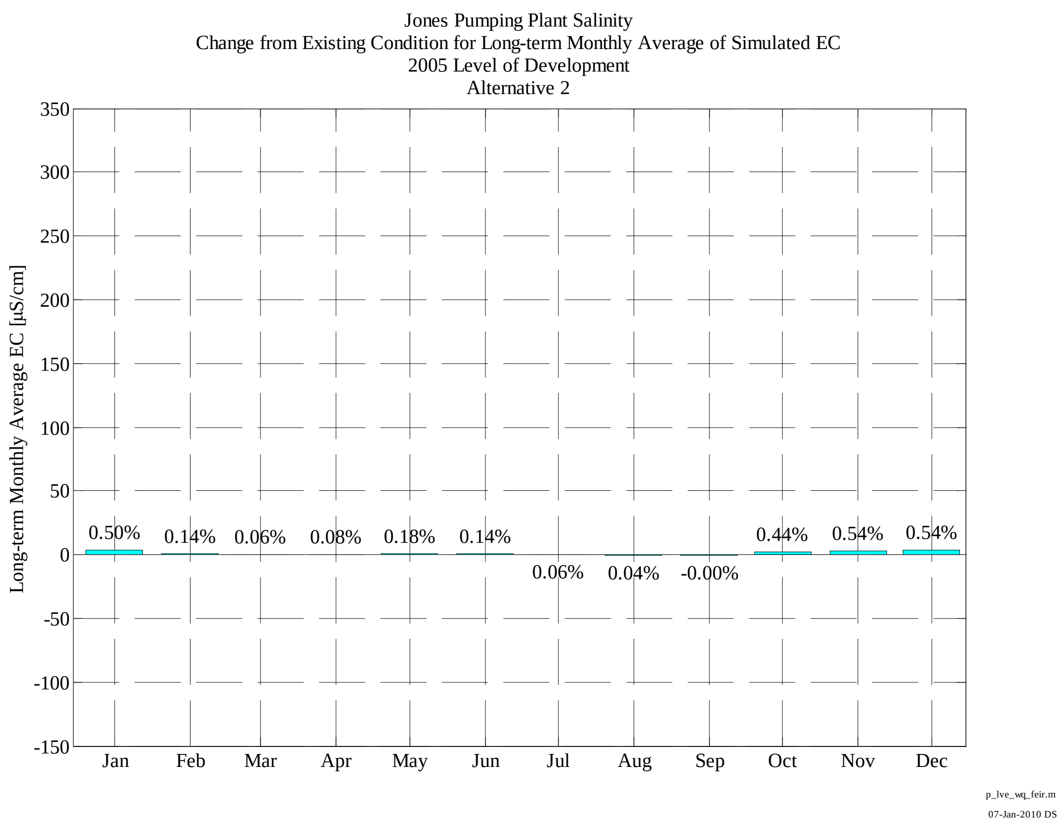
Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

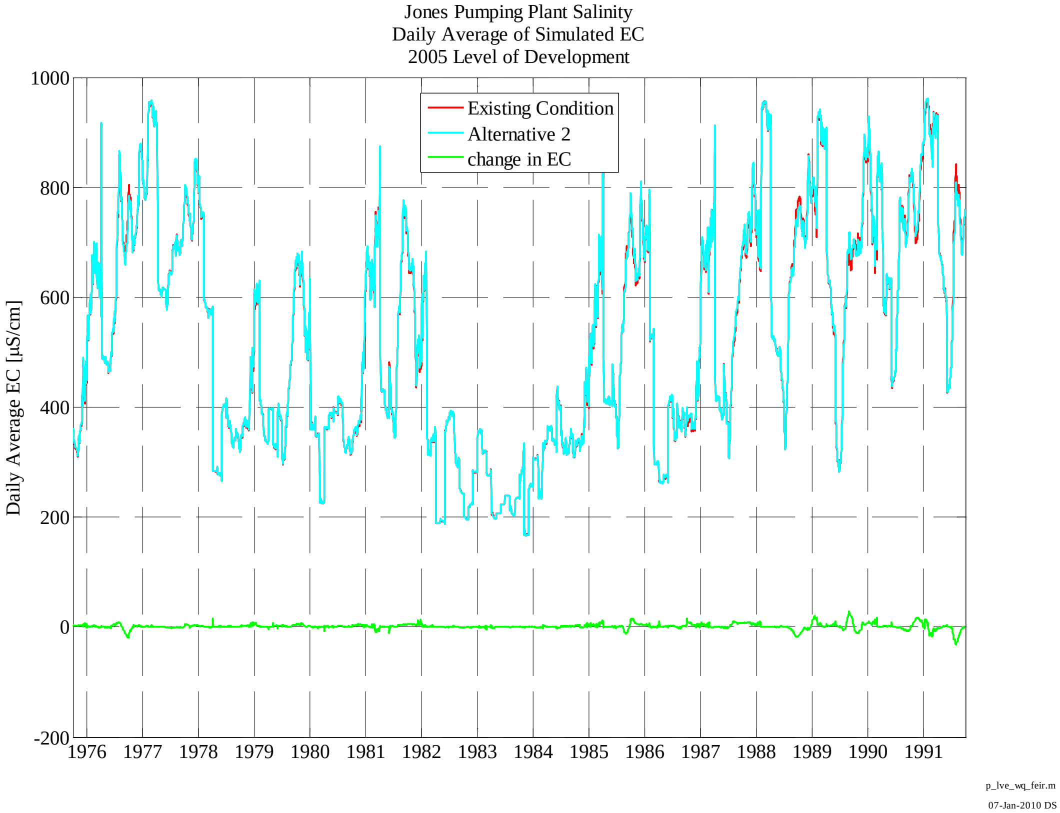
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	333	353	449	564	668	646	542	475	524	700	766	700
1977	738	724	847	793	940	930	673	613	617	673	691	714
1978	783	729	828	764	599	574	305	280	394	379	338	342
1979	359	370	469	603	414	343	391	336	382	325	436	586
1980	661	619	520	381	351	231	352	385	390	410	333	330
1981	353	372	509	655	634	717	487	396	413	420	635	748
1982	665	567	503	624	344	342	195	193	363	388	307	251
1983	201	221	280	354	319	278	206	207	223	239	209	232
1984	281	177	254	303	246	326	361	341	402	333	326	332
1985	336	340	431	508	584	668	471	412	419	399	579	711
1986	714	643	730	713	545	305	267	275	405	360	371	376
1987	383	368	459	674	675	735	480	393	405	397	550	638
1988	703	731	789	712	930	929	595	504	456	408	633	712
1989	745	717	809	787	916	895	685	565	330	395	634	691
1990	688	710	859	838	715	826	637	626	467	615	743	734
1991	814	732	839	941	894	909	725	621	451	643	771	715
Avg	547	523	598	638	611	603	461	414	415	443	520	551
W/AN/BN	524	475	512	535	403	343	297	288	366	348	332	350
D/C	566	561	665	719	773	806	588	512	454	517	667	707

Percent (%) Change from Existing Condition for Jones Pumping Plant Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

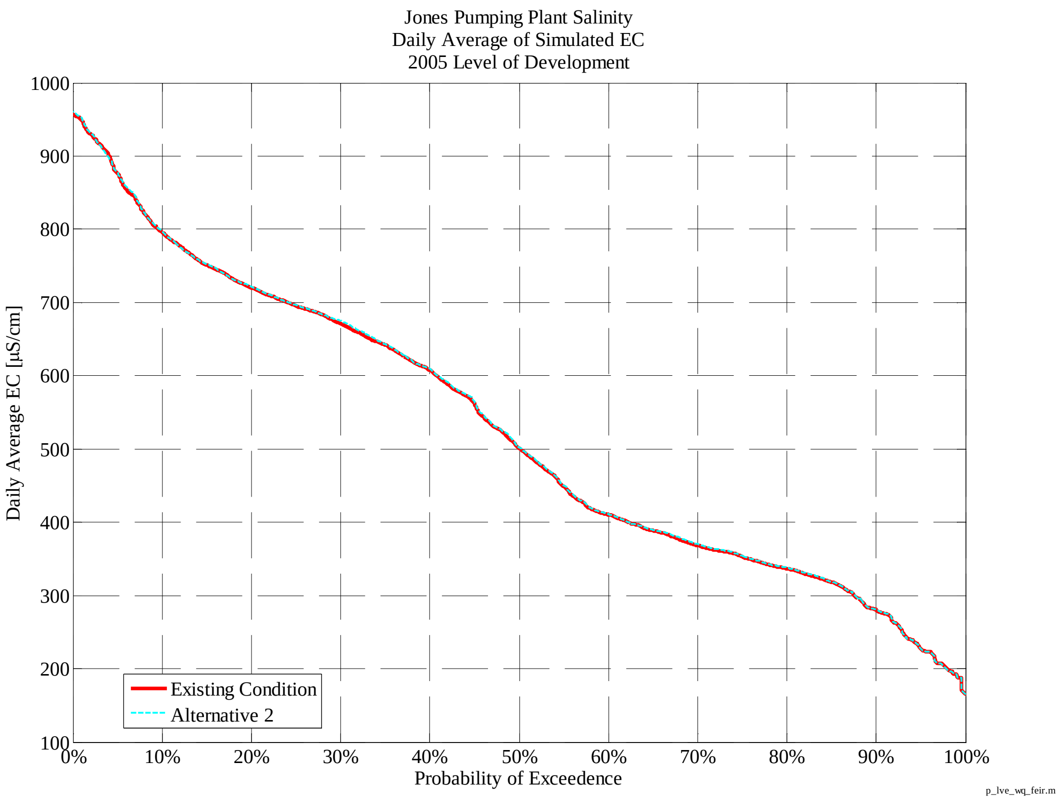
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.8%	0.8%	0.8%	0.1%	0.3%	0.0%	0.0%	-0.1%	0.5%	0.9%	0.1%	-2.1%
1977	-0.7%	0.3%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	-0.2%	-0.2%	-0.1%	0.0%
1978	0.6%	0.2%	0.4%	0.3%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%	0.1%	0.1%
1979	0.6%	0.6%	1.0%	0.7%	0.1%	0.0%	-0.1%	0.7%	0.4%	0.6%	0.2%	0.5%
1980	0.7%	0.8%	0.2%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.5%	0.3%	0.3%
1981	0.8%	1.2%	0.5%	0.3%	0.3%	-0.8%	0.0%	0.0%	-0.1%	0.1%	0.6%	0.7%
1982	0.9%	0.8%	1.3%	0.4%	0.0%	0.3%	0.0%	0.2%	-0.1%	0.3%	0.2%	-0.3%
1983	-0.3%	-0.1%	0.1%	0.0%	-0.1%	0.0%	-0.4%	0.0%	0.0%	0.0%	-0.1%	0.0%
1984	0.0%	-0.1%	0.0%	-0.1%	-0.3%	0.4%	0.1%	0.1%	-0.3%	0.4%	0.4%	0.4%
1985	0.9%	-0.3%	0.7%	0.6%	0.5%	1.1%	0.1%	0.0%	-0.1%	0.2%	-0.7%	-0.3%
1986	1.8%	0.9%	0.6%	0.5%	0.1%	0.1%	0.7%	0.4%	0.5%	0.4%	-0.1%	0.5%
1987	2.4%	1.2%	0.6%	0.7%	0.6%	0.0%	0.0%	0.0%	-0.3%	0.6%	1.6%	1.1%
1988	1.1%	1.1%	0.6%	0.9%	0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	-0.6%	-2.1%
1989	-1.6%	-0.5%	-0.1%	2.0%	0.6%	0.2%	0.3%	0.7%	0.8%	-0.6%	1.7%	2.4%
1990	-1.3%	-0.4%	0.7%	0.8%	1.3%	0.2%	0.2%	0.2%	0.5%	-0.1%	-0.4%	-0.9%
1991	0.3%	2.1%	1.2%	0.8%	-1.3%	-0.6%	-0.3%	0.2%	0.2%	-2.5%	-2.5%	-0.3%
Avg	0.4%	0.5%	0.5%	0.5%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%
W/AN/BN	0.6%	0.4%	0.5%	0.2%	0.0%	0.1%	0.1%	0.3%	0.1%	0.4%	0.1%	0.2%
D/C	0.3%	0.6%	0.6%	0.7%	0.3%	0.0%	0.1%	0.1%	0.2%	-0.2%	0.0%	-0.2%


Jones Pumping Plant Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.50%
0.14%
0.06%
0.08%
0.18%
0.14%
0.06%
0.04%
-0.00%
0.44%
0.54%
0.54%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Jones Pumping Plant Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Jones Pumping Plant Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Existing Condition
Alternative 2
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

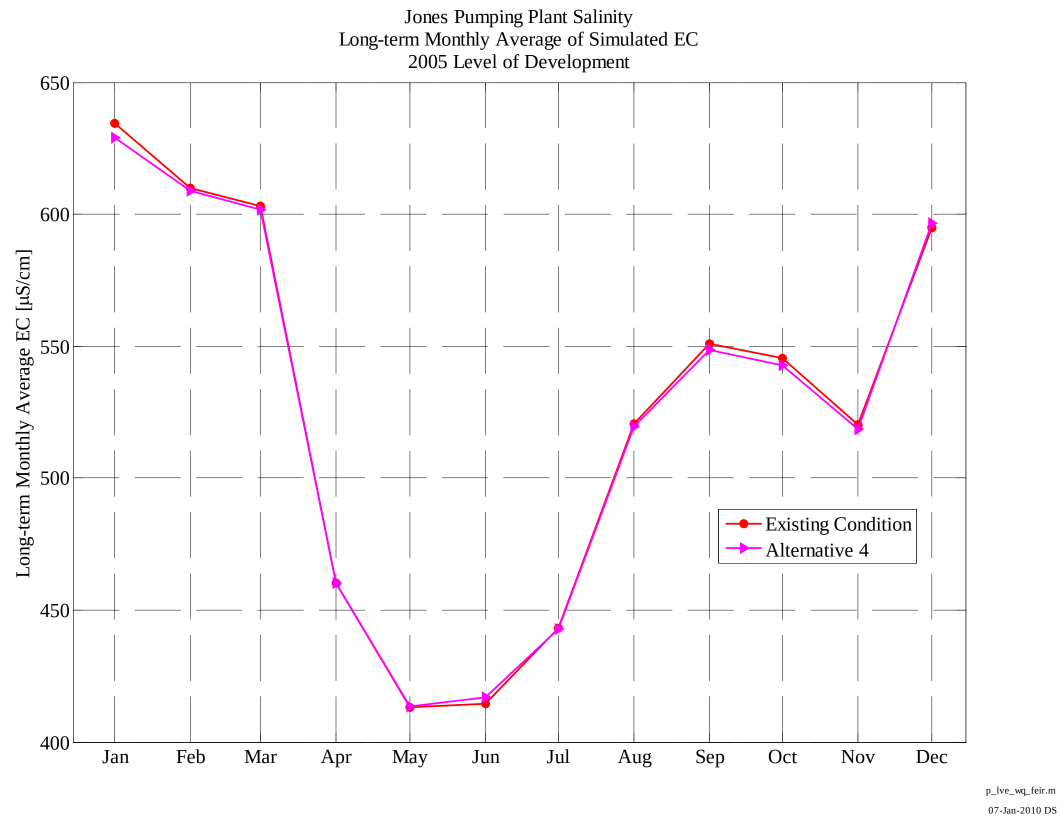
Alternative 4

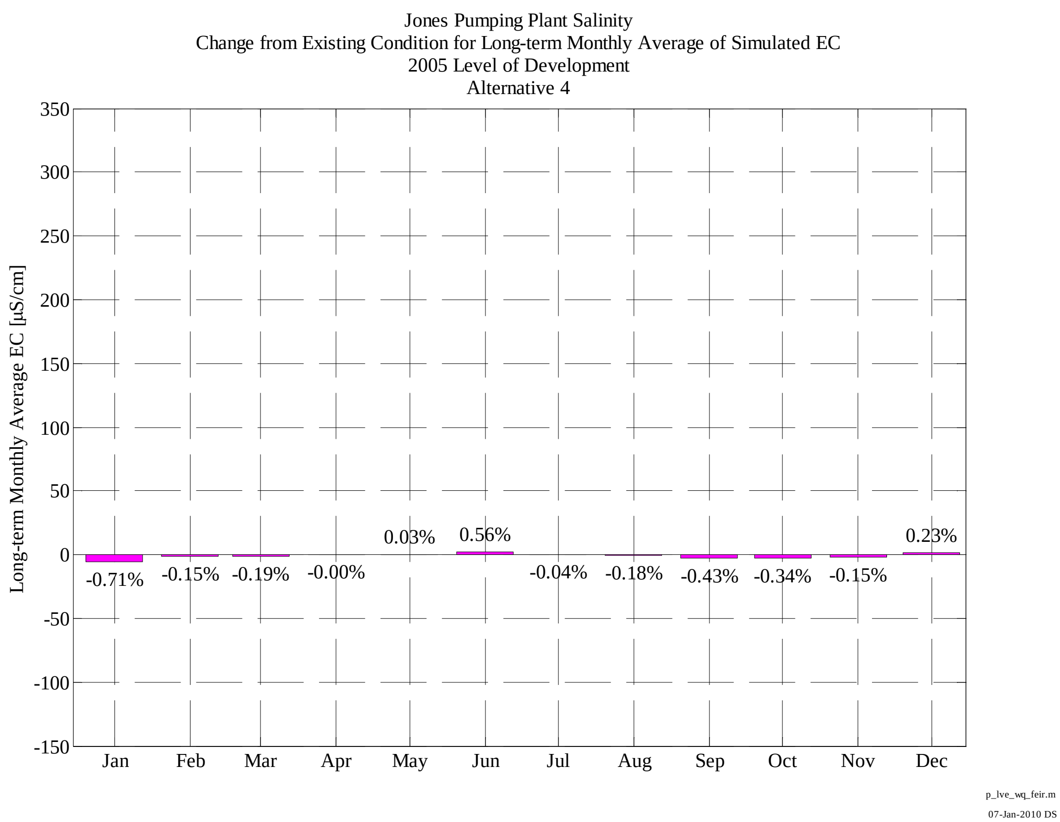
Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

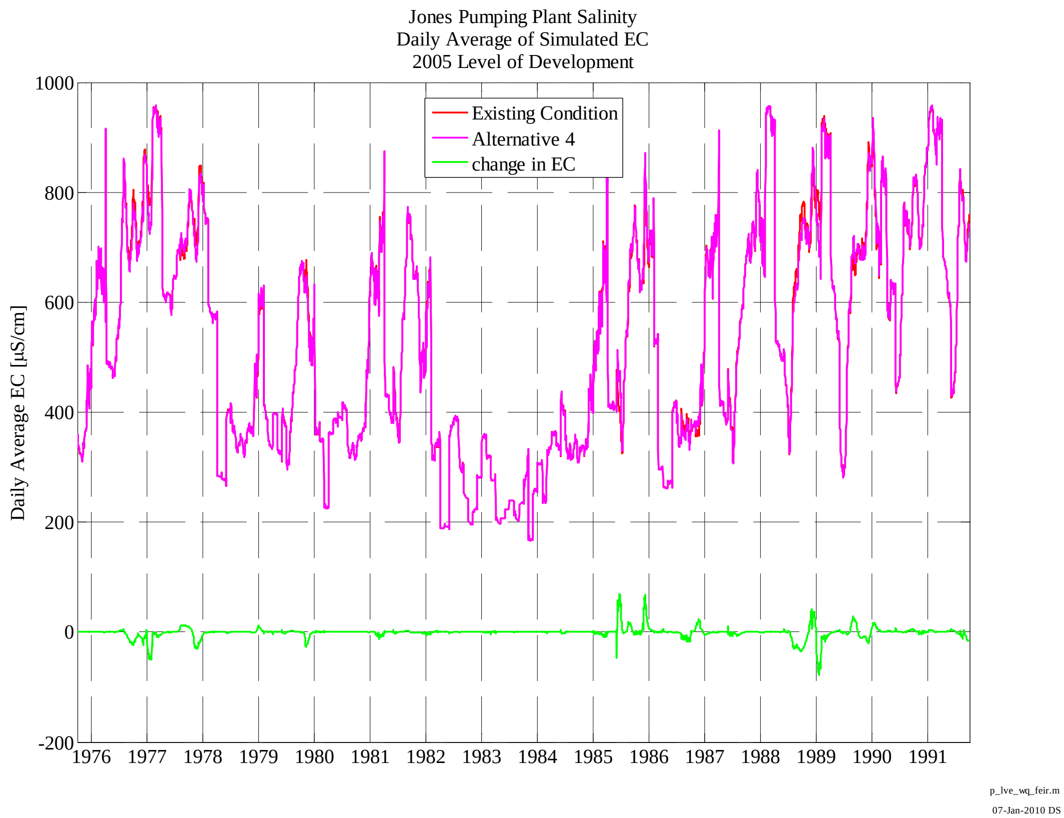
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	331	350	445	563	666	646	541	476	523	697	760	696
1977	730	714	836	749	934	922	670	612	618	675	703	724
1978	782	702	810	761	599	574	304	279	393	378	338	341
1979	357	367	467	604	414	343	391	333	378	324	437	584
1980	654	595	517	381	351	232	351	384	390	408	332	329
1981	350	367	506	653	629	716	487	396	412	420	633	744
1982	658	562	495	618	344	341	195	193	362	388	306	252
1983	201	221	280	354	319	278	206	207	223	239	209	232
1984	281	177	254	303	247	325	361	340	402	332	325	331
1985	333	341	428	503	578	655	471	412	462	404	593	716
1986	700	645	760	713	545	305	266	273	402	358	362	361
1987	375	379	458	665	670	735	480	393	403	392	536	630
1988	696	723	784	705	930	929	595	504	456	402	611	696
1989	734	730	831	713	898	886	682	563	327	396	634	692
1990	689	703	844	845	710	826	637	626	467	616	747	744
1991	813	715	829	936	906	914	727	622	454	658	787	705
Avg	543	518	597	629	609	602	460	413	417	443	520	549
W/AN/BN	519	467	512	534	403	342	296	287	364	347	330	347
D/C	561	558	662	704	769	803	588	512	458	518	667	705

Percent (%) Change from Existing Condition for Jones Pumping Plant Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

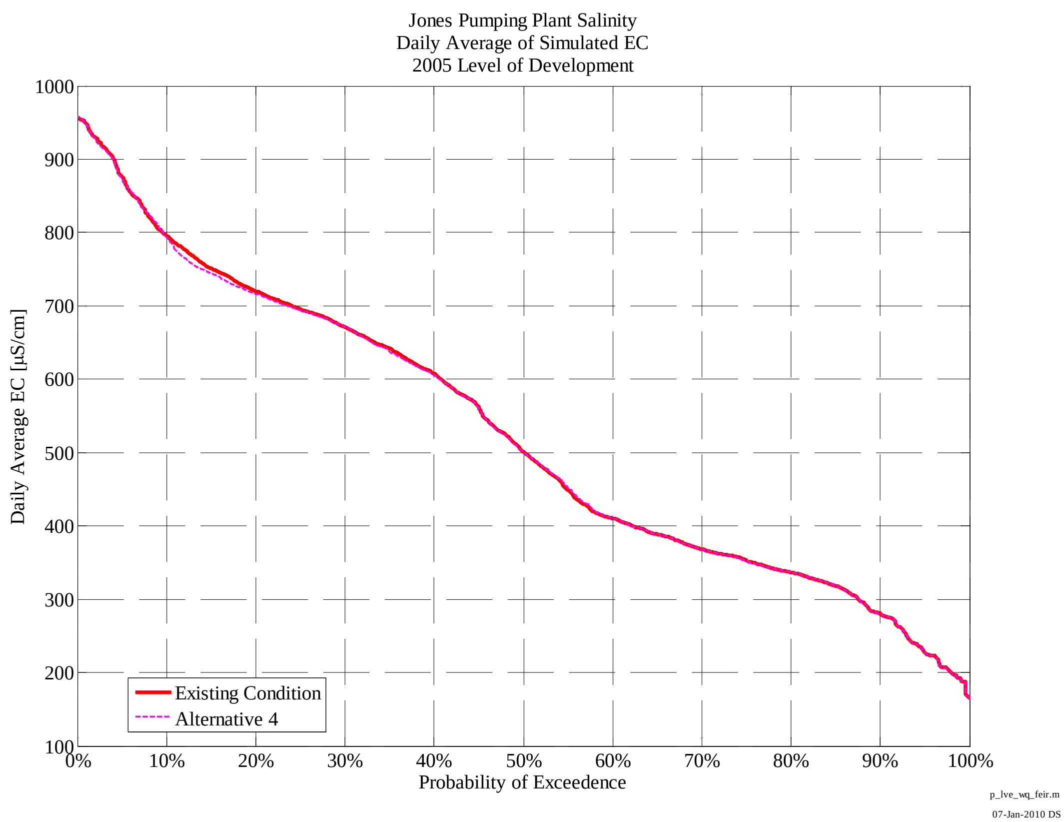
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	-0.6%	-2.6%
1977	-1.9%	-1.1%	-1.1%	-5.5%	-0.4%	-0.7%	-0.4%	-0.1%	0.0%	0.2%	1.6%	1.5%
1978	0.4%	-3.5%	-1.8%	-0.2%	0.0%	0.0%	0.0%	0.0%	-0.4%	0.1%	0.1%	0.0%
1979	0.1%	-0.1%	0.6%	0.9%	0.1%	0.0%	-0.1%	0.0%	-0.4%	0.2%	0.5%	0.1%
1980	-0.3%	-3.2%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	-0.7%	-0.9%	0.0%	0.0%	-0.3%	0.1%	0.2%	0.1%
1982	-0.2%	-0.1%	-0.3%	-0.5%	-0.1%	0.3%	0.0%	0.0%	-0.3%	0.1%	-0.1%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.4%	0.2%	0.1%	0.0%
1985	0.1%	0.0%	0.0%	-0.3%	-0.5%	-0.8%	0.0%	0.0%	10.1%	1.3%	1.6%	0.4%
1986	-0.2%	1.2%	4.7%	0.5%	0.0%	0.1%	0.4%	0.0%	-0.2%	-0.3%	-2.7%	-3.6%
1987	0.2%	4.4%	0.4%	-0.5%	-0.1%	0.0%	0.0%	0.0%	-0.7%	-0.7%	-0.9%	-0.1%
1988	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	-1.5%	-4.2%	-4.4%
1989	-3.0%	1.4%	2.7%	-7.7%	-1.4%	-0.8%	-0.2%	0.3%	0.0%	-0.4%	1.7%	2.6%
1990	-1.2%	-1.4%	-1.1%	1.6%	0.6%	0.1%	0.2%	0.1%	0.4%	0.0%	0.1%	0.5%
1991	0.2%	-0.2%	0.0%	0.3%	0.1%	0.0%	0.0%	0.3%	0.7%	-0.2%	-0.5%	-1.6%
Avg	-0.3%	-0.2%	0.2%	-0.7%	-0.2%	-0.2%	0.0%	0.0%	0.6%	0.0%	-0.2%	-0.4%
W/AN/BN	0.0%	-0.8%	0.4%	0.1%	0.0%	0.1%	0.0%	0.0%	-0.2%	0.0%	-0.3%	-0.5%
D/C	-0.6%	0.4%	0.1%	-1.3%	-0.3%	-0.4%	0.0%	0.1%	1.2%	-0.1%	-0.1%	-0.4%


Jones Pumping Plant Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.71%
-0.15%
-0.19%
-0.00%
0.03%
0.56%
-0.04%
-0.18%
-0.43%
-0.34%
-0.15%
0.23%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Jones Pumping Plant Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Jones Pumping Plant Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

City of Stockton Intake

Existing Condition

City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	307	343	237	319	373	346	457	430	380	483	485	457
1977	464	455	519	523	587	569	516	471	431	439	430	438
1978	468	478	577	505	530	488	333	274	350	267	230	246
1979	309	332	256	455	415	328	360	329	290	233	289	379
1980	425	432	307	332	317	236	314	352	356	331	236	229
1981	314	338	312	425	347	453	519	399	288	298	429	478
1982	424	369	253	391	303	310	203	184	311	335	247	232
1983	208	216	263	290	286	244	204	203	216	234	206	216
1984	251	188	233	290	247	293	337	326	295	223	216	243
1985	315	284	228	279	362	410	486	398	289	281	396	465
1986	450	427	478	411	383	291	271	265	350	243	237	275
1987	343	348	272	442	386	463	537	400	284	285	360	408
1988	457	478	546	418	503	515	521	445	321	307	423	458
1989	472	467	520	510	538	505	425	333	234	303	428	434
1990	431	476	582	534	407	413	358	370	335	437	493	474
1991	483	462	545	625	575	588	500	369	310	469	490	446
Avg	382	381	383	422	410	403	396	347	315	323	350	367
W/AN/BN	362	349	338	382	355	313	289	276	310	267	237	260
D/C	398	406	418	453	453	473	480	402	319	367	437	451

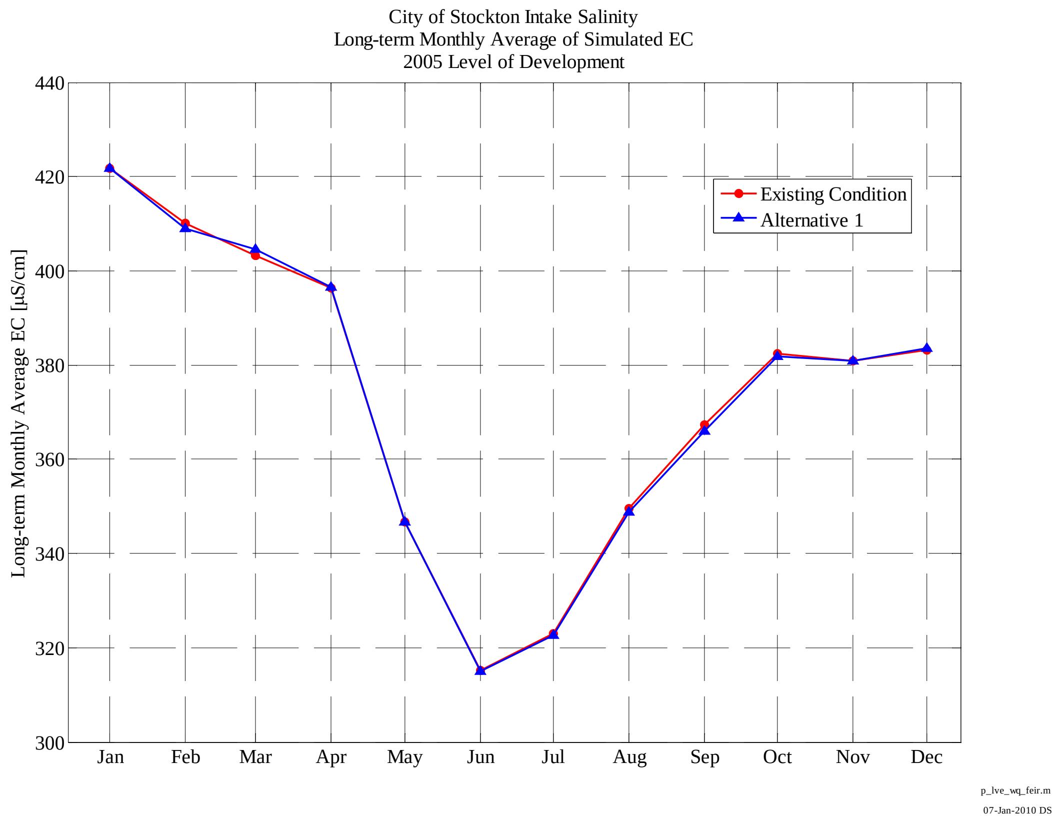
Alternative 1

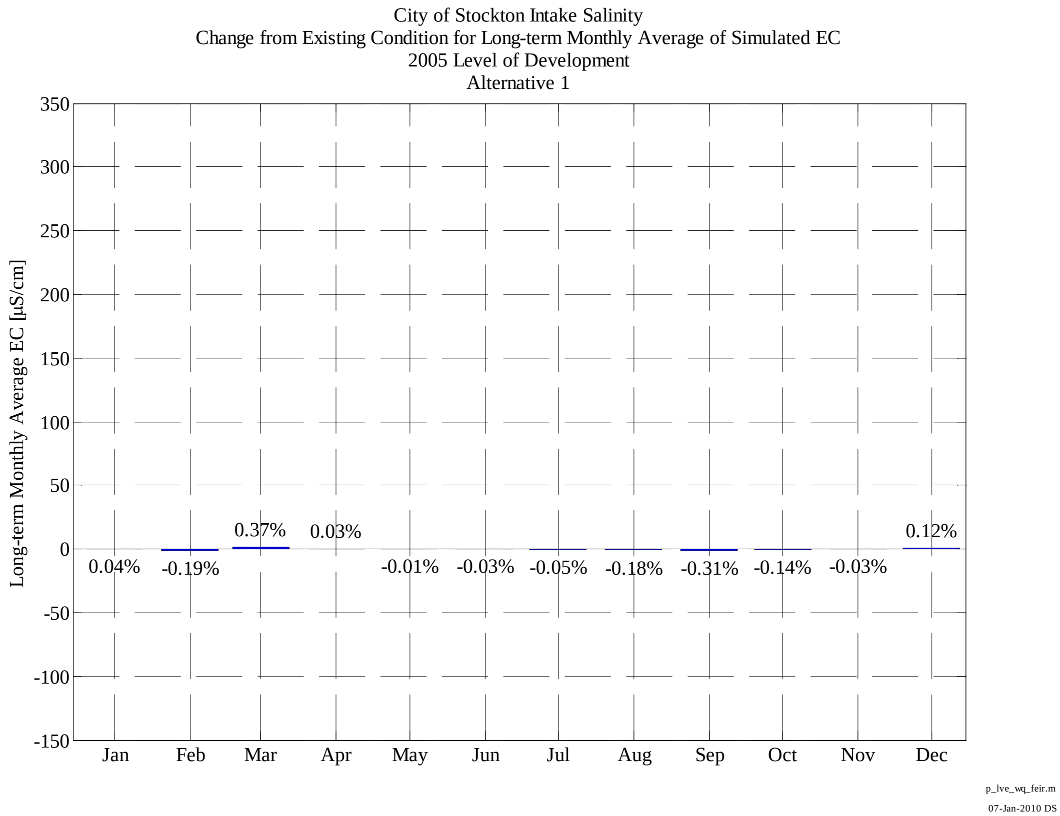
City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2005 Level of Development

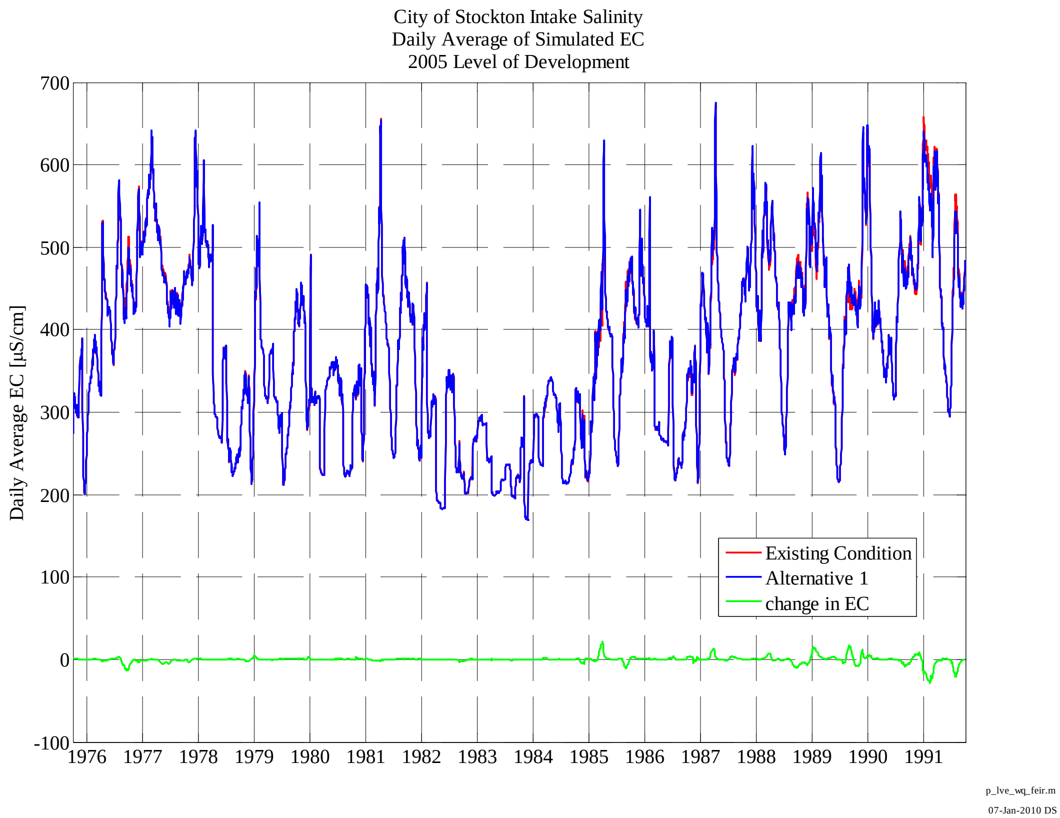
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	308	343	237	319	374	346	455	429	381	485	483	446
1977	460	454	517	522	587	569	515	466	427	438	429	437
1978	466	476	578	505	530	488	333	273	350	267	230	247
1979	308	330	257	457	415	328	360	328	291	234	289	380
1980	425	433	308	332	317	236	314	353	357	332	236	229
1981	314	339	313	425	346	452	517	399	288	298	430	478
1982	425	370	254	390	303	310	203	184	311	335	247	230
1983	206	216	264	290	286	244	204	202	216	234	205	216
1984	251	188	233	290	247	295	337	326	295	223	216	244
1985	316	280	229	279	360	423	491	399	289	282	391	460
1986	452	428	479	412	383	291	271	264	351	244	237	275
1987	346	349	273	442	386	472	539	401	283	287	362	410
1988	457	478	547	418	504	520	522	445	320	308	420	449
1989	466	462	519	522	544	506	426	336	234	301	434	443
1990	424	477	585	538	408	413	358	371	335	437	489	468
1991	483	468	545	606	551	580	499	370	310	458	480	445
Avg	382	381	384	422	409	405	397	347	315	323	349	366
W/AN/BN	362	349	339	382	355	313	289	276	310	267	237	260
D/C	397	406	418	452	451	476	480	402	319	366	435	448

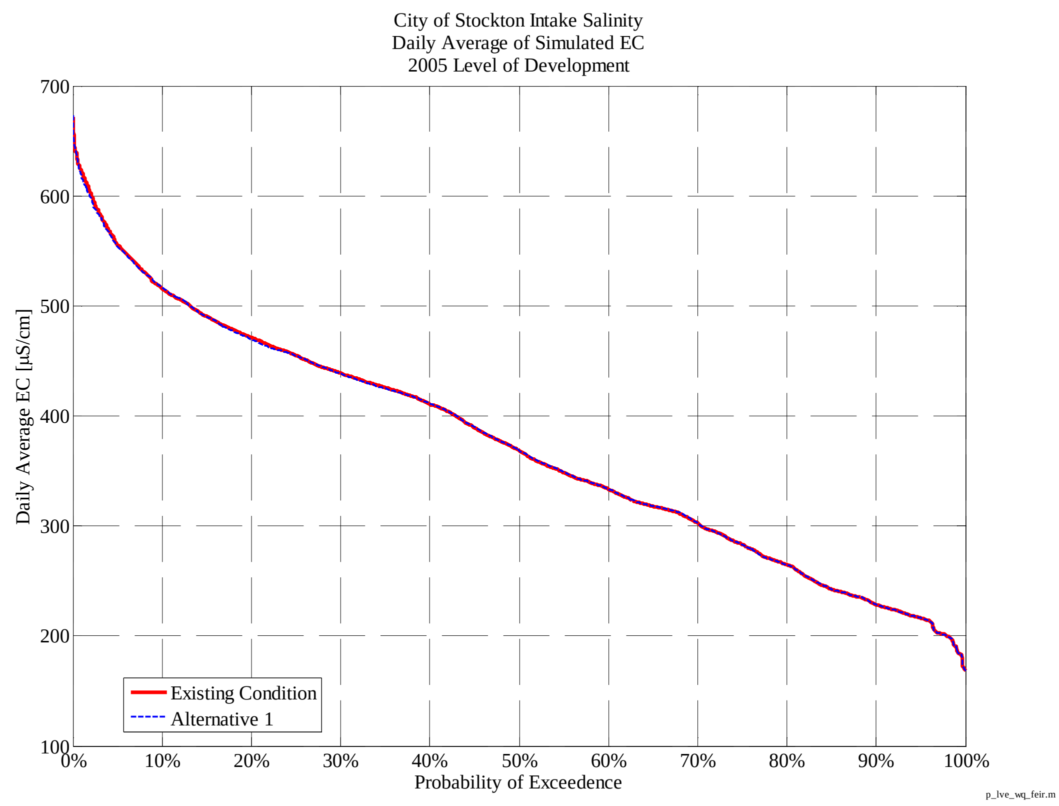
Percent (%) Change from Existing Condition for City of Stockton Intake Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.3%	0.1%	0.0%	0.0%	0.2%	0.0%	-0.4%	-0.2%	0.2%	0.4%	-0.5%	-2.5%
1977	-0.9%	-0.2%	-0.4%	-0.2%	0.0%	0.0%	-0.2%	-1.0%	-0.9%	-0.2%	-0.2%	-0.3%
1978	-0.2%	-0.3%	0.2%	0.1%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.1%	0.1%	0.2%
1979	-0.1%	-0.5%	0.4%	0.4%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.3%	0.2%	0.2%
1980	0.1%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%	0.2%
1981	0.1%	0.4%	0.1%	0.1%	-0.2%	-0.2%	-0.2%	0.0%	0.0%	0.1%	0.2%	0.1%
1982	0.2%	0.2%	0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.2%	-0.9%
1983	-0.6%	0.2%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%
1984	-0.1%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
1985	0.1%	-1.4%	0.1%	-0.1%	-0.4%	3.3%	1.1%	0.1%	0.1%	0.2%	-1.2%	-0.9%
1986	0.6%	0.3%	0.2%	0.2%	0.0%	0.1%	-0.1%	-0.1%	0.4%	0.6%	0.1%	0.0%
1987	0.9%	0.2%	0.1%	-0.1%	0.1%	1.9%	0.5%	0.0%	-0.3%	0.7%	0.7%	0.3%
1988	0.0%	0.0%	0.1%	0.1%	0.2%	1.0%	0.1%	0.0%	-0.2%	0.1%	-0.6%	-2.0%
1989	-1.2%	-0.9%	-0.1%	2.4%	1.1%	0.2%	0.3%	0.8%	0.1%	-0.6%	1.5%	2.2%
1990	-1.5%	0.3%	0.5%	0.7%	0.3%	0.2%	-0.1%	0.1%	0.1%	-0.1%	-0.9%	-1.3%
1991	0.1%	1.3%	0.1%	-3.0%	-4.2%	-1.3%	-0.3%	0.2%	0.0%	-2.5%	-2.1%	-0.2%
Avg	-0.1%	0.0%	0.1%	0.0%	-0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.3%
W/AN/BN	0.0%	0.0%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%
D/C	-0.2%	0.0%	0.1%	0.0%	-0.3%	0.6%	0.1%	0.0%	-0.1%	-0.2%	-0.4%	-0.5%


City of Stockton Intake Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
440
420
400
380
360
340
320
300
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.04%
-0.19%
0.37%
0.03%
-0.01%
-0.03%
-0.05%
-0.18%
-0.31%
-0.14%
-0.03%
0.12%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

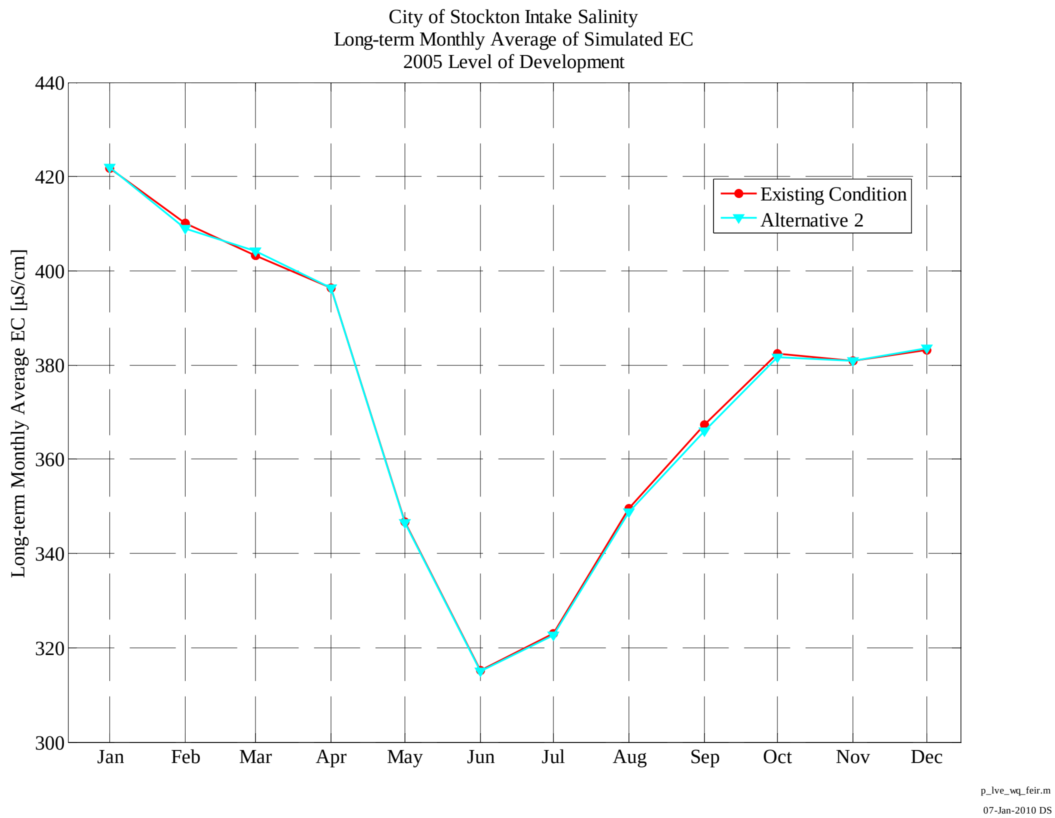
Alternative 2

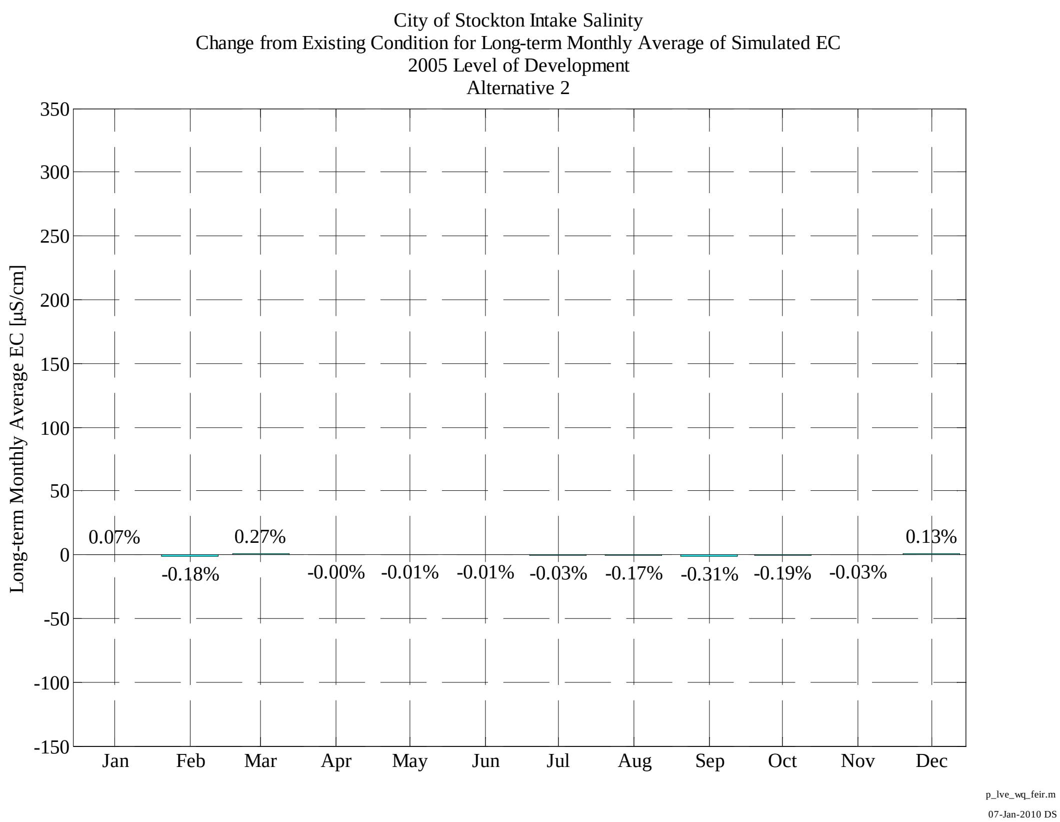
City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

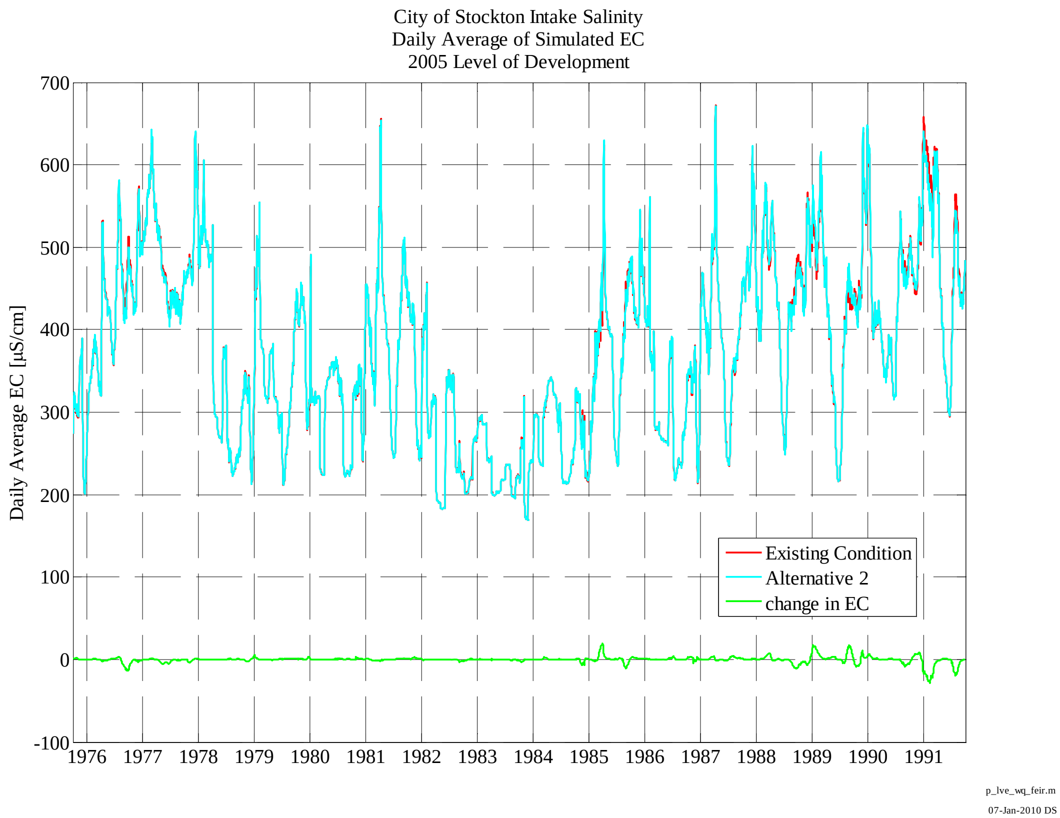
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	308	343	237	319	374	346	455	429	381	485	483	445
1977	460	454	518	523	588	569	515	467	427	438	429	437
1978	466	476	578	505	530	488	333	273	350	267	230	247
1979	308	330	257	457	415	328	360	328	291	234	289	379
1980	425	433	308	332	317	236	314	353	357	332	236	229
1981	314	339	313	425	346	452	518	399	288	298	430	478
1982	425	371	254	390	303	310	203	184	311	335	247	230
1983	206	216	264	290	286	244	204	202	216	234	205	215
1984	249	188	233	290	247	295	337	326	295	223	217	244
1985	316	279	229	279	360	422	491	399	289	282	391	460
1986	452	428	479	412	383	291	271	264	351	244	237	275
1987	345	349	273	442	386	465	536	400	283	287	362	410
1988	457	478	547	418	504	520	522	445	320	307	419	448
1989	467	463	520	524	545	506	426	336	234	302	435	444
1990	424	476	585	538	409	413	358	371	335	437	489	468
1991	484	468	545	606	551	580	499	370	311	458	481	445
Avg	382	381	384	422	409	404	396	347	315	323	349	366
W/AN/BN	362	349	339	382	355	313	289	276	310	267	237	260
D/C	397	406	418	453	451	475	480	402	319	366	435	449

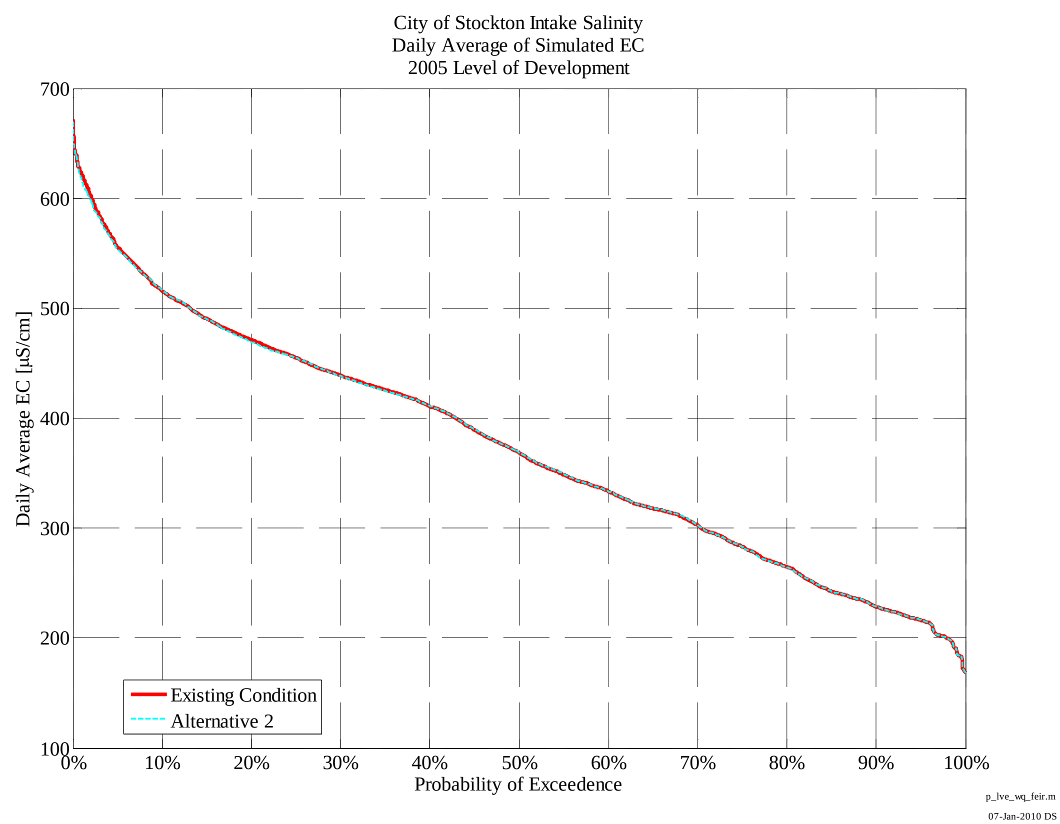
Percent (%) Change from Existing Condition for City of Stockton Intake Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.5%	0.1%	0.0%	0.0%	0.2%	0.0%	-0.4%	-0.2%	0.2%	0.4%	-0.6%	-2.6%
1977	-1.0%	-0.2%	-0.3%	0.0%	0.1%	0.1%	-0.2%	-1.0%	-0.9%	-0.2%	-0.2%	-0.1%
1978	-0.2%	-0.4%	0.1%	0.1%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.1%	0.1%	0.2%
1979	-0.1%	-0.6%	0.4%	0.4%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.3%	0.2%	0.2%
1980	0.1%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%	0.2%
1981	0.1%	0.4%	0.1%	0.1%	-0.2%	-0.2%	-0.2%	0.0%	0.0%	0.2%	0.2%	0.1%
1982	0.2%	0.5%	0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.2%	-0.9%
1983	-0.6%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.2%	-0.2%
1984	-0.9%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
1985	0.2%	-1.7%	0.1%	-0.1%	-0.4%	3.1%	1.0%	0.1%	0.1%	0.3%	-1.2%	-0.9%
1986	0.6%	0.3%	0.2%	0.2%	0.0%	0.0%	-0.1%	-0.1%	0.4%	0.6%	0.1%	0.0%
1987	0.7%	0.1%	0.1%	-0.1%	0.0%	0.6%	-0.1%	-0.1%	-0.3%	0.7%	0.7%	0.3%
1988	0.1%	0.1%	0.1%	0.1%	0.3%	1.0%	0.1%	0.0%	-0.2%	0.0%	-0.8%	-2.2%
1989	-1.2%	-0.8%	-0.1%	2.9%	1.2%	0.3%	0.3%	0.8%	0.2%	-0.6%	1.6%	2.3%
1990	-1.5%	0.1%	0.5%	0.8%	0.3%	0.2%	0.0%	0.1%	0.1%	-0.1%	-0.9%	-1.3%
1991	0.1%	1.4%	0.1%	-3.1%	-4.2%	-1.3%	-0.3%	0.2%	0.1%	-2.4%	-2.0%	-0.2%
Avg	-0.2%	0.0%	0.1%	0.1%	-0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.3%
W/AN/BN	-0.1%	0.0%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.2%	0.0%	-0.1%
D/C	-0.2%	-0.1%	0.1%	0.1%	-0.3%	0.4%	0.0%	0.0%	-0.1%	-0.2%	-0.3%	-0.5%


City of Stockton Intake Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
440
420
400
380
360
340
320
300
Existing Condition
Alternative 2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.07%
-0.18%
0.27%
-0.00%
-0.01%
-0.01%
-0.03%
-0.17%
-0.31%
-0.19%
-0.03%
0.13%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

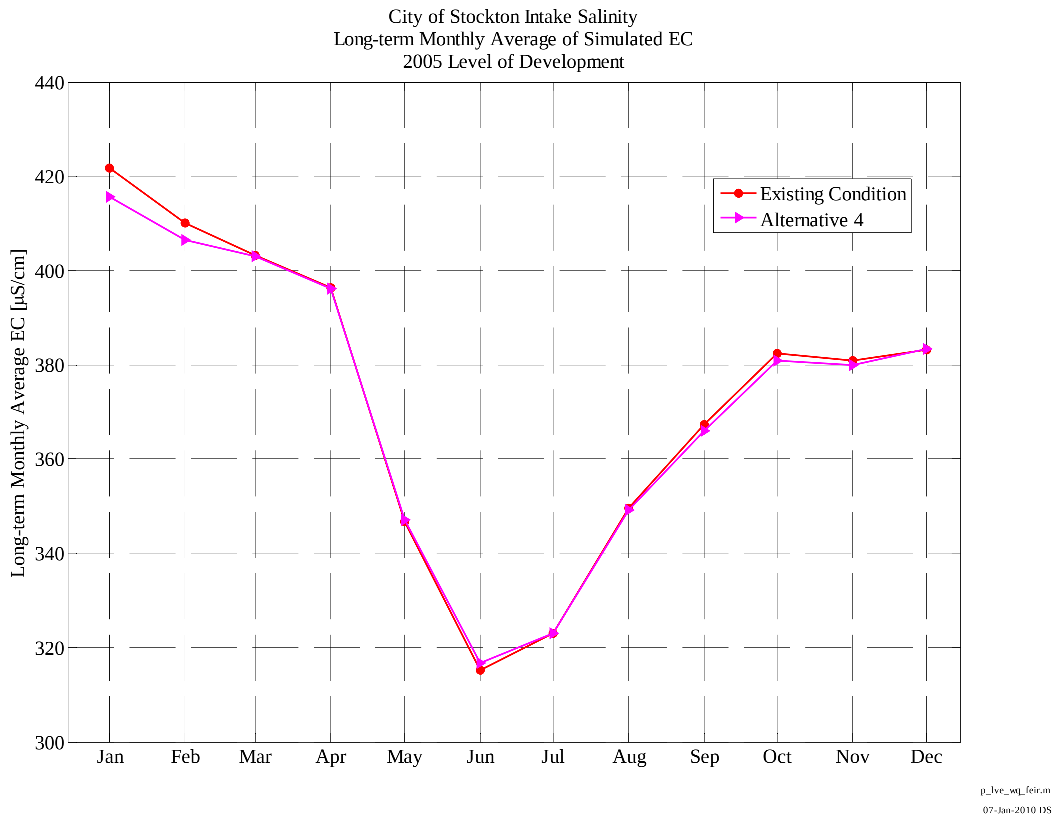
Alternative 4

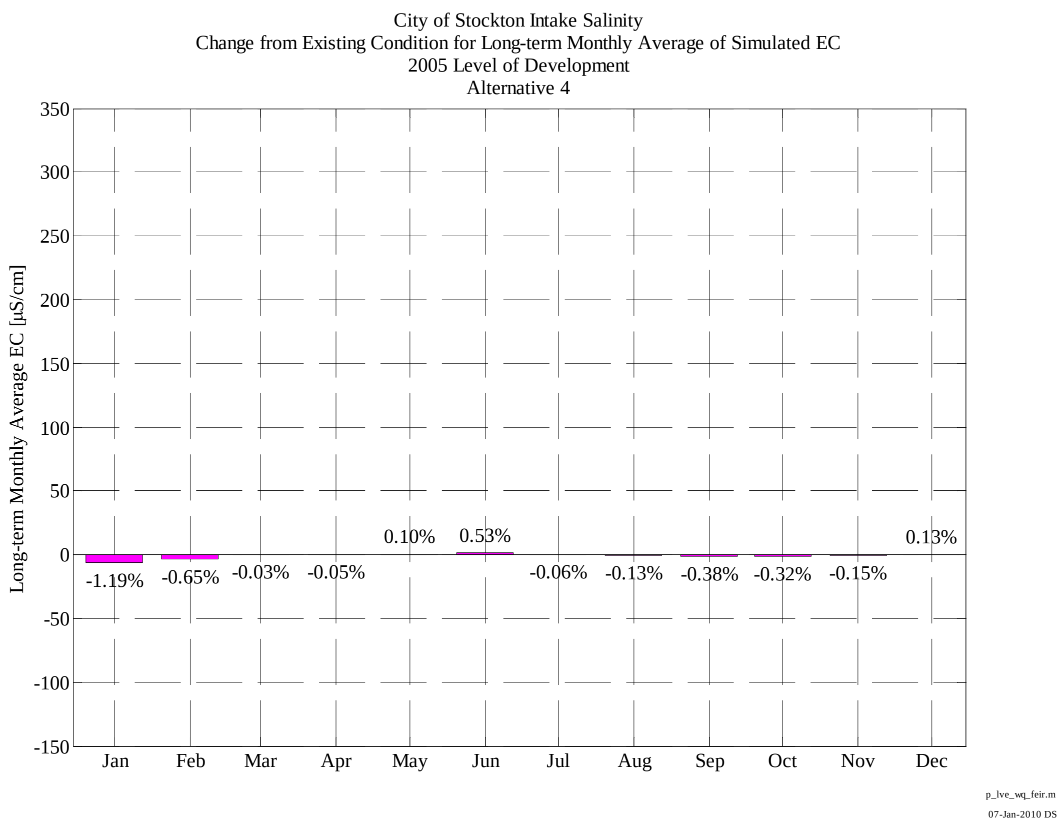
City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 4
2005 Level of Development

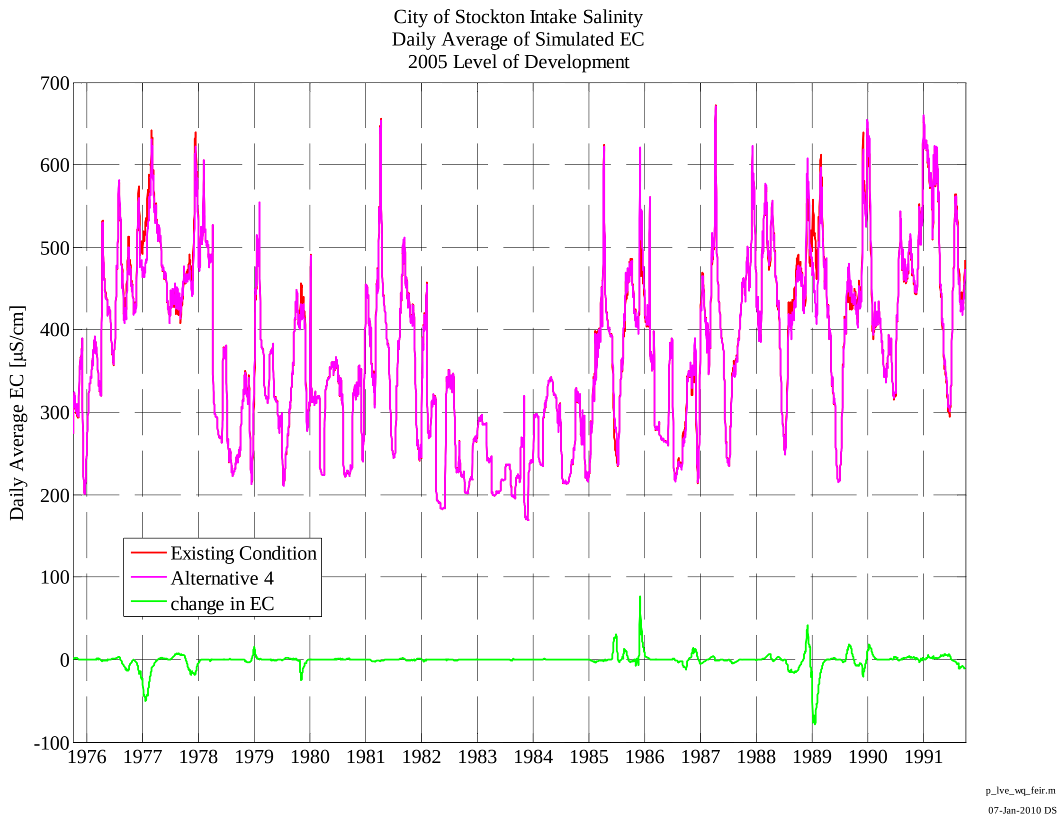
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	308	343	237	319	373	346	455	429	380	485	482	445
1977	460	452	501	479	562	563	517	473	432	441	437	444
1978	463	462	565	504	530	488	333	273	350	267	230	246
1979	308	329	259	459	415	328	360	328	290	233	290	379
1980	421	419	305	332	317	236	314	352	357	332	236	229
1981	314	338	312	425	345	451	518	399	288	298	430	478
1982	423	369	254	389	303	310	203	184	310	335	246	232
1983	208	216	263	290	286	244	204	202	216	234	205	216
1984	251	188	233	290	247	293	336	326	295	223	217	244
1985	316	284	228	278	359	409	485	398	310	283	402	466
1986	448	434	506	414	383	291	271	264	350	243	234	267
1987	343	358	274	438	385	466	536	400	283	283	356	408
1988	457	478	546	417	503	519	522	447	321	302	408	444
1989	466	480	528	444	507	500	425	335	234	302	435	445
1990	425	468	577	547	410	413	358	370	337	438	494	477
1991	486	463	544	626	578	590	504	374	315	468	484	437
Avg	381	380	383	416	407	403	396	347	317	323	349	366
W/AN/BN	360	345	341	383	355	313	289	276	310	267	237	259
D/C	397	407	416	441	447	473	480	403	322	367	436	449

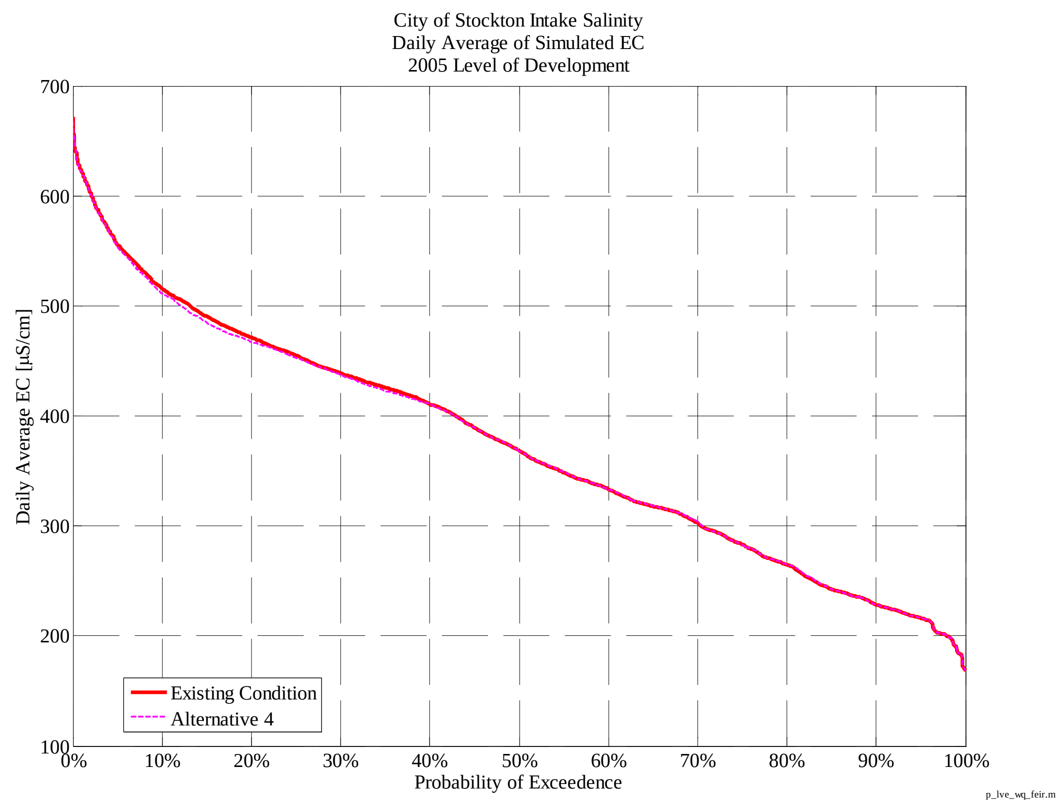
Percent (%) Change from Existing Condition for City of Stockton Intake Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.5%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.4%	-0.2%	0.1%	0.4%	-0.7%	-2.6%
1977	-1.0%	-0.7%	-3.6%	-8.4%	-4.3%	-1.0%	0.1%	0.3%	0.1%	0.5%	1.6%	1.3%
1978	-0.9%	-3.3%	-2.2%	-0.2%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.1%	0.0%
1979	-0.1%	-0.9%	1.3%	0.9%	0.0%	0.0%	-0.2%	-0.2%	-0.1%	0.2%	0.5%	0.1%
1980	-0.8%	-3.1%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%
1981	0.0%	0.0%	0.0%	0.0%	-0.5%	-0.4%	-0.2%	-0.1%	-0.1%	0.1%	0.2%	0.0%
1982	-0.2%	-0.2%	0.3%	-0.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.4%	0.0%
1983	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	-0.1%	-0.1%	0.1%	0.1%	0.1%
1985	0.1%	0.0%	0.0%	-0.5%	-0.8%	-0.2%	-0.3%	-0.1%	7.4%	0.6%	1.7%	0.3%
1986	-0.4%	1.5%	5.8%	0.7%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	-1.0%	-3.0%
1987	-0.1%	2.7%	0.6%	-0.9%	-0.2%	0.6%	-0.1%	-0.1%	-0.5%	-0.7%	-1.0%	-0.2%
1988	0.0%	0.0%	0.0%	-0.1%	0.1%	0.9%	0.0%	0.3%	0.0%	-1.6%	-3.4%	-3.2%
1989	-1.3%	2.9%	1.5%	-12.9%	-5.8%	-1.0%	-0.1%	0.4%	-0.1%	-0.5%	1.7%	2.5%
1990	-1.4%	-1.7%	-0.8%	2.5%	0.6%	0.0%	-0.1%	0.0%	0.5%	0.1%	0.2%	0.6%
1991	0.6%	0.3%	-0.1%	0.2%	0.5%	0.3%	0.6%	1.5%	1.5%	-0.3%	-1.4%	-2.1%
Avg	-0.3%	-0.2%	0.1%	-1.2%	-0.6%	0.0%	0.0%	0.1%	0.5%	-0.1%	-0.1%	-0.4%
W/AN/BN	-0.3%	-0.9%	0.7%	0.2%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	-0.1%	-0.4%
D/C	-0.3%	0.4%	-0.3%	-2.2%	-1.1%	-0.1%	0.0%	0.2%	1.0%	-0.1%	-0.1%	-0.4%


City of Stockton Intake Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
440
420
400
380
360
340
320
300
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
-1.19%
-0.65%
-0.03%
-0.05%
0.10%
0.53%
-0.06%
-0.13%
-0.38%
-0.32%
-0.15%
0.13%
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Antioch

Existing Condition

San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	523	386	919	1,770	1,993	1,460	819	1,709	3,198	5,081	4,875	5,863
1977	5,133	5,546	4,208	4,007	2,375	1,400	1,471	2,544	3,890	4,219	4,689	5,293
1978	4,172	4,387	3,311	433	259	256	271	242	255	804	1,609	1,525
1979	990	1,053	1,400	593	277	243	244	266	420	1,608	3,110	5,027
1980	5,449	2,336	1,046	285	252	232	224	254	313	730	1,523	1,534
1981	969	1,014	2,169	966	266	215	264	448	1,068	2,844	4,272	5,019
1982	5,062	1,469	213	237	222	240	208	188	200	468	942	348
1983	314	209	219	281	276	247	212	194	201	213	215	199
1984	378	207	211	225	215	199	230	277	637	1,089	1,308	620
1985	403	404	208	368	546	480	367	507	1,055	2,521	4,034	5,549
1986	5,135	4,806	2,637	521	257	255	253	242	400	1,177	1,352	461
1987	330	445	1,957	1,945	708	261	390	753	1,123	2,575	3,606	4,898
1988	5,123	4,960	2,676	444	280	686	788	1,100	1,352	3,269	4,320	5,191
1989	5,140	5,067	4,241	2,836	1,577	328	225	347	1,074	2,707	3,888	4,742
1990	5,115	5,321	4,927	1,814	590	491	656	1,418	2,730	4,723	4,922	5,505
1991	4,733	4,907	5,350	3,319	2,119	514	351	1,293	3,016	4,802	4,478	5,228
Avg	3,061	2,657	2,231	1,253	763	469	436	736	1,308	2,427	3,072	3,563
W/AN/BN	3,071	2,067	1,291	368	251	239	234	238	347	870	1,437	1,388
D/C	3,052	3,117	2,962	1,941	1,162	648	592	1,124	2,056	3,638	4,343	5,254

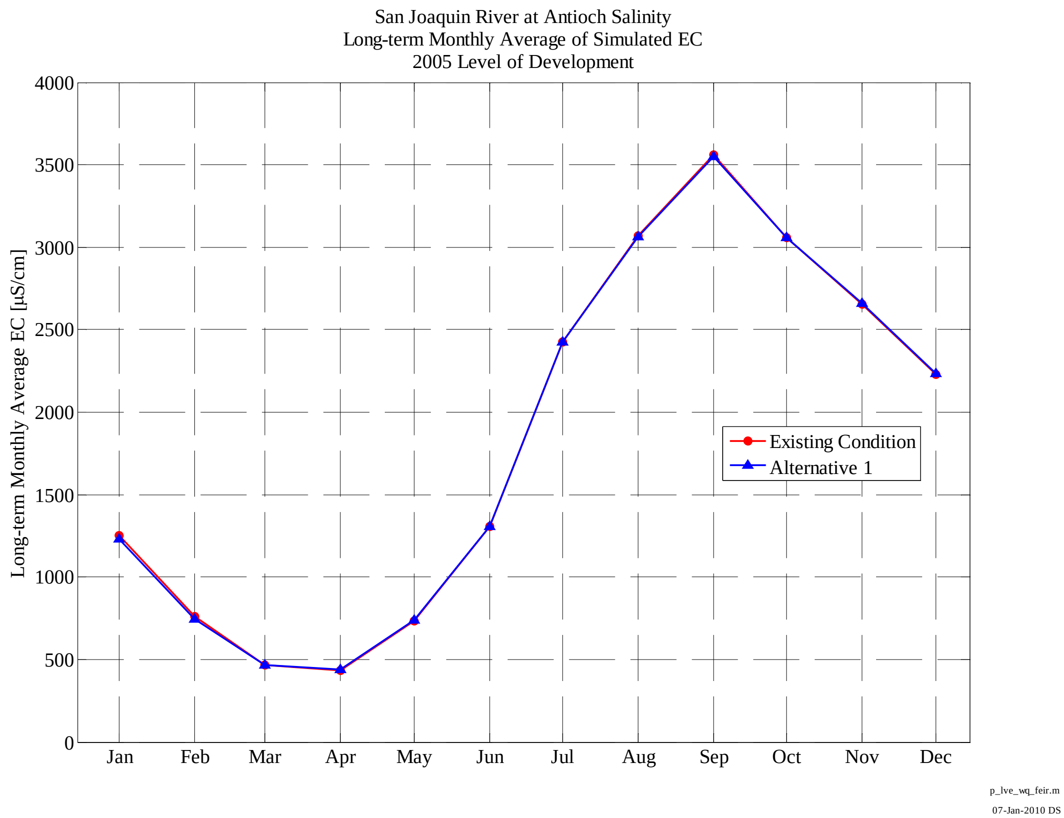
Alternative 1

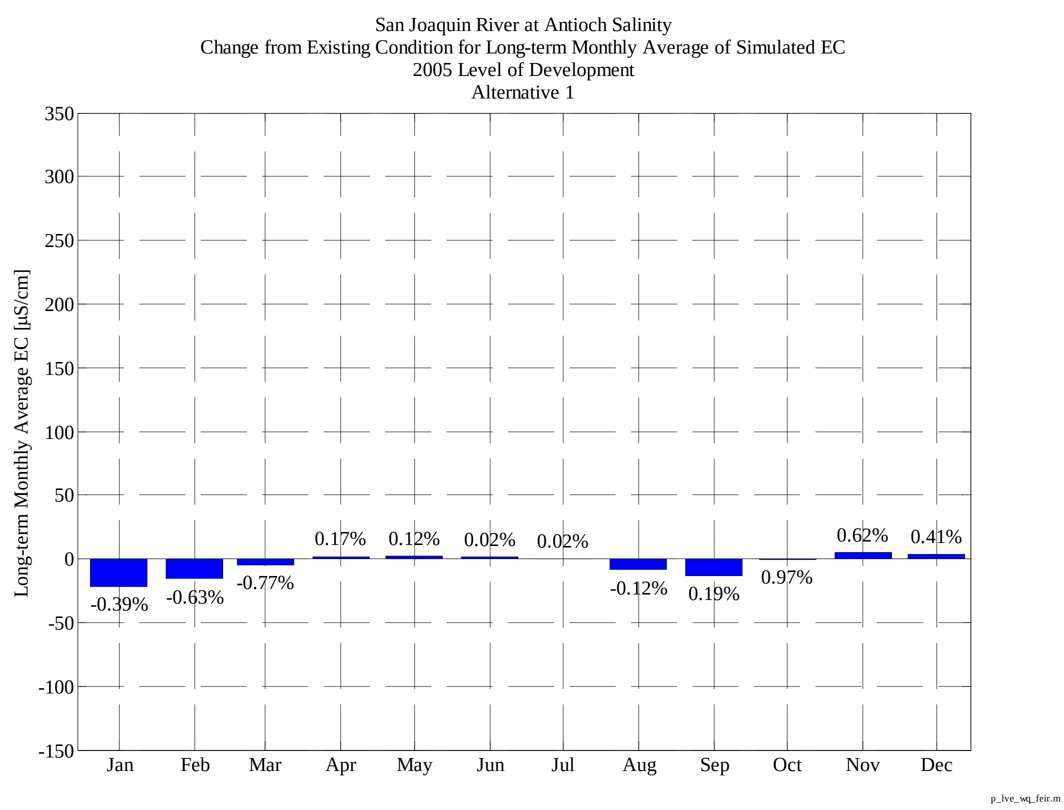
San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

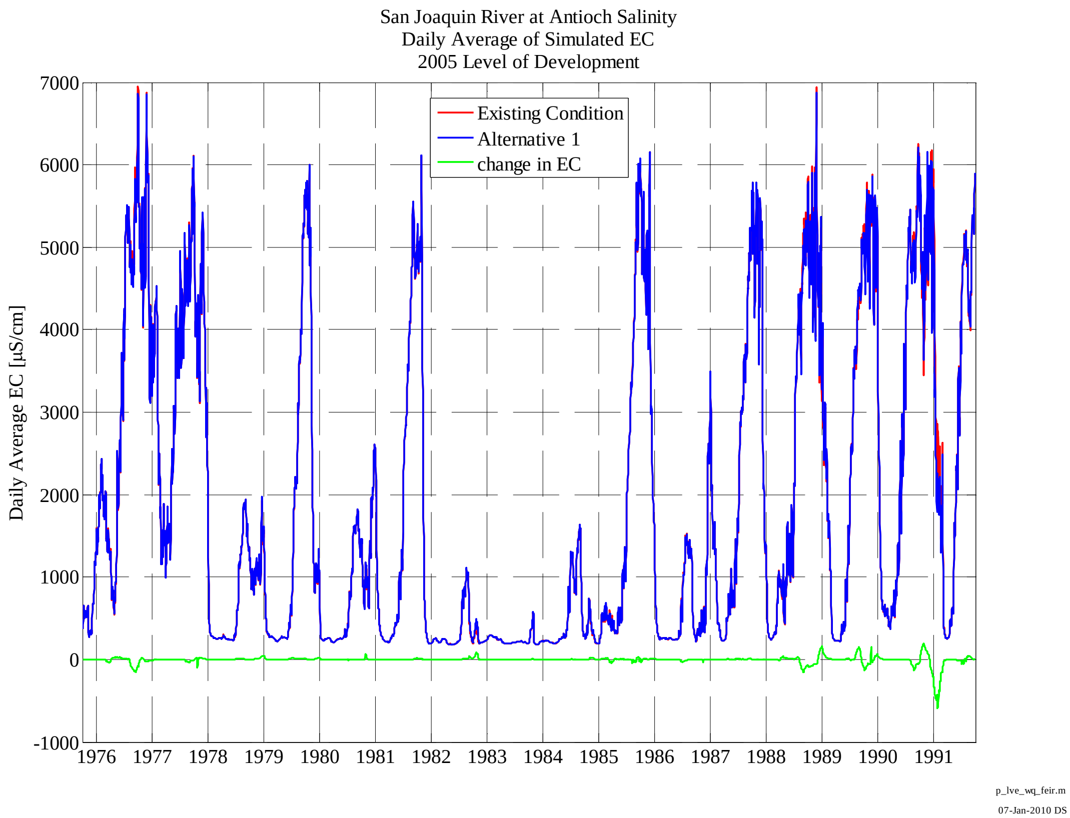
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	521	385	918	1,769	1,991	1,435	830	1,734	3,212	5,090	4,799	5,744
1977	5,125	5,530	4,195	4,000	2,375	1,399	1,471	2,544	3,889	4,218	4,666	5,278
1978	4,172	4,404	3,316	433	259	255	271	241	256	811	1,614	1,528
1979	992	1,062	1,431	607	277	243	243	265	425	1,624	3,116	5,034
1980	5,452	2,337	1,061	287	252	232	223	253	310	725	1,522	1,535
1981	975	1,020	2,170	967	267	215	264	448	1,069	2,847	4,273	5,028
1982	5,072	1,471	213	236	221	240	208	188	200	471	948	372
1983	365	216	219	279	276	247	211	193	201	212	215	200
1984	381	207	211	225	215	199	231	277	637	1,092	1,311	620
1985	402	423	212	373	560	454	365	511	1,059	2,521	4,014	5,556
1986	5,131	4,810	2,644	523	257	256	252	242	390	1,158	1,348	462
1987	328	441	1,957	1,945	709	260	393	756	1,129	2,582	3,604	4,902
1988	5,122	4,961	2,679	445	280	681	810	1,113	1,362	3,284	4,245	5,090
1989	5,056	5,007	4,322	2,904	1,590	329	225	348	1,079	2,700	3,975	4,763
1990	5,023	5,301	4,959	1,835	592	489	655	1,418	2,729	4,722	4,845	5,442
1991	4,844	5,016	5,245	2,871	1,840	488	349	1,290	3,005	4,776	4,509	5,239
Avg	3,060	2,662	2,234	1,231	747	464	438	739	1,310	2,427	3,063	3,550
W/AN/BN	3,081	2,072	1,299	370	251	239	234	237	346	870	1,439	1,393
D/C	3,044	3,121	2,962	1,901	1,134	639	596	1,129	2,059	3,638	4,326	5,227

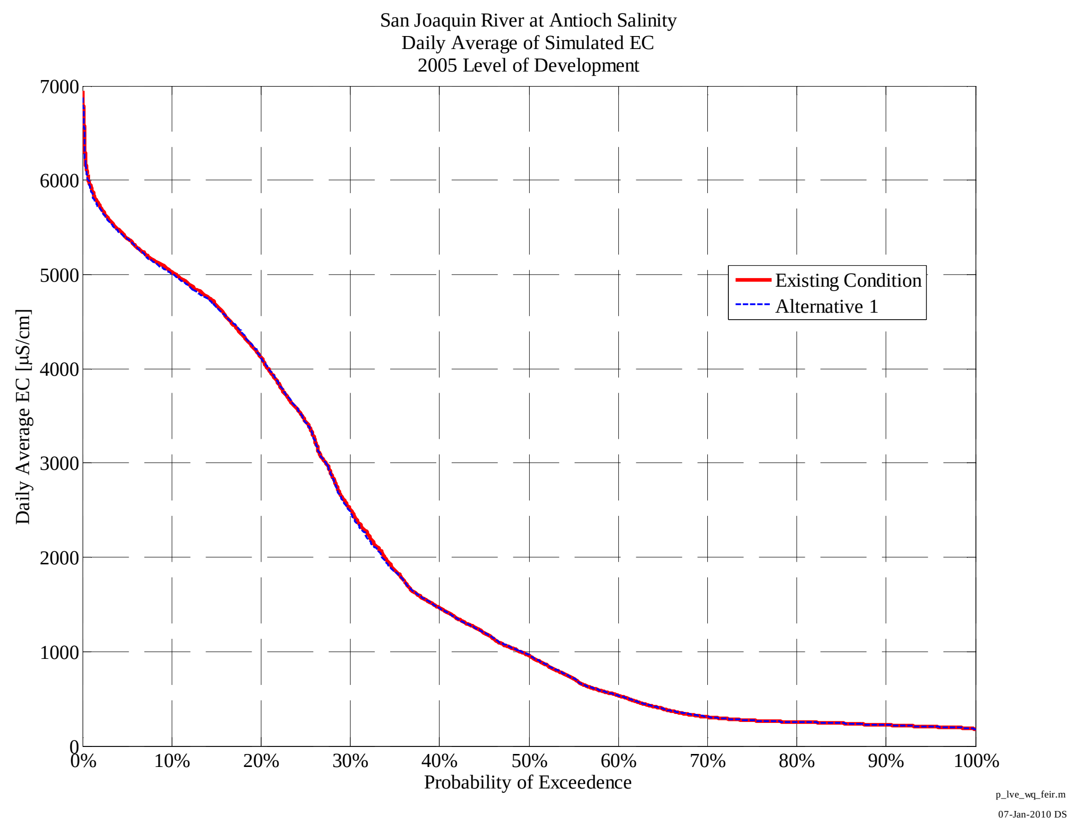
Percent (%) Change from Existing Condition for San Joaquin River at Antioch Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.4%	-0.2%	-0.1%	-0.1%	-0.1%	-1.7%	1.4%	1.5%	0.4%	0.2%	-1.6%	-2.0%
1977	-0.1%	-0.3%	-0.3%	-0.2%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.5%	-0.3%
1978	0.0%	0.4%	0.2%	0.0%	-0.1%	-0.1%	-0.3%	-0.4%	0.4%	0.9%	0.3%	0.2%
1979	0.2%	0.8%	2.2%	2.3%	0.0%	0.0%	-0.2%	-0.5%	1.2%	1.0%	0.2%	0.1%
1980	0.1%	0.1%	1.4%	0.6%	0.0%	0.1%	-0.4%	-0.5%	-1.0%	-0.7%	-0.1%	0.1%
1981	0.7%	0.6%	0.0%	0.1%	0.3%	-0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	0.2%
1982	0.2%	0.2%	0.1%	-0.3%	-0.4%	0.2%	0.0%	0.0%	0.0%	0.6%	0.7%	6.7%
1983	16.1%	3.4%	0.0%	-0.7%	-0.2%	0.0%	-0.3%	-0.2%	-0.1%	-0.2%	0.0%	0.2%
1984	0.8%	0.2%	-0.1%	-0.1%	-0.1%	0.3%	0.3%	-0.1%	0.0%	0.3%	0.2%	0.0%
1985	-0.2%	4.8%	2.1%	1.4%	2.5%	-5.4%	-0.5%	0.9%	0.4%	0.0%	-0.5%	0.1%
1986	-0.1%	0.1%	0.3%	0.5%	0.0%	0.6%	-0.2%	-0.3%	-2.4%	-1.7%	-0.3%	0.1%
1987	-0.6%	-0.8%	0.0%	0.0%	0.1%	-0.4%	0.9%	0.4%	0.5%	0.3%	0.0%	0.1%
1988	0.0%	0.0%	0.1%	0.2%	0.0%	-0.7%	2.8%	1.1%	0.8%	0.5%	-1.7%	-2.0%
1989	-1.6%	-1.2%	1.9%	2.4%	0.8%	0.5%	0.0%	0.1%	0.5%	-0.3%	2.2%	0.5%
1990	-1.8%	-0.4%	0.6%	1.2%	0.3%	-0.5%	-0.1%	0.0%	-0.1%	0.0%	-1.6%	-1.1%
1991	2.4%	2.2%	-2.0%	-13.5%	-13.2%	-5.0%	-0.7%	-0.2%	-0.4%	-0.5%	0.7%	0.2%
Avg	1.0%	0.6%	0.4%	-0.4%	-0.6%	-0.8%	0.2%	0.1%	0.0%	0.0%	-0.1%	0.2%
W/AN/BN	2.5%	0.7%	0.6%	0.3%	-0.1%	0.2%	-0.2%	-0.3%	-0.3%	0.0%	0.1%	1.1%
D/C	-0.2%	0.5%	0.3%	-0.9%	-1.0%	-1.5%	0.4%	0.4%	0.2%	0.0%	-0.3%	-0.5%


San Joaquin River at Antioch Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [μS/cm]
4000
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [μS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.39%
-0.63%
-0.77%
0.17%
0.12%
0.02%
0.02%
-0.12%
0.19%
0.97%
0.62%
0.41%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
7000
6000
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
7000
6000
5000
4000
3000
2000
1000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

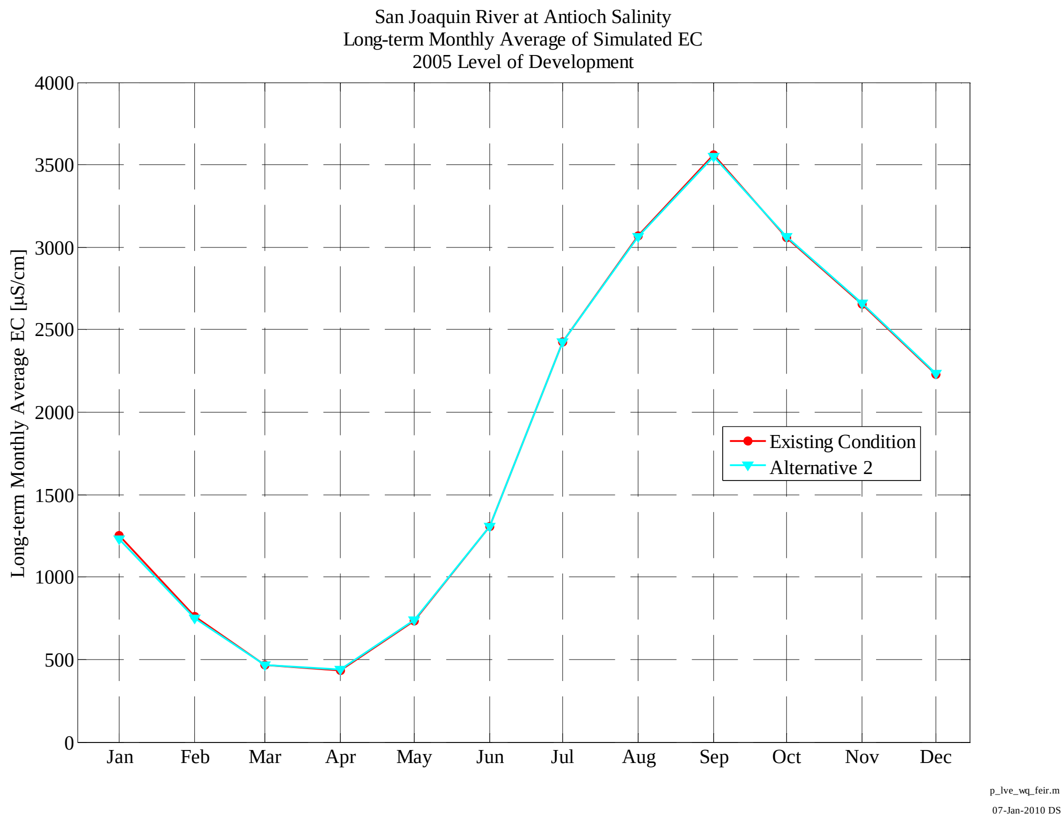
Alternative 2

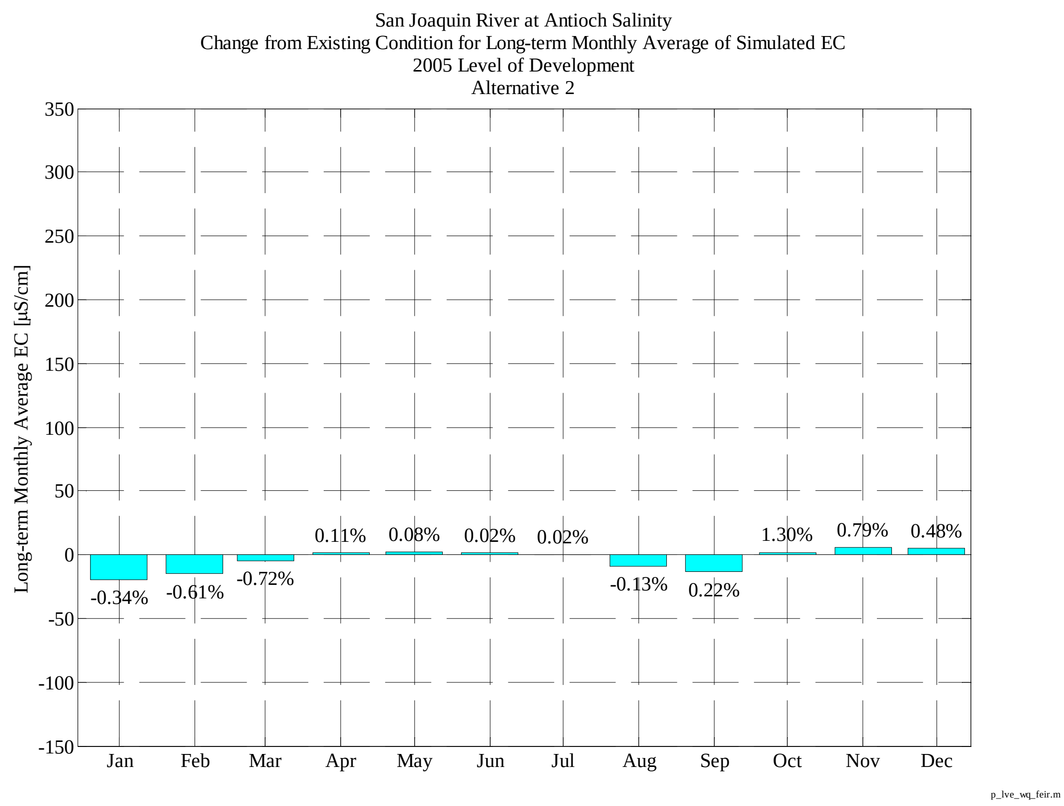
San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	519	385	918	1,768	1,991	1,435	829	1,733	3,211	5,090	4,797	5,740
1977	5,126	5,533	4,206	4,008	2,377	1,400	1,471	2,545	3,889	4,218	4,676	5,284
1978	4,165	4,396	3,315	433	259	255	271	241	256	811	1,614	1,528
1979	992	1,062	1,432	607	277	243	243	265	425	1,624	3,116	5,033
1980	5,451	2,337	1,061	287	252	232	223	253	310	725	1,522	1,535
1981	975	1,020	2,170	967	267	215	265	448	1,069	2,847	4,274	5,028
1982	5,072	1,477	214	236	221	240	208	188	200	471	948	372
1983	365	216	219	278	276	247	211	193	201	212	215	201
1984	401	210	210	224	215	199	231	277	637	1,093	1,311	620
1985	402	427	213	373	560	456	365	511	1,059	2,521	4,014	5,555
1986	5,130	4,811	2,644	523	257	256	252	242	390	1,158	1,348	462
1987	329	441	1,957	1,945	709	261	388	752	1,131	2,583	3,603	4,902
1988	5,123	4,961	2,679	445	280	681	810	1,112	1,362	3,282	4,235	5,083
1989	5,079	5,011	4,334	2,916	1,593	330	225	348	1,079	2,700	3,978	4,764
1990	5,021	5,299	4,962	1,837	592	489	655	1,419	2,729	4,722	4,842	5,440
1991	4,849	5,020	5,240	2,877	1,847	489	349	1,290	3,005	4,778	4,508	5,238
Avg	3,062	2,663	2,236	1,233	748	464	437	739	1,310	2,427	3,062	3,549
W/AN/BN	3,082	2,073	1,299	370	251	239	234	237	346	870	1,439	1,393
D/C	3,047	3,122	2,964	1,904	1,135	639	595	1,129	2,059	3,638	4,325	5,226

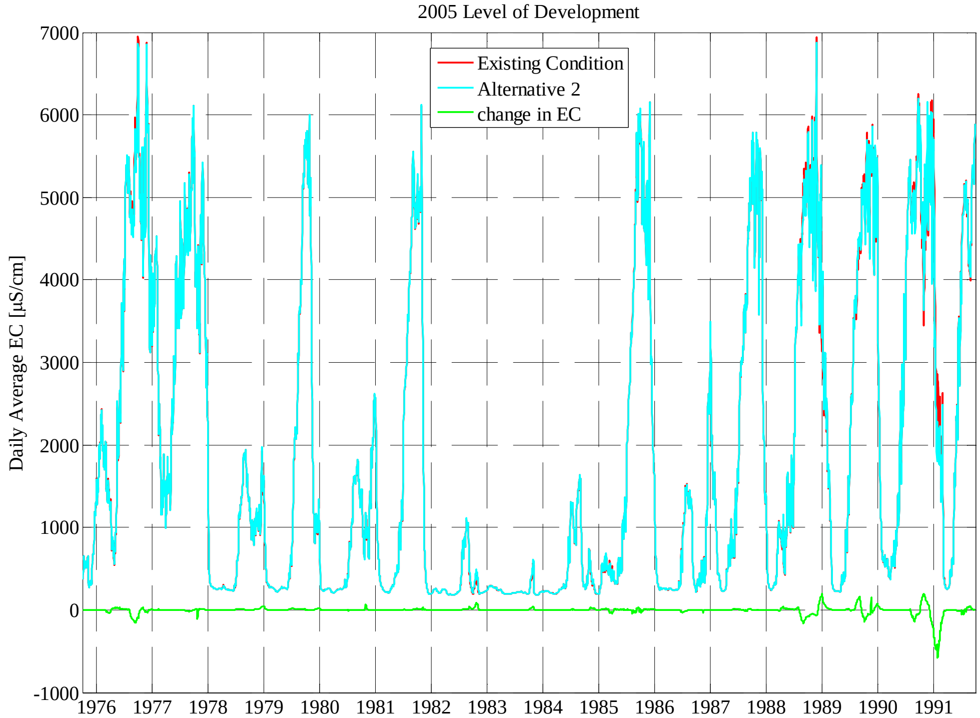
Percent (%) Change from Existing Condition for San Joaquin River at Antioch Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.8%	-0.3%	-0.1%	-0.1%	-0.1%	-1.7%	1.3%	1.4%	0.4%	0.2%	-1.6%	-2.1%
1977	-0.1%	-0.2%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.2%
1978	-0.2%	0.2%	0.1%	0.1%	-0.1%	-0.1%	-0.3%	-0.4%	0.4%	0.9%	0.3%	0.2%
1979	0.2%	0.8%	2.3%	2.3%	0.0%	0.0%	-0.2%	-0.5%	1.2%	1.0%	0.2%	0.1%
1980	0.0%	0.0%	1.4%	0.6%	0.0%	0.1%	-0.4%	-0.5%	-1.0%	-0.7%	-0.1%	0.1%
1981	0.7%	0.6%	0.0%	0.1%	0.3%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.2%
1982	0.2%	0.5%	0.4%	-0.3%	-0.4%	0.2%	0.0%	0.0%	0.0%	0.6%	0.7%	6.7%
1983	16.1%	3.4%	0.1%	-0.9%	-0.3%	0.0%	-0.3%	-0.3%	-0.1%	-0.2%	0.1%	0.7%
1984	5.9%	1.6%	-0.1%	-0.3%	-0.2%	0.3%	0.3%	-0.1%	0.0%	0.3%	0.2%	0.0%
1985	-0.2%	5.7%	2.5%	1.4%	2.6%	-4.9%	-0.3%	0.9%	0.4%	0.0%	-0.5%	0.1%
1986	-0.1%	0.1%	0.2%	0.5%	-0.1%	0.4%	-0.1%	-0.2%	-2.4%	-1.7%	-0.3%	0.1%
1987	-0.5%	-0.8%	0.0%	0.0%	0.1%	-0.2%	-0.4%	-0.1%	0.7%	0.3%	-0.1%	0.1%
1988	0.0%	0.0%	0.1%	0.2%	0.0%	-0.7%	2.8%	1.1%	0.7%	0.4%	-2.0%	-2.1%
1989	-1.2%	-1.1%	2.2%	2.8%	1.0%	0.5%	0.1%	0.1%	0.5%	-0.3%	2.3%	0.5%
1990	-1.8%	-0.4%	0.7%	1.3%	0.3%	-0.5%	-0.1%	0.0%	-0.1%	0.0%	-1.6%	-1.2%
1991	2.4%	2.3%	-2.0%	-13.3%	-12.8%	-4.9%	-0.7%	-0.2%	-0.4%	-0.5%	0.7%	0.2%
Avg	1.3%	0.8%	0.5%	-0.3%	-0.6%	-0.7%	0.1%	0.1%	0.0%	0.0%	-0.1%	0.2%
W/AN/BN	3.2%	1.0%	0.6%	0.3%	-0.2%	0.1%	-0.1%	-0.3%	-0.3%	0.0%	0.1%	1.1%
D/C	-0.2%	0.6%	0.4%	-0.8%	-1.0%	-1.4%	0.3%	0.4%	0.3%	0.0%	-0.3%	-0.5%


San Joaquin River at Antioch Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
Existing Condition
Alternative 2
0
500
1000
1500
2000
2500
3000
3500
4000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS

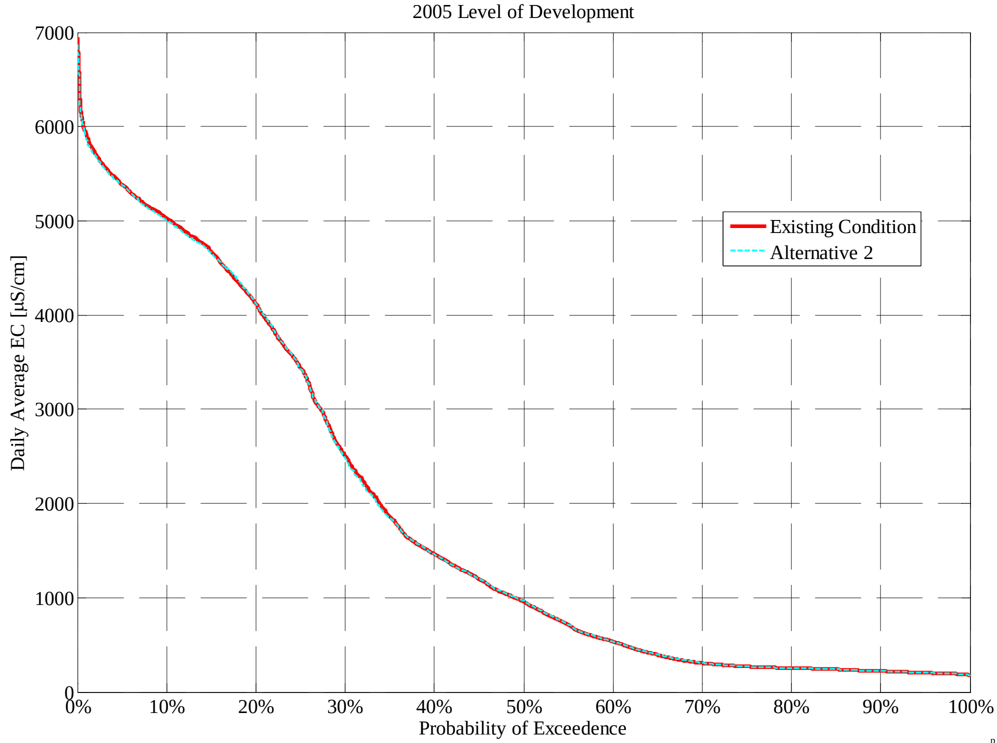

San Joaquin River at Antioch Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
-150
-100
-50
0
50
100
150
200
250
300
350
-0.34%
-0.61%
-0.72%
0.11%
0.08%
0.02%
0.02%
-0.13%
0.22%
1.30%
0.79%
0.48%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2005 Level of Development



p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2005 Level of Development



p_lve_wq_feir.m
07-Jan-2010 DS

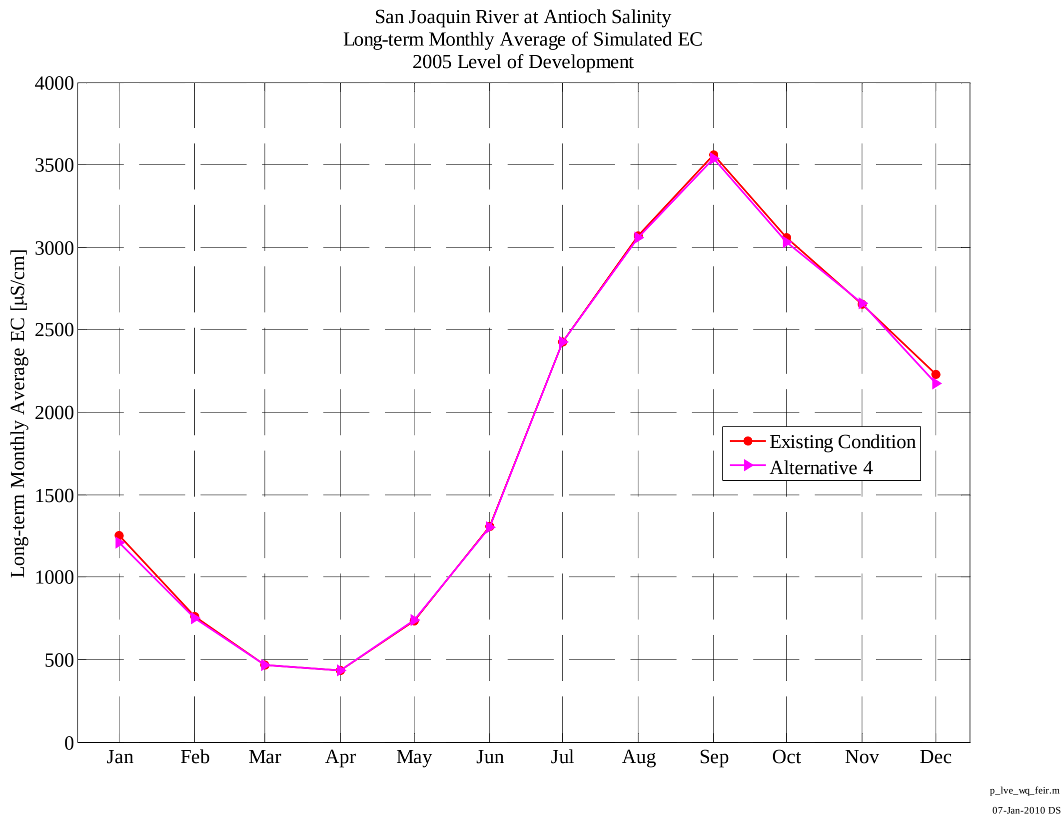
Alternative 4

San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

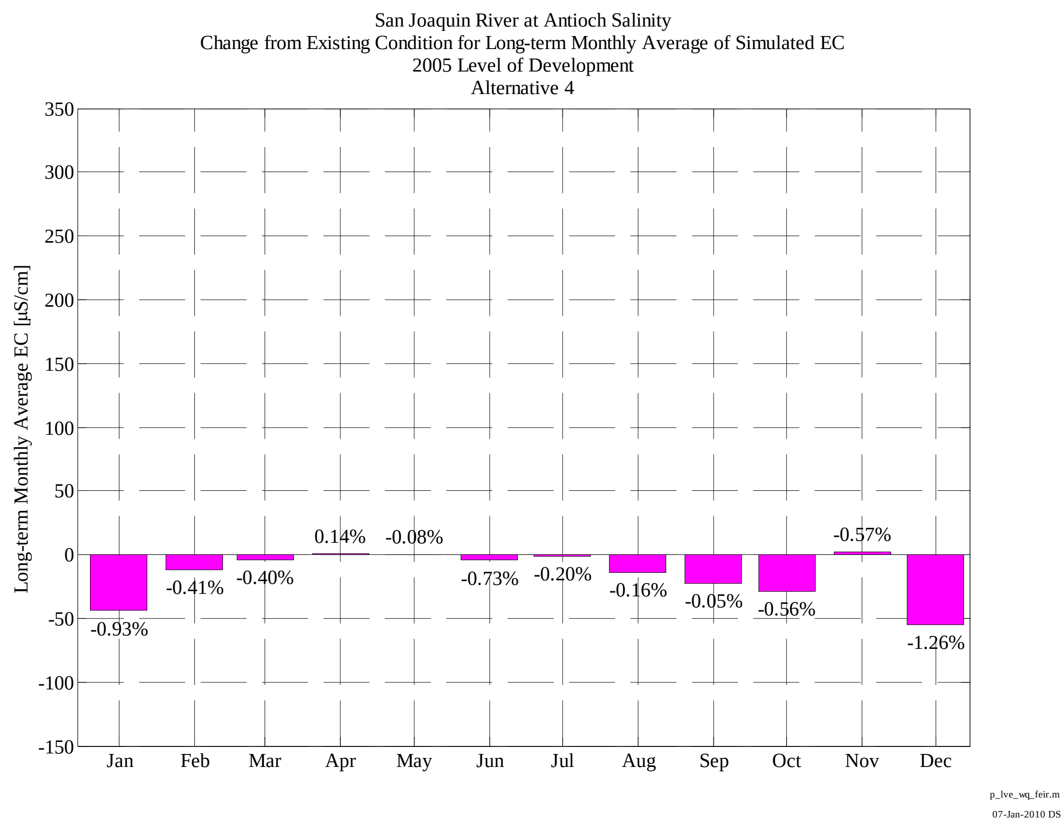
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	519	385	918	1,770	1,993	1,437	828	1,730	3,211	5,090	4,797	5,745
1977	5,130	5,488	3,789	3,674	2,277	1,366	1,454	2,529	3,885	4,272	4,761	5,356
1978	4,003	4,197	3,299	437	259	255	271	241	256	810	1,612	1,526
1979	992	1,068	1,452	615	278	243	243	265	419	1,615	3,111	5,031
1980	5,364	2,310	1,053	285	252	232	223	253	310	724	1,520	1,533
1981	969	1,014	2,169	966	267	215	264	449	1,070	2,847	4,279	5,014
1982	5,051	1,466	213	236	221	240	208	188	200	470	952	350
1983	321	209	219	280	276	247	211	193	201	212	214	199
1984	378	207	211	225	215	199	230	277	638	1,095	1,312	620
1985	402	403	208	373	560	485	373	509	985	2,507	3,978	5,448
1986	5,060	4,962	2,596	528	258	255	252	241	374	1,124	1,381	487
1987	328	396	1,917	1,934	709	261	388	750	1,129	2,572	3,595	4,894
1988	5,123	4,961	2,669	442	280	681	809	1,107	1,359	3,250	4,159	5,040
1989	5,138	5,353	3,687	2,418	1,516	320	225	347	1,080	2,703	3,987	4,783
1990	5,031	5,255	5,043	1,885	597	491	655	1,417	2,729	4,724	4,945	5,521
1991	4,698	4,879	5,366	3,271	2,068	509	351	1,290	3,013	4,795	4,312	5,101
Avg	3,032	2,660	2,176	1,209	752	465	437	737	1,304	2,426	3,057	3,541
W/AN/BN	3,024	2,060	1,292	372	251	239	234	237	343	864	1,443	1,392
D/C	3,038	3,126	2,863	1,859	1,141	641	594	1,126	2,051	3,640	4,313	5,211

Percent (%) Change from Existing Condition for San Joaquin River at Antioch Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

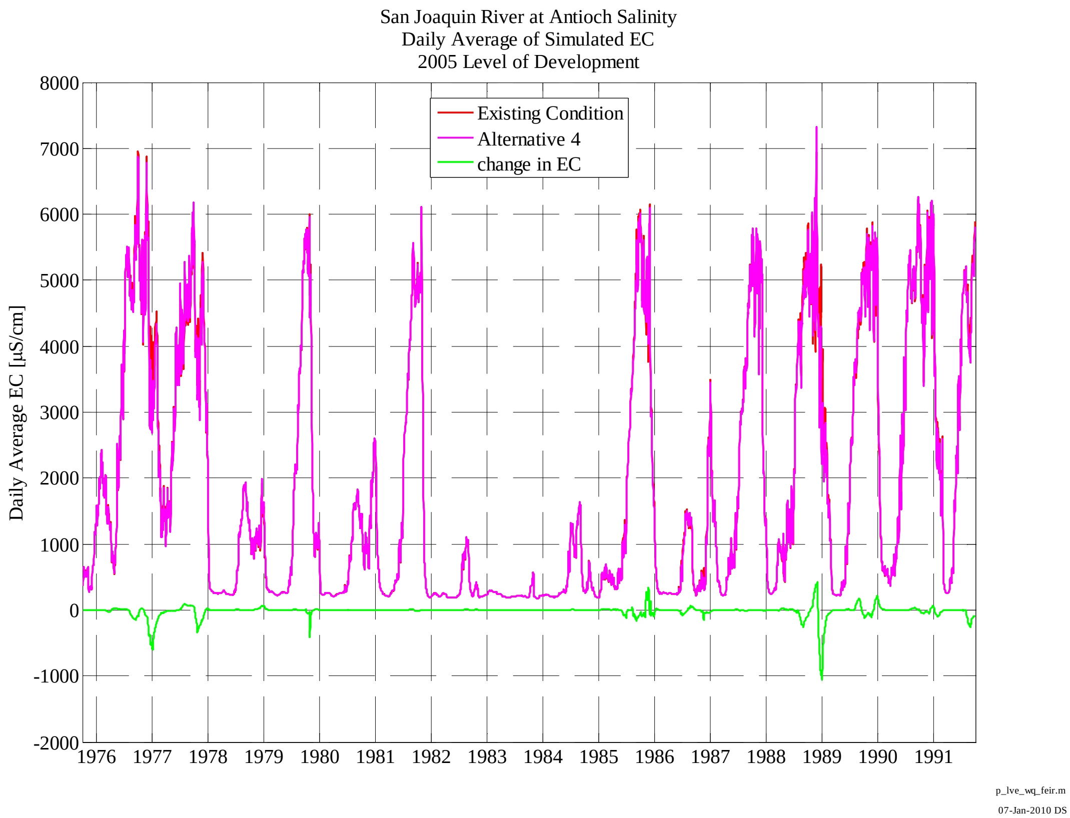
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.8%	-0.3%	0.0%	0.0%	0.0%	-1.6%	1.2%	1.2%	0.4%	0.2%	-1.6%	-2.0%
1977	0.0%	-1.0%	-10.0%	-8.3%	-4.1%	-2.4%	-1.2%	-0.6%	-0.1%	1.3%	1.5%	1.2%
1978	-4.1%	-4.3%	-0.4%	0.8%	-0.1%	-0.1%	-0.3%	-0.4%	0.4%	0.8%	0.2%	0.1%
1979	0.2%	1.4%	3.7%	3.7%	0.2%	0.0%	-0.3%	-0.7%	-0.1%	0.4%	0.0%	0.1%
1980	-1.6%	-1.1%	0.7%	0.0%	0.1%	0.2%	-0.4%	-0.5%	-1.0%	-0.7%	-0.2%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.3%	-0.1%	0.0%	0.2%	0.2%	0.1%	0.2%	-0.1%
1982	-0.2%	-0.2%	0.0%	-0.4%	-0.4%	0.2%	0.0%	-0.1%	0.0%	0.5%	1.0%	0.6%
1983	2.1%	0.4%	0.2%	-0.2%	-0.2%	0.0%	-0.2%	-0.2%	0.0%	-0.1%	-0.1%	0.0%
1984	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.2%	-0.2%	0.1%	0.5%	0.3%	0.0%
1985	-0.1%	-0.2%	-0.1%	1.4%	2.7%	1.2%	1.8%	0.5%	-6.6%	-0.5%	-1.4%	-1.8%
1986	-1.4%	3.3%	-1.5%	1.3%	0.2%	0.4%	-0.1%	-0.7%	-6.5%	-4.6%	2.1%	5.5%
1987	-0.5%	-10.9%	-2.0%	-0.6%	0.1%	-0.2%	-0.4%	-0.4%	0.5%	-0.1%	-0.3%	-0.1%
1988	0.0%	0.0%	-0.3%	-0.4%	-0.1%	-0.7%	2.6%	0.6%	0.6%	-0.6%	-3.7%	-2.9%
1989	0.0%	5.6%	-13.1%	-14.7%	-3.9%	-2.3%	-0.2%	0.0%	0.5%	-0.1%	2.5%	0.9%
1990	-1.6%	-1.2%	2.4%	3.9%	1.2%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.4%	0.3%
1991	-0.7%	-0.6%	0.3%	-1.4%	-2.4%	-1.0%	-0.1%	-0.2%	-0.1%	-0.1%	-3.7%	-2.4%
Avg	-0.6%	-0.6%	-1.3%	-0.9%	-0.4%	-0.4%	0.1%	-0.1%	-0.7%	-0.2%	-0.2%	0.0%
W/AN/BN	-0.7%	-0.1%	0.4%	0.7%	0.0%	0.1%	-0.2%	-0.4%	-1.0%	-0.4%	0.5%	0.9%
D/C	-0.4%	-1.0%	-2.5%	-2.2%	-0.7%	-0.8%	0.4%	0.1%	-0.5%	0.0%	-0.7%	-0.8%

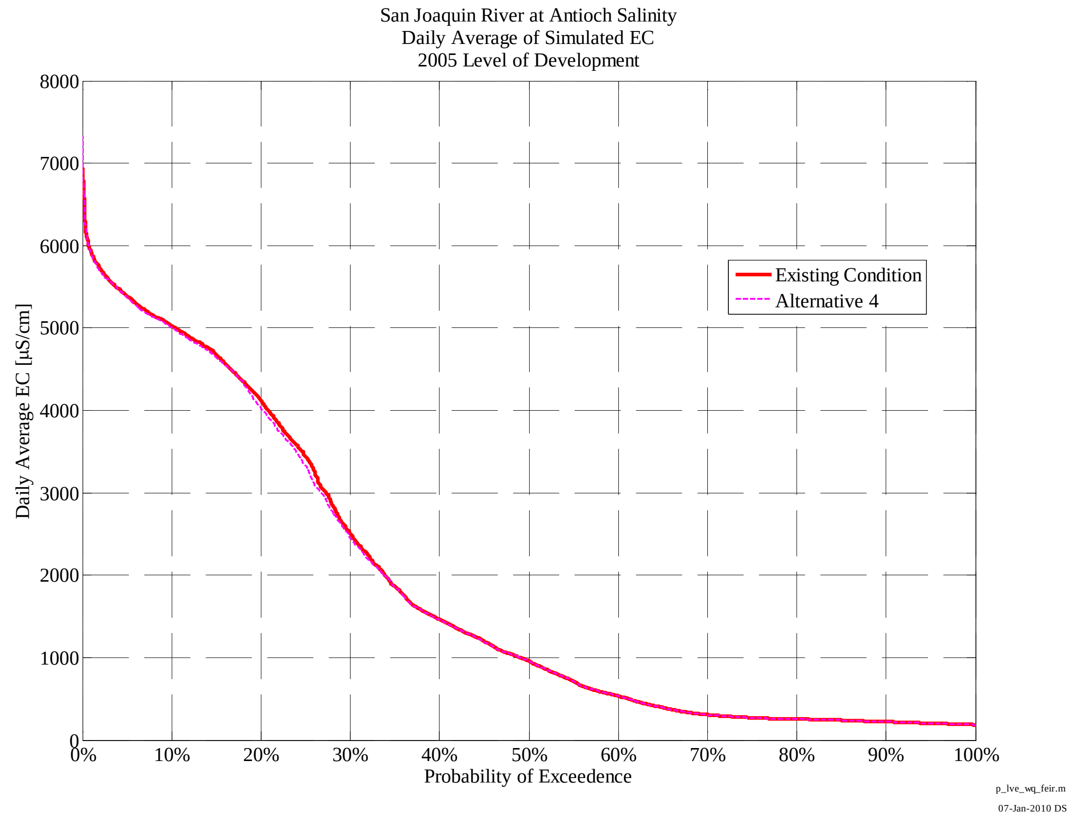


San Joaquin River at Antioch Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
4000
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS



San Joaquin River at Antioch Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.93%
-0.41%
-0.40%
0.14%
-0.08%
-0.73%
-0.20%
-0.16%
-0.05%
-0.56%
-0.57%
-1.26%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
-1000
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Old River at Rock Slough

Existing Condition

Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	246	227	245	403	432	374	387	410	553	956	1,016	994
1977	1,104	1,005	1,086	827	805	602	490	495	717	851	910	998
1978	1,040	890	950	502	373	368	335	294	271	232	284	299
1979	255	249	313	416	352	300	379	370	273	294	499	806
1980	974	738	377	347	415	377	367	394	299	241	259	283
1981	256	250	434	534	271	249	442	471	305	490	850	1,009
1982	902	607	232	320	306	330	222	195	233	237	224	207
1983	194	216	334	379	321	258	227	218	232	264	214	192
1984	197	216	246	304	260	229	344	377	277	259	272	249
1985	215	225	208	218	241	252	413	442	300	440	767	1,018
1986	973	830	820	442	410	407	302	287	272	260	283	233
1987	242	249	334	641	370	290	424	444	304	456	688	854
1988	975	963	880	413	415	400	421	402	345	497	858	1,023
1989	1,033	952	966	753	583	450	355	289	243	498	830	898
1990	902	937	1,112	792	354	311	312	327	438	829	1,001	1,034
1991	1,093	899	1,097	1,051	685	515	406	329	457	902	1,021	964
Avg	663	591	602	521	412	357	364	359	345	482	624	691
W/AN/BN	648	535	467	387	348	324	311	305	265	255	291	324
D/C	674	634	707	626	462	383	406	401	407	658	882	977

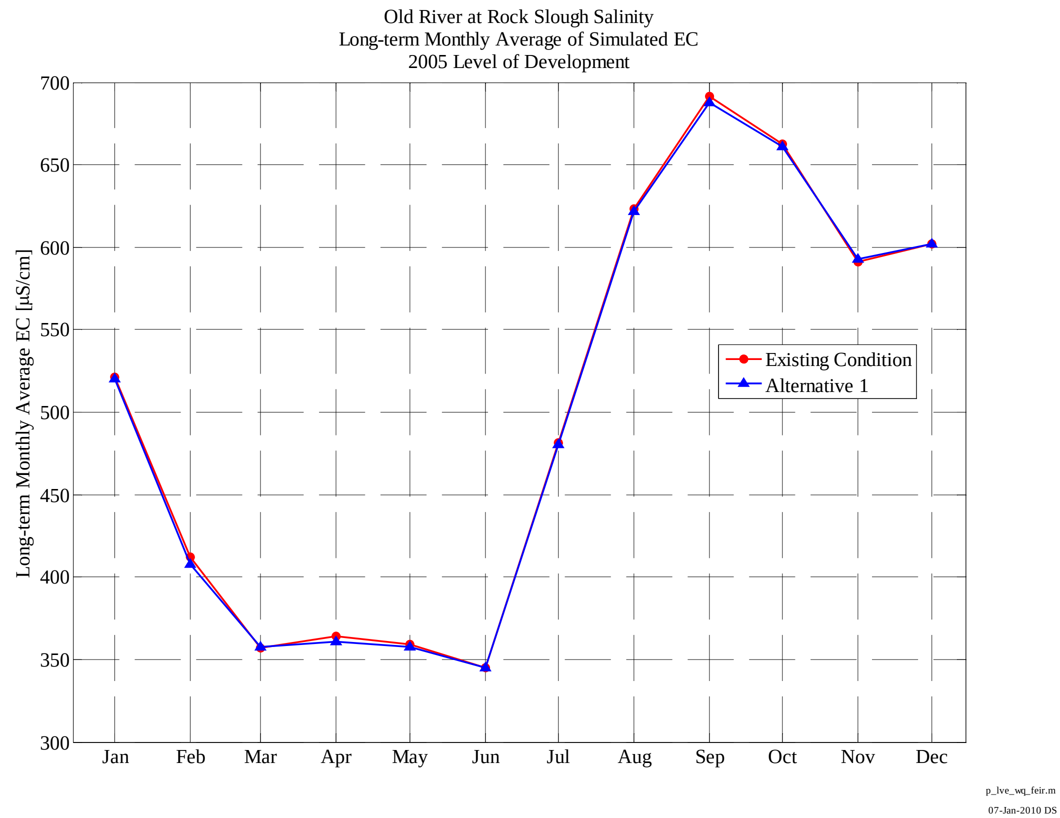
Alternative 1

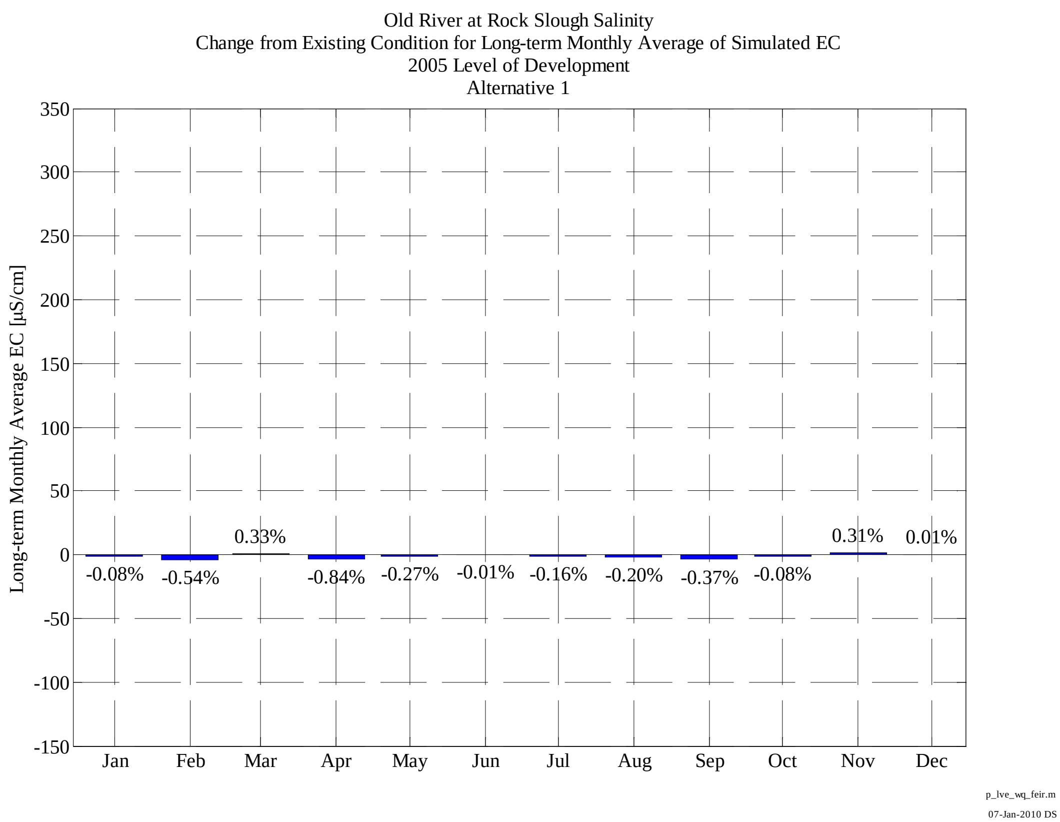
Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

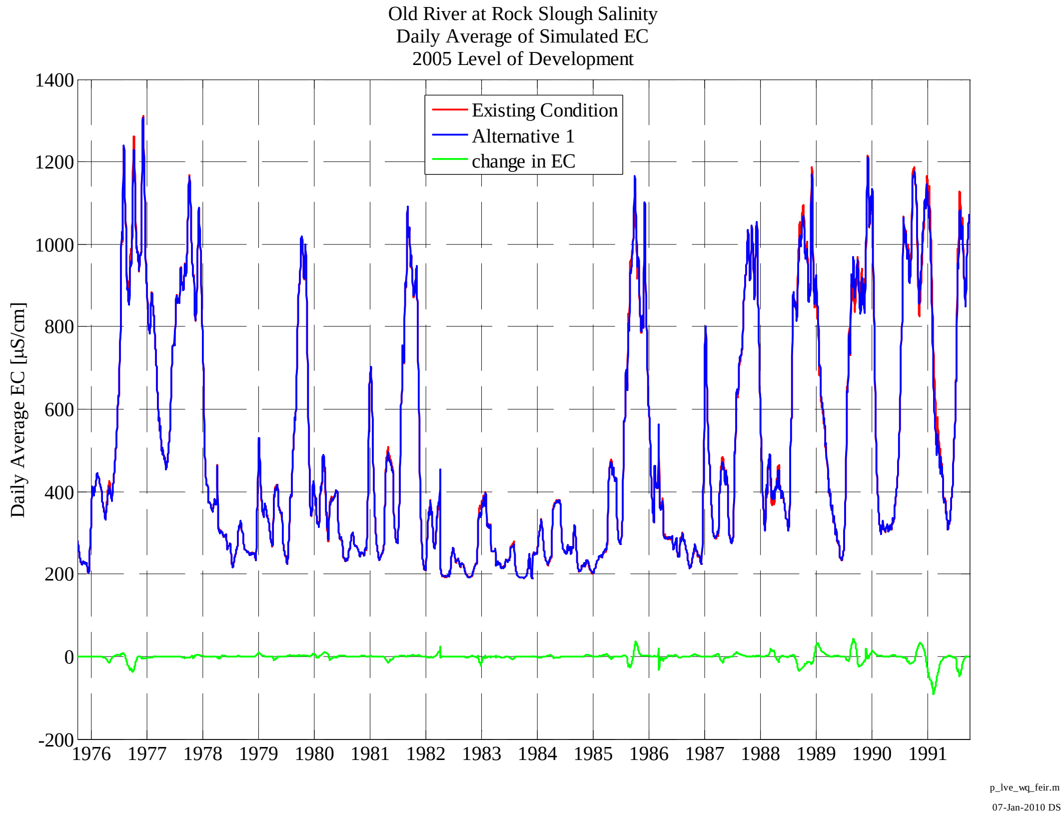
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	228	245	403	432	373	377	407	556	961	1,008	963
1977	1,087	1,004	1,082	824	804	602	490	494	717	851	909	995
1978	1,038	892	952	502	372	367	332	295	271	232	284	299
1979	255	249	317	422	353	301	374	369	273	296	501	807
1980	976	739	380	347	419	386	362	392	300	242	259	283
1981	256	252	435	534	271	249	433	463	304	491	851	1,010
1982	905	610	233	318	305	336	224	195	233	238	225	206
1983	193	216	323	375	319	258	226	216	231	260	213	192
1984	197	216	245	302	259	232	343	375	277	258	272	249
1985	215	228	210	219	242	256	413	440	300	441	754	1,013
1986	997	833	821	442	410	401	297	288	274	259	282	233
1987	245	252	334	642	369	294	418	438	302	462	694	857
1988	975	964	881	413	417	414	416	401	344	498	853	991
1989	1,012	938	965	778	594	453	355	290	243	493	846	920
1990	880	935	1,115	802	356	312	312	330	438	827	993	1,018
1991	1,097	929	1,097	997	608	486	400	330	456	874	999	963
Avg	661	593	602	520	408	357	361	358	345	480	621	688
W/AN/BN	652	536	467	387	348	326	308	304	266	255	291	324
D/C	668	636	707	624	455	382	402	399	407	655	879	970

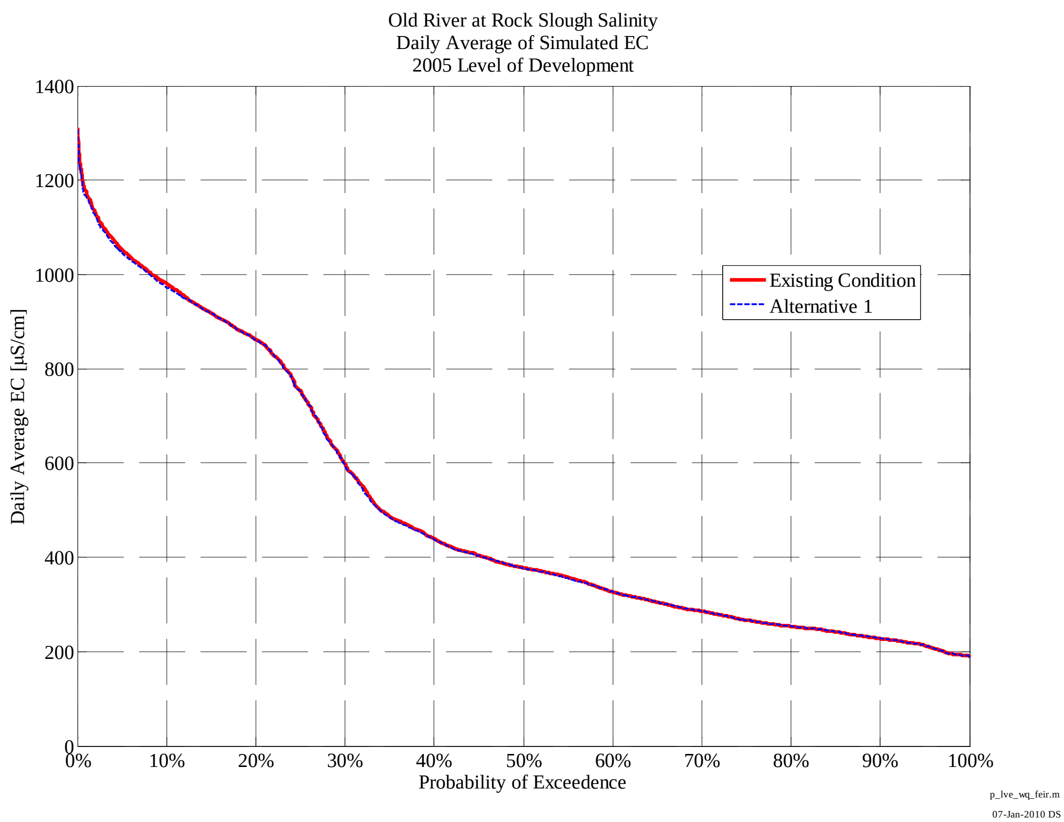
Percent (%) Change from Existing Condition for Old River at Rock Slough Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	0.0%	0.0%	0.0%	0.0%	-0.3%	-2.6%	-0.8%	0.5%	0.5%	-0.8%	-3.1%
1977	-1.6%	-0.1%	-0.4%	-0.3%	-0.1%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.2%	-0.3%
1978	-0.1%	0.2%	0.3%	0.1%	-0.1%	-0.1%	-0.9%	0.5%	-0.2%	0.1%	0.3%	0.2%
1979	0.1%	-0.2%	1.1%	1.4%	0.0%	0.1%	-1.4%	-0.3%	-0.1%	0.7%	0.4%	0.2%
1980	0.2%	0.2%	0.9%	0.0%	0.8%	2.4%	-1.4%	-0.4%	0.3%	0.5%	0.0%	0.0%
1981	0.1%	0.5%	0.1%	0.1%	-0.2%	-0.2%	-2.0%	-1.8%	-0.2%	0.2%	0.2%	0.2%
1982	0.3%	0.4%	0.2%	-0.6%	-0.5%	1.9%	0.9%	0.2%	0.0%	0.1%	0.1%	-0.5%
1983	-0.2%	-0.2%	-3.3%	-0.9%	-0.5%	0.0%	-0.1%	-0.9%	-0.3%	-1.8%	-0.4%	0.0%
1984	0.1%	-0.1%	-0.2%	-0.7%	-0.2%	1.1%	-0.4%	-0.5%	-0.1%	0.0%	0.1%	0.0%
1985	0.2%	1.3%	0.9%	0.1%	0.3%	1.5%	0.0%	-0.3%	0.0%	0.4%	-1.7%	-0.4%
1986	2.5%	0.4%	0.2%	0.1%	0.0%	-1.5%	-1.7%	0.3%	0.7%	-0.4%	-0.3%	0.0%
1987	1.2%	1.1%	0.0%	0.1%	0.0%	1.4%	-1.6%	-1.2%	-0.5%	1.2%	0.9%	0.3%
1988	0.0%	0.1%	0.1%	0.0%	0.6%	3.6%	-1.2%	-0.4%	-0.2%	0.2%	-0.7%	-3.1%
1989	-2.1%	-1.5%	-0.1%	3.4%	1.9%	0.8%	0.1%	0.5%	0.0%	-1.0%	2.0%	2.4%
1990	-2.4%	-0.3%	0.3%	1.2%	0.5%	0.2%	0.1%	0.6%	0.1%	-0.1%	-0.8%	-1.6%
1991	0.4%	3.3%	0.1%	-5.2%	-11.2%	-5.6%	-1.3%	0.2%	-0.3%	-3.1%	-2.1%	-0.1%
Avg	-0.1%	0.3%	0.0%	-0.1%	-0.5%	0.3%	-0.8%	-0.3%	0.0%	-0.2%	-0.2%	-0.4%
W/AN/BN	0.4%	0.1%	-0.1%	-0.1%	0.0%	0.6%	-0.7%	-0.1%	0.1%	-0.1%	0.0%	0.0%
D/C	-0.4%	0.5%	0.1%	-0.1%	-0.9%	0.2%	-0.9%	-0.4%	-0.1%	-0.2%	-0.4%	-0.6%


Old River at Rock Slough Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
300
Existing Condition
Alternative 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.08%
-0.54%
0.33%
-0.84%
-0.27%
-0.01%
-0.16%
-0.20%
-0.37%
-0.08%
0.31%
0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
change in EC
Daily Average EC [µS/cm]
1400
1200
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 1
Daily Average EC [µS/cm]
1400
1200
1000
800
600
400
200
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

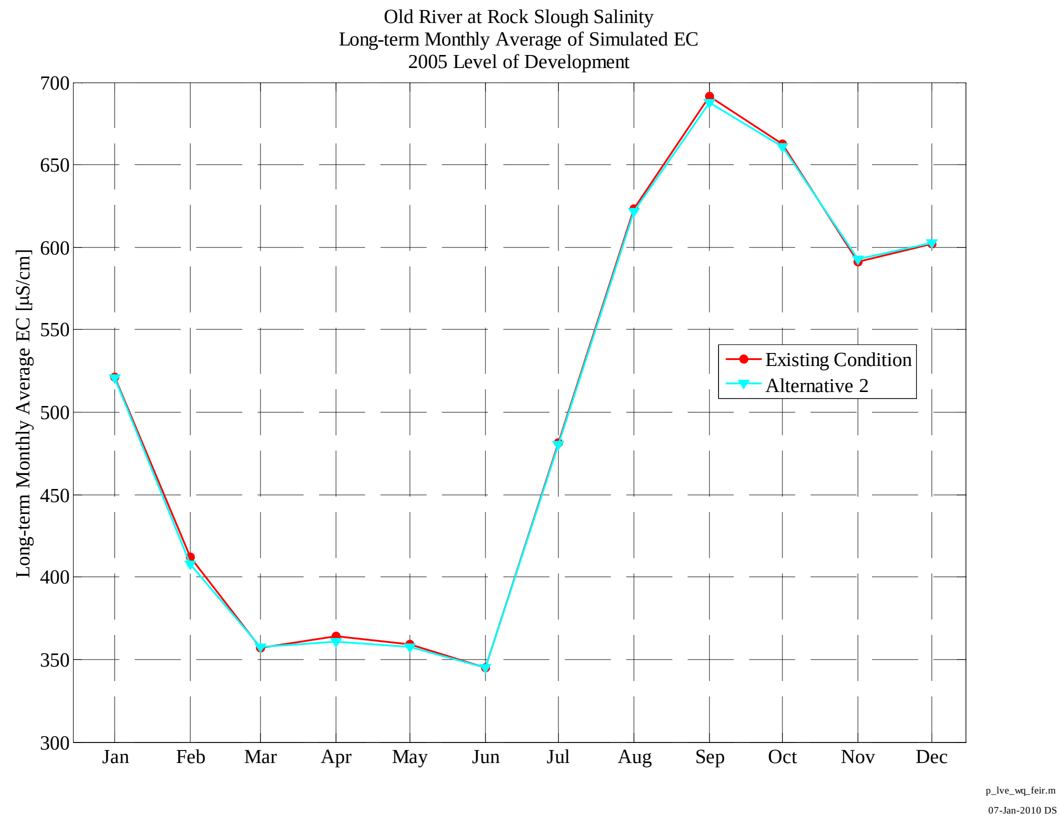
Alternative 2

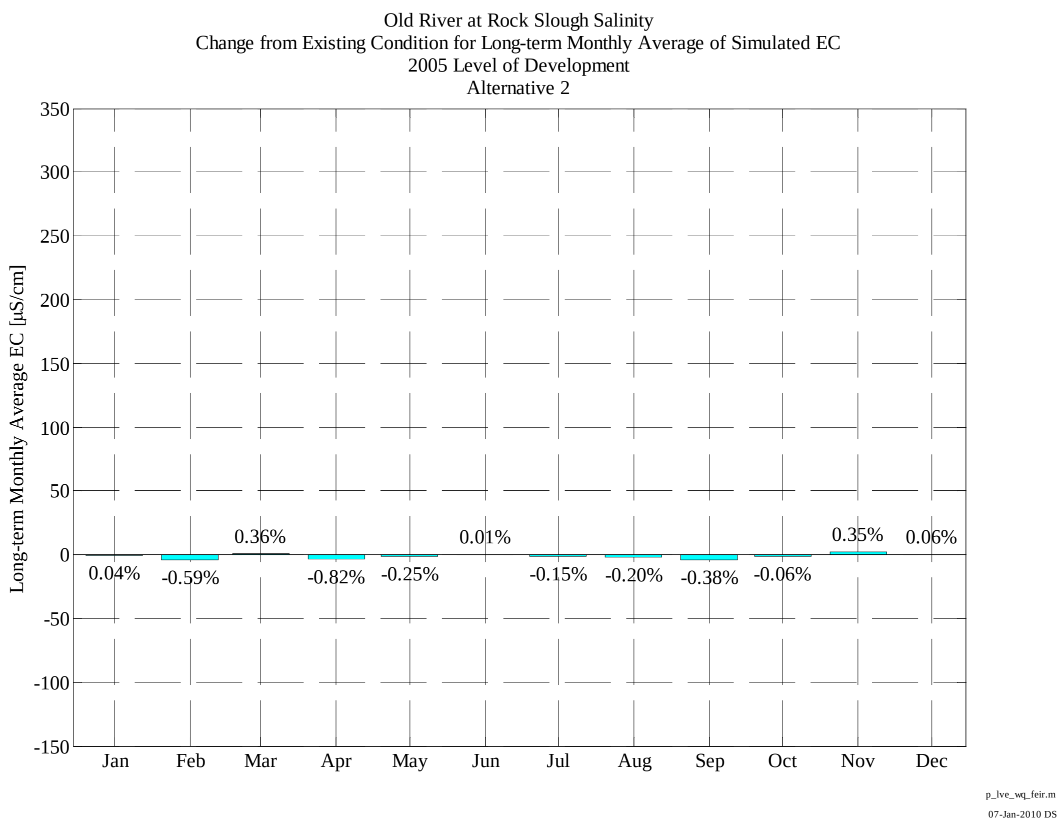
Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

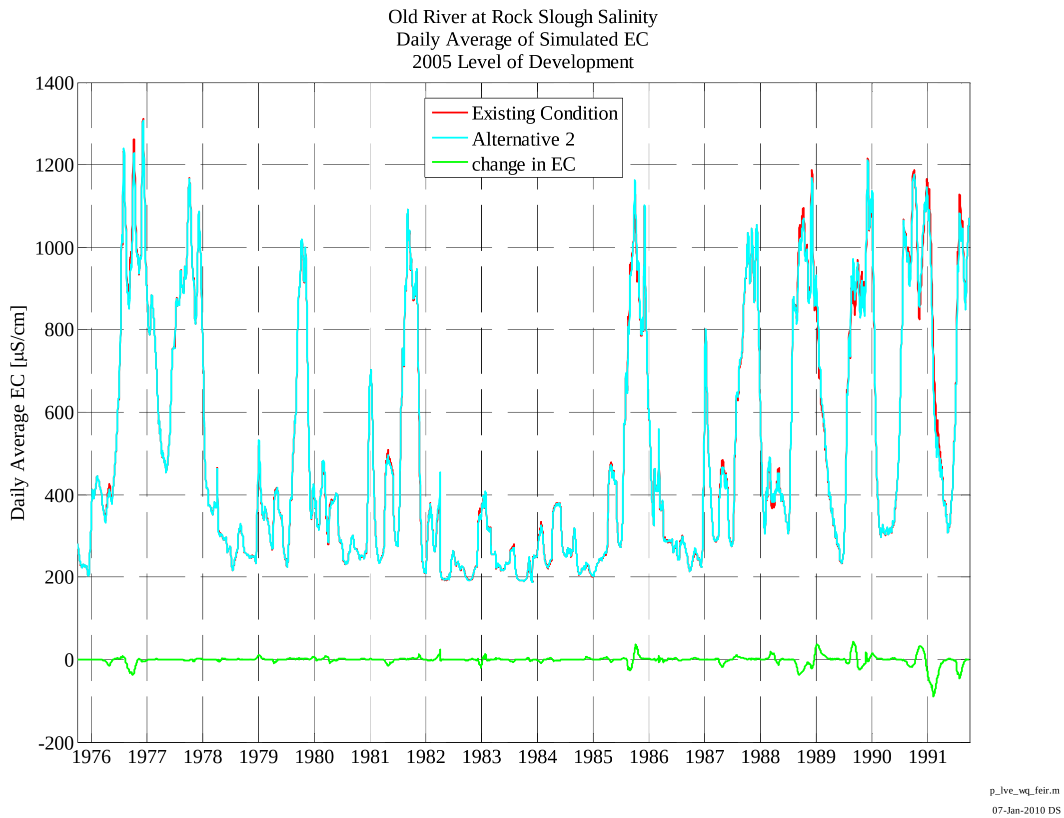
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	228	245	403	432	373	377	407	556	960	1,007	962
1977	1,086	1,004	1,082	826	805	602	490	494	717	851	910	996
1978	1,038	889	951	502	372	367	332	295	271	232	284	299
1979	255	249	317	422	353	301	374	369	273	296	501	807
1980	976	739	380	347	416	383	362	392	300	242	259	283
1981	256	252	435	534	271	249	433	463	304	491	851	1,010
1982	905	614	234	318	305	336	224	195	233	238	225	206
1983	193	216	325	383	319	258	228	218	232	260	213	192
1984	198	215	245	299	258	232	343	375	277	259	272	249
1985	215	229	211	219	242	256	413	440	300	442	754	1,013
1986	996	834	821	442	409	409	298	288	275	259	282	233
1987	245	251	334	642	369	291	413	436	302	462	694	857
1988	975	964	881	413	417	414	416	401	345	497	850	989
1989	1,013	941	965	783	596	454	356	291	243	493	847	921
1990	880	934	1,115	803	356	312	312	330	439	828	993	1,018
1991	1,098	930	1,097	996	609	487	401	330	456	875	1,000	963
Avg	661	593	602	521	408	358	361	358	345	480	621	687
W/AN/BN	652	536	468	388	347	326	309	305	266	255	291	324
D/C	668	637	707	624	455	382	401	399	407	655	878	970

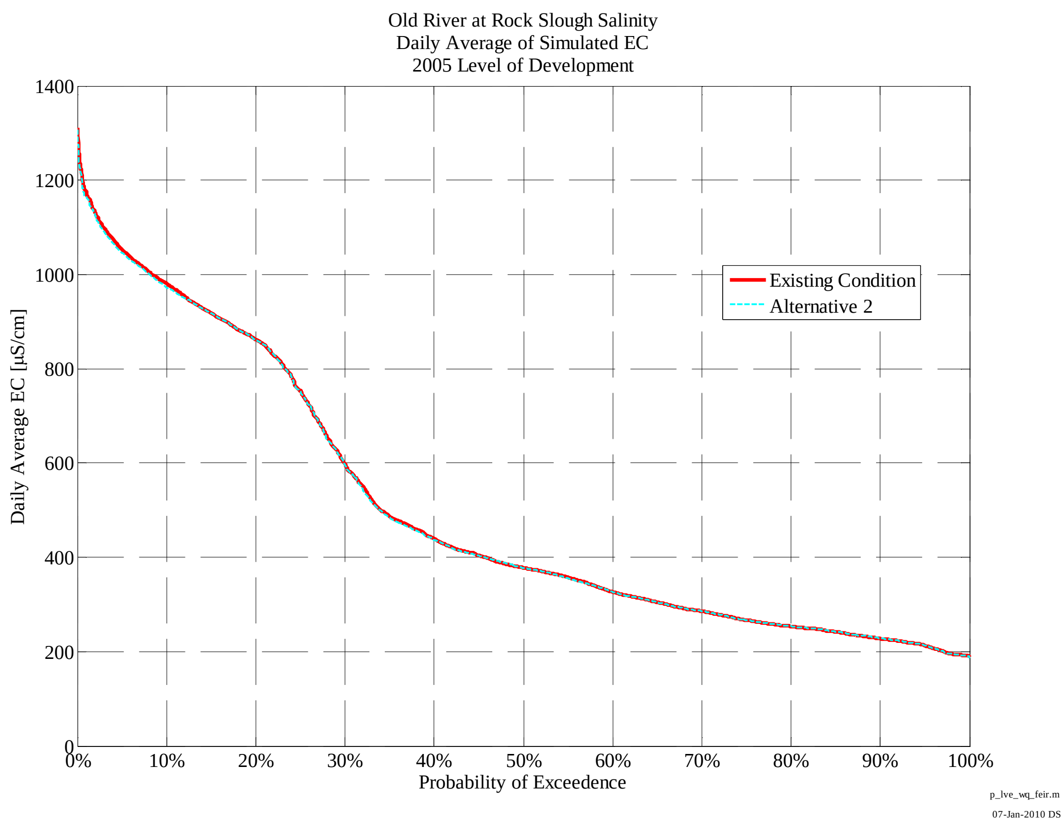
Percent (%) Change from Existing Condition for Old River at Rock Slough Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.2%	0.0%	0.0%	0.0%	0.0%	-0.3%	-2.5%	-0.8%	0.5%	0.5%	-0.9%	-3.2%
1977	-1.6%	-0.1%	-0.4%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.2%
1978	-0.1%	-0.1%	0.2%	0.0%	-0.1%	-0.1%	-0.9%	0.5%	-0.2%	0.1%	0.3%	0.2%
1979	0.1%	-0.2%	1.2%	1.5%	0.0%	0.1%	-1.4%	-0.3%	-0.1%	0.7%	0.4%	0.2%
1980	0.2%	0.1%	0.9%	0.0%	0.0%	1.8%	-1.4%	-0.4%	0.3%	0.5%	0.0%	0.0%
1981	0.1%	0.5%	0.1%	0.1%	-0.2%	-0.2%	-2.0%	-1.8%	-0.2%	0.2%	0.2%	0.2%
1982	0.3%	1.1%	0.5%	-0.6%	-0.5%	1.9%	0.9%	0.2%	-0.1%	0.1%	0.1%	-0.5%
1983	-0.2%	-0.2%	-2.8%	1.1%	-0.5%	0.0%	0.7%	-0.1%	0.0%	-1.6%	-0.4%	-0.2%
1984	0.4%	-0.4%	-0.3%	-1.7%	-0.6%	1.0%	-0.4%	-0.5%	-0.1%	0.0%	0.1%	0.1%
1985	0.3%	1.5%	1.1%	0.1%	0.3%	1.4%	-0.1%	-0.4%	0.0%	0.4%	-1.7%	-0.4%
1986	2.4%	0.4%	0.2%	0.1%	-0.2%	0.4%	-1.2%	0.4%	0.8%	-0.3%	-0.2%	0.0%
1987	1.0%	0.9%	0.0%	0.1%	0.0%	0.4%	-2.7%	-1.7%	-0.6%	1.2%	0.9%	0.3%
1988	0.1%	0.1%	0.1%	0.0%	0.6%	3.6%	-1.2%	-0.3%	-0.1%	0.0%	-1.0%	-3.3%
1989	-1.9%	-1.2%	-0.1%	4.0%	2.2%	0.9%	0.2%	0.6%	0.1%	-1.0%	2.1%	2.5%
1990	-2.5%	-0.4%	0.2%	1.3%	0.6%	0.2%	0.1%	0.7%	0.1%	-0.1%	-0.8%	-1.6%
1991	0.4%	3.4%	0.1%	-5.2%	-11.1%	-5.5%	-1.3%	0.2%	-0.2%	-3.0%	-2.0%	-0.1%
Avg	-0.1%	0.3%	0.1%	0.0%	-0.6%	0.4%	-0.8%	-0.2%	0.0%	-0.1%	-0.2%	-0.4%
W/AN/BN	0.4%	0.1%	0.0%	0.1%	-0.2%	0.7%	-0.5%	0.0%	0.1%	-0.1%	0.0%	0.0%
D/C	-0.5%	0.5%	0.1%	0.0%	-0.9%	0.1%	-1.1%	-0.4%	-0.1%	-0.2%	-0.4%	-0.6%


Old River at Rock Slough Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
300
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.04%
-0.59%
0.36%
-0.82%
-0.25%
0.01%
-0.15%
-0.20%
-0.38%
-0.06%
0.35%
0.06%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
change in EC
Daily Average EC [µS/cm]
1400
1200
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 2
Daily Average EC [µS/cm]
1400
1200
1000
800
600
400
200
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

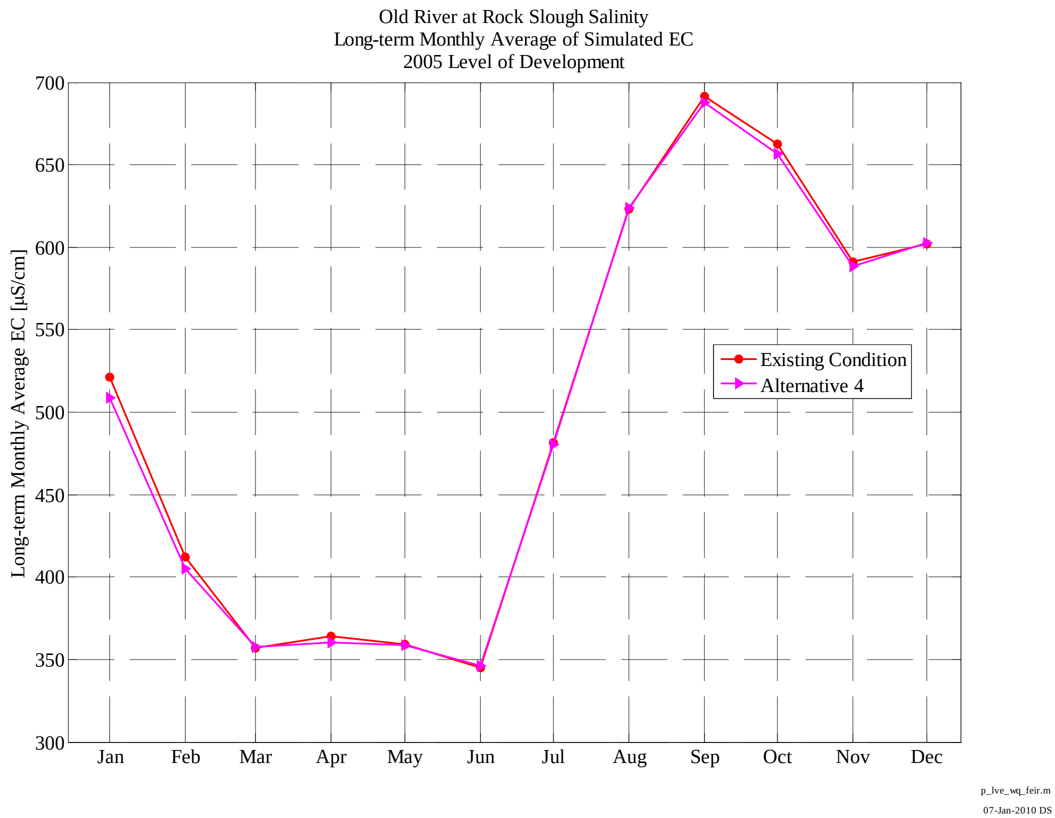
Alternative 4

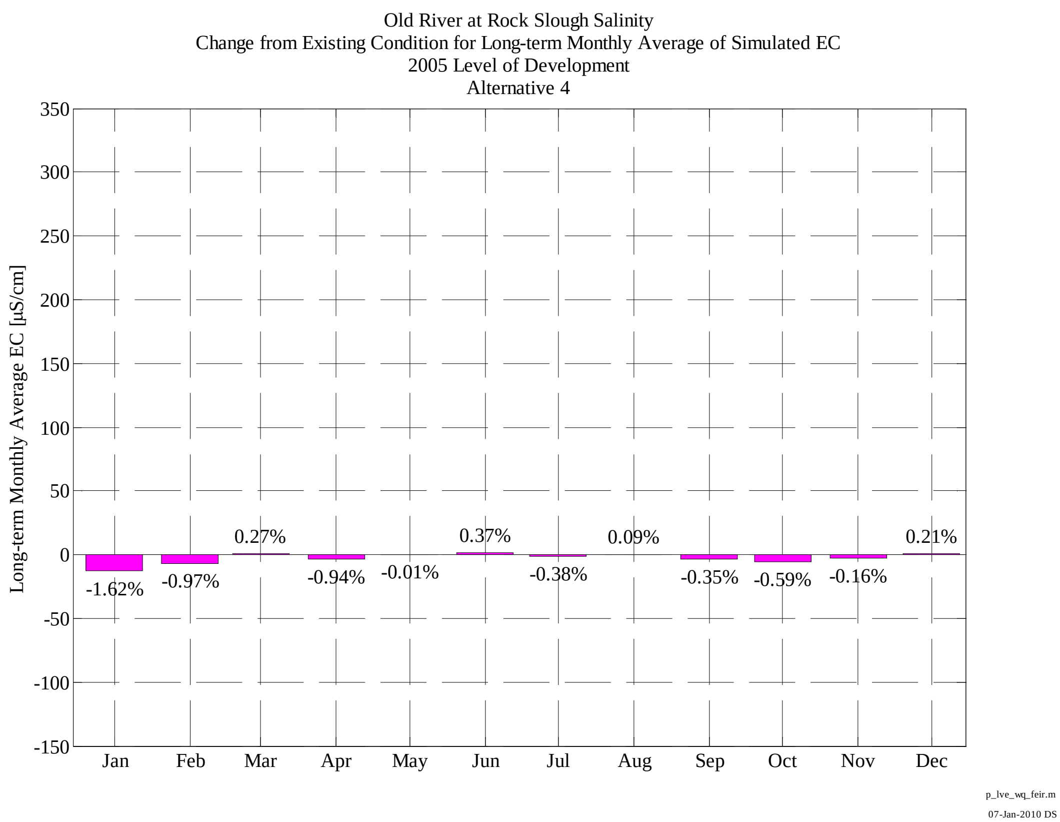
Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

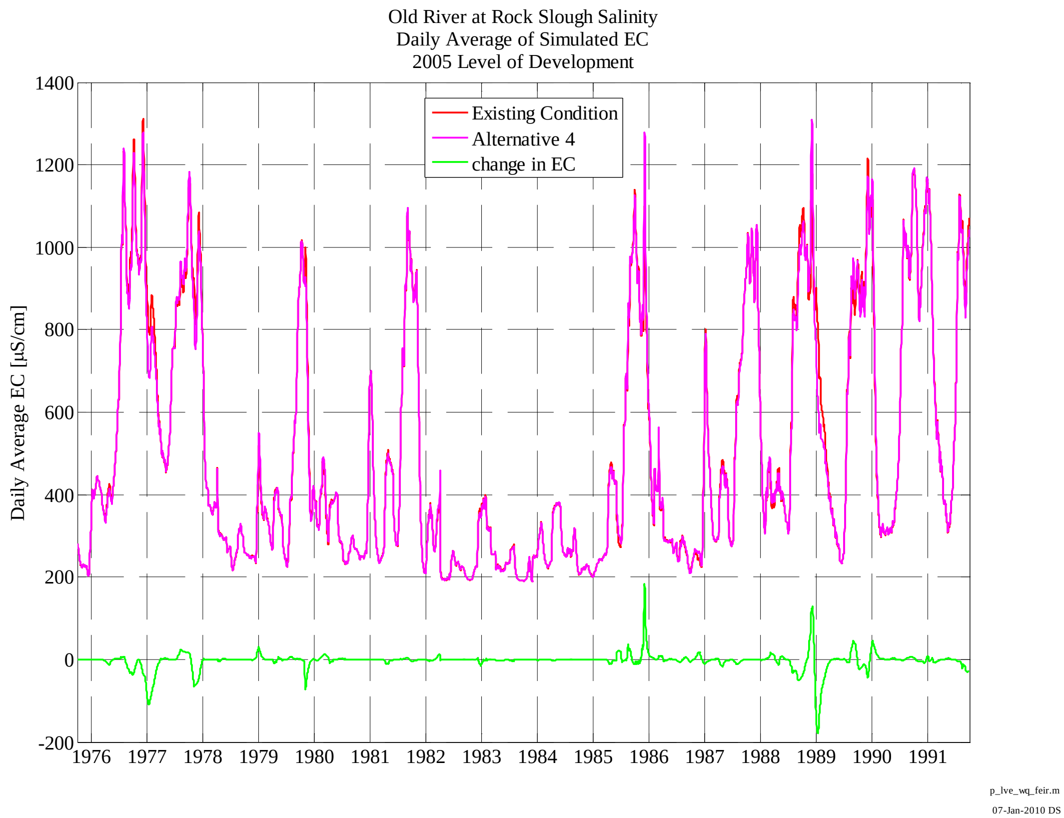
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	227	245	403	432	373	378	407	555	960	1,007	963
1977	1,086	997	1,034	728	752	592	492	495	717	857	932	1,015
1978	1,028	830	926	502	372	367	332	295	270	232	284	299
1979	255	248	324	430	353	301	373	373	272	296	503	807
1980	967	699	374	345	420	388	363	393	300	242	259	283
1981	256	250	434	534	271	248	435	468	305	490	852	1,009
1982	899	606	232	318	304	336	222	195	233	238	225	208
1983	194	216	328	376	319	258	224	216	232	261	213	192
1984	197	216	245	302	259	229	342	377	277	259	273	249
1985	215	225	208	218	241	252	406	438	319	437	784	1,016
1986	966	861	891	448	411	414	299	287	272	256	284	233
1987	241	261	333	635	369	291	414	438	302	451	680	853
1988	974	963	879	412	417	413	416	406	346	484	827	975
1989	1,012	995	991	609	523	433	354	291	243	494	848	924
1990	882	920	1,105	823	360	312	312	330	438	827	1,003	1,040
1991	1,092	895	1,094	1,051	679	513	406	332	457	899	1,008	937
Avg	657	588	603	508	405	357	361	359	346	480	624	688
W/AN/BN	644	525	474	389	348	327	308	305	265	255	292	324
D/C	667	637	703	601	449	381	401	401	409	656	882	970

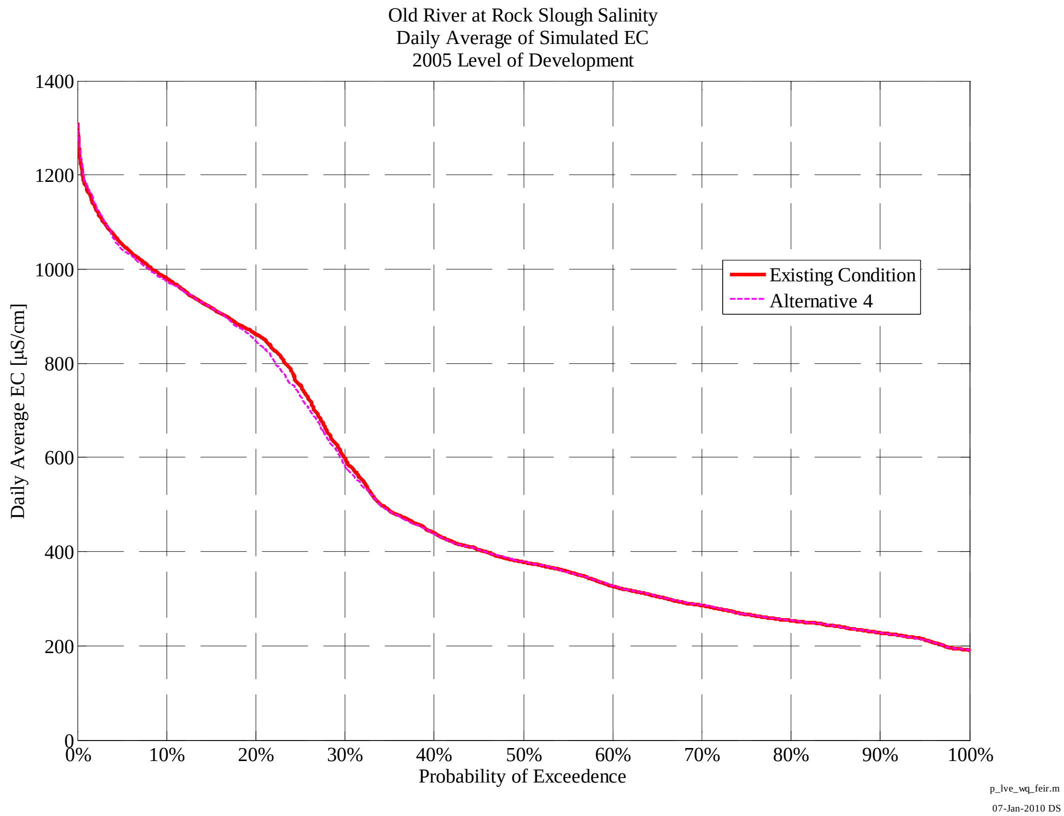
Percent (%) Change from Existing Condition for Old River at Rock Slough Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	-0.1%	0.0%	0.0%	0.0%	-0.3%	-2.3%	-0.8%	0.4%	0.5%	-0.9%	-3.2%
1977	-1.6%	-0.9%	-4.8%	-11.9%	-6.6%	-1.6%	0.3%	0.2%	0.0%	0.7%	2.3%	1.7%
1978	-1.1%	-6.7%	-2.5%	0.0%	-0.2%	-0.1%	-0.8%	0.3%	-0.3%	0.0%	0.1%	0.1%
1979	0.0%	-0.3%	3.4%	3.4%	0.1%	0.1%	-1.5%	0.7%	-0.3%	0.8%	0.7%	0.1%
1980	-0.7%	-5.2%	-0.6%	-0.3%	1.1%	2.9%	-1.2%	-0.1%	0.3%	0.3%	-0.1%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.3%	-1.7%	-0.8%	-0.1%	0.1%	0.3%	0.0%
1982	-0.4%	-0.2%	0.0%	-0.7%	-0.6%	1.9%	0.1%	0.1%	-0.1%	0.1%	0.1%	0.2%
1983	0.1%	0.0%	-2.0%	-0.7%	-0.4%	0.0%	-1.0%	-0.9%	-0.2%	-1.1%	-0.2%	0.0%
1984	0.0%	0.0%	-0.2%	-0.4%	-0.1%	0.1%	-0.7%	-0.1%	0.0%	0.1%	0.2%	0.1%
1985	0.1%	0.0%	0.0%	-0.1%	0.1%	0.1%	-1.7%	-0.8%	6.5%	-0.6%	2.3%	-0.2%
1986	-0.7%	3.7%	8.6%	1.4%	0.2%	1.7%	-1.0%	0.2%	-0.1%	-1.8%	0.4%	-0.2%
1987	-0.7%	4.8%	-0.2%	-1.1%	-0.3%	0.3%	-2.5%	-1.2%	-0.5%	-1.2%	-1.2%	-0.1%
1988	0.0%	0.0%	-0.1%	-0.2%	0.6%	3.4%	-1.1%	1.0%	0.2%	-2.6%	-3.7%	-4.6%
1989	-2.1%	4.6%	2.6%	-19.2%	-10.2%	-3.8%	-0.4%	0.6%	0.0%	-0.7%	2.2%	2.9%
1990	-2.2%	-1.9%	-0.7%	3.9%	1.8%	0.4%	0.1%	0.7%	0.1%	-0.2%	0.2%	0.6%
1991	0.0%	-0.5%	-0.3%	0.0%	-0.8%	-0.5%	0.1%	0.8%	0.0%	-0.4%	-1.3%	-2.8%
Avg	-0.6%	-0.2%	0.2%	-1.6%	-1.0%	0.3%	-0.9%	0.0%	0.4%	-0.4%	0.1%	-0.3%
W/AN/BN	-0.4%	-1.2%	1.0%	0.4%	0.0%	0.9%	-0.9%	0.0%	-0.1%	-0.2%	0.2%	0.0%
D/C	-0.7%	0.7%	-0.4%	-3.2%	-1.7%	-0.3%	-1.0%	0.0%	0.7%	-0.5%	0.0%	-0.6%


Old River at Rock Slough Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
300
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-1.62%
-0.97%
0.27%
-0.94%
-0.01%
0.37%
-0.38%
0.09%
-0.35%
-0.59%
-0.16%
0.21%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
1400
1200
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
1400
1200
1000
800
600
400
200
0
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Barker Slough at North Bay Aqueduct

Existing Condition

Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	192	190	202	210	229	228	220	218	215	213	206	198
1977	198	204	208	219	241	257	263	268	261	234	217	212
1978	217	222	236	326	589	550	559	342	225	206	204	205
1979	209	212	209	288	485	512	337	255	220	210	203	201
1980	198	198	216	341	535	641	405	269	214	204	204	205
1981	208	213	212	236	288	252	243	219	212	215	202	198
1982	203	207	240	375	576	458	563	392	226	205	205	199
1983	198	228	314	366	578	709	686	384	235	197	197	197
1984	198	203	256	390	278	257	237	217	209	207	201	206
1985	209	226	270	284	279	263	269	238	229	214	206	204
1986	209	212	225	301	441	640	522	317	223	209	206	206
1987	209	211	210	217	244	263	267	271	228	210	205	207
1988	210	221	223	276	394	416	340	257	237	213	206	207
1989	209	221	212	221	234	253	258	237	223	209	206	205
1990	205	202	205	224	288	351	304	263	218	217	210	208
1991	215	211	217	221	240	253	341	268	219	208	206	207
Avg	205	211	229	281	370	394	363	276	225	211	205	204
W/AN/BN	205	212	242	341	498	538	473	311	222	206	203	203
D/C	206	211	218	234	271	282	278	249	227	215	207	205

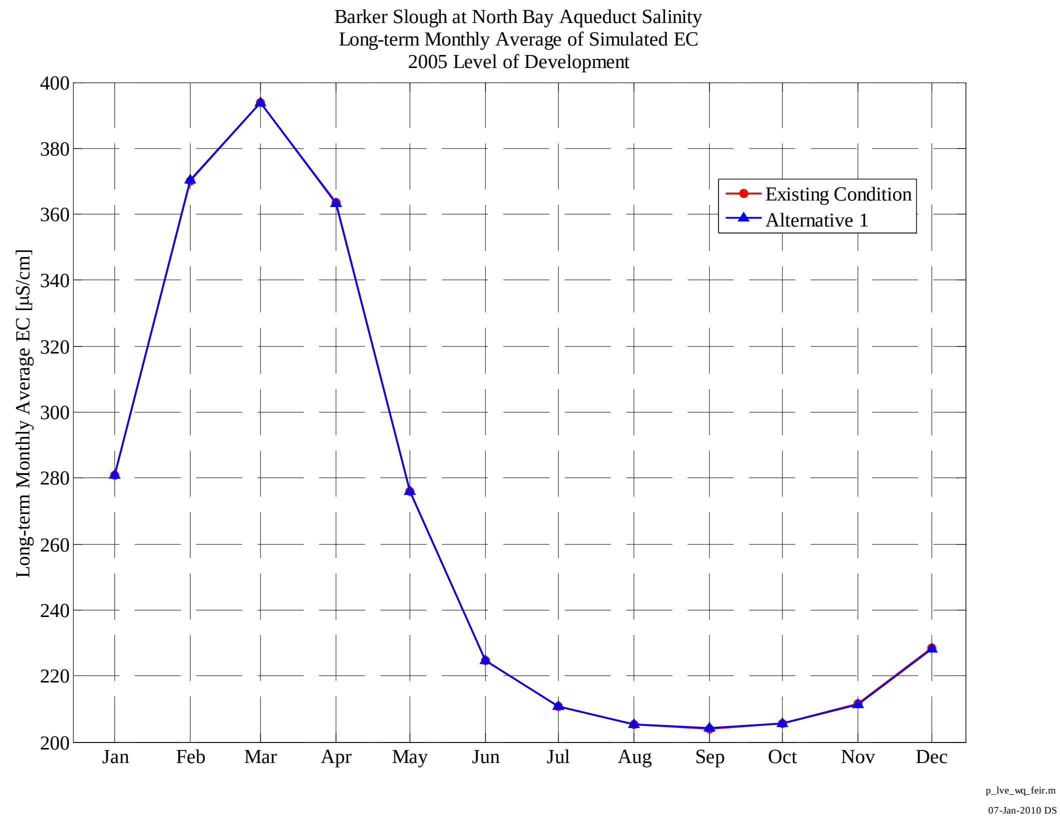
Alternative 1

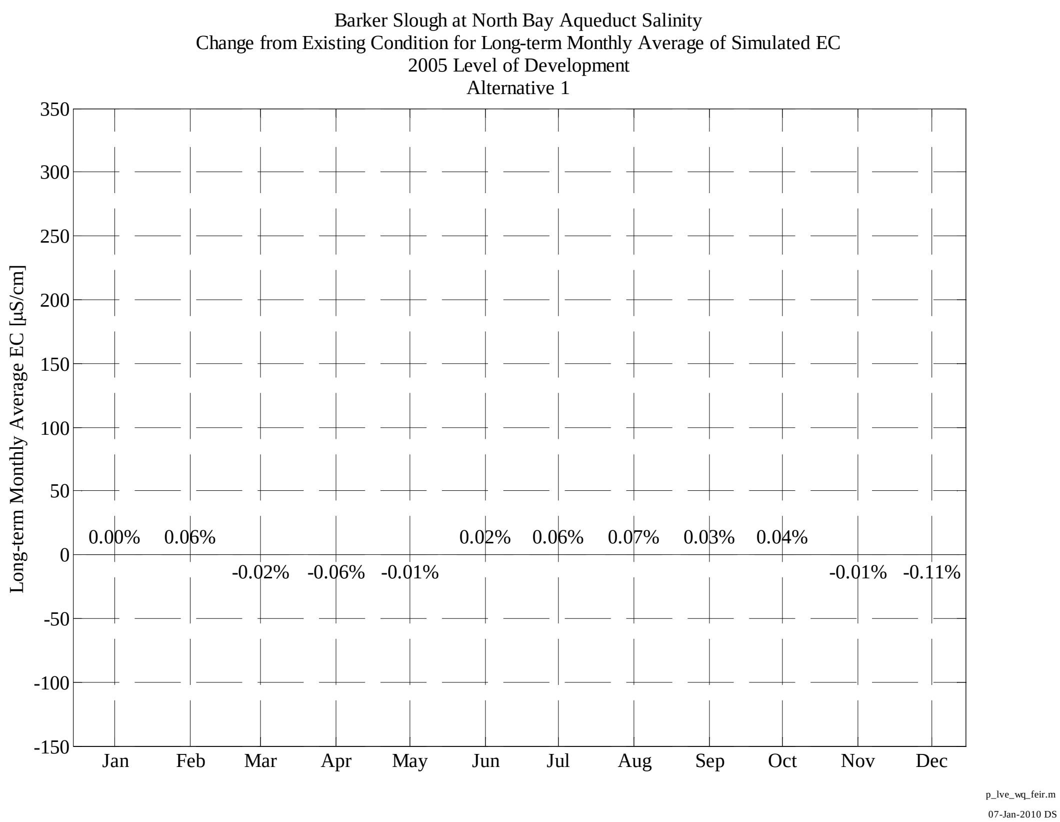
Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

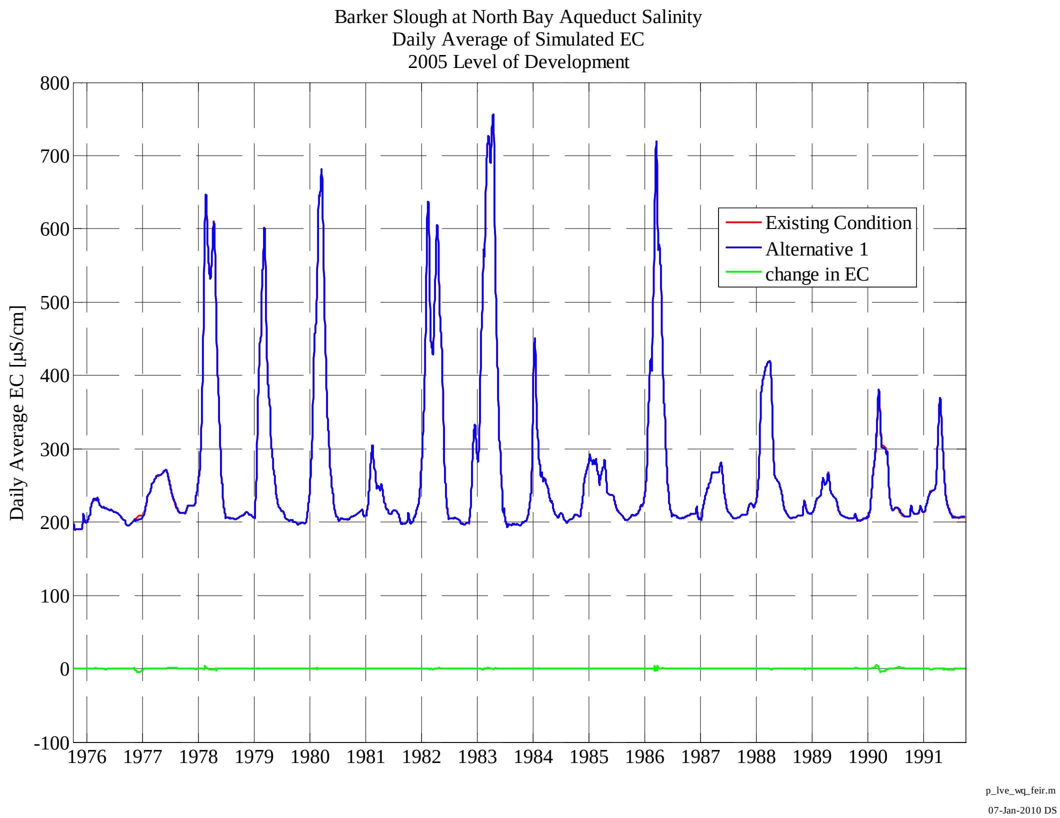
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	192	191	202	210	230	228	220	218	216	213	206	198
1977	198	202	204	218	241	257	264	268	262	235	218	212
1978	218	222	236	325	590	549	558	342	225	206	204	205
1979	209	212	209	288	485	512	337	255	220	210	203	201
1980	198	198	216	341	535	641	405	270	214	204	204	205
1981	208	213	212	236	288	252	243	219	212	215	202	198
1982	203	207	240	375	576	458	564	392	226	205	205	199
1983	198	228	314	365	577	710	686	384	235	197	197	197
1984	198	203	256	390	278	256	237	217	209	207	201	206
1985	209	226	270	284	279	263	268	238	229	214	206	204
1986	209	212	225	301	441	640	522	318	223	209	206	206
1987	209	211	210	217	244	263	267	271	228	210	205	207
1988	210	221	223	276	394	416	340	257	237	213	206	207
1989	209	221	212	221	234	253	258	237	224	209	206	205
1990	206	202	206	224	290	350	301	263	218	219	211	208
1991	215	212	217	221	239	252	341	267	218	207	206	207
Avg	206	211	228	281	370	394	363	276	225	211	205	204
W/AN/BN	205	212	242	341	498	538	473	311	222	206	203	203
D/C	206	211	217	234	271	281	278	249	227	215	207	205

Percent (%) Change from Existing Condition for Barker Slough at North Bay Aqueduct
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

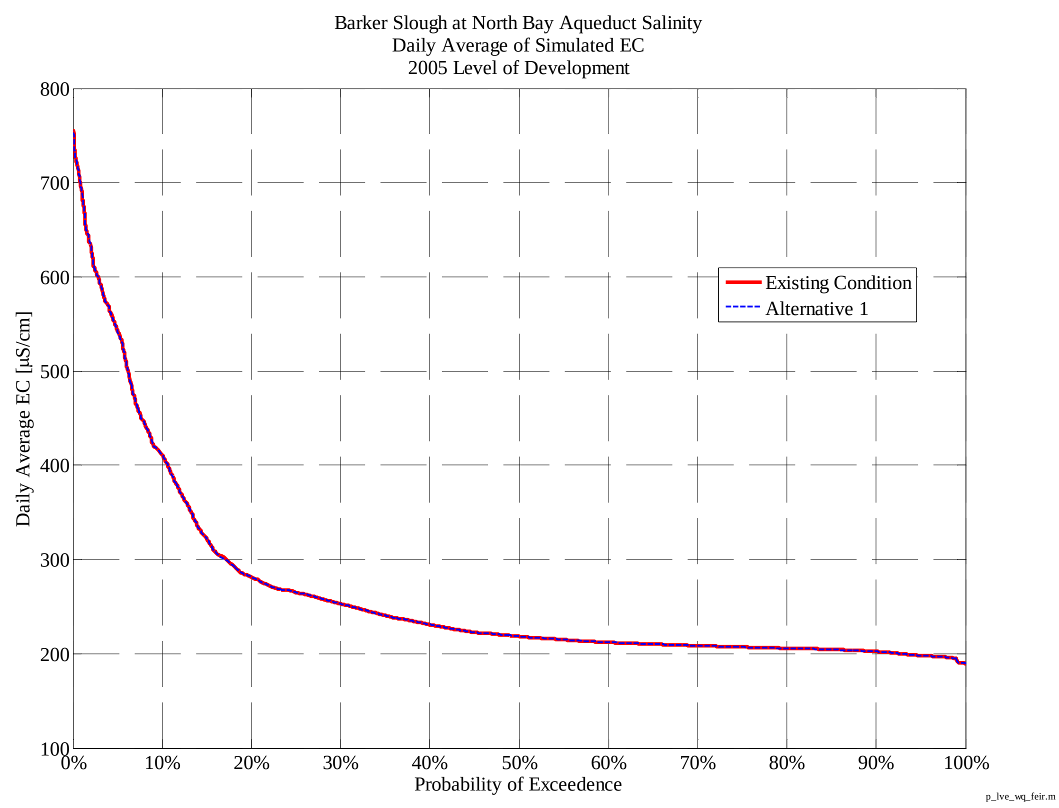
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.1%	0.1%	0.0%	0.2%	0.0%	0.0%	-0.2%	0.1%	0.0%	0.0%	0.0%
1977	0.0%	-1.0%	-1.9%	-0.2%	0.0%	0.0%	0.2%	0.1%	0.3%	0.4%	0.4%	0.1%
1978	0.1%	0.1%	-0.2%	0.0%	0.2%	-0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%
1982	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%
1986	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
1987	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.2%	-0.1%	-0.1%	0.0%	0.0%
1989	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.0%	0.0%
1990	0.2%	0.2%	0.1%	0.1%	0.9%	-0.1%	-1.0%	-0.2%	0.2%	0.7%	0.6%	0.2%
1991	0.1%	0.2%	0.1%	0.0%	-0.2%	-0.1%	0.0%	-0.2%	-0.3%	-0.3%	0.0%	0.0%
Avg	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.1%	-0.1%	-0.2%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.0%


Barker Slough at North Bay Aqueduct Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
400
380
360
340
320
300
280
260
240
220
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.06%
-0.02%
-0.06%
-0.01%
0.02%
0.06%
0.07%
0.03%
0.04%
-0.01%
-0.11%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
Existing Condition
Alternative 1
change in EC
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
Existing Condition
Alternative 1
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

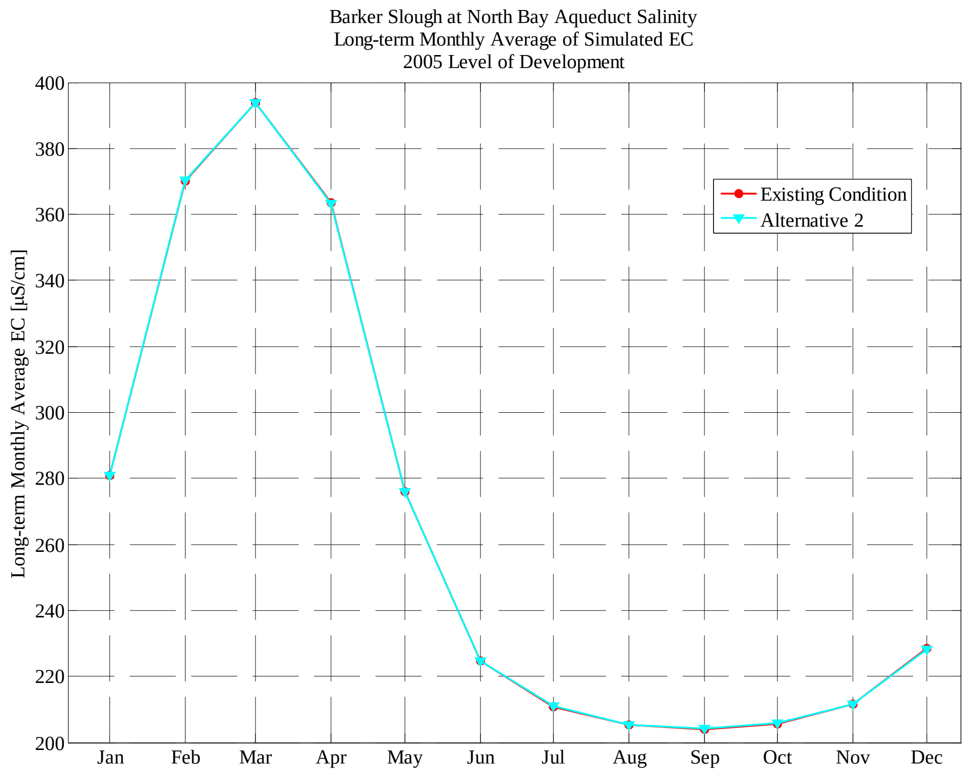
Alternative 2

Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

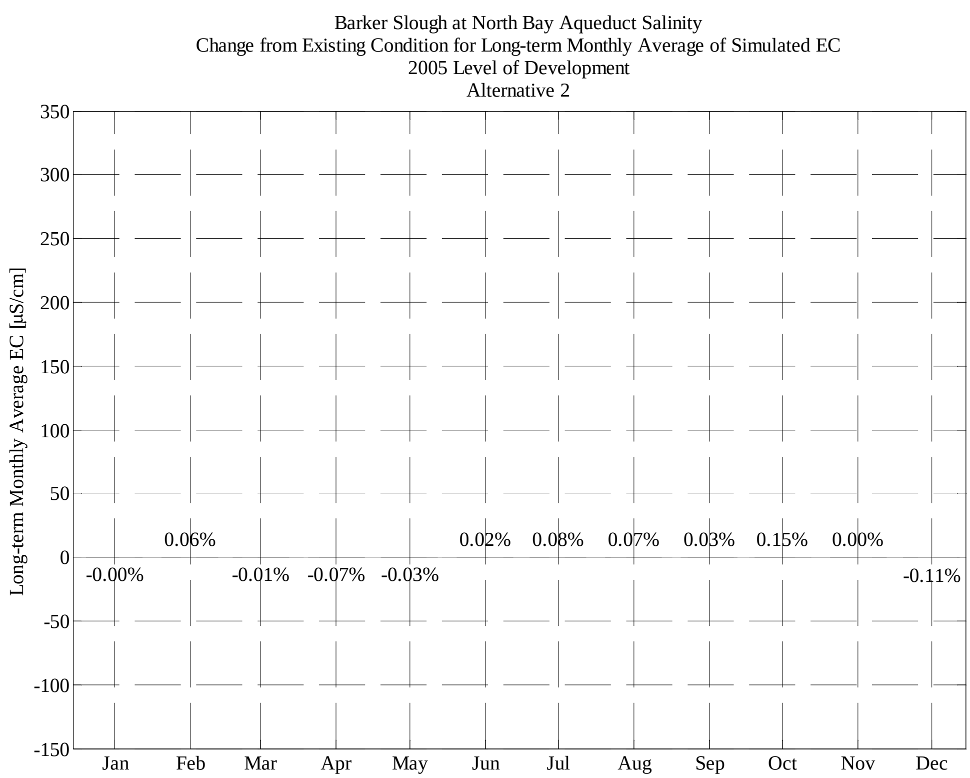
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	192	191	202	210	230	228	220	218	216	213	206	198
1977	198	203	204	218	241	257	264	268	262	236	218	213
1978	218	222	236	325	591	549	558	342	225	206	204	205
1979	209	212	209	288	485	512	337	255	220	210	203	201
1980	198	198	216	341	535	641	405	270	214	204	204	205
1981	208	213	212	236	288	252	243	219	212	215	202	198
1982	203	207	240	375	576	458	564	392	226	205	205	199
1983	198	228	314	366	577	710	686	384	235	197	197	197
1984	198	203	256	390	278	257	237	217	209	207	201	206
1985	209	226	270	284	279	263	268	238	229	214	206	204
1986	209	212	225	301	441	640	522	318	223	209	206	206
1987	209	211	210	217	244	263	267	271	228	210	205	207
1988	210	221	223	276	394	416	340	257	237	213	206	207
1989	213	222	212	221	234	253	258	237	223	209	206	205
1990	206	202	206	224	290	350	301	263	218	219	211	208
1991	215	212	217	221	239	252	341	267	218	207	206	207
Avg	206	211	228	281	370	394	363	276	225	211	205	204
W/AN/BN	205	212	242	341	498	538	473	311	222	206	203	203
D/C	207	211	217	234	271	282	278	249	227	215	207	205

Percent (%) Change from Existing Condition for Barker Slough at North Bay Aqueduct
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.1%	0.1%	0.0%	0.3%	0.1%	0.0%	-0.2%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	-0.9%	-2.0%	-0.2%	0.0%	0.1%	0.1%	0.0%	0.4%	0.8%	0.5%	0.2%
1978	0.1%	0.1%	-0.2%	-0.1%	0.2%	-0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%
1986	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
1987	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	-0.1%	0.0%	0.0%
1989	1.8%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.0%	0.0%
1990	0.2%	0.2%	0.1%	0.1%	0.8%	-0.1%	-1.0%	-0.2%	0.2%	0.7%	0.6%	0.2%
1991	0.1%	0.2%	0.1%	0.0%	-0.2%	-0.1%	0.0%	-0.2%	-0.3%	-0.3%	0.0%	0.0%
Avg	0.1%	0.0%	-0.1%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.0%
W/AN/BN	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.2%	0.0%	-0.2%	0.0%	0.1%	0.0%	-0.1%	-0.1%	0.0%	0.1%	0.1%	0.0%



p_lve_wq_feir.m
07-Jan-2010 DS



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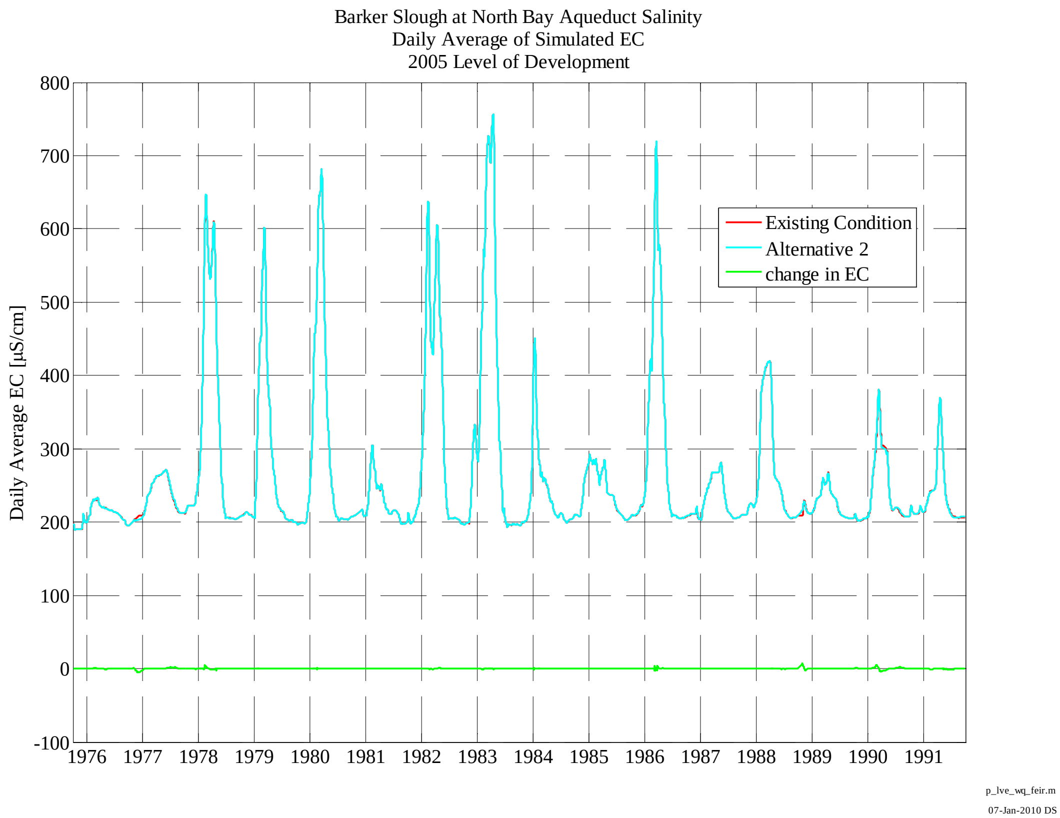
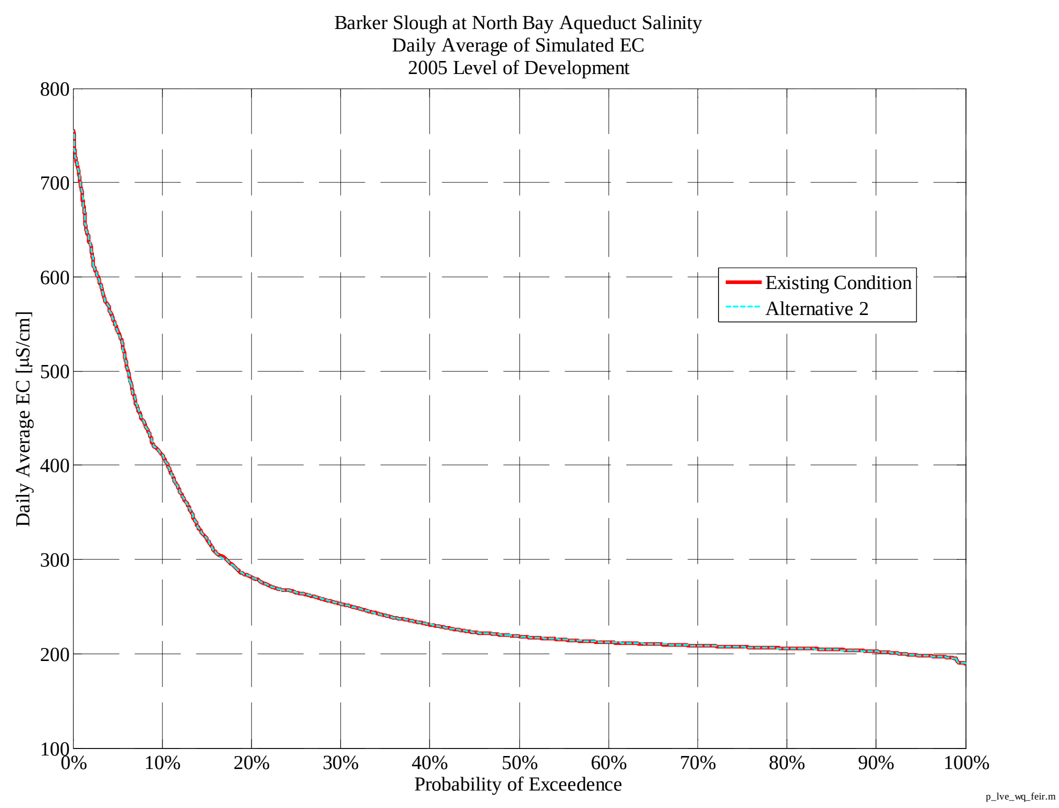

Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

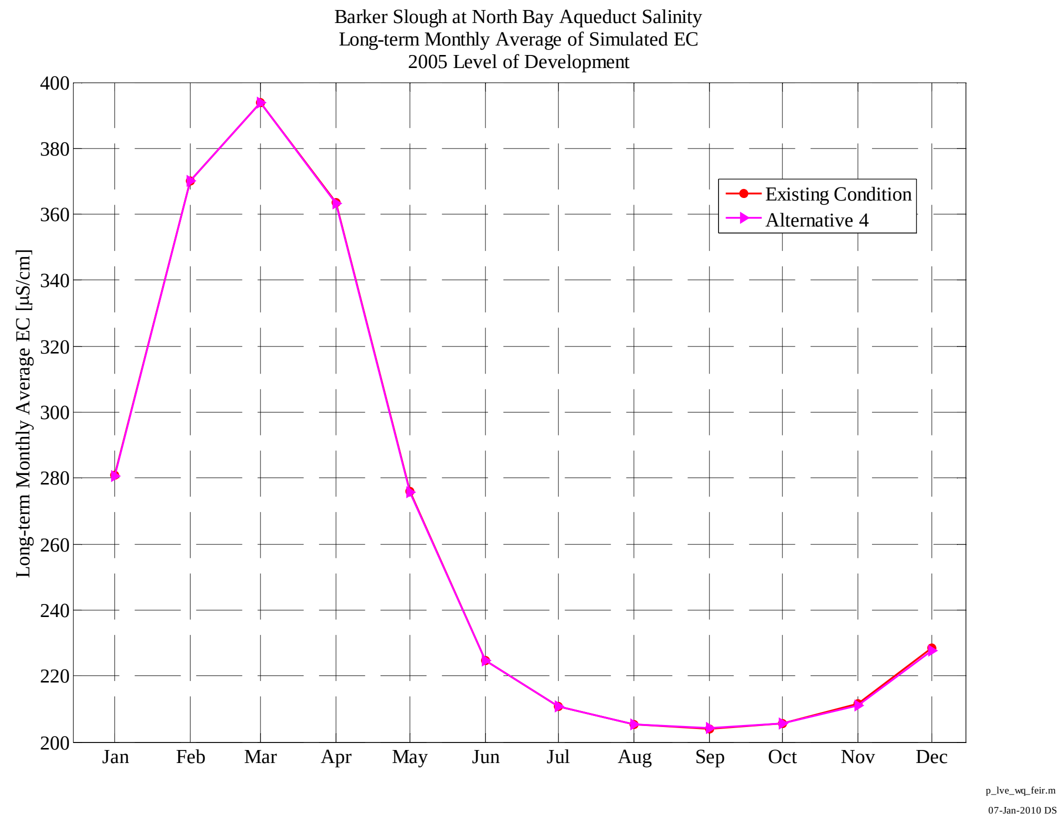
Alternative 4

Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

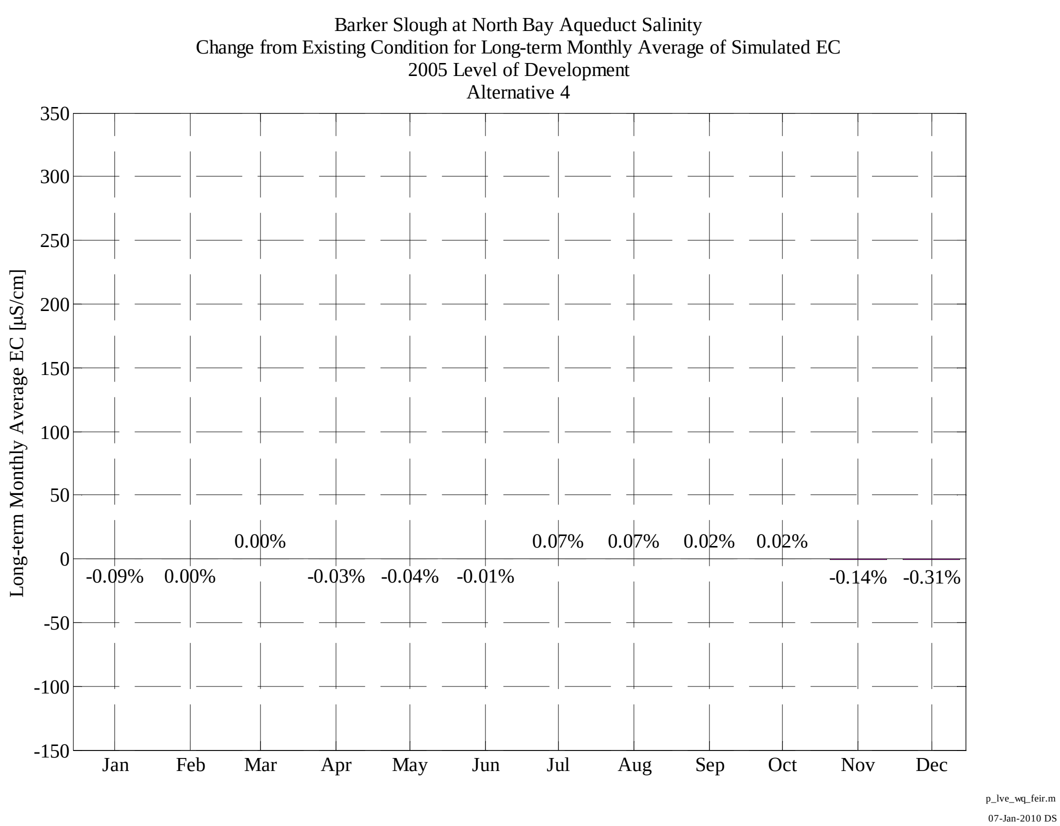
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	192	191	202	210	230	228	220	218	216	213	206	198
1977	198	202	203	216	241	257	263	268	262	237	218	213
1978	218	222	236	325	588	550	560	342	225	206	204	205
1979	209	212	209	288	485	512	337	255	220	210	203	201
1980	198	199	216	341	535	641	405	270	214	204	204	205
1981	208	213	212	236	288	252	243	219	212	215	202	198
1982	203	207	240	375	576	458	564	392	226	205	205	199
1983	198	228	314	366	577	710	686	384	235	197	197	197
1984	198	203	256	390	278	257	237	217	209	207	201	206
1985	209	226	270	284	279	263	268	238	229	214	206	204
1986	209	209	219	301	442	641	521	316	222	209	205	206
1987	208	211	210	217	244	262	267	271	228	210	205	207
1988	210	220	224	276	393	415	341	257	236	212	206	207
1989	210	221	212	221	234	253	258	237	223	209	206	205
1990	205	202	205	224	289	351	303	263	218	219	211	208
1991	215	212	216	221	240	253	341	267	218	207	206	207
Avg	206	211	228	281	370	394	363	276	225	211	205	204
W/AN/BN	205	212	241	341	497	538	473	311	221	205	203	203
D/C	206	211	217	234	271	281	278	249	227	215	207	205

Percent (%) Change from Existing Condition for Barker Slough at North Bay Aqueduct
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

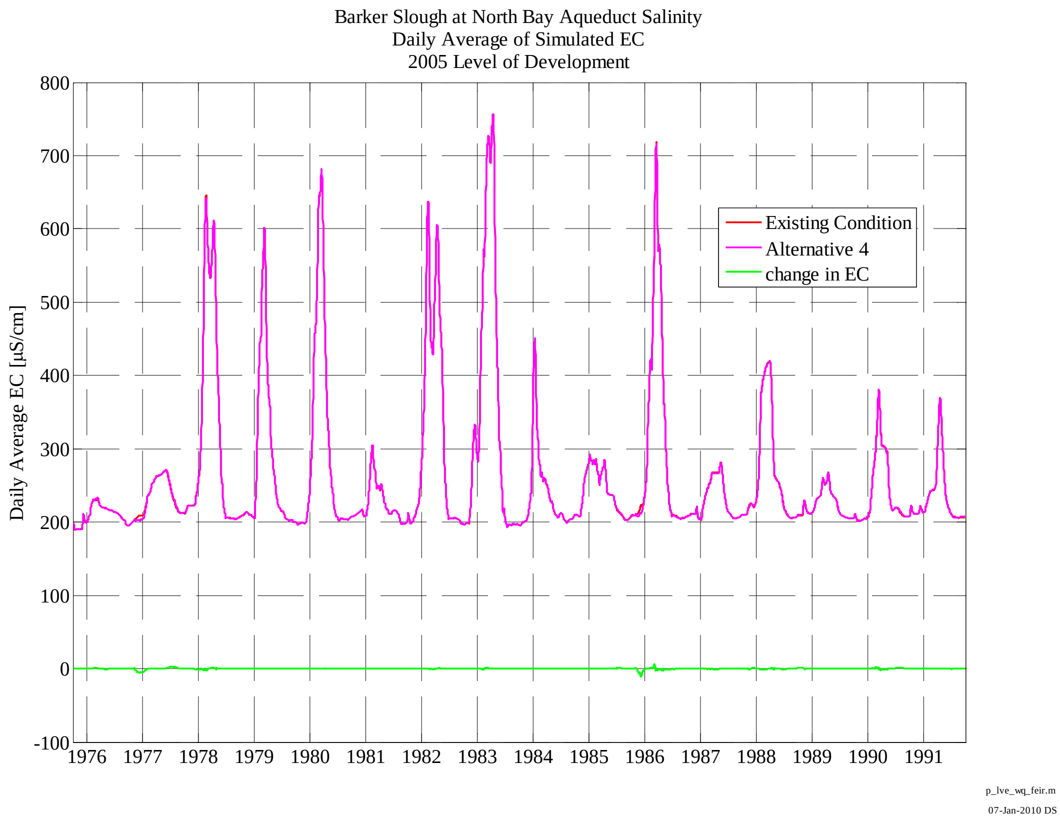
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.1%	0.1%	0.0%	0.3%	0.2%	0.0%	-0.3%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	-1.0%	-2.5%	-1.3%	-0.2%	0.0%	0.0%	0.0%	0.5%	0.9%	0.6%	0.3%
1978	0.2%	0.2%	-0.3%	-0.2%	-0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
1980	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.1%	0.3%	0.1%	-0.1%
1986	0.0%	-1.2%	-2.6%	-0.1%	0.2%	0.1%	-0.2%	-0.4%	-0.3%	-0.2%	-0.2%	-0.2%
1987	-0.2%	-0.2%	0.0%	0.1%	-0.1%	-0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	-0.3%	0.4%	-0.1%	-0.3%	-0.1%	0.0%	0.0%	-0.5%	-0.3%	0.0%	0.1%
1989	0.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
1990	-0.1%	-0.1%	0.0%	0.1%	0.3%	0.0%	-0.4%	0.0%	0.2%	0.6%	0.5%	0.2%
1991	0.1%	0.1%	-0.1%	-0.1%	0.1%	0.1%	0.0%	-0.1%	-0.1%	-0.2%	0.0%	0.0%
Avg	0.0%	-0.1%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
W/AN/BN	0.0%	-0.1%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
D/C	0.0%	-0.1%	-0.2%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.1%

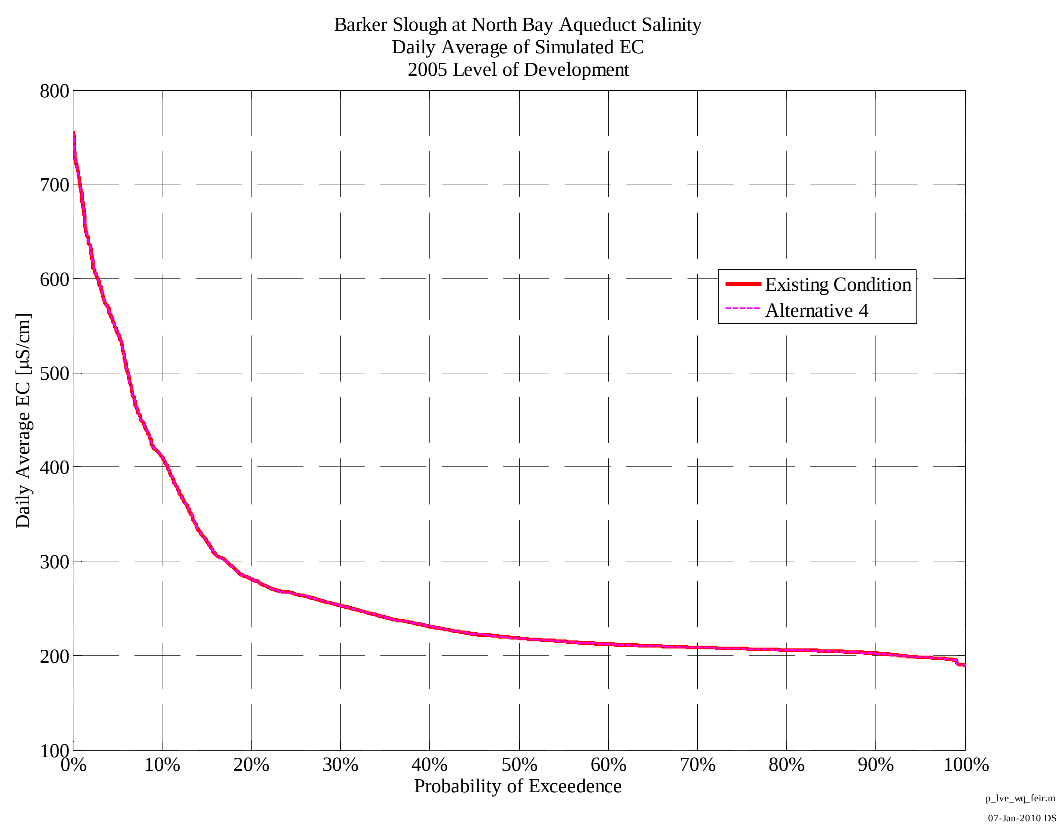


Barker Slough at North Bay Aqueduct Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
400
380
360
340
320
300
280
260
240
220
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS



Barker Slough at North Bay Aqueduct Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.09%
0.00%
0.00%
-0.03%
-0.04%
-0.01%
0.07%
0.07%
0.02%
0.02%
-0.14%
-0.31%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Cache Slough at City of Vallejo Intake

Existing Condition

Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	198	198	201	205	210	237	224	209	206	202	195	196
1977	198	206	208	210	211	251	238	217	206	203	203	201
1978	205	213	382	747	801	797	612	345	245	205	200	200
1979	201	205	208	675	766	559	354	259	215	204	199	199
1980	201	202	327	639	757	640	398	272	223	204	200	200
1981	200	205	208	414	311	225	262	224	206	202	199	198
1982	199	201	426	709	639	646	716	525	254	206	202	201
1983	199	200	200	680	782	791	662	395	250	208	199	198
1984	198	201	493	553	465	283	247	216	204	202	198	198
1985	200	200	200	200	201	215	281	232	208	202	198	198
1986	199	204	205	510	744	789	548	305	234	207	200	200
1987	201	206	207	208	208	211	256	227	205	199	196	200
1988	204	208	211	573	649	393	294	231	208	201	197	202
1989	207	211	213	213	213	227	257	223	203	198	196	196
1990	197	201	204	205	205	245	289	235	208	202	198	200
1991	206	209	209	211	213	228	317	269	211	199	197	201
Avg	201	204	256	434	461	421	372	274	218	203	199	199
W/AN/BN	200	204	320	645	708	644	505	331	232	205	200	199
D/C	201	205	207	271	269	248	269	230	207	201	198	199

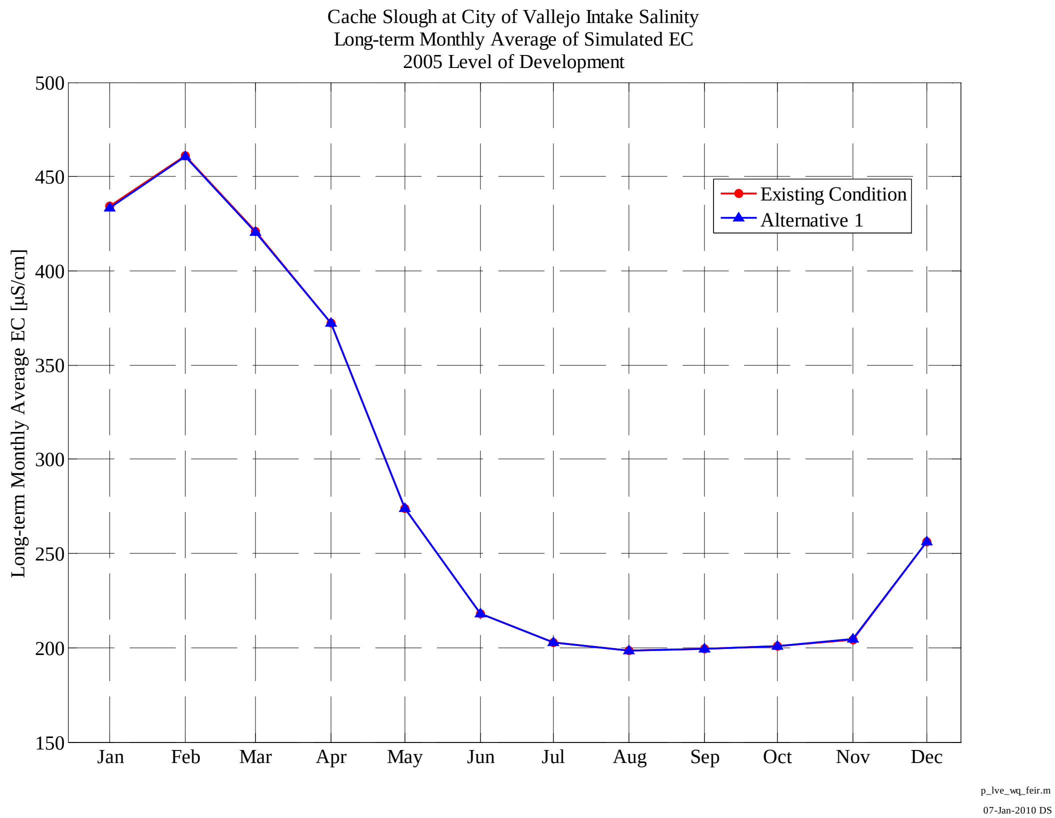
Alternative 1

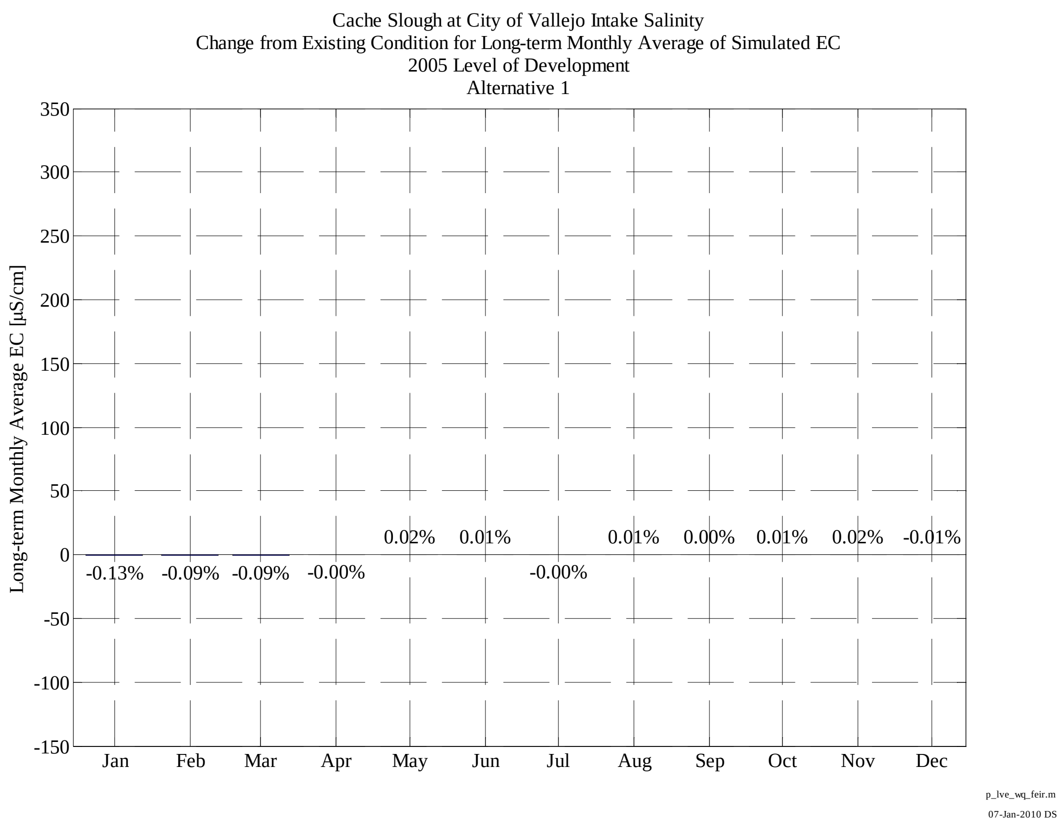
Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

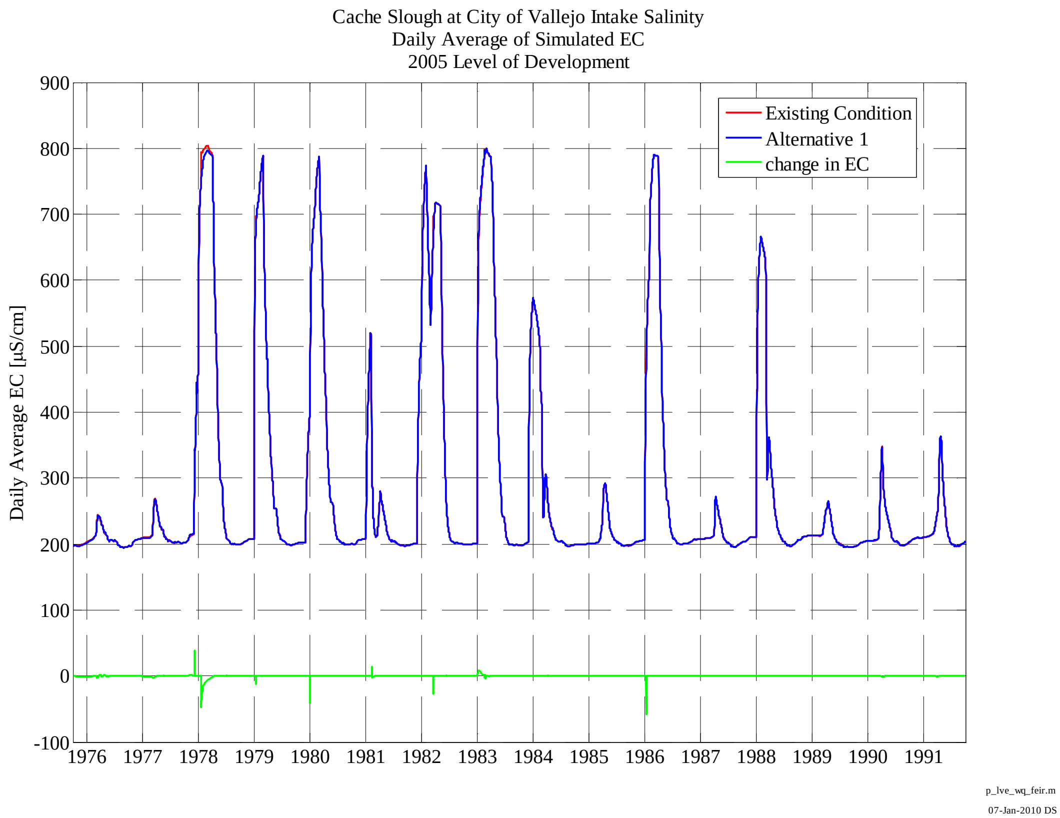
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	198	197	200	204	209	237	224	209	206	202	195	196
1977	198	206	208	209	210	249	238	217	206	203	203	201
1978	205	214	384	732	791	793	611	345	245	205	200	200
1979	201	205	207	674	766	559	355	259	215	204	199	199
1980	201	202	326	639	757	640	398	272	223	204	200	200
1981	200	205	208	414	311	225	262	224	206	202	199	198
1982	199	201	426	709	638	645	716	525	254	206	202	201
1983	199	200	200	685	783	792	662	395	251	208	199	198
1984	198	201	494	553	465	283	247	216	204	202	198	198
1985	200	200	200	200	201	215	281	232	208	202	198	198
1986	200	204	206	508	744	789	548	305	234	207	200	200
1987	201	206	207	208	209	211	256	227	205	199	196	200
1988	204	208	211	573	649	393	294	231	209	201	197	202
1989	207	211	213	214	213	227	257	223	203	198	196	196
1990	197	201	204	205	206	245	288	235	208	202	198	200
1991	206	209	209	211	213	227	317	269	211	199	197	201
Avg	201	204	256	434	460	421	372	274	218	203	199	199
W/AN/BN	200	204	320	643	707	643	505	331	232	205	200	199
D/C	201	205	207	271	269	248	269	230	207	201	198	199

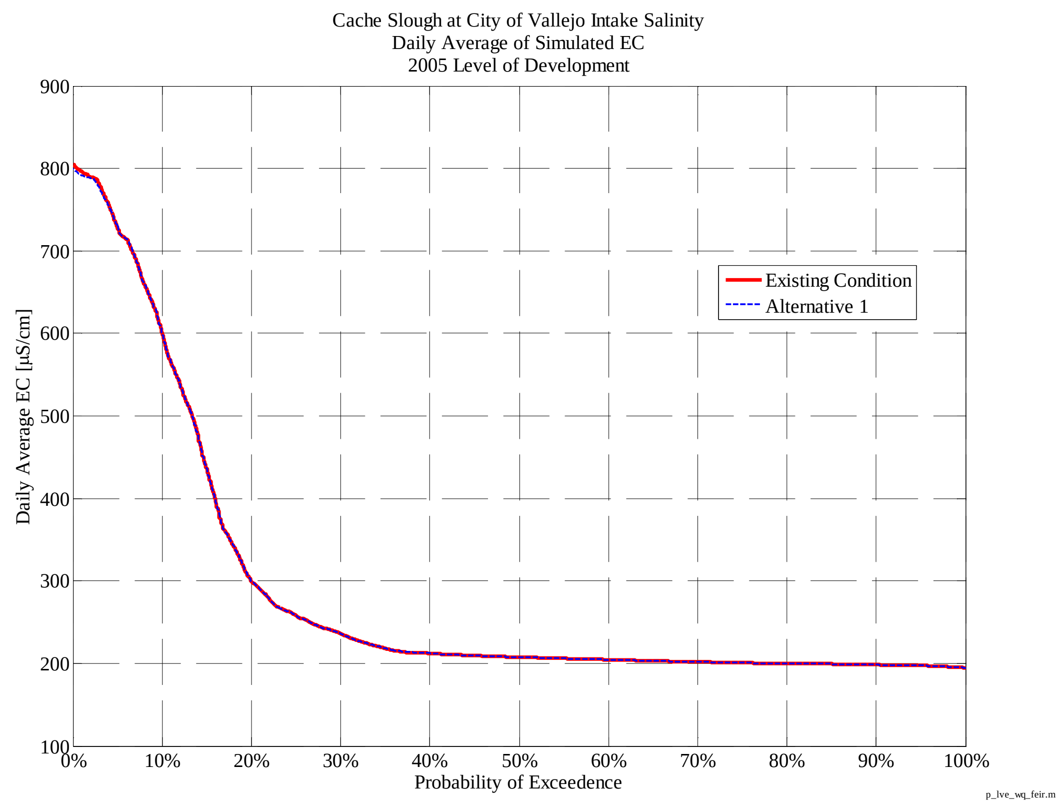
Percent (%) Change from Existing Condition for Cache Slough at City of Vallejo Intake
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.1%	-0.4%	-0.4%	-0.4%	-0.1%	0.0%	0.2%	-0.1%	0.1%	0.0%	0.0%	0.0%
1977	0.1%	0.1%	-0.1%	-0.3%	-0.7%	-0.8%	0.0%	0.2%	0.1%	0.0%	0.0%	-0.1%
1978	0.1%	0.5%	0.5%	-2.0%	-1.2%	-0.5%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1986	0.0%	0.0%	0.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
1989	-0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	-0.1%	0.0%	0.0%	0.1%	0.0%	-0.2%	0.0%	0.0%	0.1%	0.0%	0.1%
1991	0.0%	0.0%	0.1%	0.1%	0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.0%
Avg	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.1%	0.0%	-0.2%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Cache Slough at City of Vallejo Intake Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
500
450
400
350
300
250
200
150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.13%
-0.09%
-0.09%
-0.00%
0.02%
0.01%
-0.00%
0.01%
0.00%
0.01%
0.02%
-0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

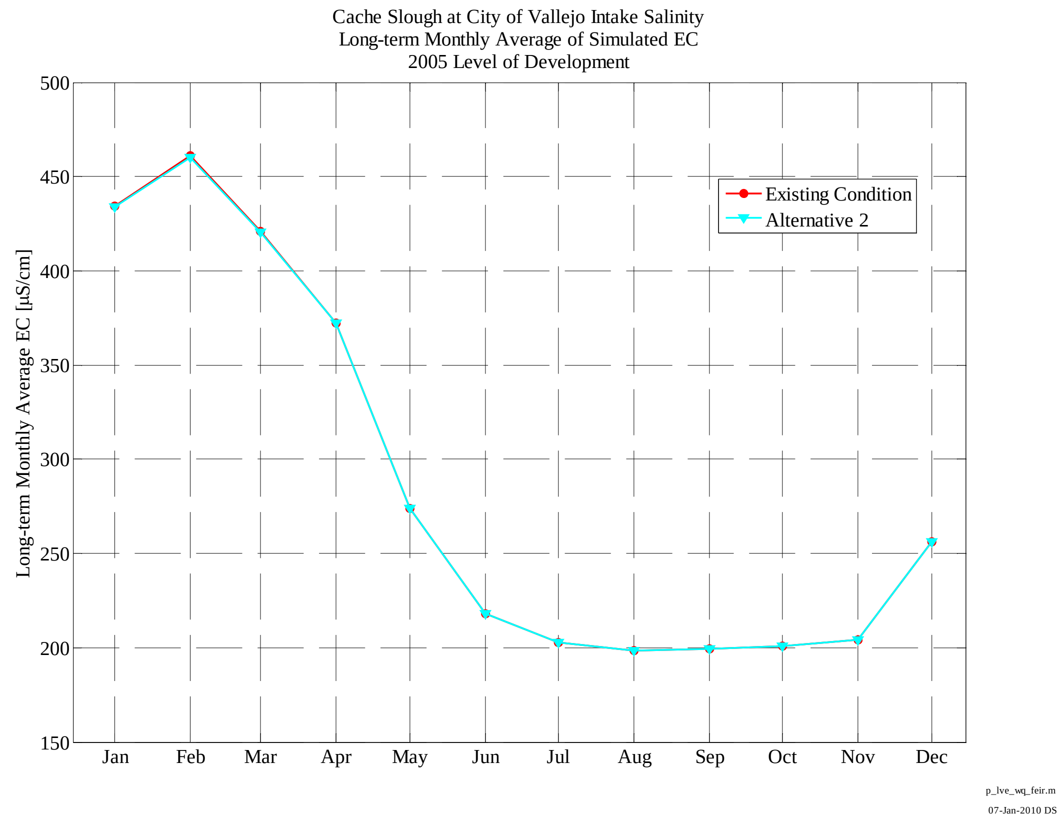
Alternative 2

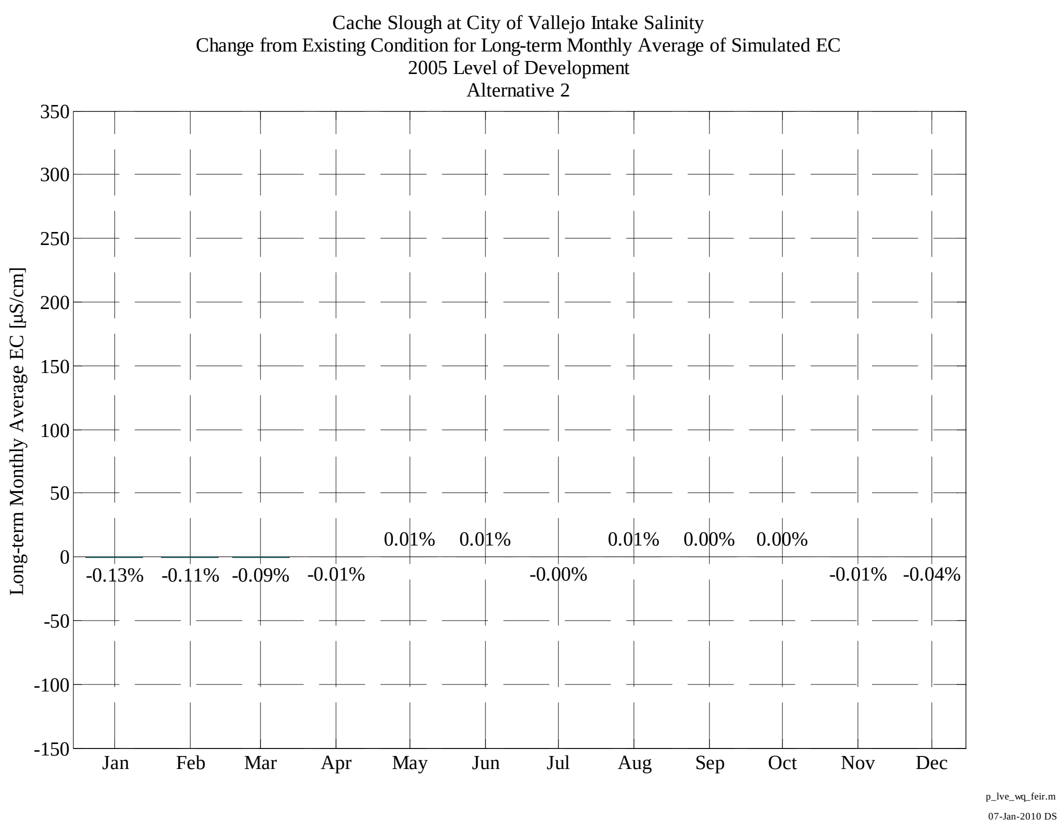
Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

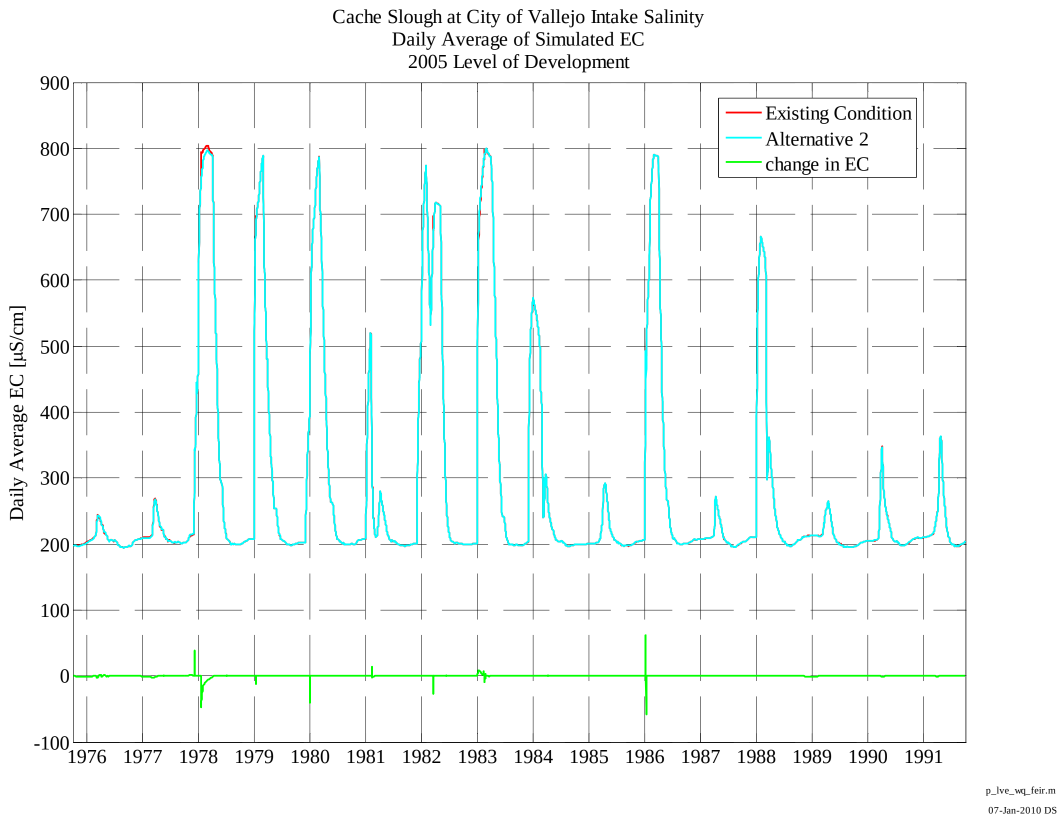
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	198	197	200	204	209	237	224	209	206	202	195	196
1977	198	205	208	209	210	249	238	217	206	203	203	201
1978	205	214	384	732	791	793	611	345	245	205	200	200
1979	201	205	207	674	766	559	355	259	216	204	199	199
1980	201	202	326	639	757	640	398	272	223	204	200	200
1981	200	205	208	414	311	225	262	224	206	202	199	198
1982	199	201	426	709	638	645	716	525	254	206	202	201
1983	199	200	200	685	783	792	662	395	250	208	199	198
1984	198	201	494	553	465	283	248	216	204	202	198	198
1985	200	200	200	200	201	215	281	232	208	202	198	198
1986	200	204	206	510	744	789	548	305	234	207	200	200
1987	201	206	207	208	209	211	256	227	205	199	196	200
1988	204	208	211	573	649	393	294	231	209	201	197	202
1989	207	211	212	213	212	227	257	223	203	198	196	196
1990	197	201	204	205	206	245	288	235	208	202	198	200
1991	206	209	209	211	213	227	317	269	211	199	197	201
Avg	201	204	256	434	460	421	372	274	218	203	199	199
W/AN/BN	200	204	320	643	707	643	505	331	232	205	200	199
D/C	201	205	207	271	269	248	269	230	207	201	198	199

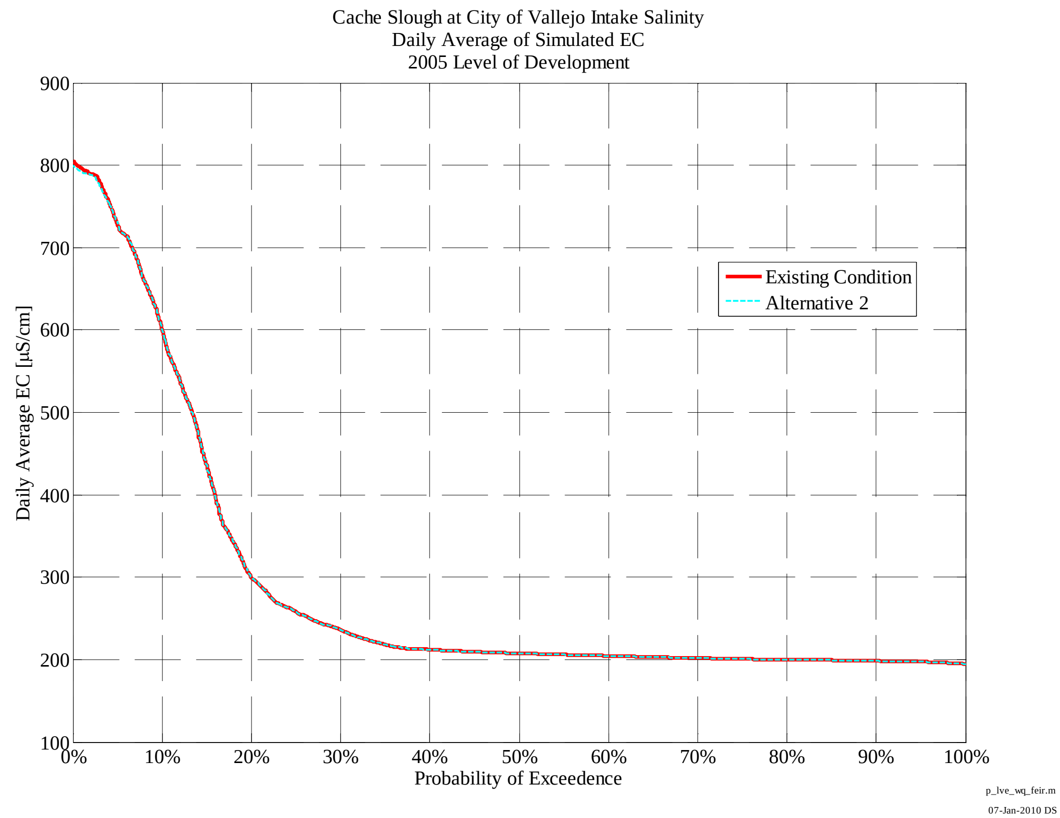
Percent (%) Change from Existing Condition for Cache Slough at City of Vallejo Intake
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.1%	-0.4%	-0.4%	-0.4%	-0.1%	0.0%	0.2%	-0.1%	0.1%	0.0%	0.0%	0.0%
1977	0.1%	-0.1%	-0.1%	-0.4%	-0.7%	-0.8%	0.0%	0.2%	0.1%	0.1%	0.0%	-0.1%
1978	0.1%	0.5%	0.5%	-2.0%	-1.2%	-0.5%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
1989	-0.1%	-0.2%	-0.3%	-0.3%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%	0.1%	0.0%	0.1%
1991	0.0%	0.0%	0.1%	0.1%	0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.0%
Avg	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.1%	0.0%	-0.2%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Cache Slough at City of Vallejo Intake Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
500
450
400
350
300
250
200
150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.13%
-0.11%
-0.09%
-0.01%
0.01%
0.01%
-0.00%
0.01%
0.00%
0.00%
-0.01%
-0.04%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
Existing Condition
Alternative 2
change in EC
900
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
Existing Condition
Alternative 2
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

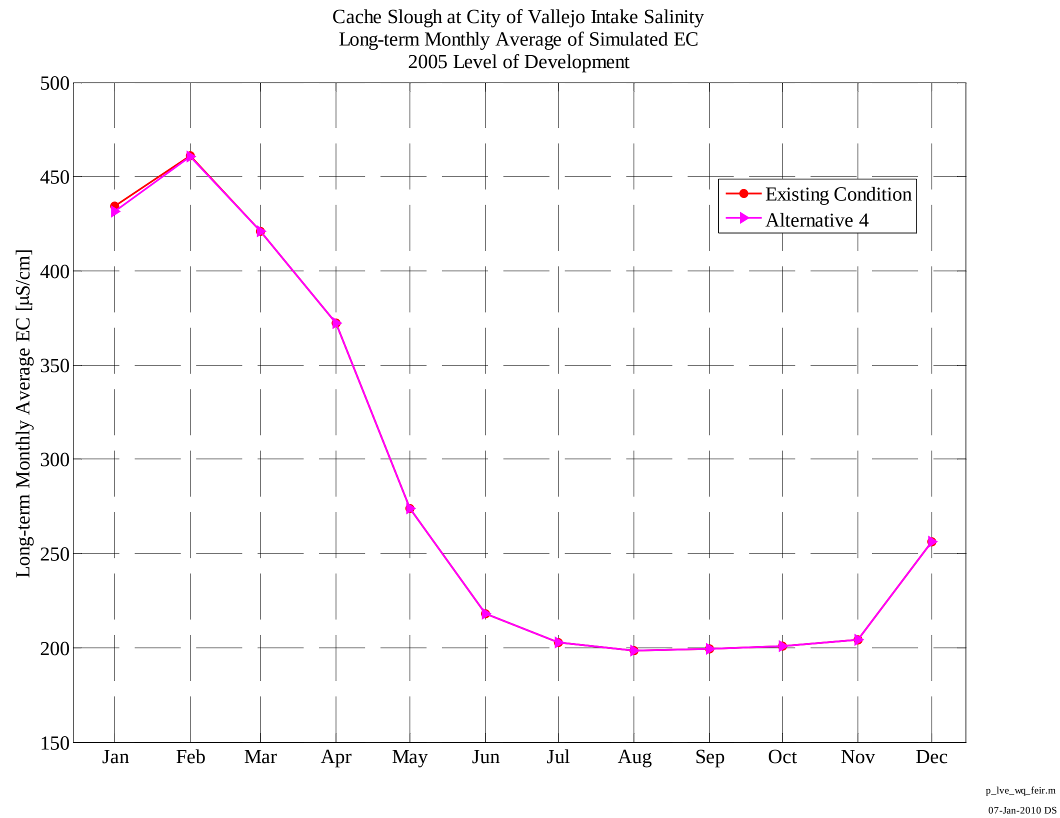
Alternative 4

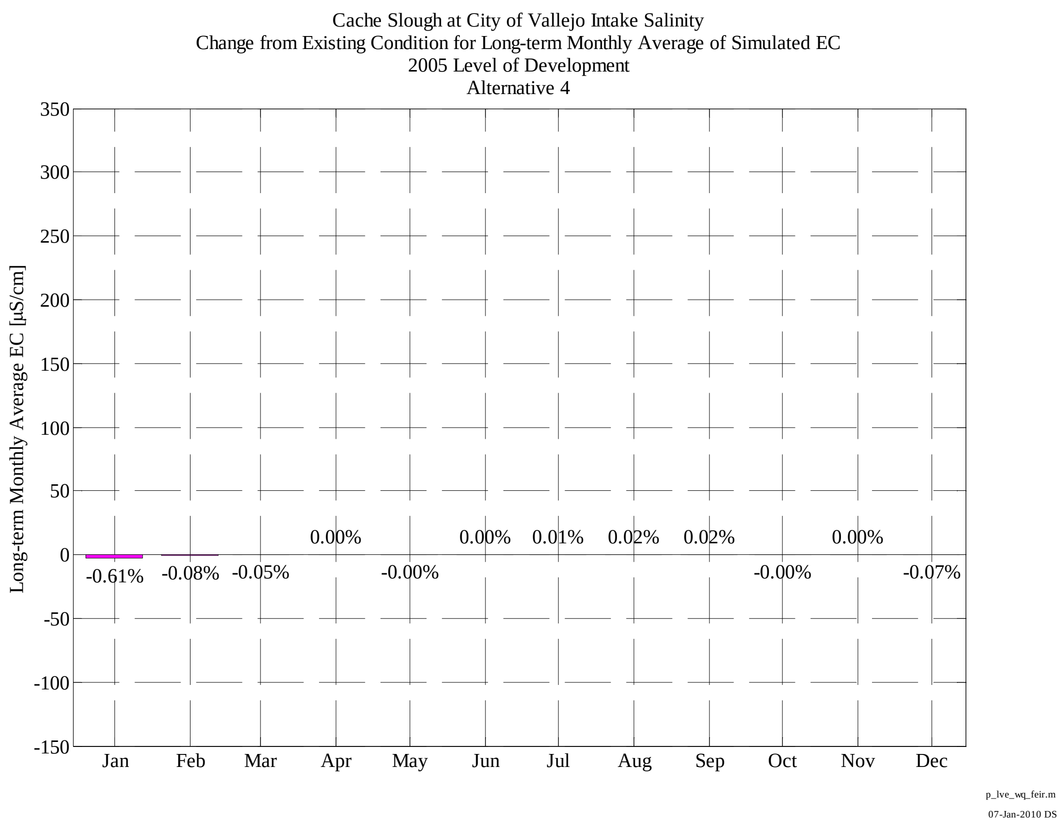
Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

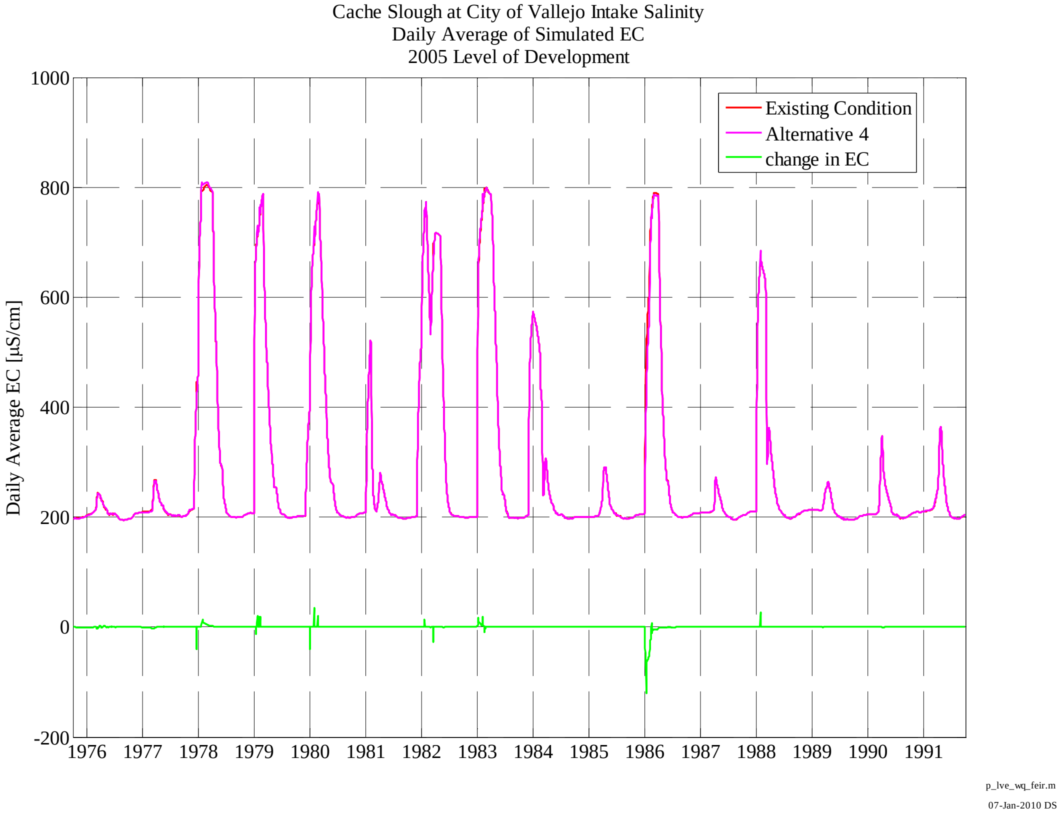
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	198	197	200	204	209	237	224	209	206	202	195	196
1977	198	206	208	209	209	249	239	217	206	203	203	202
1978	205	214	381	752	808	800	613	345	245	205	200	200
1979	201	205	207	675	767	559	354	259	215	204	199	199
1980	201	202	326	640	758	640	398	272	223	204	200	200
1981	200	205	208	414	311	225	262	224	206	202	199	198
1982	199	201	426	709	638	645	716	525	254	206	202	201
1983	199	200	200	686	784	792	662	395	250	208	199	198
1984	198	201	493	553	465	283	248	216	204	202	198	198
1985	200	200	200	200	201	215	281	232	208	202	198	198
1986	199	204	206	453	729	785	547	305	233	206	200	200
1987	201	206	207	208	209	211	256	227	205	199	196	200
1988	204	209	211	574	649	393	294	231	208	201	198	202
1989	207	211	213	213	213	227	257	223	203	198	196	196
1990	197	201	204	205	205	245	288	235	208	202	198	200
1991	206	209	209	211	213	228	317	269	211	199	197	202
Avg	201	204	256	432	461	421	372	274	218	203	199	199
W/AN/BN	200	204	320	638	707	643	505	331	232	205	200	199
D/C	201	205	207	271	269	248	269	230	207	201	198	199

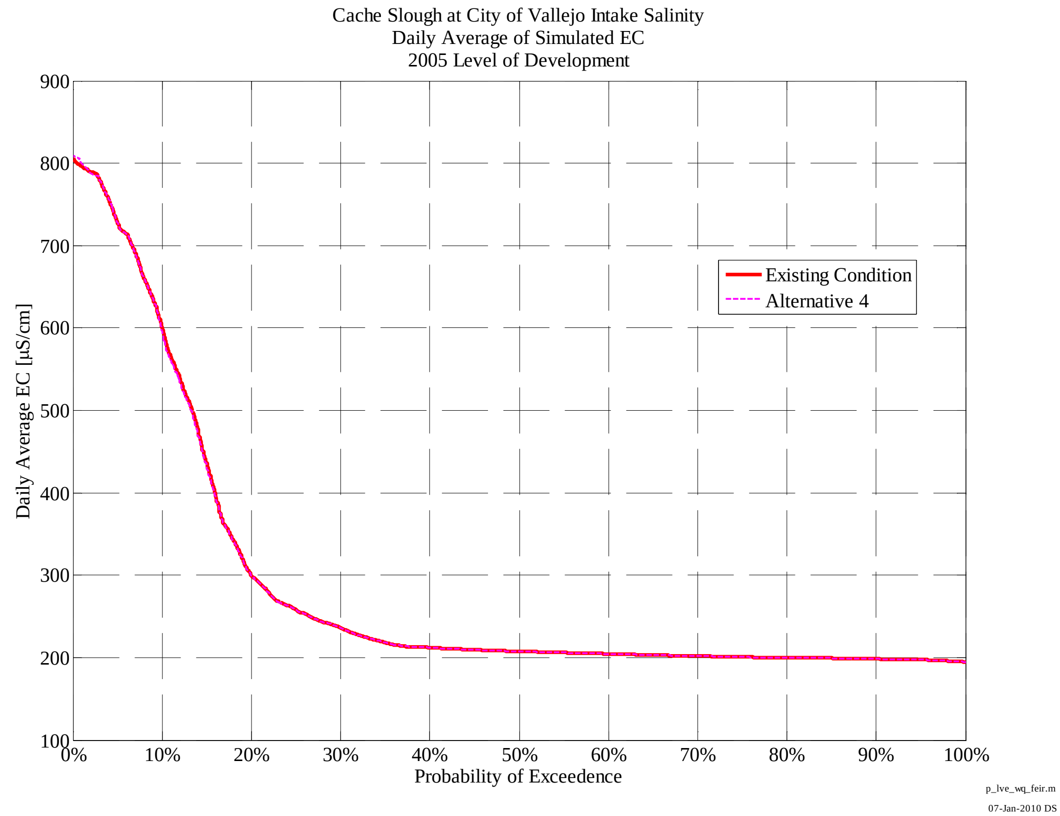
Percent (%) Change from Existing Condition for Cache Slough at City of Vallejo Intake
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.1%	-0.4%	-0.4%	-0.4%	-0.1%	0.0%	0.2%	-0.1%	0.1%	0.0%	0.0%	0.0%
1977	0.1%	0.1%	-0.1%	-0.3%	-0.7%	-0.9%	0.0%	0.2%	0.1%	0.1%	0.2%	0.0%
1978	0.1%	0.4%	-0.3%	0.7%	0.8%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	-0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	-0.1%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.1%	-0.1%
1986	-0.1%	0.0%	0.1%	-11.2%	-2.0%	-0.5%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%
1987	-0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.1%
1988	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.0%	0.0%
1991	0.0%	0.0%	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Avg	0.0%	0.0%	-0.1%	-0.6%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.1%	-0.1%	-1.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	-0.1%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Cache Slough at City of Vallejo Intake Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
500
450
400
350
300
250
200
150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.61%
-0.08%
-0.05%
0.00%
-0.00%
0.00%
0.01%
0.02%
0.02%
-0.00%
0.00%
-0.07%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2005 Level of Development
Existing Condition
Alternative 4
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Old River near Tracy Road Bridge

Existing Condition

Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	406	522	811	841	947	968	520	469	564	665	666	665
1977	568	669	848	905	956	976	650	611	665	689	704	710
1978	734	757	872	819	609	593	291	265	405	556	516	471
1979	512	532	758	726	400	336	386	315	452	632	572	555
1980	473	569	801	379	343	230	345	372	389	462	469	491
1981	458	521	751	795	929	913	454	383	605	665	650	632
1982	535	638	806	774	332	321	188	180	378	417	363	257
1983	196	218	276	325	300	255	199	201	213	232	197	237
1984	357	172	236	304	237	340	343	321	494	604	546	470
1985	412	511	791	796	837	915	434	403	613	666	631	600
1986	527	602	792	872	539	287	260	260	417	582	508	452
1987	409	455	733	808	946	940	442	380	609	669	612	629
1988	565	649	838	897	954	972	564	497	592	667	654	682
1989	607	681	829	904	955	961	679	594	659	673	666	643
1990	679	701	830	953	962	970	739	647	619	670	727	726
1991	706	706	854	956	963	960	719	654	623	670	764	732
Avg	509	557	739	753	700	684	451	409	518	595	578	559
W/AN/BN	476	498	649	600	394	338	288	273	392	498	453	419
D/C	534	602	809	873	939	953	578	515	616	670	675	669

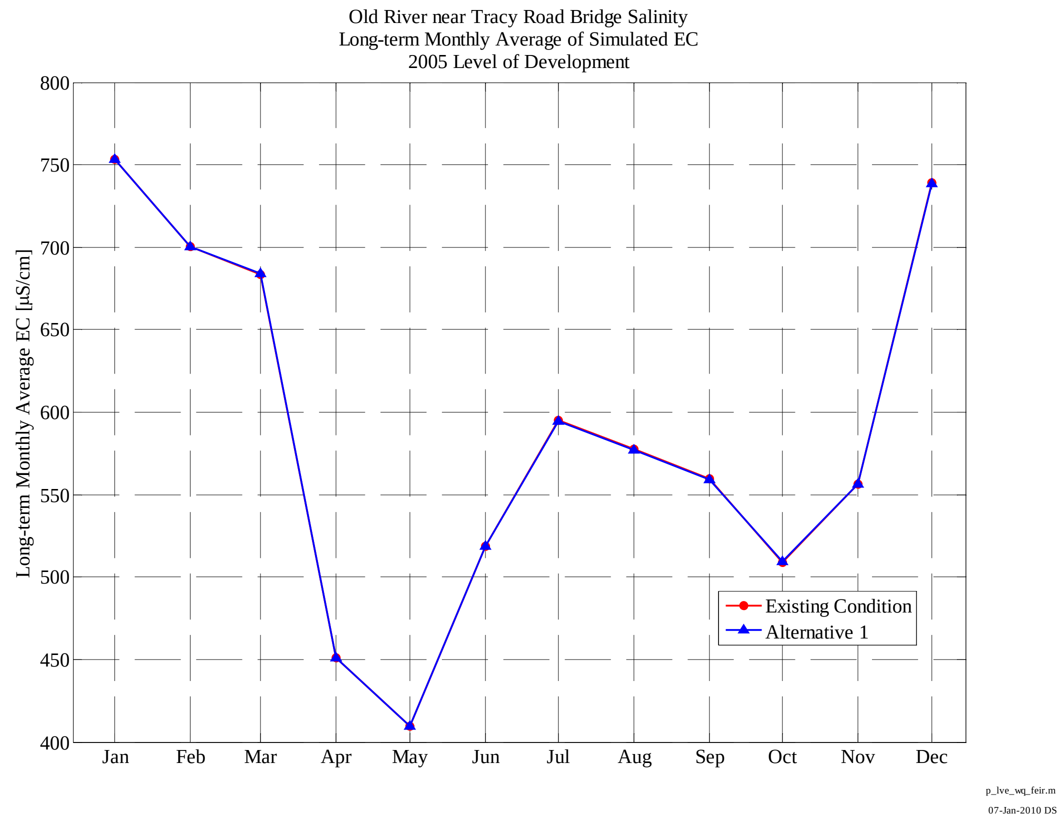
Alternative 1

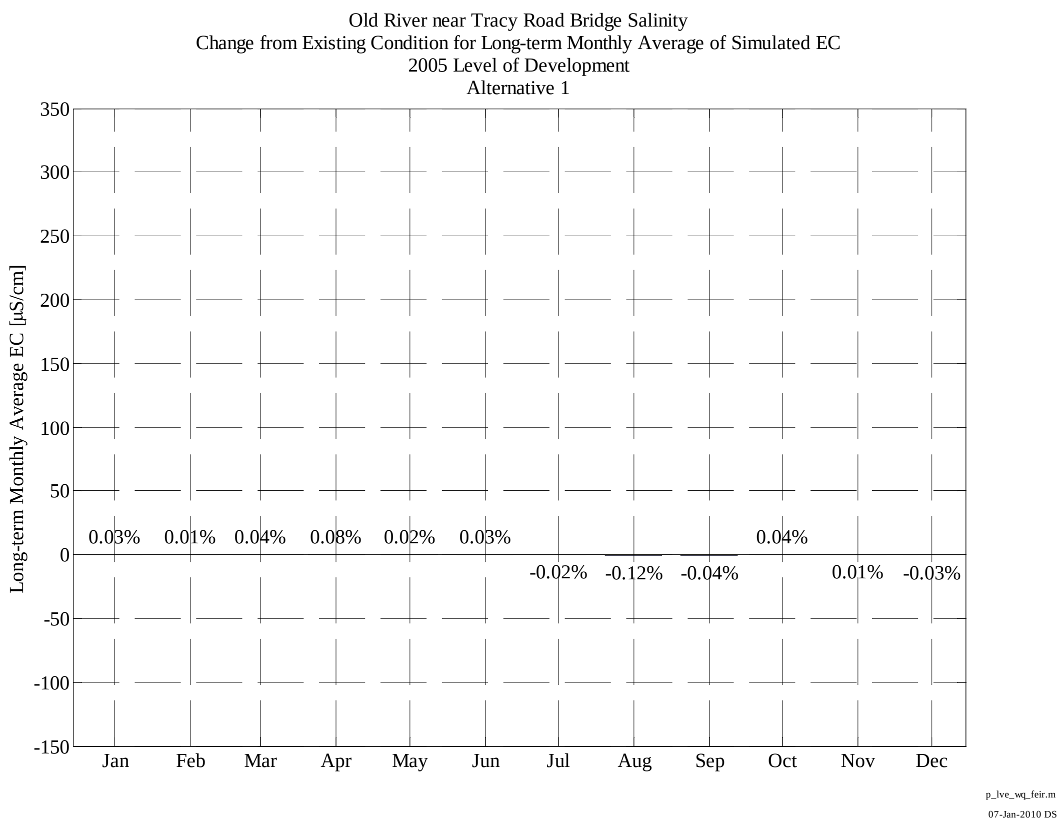
Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

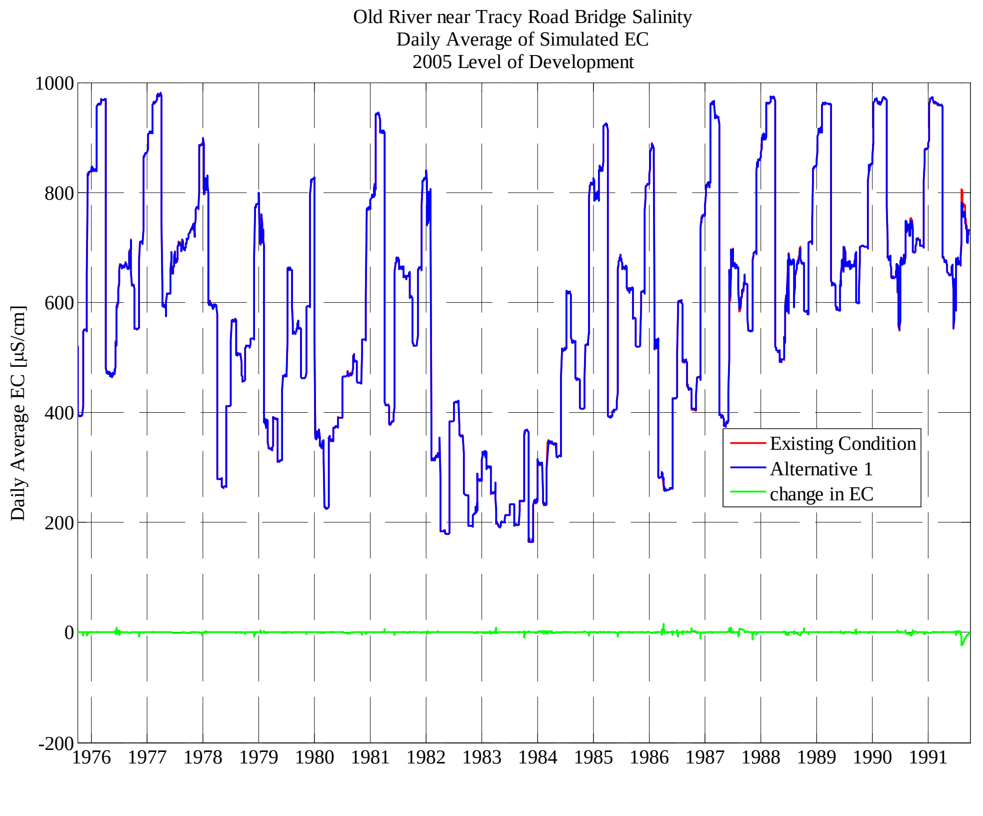
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	406	522	810	841	947	968	520	469	566	665	666	665
1977	568	668	847	905	956	976	650	611	664	688	704	710
1978	734	757	871	819	609	593	291	265	405	556	516	471
1979	512	532	758	726	400	336	387	315	452	632	572	555
1980	473	569	801	379	343	230	346	372	389	462	468	491
1981	459	521	750	795	929	913	454	383	604	665	650	632
1982	535	638	806	775	332	322	188	180	378	417	363	257
1983	196	218	276	324	300	255	199	201	213	232	197	237
1984	357	173	236	306	238	341	343	321	494	604	546	470
1985	412	512	791	796	837	915	434	403	613	666	631	600
1986	527	602	793	872	539	288	263	261	417	582	509	453
1987	411	455	732	808	945	940	442	380	612	669	615	632
1988	566	648	837	897	954	972	564	497	591	667	653	679
1989	608	681	829	904	955	961	680	594	659	673	666	643
1990	679	702	830	953	962	970	739	647	620	670	726	724
1991	706	706	853	956	963	960	720	654	623	670	749	727
Avg	509	557	739	753	700	684	451	409	519	595	577	559
W/AN/BN	476	499	649	600	394	338	288	274	392	498	453	419
D/C	535	602	809	873	939	953	578	515	617	670	673	668

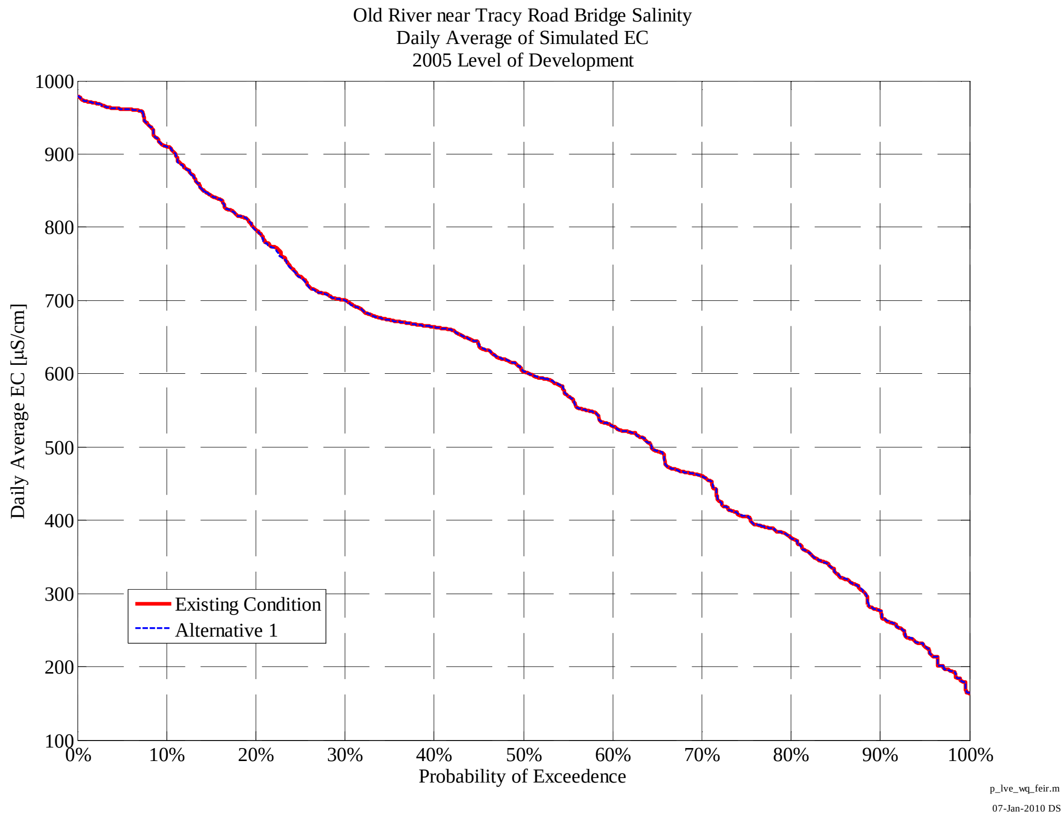
Percent (%) Change from Existing Condition for Old River near Tracy Road Bridge Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	-0.1%
1977	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.1%	-0.1%
1978	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.2%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
1984	-0.2%	0.5%	0.0%	0.4%	0.3%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.9%	0.2%	0.0%	0.0%	0.2%	0.2%
1987	0.5%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.5%	0.4%
1988	0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	-0.1%	-0.4%
1989	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	-0.1%	-0.3%
1991	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	-2.0%	-0.6%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%
W/AN/BN	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	-0.1%


Old River near Tracy Road Bridge Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
800
750
700
650
600
550
500
450
400
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.03%
0.01%
0.04%
0.08%
0.02%
0.03%
-0.02%
-0.12%
-0.04%
0.04%
0.01%
-0.03%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

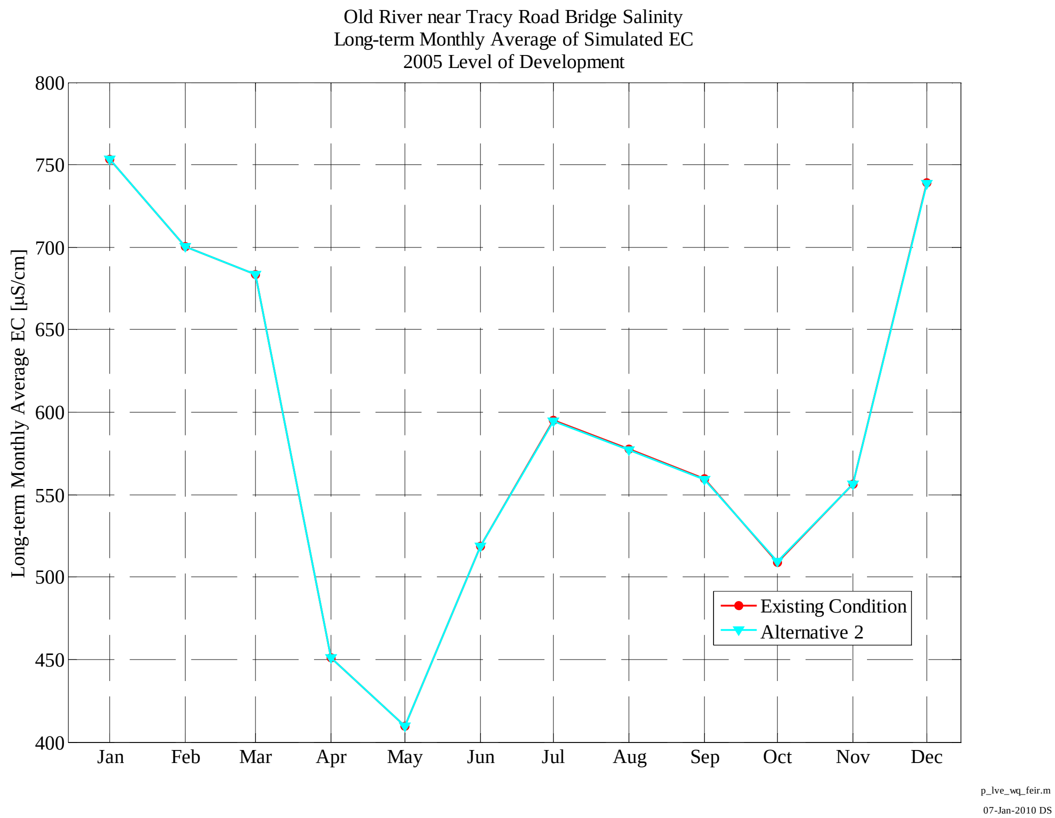
Alternative 2

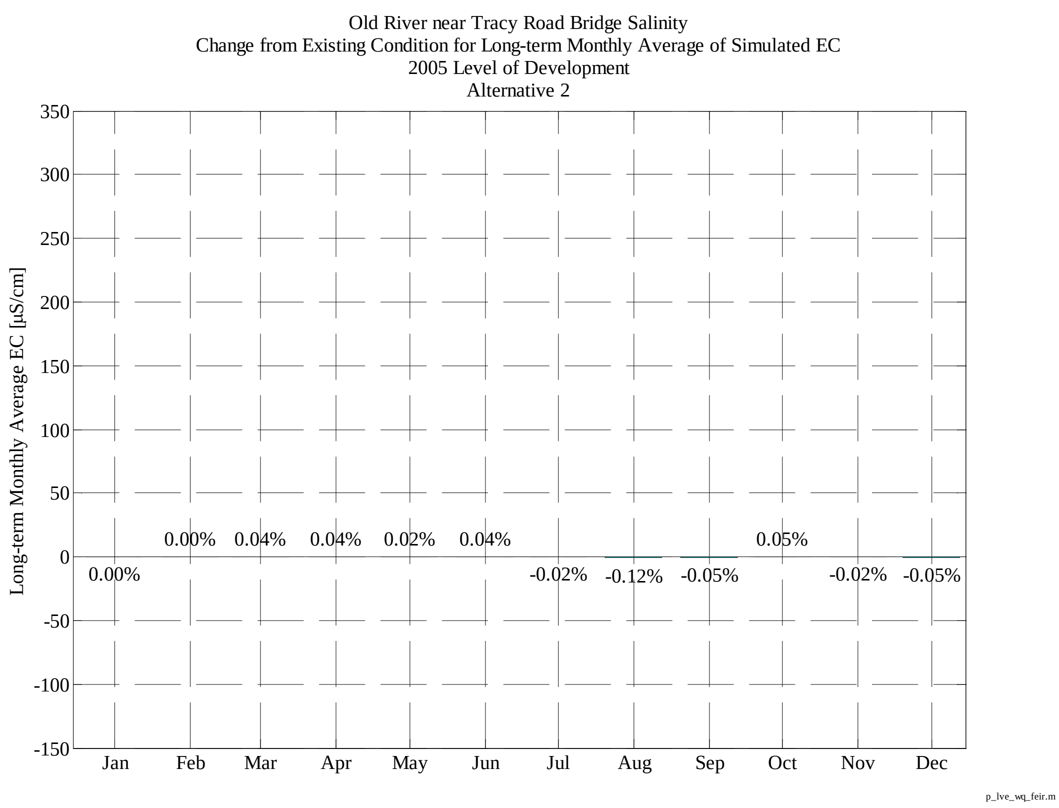
**Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development**

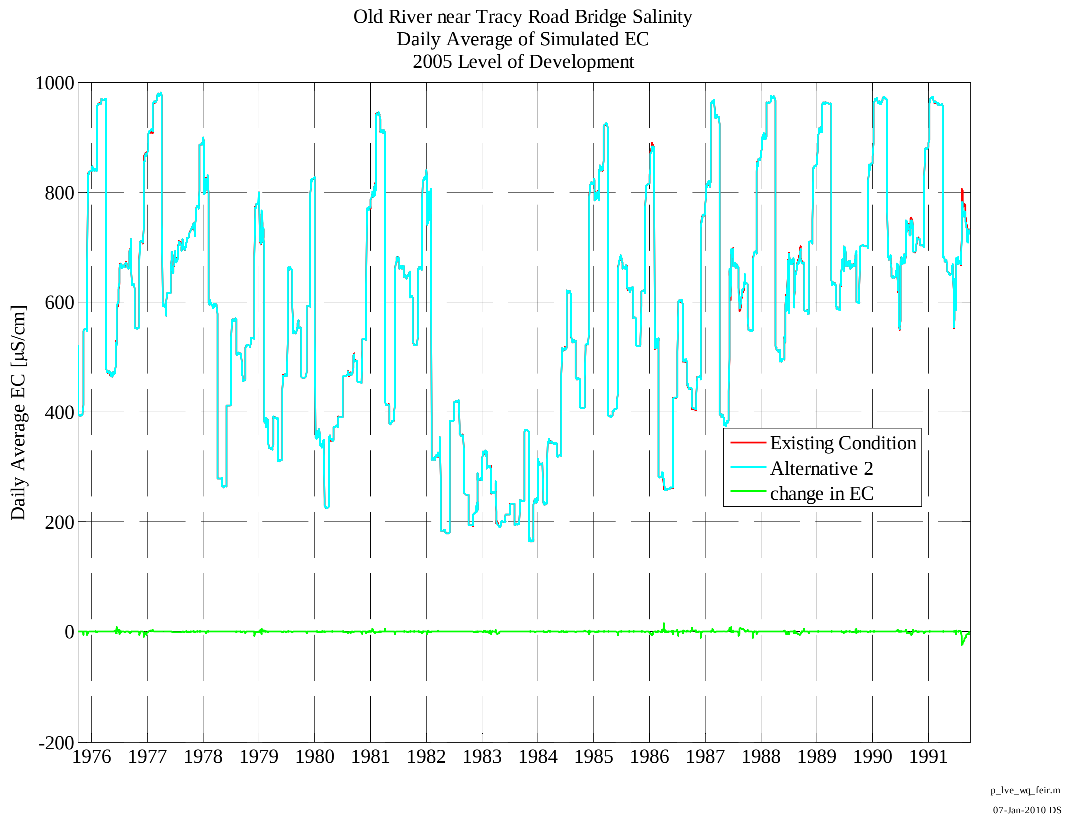
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	406	522	810	841	947	968	520	469	566	665	666	665
1977	568	669	844	906	957	976	650	611	664	688	704	710
1978	734	757	872	819	609	593	291	265	405	556	516	471
1979	512	532	757	727	400	336	387	315	452	632	572	555
1980	473	569	801	379	343	230	346	372	389	462	468	491
1981	459	521	751	796	928	913	454	383	604	665	650	632
1982	535	638	806	774	332	322	188	180	378	417	363	257
1983	196	218	276	325	300	255	198	201	213	232	197	237
1984	357	172	236	305	237	341	343	321	494	604	546	470
1985	412	512	791	796	837	915	434	403	613	666	631	600
1986	527	602	793	869	539	288	263	261	417	582	509	453
1987	411	455	732	809	947	940	442	380	612	669	615	632
1988	566	649	837	897	954	972	564	497	591	667	652	679
1989	608	681	829	904	955	961	680	594	659	673	666	643
1990	679	702	830	953	962	970	739	647	620	670	726	724
1991	706	706	853	956	963	960	720	654	623	670	749	728
Avg	509	556	739	753	701	684	451	410	519	595	577	559
W/AN/BN	476	498	649	600	394	338	288	274	392	498	453	419
D/C	535	602	809	873	939	953	578	515	617	670	673	668

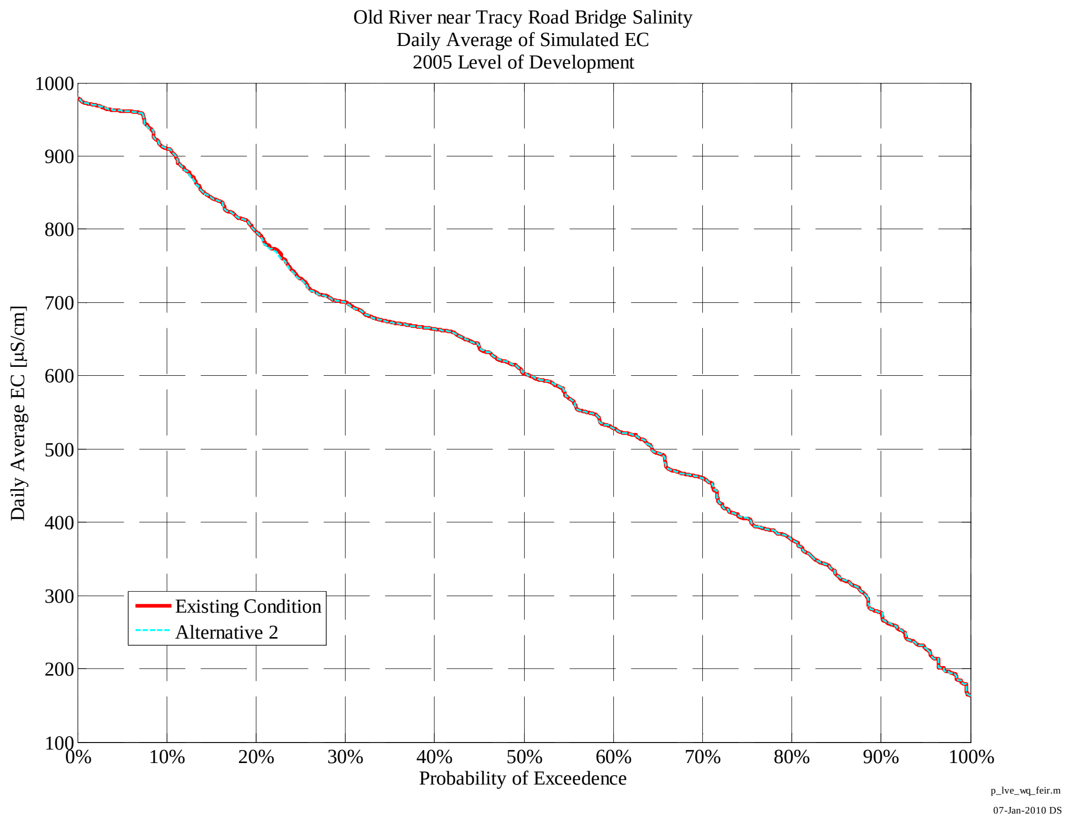
**Percent (%) Change from Existing Condition for Old River near Tracy Road Bridge
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development**

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	-0.1%
1977	0.0%	-0.1%	-0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.1%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.2%	0.0%
1981	0.0%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	-0.1%	0.0%	0.0%	-0.2%	0.1%	-0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	-0.3%	0.0%	0.2%	0.9%	0.2%	0.0%	0.0%	0.2%	0.2%
1987	0.5%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.5%	0.0%	0.5%	0.4%
1988	0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	-0.3%	-0.5%
1989	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	-0.1%	-0.3%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	-1.9%	-0.6%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	-0.1%


Old River near Tracy Road Bridge Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
800
750
700
650
600
550
500
450
400
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.04%
0.04%
0.02%
0.04%
-0.02%
-0.12%
-0.05%
0.05%
-0.02%
-0.05%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

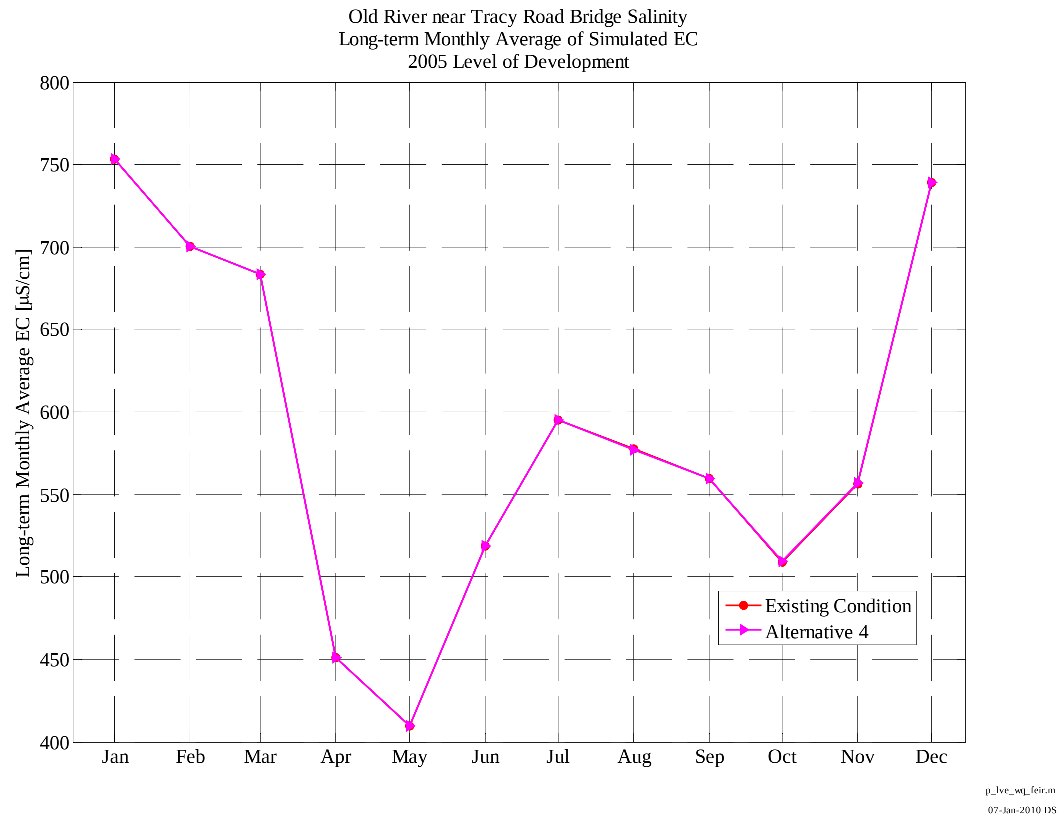
Alternative 4

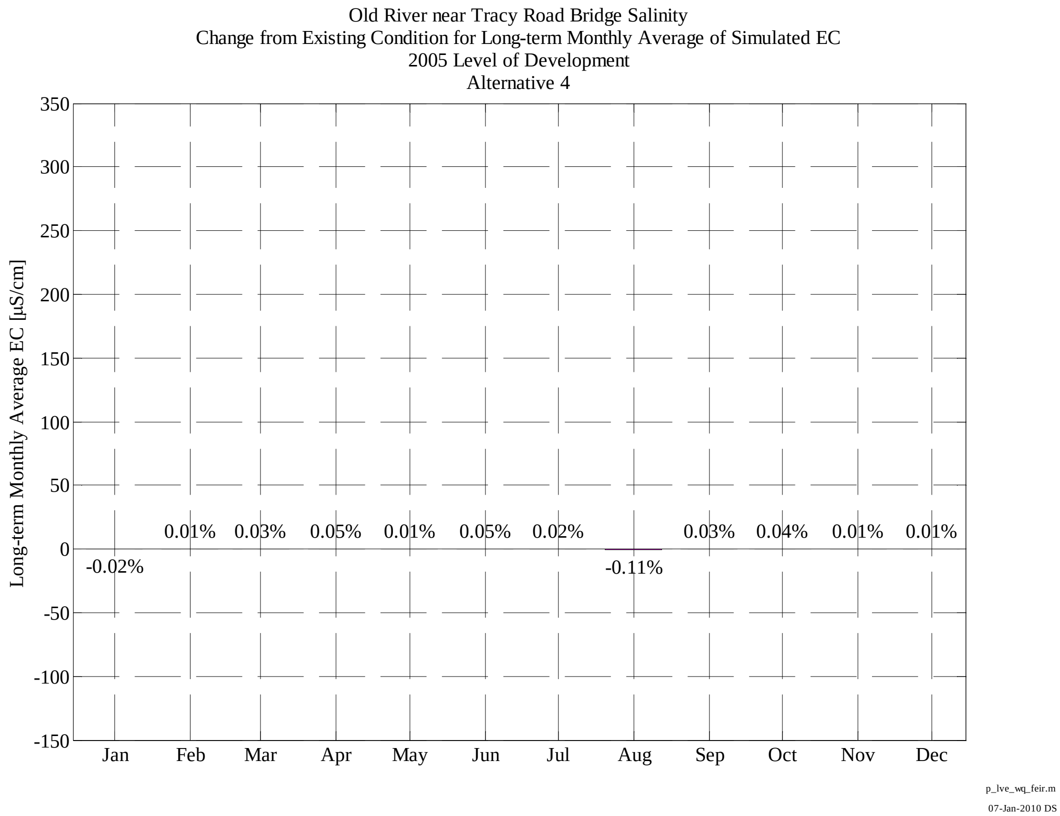
Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

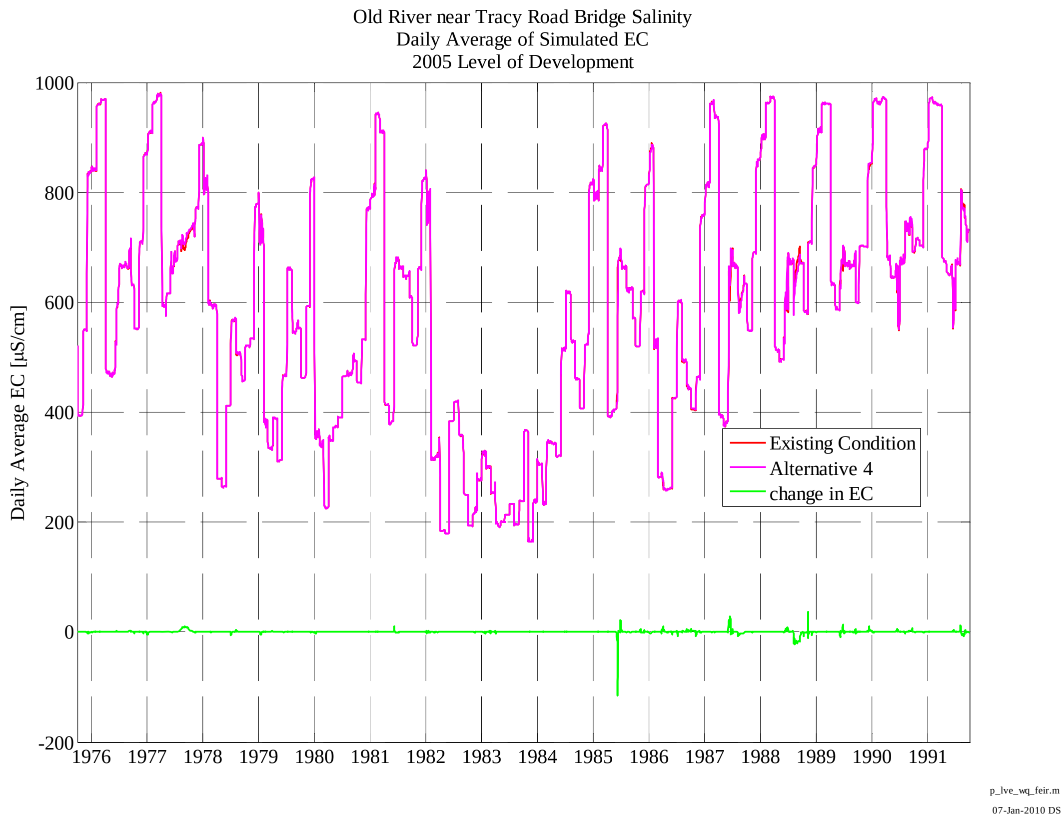
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	406	522	809	842	948	968	520	469	565	665	666	666
1977	568	669	847	905	956	976	650	611	665	690	711	719
1978	736	757	872	819	609	593	291	265	405	555	518	471
1979	512	532	758	725	400	336	387	315	452	632	572	555
1980	473	569	801	378	343	230	345	372	389	462	469	491
1981	458	521	751	795	929	913	454	383	605	665	650	632
1982	535	638	806	774	332	321	188	180	378	417	363	257
1983	196	218	276	325	300	255	199	201	213	232	197	237
1984	357	172	236	304	237	341	343	321	494	604	546	470
1985	412	511	792	796	837	915	434	403	601	667	631	600
1986	527	603	793	870	539	288	263	261	417	582	510	453
1987	411	455	733	808	946	940	442	380	618	669	609	628
1988	565	649	838	897	954	972	564	497	595	668	637	672
1989	606	681	829	904	955	961	679	594	659	673	666	643
1990	679	702	833	953	962	970	739	647	620	670	727	728
1991	706	706	853	956	963	960	719	654	624	670	762	733
Avg	509	557	739	753	701	684	451	409	519	595	577	560
W/AN/BN	477	498	649	599	394	338	288	274	392	498	453	419
D/C	535	602	809	873	939	953	578	515	617	671	673	669

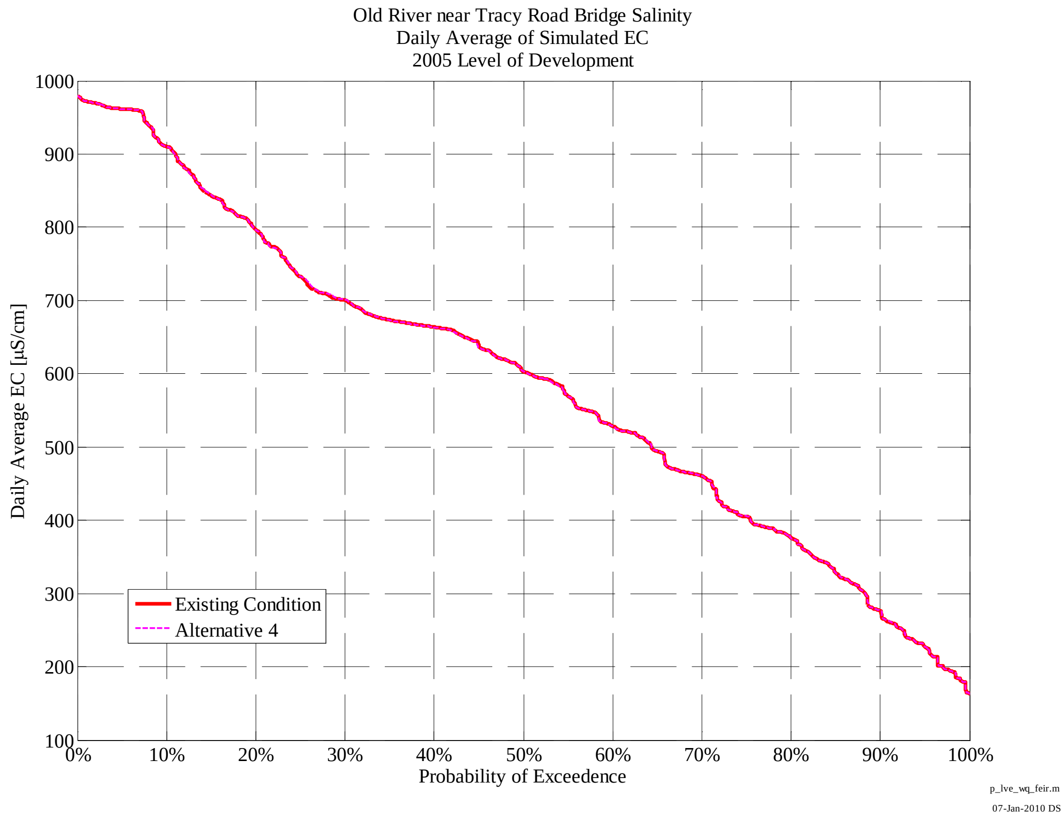
Percent (%) Change from Existing Condition for Old River near Tracy Road Bridge
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	-0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.2%
1977	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.3%
1978	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.3%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-2.0%	0.2%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	-0.2%	0.0%	0.2%	0.8%	0.2%	0.0%	0.0%	0.2%	0.4%
1987	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	-0.5%	-0.2%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.1%	-2.5%	-1.5%
1989	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
1990	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.3%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	-0.2%	0.1%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	0.0%


Old River near Tracy Road Bridge Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
800
750
700
650
600
550
500
450
400
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.02%
0.01%
0.03%
0.05%
0.01%
0.05%
0.02%
-0.11%
0.03%
0.04%
0.01%
0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Old River near Middle River

Existing Condition

Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	394	538	825	826	948	959	478	454	651	657	636	628
1977	549	697	862	892	950	962	588	607	664	667	658	717
1978	710	761	877	772	581	573	281	258	404	555	493	451
1979	510	528	768	685	370	327	380	305	441	645	537	545
1980	461	583	813	347	317	222	339	365	384	458	453	485
1981	448	524	763	774	926	903	419	369	648	655	638	606
1982	520	650	814	719	314	303	185	176	377	413	346	250
1983	192	207	273	276	285	232	189	199	211	229	190	235
1984	359	166	227	296	223	334	333	309	490	605	518	453
1985	404	506	800	774	829	913	397	389	648	656	612	567
1986	515	608	804	852	486	278	255	254	416	587	482	436
1987	398	455	747	792	946	925	398	366	648	657	654	628
1988	545	678	849	878	949	961	520	484	652	662	656	662
1989	576	698	839	896	950	953	630	575	656	660	654	598
1990	692	697	845	949	952	958	671	639	666	662	655	680
1991	704	696	870	950	953	952	671	641	662	662	656	716
Avg	499	562	749	730	686	672	421	399	538	589	552	541
W/AN/BN	467	501	654	564	368	324	280	267	389	499	431	408
D/C	523	610	822	859	934	943	530	503	655	660	646	645

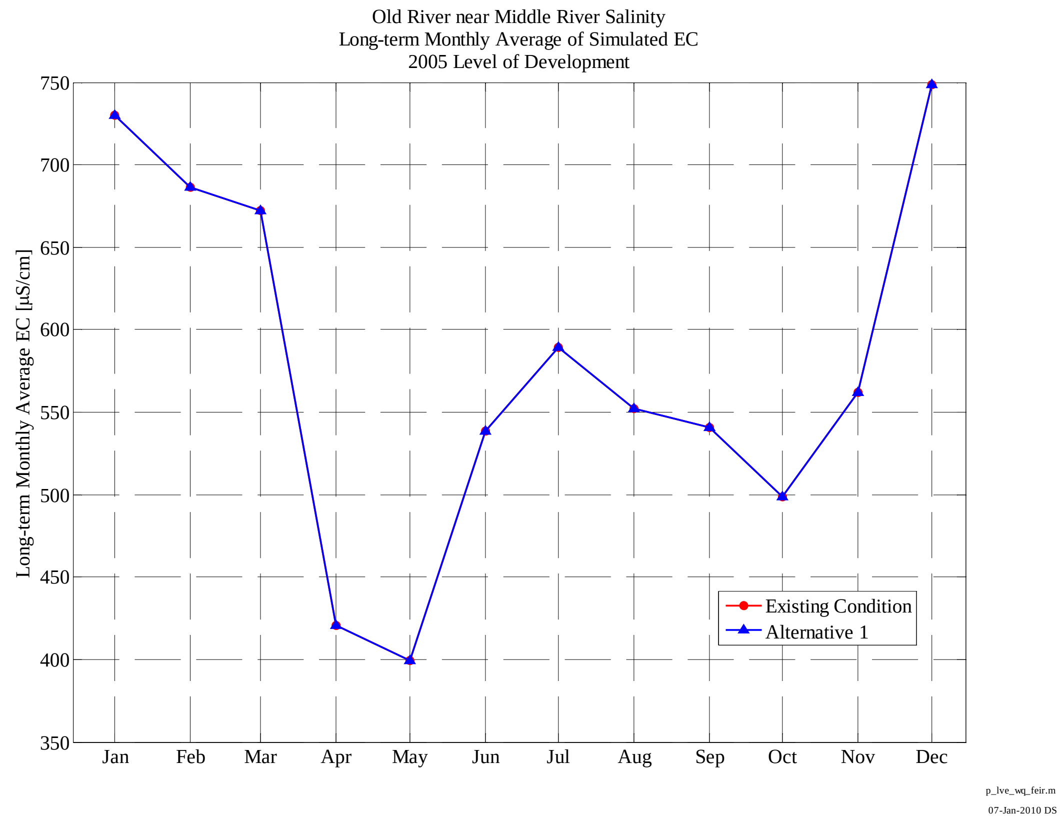
Alternative 1

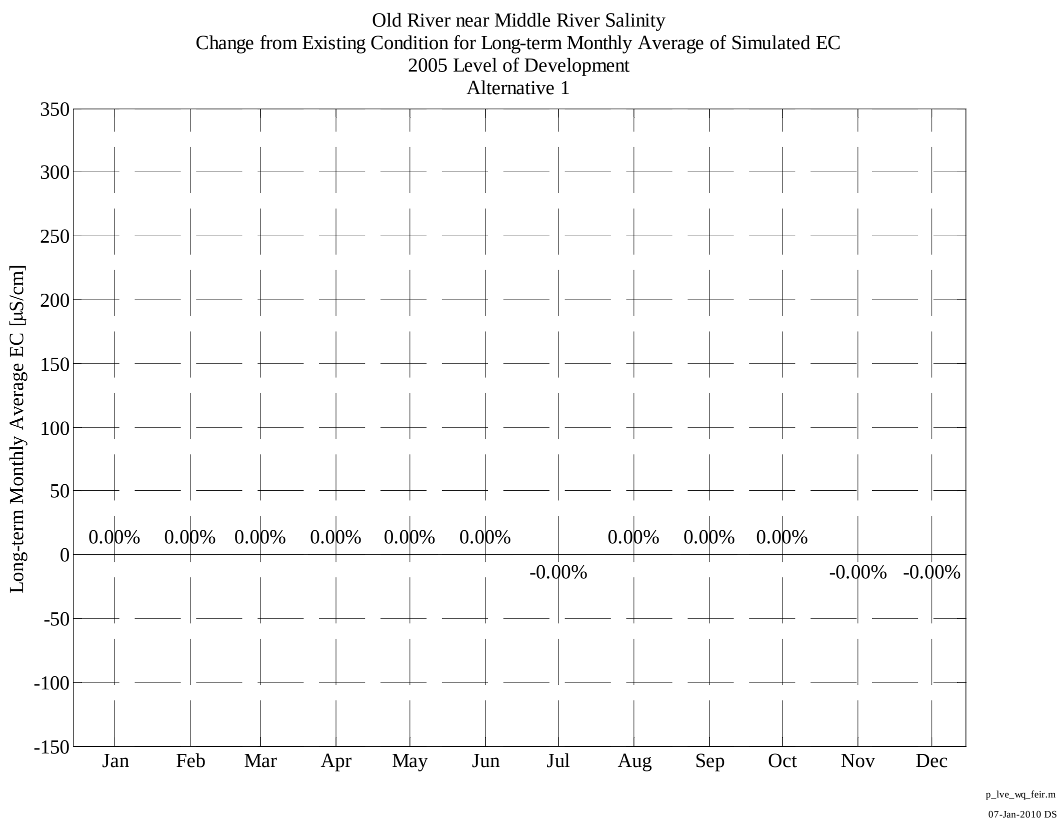
Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

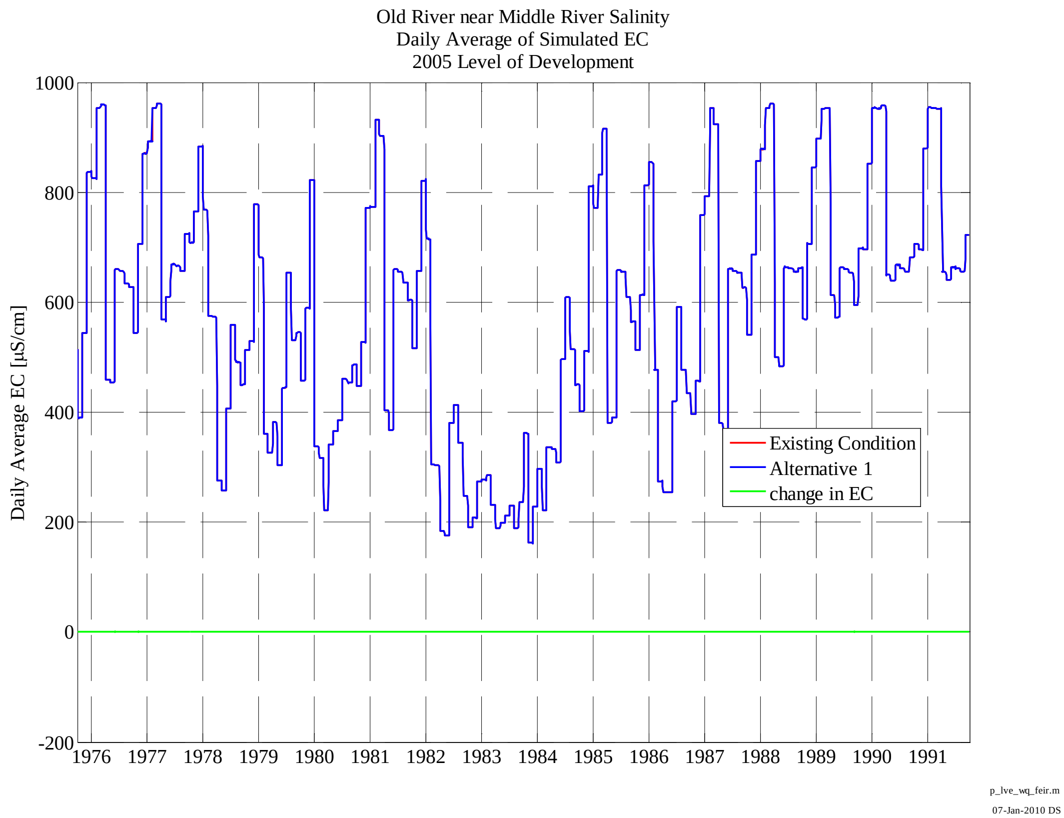
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	394	538	825	826	948	959	478	454	651	657	636	628
1977	549	697	862	892	950	962	588	607	664	667	658	717
1978	710	761	877	772	581	573	281	258	404	555	493	451
1979	510	528	768	685	370	327	380	305	441	645	537	545
1980	461	583	813	347	317	222	339	365	384	458	453	485
1981	448	524	763	774	926	903	419	369	648	655	638	606
1982	520	650	814	719	314	303	185	176	377	413	346	250
1983	192	207	273	276	285	232	189	199	211	229	190	235
1984	359	166	227	296	223	334	333	309	490	605	518	453
1985	404	506	800	774	829	913	397	389	648	656	612	567
1986	515	608	804	852	486	278	255	254	416	587	482	436
1987	398	455	747	792	946	925	398	366	648	657	654	628
1988	545	678	849	878	949	961	520	484	652	662	656	662
1989	576	698	839	896	950	953	630	575	656	660	654	598
1990	692	697	845	949	952	958	671	639	665	662	655	680
1991	704	696	870	950	953	952	671	641	662	662	656	716
Avg	499	562	749	730	686	672	421	399	538	589	552	541
W/AN/BN	467	501	654	564	368	324	280	267	389	499	431	408
D/C	523	610	822	859	934	943	530	503	655	660	646	645

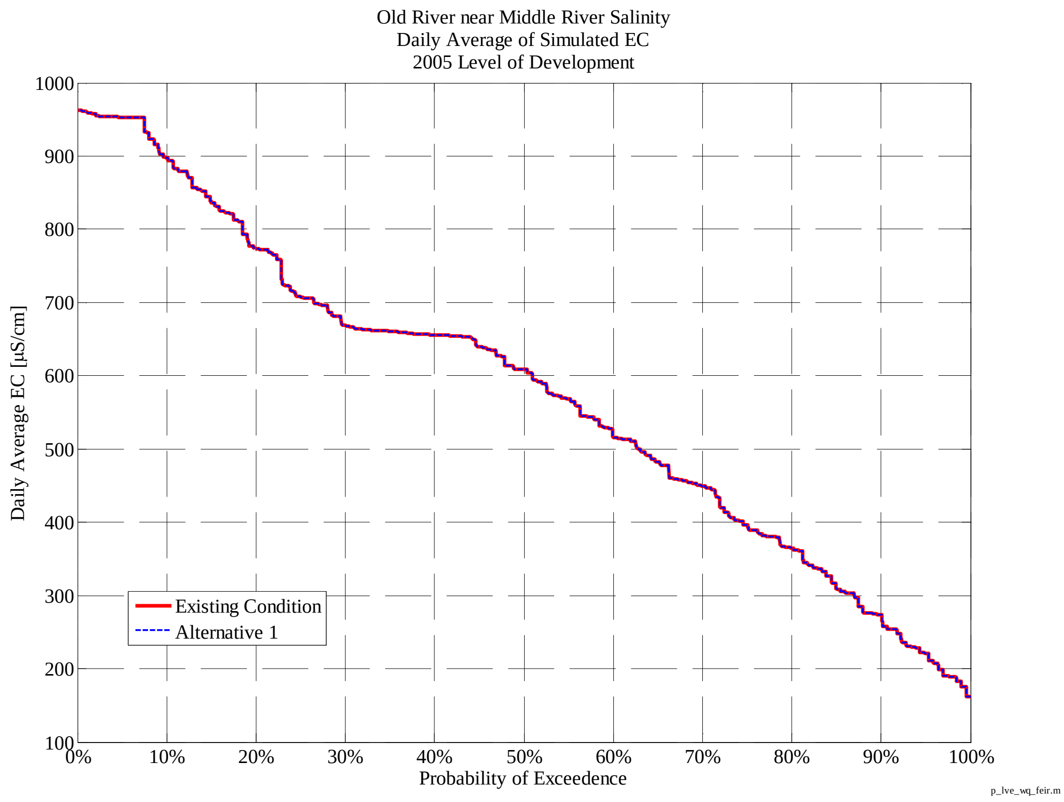
Percent (%) Change from Existing Condition for Old River near Middle River Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Old River near Middle River Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
0.00%
0.00%
0.00%
-0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

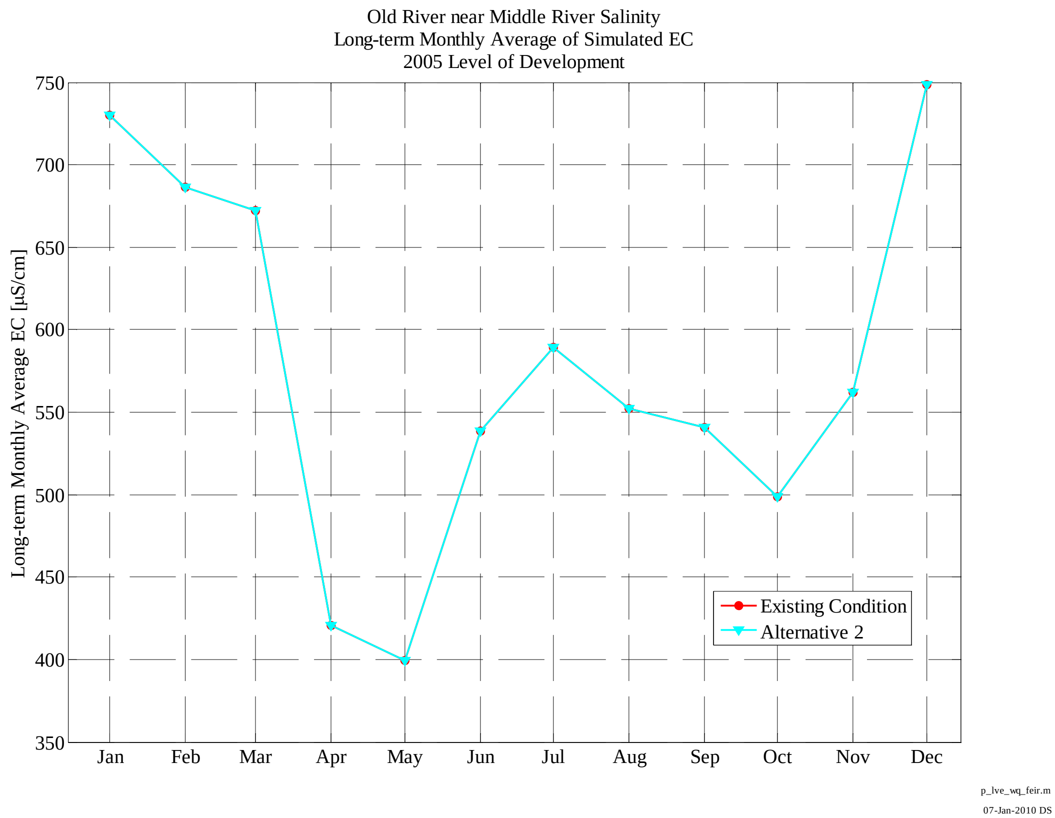
Alternative 2

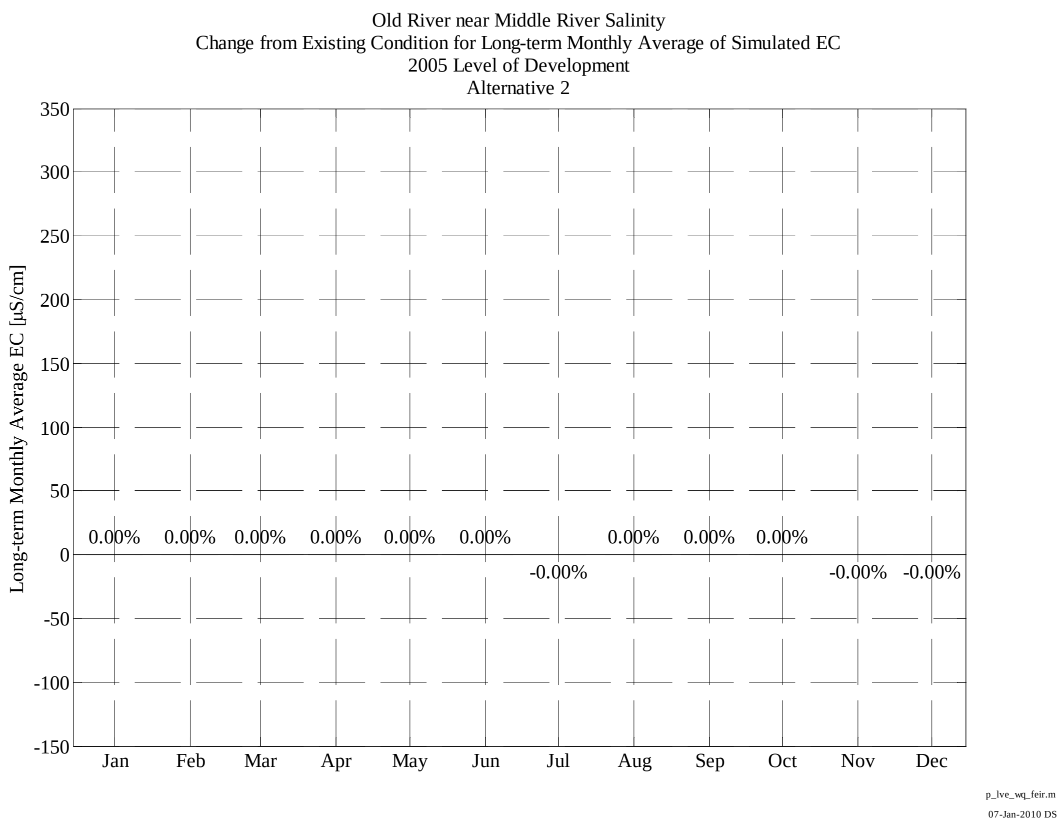
Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

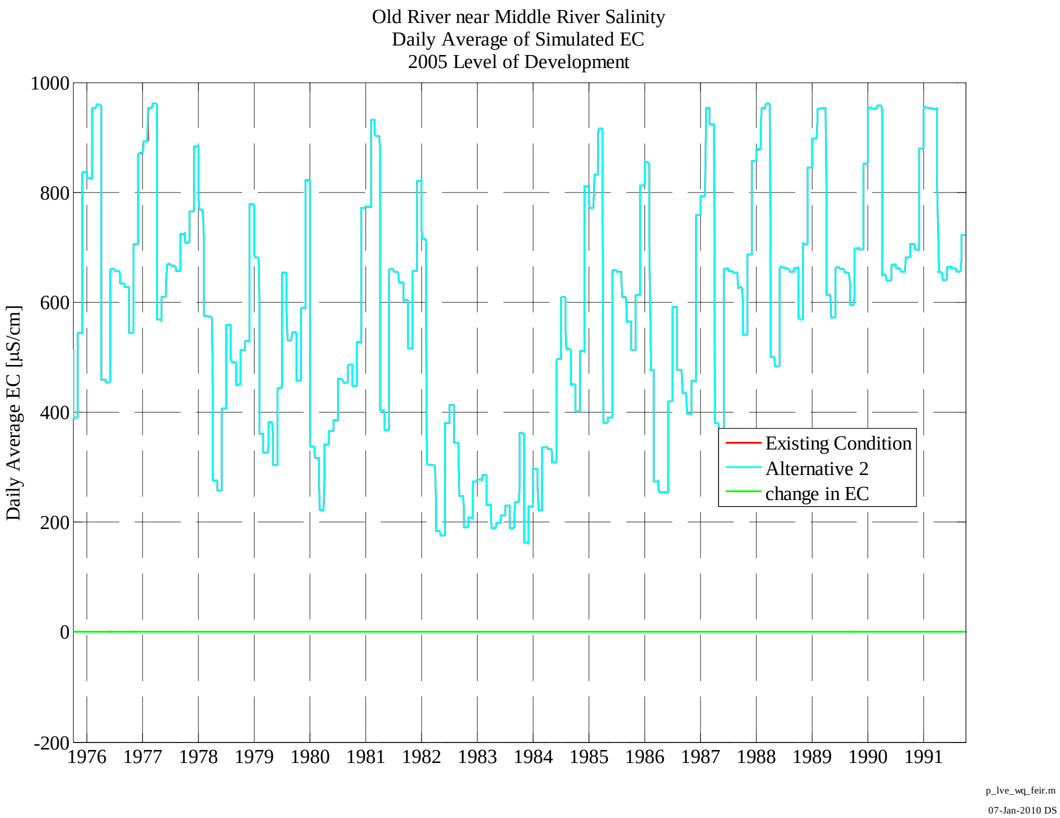
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	394	538	825	826	948	959	478	454	651	657	636	628
1977	549	697	862	892	950	962	588	607	664	667	658	717
1978	710	761	877	772	581	573	281	258	404	555	493	451
1979	510	528	768	685	370	327	380	305	441	645	537	545
1980	461	583	813	347	317	222	339	365	384	458	453	485
1981	448	524	763	774	926	903	419	369	648	655	638	606
1982	520	650	814	719	314	303	185	176	377	413	346	250
1983	192	207	273	276	285	232	189	199	211	229	190	235
1984	359	166	227	296	223	334	333	309	490	605	518	453
1985	404	506	800	774	829	913	397	389	648	656	612	567
1986	515	608	804	852	486	278	255	254	416	587	482	436
1987	398	455	747	792	946	925	398	366	648	657	654	628
1988	545	678	849	878	949	961	520	484	652	662	656	662
1989	576	698	839	896	950	953	630	575	656	660	654	598
1990	692	697	845	949	952	958	671	639	665	662	655	680
1991	704	696	870	950	953	952	671	641	662	662	656	716
Avg	499	562	749	730	686	672	421	399	538	589	552	541
W/AN/BN	467	501	654	564	368	324	280	267	389	499	431	408
D/C	523	610	822	859	934	943	530	503	655	660	646	645

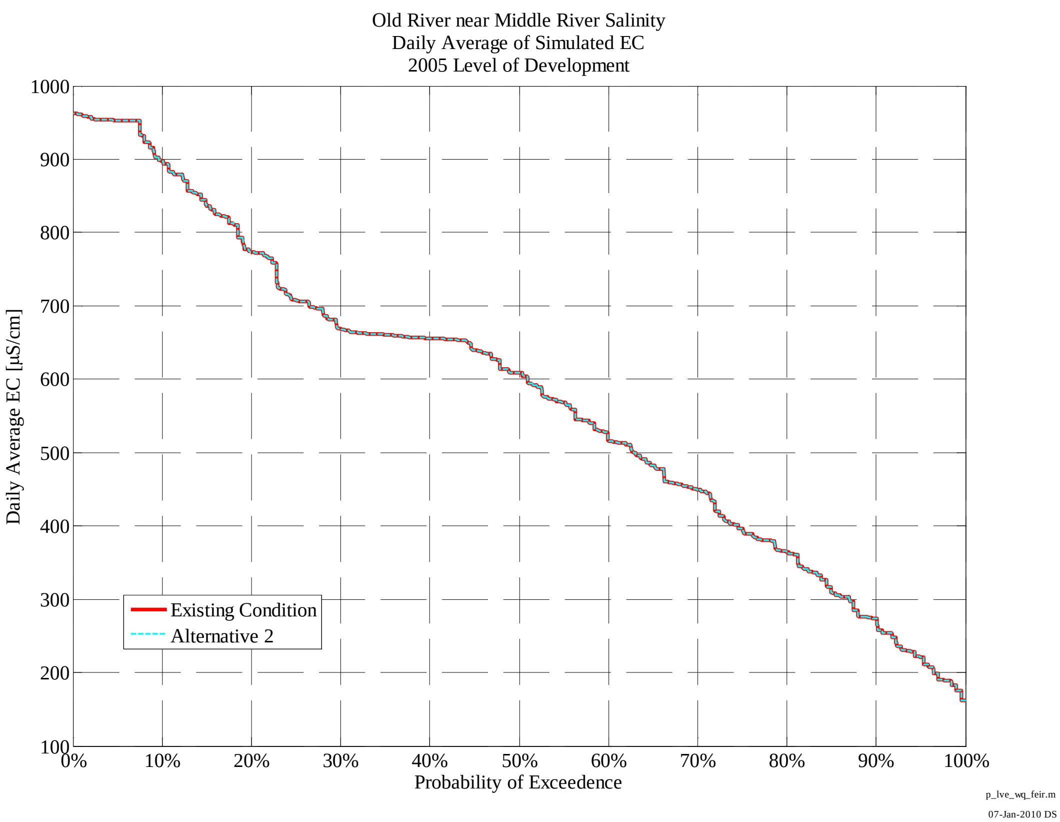
Percent (%) Change from Existing Condition for Old River near Middle River Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Old River near Middle River Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
0.00%
0.00%
0.00%
-0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

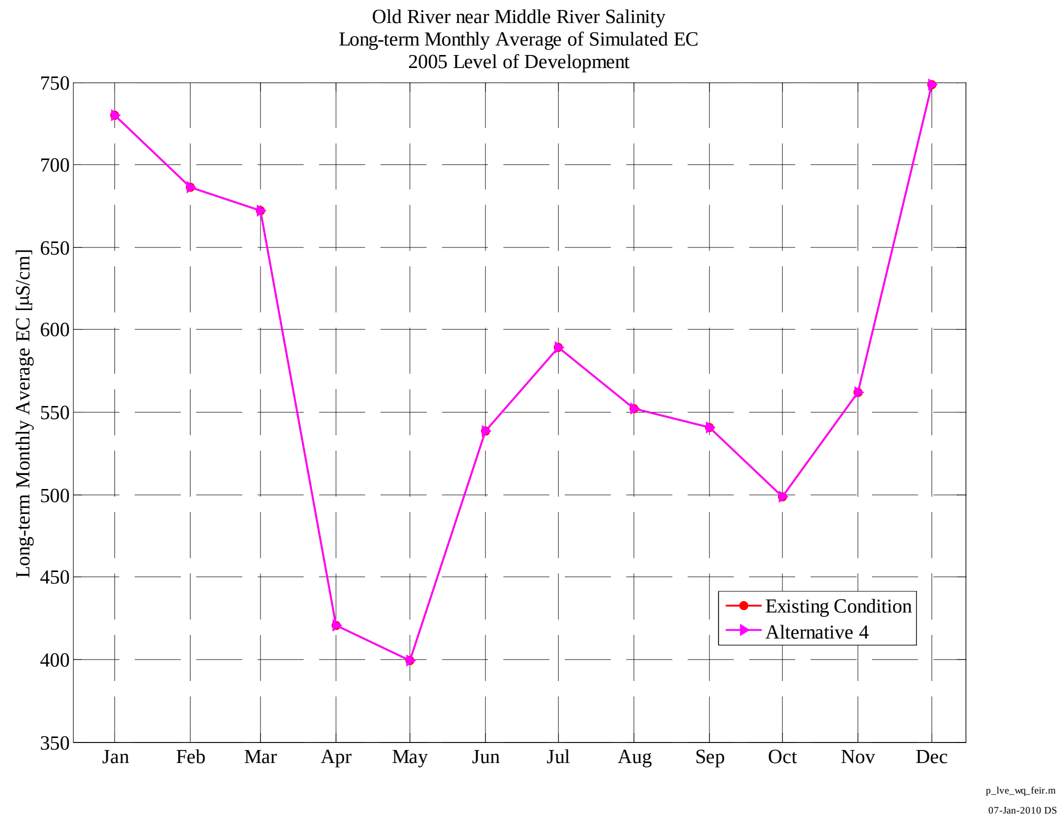
Alternative 4

Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

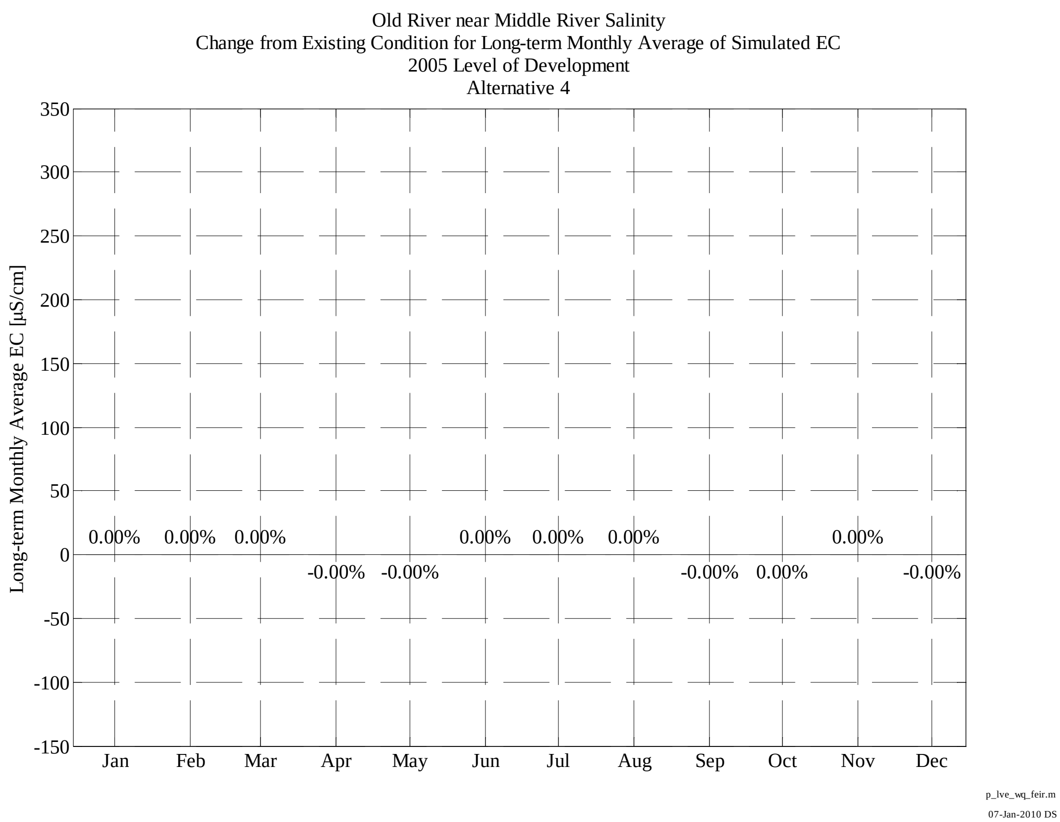
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	394	538	825	826	948	959	478	454	651	657	636	628
1977	549	697	862	892	950	962	588	607	664	667	658	717
1978	710	761	877	772	581	573	281	258	404	555	493	451
1979	510	528	768	685	370	327	380	305	441	645	537	545
1980	461	583	813	347	317	222	339	365	384	458	453	485
1981	448	524	763	774	926	903	419	369	648	655	638	606
1982	520	650	814	719	314	303	185	176	377	413	346	250
1983	192	207	273	276	285	232	189	199	211	229	190	235
1984	359	166	227	296	223	334	333	309	490	605	518	453
1985	404	506	800	774	829	913	397	389	648	656	612	567
1986	515	608	804	852	486	278	255	254	417	587	482	436
1987	398	455	747	792	946	925	398	366	648	657	654	628
1988	545	678	849	878	949	961	520	484	652	662	656	662
1989	576	698	839	896	950	953	630	575	656	660	654	598
1990	692	697	845	949	952	958	671	639	665	662	655	680
1991	704	696	870	950	953	952	671	641	662	662	656	716
Avg	499	562	749	730	686	672	421	399	538	589	552	541
W/AN/BN	467	501	654	564	368	324	280	267	389	499	431	408
D/C	523	610	822	859	934	943	530	503	655	660	646	645

Percent (%) Change from Existing Condition for Old River near Middle River Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

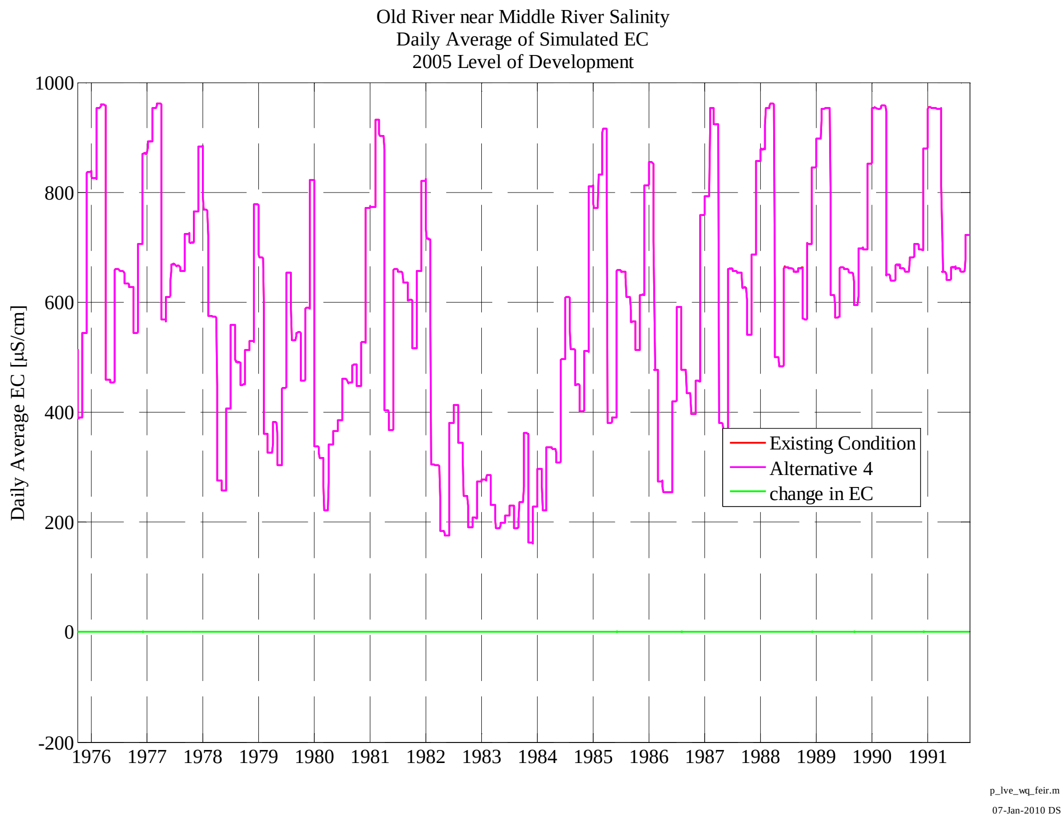
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

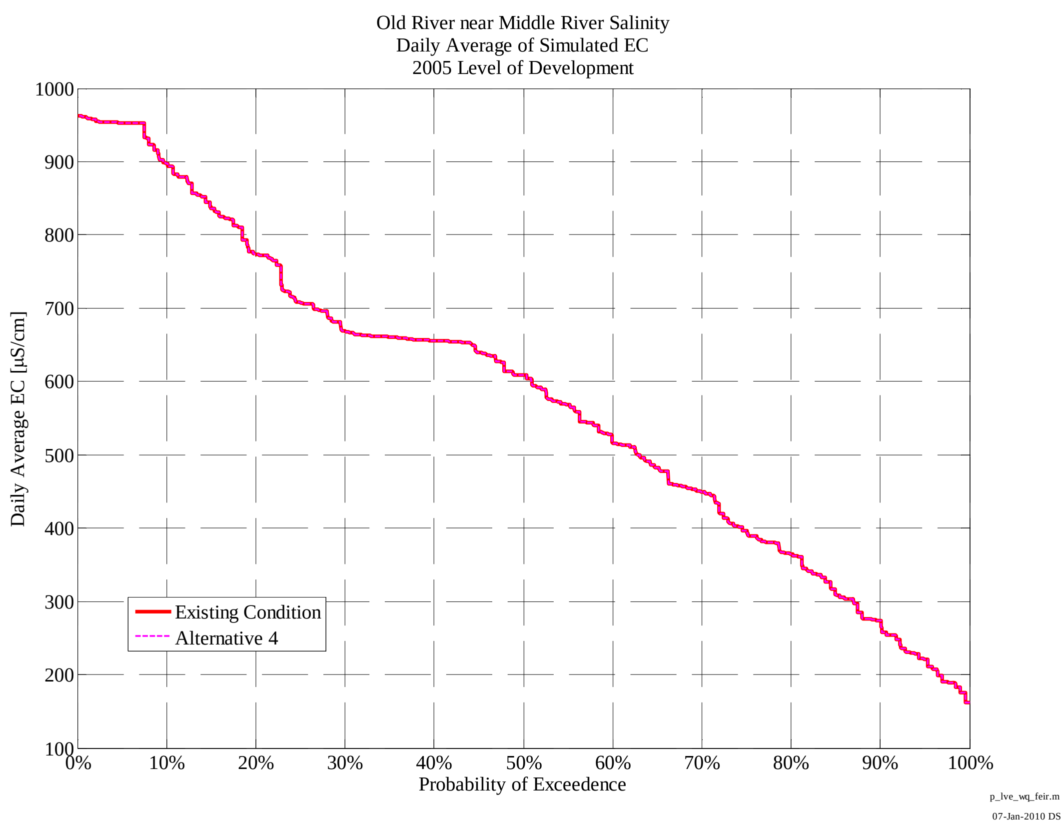


Old River near Middle River Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS



Old River near Middle River Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
-0.00%
-0.00%
0.00%
0.00%
0.00%
-0.00%
0.00%
0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [μS/cm]
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [μS/cm]
1000
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Brandt Bridge

Existing Condition

San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	392	537	817	825	945	959	483	454	646	658	636	627
1977	547	696	857	892	948	962	596	606	660	664	657	717
1978	708	760	873	774	580	572	282	258	403	554	493	450
1979	509	527	765	684	369	326	379	305	439	643	536	543
1980	459	582	805	348	316	222	338	364	384	458	453	483
1981	446	522	757	773	922	903	419	368	642	656	638	605
1982	518	650	811	719	314	302	185	176	376	412	346	250
1983	192	207	272	276	284	232	189	199	210	229	190	234
1984	357	166	227	295	222	333	332	309	488	603	519	452
1985	402	504	793	773	828	911	398	389	642	656	612	566
1986	513	608	799	851	486	277	254	254	415	587	482	435
1987	396	453	740	789	942	925	402	365	641	658	653	627
1988	542	678	842	877	946	960	527	484	648	666	655	661
1989	572	697	835	893	947	953	638	576	651	669	656	598
1990	691	695	839	947	952	957	685	639	663	673	656	679
1991	703	695	863	947	952	952	678	642	661	672	656	716
Avg	497	561	744	729	685	672	424	399	536	591	552	540
W/AN/BN	465	500	650	564	367	323	280	266	388	498	431	407
D/C	521	609	816	857	931	943	536	503	650	664	646	644

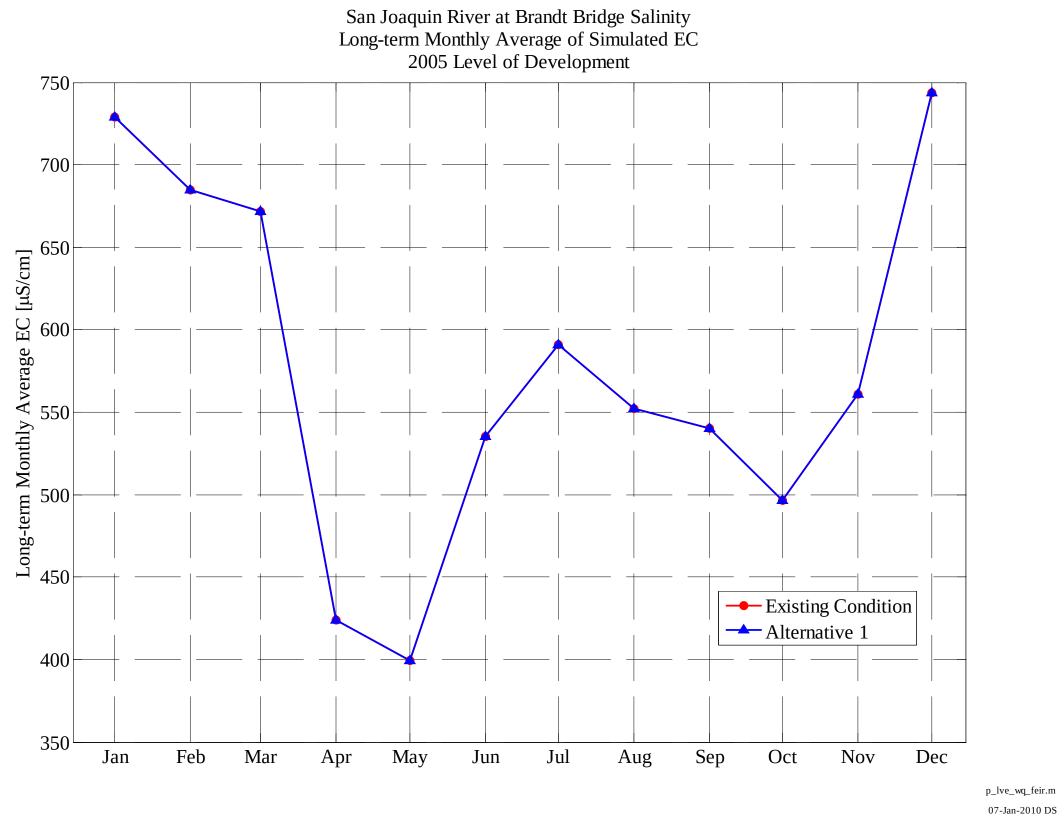
Alternative 1

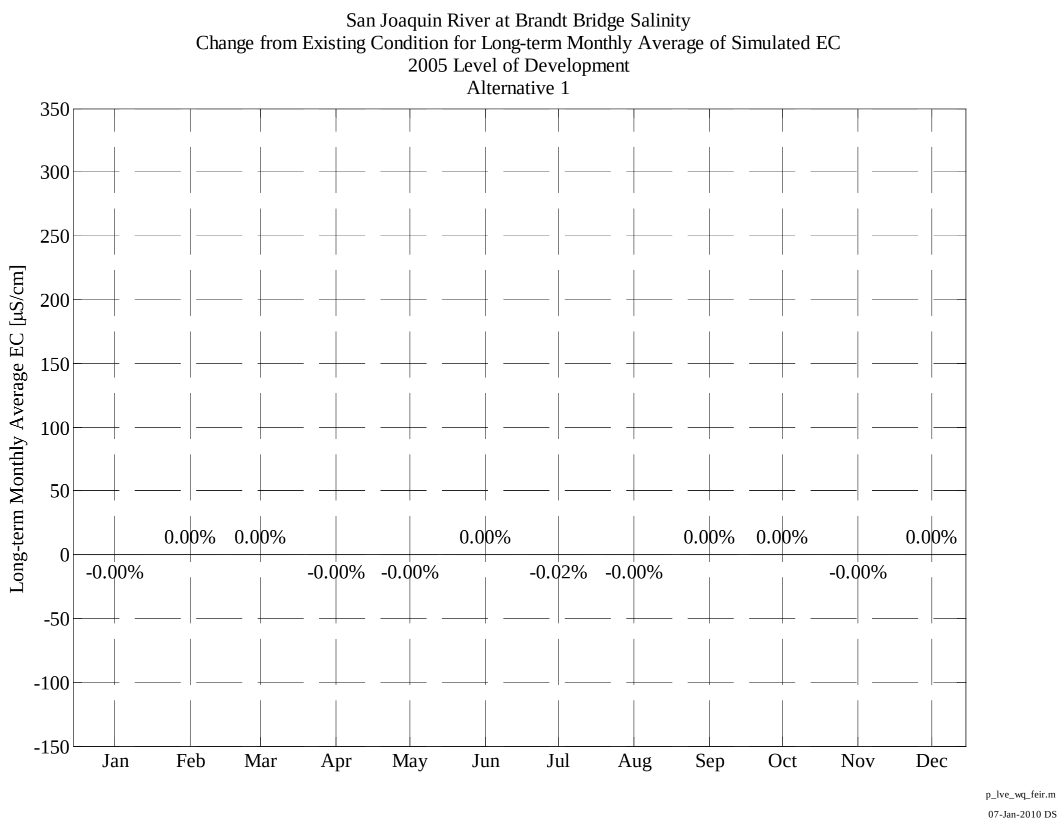
San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2005 Level of Development

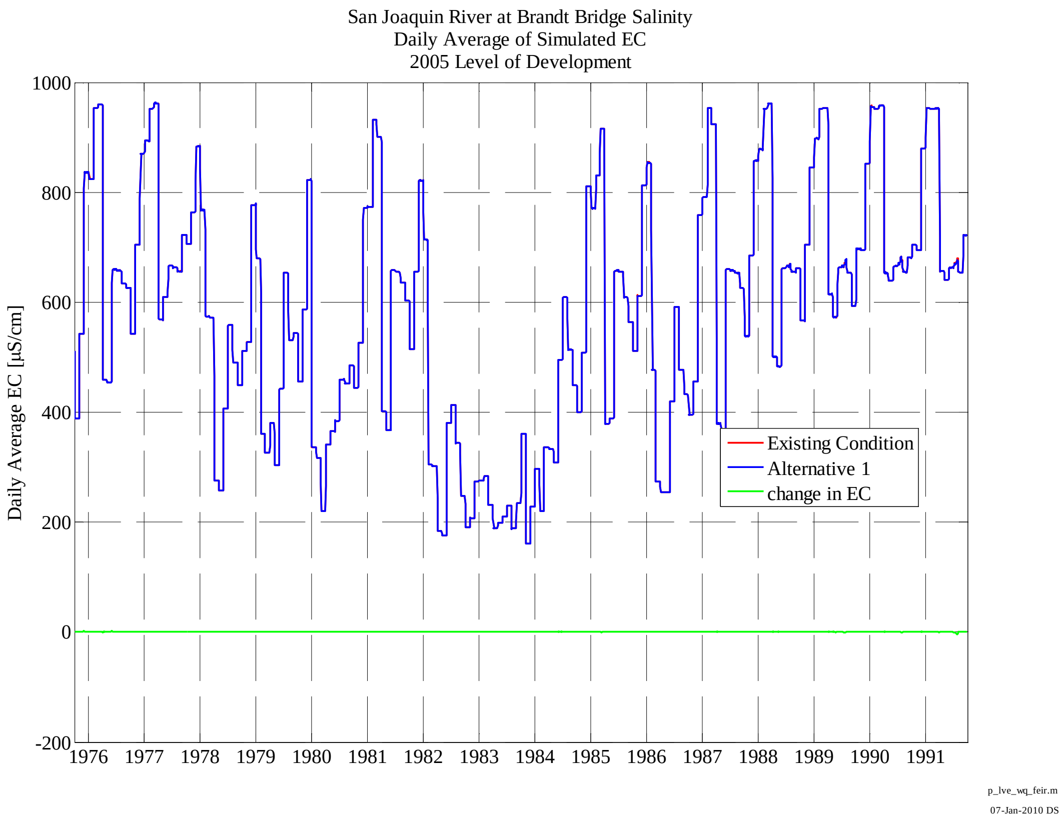
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	392	537	817	825	945	959	483	454	646	658	636	627
1977	547	696	857	892	948	962	596	606	660	664	657	717
1978	708	760	873	774	580	572	282	258	403	554	493	450
1979	509	527	765	684	369	326	379	305	439	643	536	543
1980	459	582	805	348	316	222	338	364	384	458	453	483
1981	446	522	757	773	922	903	419	368	642	656	638	605
1982	518	650	811	719	314	302	185	176	376	412	346	250
1983	192	207	272	276	284	232	189	199	210	229	190	234
1984	357	166	227	295	222	333	332	309	488	603	519	452
1985	402	504	793	773	828	911	398	389	642	656	612	566
1986	513	608	799	851	486	277	254	254	415	587	482	435
1987	396	453	741	789	942	925	402	365	641	658	653	627
1988	542	678	842	877	946	960	527	484	648	666	655	661
1989	572	697	835	893	947	953	638	576	651	669	656	598
1990	691	695	839	947	952	957	685	639	663	673	656	679
1991	703	695	863	947	952	952	678	642	661	670	655	716
Avg	497	561	744	729	685	672	424	399	536	591	552	540
W/AN/BN	465	500	650	564	367	323	280	266	388	498	431	407
D/C	521	609	816	857	931	943	536	502	650	663	646	644

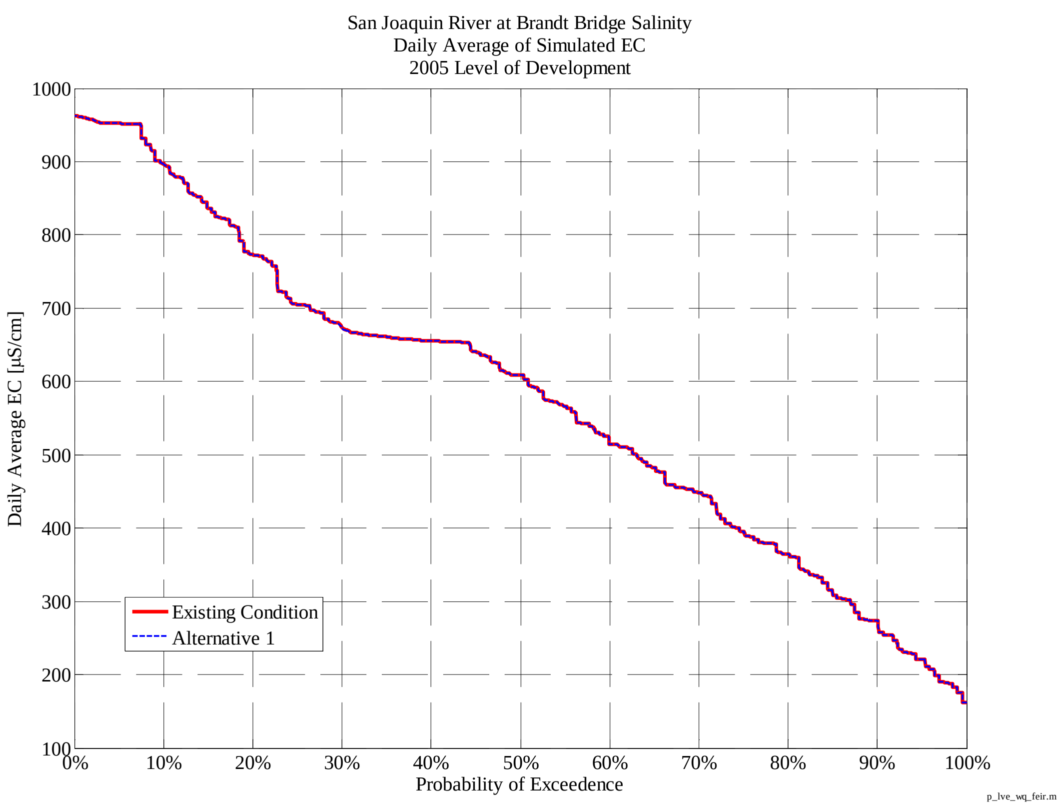
Percent (%) Change from Existing Condition for San Joaquin River at Brandt Bridge Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Brandt Bridge Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
0.00%
0.00%
-0.00%
-0.00%
0.00%
-0.02%
-0.00%
0.00%
0.00%
-0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

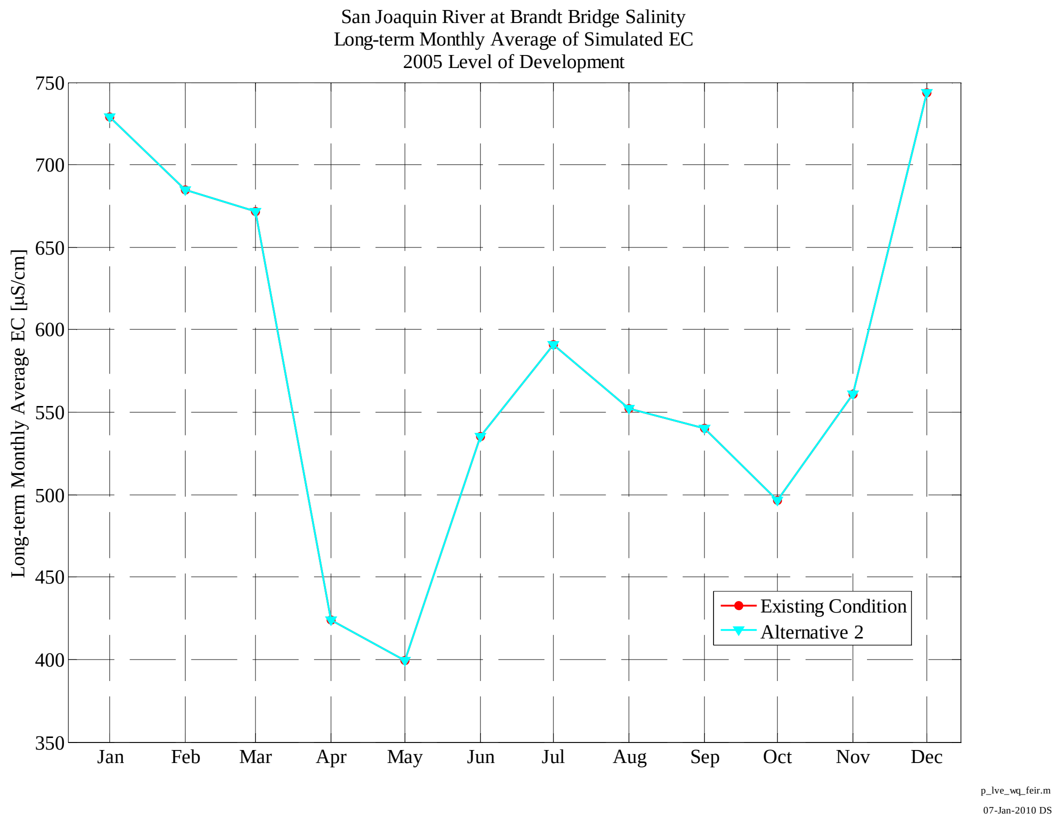
Alternative 2

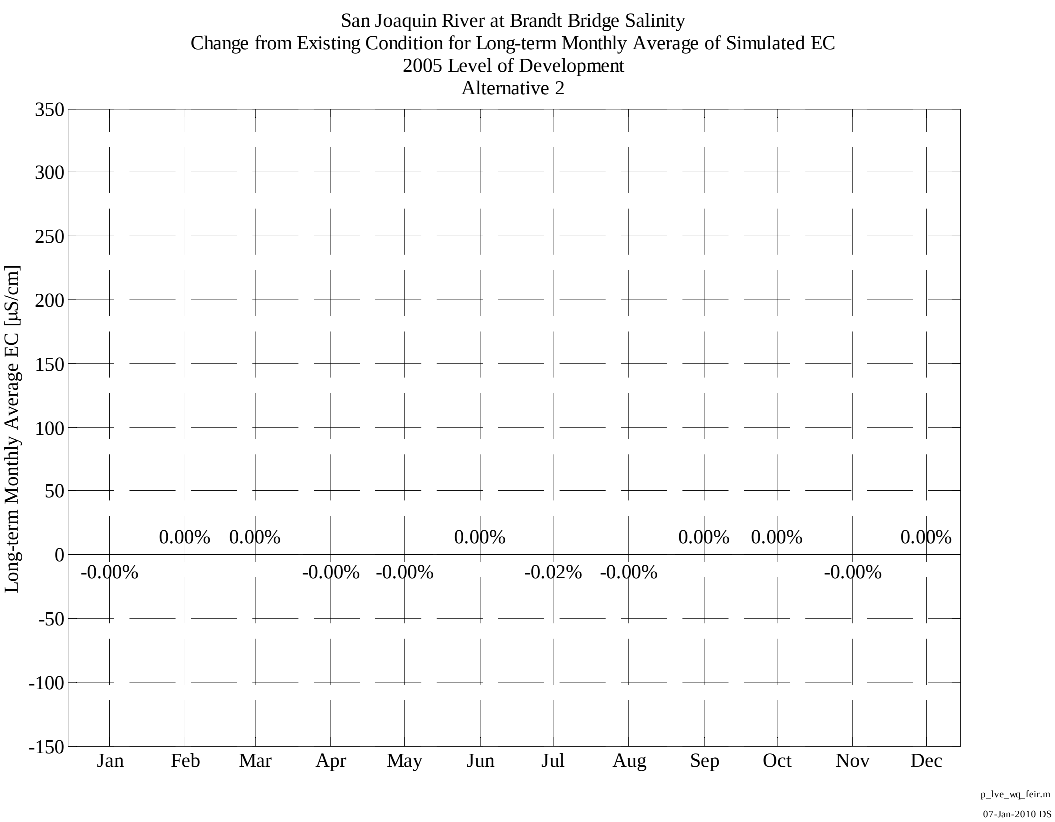
San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2005 Level of Development

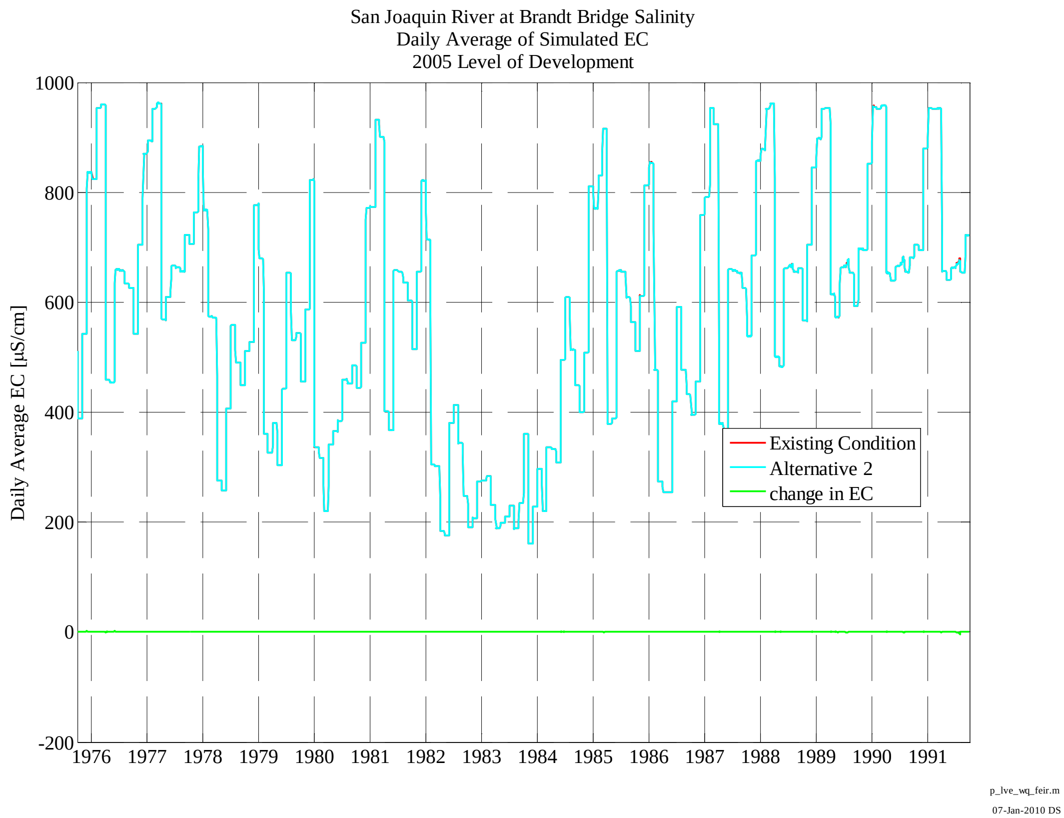
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	392	537	817	825	945	959	483	454	646	658	636	627
1977	547	696	857	892	948	962	596	606	660	664	657	717
1978	708	760	873	774	580	572	282	258	403	554	493	450
1979	509	527	765	684	369	326	379	305	439	643	536	543
1980	459	582	805	348	316	222	338	364	384	458	453	483
1981	446	522	757	773	922	903	419	368	642	656	638	605
1982	518	650	811	719	314	302	185	176	376	412	346	250
1983	192	207	272	276	284	232	189	199	210	229	190	234
1984	357	166	227	295	222	333	332	309	488	603	519	452
1985	402	504	793	773	828	911	398	389	642	656	612	566
1986	513	608	799	851	486	277	254	254	415	587	482	435
1987	396	453	741	789	942	925	402	365	641	658	653	627
1988	542	678	842	877	946	960	527	484	648	666	655	661
1989	572	697	835	893	947	953	638	576	651	669	656	598
1990	691	695	839	947	952	957	685	639	663	673	656	679
1991	703	695	863	947	952	952	678	642	661	670	655	716
Avg	497	561	744	729	685	672	424	399	536	591	552	540
W/AN/BN	465	500	650	564	367	323	280	266	388	498	431	407
D/C	521	609	816	857	931	943	536	502	650	663	646	644

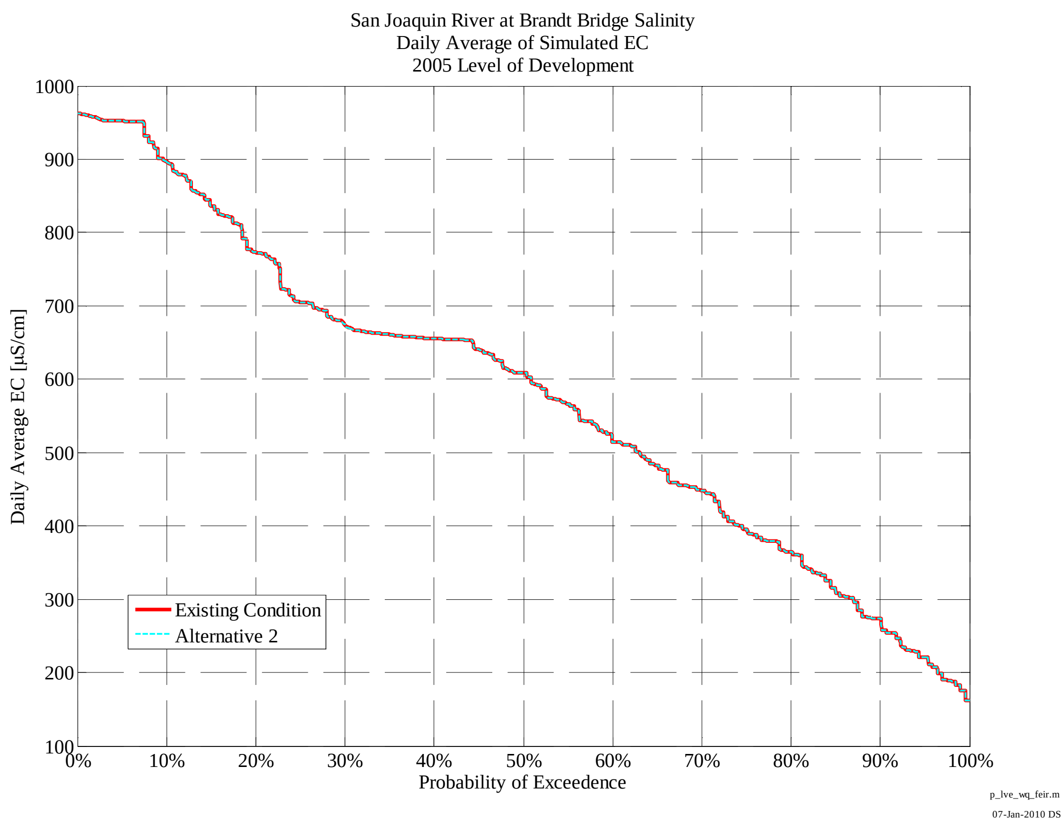
Percent (%) Change from Existing Condition for San Joaquin River at Brandt Bridge
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Brandt Bridge Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
0.00%
0.00%
-0.00%
-0.00%
0.00%
-0.02%
-0.00%
0.00%
0.00%
-0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

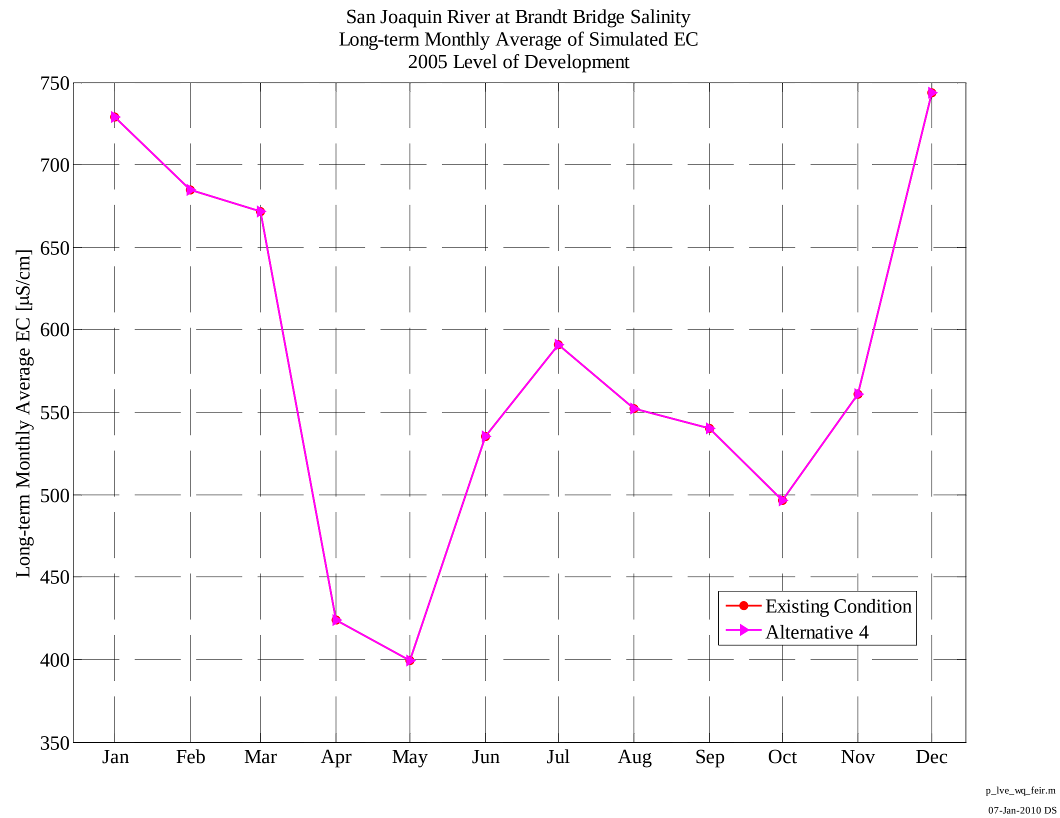
Alternative 4

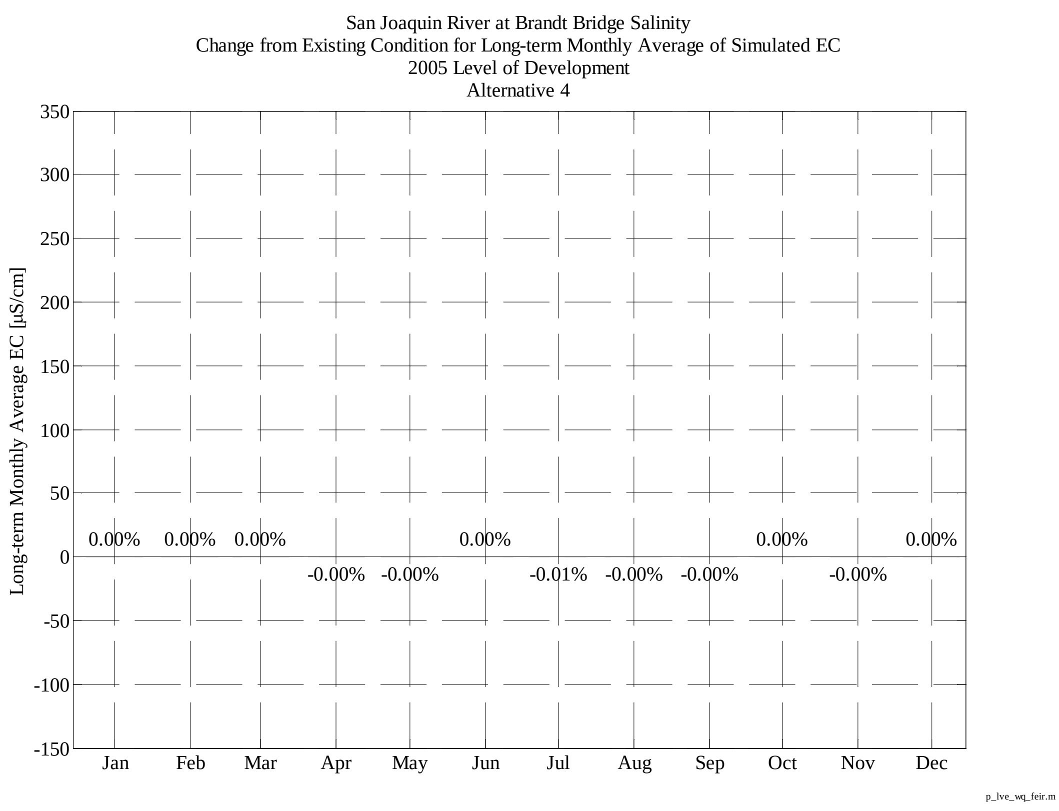
San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

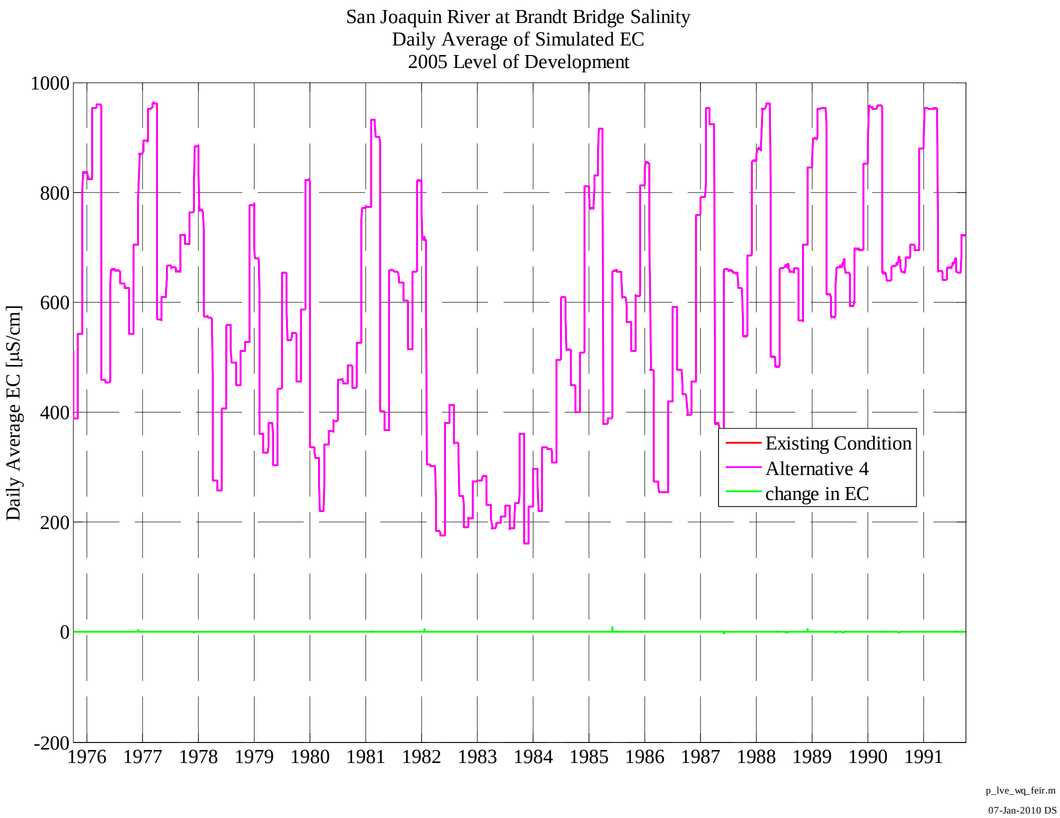
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	392	537	817	825	945	959	483	454	646	658	636	627
1977	547	696	857	892	948	962	596	606	660	664	657	717
1978	708	760	873	774	580	572	282	258	403	554	493	450
1979	509	527	765	684	369	326	379	305	439	643	536	543
1980	459	582	805	348	316	222	338	364	384	458	453	483
1981	446	522	757	773	922	903	419	368	642	656	638	605
1982	518	650	811	719	314	302	185	176	376	412	346	250
1983	192	207	272	276	284	232	189	199	210	229	190	234
1984	357	166	227	295	222	333	332	309	488	603	519	452
1985	402	504	793	773	828	911	398	389	642	656	612	566
1986	513	608	799	851	486	277	254	254	416	587	482	435
1987	396	453	741	789	942	925	402	365	641	658	653	627
1988	542	678	842	877	946	960	527	484	648	666	655	661
1989	572	697	836	893	947	953	638	576	651	669	656	598
1990	691	695	839	947	952	957	685	639	663	673	656	679
1991	703	695	863	947	952	952	678	642	661	671	656	716
Avg	497	561	744	729	685	672	424	399	536	591	552	540
W/AN/BN	465	500	650	564	367	323	280	266	388	498	431	407
D/C	521	609	816	857	931	943	536	502	650	663	646	644

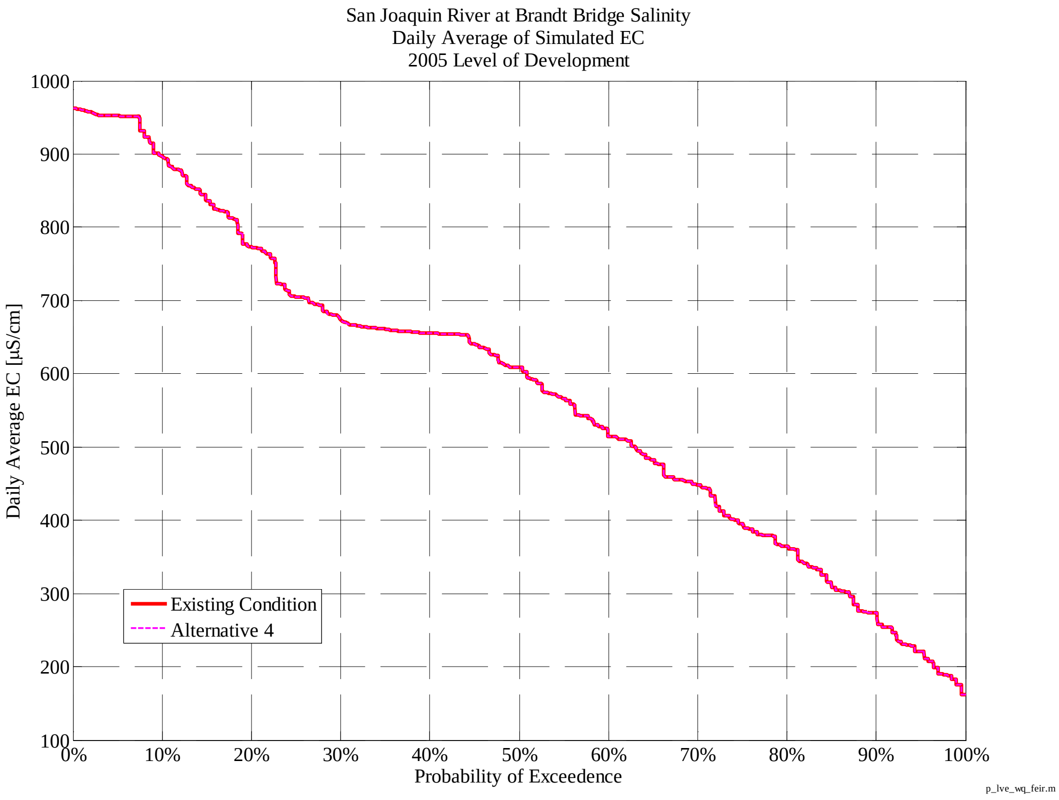
Percent (%) Change from Existing Condition for San Joaquin River at Brandt Bridge
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Brandt Bridge Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
-0.00%
-0.00%
0.00%
-0.01%
-0.00%
-0.00%
0.00%
-0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Vernalis

Existing Condition

San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	388	541	834	820	949	949	449	441	648	649	631	624
1977	541	703	868	888	950	950	546	603	649	649	650	721
1978	705	763	879	758	572	565	274	254	401	553	484	445
1979	508	526	775	674	359	324	378	299	430	647	525	539
1980	455	586	820	335	313	220	337	361	380	456	447	481
1981	443	525	770	768	930	900	397	358	648	648	631	599
1982	514	654	817	702	304	296	183	173	376	409	338	246
1983	190	204	272	268	282	226	187	198	208	227	185	233
1984	359	161	226	296	220	333	327	301	484	602	508	444
1985	400	505	806	769	829	913	372	380	647	649	604	560
1986	510	610	810	847	470	271	253	250	414	586	471	430
1987	393	453	756	788	949	917	367	353	648	649	649	621
1988	537	683	854	872	950	954	490	472	648	649	649	657
1989	564	703	842	893	950	951	596	557	647	647	648	592
1990	696	694	850	950	950	950	625	634	649	648	649	677
1991	701	692	877	950	950	950	641	629	649	648	649	718
Avg	494	563	754	724	683	667	401	391	533	582	545	537
W/AN/BN	463	500	657	554	360	319	277	262	385	497	423	403
D/C	518	611	829	855	934	937	498	492	648	648	640	641

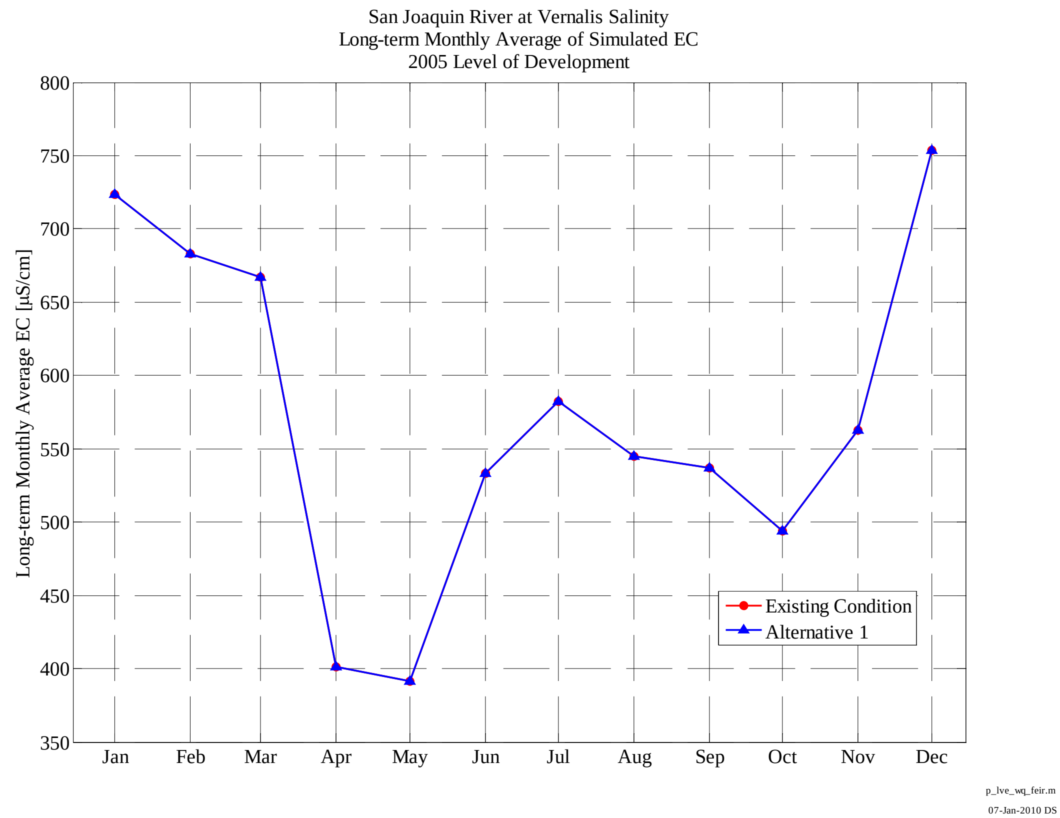
Alternative 1

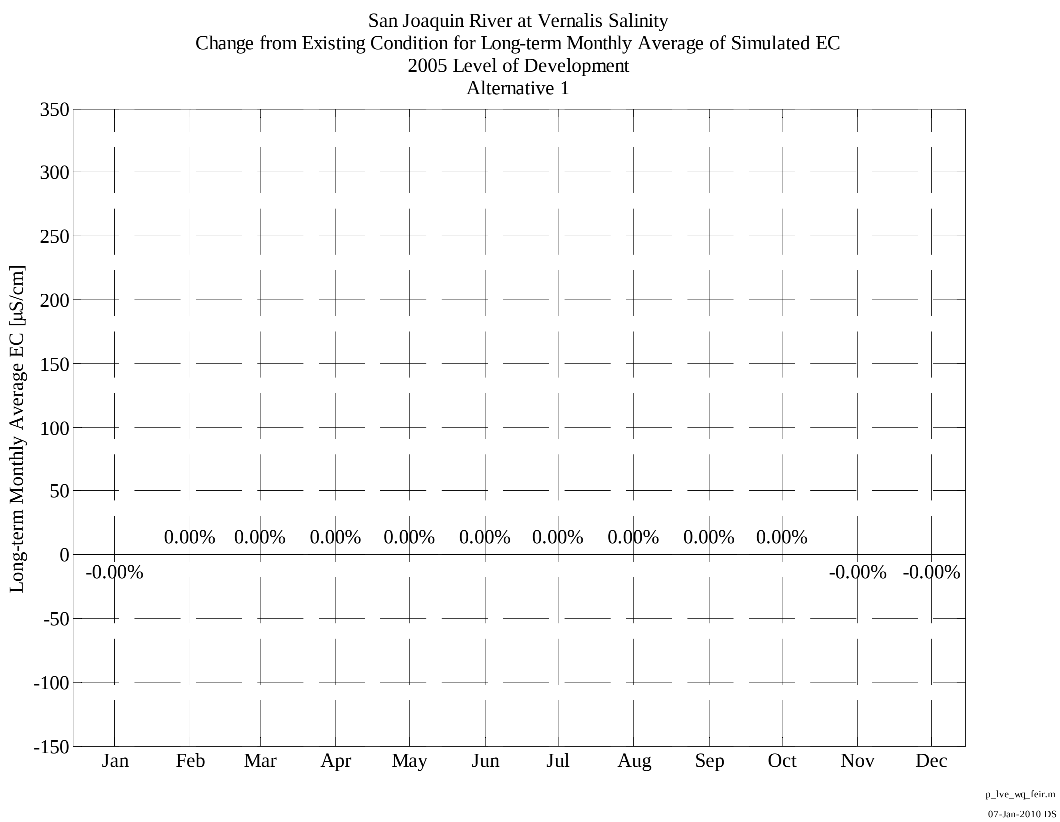
San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2005 Level of Development

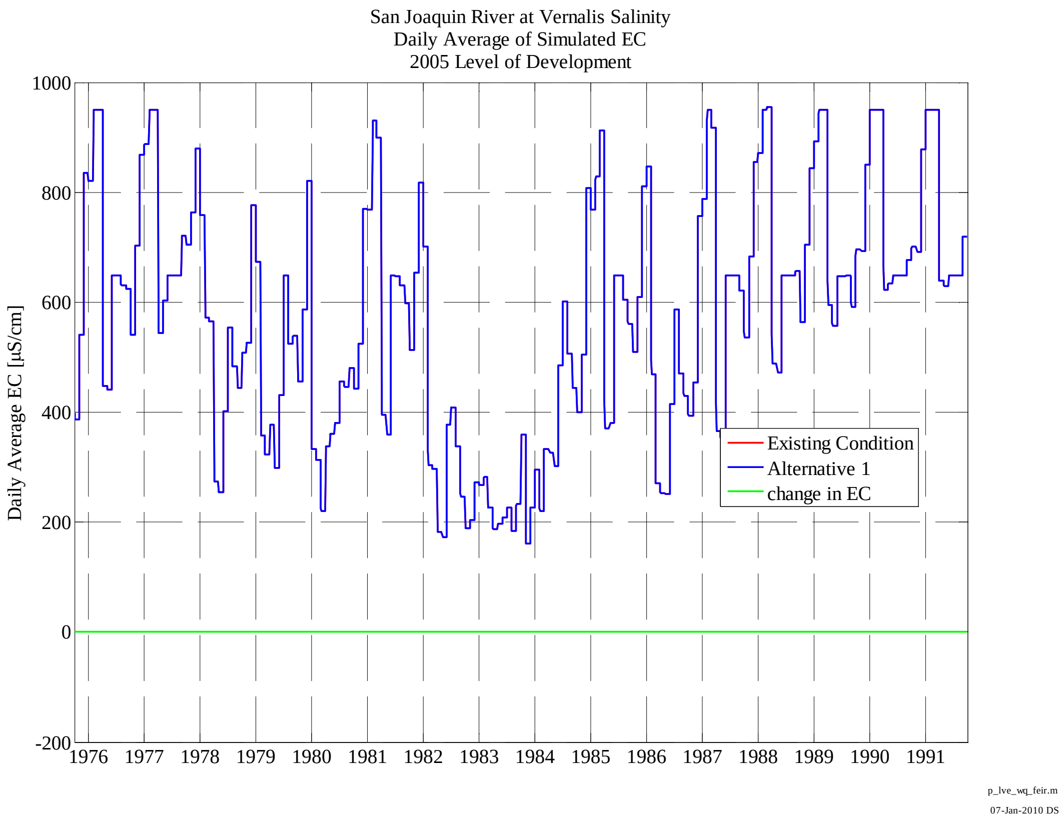
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	388	541	834	820	949	949	449	441	648	649	631	624
1977	541	703	868	888	950	950	546	603	649	649	650	721
1978	705	763	879	758	572	565	274	254	401	553	484	445
1979	508	526	775	674	359	324	378	299	430	647	525	539
1980	455	586	820	335	313	220	337	361	380	456	447	481
1981	443	525	770	768	930	900	397	358	648	648	631	599
1982	514	654	817	702	304	296	183	173	376	409	338	246
1983	190	204	272	268	282	226	187	198	208	227	185	233
1984	359	161	226	296	220	333	327	301	484	602	508	444
1985	400	505	806	769	829	913	373	380	647	649	604	560
1986	510	610	810	847	470	271	253	250	414	586	471	430
1987	393	453	756	788	949	917	367	353	648	649	649	621
1988	537	683	854	872	950	954	490	472	648	649	649	657
1989	564	703	842	893	950	951	596	557	647	647	648	592
1990	696	694	850	950	950	950	625	634	649	648	649	677
1991	701	692	877	950	950	950	641	629	649	648	649	718
Avg	494	563	754	724	683	667	401	391	533	582	545	537
W/AN/BN	463	500	657	554	360	319	277	262	385	497	423	403
D/C	518	611	829	855	934	937	498	492	648	648	640	641

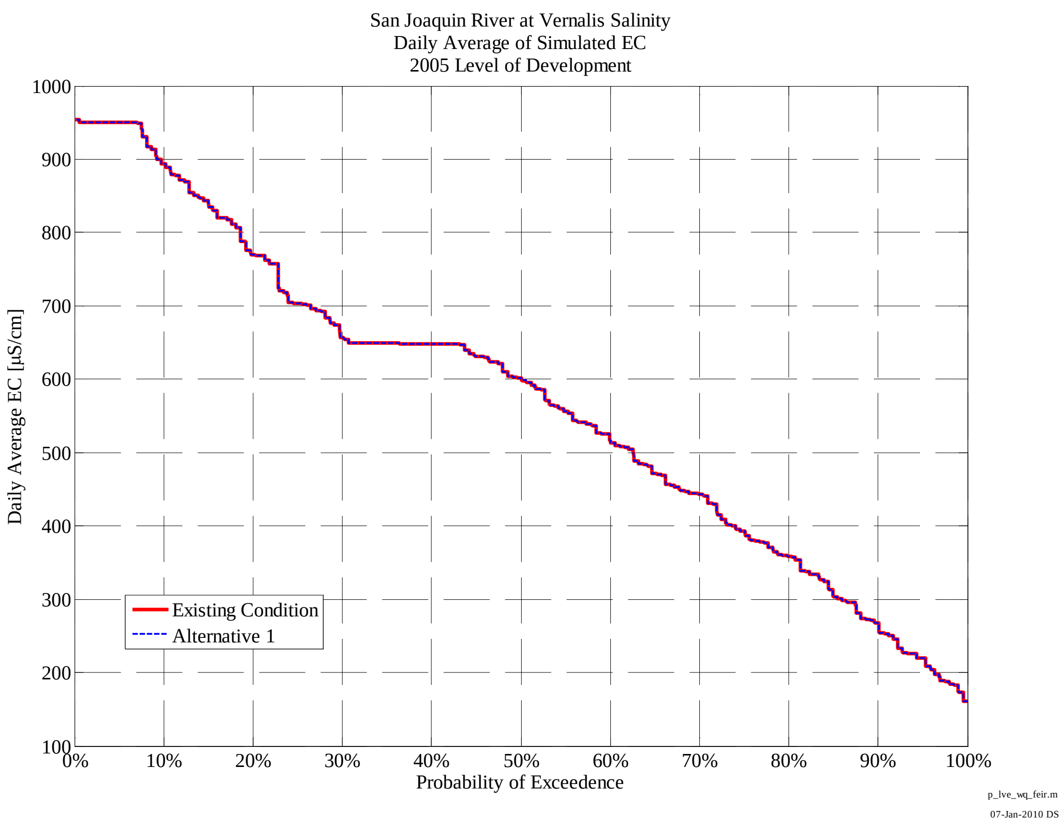
Percent (%) Change from Existing Condition for San Joaquin River at Vernalis Salinity
(Alternative 1 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Vernalis Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
800
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Existing Condition
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

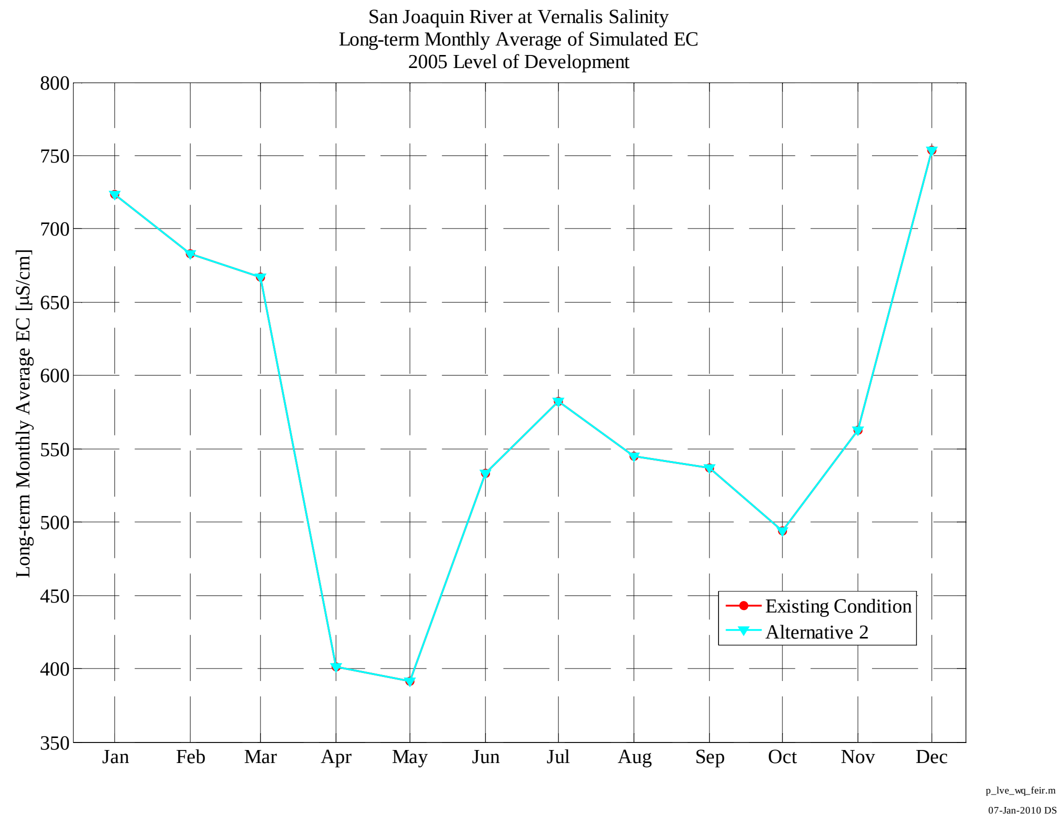
Alternative 2

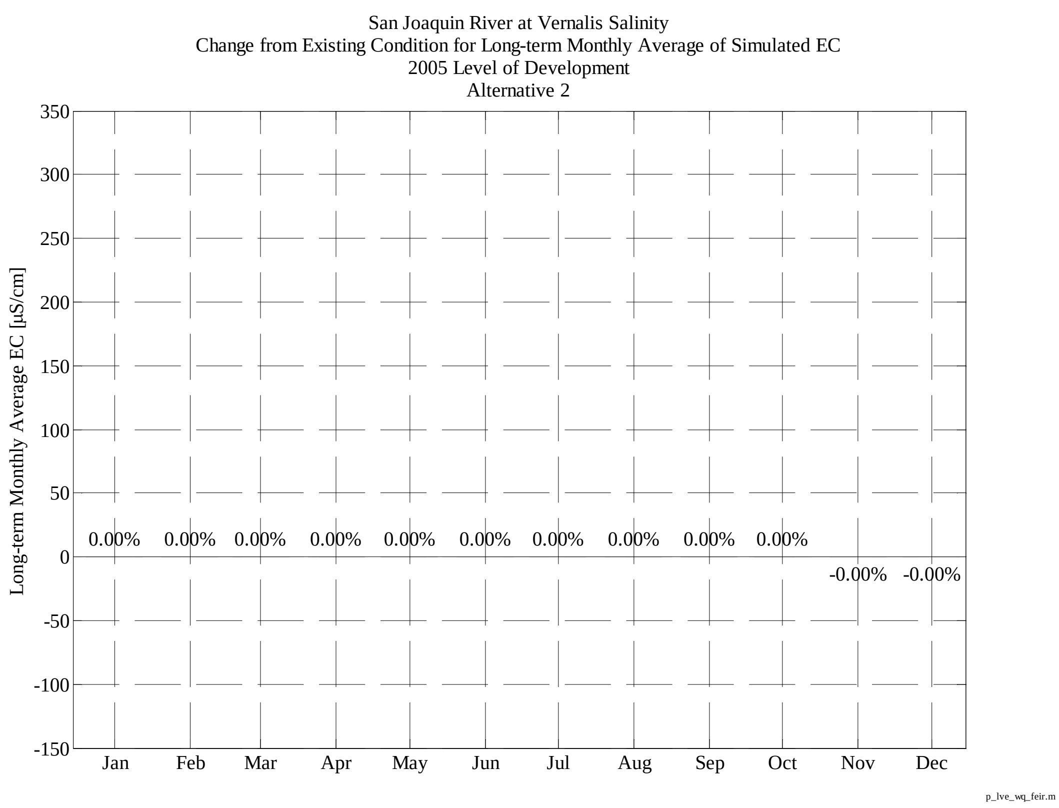
San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 2
2005 Level of Development

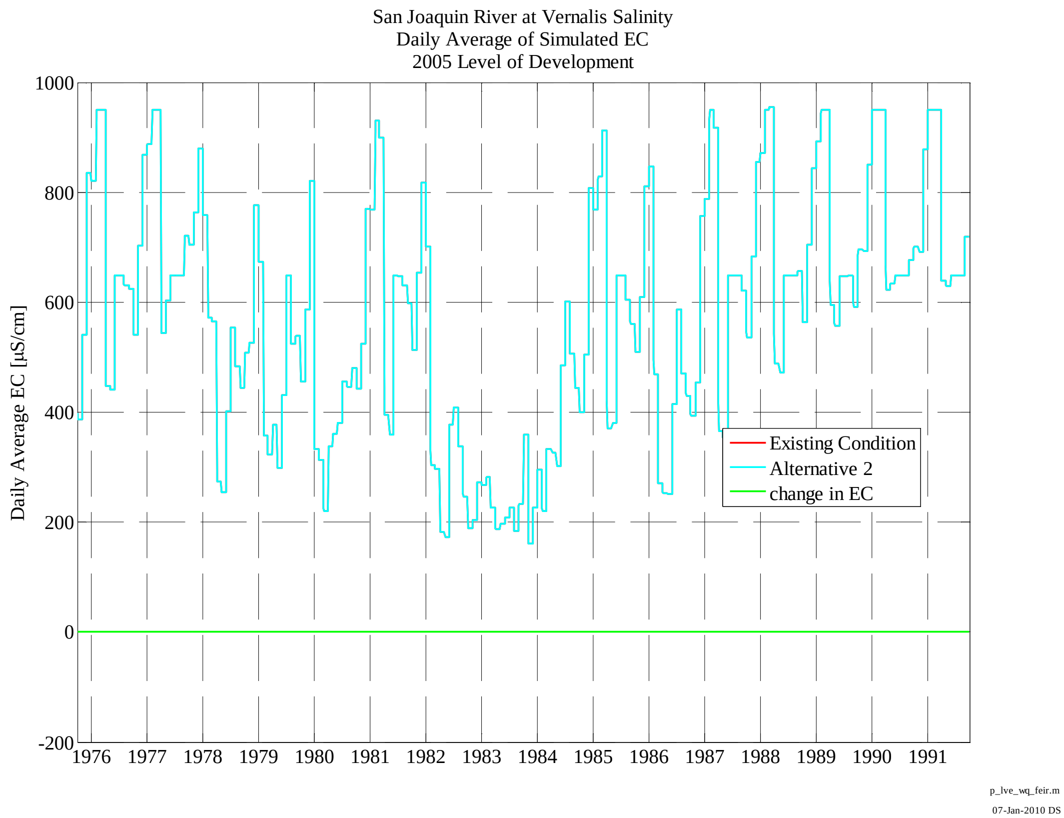
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	388	541	834	820	949	949	449	441	648	649	631	624
1977	541	703	868	888	950	950	546	603	649	649	650	721
1978	705	763	879	758	572	565	274	254	401	553	484	445
1979	508	526	775	674	359	324	378	299	430	647	525	539
1980	455	586	820	335	313	220	337	361	380	456	447	481
1981	443	525	770	768	930	900	397	358	648	648	631	599
1982	514	654	817	702	304	296	183	173	376	409	338	246
1983	190	204	272	268	282	226	187	198	208	227	185	233
1984	359	161	226	296	220	333	327	301	484	602	508	444
1985	400	505	806	769	829	913	373	380	647	649	604	560
1986	510	610	810	847	470	271	253	250	414	586	471	430
1987	393	453	756	788	949	917	367	353	648	649	649	621
1988	537	683	854	872	950	954	490	472	648	649	649	657
1989	564	703	842	893	950	951	596	557	647	647	648	592
1990	696	694	850	950	950	950	625	634	649	648	649	677
1991	701	692	877	950	950	950	641	629	649	648	649	718
Avg	494	563	754	724	683	667	401	391	533	582	545	537
W/AN/BN	463	500	657	554	360	319	277	262	385	497	423	403
D/C	518	611	829	855	934	937	498	492	648	648	640	641

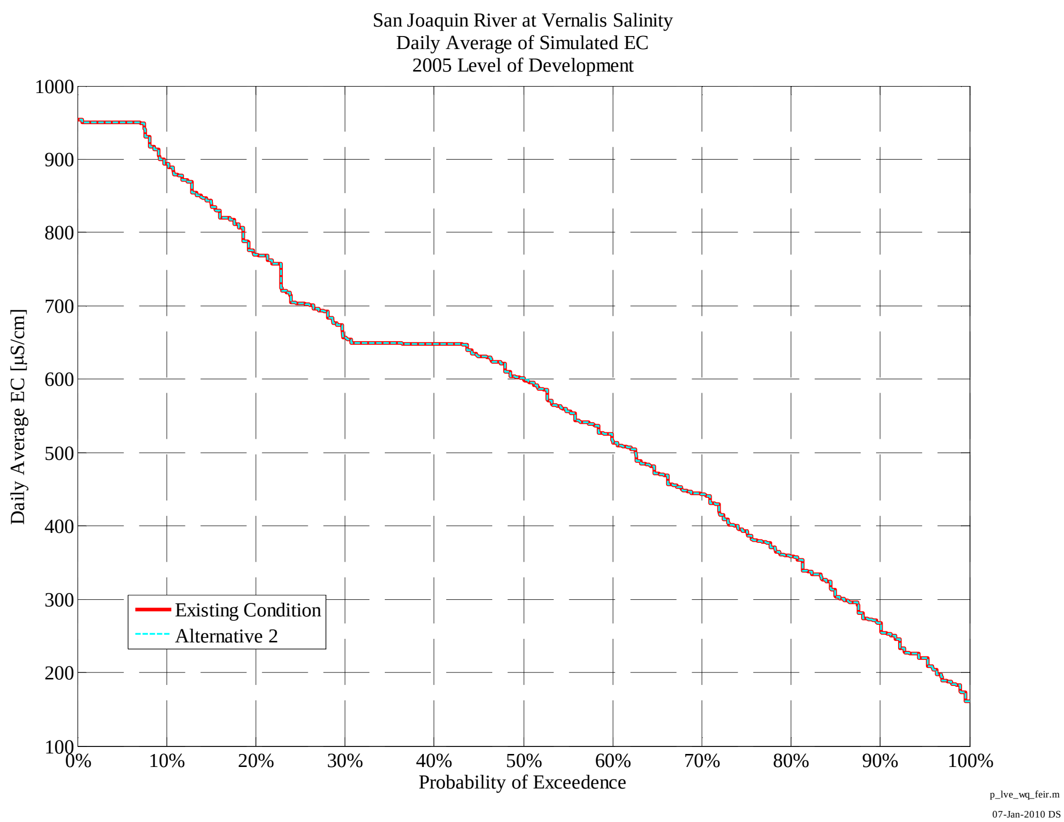
Percent (%) Change from Existing Condition for San Joaquin River at Vernalis Salinity
(Alternative 2 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Vernalis Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
800
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Existing Condition
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Existing Condition
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

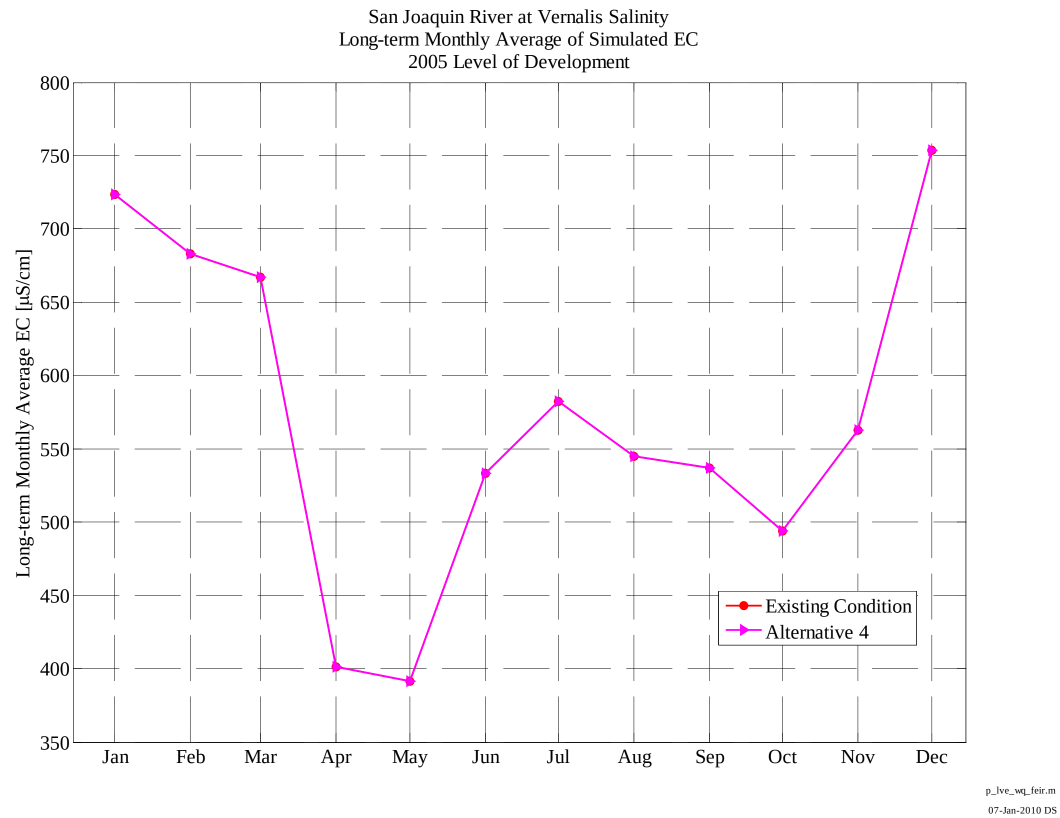
Alternative 4

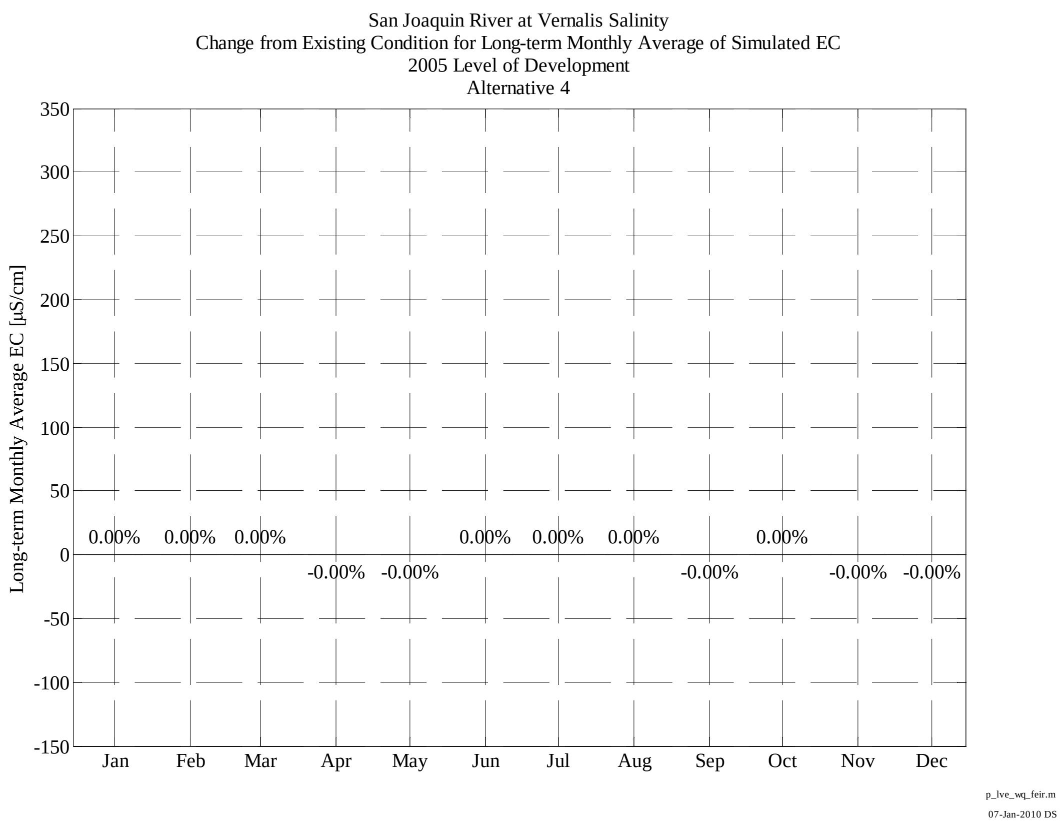
San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2005 Level of Development

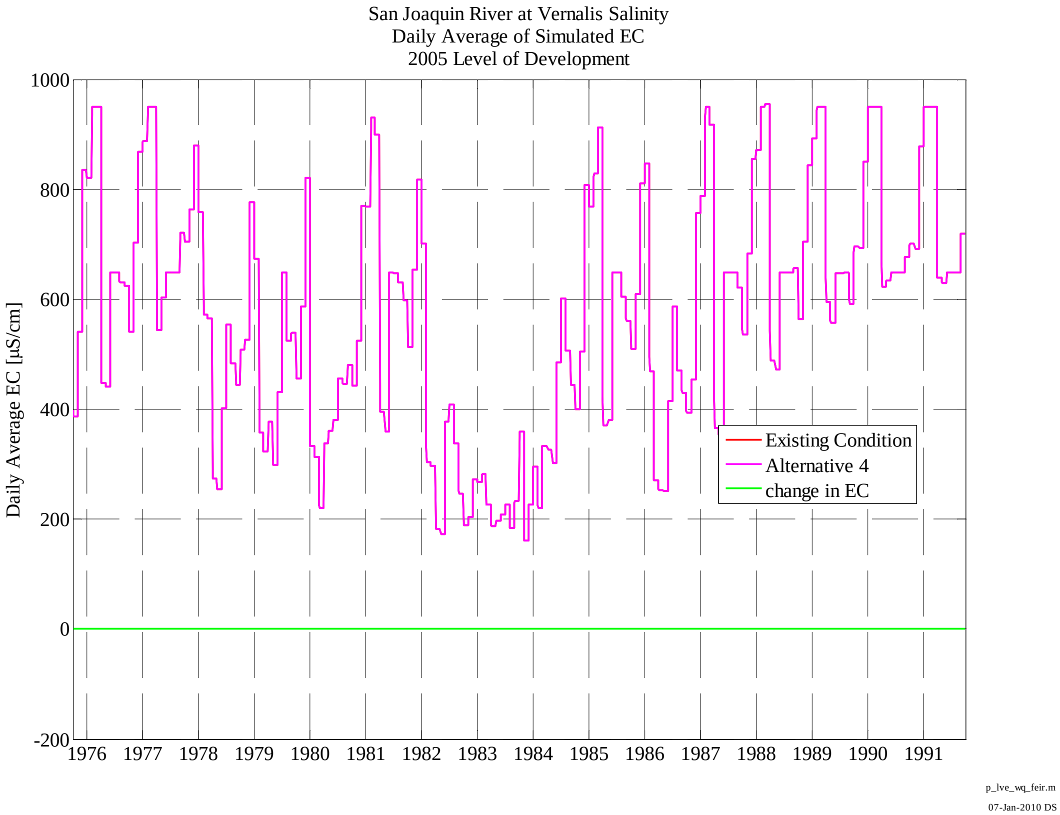
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	388	541	834	820	949	949	449	441	648	649	631	624
1977	541	703	868	888	950	950	546	603	649	649	650	721
1978	705	763	879	758	572	565	274	254	401	553	484	445
1979	508	526	775	674	359	324	378	299	430	647	525	539
1980	455	586	820	335	313	220	337	361	380	456	447	481
1981	443	525	770	768	930	900	397	358	648	648	631	599
1982	514	654	817	702	304	296	183	173	376	409	338	246
1983	190	204	272	268	282	226	187	198	208	227	185	233
1984	359	161	226	296	220	333	327	301	484	602	508	444
1985	400	505	806	769	829	913	373	380	647	649	604	560
1986	510	610	810	847	470	271	253	250	414	586	471	430
1987	393	453	756	788	949	917	367	353	648	649	649	621
1988	537	683	854	872	950	954	490	472	648	649	649	657
1989	564	703	842	893	950	951	596	557	647	647	648	592
1990	696	694	850	950	950	950	625	634	649	648	649	677
1991	701	692	877	950	950	950	641	629	649	648	649	718
Avg	494	563	754	724	683	667	401	391	533	582	545	537
W/AN/BN	463	500	657	554	360	319	277	262	385	497	423	403
D/C	518	611	829	855	934	937	498	492	648	648	640	641

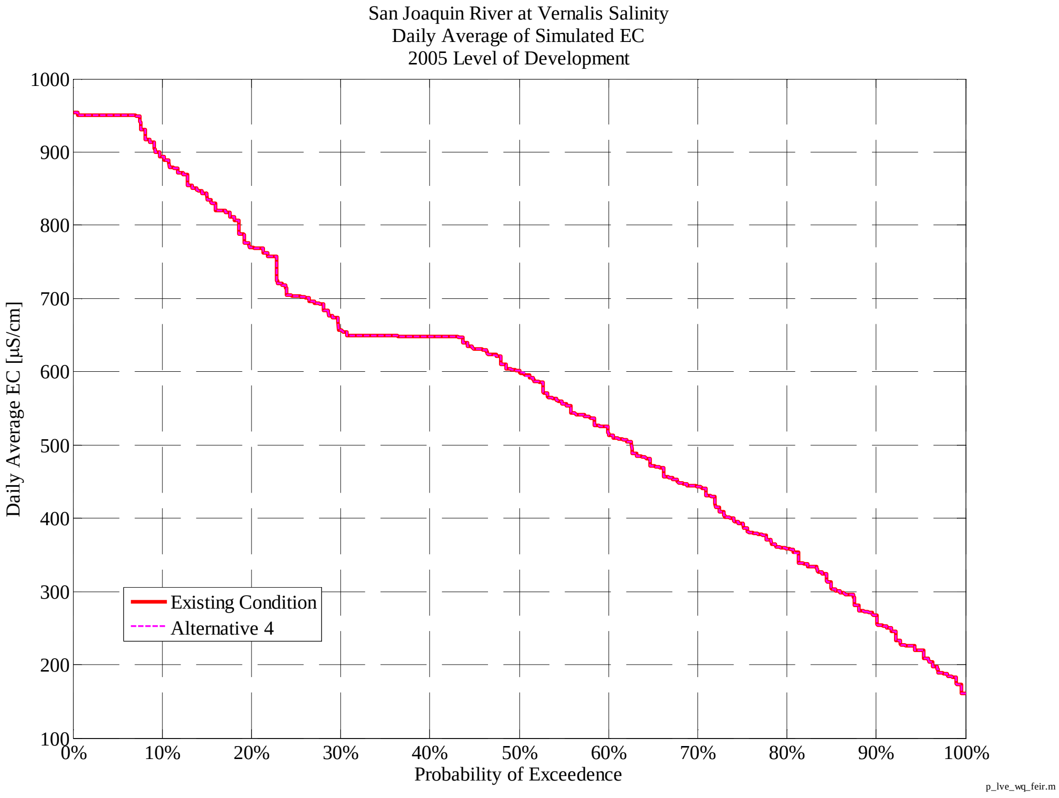
Percent (%) Change from Existing Condition for San Joaquin River at Vernalis Salinity
(Alternative 4 - Existing Condition) / Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Vernalis Salinity
Long-term Monthly Average of Simulated EC
2005 Level of Development
Long-term Monthly Average EC [µS/cm]
800
750
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Change from Existing Condition for Long-term Monthly Average of Simulated EC
2005 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
-0.00%
-0.00%
0.00%
0.00%
0.00%
-0.00%
0.00%
-0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS

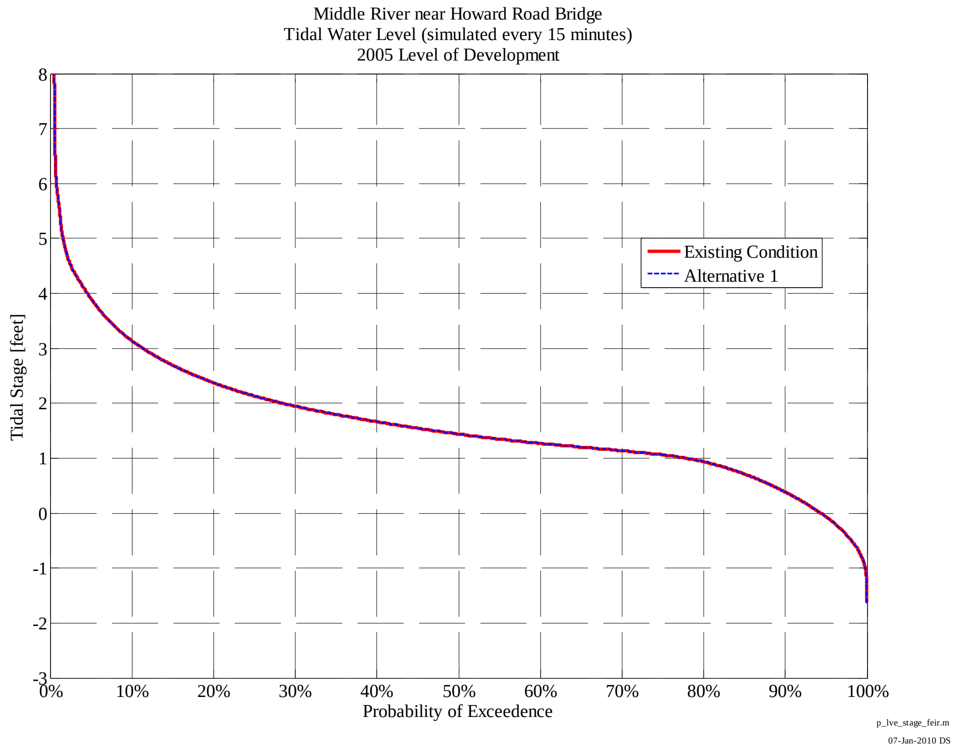

San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS

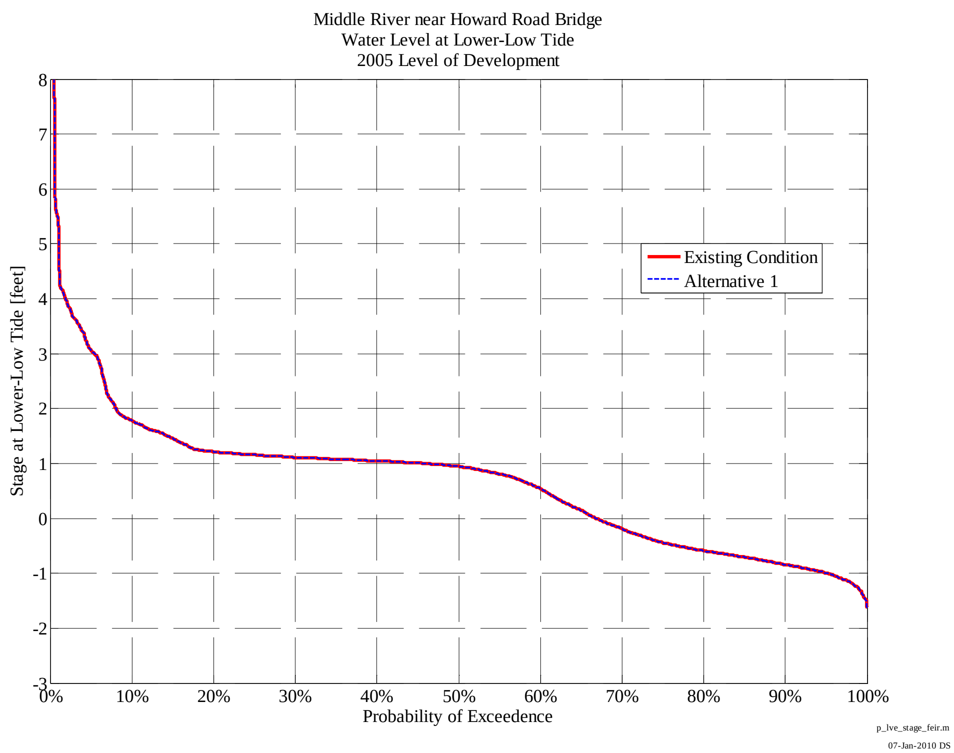

San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2005 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Existing Condition
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

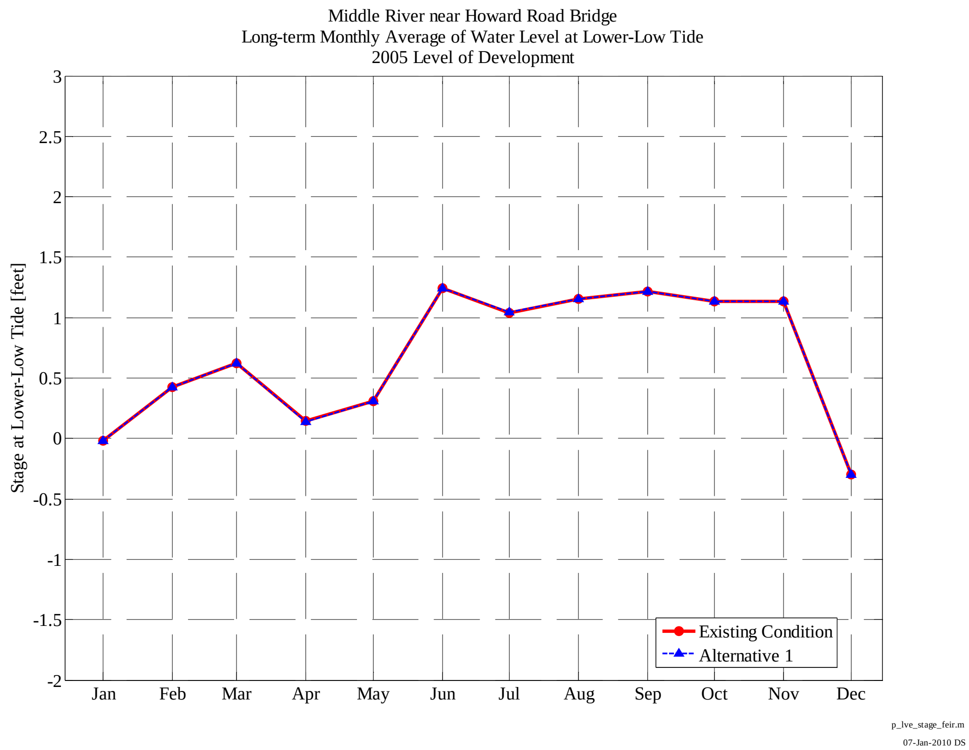
Water Level

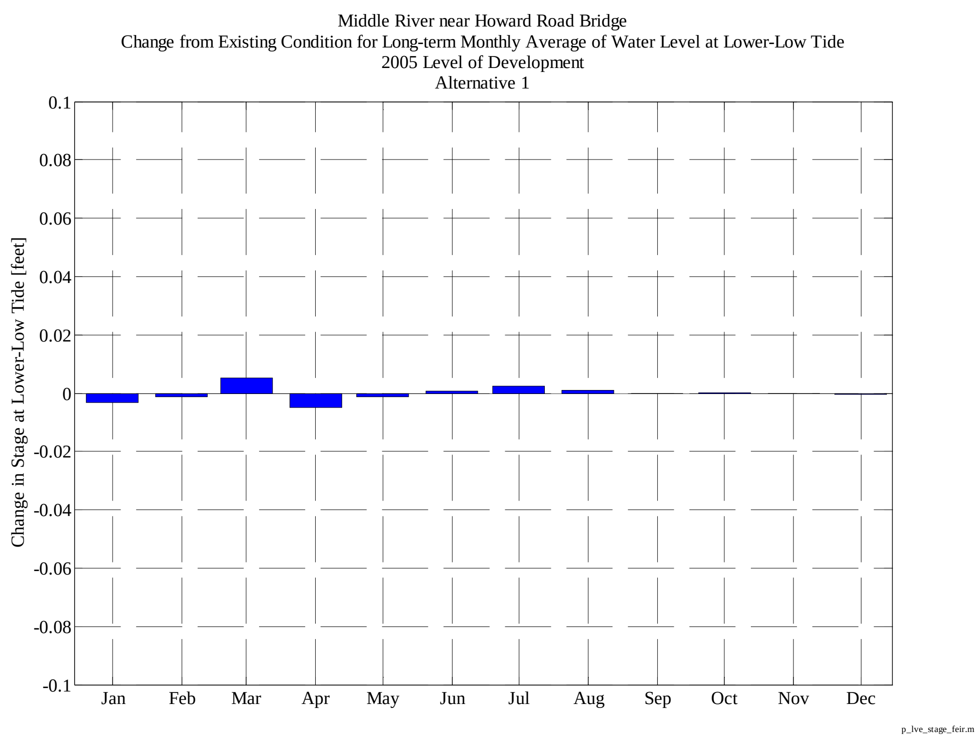
Middle River near Howard Road Bridge

Alternative 1

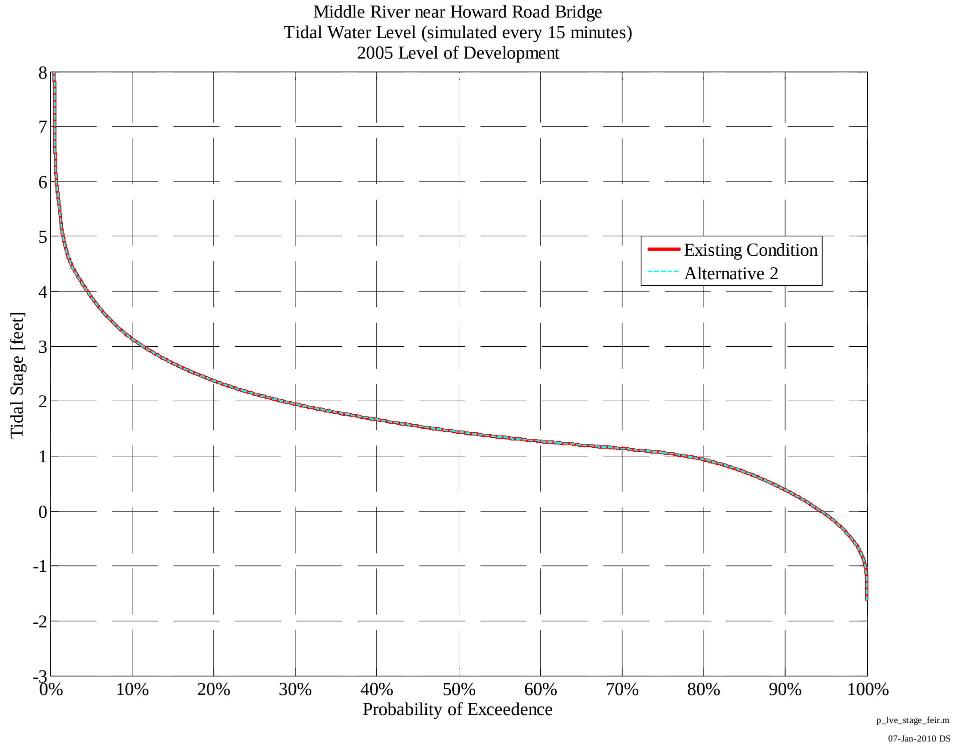


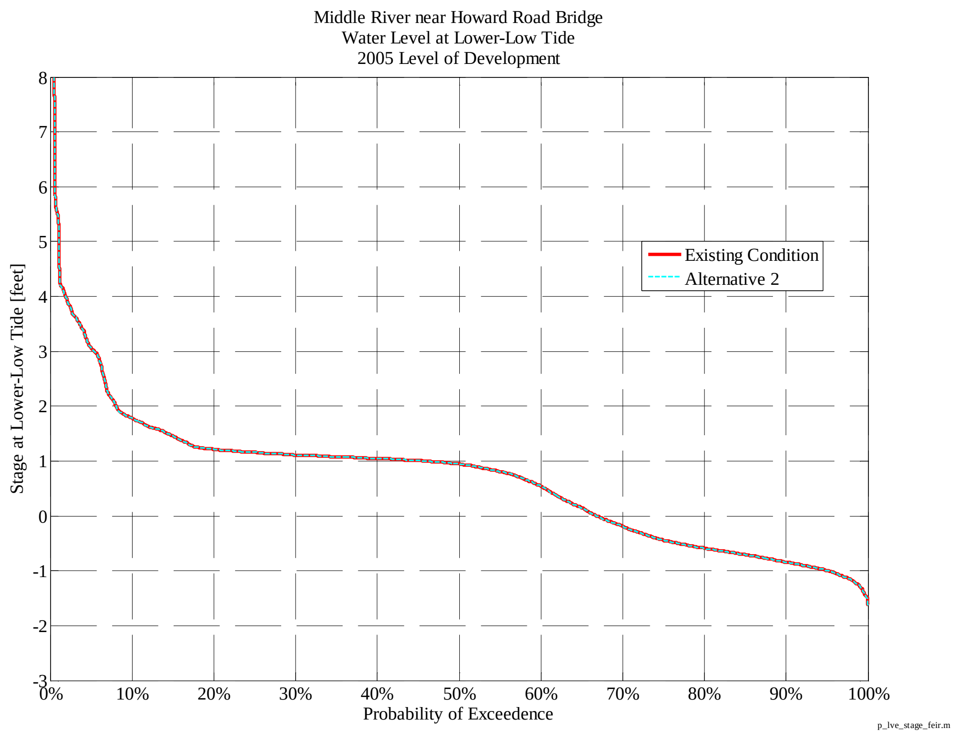


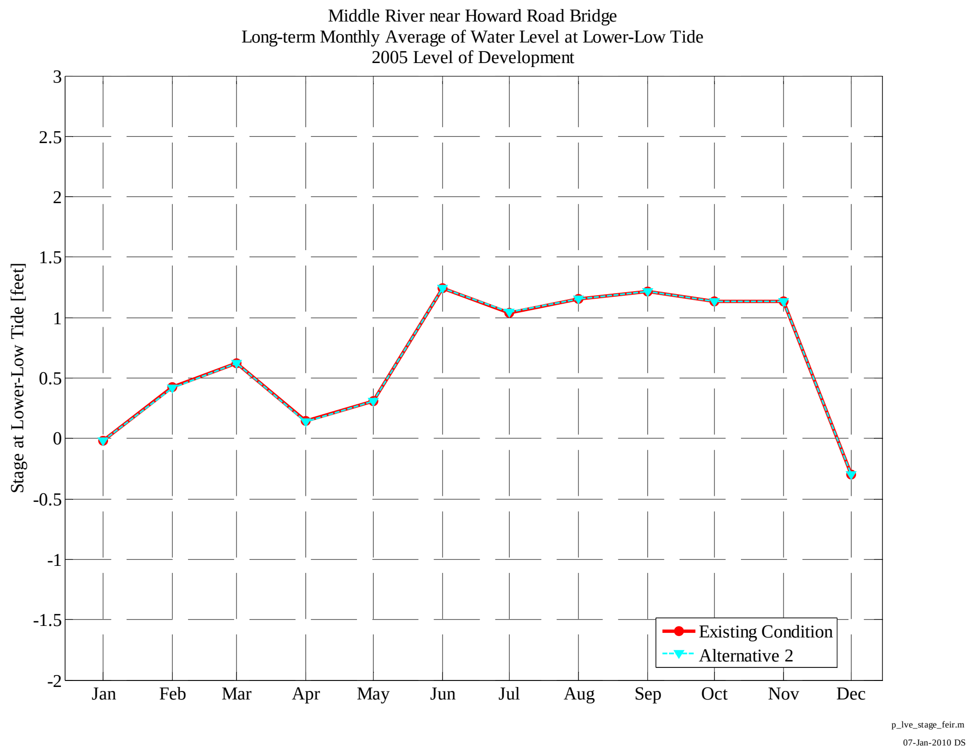

Middle River near Howard Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS


Middle River near Howard Road Bridge
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

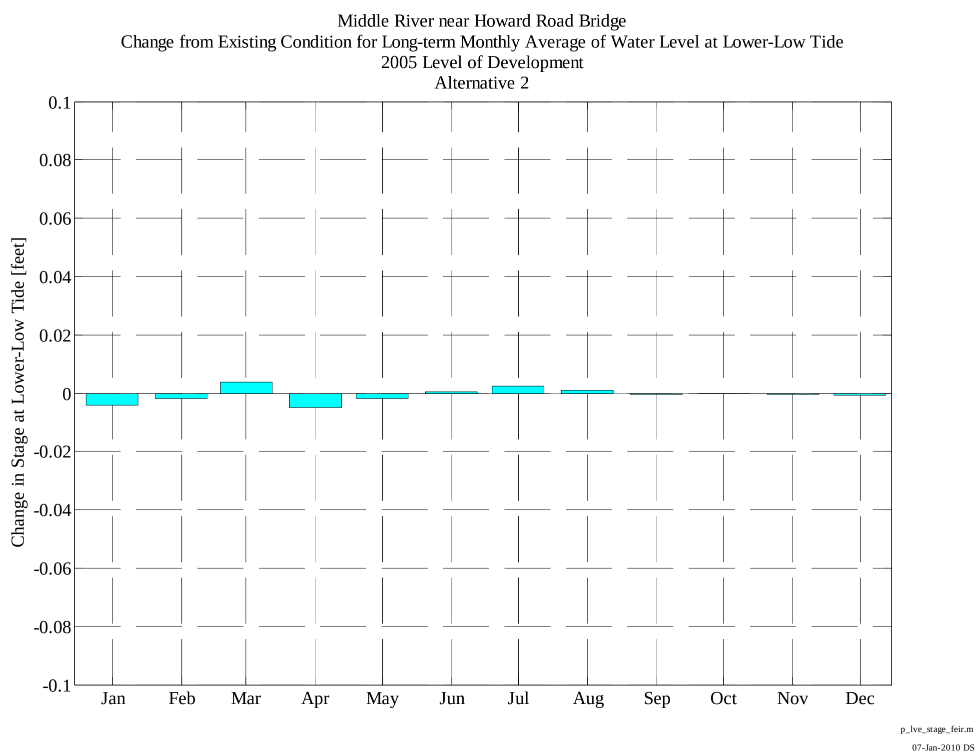
Alternative 2





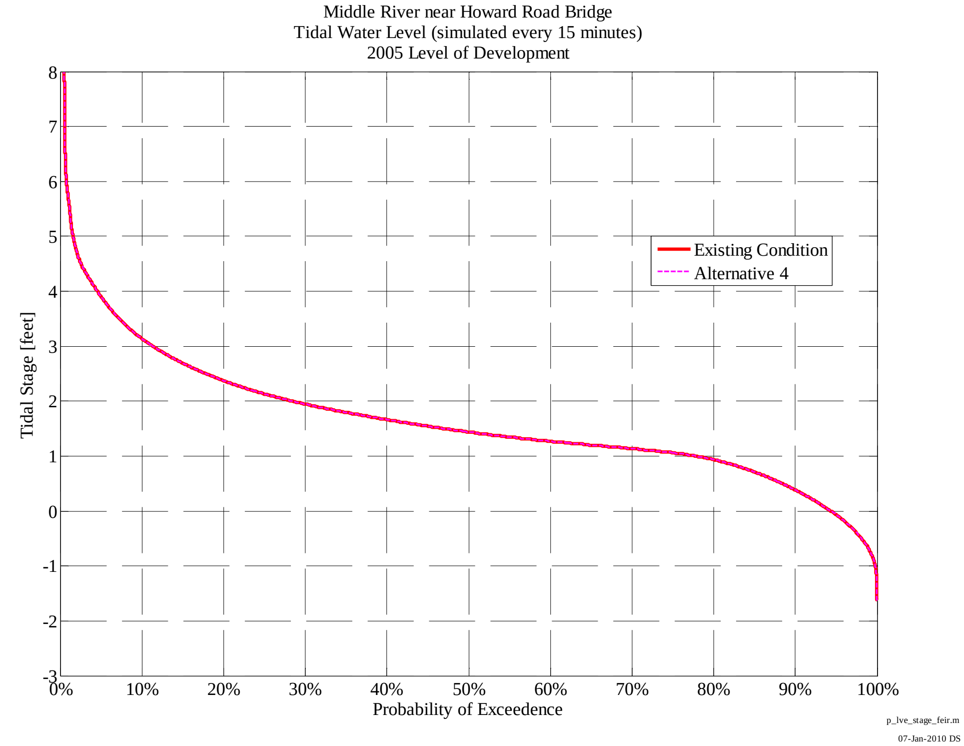


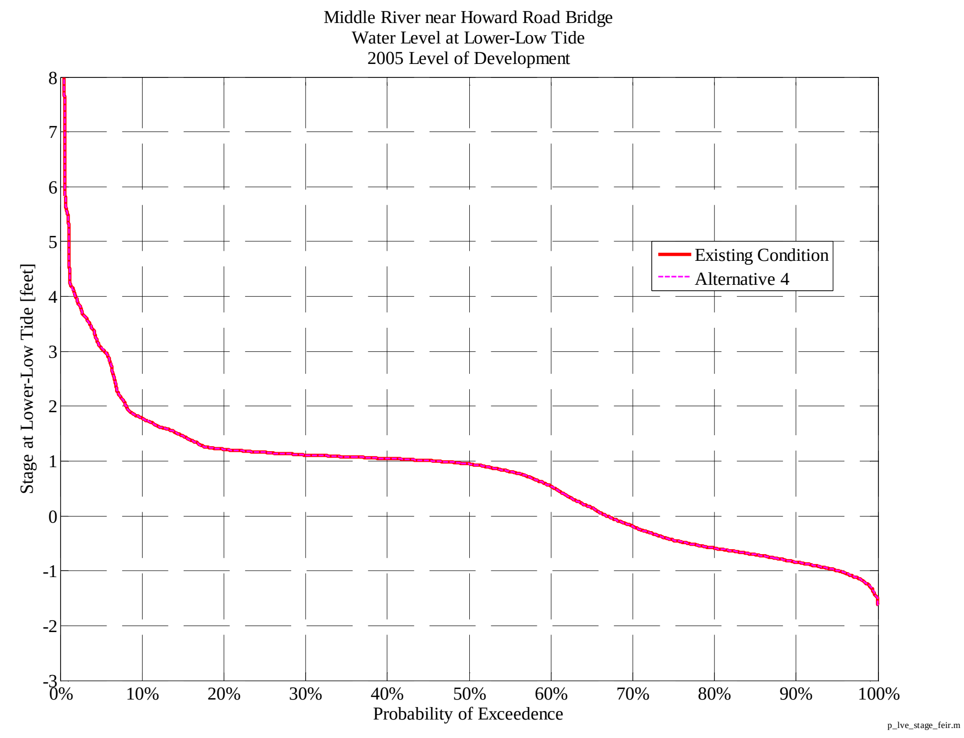
Middle River near Howard Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

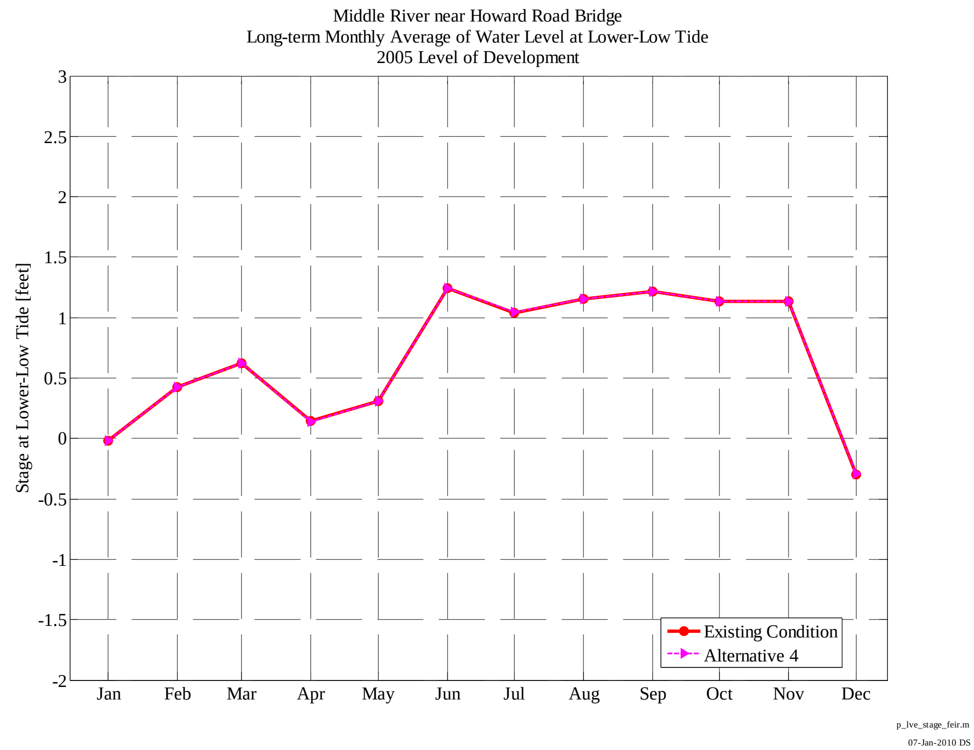


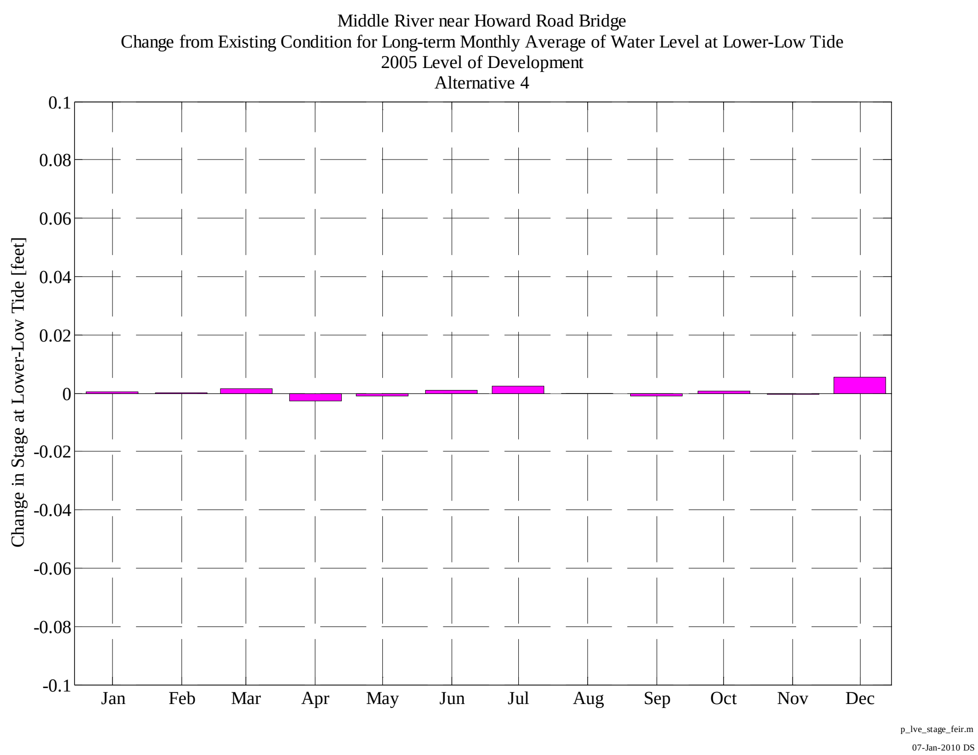
Middle River near Howard Road Bridge
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



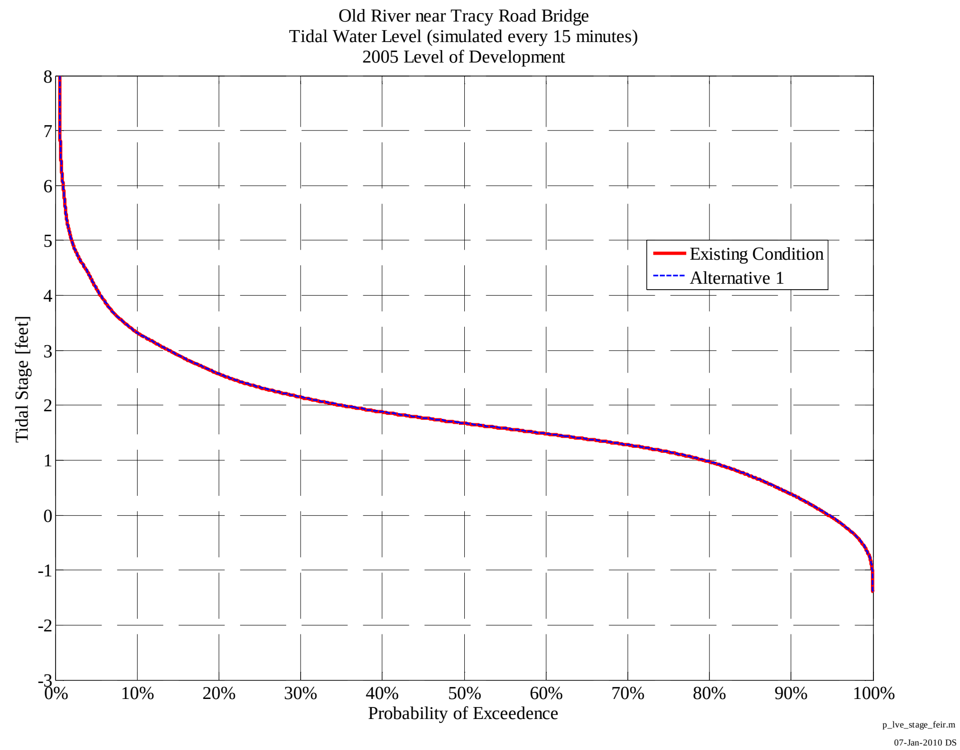


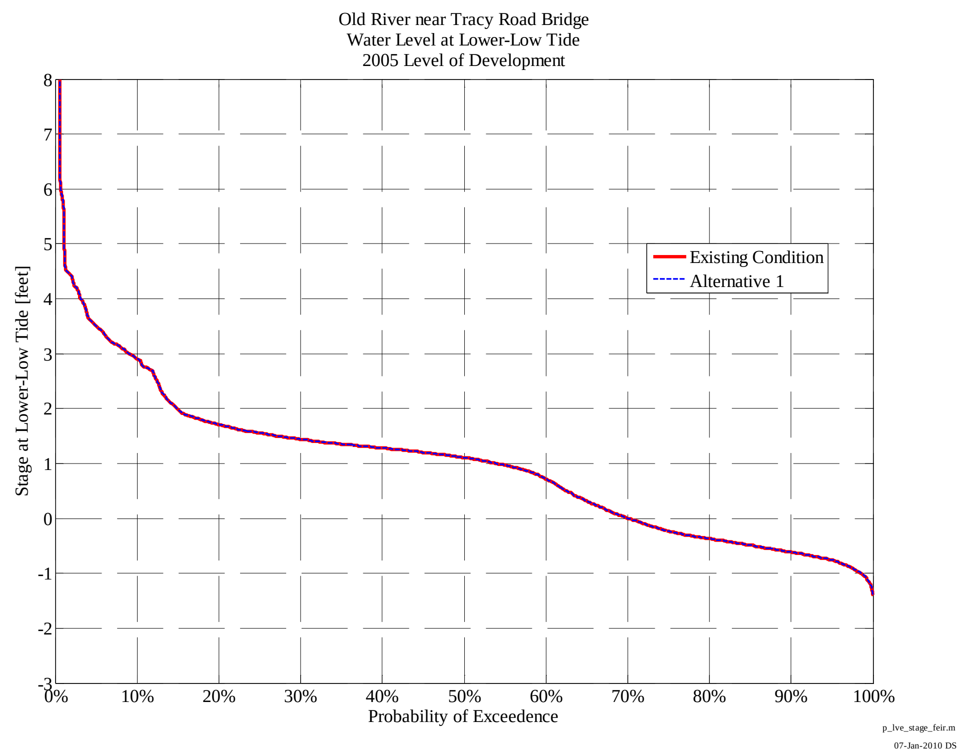

Middle River near Howard Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS

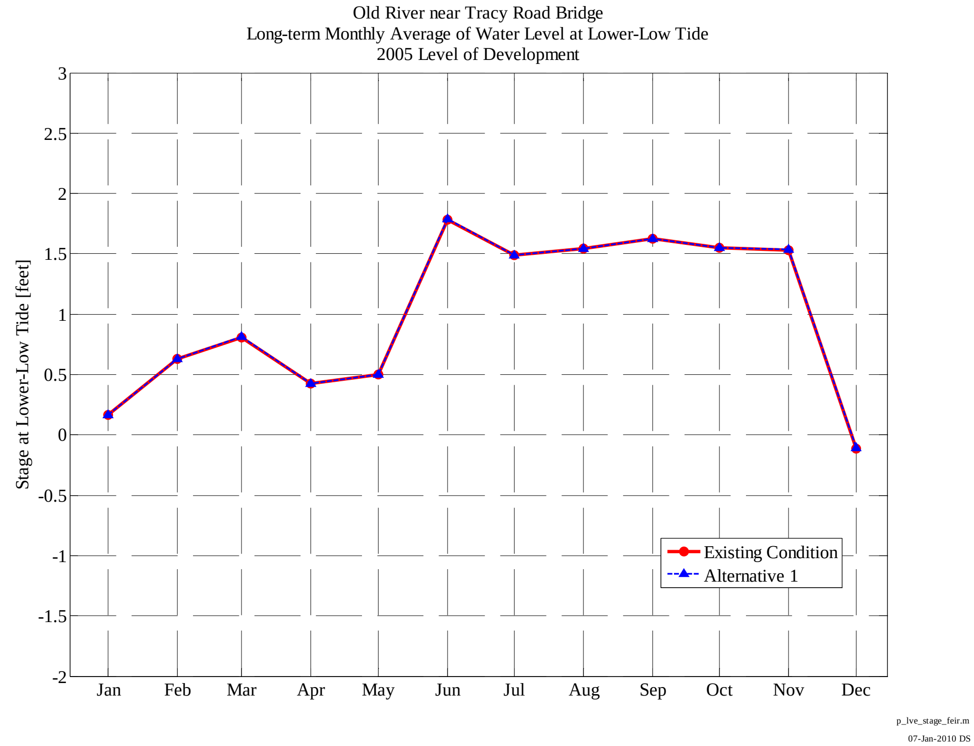

Middle River near Howard Road Bridge
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

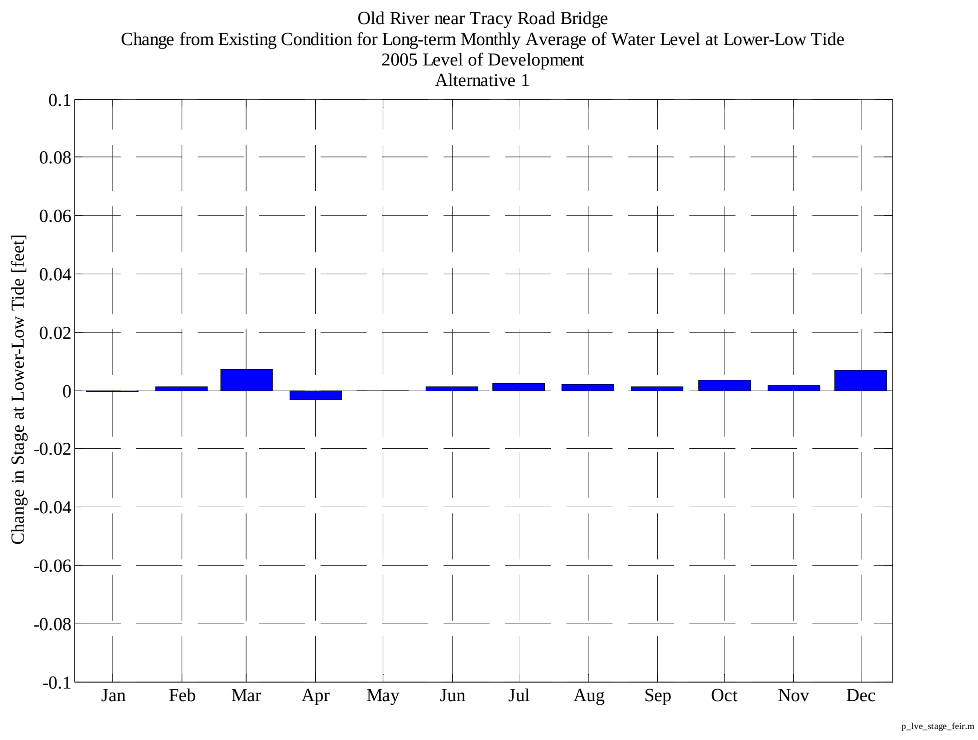
Old River near Tracy Road Bridge

Alternative 1

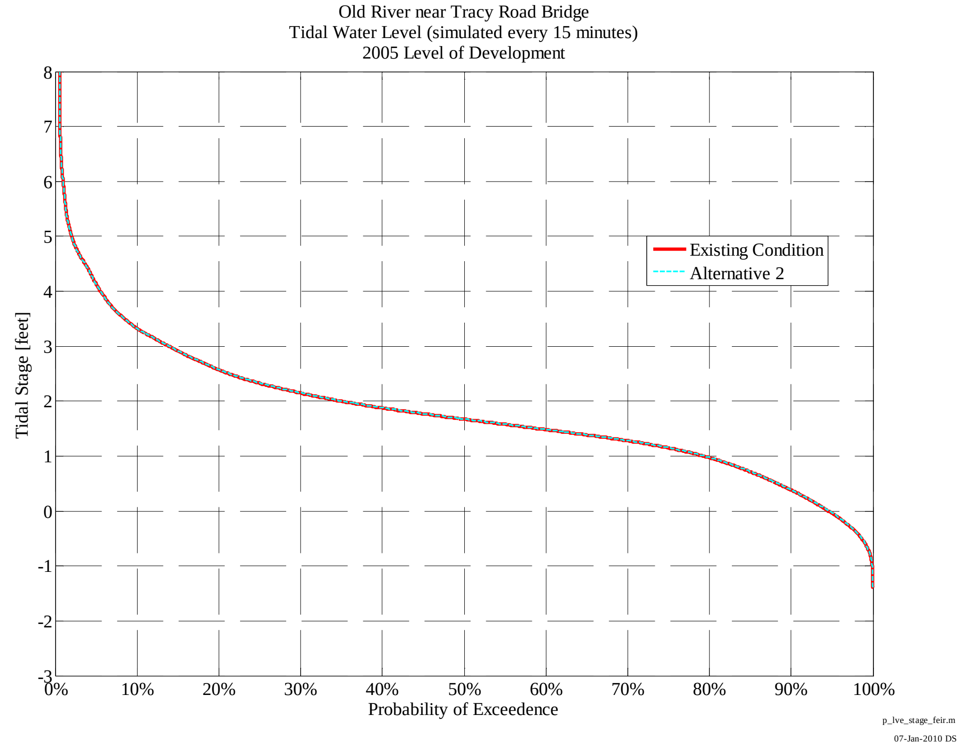


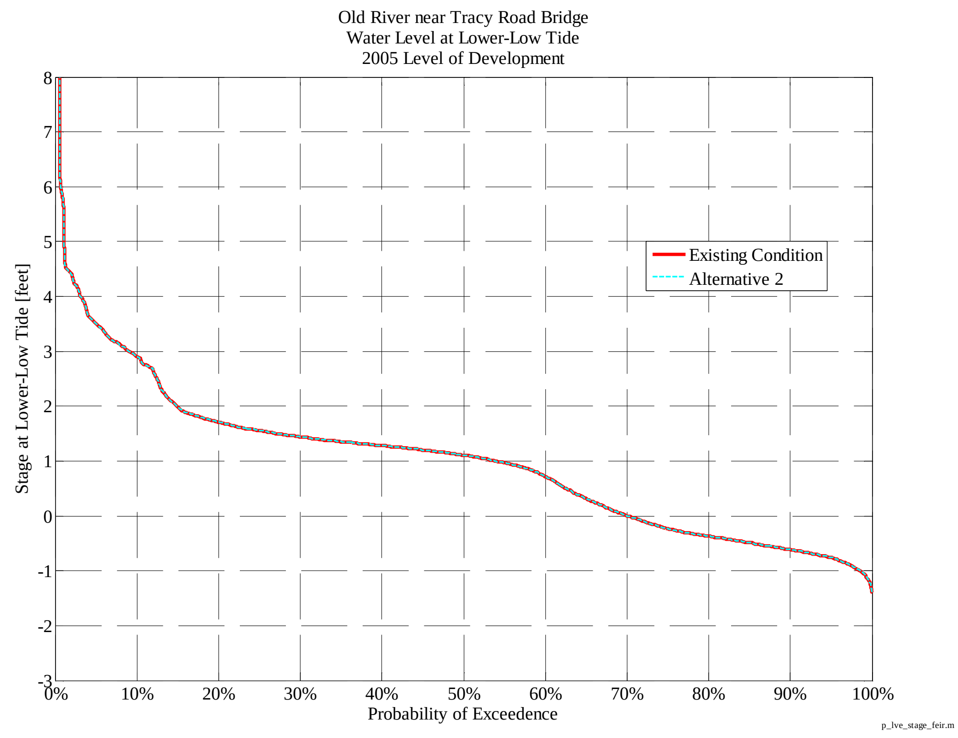


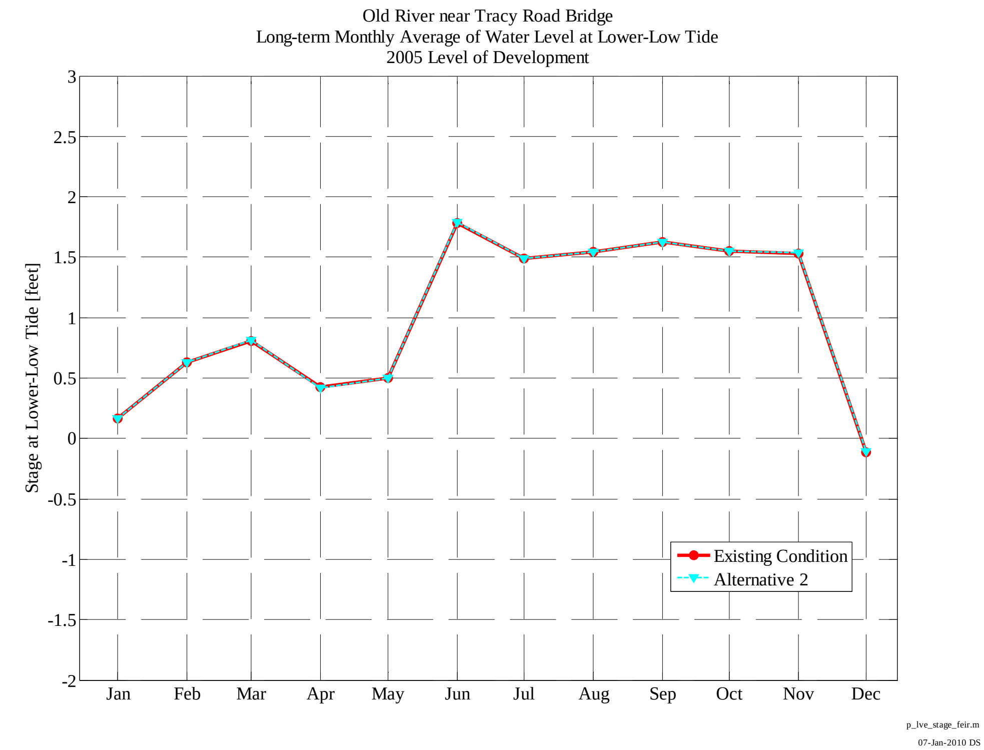

Old River near Tracy Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS

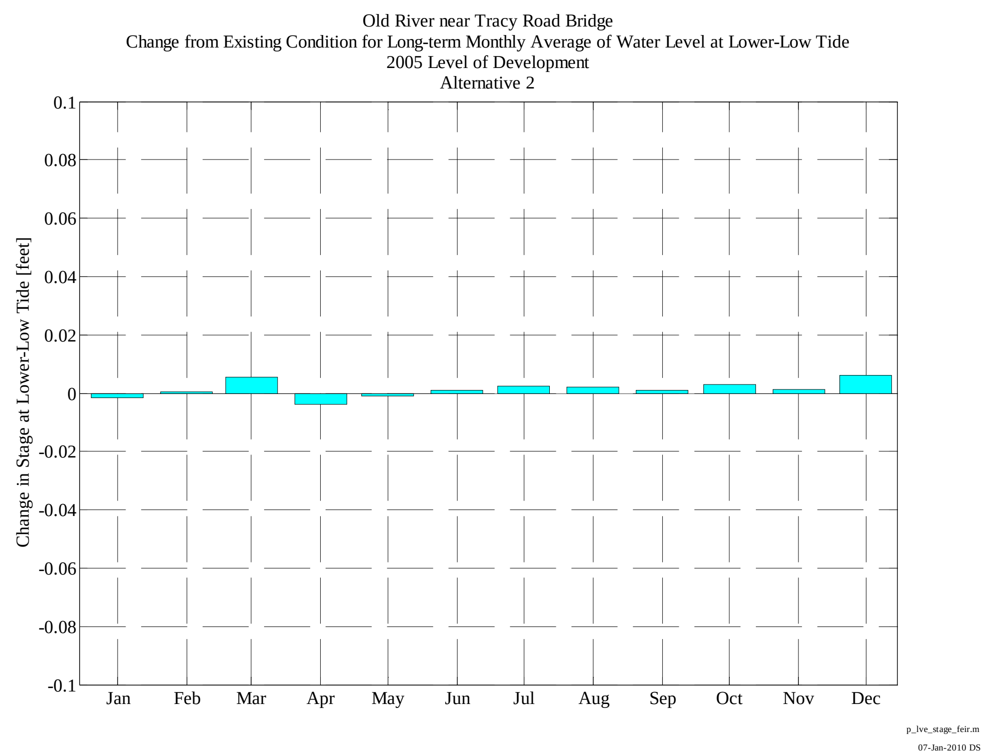

Old River near Tracy Road Bridge
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

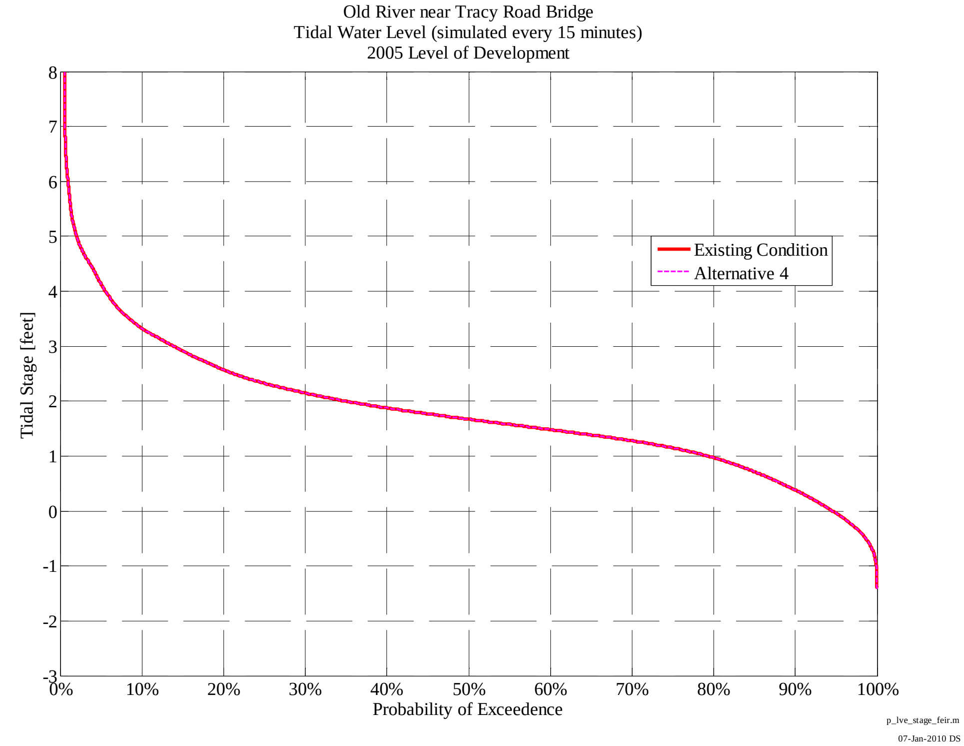


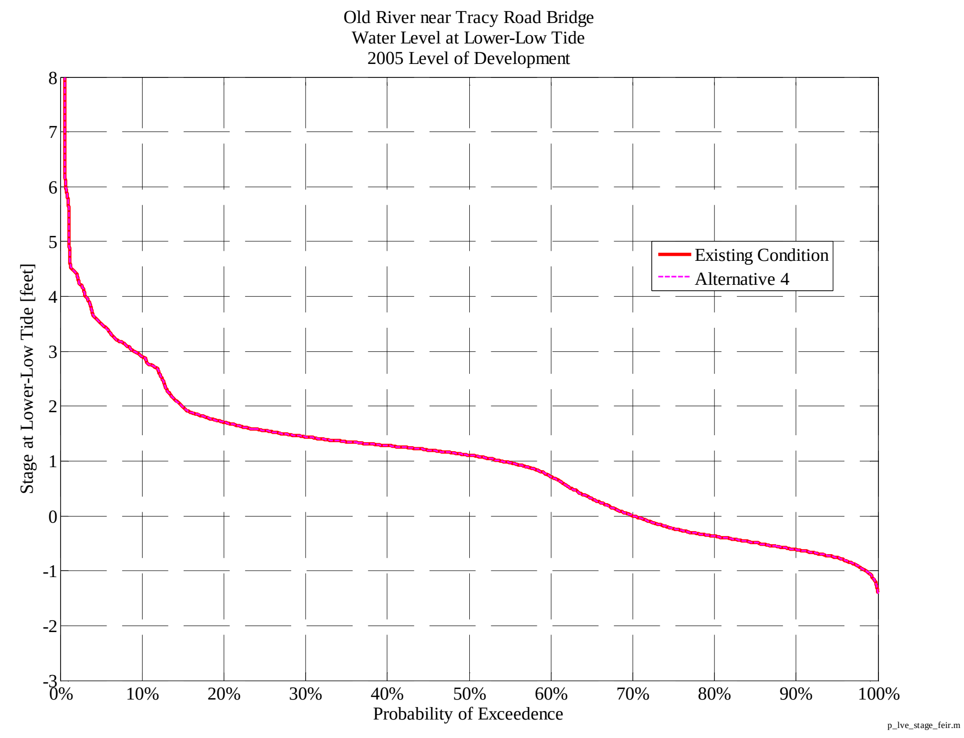


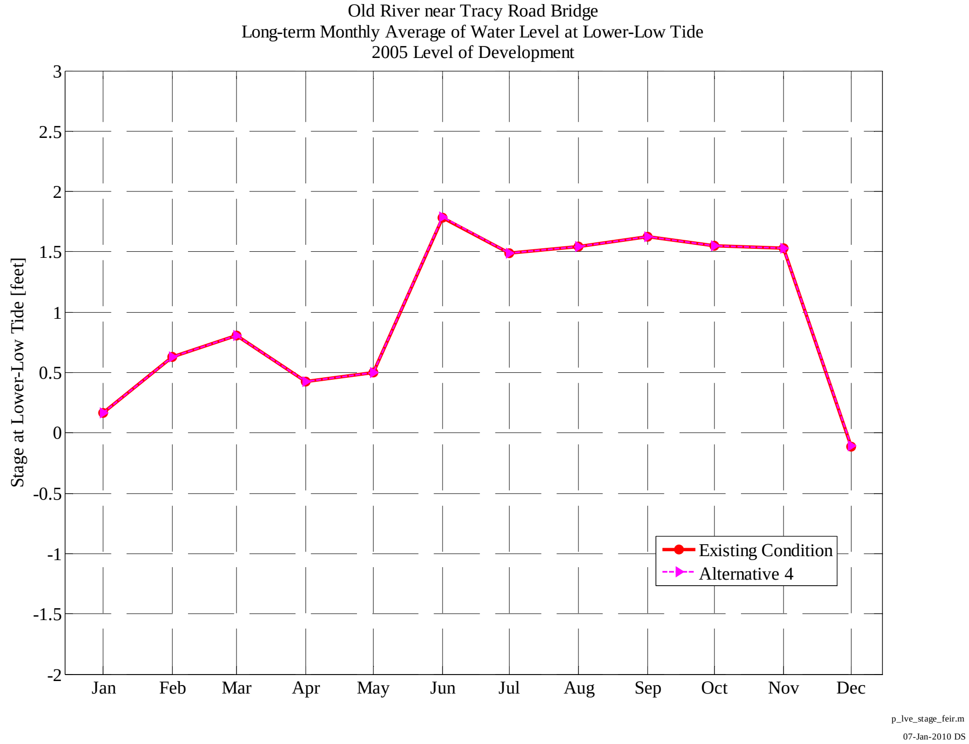

Old River near Tracy Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

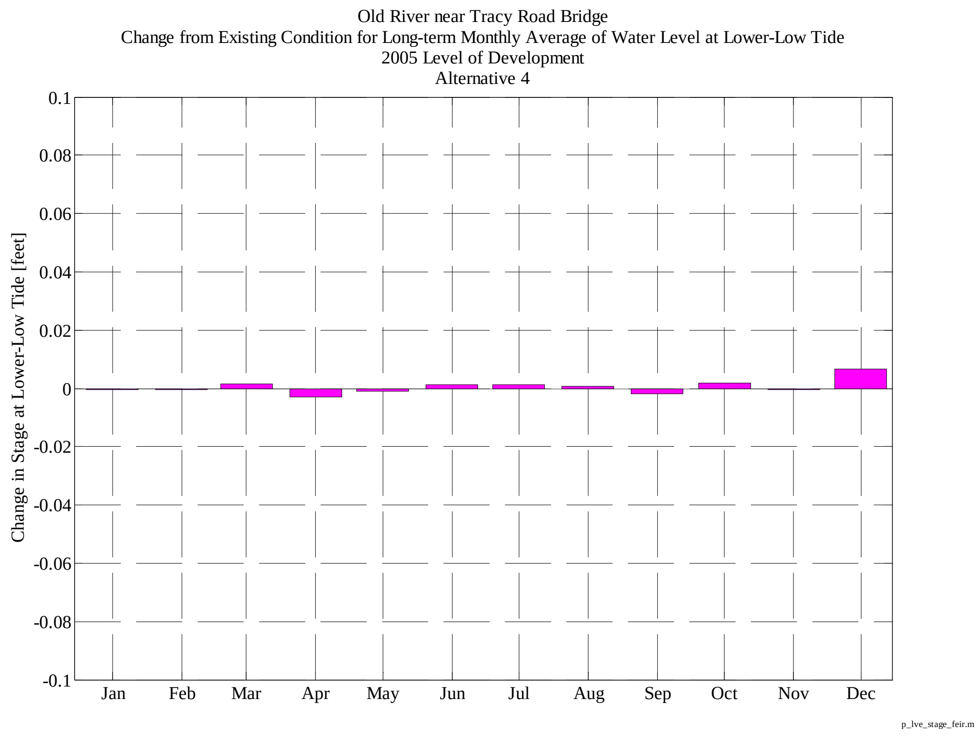

Old River near Tracy Road Bridge
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



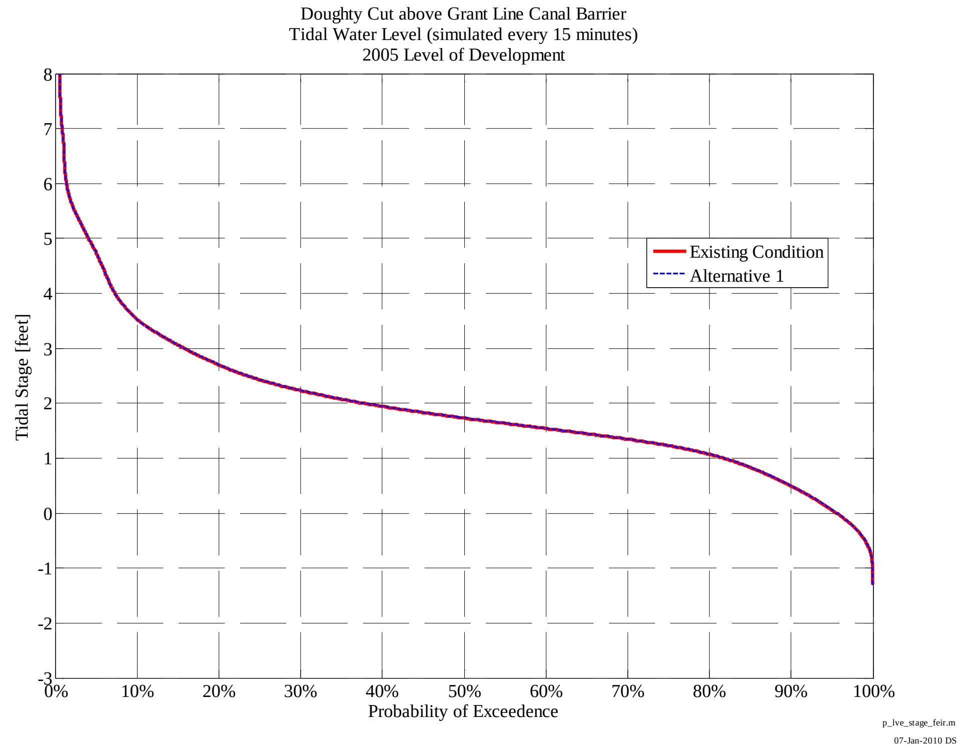


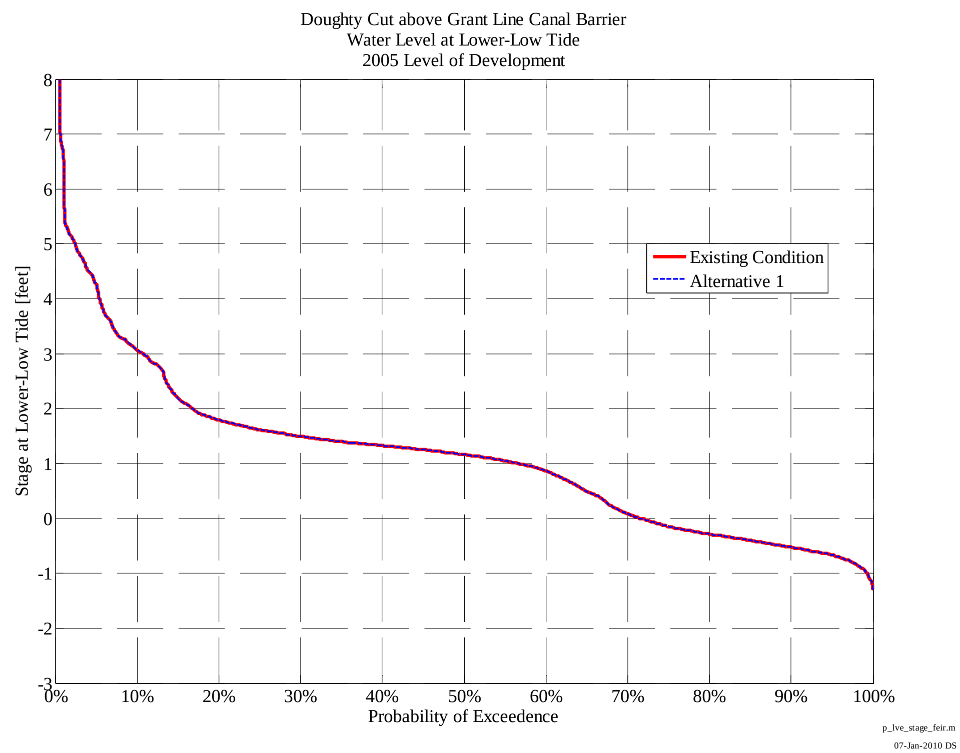

Old River near Tracy Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS

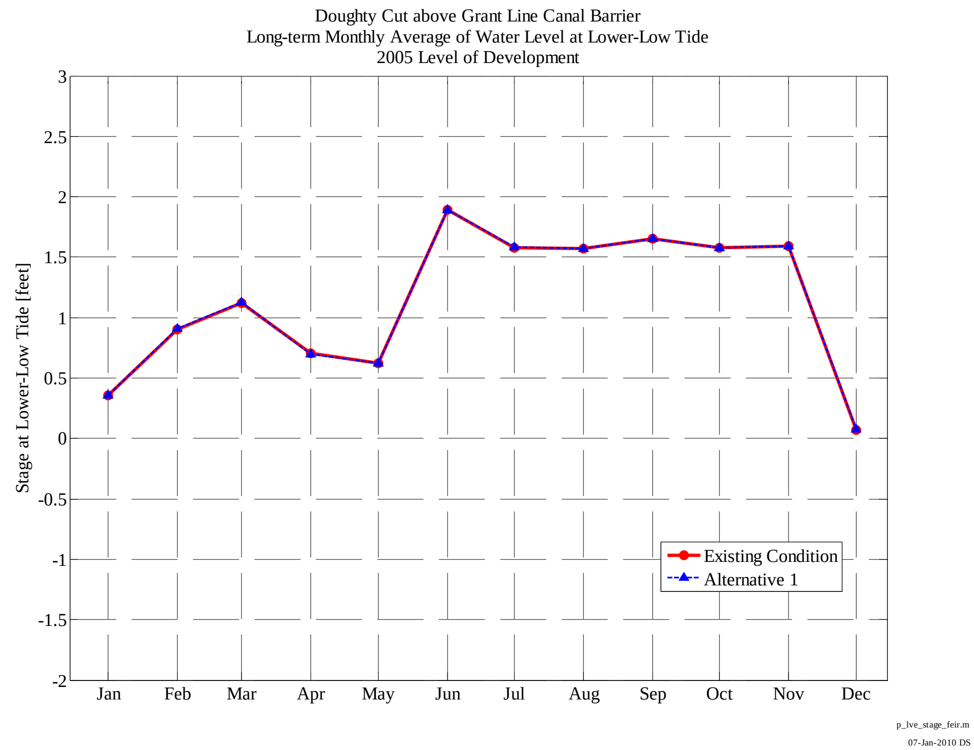

Old River near Tracy Road Bridge
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

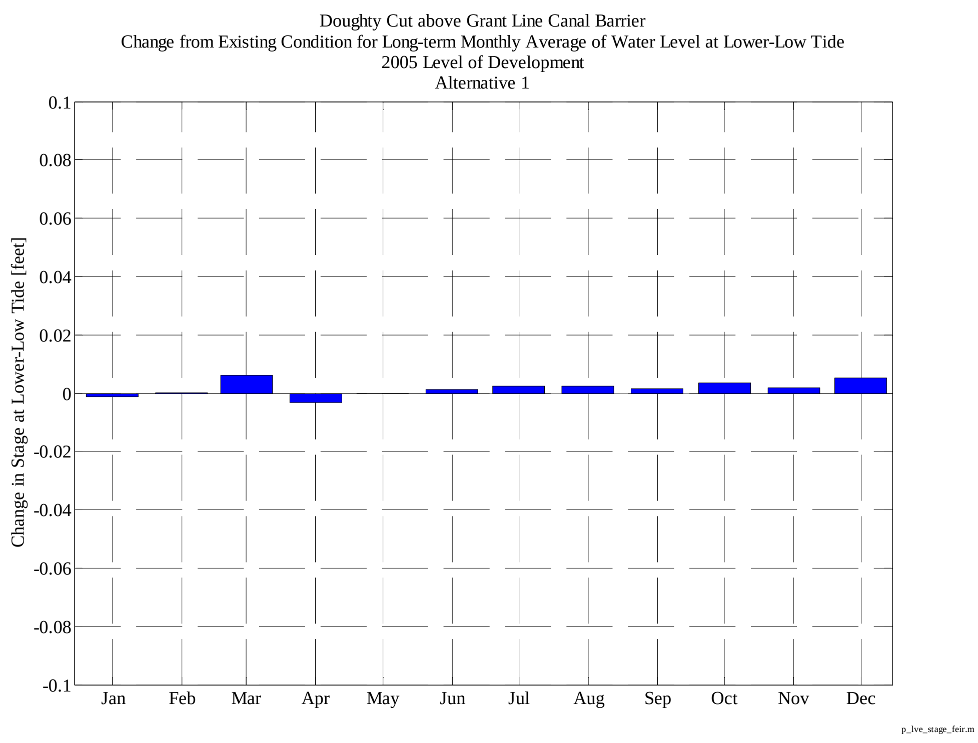
Doughty Cut above Grant Line Canal Barrier

Alternative 1

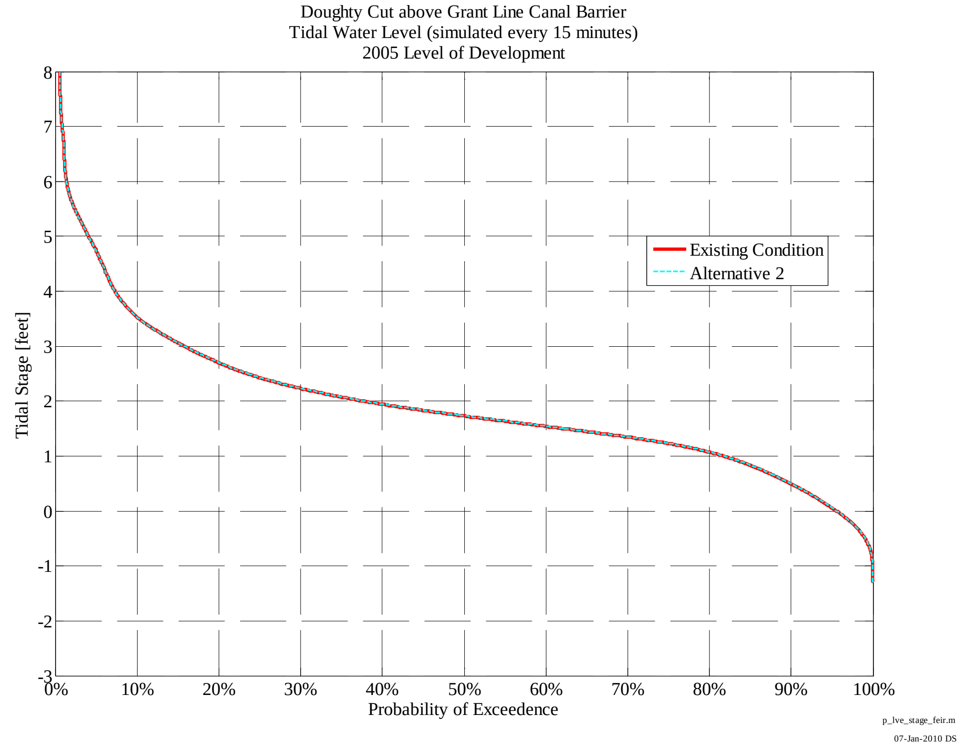


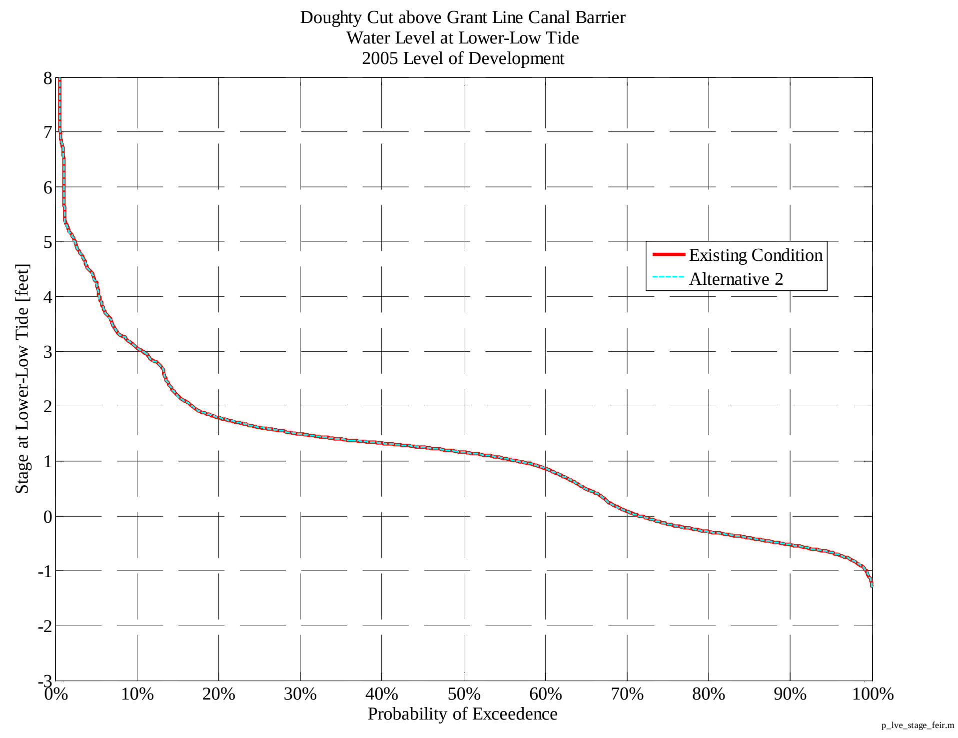


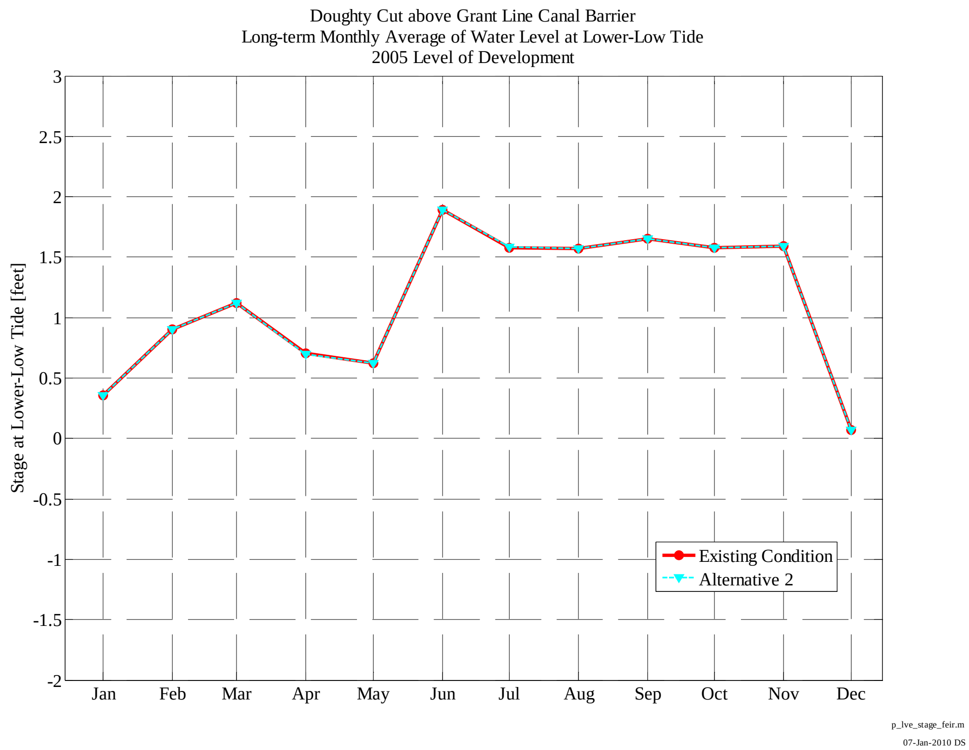

Doughty Cut above Grant Line Canal Barrier
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS

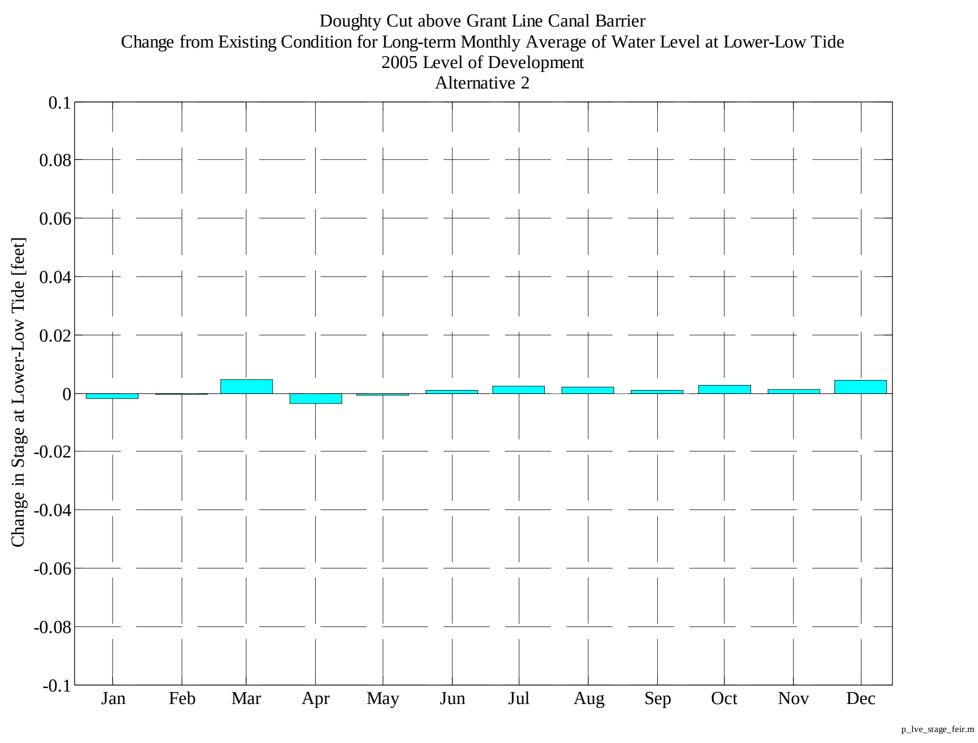

Doughty Cut above Grant Line Canal Barrier
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

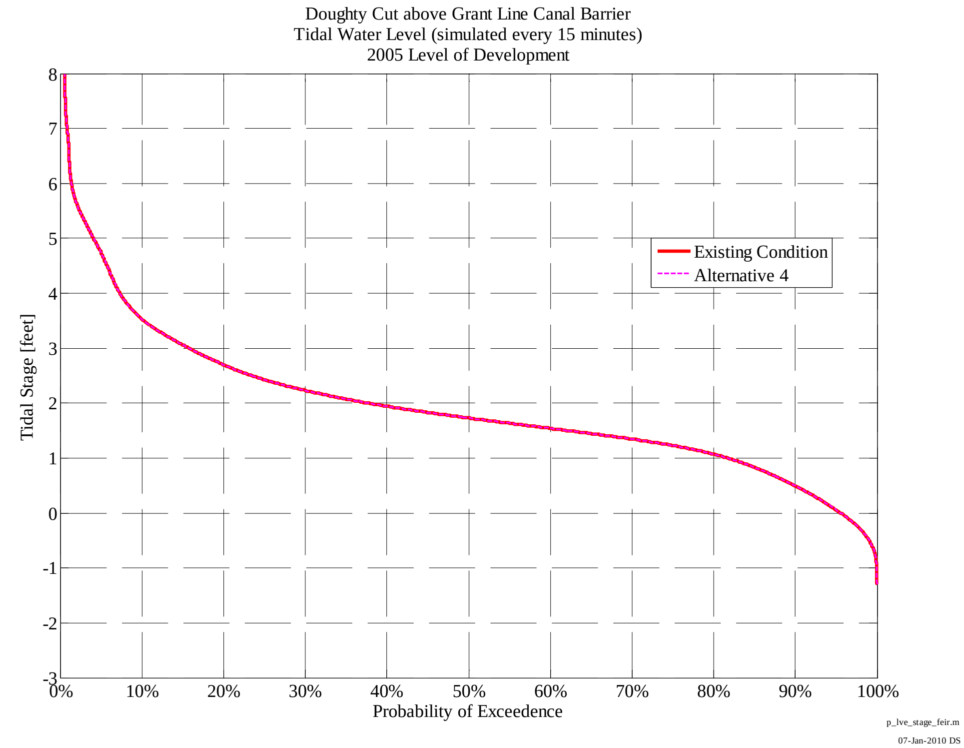


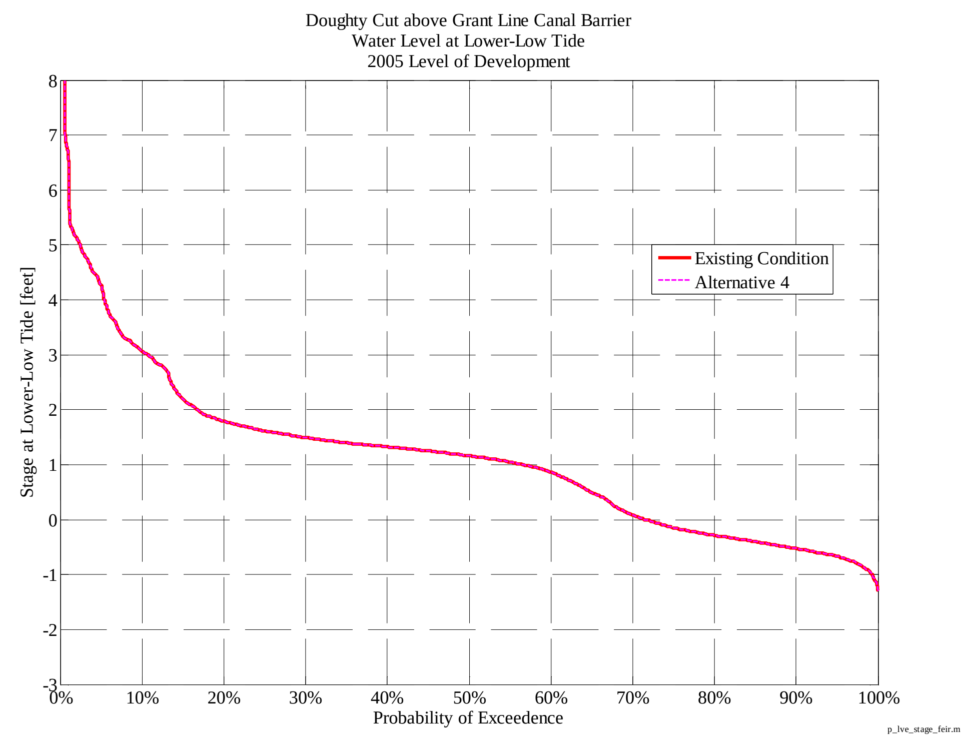


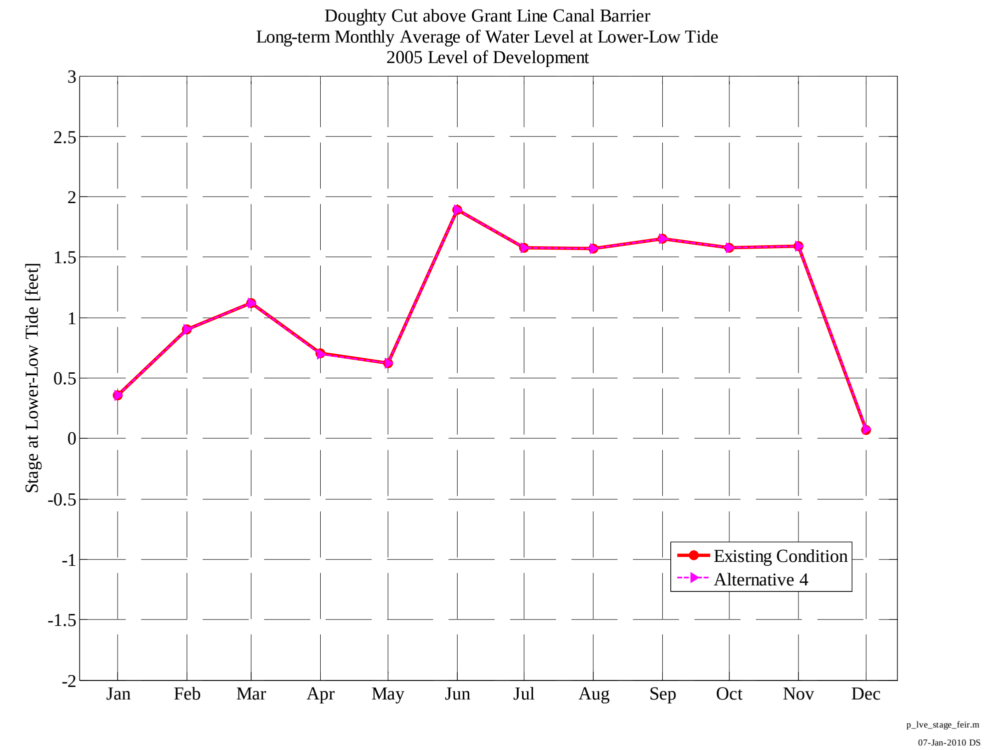

Doughty Cut above Grant Line Canal Barrier
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

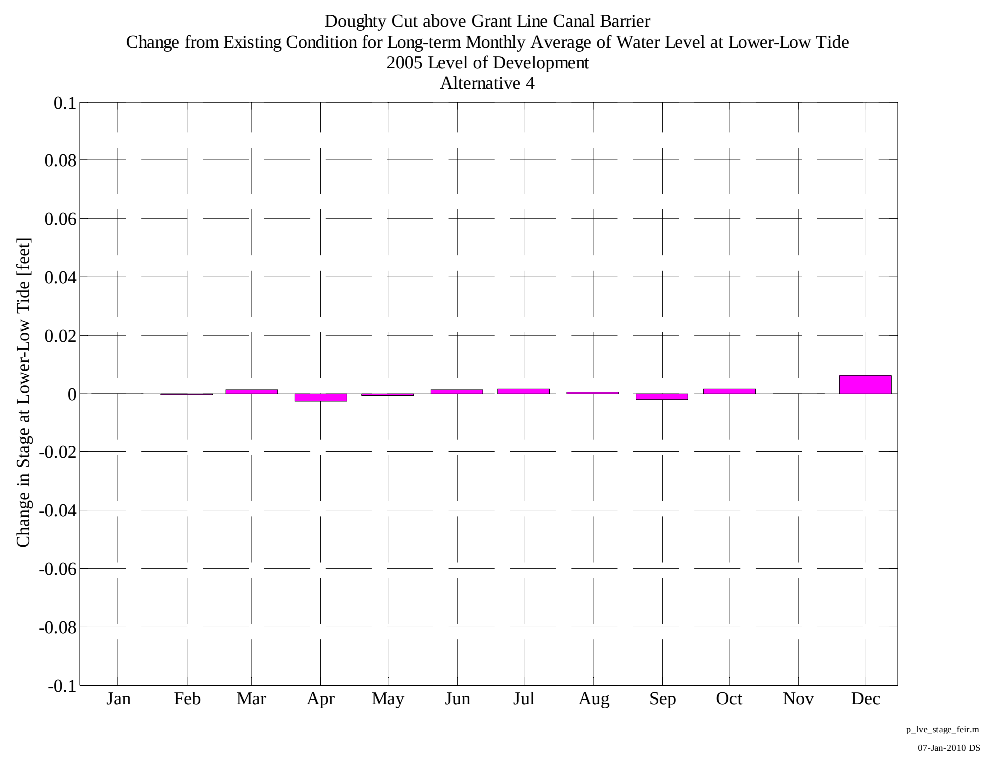

Doughty Cut above Grant Line Canal Barrier
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



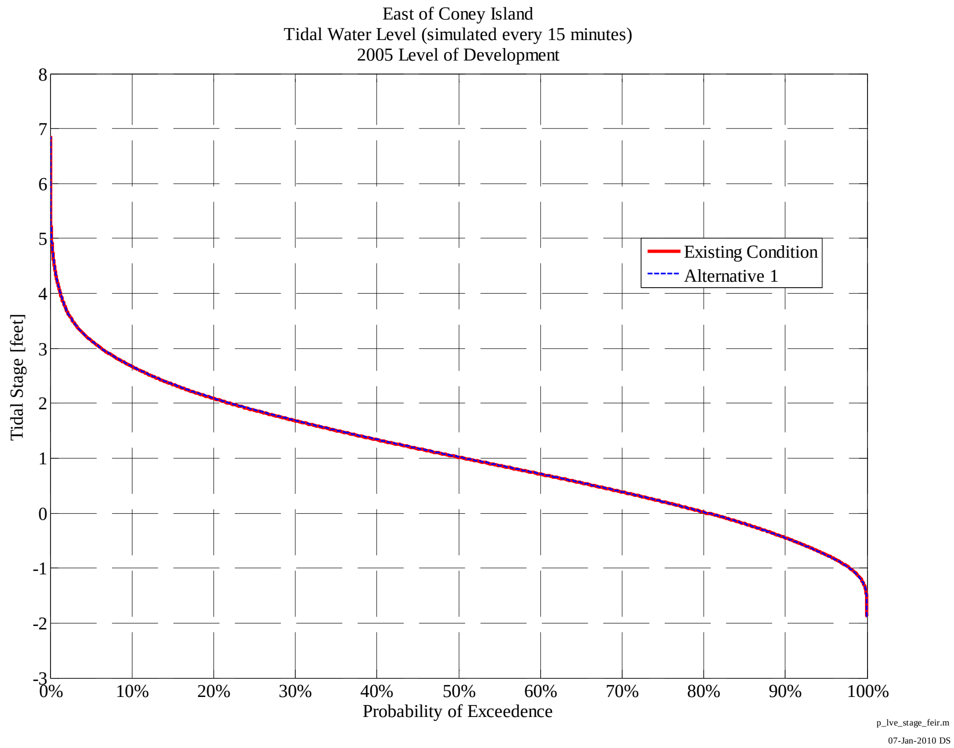


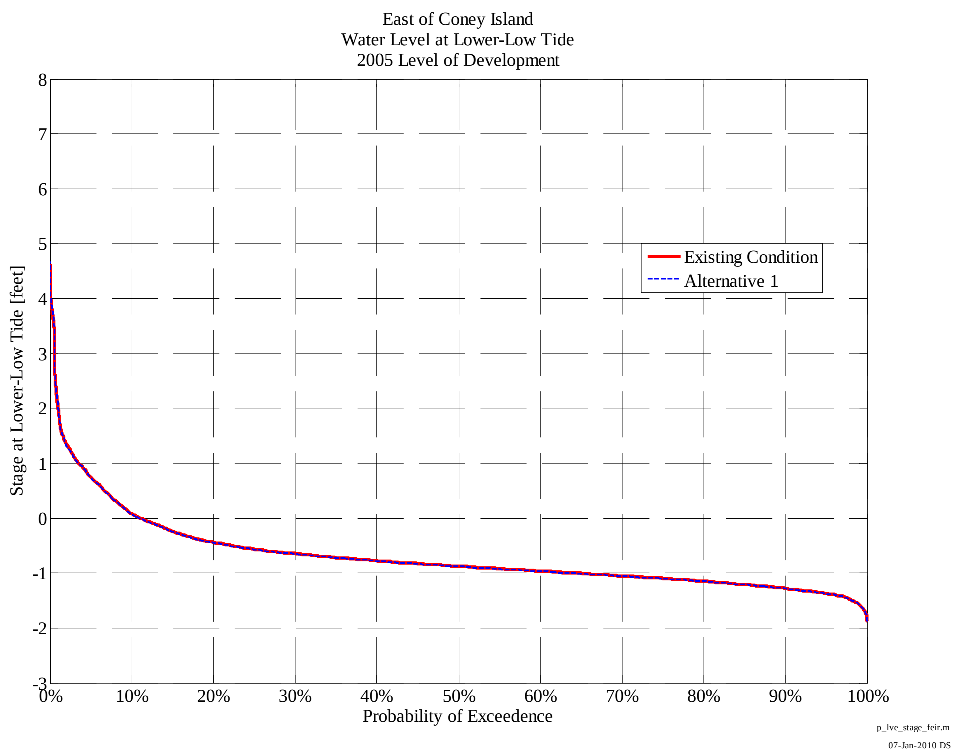

Doughty Cut above Grant Line Canal Barrier
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS


Doughty Cut above Grant Line Canal Barrier
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

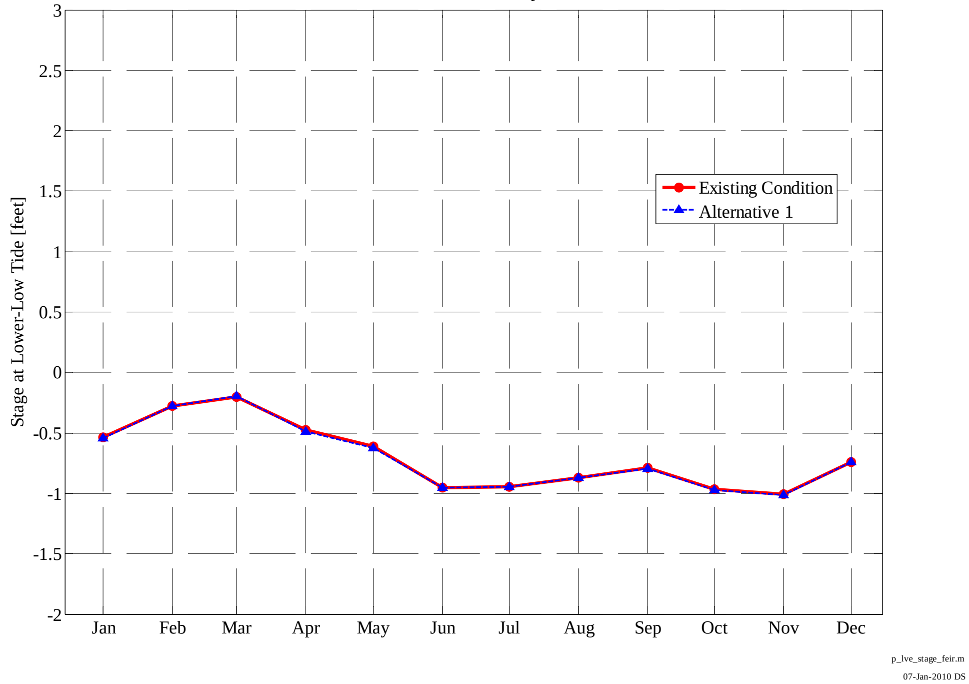
East of Coney Island

Alternative 1

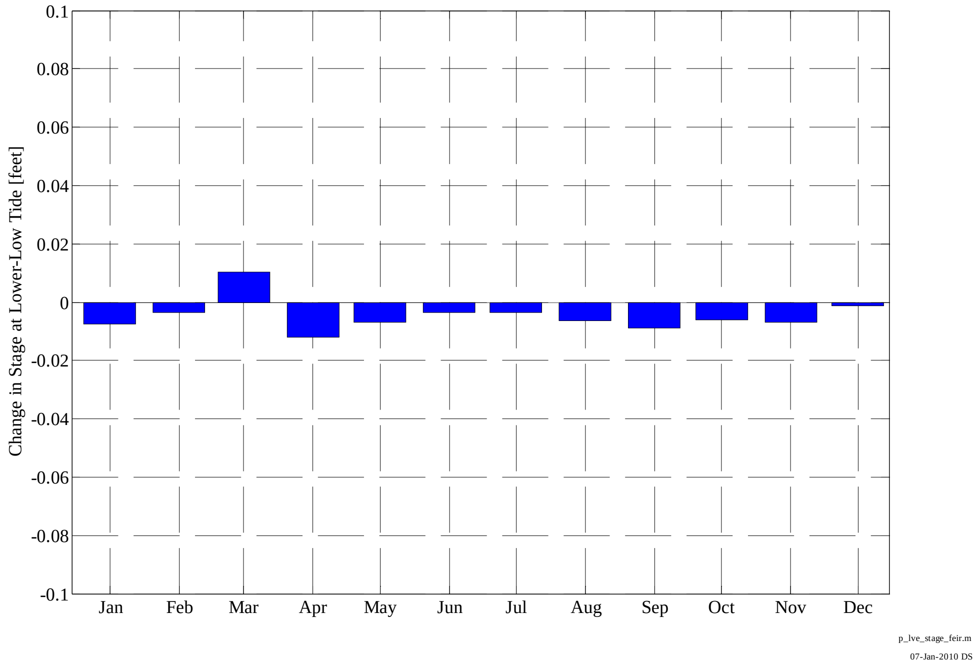




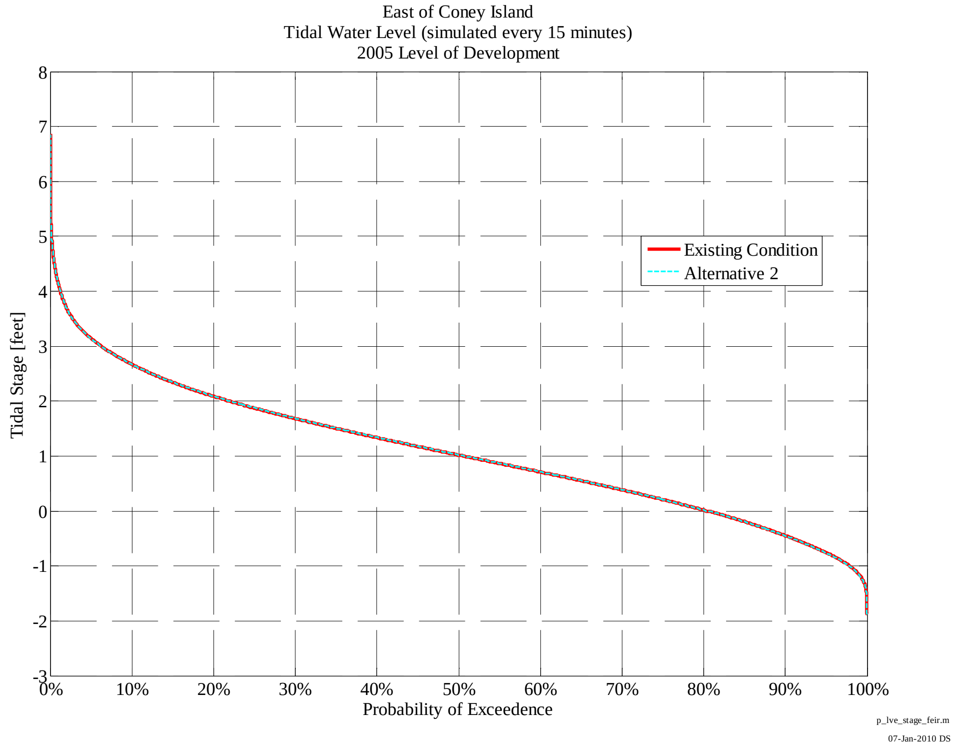
East of Coney Island
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development

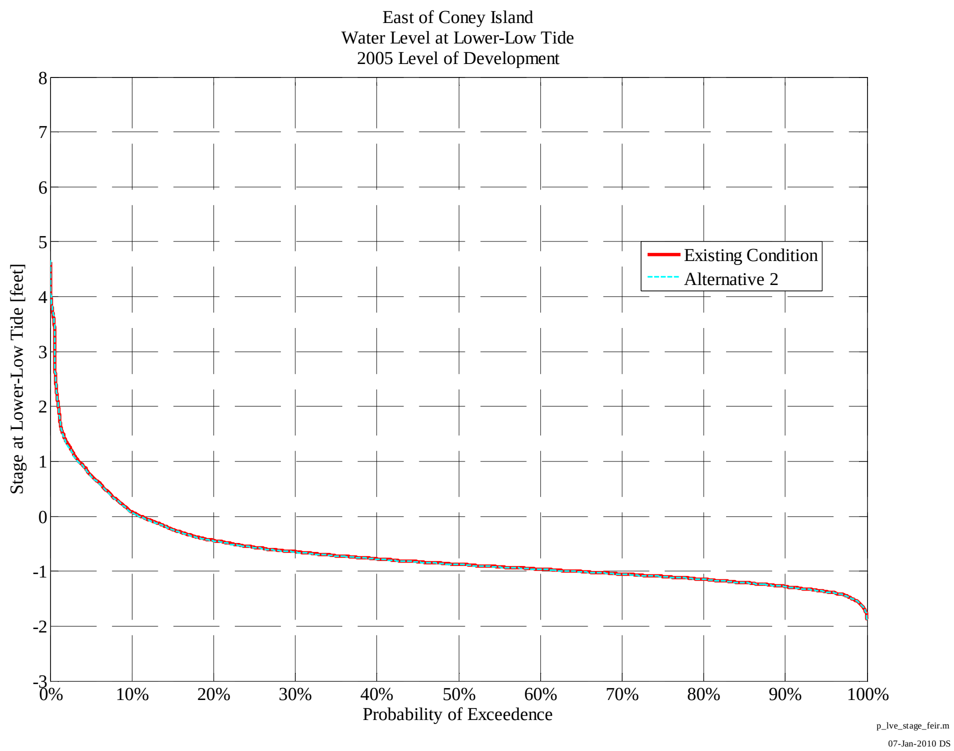


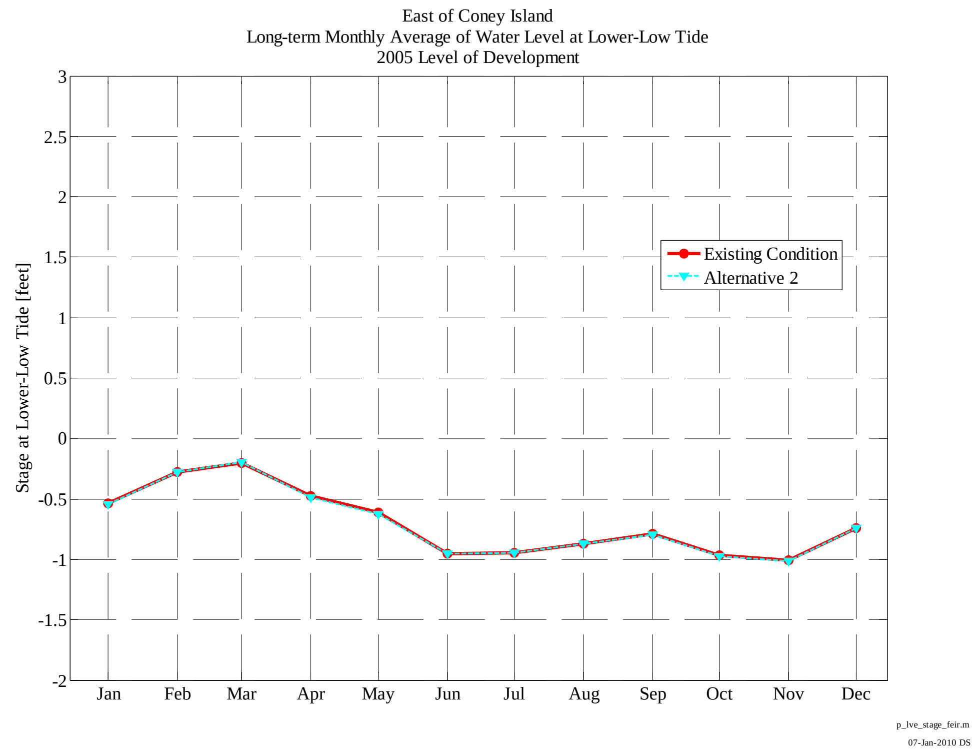
East of Coney Island
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 1

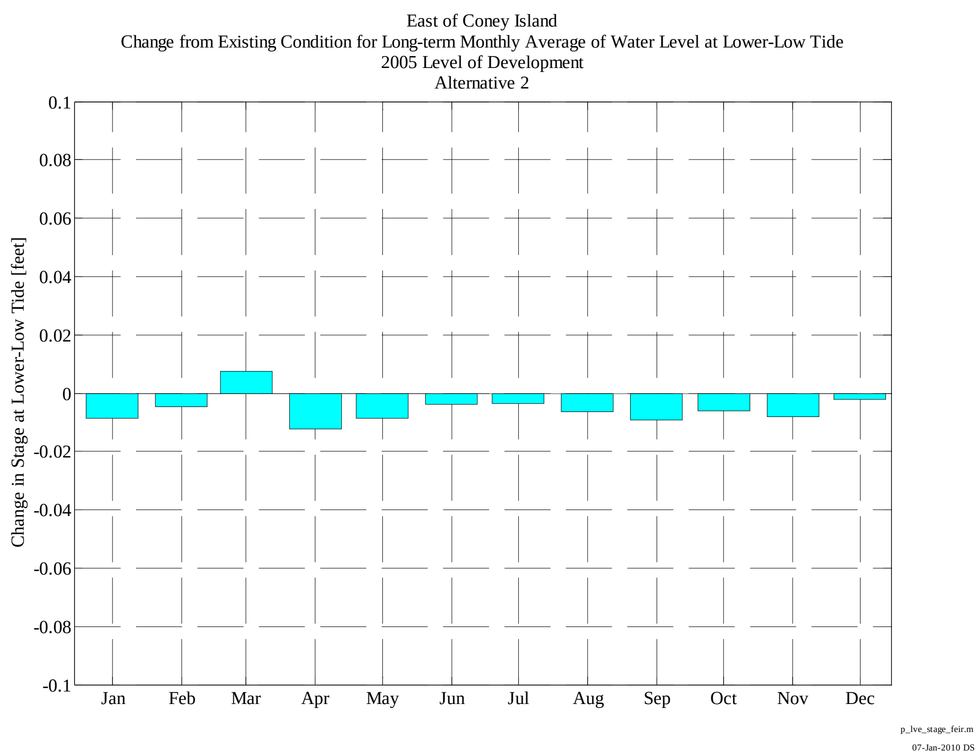


Alternative 2

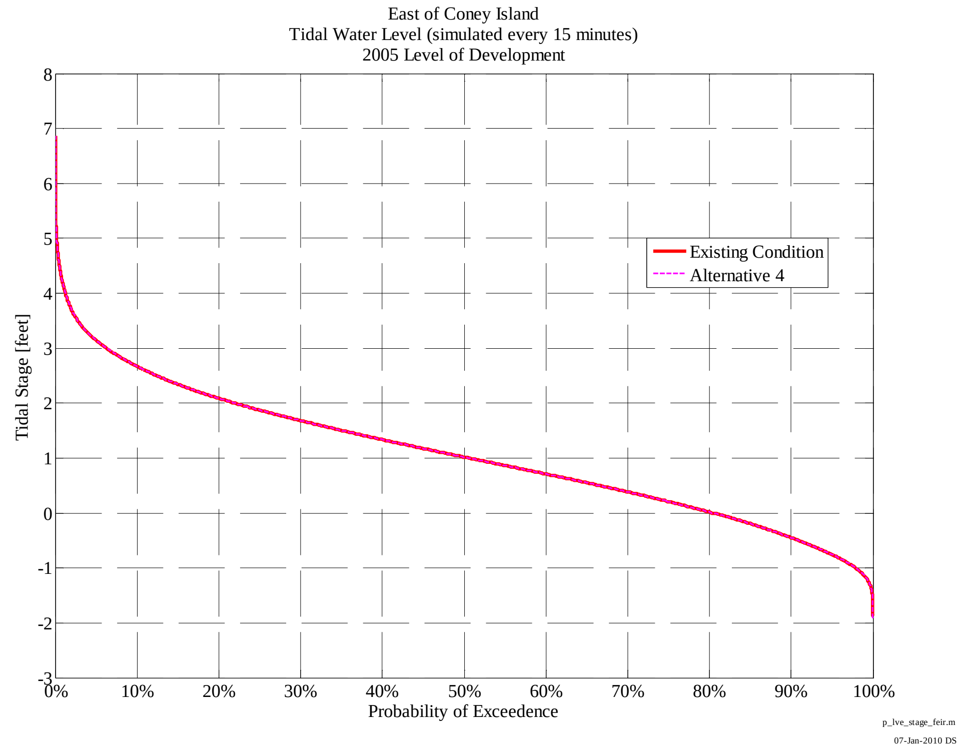


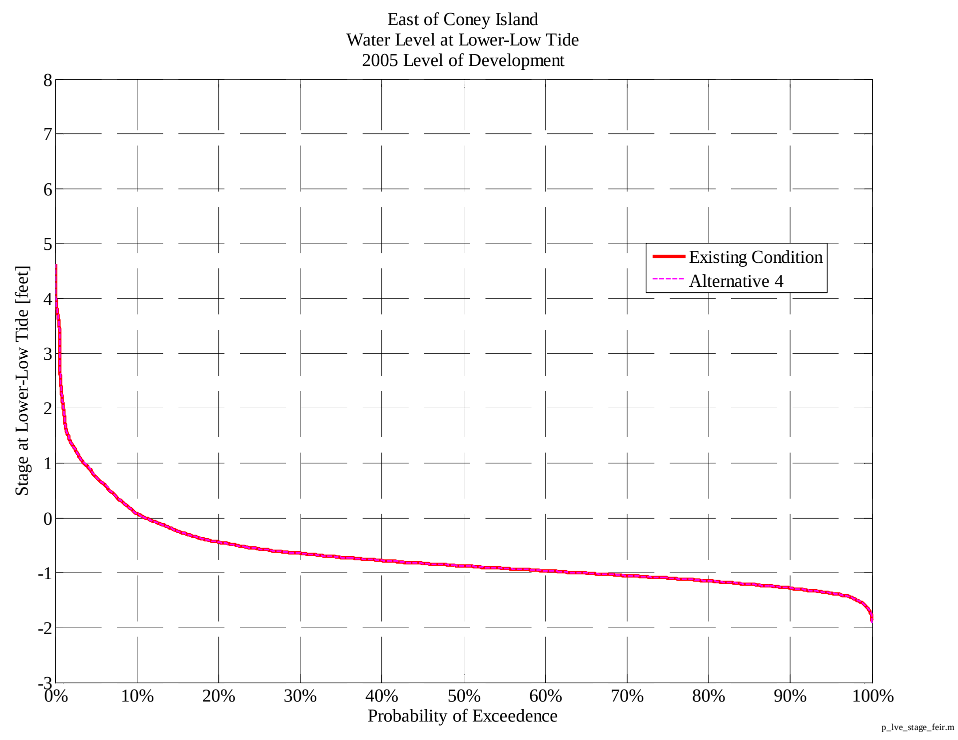


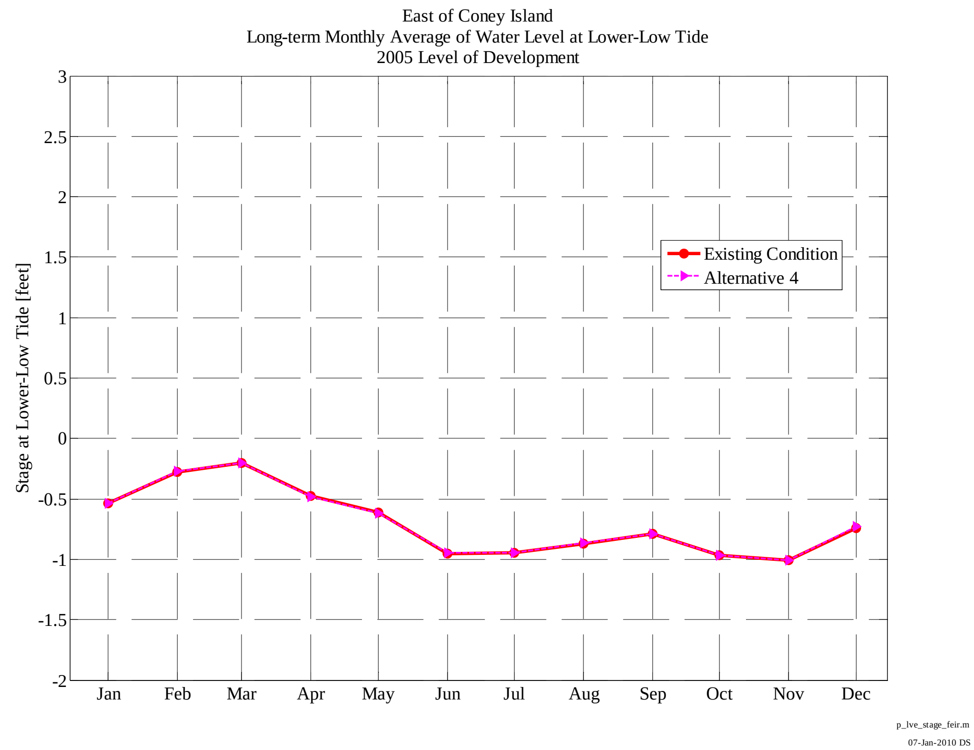

East of Coney Island
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Existing Condition
Alternative 2
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

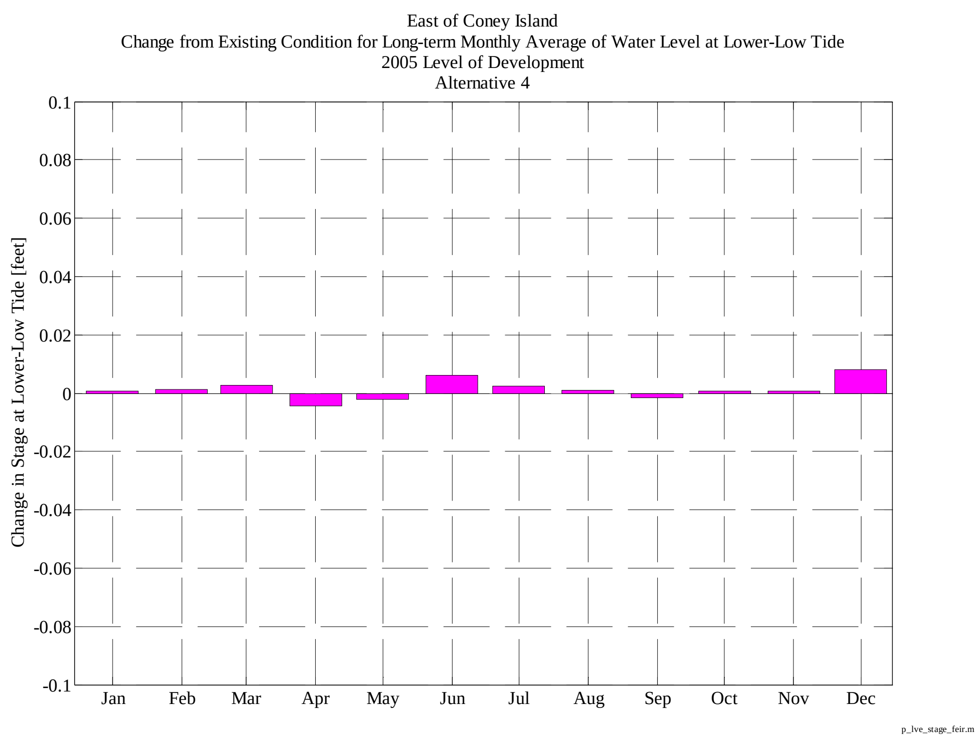

East of Coney Island
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



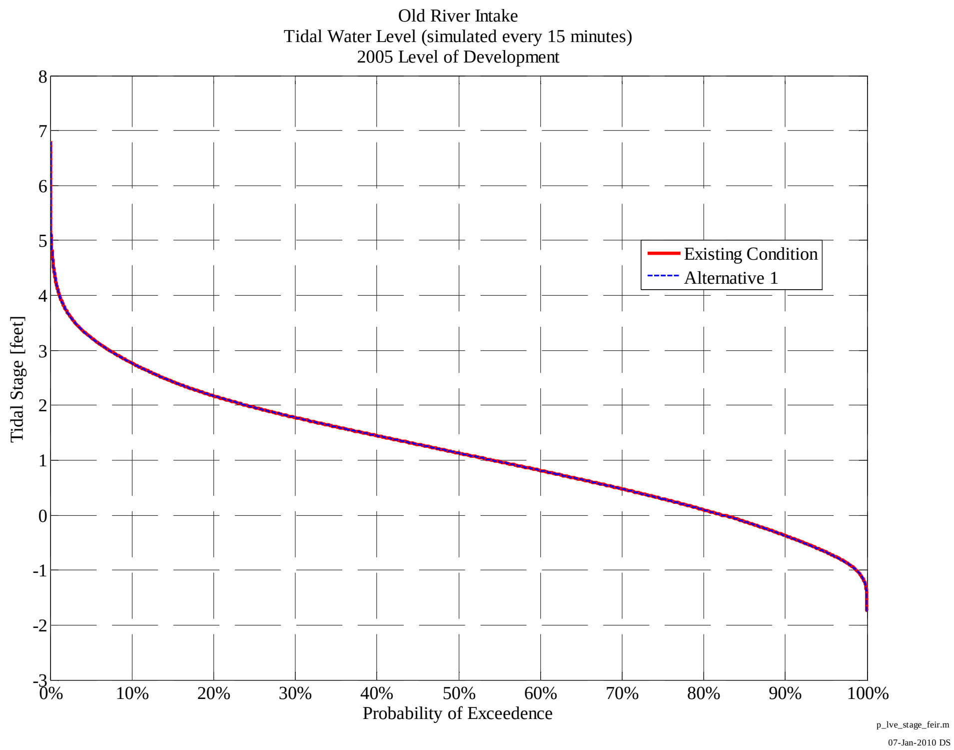


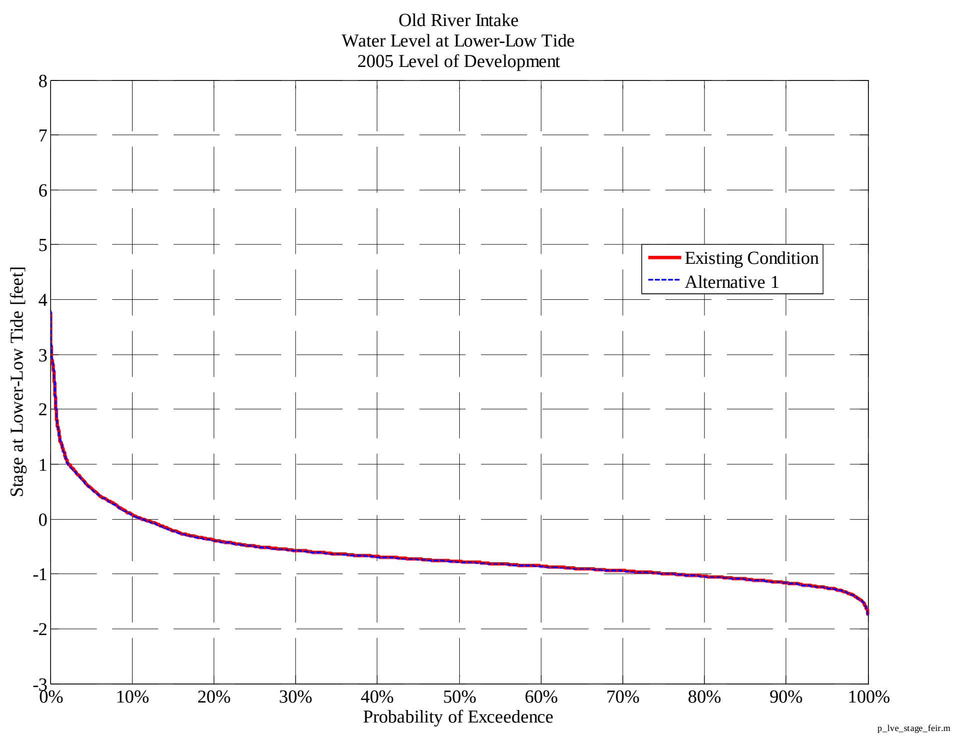

East of Coney Island
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Existing Condition
Alternative 4
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

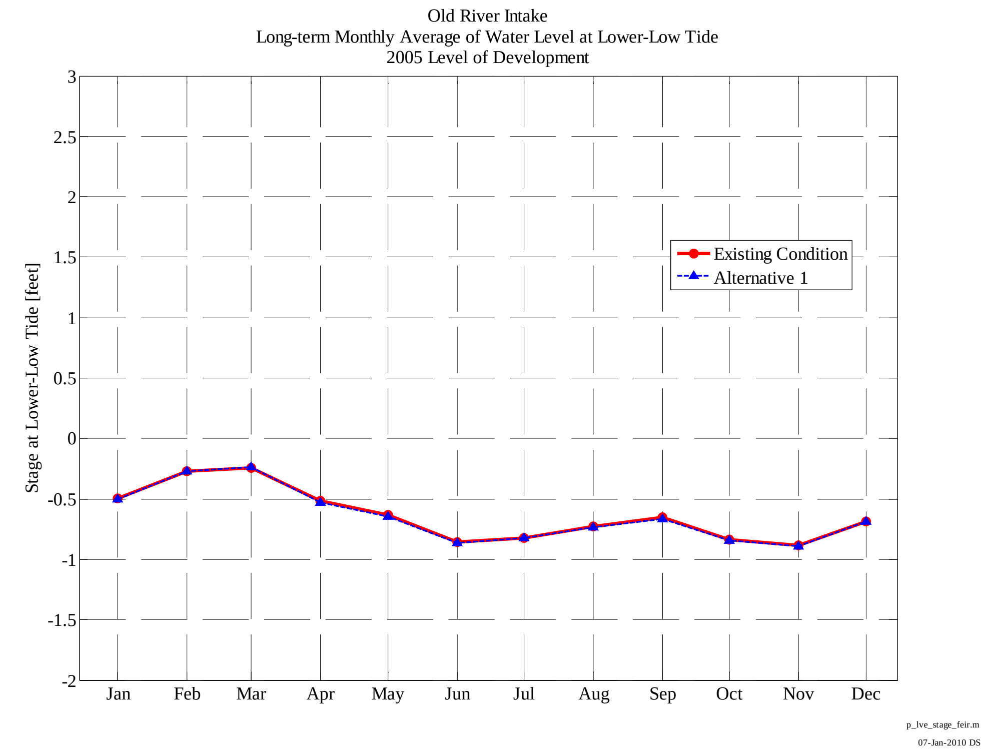

East of Coney Island
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

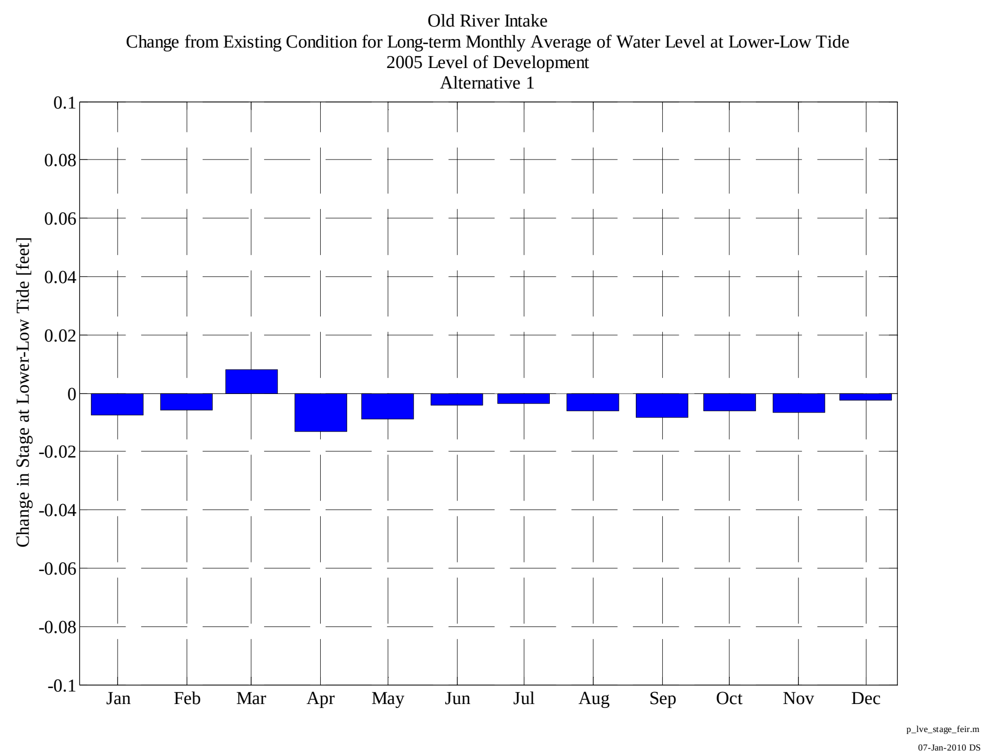
Old River Intake

Alternative 1

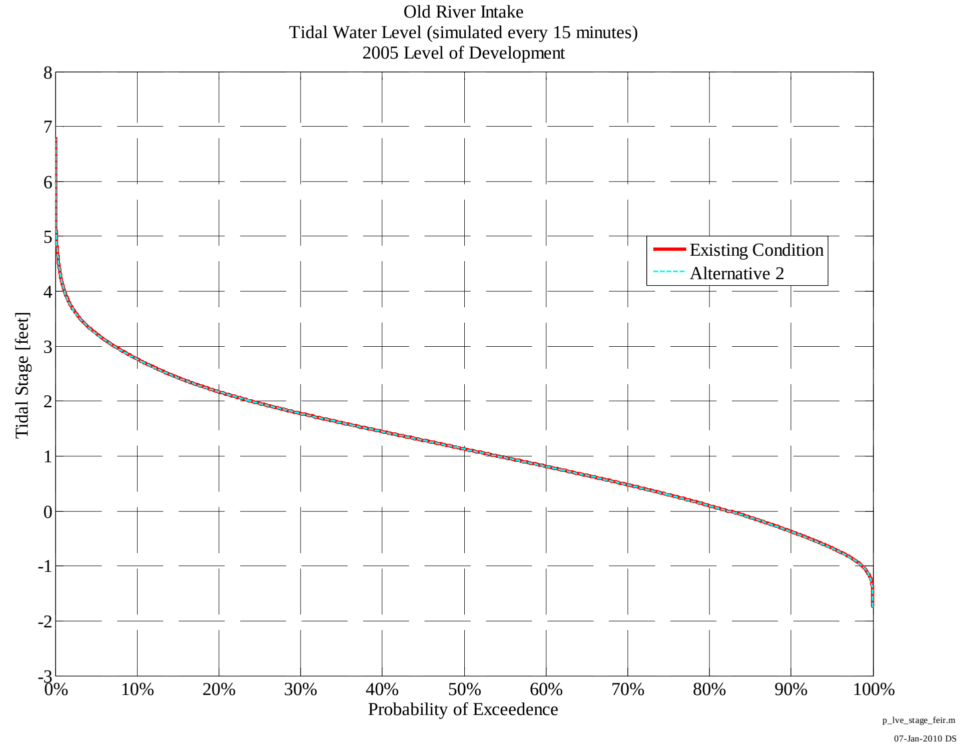


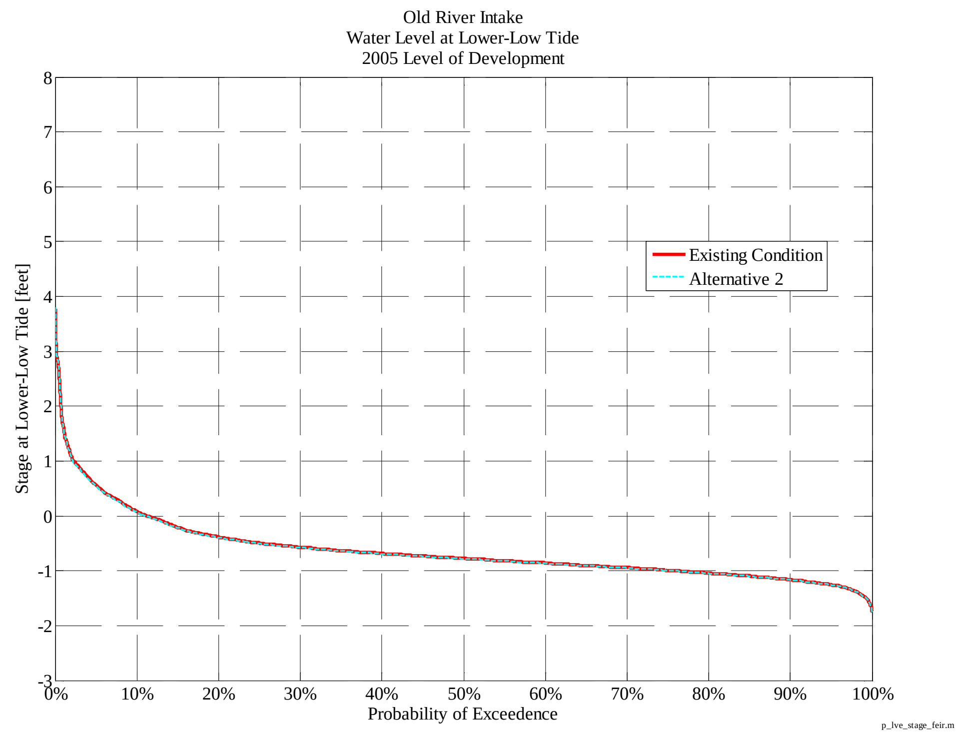


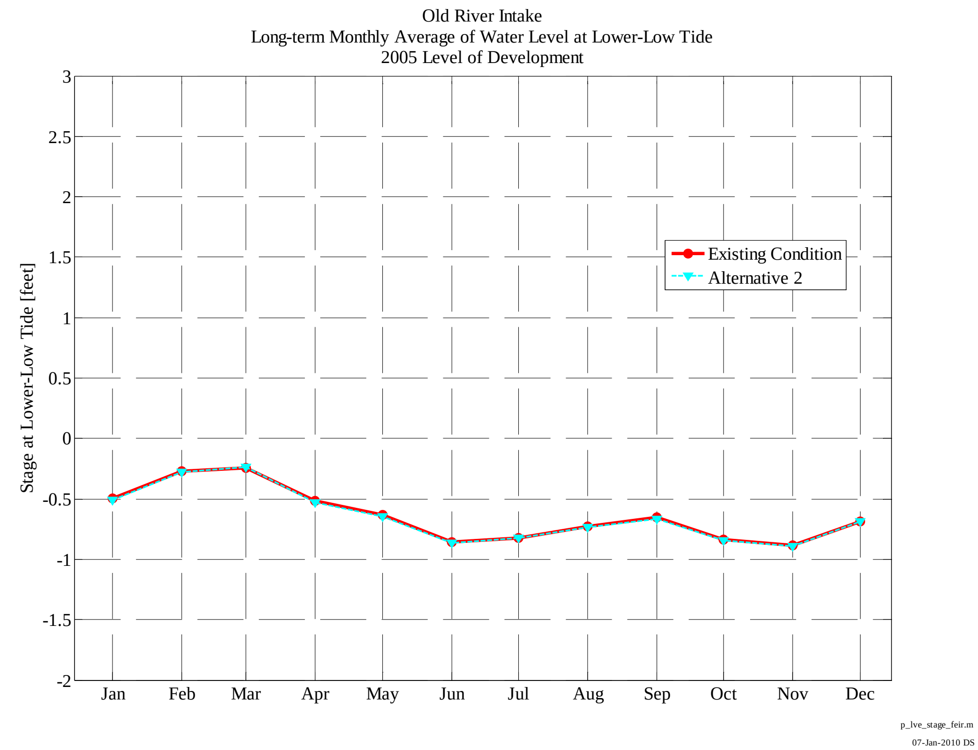

Old River Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Existing Condition
Alternative 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS


Old River Intake
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

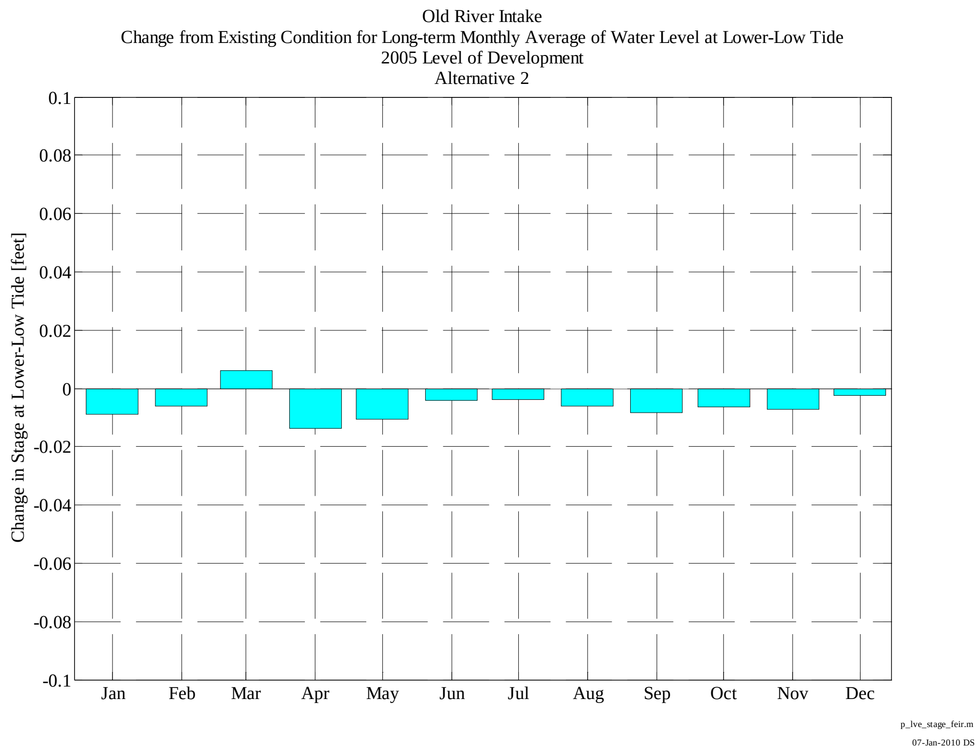
Alternative 2





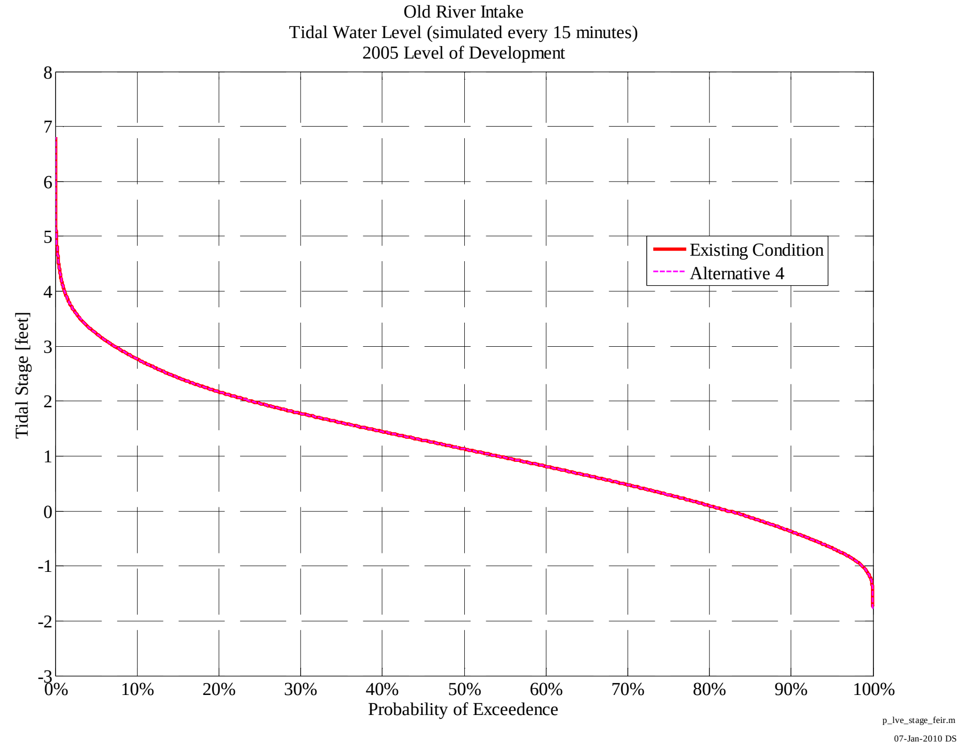


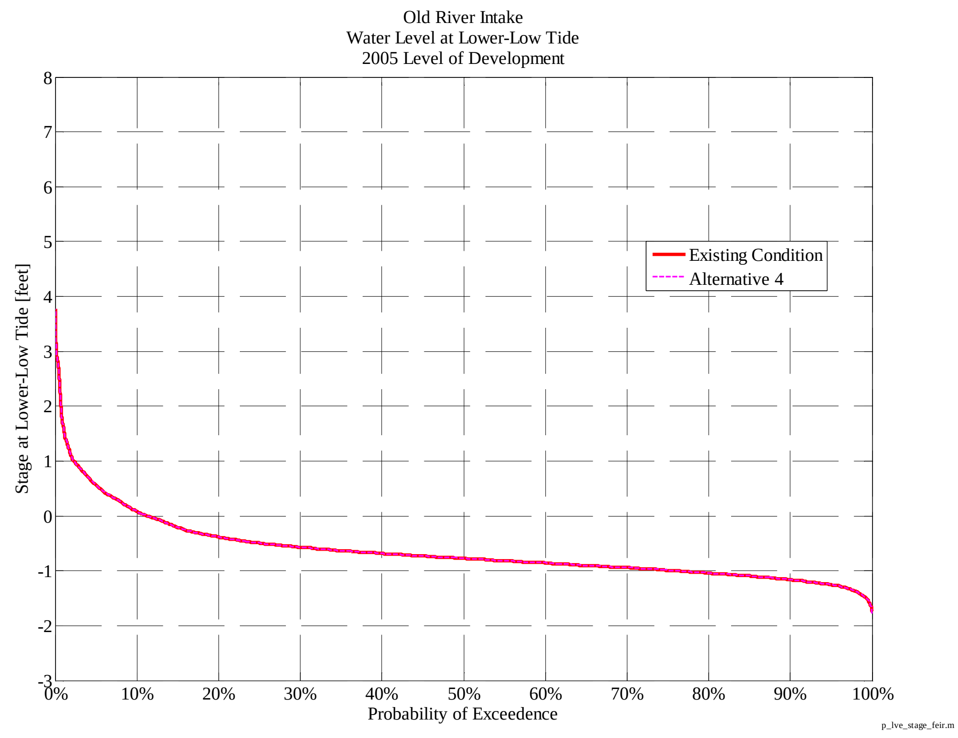
Old River Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

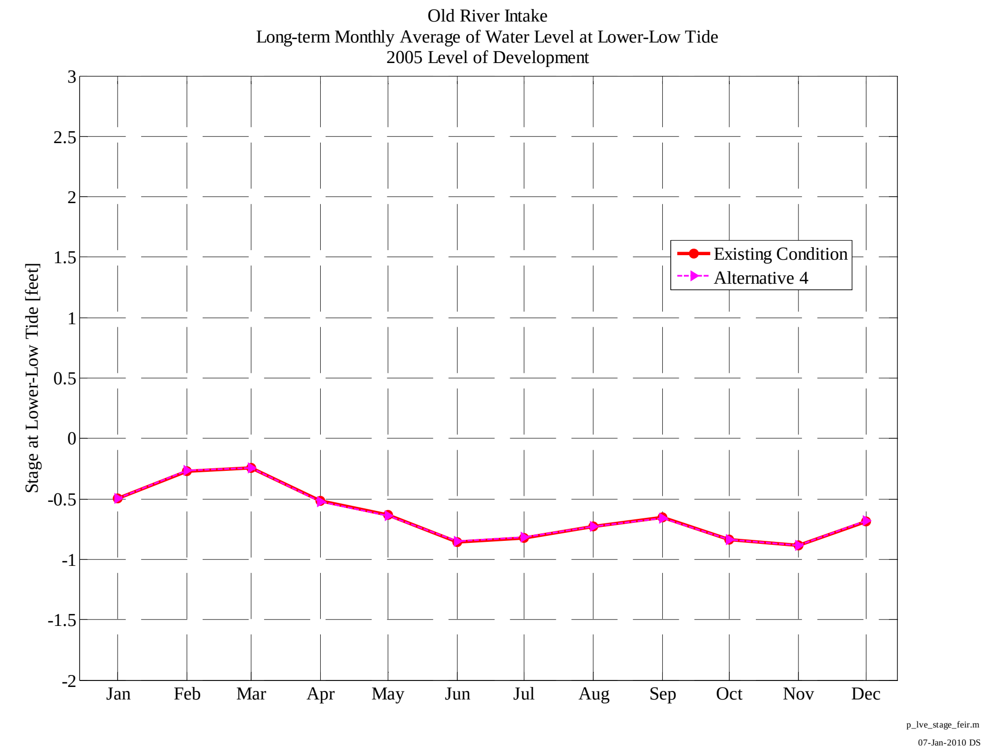


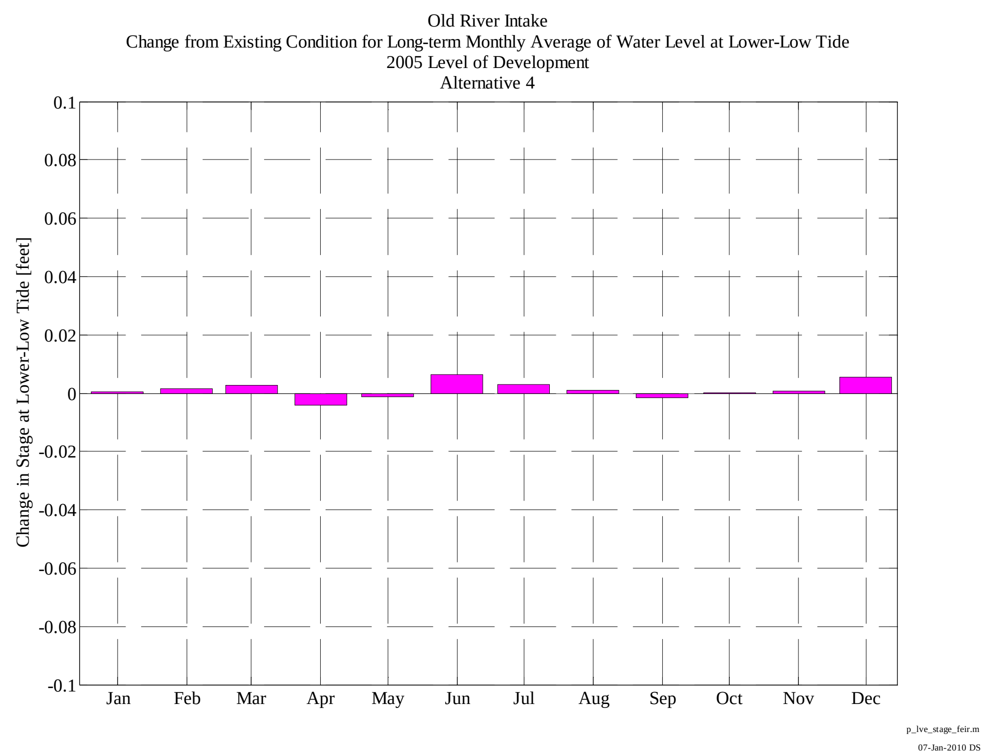
Old River Intake
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



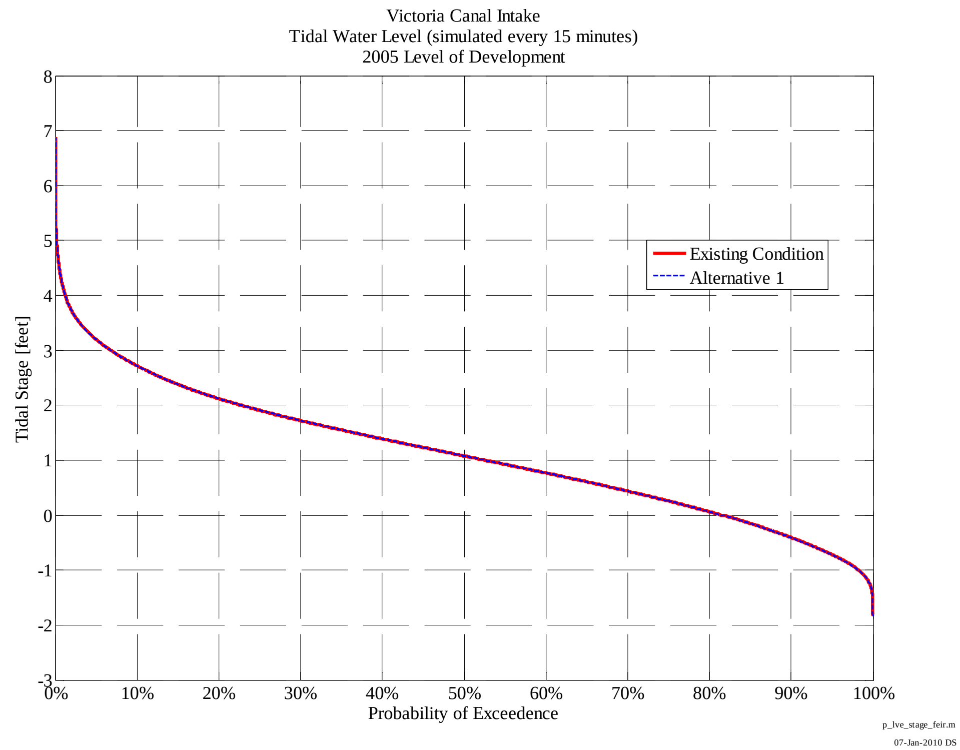


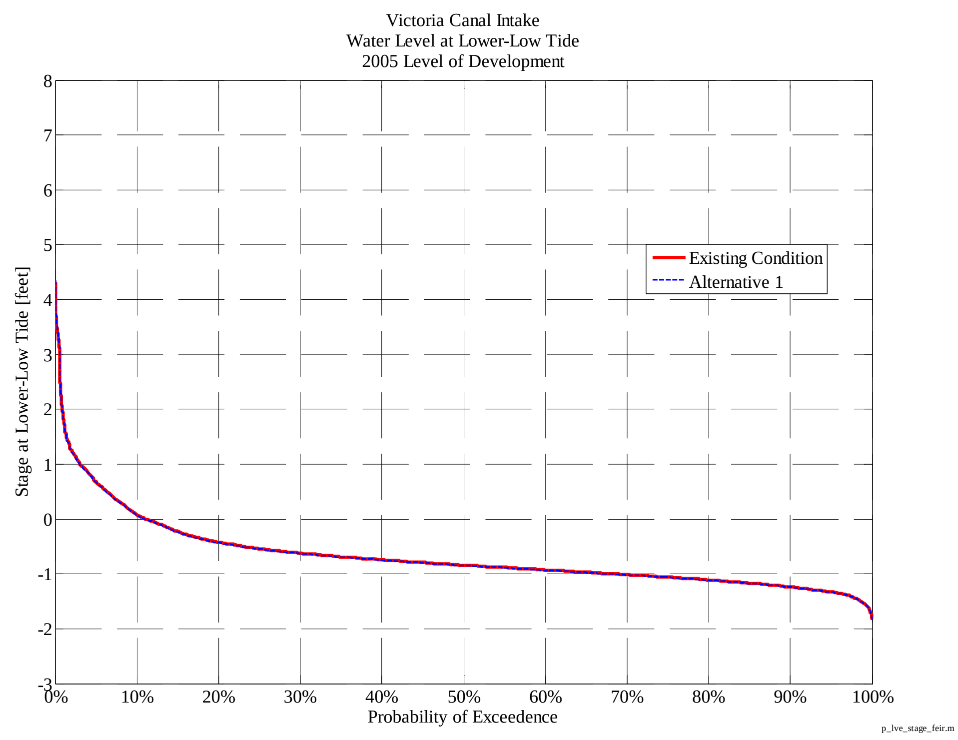

Old River Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
Existing Condition
Alternative 4
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

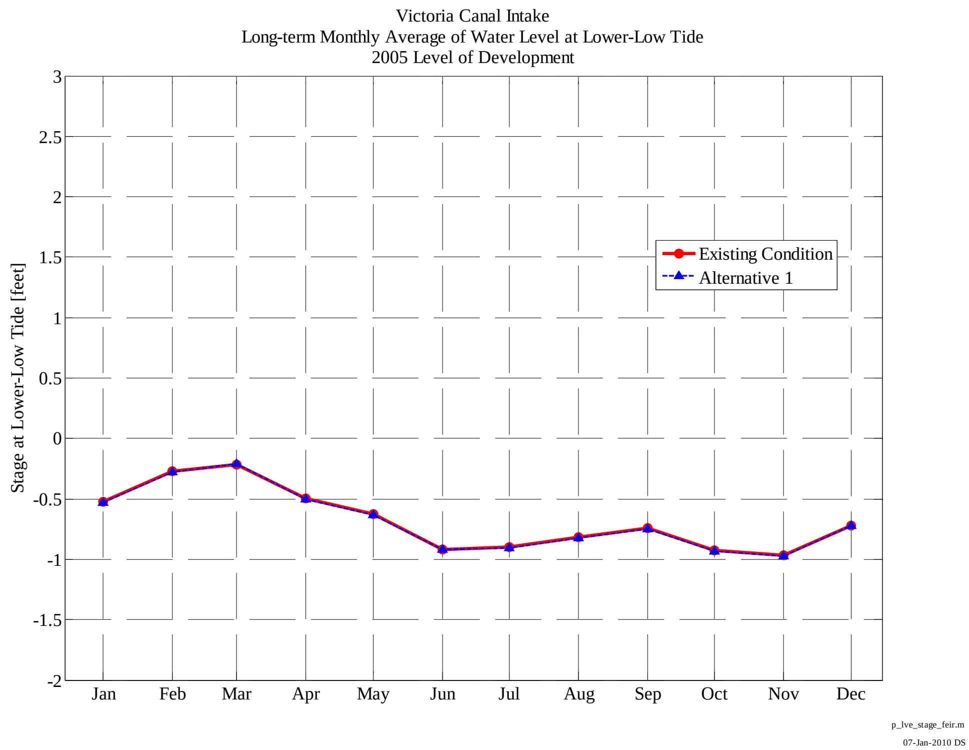

Old River Intake
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

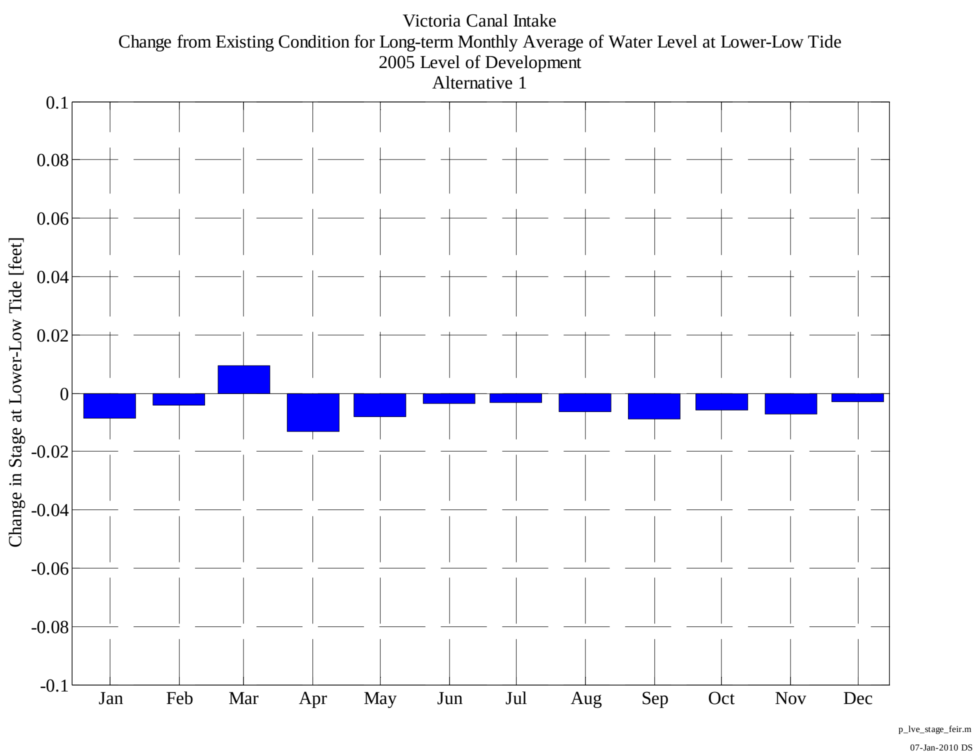
Victoria Canal Intake

Alternative 1

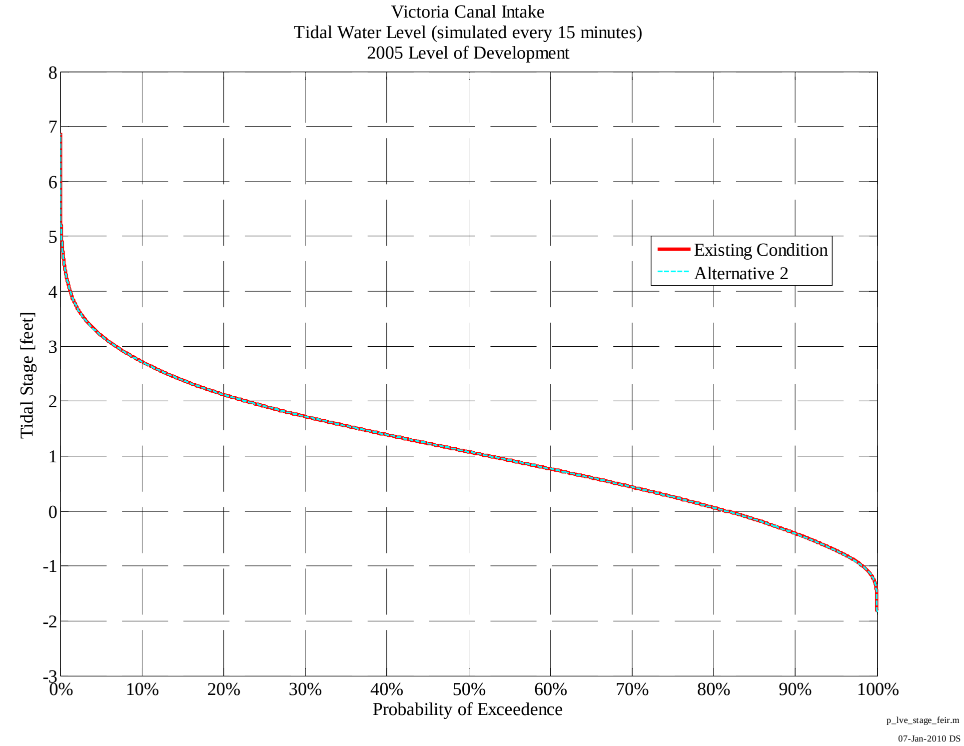


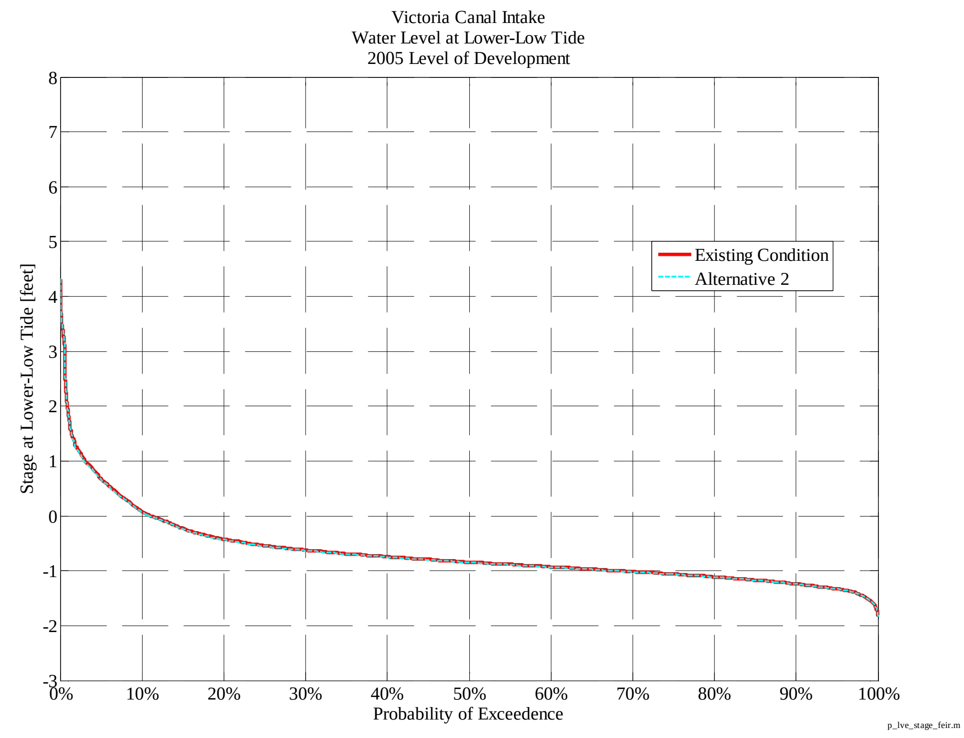


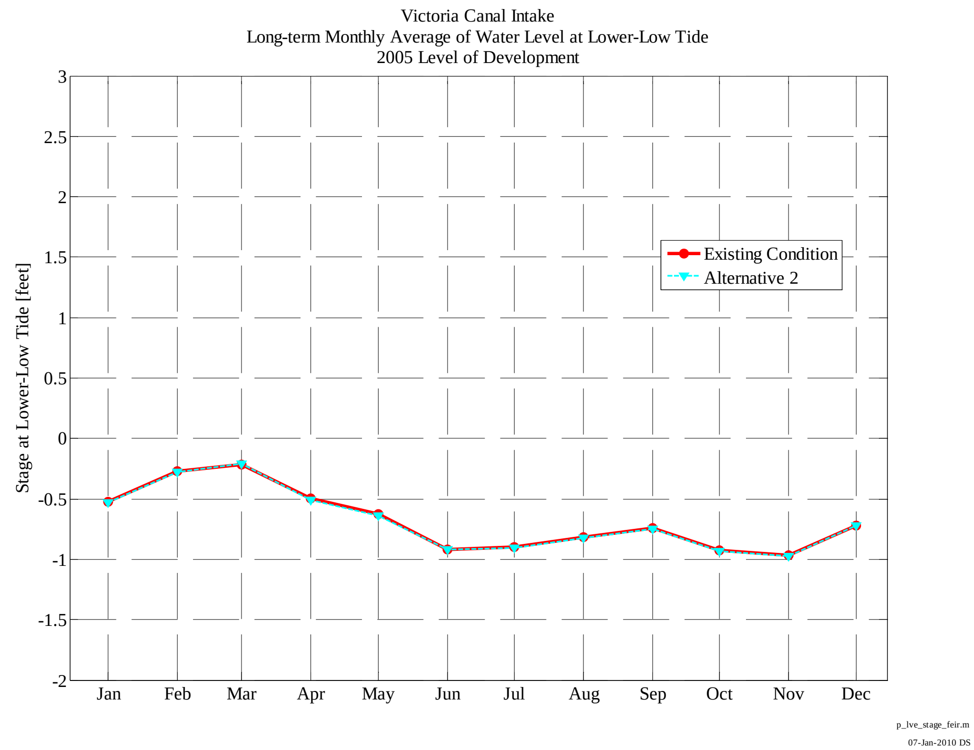

Victoria Canal Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Existing Condition
Alternative 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

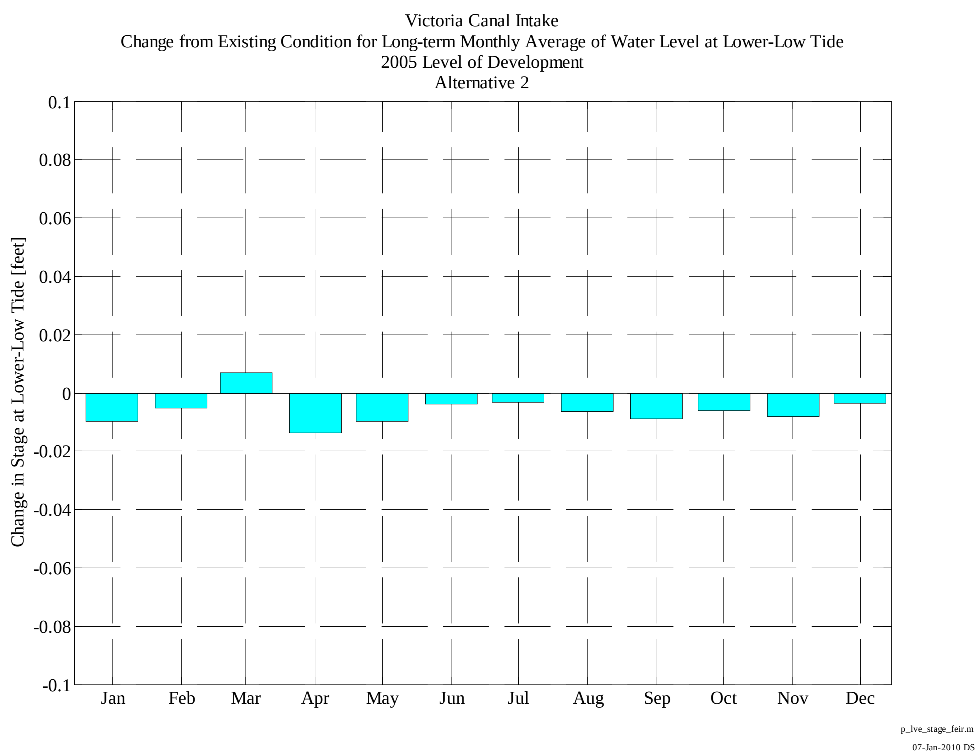

Victoria Canal Intake
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

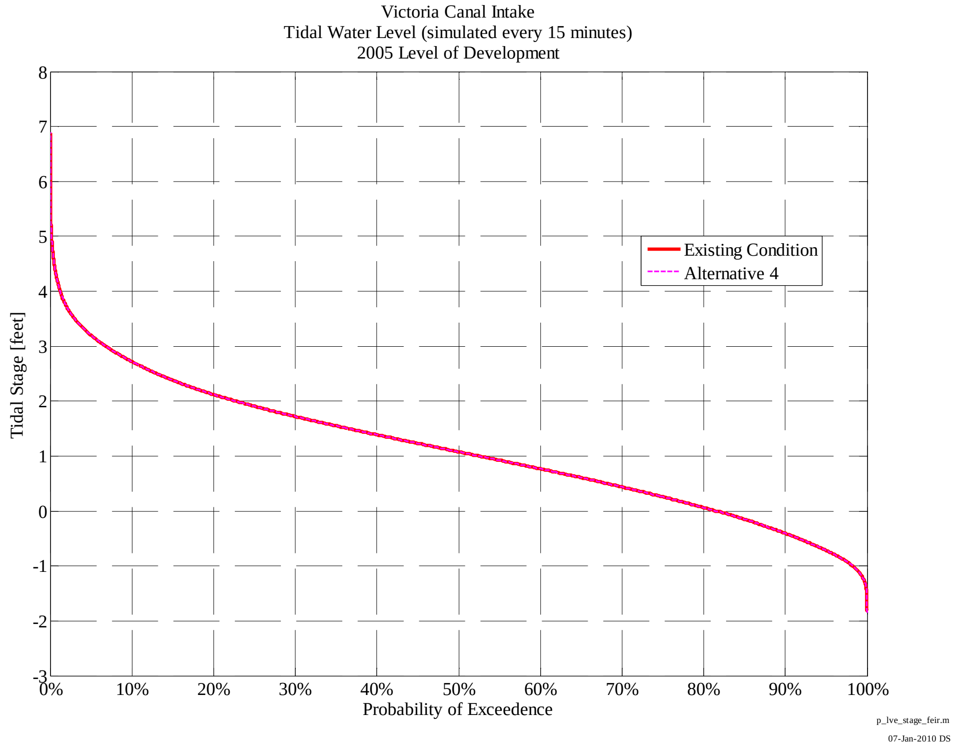


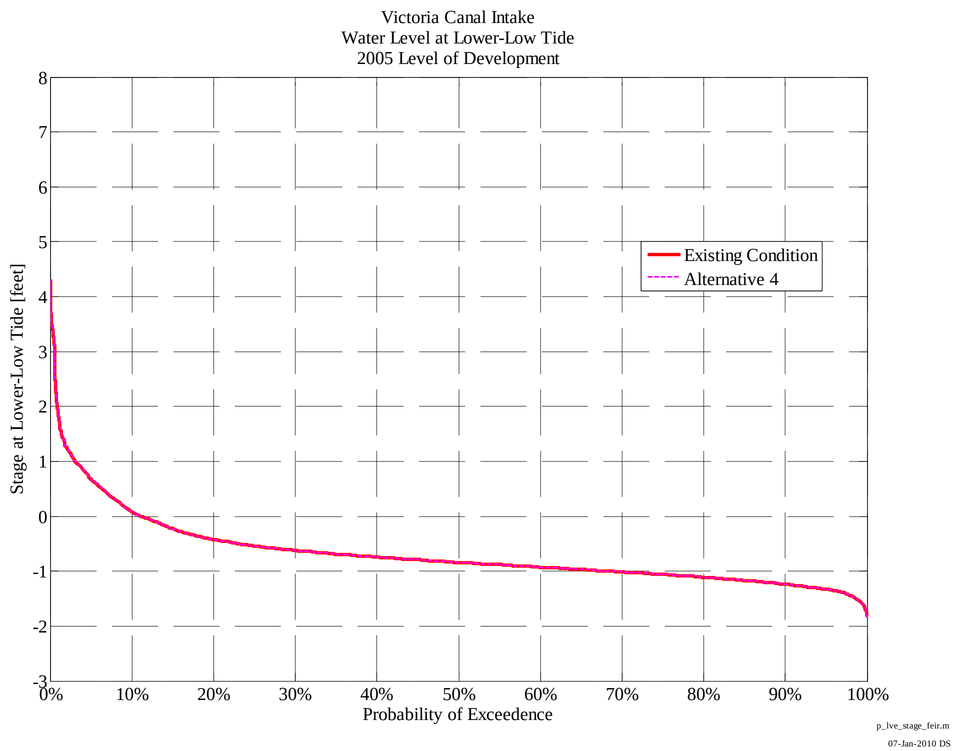


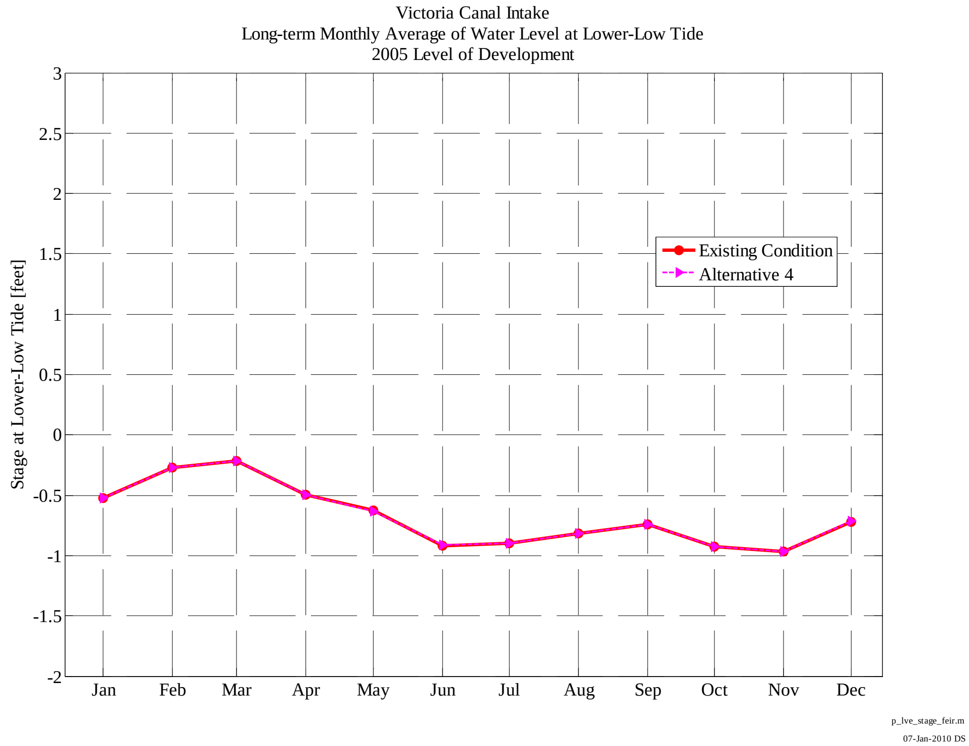

Victoria Canal Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Existing Condition
Alternative 2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

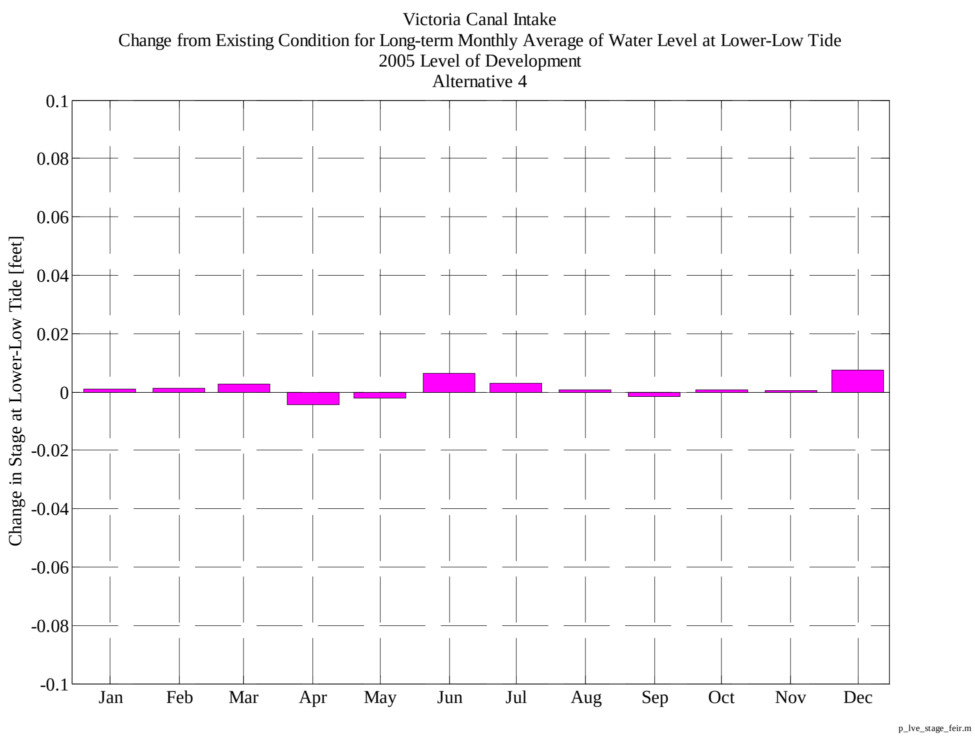

Victoria Canal Intake
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4






Victoria Canal Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Existing Condition
Alternative 4
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS


Victoria Canal Intake
Change from Existing Condition for Long-term Monthly Average of Water Level at Lower-Low Tide
2005 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

2030 Level of Development

Water Quality

Chipps Island

Future Without Project

Chipps Island Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,392	3,403	4,696	6,820	7,517	5,953	5,635	8,717	11,532	11,672	12,620	13,849
1977	14,949	12,465	11,977	8,965	6,937	7,471	8,141	10,645	11,621	12,365	12,832	13,637
1978	13,543	13,538	9,282	449	214	202	227	455	1,912	4,739	6,745	6,531
1979	6,685	6,827	5,964	2,242	417	429	1,005	1,184	3,362	6,684	9,695	12,626
1980	13,383	7,610	4,912	316	205	204	500	986	2,390	4,890	6,816	6,695
1981	6,665	6,814	7,441	3,179	1,160	786	1,526	3,905	6,441	8,837	11,021	11,502
1982	12,489	2,794	190	200	189	201	185	193	746	3,638	5,573	3,207
1983	2,544	471	194	216	211	200	190	182	185	288	1,213	969
1984	2,453	294	187	195	233	241	853	1,919	4,748	5,160	6,051	3,372
1985	3,717	2,126	414	2,382	3,775	3,538	3,199	4,629	6,638	8,839	10,813	12,851
1986	13,189	13,061	8,881	2,427	203	201	348	967	3,267	5,627	6,574	3,670
1987	3,716	3,923	7,223	7,286	3,450	1,039	3,076	5,371	6,579	8,811	11,612	13,442
1988	14,319	13,941	7,872	1,335	1,834	4,997	5,397	6,842	7,898	10,186	12,849	14,398
1989	14,615	14,145	12,040	8,858	7,997	734	625	2,724	6,072	8,521	10,653	12,170
1990	13,387	13,671	13,465	6,194	3,886	4,032	4,957	7,691	10,399	12,239	12,774	14,113
1991	13,447	13,383	14,631	11,005	8,519	1,365	1,969	6,669	10,497	12,132	12,611	13,903
Avg	9,531	8,029	6,836	3,879	2,922	1,974	2,365	3,943	5,893	7,789	9,403	9,808
W/AN/BN	9,184	6,371	4,230	864	239	240	473	841	2,373	4,432	6,095	5,296
D/C	9,801	9,319	8,862	6,225	5,008	3,324	3,836	6,355	8,631	10,400	11,976	13,318

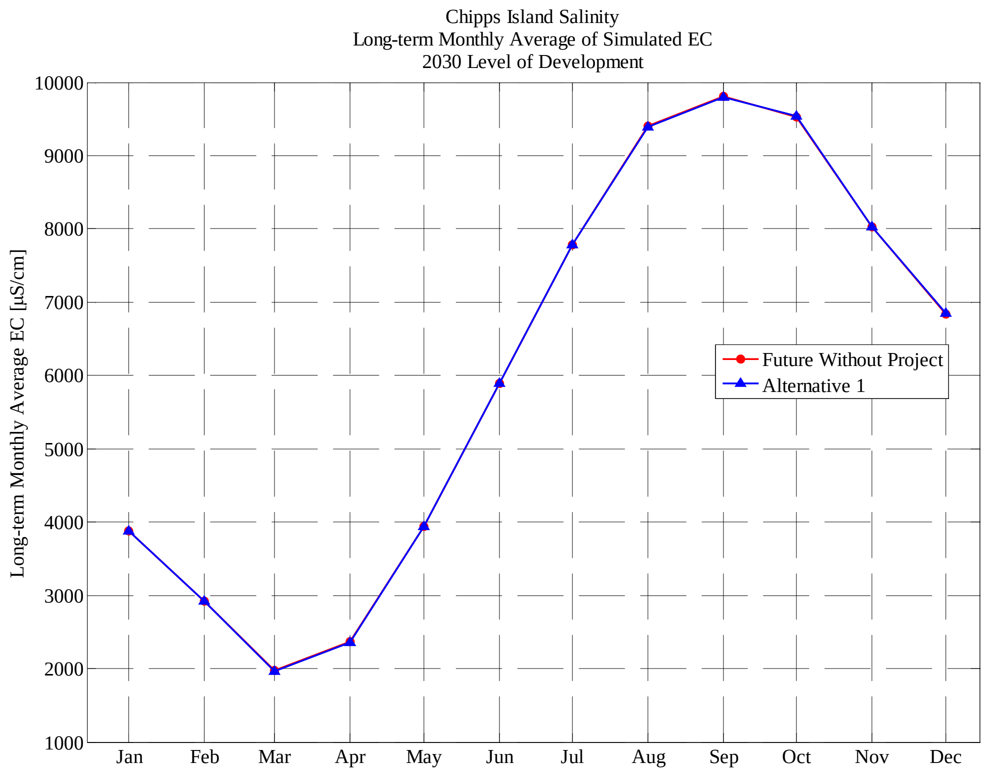
Alternative 1

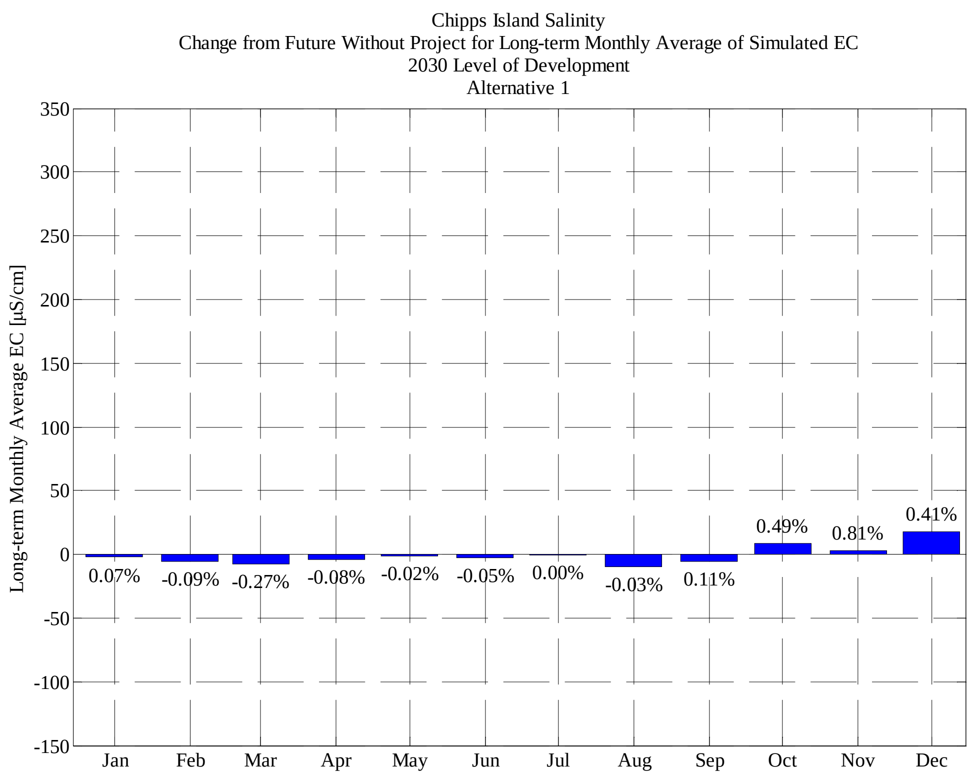
Chipps Island Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2030 Level of Development

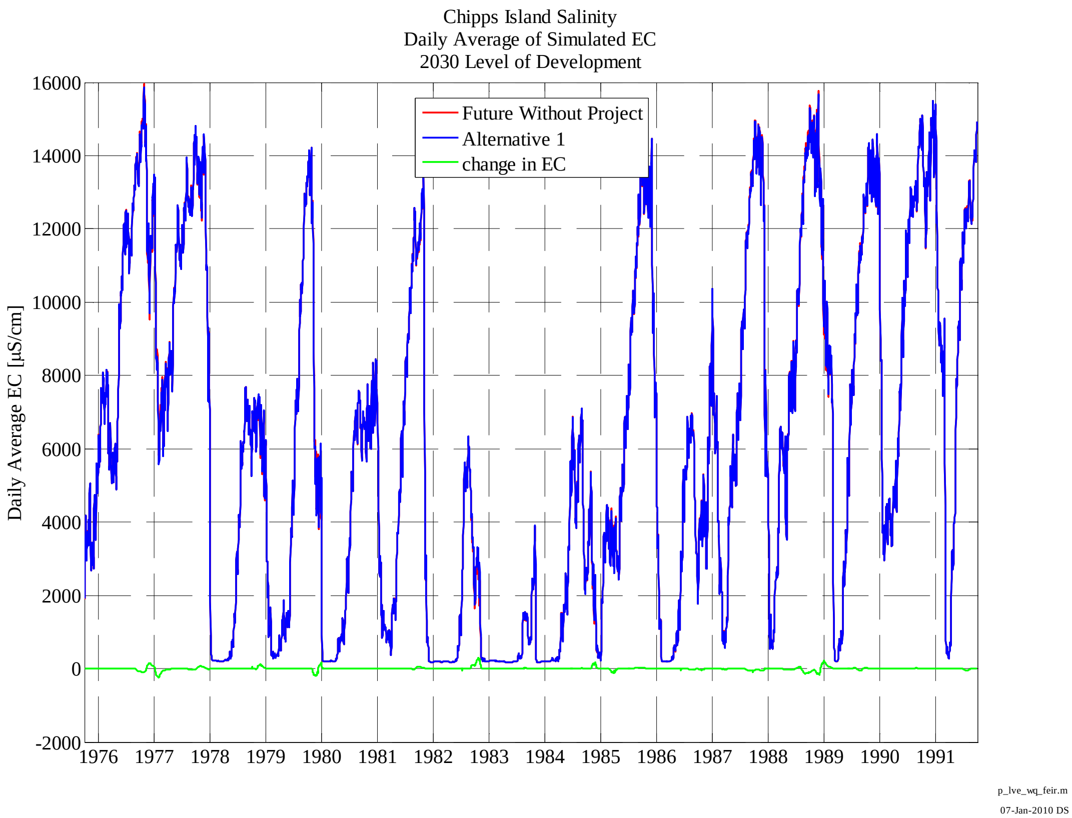
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,391	3,402	4,698	6,817	7,515	5,952	5,637	8,722	11,529	11,675	12,625	13,797
1977	14,860	12,530	12,080	8,809	6,810	7,434	8,128	10,640	11,620	12,362	12,815	13,612
1978	13,583	13,589	9,281	448	214	202	227	455	1,911	4,740	6,745	6,533
1979	6,684	6,903	6,010	2,242	417	429	1,005	1,183	3,360	6,682	9,696	12,628
1980	13,384	7,453	4,963	323	204	204	499	984	2,388	4,890	6,818	6,697
1981	6,664	6,812	7,440	3,180	1,160	785	1,526	3,908	6,440	8,833	11,011	11,534
1982	12,525	2,800	190	200	189	201	185	193	746	3,637	5,575	3,291
1983	2,762	511	194	215	210	200	190	182	185	288	1,225	975
1984	2,461	295	187	195	233	239	850	1,918	4,744	5,157	6,051	3,372
1985	3,718	2,239	427	2,382	3,774	3,459	3,170	4,629	6,639	8,835	10,828	12,881
1986	13,208	13,069	8,891	2,421	203	202	351	969	3,264	5,627	6,550	3,659
1987	3,690	3,912	7,224	7,285	3,450	1,027	3,065	5,371	6,578	8,810	11,585	13,387
1988	14,286	13,898	7,865	1,340	1,835	4,999	5,385	6,818	7,881	10,210	12,776	14,284
1989	14,560	14,037	12,103	8,978	8,038	736	625	2,725	6,068	8,536	10,623	12,165
1990	13,403	13,675	13,468	6,194	3,886	4,031	4,957	7,694	10,398	12,235	12,783	14,120
1991	13,454	13,390	14,634	11,004	8,517	1,364	1,969	6,669	10,496	12,096	12,593	13,909
Avg	9,540	8,032	6,853	3,877	2,916	1,967	2,361	3,941	5,890	7,788	9,394	9,803
W/AN/BN	9,230	6,374	4,245	863	239	240	472	841	2,371	4,432	6,094	5,308
D/C	9,781	9,322	8,882	6,221	4,998	3,310	3,829	6,353	8,627	10,399	11,960	13,299

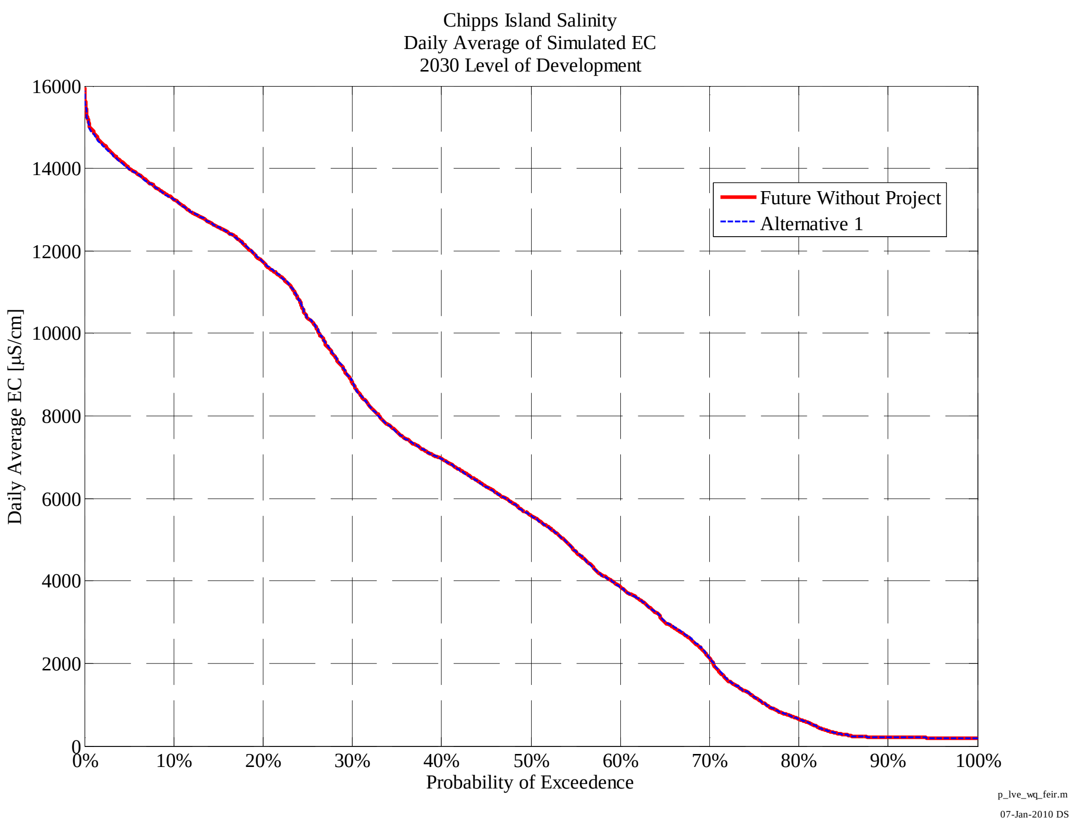
Percent (%) Change from Future Without Project for Chipps Island Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.4%
1977	-0.6%	0.5%	0.9%	-1.7%	-1.8%	-0.5%	-0.2%	-0.1%	0.0%	0.0%	-0.1%	-0.2%
1978	0.3%	0.4%	0.0%	-0.2%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%
1979	0.0%	1.1%	0.8%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	-2.1%	1.0%	2.2%	-0.1%	0.1%	-0.1%	-0.2%	-0.1%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	-0.1%	0.3%
1982	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%
1983	8.6%	8.5%	0.0%	-0.5%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	1.0%	0.6%
1984	0.3%	0.2%	0.0%	0.0%	0.0%	-1.0%	-0.4%	-0.1%	-0.1%	-0.1%	0.0%	0.0%
1985	0.0%	5.3%	3.2%	0.0%	0.0%	-2.2%	-0.9%	0.0%	0.0%	0.0%	0.1%	0.2%
1986	0.1%	0.1%	0.1%	-0.3%	0.0%	0.2%	0.8%	0.2%	-0.1%	0.0%	-0.4%	-0.3%
1987	-0.7%	-0.3%	0.0%	0.0%	0.0%	-1.1%	-0.3%	0.0%	0.0%	0.0%	-0.2%	-0.4%
1988	-0.2%	-0.3%	-0.1%	0.4%	0.1%	0.0%	-0.2%	-0.4%	-0.2%	0.2%	-0.6%	-0.8%
1989	-0.4%	-0.8%	0.5%	1.3%	0.5%	0.3%	0.0%	0.0%	-0.1%	0.2%	-0.3%	0.0%
1990	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
1991	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.1%	0.0%
Avg	0.5%	0.8%	0.4%	0.1%	-0.1%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
W/AN/BN	1.4%	1.2%	0.3%	0.2%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.4%
D/C	-0.2%	0.5%	0.5%	0.0%	-0.1%	-0.4%	-0.2%	0.0%	0.0%	0.0%	-0.1%	-0.1%


Chipps Island Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.07%
-0.09%
-0.27%
-0.08%
-0.02%
-0.05%
0.00%
-0.03%
0.11%
0.49%
0.81%
0.41%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

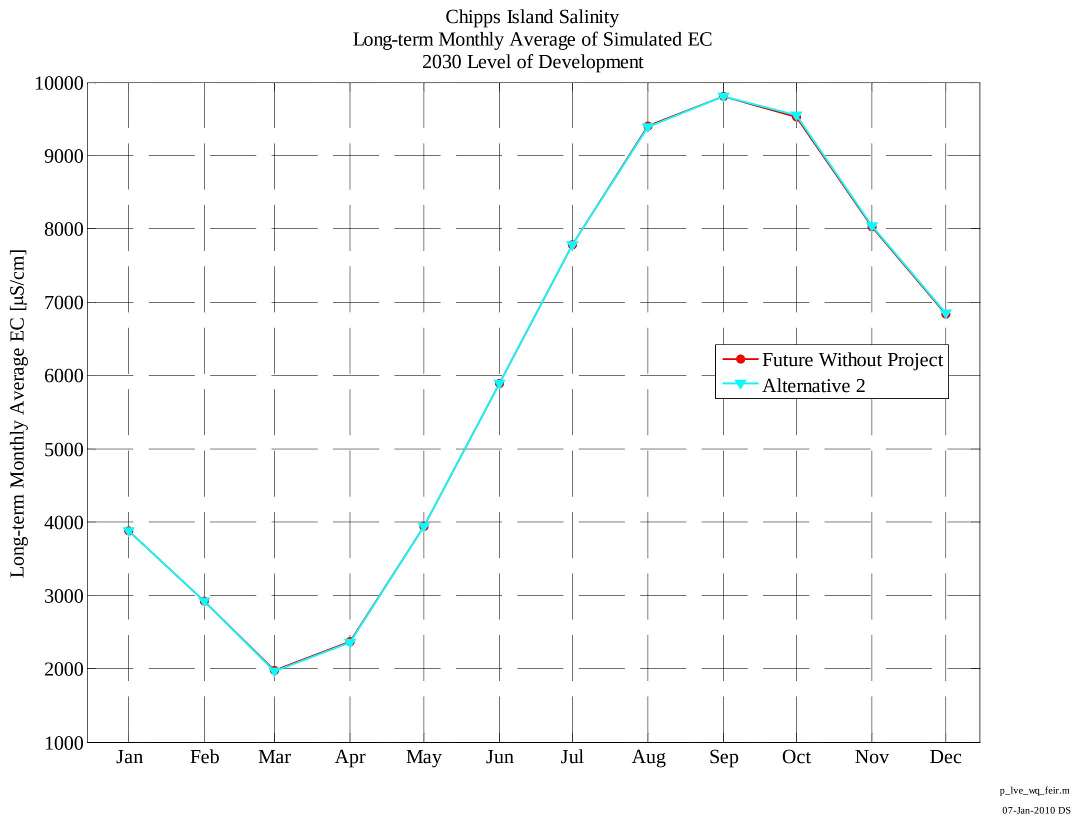
Alternative 2

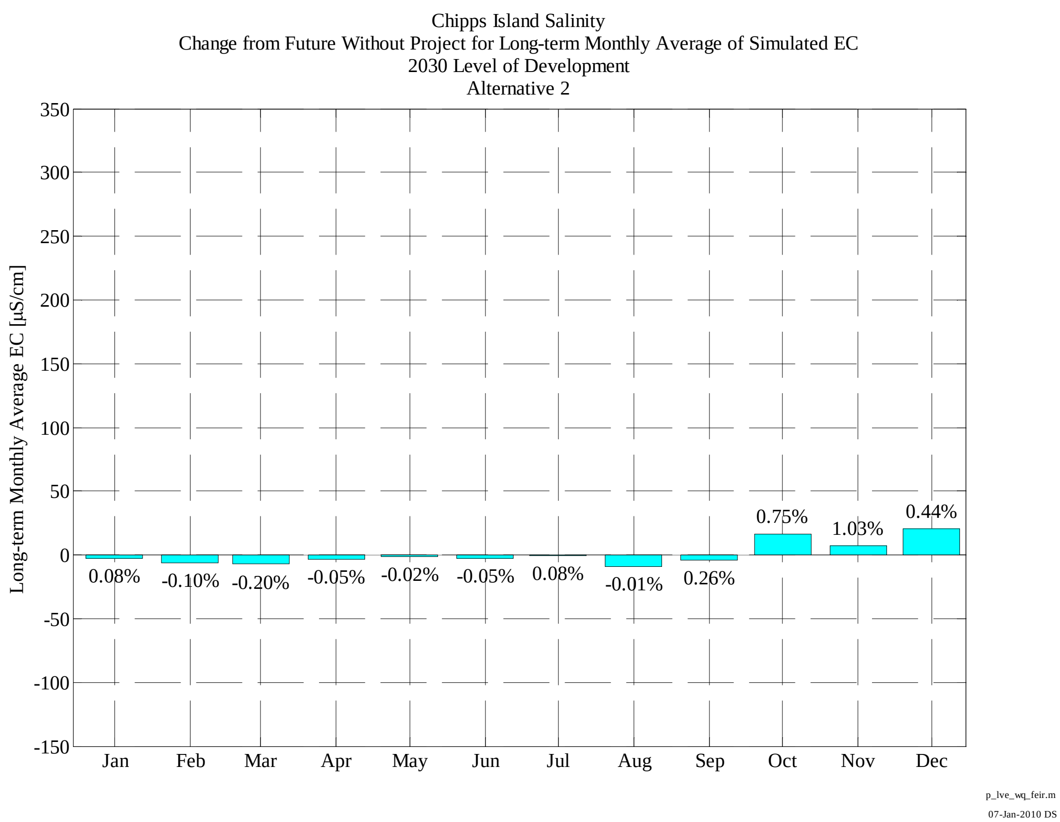
Chipps Island Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 2
2030 Level of Development

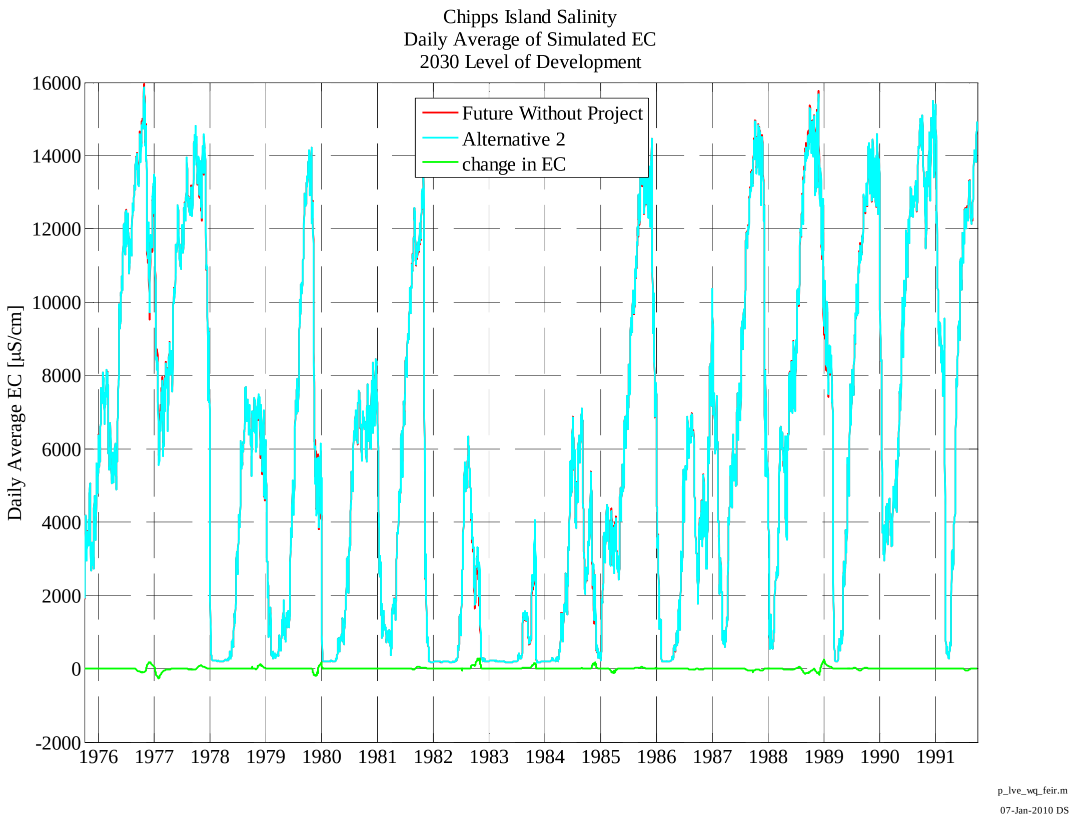
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,391	3,402	4,697	6,818	7,516	5,952	5,637	8,722	11,529	11,674	12,623	13,794
1977	14,858	12,545	12,095	8,795	6,797	7,431	8,127	10,639	11,620	12,363	12,815	13,612
1978	13,591	13,599	9,292	448	214	202	227	455	1,911	4,740	6,745	6,533
1979	6,684	6,903	6,011	2,242	417	429	1,005	1,183	3,360	6,682	9,696	12,628
1980	13,385	7,453	4,963	323	204	204	500	985	2,388	4,890	6,818	6,697
1981	6,664	6,812	7,441	3,180	1,160	786	1,527	3,908	6,440	8,833	11,012	11,532
1982	12,523	2,813	190	200	189	201	185	193	746	3,637	5,575	3,290
1983	2,764	511	194	215	210	200	190	181	185	291	1,228	997
1984	2,557	302	187	195	234	239	850	1,918	4,744	5,157	6,051	3,372
1985	3,718	2,246	428	2,383	3,775	3,459	3,170	4,629	6,638	8,836	10,830	12,886
1986	13,210	13,071	8,892	2,421	203	202	351	969	3,266	5,628	6,550	3,659
1987	3,696	3,915	7,224	7,285	3,451	1,039	3,076	5,373	6,577	8,810	11,586	13,388
1988	14,286	13,898	7,866	1,340	1,835	4,999	5,385	6,818	7,881	10,210	12,777	14,284
1989	14,569	14,044	12,113	8,987	8,042	736	625	2,725	6,068	8,535	10,623	12,168
1990	13,405	13,676	13,468	6,194	3,886	4,032	4,957	7,694	10,397	12,235	12,781	14,118
1991	13,452	13,388	14,633	11,004	8,517	1,364	1,969	6,669	10,496	12,099	12,594	13,907
Avg	9,547	8,036	6,856	3,877	2,916	1,967	2,361	3,941	5,890	7,789	9,394	9,804
W/AN/BN	9,245	6,379	4,247	864	239	240	473	841	2,371	4,432	6,095	5,311
D/C	9,782	9,325	8,885	6,221	4,998	3,311	3,830	6,353	8,627	10,399	11,960	13,299

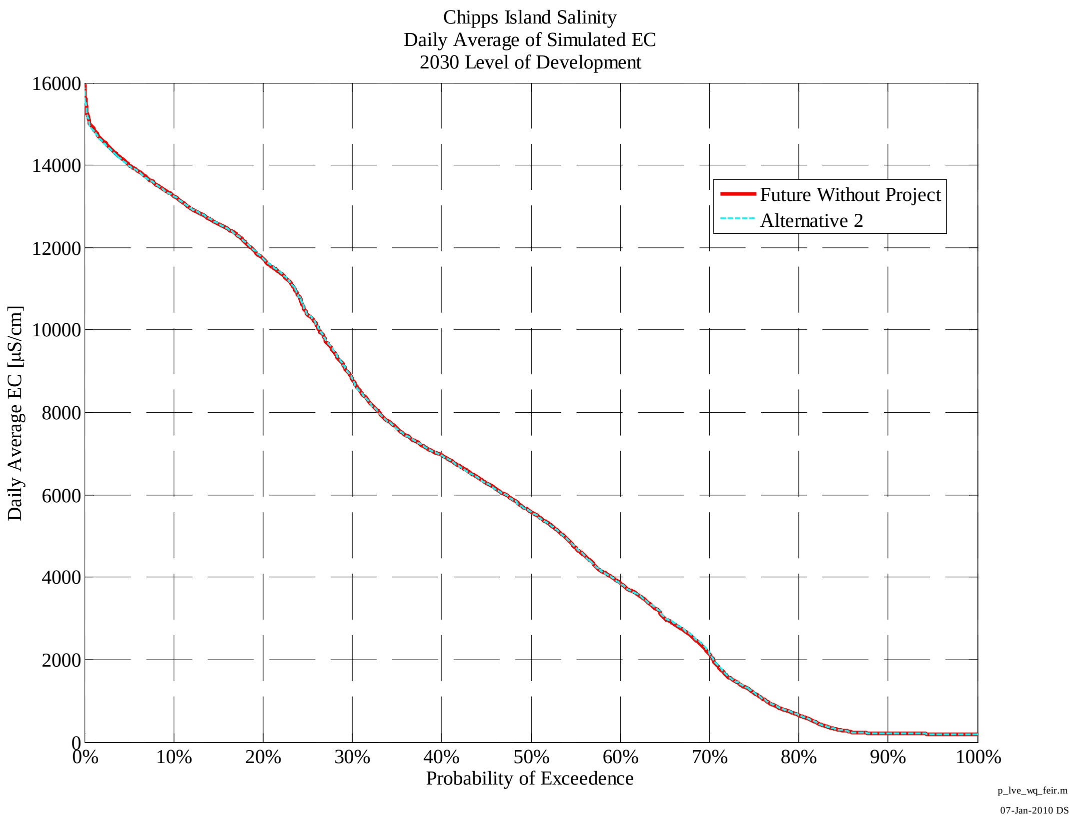
Percent (%) Change from Future Without Project for Chipps Island Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.4%
1977	-0.6%	0.6%	1.0%	-1.9%	-2.0%	-0.5%	-0.2%	-0.1%	0.0%	0.0%	-0.1%	-0.2%
1978	0.4%	0.5%	0.1%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	1.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	-2.1%	1.0%	2.2%	-0.2%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	-0.1%	0.3%
1982	0.3%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%
1983	8.6%	8.5%	0.0%	-0.5%	-0.1%	0.0%	0.0%	-0.1%	-0.1%	1.3%	1.3%	3.0%
1984	4.2%	2.7%	0.0%	-0.1%	0.1%	-0.9%	-0.4%	-0.1%	-0.1%	-0.1%	0.0%	0.0%
1985	0.0%	5.7%	3.4%	0.0%	0.0%	-2.2%	-0.9%	0.0%	0.0%	0.0%	0.2%	0.3%
1986	0.2%	0.1%	0.1%	-0.2%	0.0%	0.1%	0.8%	0.2%	0.0%	0.0%	-0.4%	-0.3%
1987	-0.5%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.4%
1988	-0.2%	-0.3%	-0.1%	0.4%	0.1%	0.0%	-0.2%	-0.3%	-0.2%	0.2%	-0.6%	-0.8%
1989	-0.3%	-0.7%	0.6%	1.5%	0.6%	0.4%	0.0%	0.0%	-0.1%	0.2%	-0.3%	0.0%
1990	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.1%	0.0%
Avg	0.8%	1.0%	0.4%	0.1%	-0.1%	-0.2%	-0.1%	0.0%	0.0%	0.1%	0.0%	0.3%
W/AN/BN	1.9%	1.6%	0.3%	0.2%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.2%	0.1%	0.8%
D/C	-0.2%	0.6%	0.6%	0.0%	-0.2%	-0.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%


Chipps Island Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.08%
-0.10%
-0.20%
-0.05%
-0.02%
-0.05%
0.08%
-0.01%
0.26%
0.75%
1.03%
0.44%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

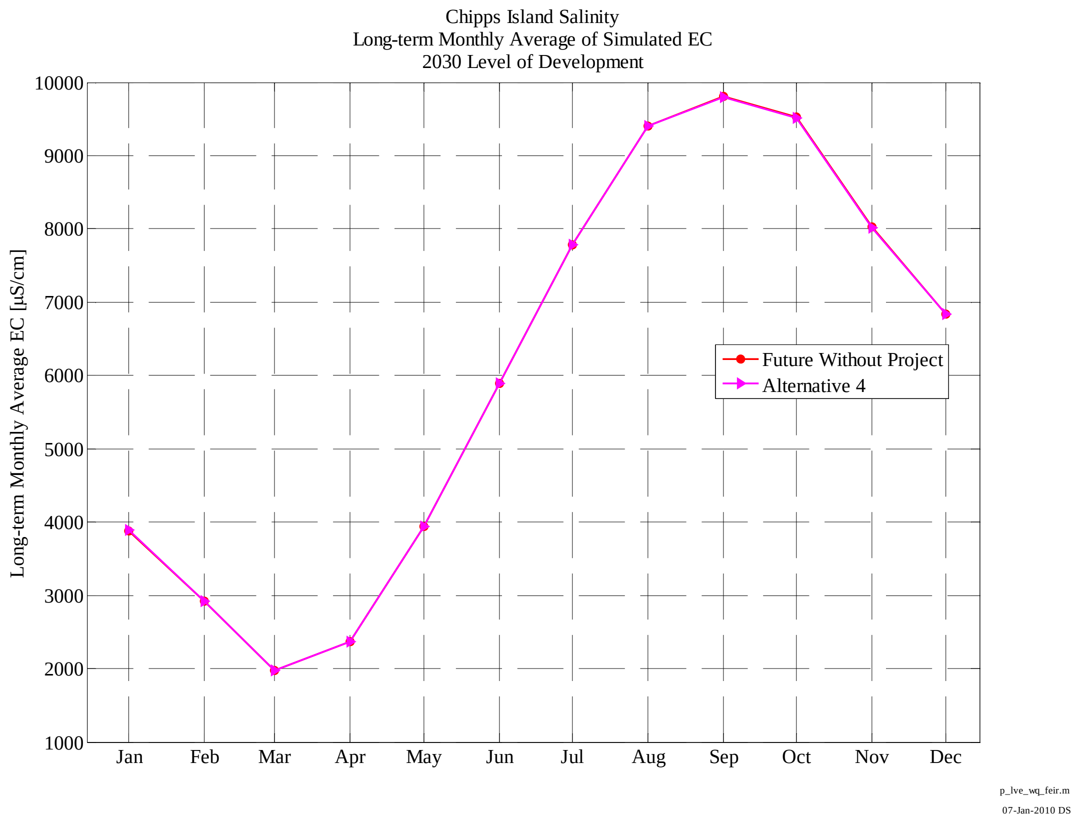
Alternative 4

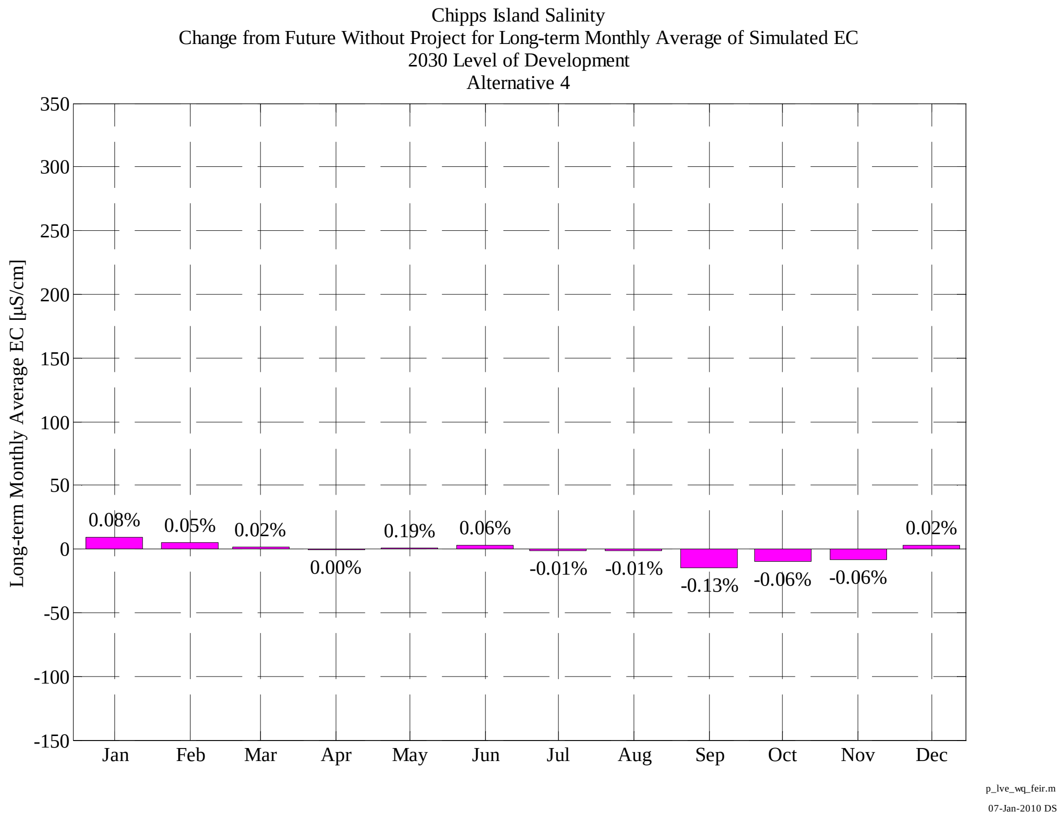
Chipps Island Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

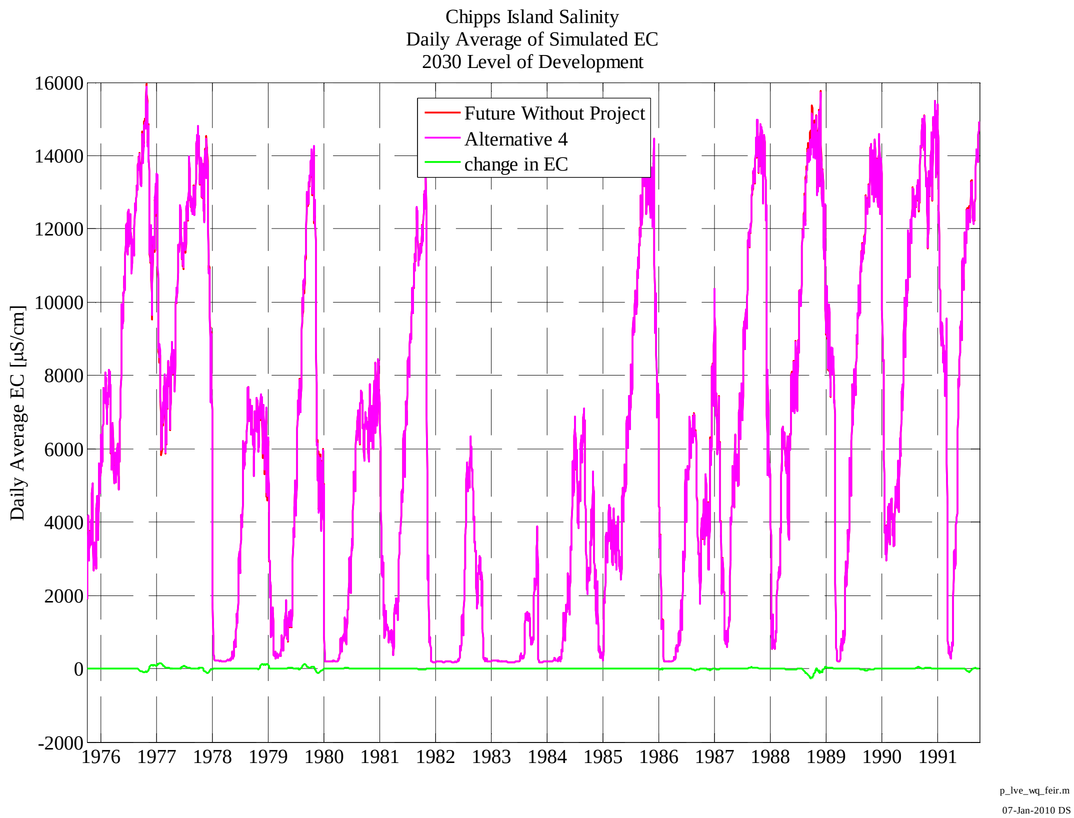
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3,392	3,403	4,697	6,821	7,517	5,953	5,635	8,717	11,532	11,671	12,619	13,790
1977	14,860	12,492	12,066	9,094	7,016	7,497	8,150	10,649	11,664	12,405	12,838	13,633
1978	13,563	13,462	9,222	447	215	202	227	455	1,911	4,739	6,745	6,533
1979	6,681	6,906	6,077	2,261	415	429	1,007	1,206	3,369	6,673	9,772	12,684
1980	13,426	7,529	4,852	315	205	204	500	1,001	2,403	4,892	6,817	6,695
1981	6,666	6,814	7,440	3,178	1,159	785	1,526	3,906	6,441	8,837	11,026	11,487
1982	12,472	2,794	190	200	189	201	185	193	746	3,637	5,573	3,208
1983	2,546	471	194	216	211	200	190	182	185	288	1,213	969
1984	2,453	294	187	195	233	241	853	1,920	4,749	5,163	6,054	3,372
1985	3,718	2,127	414	2,381	3,775	3,538	3,199	4,629	6,638	8,839	10,810	12,846
1986	13,186	13,060	8,880	2,415	203	202	348	967	3,267	5,627	6,546	3,647
1987	3,722	3,911	7,202	7,276	3,444	1,038	3,075	5,371	6,578	8,814	11,633	13,474
1988	14,334	13,942	7,873	1,335	1,834	4,999	5,382	6,814	7,880	10,179	12,762	14,182
1989	14,493	14,070	12,018	8,889	8,011	734	625	2,724	6,072	8,528	10,639	12,134
1990	13,361	13,660	13,465	6,192	3,885	4,031	4,957	7,691	10,399	12,233	12,798	14,131
1991	13,465	13,400	14,638	11,004	8,518	1,365	1,969	6,670	10,499	12,075	12,586	13,916
Avg	9,521	8,021	6,838	3,889	2,927	1,976	2,364	3,943	5,896	7,788	9,402	9,794
W/AN/BN	9,190	6,360	4,229	864	239	240	473	846	2,376	4,431	6,103	5,301
D/C	9,779	9,313	8,868	6,241	5,018	3,327	3,835	6,352	8,634	10,398	11,968	13,288

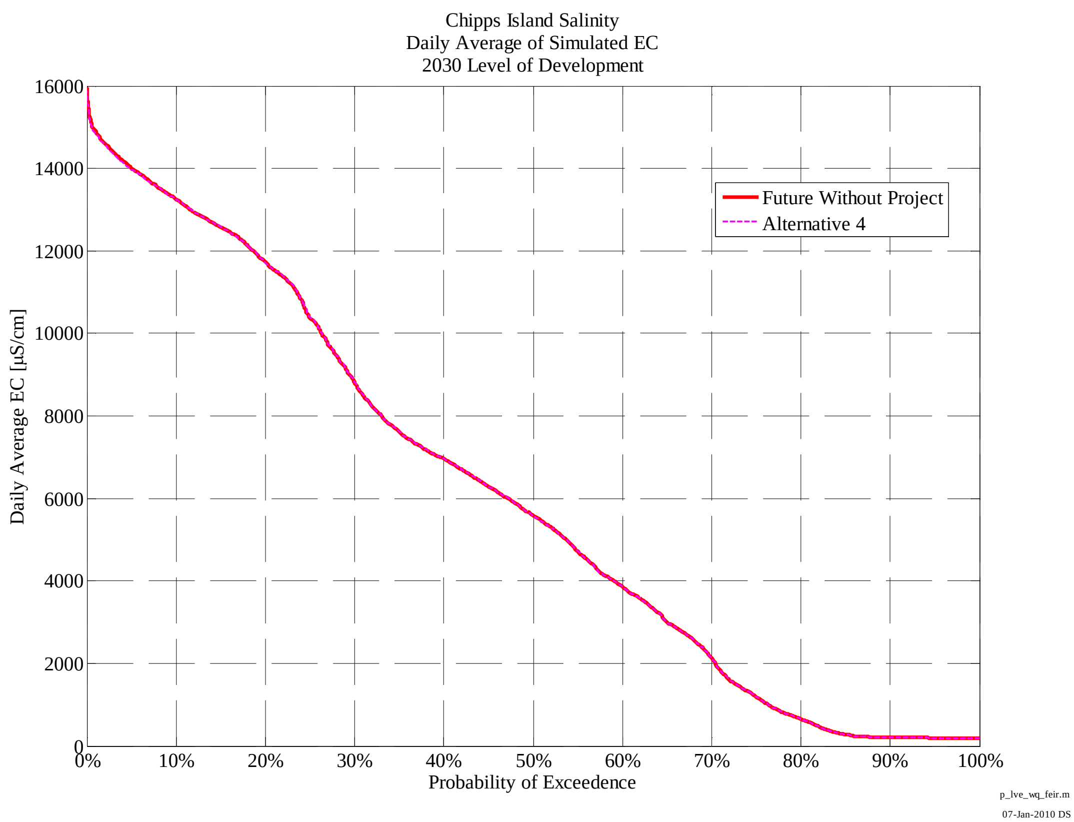
Percent (%) Change from Future Without Project for Chipps Island Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.4%
1977	-0.6%	0.2%	0.7%	1.4%	1.1%	0.3%	0.1%	0.0%	0.4%	0.3%	0.1%	0.0%
1978	0.1%	-0.6%	-0.6%	-0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	-0.1%	1.2%	1.9%	0.8%	-0.3%	-0.1%	0.2%	1.8%	0.2%	-0.2%	0.8%	0.5%
1980	0.3%	-1.1%	-1.2%	-0.2%	0.0%	0.0%	0.0%	1.5%	0.5%	0.1%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1982	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	-0.5%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.4%	-0.6%
1987	0.2%	-0.3%	-0.3%	-0.1%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
1988	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	-0.3%	-0.4%	-0.2%	-0.1%	-0.7%	-1.5%
1989	-0.8%	-0.5%	-0.2%	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	0.1%	-0.1%	-0.3%
1990	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
1991	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.5%	-0.2%	0.1%
Avg	-0.1%	-0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	-0.1%
W/AN/BN	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.1%	0.0%	0.1%	0.0%
D/C	-0.1%	-0.1%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.2%


Chipps Island Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.08%
0.05%
0.02%
0.00%
0.19%
0.06%
-0.01%
-0.01%
-0.13%
-0.06%
-0.06%
0.02%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Chipps Island Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
16000
14000
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Collinsville

Future Without Project

Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,149	1,174	1,835	3,217	3,613	2,464	2,358	4,884	7,232	6,860	7,935	9,100
1977	10,376	7,630	7,179	4,659	3,182	3,502	4,029	6,407	7,183	7,711	8,224	9,044
1978	8,919	8,900	4,732	287	205	200	215	231	614	1,910	3,048	2,862
1979	3,046	3,150	2,433	777	244	230	336	377	1,269	3,028	5,320	7,990
1980	8,734	3,652	1,807	228	196	199	232	324	778	1,995	3,108	2,953
1981	3,036	3,141	3,437	1,119	340	262	476	1,534	3,012	4,531	6,249	6,620
1982	7,836	1,124	186	199	187	198	181	181	269	1,435	2,307	1,064
1983	757	229	190	211	194	184	186	181	184	202	384	284
1984	781	205	182	193	194	187	299	579	2,010	2,053	2,641	1,110
1985	1,380	623	202	860	1,319	1,198	1,071	1,877	3,140	4,549	6,126	8,180
1986	8,534	8,168	4,365	813	186	190	225	330	1,236	2,377	2,954	1,272
1987	1,346	1,448	3,641	3,471	1,186	332	1,200	2,365	3,080	4,634	7,270	8,924
1988	9,638	9,262	3,786	458	602	2,180	2,262	3,351	3,961	5,769	8,461	9,925
1989	9,977	9,367	7,203	4,337	3,967	349	249	955	2,830	4,293	6,030	7,496
1990	8,721	8,989	8,754	2,653	1,367	1,468	2,019	4,041	6,271	7,493	8,014	9,582
1991	8,735	8,823	10,134	6,303	4,309	625	716	3,419	6,400	7,391	8,032	9,375
Avg	5,810	4,743	3,754	1,862	1,331	860	1,003	1,940	3,092	4,139	5,381	5,986
W/AN/BN	5,515	3,633	1,985	387	201	198	239	315	909	1,857	2,823	2,505
D/C	6,040	5,606	5,130	3,009	2,209	1,375	1,598	3,204	4,790	5,915	7,371	8,694

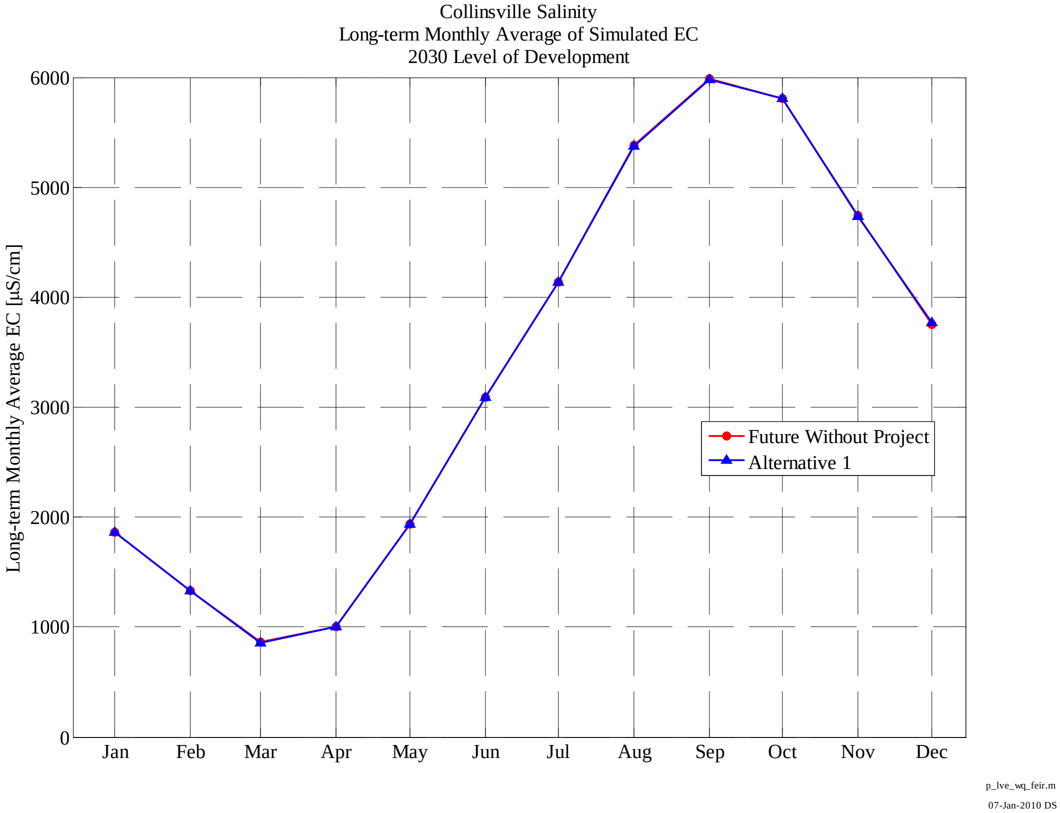
Alternative 1

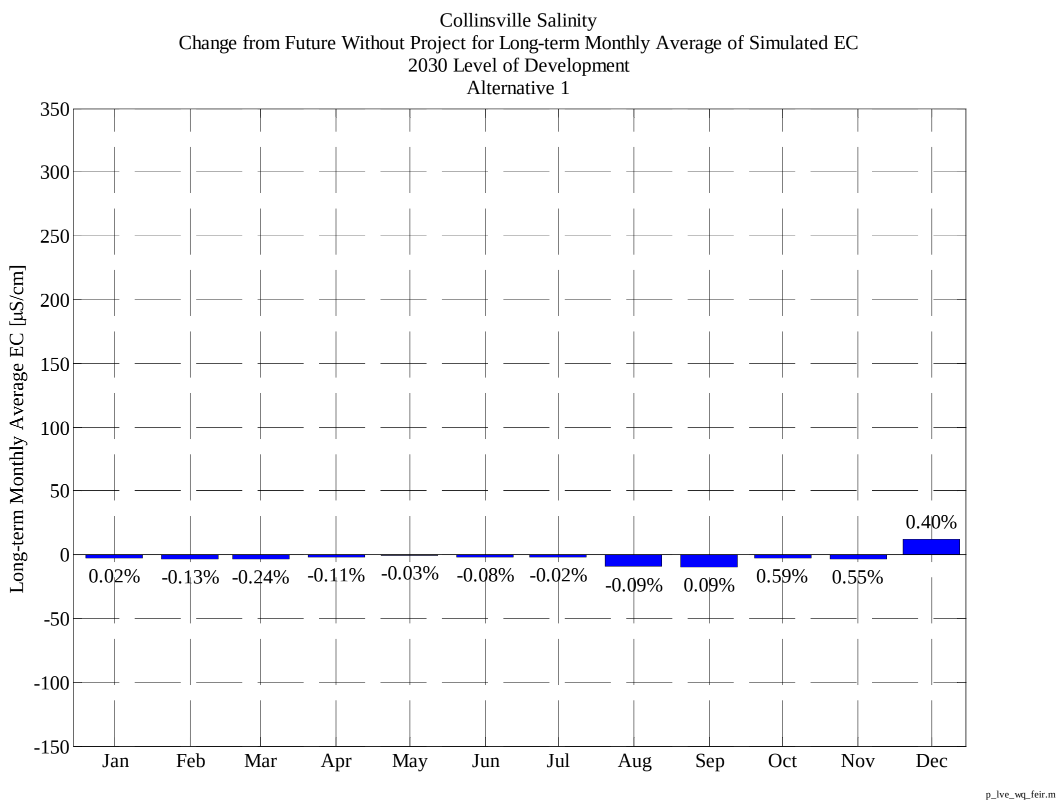
Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

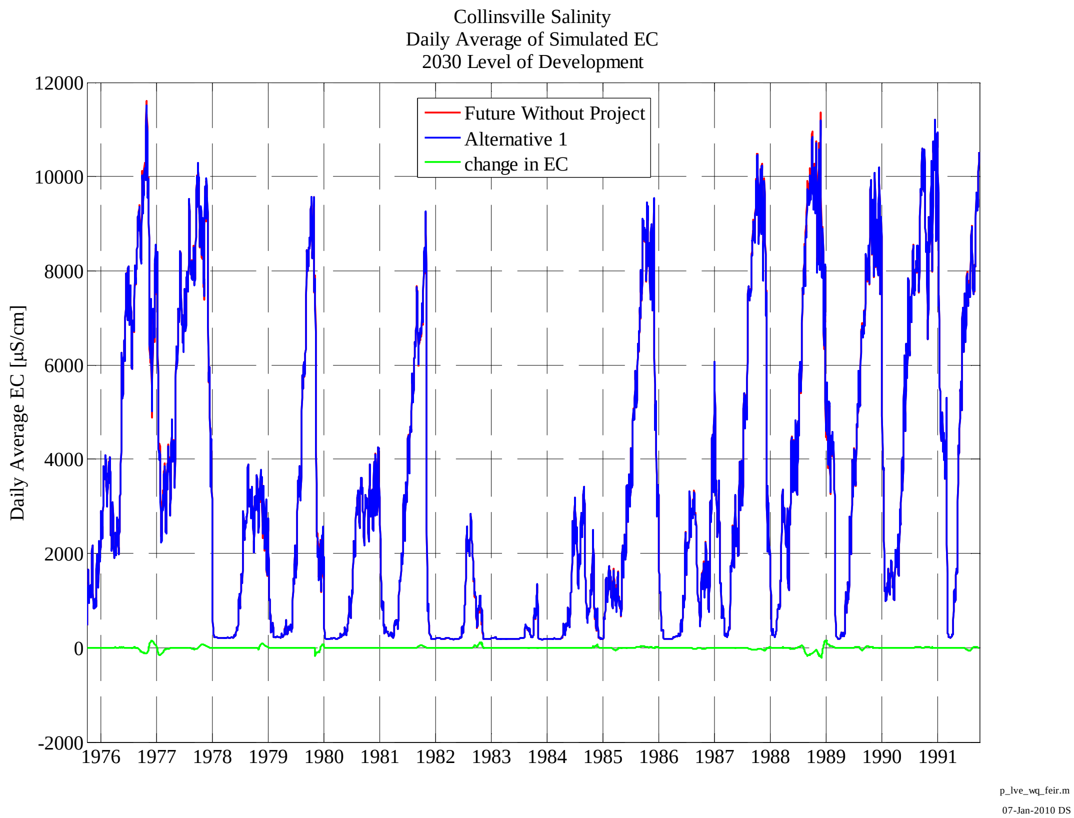
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,148	1,174	1,837	3,215	3,612	2,463	2,360	4,889	7,230	6,863	7,940	9,040
1977	10,265	7,690	7,268	4,538	3,102	3,480	4,022	6,403	7,183	7,708	8,209	9,021
1978	8,960	8,953	4,732	286	205	199	215	231	613	1,910	3,047	2,863
1979	3,039	3,215	2,474	780	244	230	336	377	1,267	3,026	5,321	7,992
1980	8,735	3,555	1,837	231	195	199	232	324	777	1,995	3,109	2,954
1981	3,036	3,138	3,436	1,120	340	262	476	1,536	3,011	4,527	6,240	6,653
1982	7,870	1,126	186	199	187	198	181	181	269	1,436	2,307	1,099
1983	843	240	190	210	194	184	186	181	184	202	388	285
1984	785	206	182	193	194	187	299	579	2,006	2,050	2,640	1,109
1985	1,381	659	205	860	1,319	1,159	1,059	1,877	3,140	4,546	6,139	8,208
1986	8,549	8,174	4,371	811	186	190	226	330	1,235	2,377	2,935	1,263
1987	1,329	1,440	3,642	3,470	1,186	330	1,197	2,366	3,079	4,628	7,253	8,885
1988	9,611	9,220	3,781	460	602	2,183	2,255	3,333	3,948	5,796	8,376	9,776
1989	9,894	9,218	7,229	4,415	3,992	350	249	955	2,826	4,306	6,003	7,500
1990	8,739	8,993	8,756	2,653	1,367	1,467	2,019	4,044	6,269	7,487	8,027	9,589
1991	8,741	8,829	10,136	6,302	4,307	625	716	3,419	6,398	7,344	8,015	9,383
Avg	5,808	4,739	3,766	1,859	1,327	857	1,002	1,939	3,090	4,138	5,372	5,976
W/AN/BN	5,540	3,638	1,996	387	201	198	239	315	907	1,857	2,821	2,510
D/C	6,016	5,596	5,143	3,004	2,203	1,369	1,595	3,202	4,787	5,912	7,356	8,673

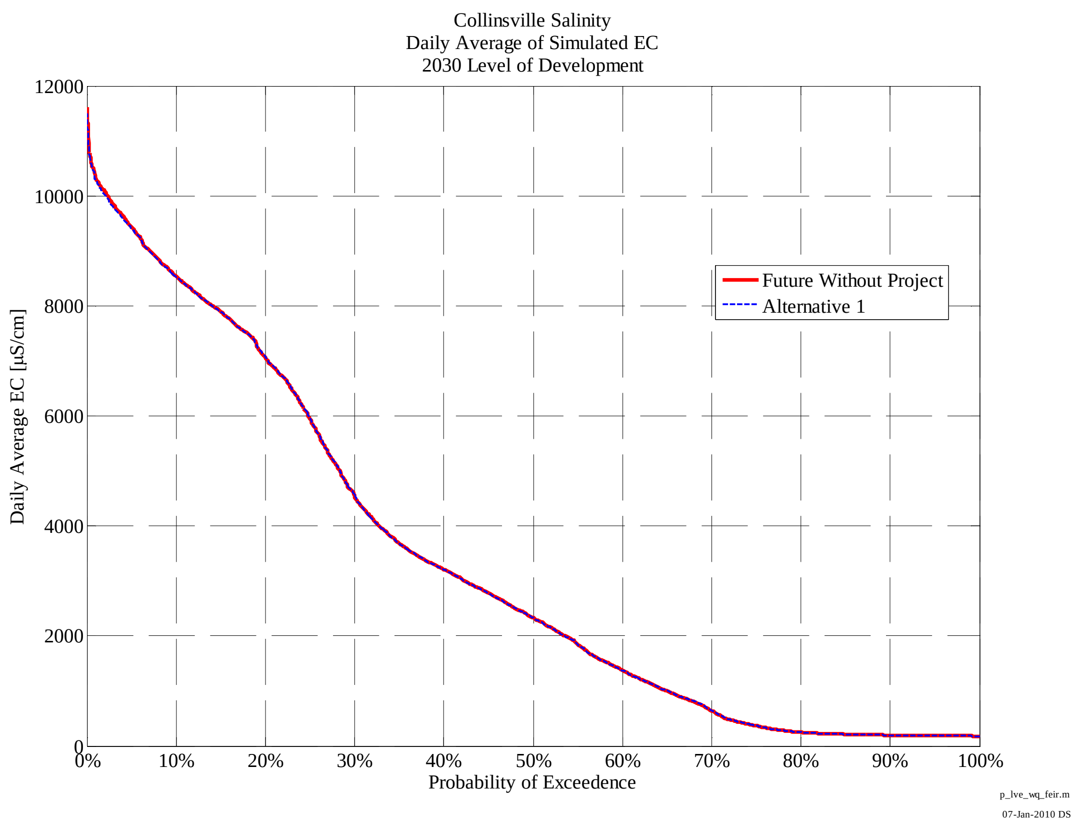
Percent (%) Change from Future Without Project for Collinsville Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.1%	-0.1%	0.1%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	-0.7%
1977	-1.1%	0.8%	1.2%	-2.6%	-2.5%	-0.6%	-0.2%	-0.1%	0.0%	0.0%	-0.2%	-0.3%
1978	0.5%	0.6%	0.0%	-0.2%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.1%
1979	-0.2%	2.1%	1.7%	0.4%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%
1980	0.0%	-2.7%	1.6%	1.2%	-0.1%	0.1%	0.0%	-0.2%	-0.2%	0.0%	0.0%	0.0%
1981	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.1%	0.5%
1982	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%
1983	11.3%	4.6%	0.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.5%
1984	0.4%	0.1%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.0%	-0.2%	-0.1%	0.0%	0.0%
1985	0.1%	5.7%	1.3%	0.0%	0.0%	-3.2%	-1.1%	0.0%	0.0%	-0.1%	0.2%	0.4%
1986	0.2%	0.1%	0.1%	-0.2%	0.0%	0.1%	0.1%	0.1%	-0.1%	0.0%	-0.6%	-0.7%
1987	-1.3%	-0.6%	0.0%	0.0%	0.0%	-0.6%	-0.3%	0.1%	0.0%	-0.1%	-0.2%	-0.4%
1988	-0.3%	-0.5%	-0.2%	0.3%	0.1%	0.1%	-0.3%	-0.6%	-0.3%	0.5%	-1.0%	-1.5%
1989	-0.8%	-1.6%	0.4%	1.8%	0.6%	0.3%	0.0%	0.1%	-0.1%	0.3%	-0.4%	0.0%
1990	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.2%	0.1%
1991	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.6%	-0.2%	0.1%
Avg	0.6%	0.5%	0.4%	0.0%	-0.1%	-0.2%	-0.1%	0.0%	-0.1%	0.0%	-0.1%	0.1%
W/AN/BN	1.8%	0.7%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.5%
D/C	-0.3%	0.4%	0.3%	-0.1%	-0.2%	-0.5%	-0.2%	0.0%	-0.1%	0.0%	-0.2%	-0.2%


Collinsville Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
6000
5000
4000
3000
2000
1000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.02%
-0.13%
-0.24%
-0.11%
-0.03%
-0.08%
-0.02%
-0.09%
0.09%
0.59%
0.55%
0.40%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

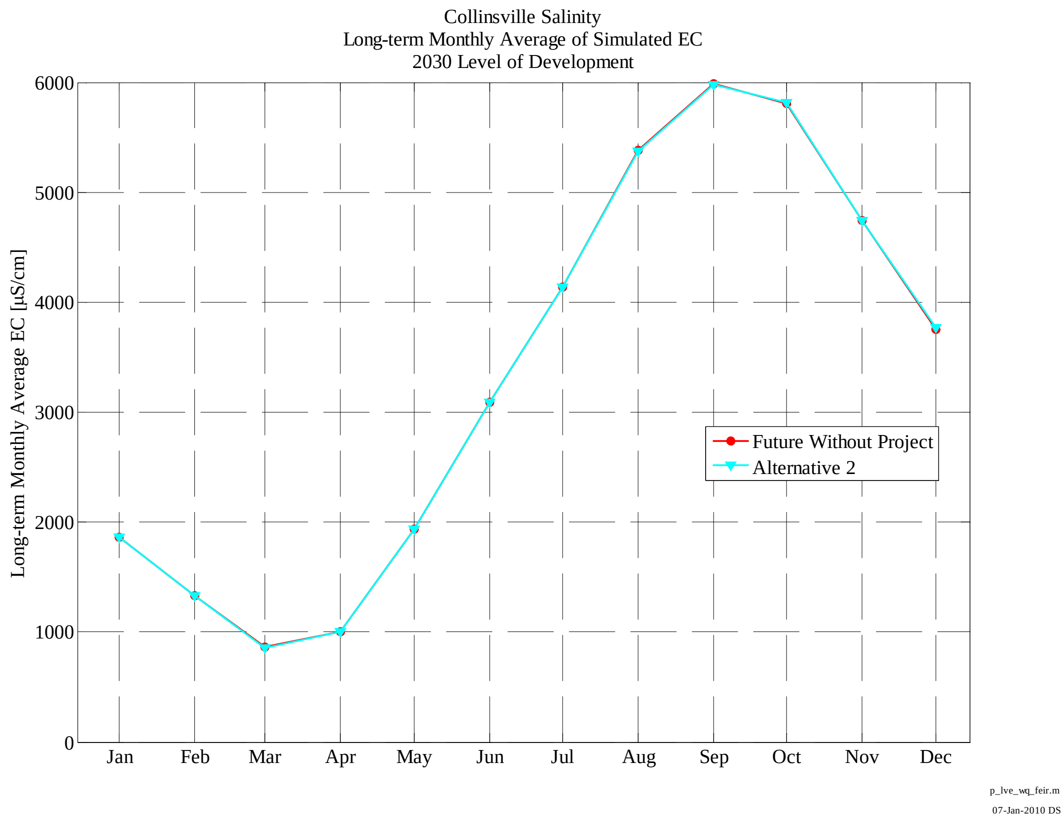
Alternative 2

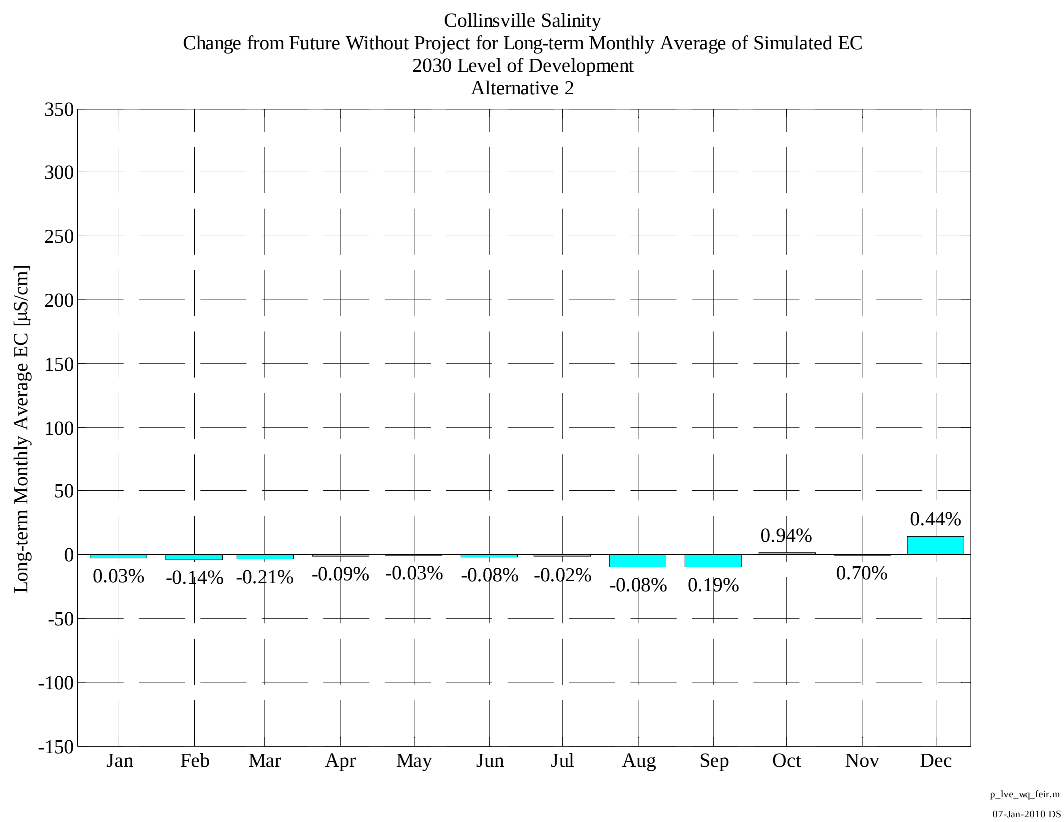
Collinsville Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 2
2030 Level of Development

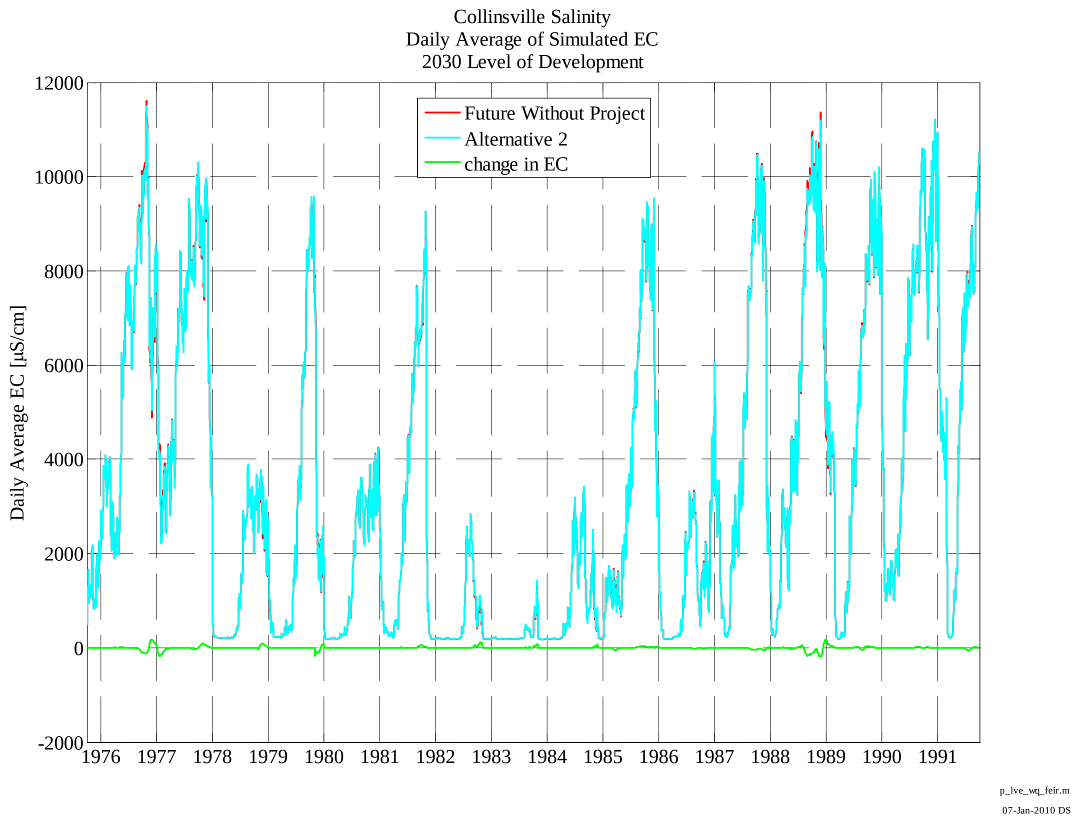
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,148	1,174	1,836	3,216	3,612	2,464	2,360	4,889	7,230	6,861	7,937	9,035
1977	10,262	7,704	7,281	4,529	3,095	3,478	4,021	6,402	7,183	7,708	8,209	9,020
1978	8,969	8,963	4,741	287	205	199	215	231	613	1,910	3,047	2,863
1979	3,040	3,215	2,474	780	244	230	336	377	1,267	3,026	5,321	7,992
1980	8,736	3,555	1,837	231	195	199	232	324	777	1,995	3,109	2,954
1981	3,036	3,138	3,437	1,120	340	262	476	1,536	3,011	4,527	6,241	6,651
1982	7,868	1,129	186	199	187	198	181	181	269	1,436	2,307	1,099
1983	843	240	190	210	193	184	186	181	184	202	389	290
1984	824	208	182	193	194	187	299	579	2,006	2,051	2,640	1,110
1985	1,381	661	205	860	1,319	1,159	1,059	1,877	3,140	4,546	6,141	8,213
1986	8,550	8,176	4,372	812	186	190	226	330	1,235	2,377	2,935	1,263
1987	1,333	1,442	3,642	3,470	1,186	332	1,201	2,366	3,078	4,628	7,254	8,885
1988	9,611	9,220	3,780	460	602	2,183	2,255	3,333	3,948	5,796	8,377	9,776
1989	9,907	9,227	7,240	4,423	3,995	350	249	955	2,826	4,305	6,003	7,503
1990	8,741	8,994	8,757	2,653	1,366	1,467	2,019	4,044	6,270	7,488	8,024	9,588
1991	8,740	8,828	10,135	6,302	4,307	625	716	3,419	6,398	7,347	8,016	9,381
Avg	5,812	4,742	3,768	1,859	1,327	857	1,002	1,939	3,090	4,138	5,372	5,977
W/AN/BN	5,547	3,641	1,997	387	201	198	239	315	907	1,857	2,821	2,510
D/C	6,018	5,599	5,146	3,004	2,203	1,369	1,595	3,202	4,787	5,912	7,356	8,673

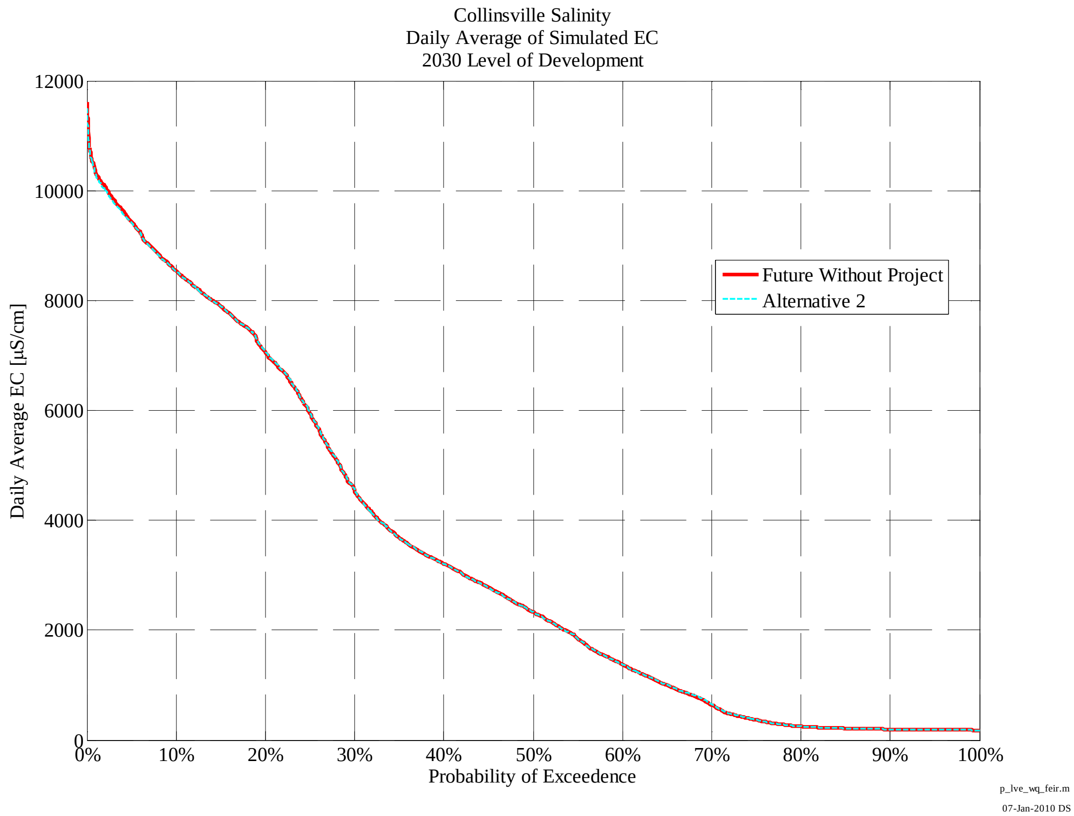
Percent (%) Change from Future Without Project for Collinsville Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-0.1%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.7%
1977	-1.1%	1.0%	1.4%	-2.8%	-2.7%	-0.7%	-0.2%	-0.1%	0.0%	0.0%	-0.2%	-0.3%
1978	0.6%	0.7%	0.2%	-0.1%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.1%
1979	-0.2%	2.1%	1.7%	0.4%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%
1980	0.0%	-2.7%	1.6%	1.2%	-0.1%	0.0%	0.0%	-0.1%	-0.2%	0.0%	0.0%	0.0%
1981	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.1%	0.5%
1982	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
1983	11.4%	4.6%	0.0%	-0.4%	-0.1%	0.0%	0.0%	-0.1%	-0.1%	0.0%	1.1%	2.0%
1984	5.4%	1.4%	0.0%	-0.1%	0.0%	0.1%	-0.1%	-0.1%	-0.2%	-0.1%	0.0%	0.0%
1985	0.1%	6.1%	1.4%	0.0%	0.0%	-3.2%	-1.1%	0.0%	0.0%	-0.1%	0.2%	0.4%
1986	0.2%	0.1%	0.2%	-0.1%	0.0%	0.1%	0.1%	0.1%	-0.1%	0.0%	-0.6%	-0.7%
1987	-1.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.2%	-0.4%
1988	-0.3%	-0.4%	-0.2%	0.4%	0.0%	0.1%	-0.3%	-0.6%	-0.3%	0.5%	-1.0%	-1.5%
1989	-0.7%	-1.5%	0.5%	2.0%	0.7%	0.3%	0.0%	0.1%	-0.1%	0.3%	-0.4%	0.1%
1990	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.1%	0.1%
1991	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.6%	-0.2%	0.1%
Avg	0.9%	0.7%	0.4%	0.0%	-0.1%	-0.2%	-0.1%	0.0%	-0.1%	0.0%	-0.1%	0.2%
W/AN/BN	2.6%	1.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.7%
D/C	-0.3%	0.5%	0.4%	-0.1%	-0.2%	-0.4%	-0.2%	0.0%	-0.1%	0.0%	-0.2%	-0.2%


Collinsville Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
6000
5000
4000
3000
2000
1000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.03%
-0.14%
-0.21%
-0.09%
-0.03%
-0.08%
-0.02%
-0.08%
0.19%
0.94%
0.70%
0.44%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

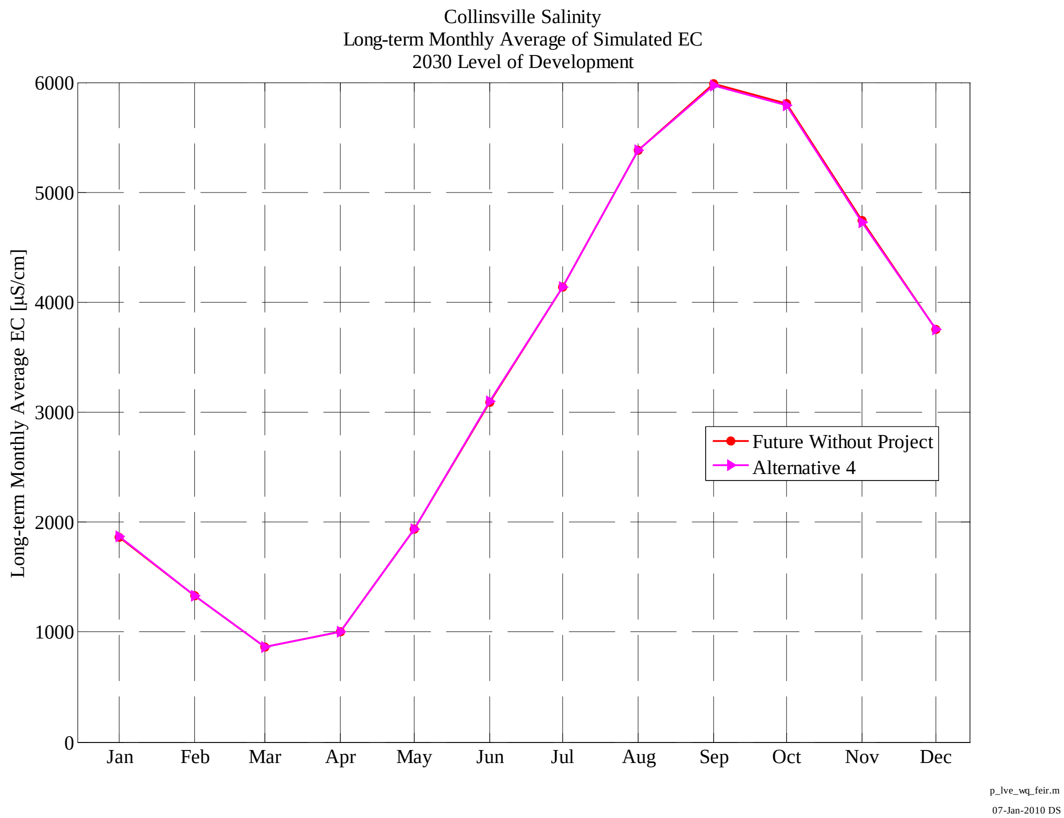
Alternative 4

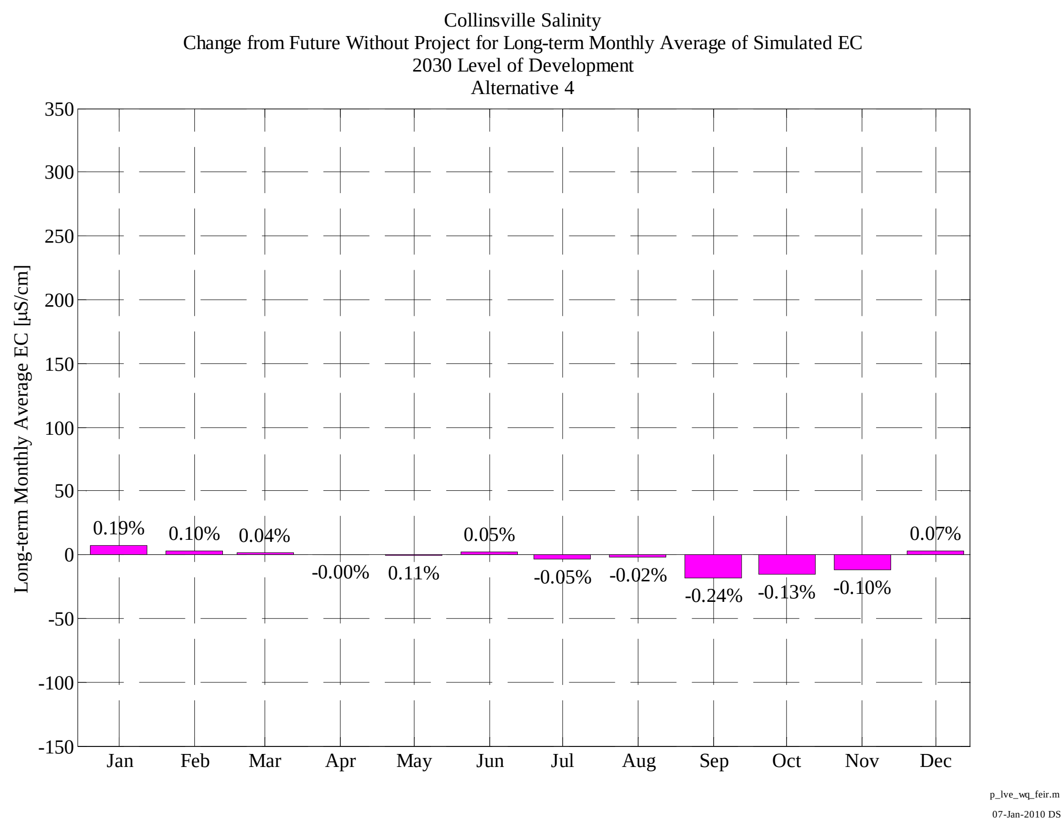
Collinsville Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

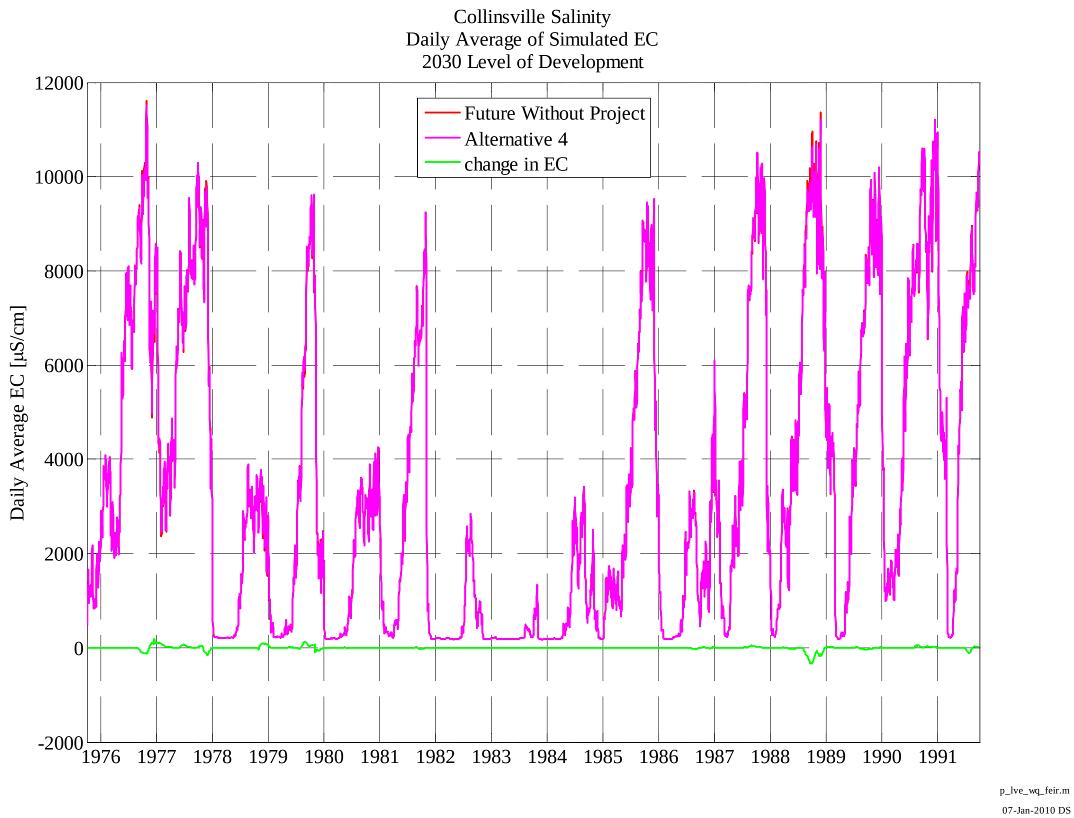
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	1,149	1,174	1,835	3,218	3,614	2,464	2,358	4,884	7,232	6,859	7,933	9,031
1977	10,264	7,652	7,286	4,757	3,231	3,518	4,035	6,411	7,229	7,746	8,229	9,039
1978	8,942	8,801	4,672	286	205	200	215	231	614	1,910	3,047	2,863
1979	3,039	3,217	2,514	791	244	230	336	382	1,270	3,016	5,396	8,061
1980	8,783	3,608	1,778	228	196	199	232	327	781	1,996	3,108	2,953
1981	3,037	3,141	3,437	1,119	340	262	476	1,534	3,013	4,531	6,253	6,605
1982	7,820	1,124	186	199	187	198	181	181	269	1,435	2,306	1,064
1983	758	230	190	211	194	184	186	181	184	202	385	284
1984	781	205	182	193	194	187	299	580	2,010	2,055	2,642	1,110
1985	1,380	623	202	860	1,319	1,197	1,071	1,877	3,140	4,549	6,124	8,176
1986	8,532	8,167	4,364	809	186	190	226	330	1,236	2,377	2,932	1,257
1987	1,350	1,445	3,639	3,467	1,183	332	1,200	2,365	3,079	4,638	7,288	8,959
1988	9,653	9,262	3,787	458	602	2,183	2,253	3,331	3,948	5,764	8,355	9,640
1989	9,785	9,228	7,137	4,347	3,973	349	249	955	2,830	4,299	6,014	7,460
1990	8,696	8,980	8,760	2,652	1,366	1,467	2,019	4,041	6,271	7,483	8,049	9,601
1991	8,753	8,840	10,141	6,302	4,307	626	716	3,419	6,402	7,317	8,008	9,391
Avg	5,795	4,731	3,757	1,869	1,334	862	1,003	1,939	3,094	4,136	5,379	5,968
W/AN/BN	5,522	3,622	1,984	388	201	198	239	316	909	1,856	2,831	2,513
D/C	6,007	5,594	5,136	3,020	2,215	1,378	1,597	3,202	4,794	5,910	7,361	8,656

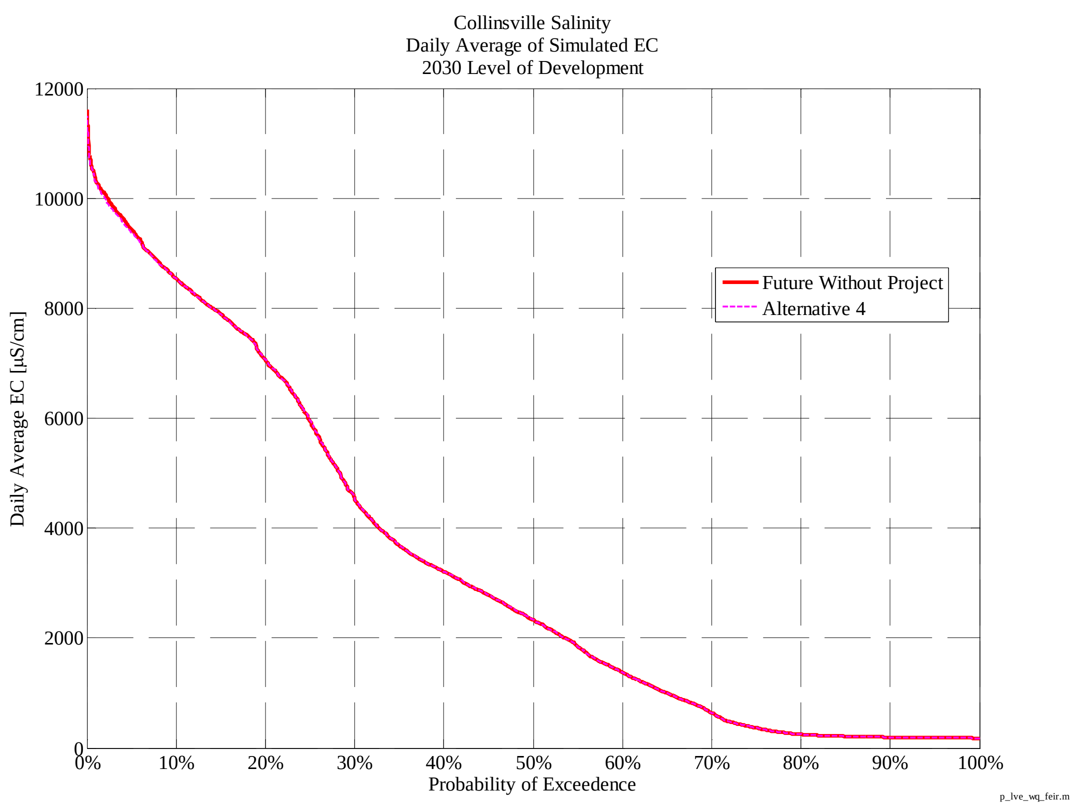
Percent (%) Change from Future Without Project for Collinsville Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.8%
1977	-1.1%	0.3%	1.5%	2.1%	1.5%	0.5%	0.1%	0.1%	0.6%	0.5%	0.1%	-0.1%
1978	0.3%	-1.1%	-1.3%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	-0.2%	2.1%	3.3%	1.9%	0.2%	0.0%	0.1%	1.4%	0.0%	-0.4%	1.4%	0.9%
1980	0.6%	-1.2%	-1.6%	-0.1%	0.0%	0.0%	0.0%	0.9%	0.5%	0.1%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.2%
1982	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1986	0.0%	0.0%	0.0%	-0.5%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.7%	-1.2%
1987	0.3%	-0.2%	-0.1%	-0.1%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.2%	0.4%
1988	0.2%	0.0%	0.0%	0.1%	0.0%	0.2%	-0.4%	-0.6%	-0.3%	-0.1%	-1.2%	-2.9%
1989	-1.9%	-1.5%	-0.9%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.3%	-0.5%
1990	-0.3%	-0.1%	0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.4%	0.2%
1991	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.0%	-0.3%	0.2%
Avg	-0.1%	-0.1%	0.1%	0.2%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	-0.2%
W/AN/BN	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%	0.1%	0.0%
D/C	-0.3%	-0.1%	0.1%	0.2%	0.1%	0.1%	0.0%	-0.1%	0.0%	-0.1%	-0.1%	-0.4%


Collinsville Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
6000
5000
4000
3000
2000
1000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.19%
0.10%
0.04%
-0.00%
0.11%
0.05%
-0.05%
-0.02%
-0.24%
-0.13%
-0.10%
0.07%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
-2000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Future Without Project
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Collinsville Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
12000
10000
8000
6000
4000
2000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Emmaton

Future Without Project

Emmaton Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	259	318	628	694	427	469	1,392	2,512	1,803	2,601	3,139
1977	4,063	2,227	1,847	1,113	705	744	874	2,022	2,336	2,433	3,000	3,554
1978	3,498	3,363	1,019	208	194	190	193	196	221	366	587	540
1979	633	605	411	259	212	196	207	211	317	579	1,345	2,572
1980	2,994	808	351	188	188	184	194	207	249	400	604	553
1981	648	652	612	306	195	189	222	358	653	984	1,634	1,745
1982	2,524	318	180	192	180	190	178	179	186	335	420	245
1983	206	184	182	193	185	181	181	177	179	188	192	180
1984	214	178	179	184	185	181	202	226	451	380	509	282
1985	304	204	182	233	263	260	272	389	668	981	1,587	2,677
1986	2,945	2,488	953	266	183	183	199	205	316	430	579	282
1987	304	318	720	703	271	195	318	482	651	1,039	2,578	3,326
1988	3,410	3,107	769	219	225	486	442	758	921	1,449	3,315	4,080
1989	3,862	2,981	1,978	808	895	192	191	240	576	914	1,562	2,319
1990	2,859	2,930	2,702	528	295	300	381	985	2,001	2,105	2,482	3,867
1991	3,231	3,073	3,731	1,718	931	235	249	855	2,040	2,081	2,977	3,718
Avg	1,996	1,481	1,008	484	363	271	298	555	892	1,029	1,623	2,067
W/AN/BN	1,859	1,135	468	213	189	186	193	200	274	383	605	665
D/C	2,103	1,750	1,429	695	497	337	380	831	1,373	1,532	2,415	3,158

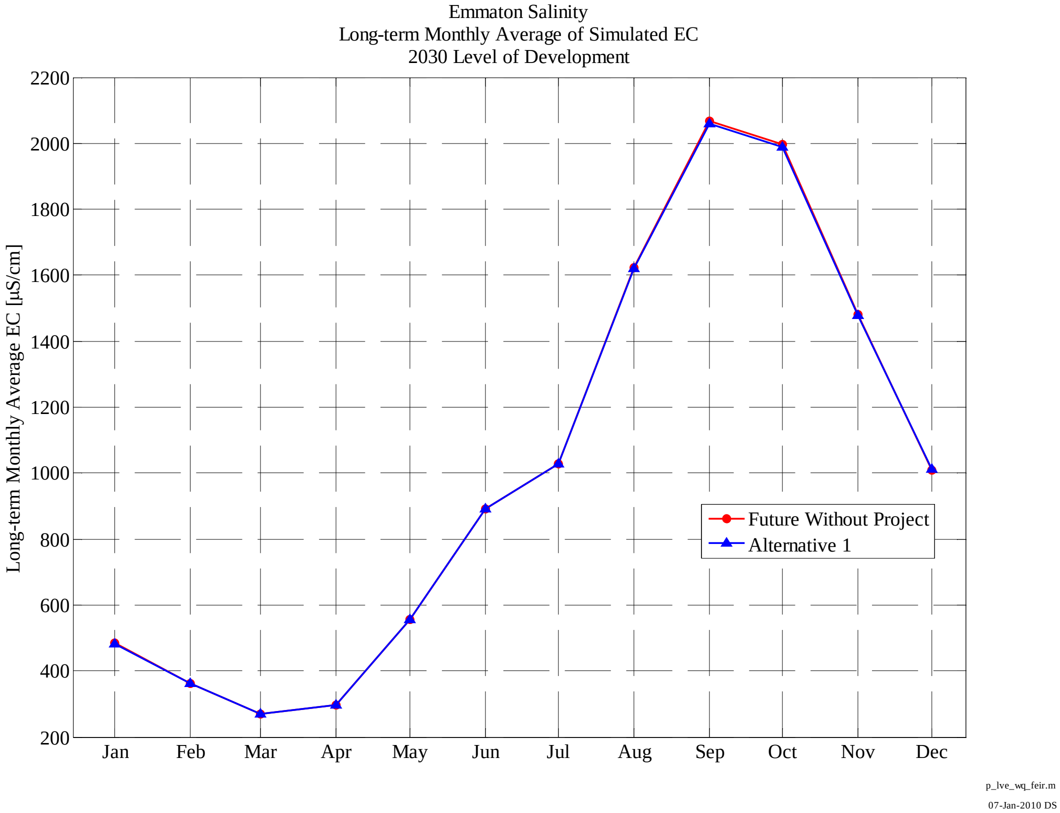
Alternative 1

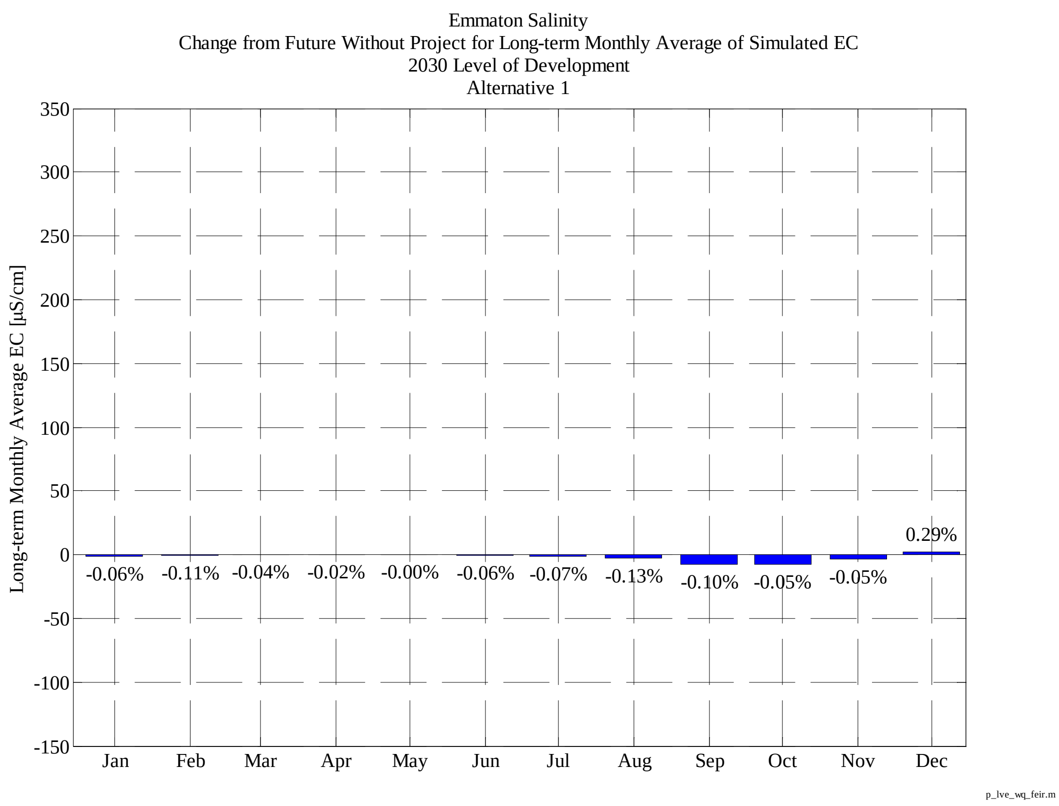
Emmaton Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2030 Level of Development

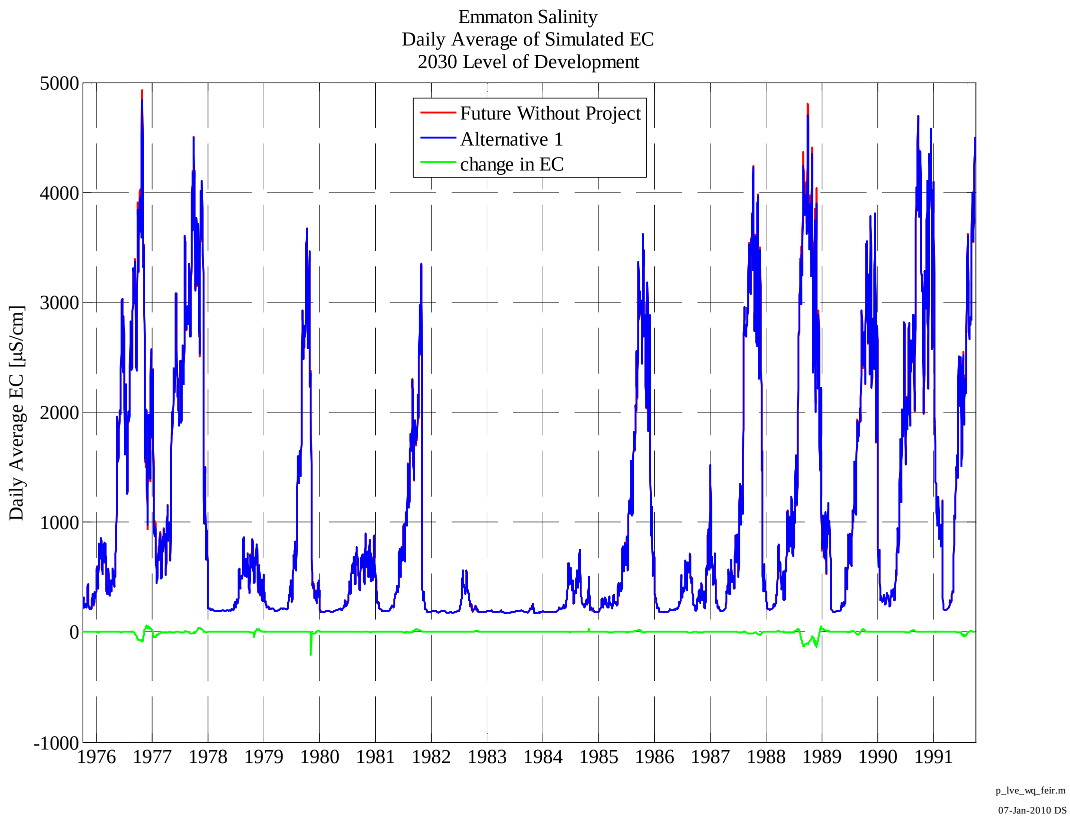
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	259	318	627	693	427	469	1,395	2,511	1,805	2,604	3,104
1977	3,988	2,252	1,881	1,075	688	739	872	2,021	2,337	2,430	3,004	3,541
1978	3,506	3,391	1,020	208	194	190	193	196	221	366	587	540
1979	625	621	421	260	212	196	207	211	317	578	1,345	2,573
1980	2,995	782	354	189	188	184	194	207	248	400	604	553
1981	648	651	612	306	195	189	222	358	653	983	1,631	1,760
1982	2,539	319	180	192	180	190	178	179	186	335	420	249
1983	213	185	182	193	185	181	181	177	179	188	192	180
1984	214	178	179	184	185	181	202	226	450	379	509	283
1985	306	207	183	233	263	257	271	389	668	979	1,592	2,693
1986	2,947	2,490	954	266	183	183	199	205	315	430	575	280
1987	301	316	720	703	271	195	318	483	651	1,036	2,579	3,310
1988	3,398	3,086	766	219	224	491	442	754	918	1,462	3,266	3,966
1989	3,786	2,890	1,964	825	902	192	191	241	576	918	1,551	2,330
1990	2,867	2,932	2,704	528	295	300	381	987	2,000	2,101	2,495	3,869
1991	3,236	3,077	3,732	1,717	930	235	249	855	2,038	2,052	2,970	3,724
Avg	1,988	1,477	1,011	483	362	271	298	555	892	1,028	1,620	2,060
W/AN/BN	1,863	1,138	470	213	189	186	193	200	274	383	605	665
D/C	2,086	1,741	1,431	693	496	336	380	831	1,372	1,529	2,410	3,144

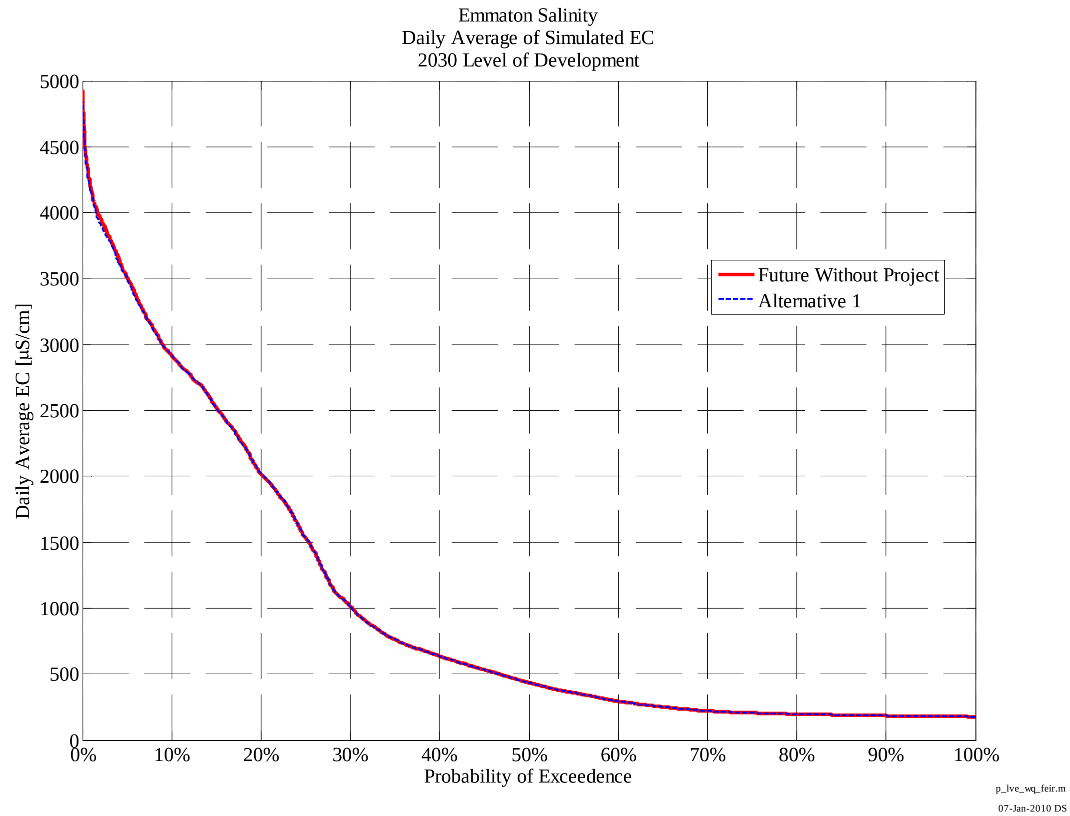
Percent (%) Change from Future Without Project for Emmaton Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	0.1%	-0.2%	-0.1%	0.0%	0.1%	0.2%	0.0%	0.1%	0.1%	-1.1%
1977	-1.9%	1.1%	1.8%	-3.4%	-2.4%	-0.7%	-0.2%	-0.1%	0.0%	-0.1%	0.1%	-0.4%
1978	0.2%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1979	-1.4%	2.6%	2.3%	0.4%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%
1980	0.0%	-3.2%	1.0%	0.2%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.1%
1981	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	-0.2%	0.9%
1982	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%
1983	3.4%	0.3%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
1984	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	-0.2%	-0.1%	0.0%	0.0%
1985	0.6%	1.4%	0.2%	0.0%	0.0%	-1.3%	-0.4%	0.0%	0.1%	-0.1%	0.3%	0.6%
1986	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.8%	-0.6%
1987	-0.7%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	-0.3%	0.1%	-0.5%
1988	-0.3%	-0.7%	-0.4%	0.0%	0.0%	1.0%	0.0%	-0.5%	-0.4%	0.9%	-1.5%	-2.8%
1989	-2.0%	-3.0%	-0.7%	2.2%	0.8%	0.1%	0.0%	0.0%	-0.1%	0.5%	-0.7%	0.4%
1990	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	0.5%	0.1%
1991	0.1%	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-1.4%	-0.2%	0.1%
Avg	0.0%	0.0%	0.3%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
W/AN/BN	0.4%	0.1%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%
D/C	-0.4%	-0.2%	0.1%	-0.2%	-0.2%	-0.1%	0.0%	0.0%	-0.1%	-0.1%	-0.2%	-0.3%


Emmaton Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.06%
-0.11%
-0.04%
-0.02%
-0.00%
-0.06%
-0.07%
-0.13%
-0.10%
-0.05%
-0.05%
0.29%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

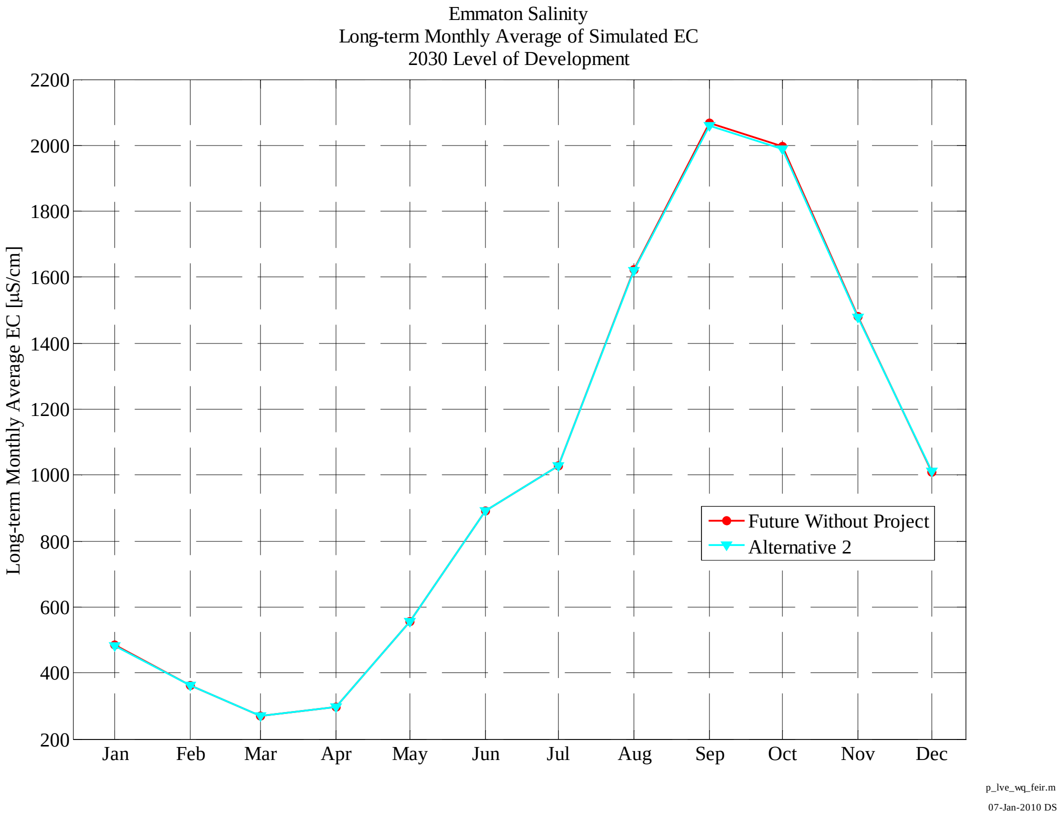
Alternative 2

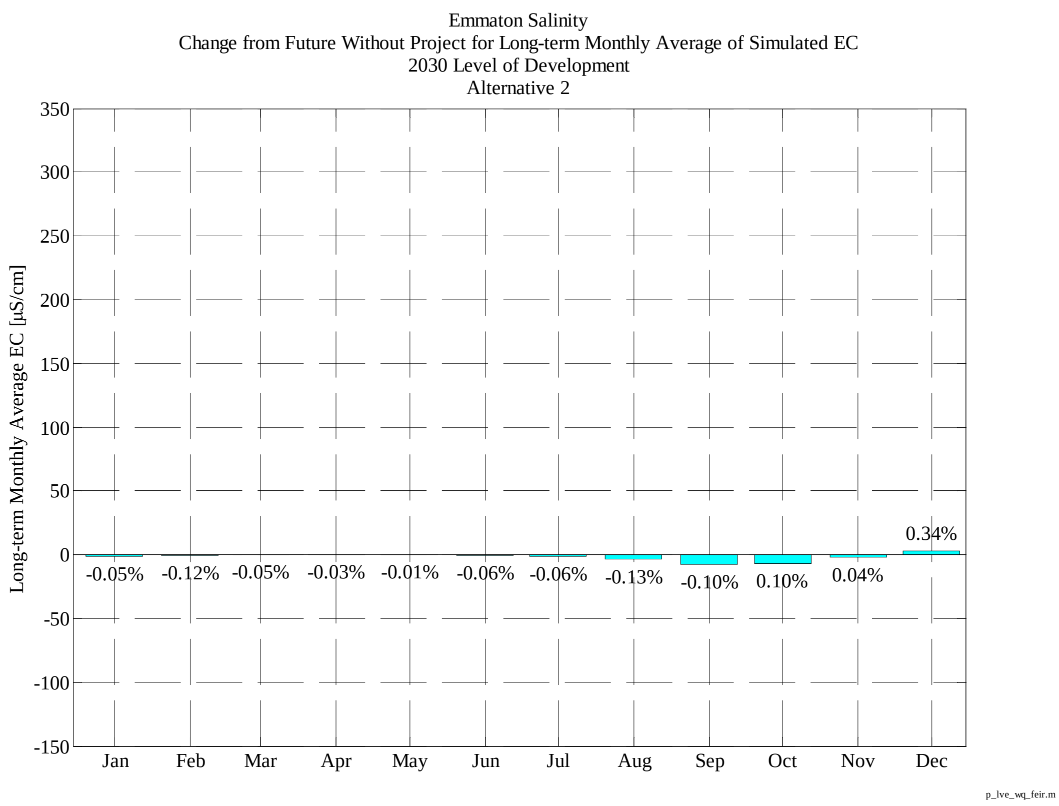
Emmaton Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

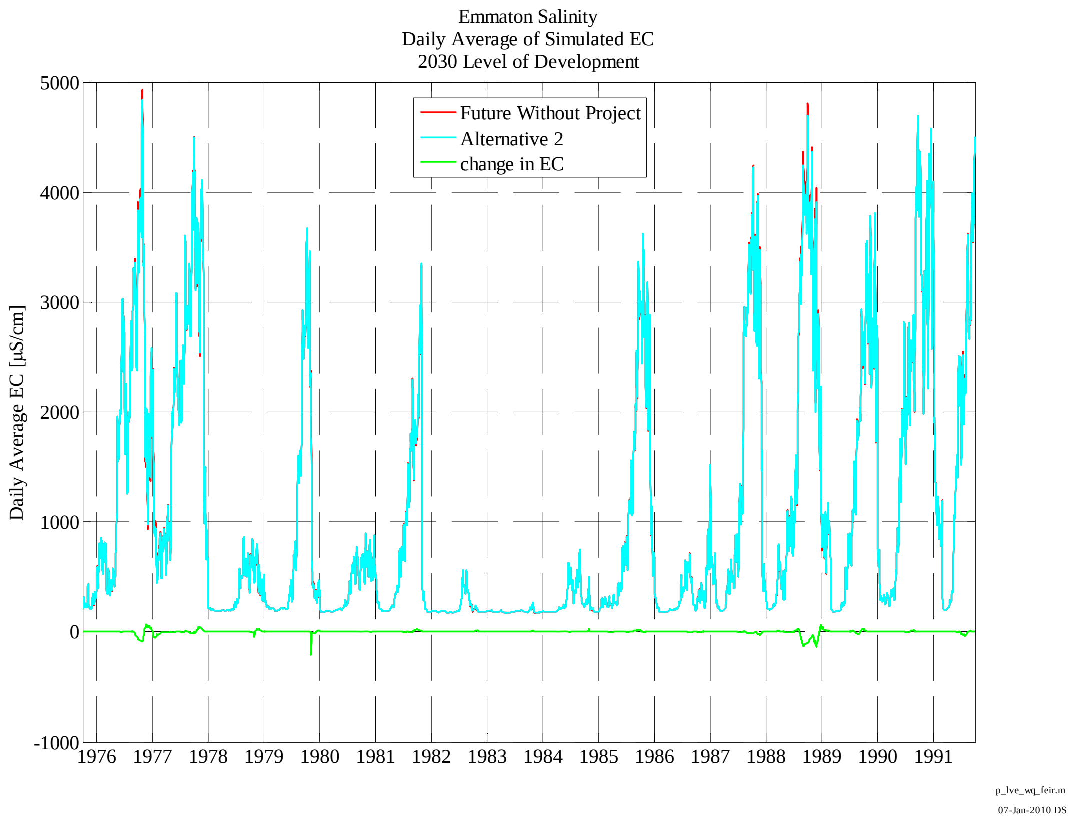
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	259	318	627	694	427	469	1,395	2,510	1,804	2,602	3,101
1977	3,985	2,260	1,885	1,073	686	739	872	2,021	2,337	2,431	3,004	3,541
1978	3,510	3,396	1,022	208	194	190	193	196	221	366	587	540
1979	625	621	421	260	212	196	207	211	317	578	1,345	2,574
1980	2,995	782	354	189	188	184	194	207	248	400	604	553
1981	648	651	612	306	195	189	222	358	653	983	1,631	1,760
1982	2,539	320	180	192	180	190	178	179	186	335	420	249
1983	213	185	182	193	185	181	181	177	179	188	192	180
1984	218	178	179	184	185	181	202	226	450	380	509	283
1985	306	207	183	233	263	257	271	389	668	979	1,593	2,695
1986	2,944	2,492	954	266	183	183	199	205	315	430	575	280
1987	302	316	721	703	271	195	318	482	650	1,036	2,580	3,310
1988	3,398	3,086	766	219	225	491	442	754	918	1,462	3,266	3,966
1989	3,797	2,896	1,969	827	903	192	191	241	576	918	1,551	2,331
1990	2,868	2,933	2,705	528	295	300	381	987	2,000	2,102	2,492	3,868
1991	3,234	3,076	3,732	1,718	931	235	249	856	2,038	2,054	2,970	3,723
Avg	1,989	1,479	1,011	483	362	271	298	555	892	1,028	1,620	2,060
W/AN/BN	1,864	1,139	470	213	189	186	193	200	274	383	605	665
D/C	2,087	1,743	1,432	693	496	336	380	831	1,372	1,530	2,410	3,144

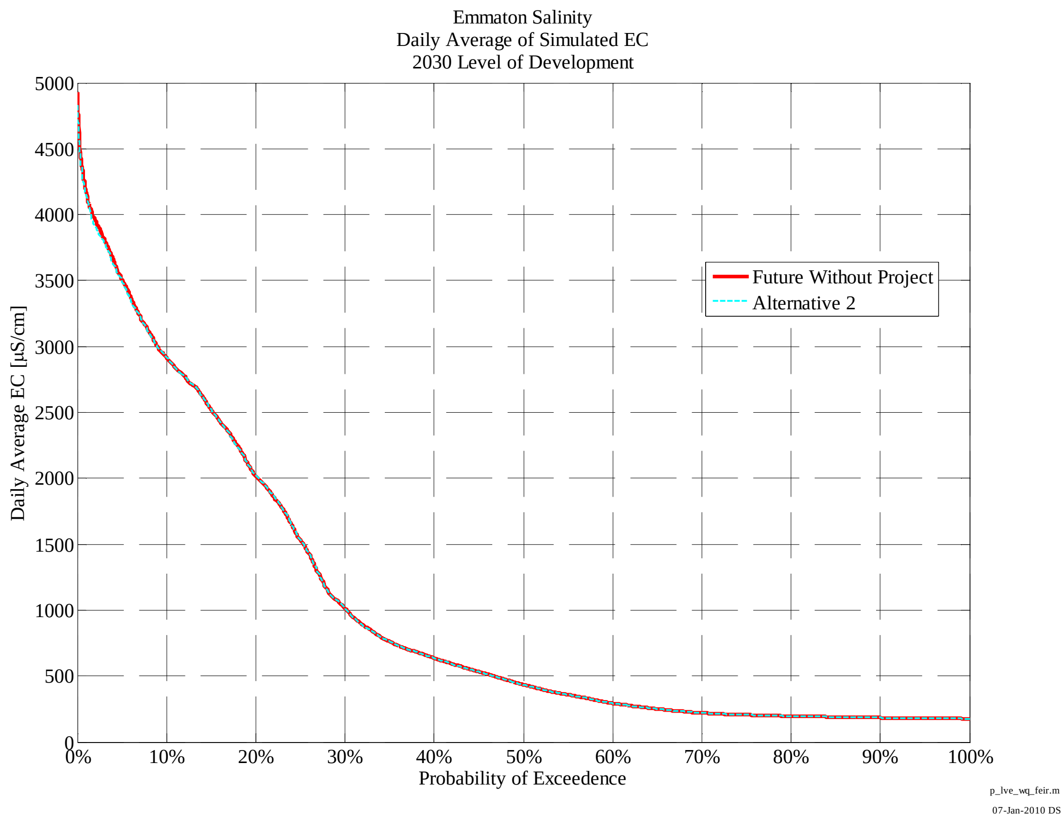
Percent (%) Change from Future Without Project for Emmaton Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	0.1%	-0.1%	-0.1%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	-1.2%
1977	-1.9%	1.5%	2.1%	-3.6%	-2.6%	-0.7%	-0.2%	-0.1%	0.0%	-0.1%	0.1%	-0.4%
1978	0.3%	1.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1979	-1.3%	2.6%	2.3%	0.4%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.1%
1980	0.1%	-3.2%	1.0%	0.2%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.1%
1981	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	-0.2%	0.9%
1982	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%
1983	3.4%	0.3%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%
1984	2.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	-0.2%	-0.1%	0.0%	0.0%
1985	0.6%	1.5%	0.2%	0.0%	0.0%	-1.2%	-0.4%	0.0%	0.0%	-0.1%	0.4%	0.7%
1986	0.0%	0.1%	0.2%	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.8%	-0.6%
1987	-0.6%	-0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.3%	0.1%	-0.5%
1988	-0.3%	-0.7%	-0.4%	0.0%	0.0%	1.0%	0.0%	-0.6%	-0.4%	0.9%	-1.5%	-2.8%
1989	-1.7%	-2.8%	-0.5%	2.4%	0.9%	0.1%	0.0%	0.0%	-0.1%	0.4%	-0.7%	0.5%
1990	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.2%	0.4%	0.0%
1991	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.3%	-0.2%	0.1%
Avg	0.1%	0.0%	0.3%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
W/AN/BN	0.7%	0.2%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%
D/C	-0.4%	-0.1%	0.2%	-0.1%	-0.2%	-0.1%	-0.1%	0.0%	-0.1%	-0.1%	-0.2%	-0.3%


Emmaton Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.05%
-0.12%
-0.05%
-0.03%
-0.01%
-0.06%
-0.06%
-0.13%
-0.10%
0.10%
0.04%
0.34%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

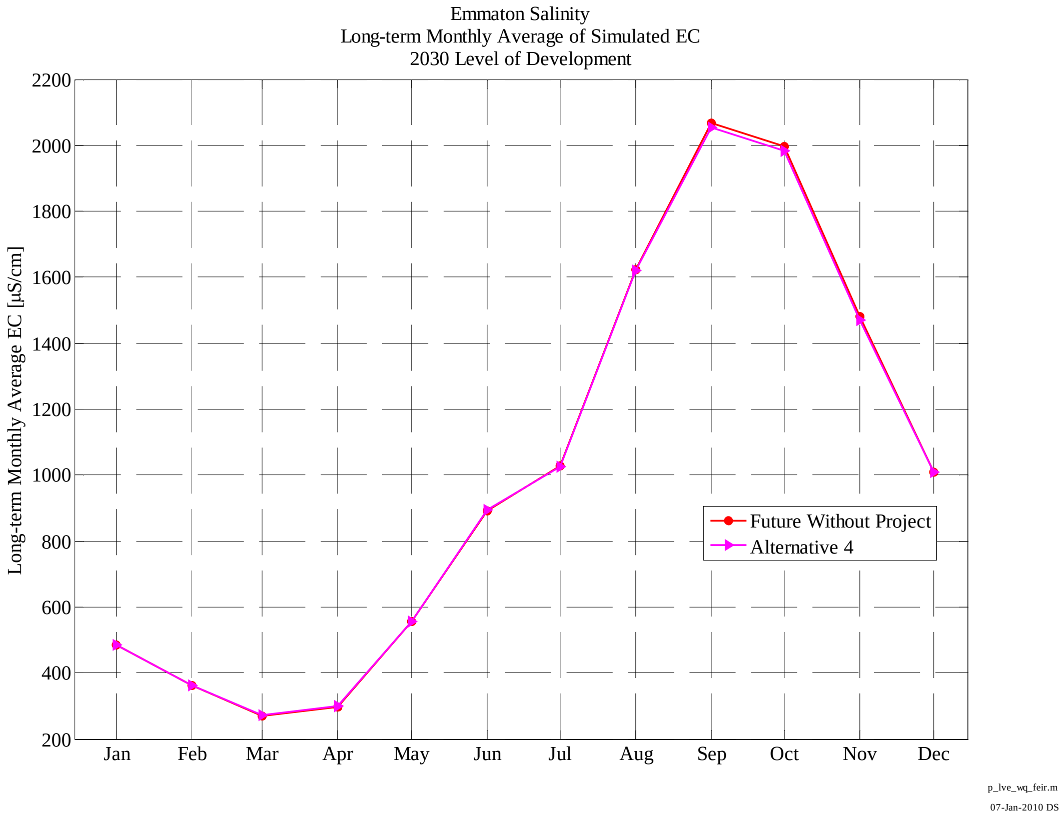
Alternative 4

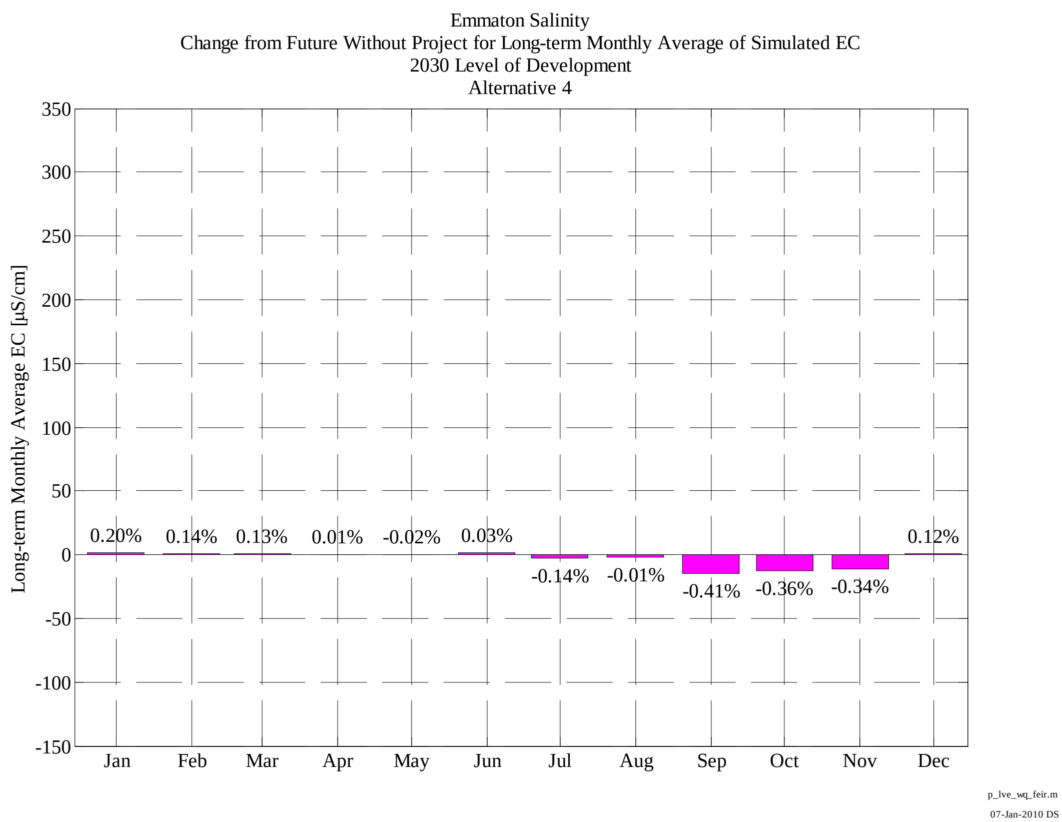
Emmaton Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

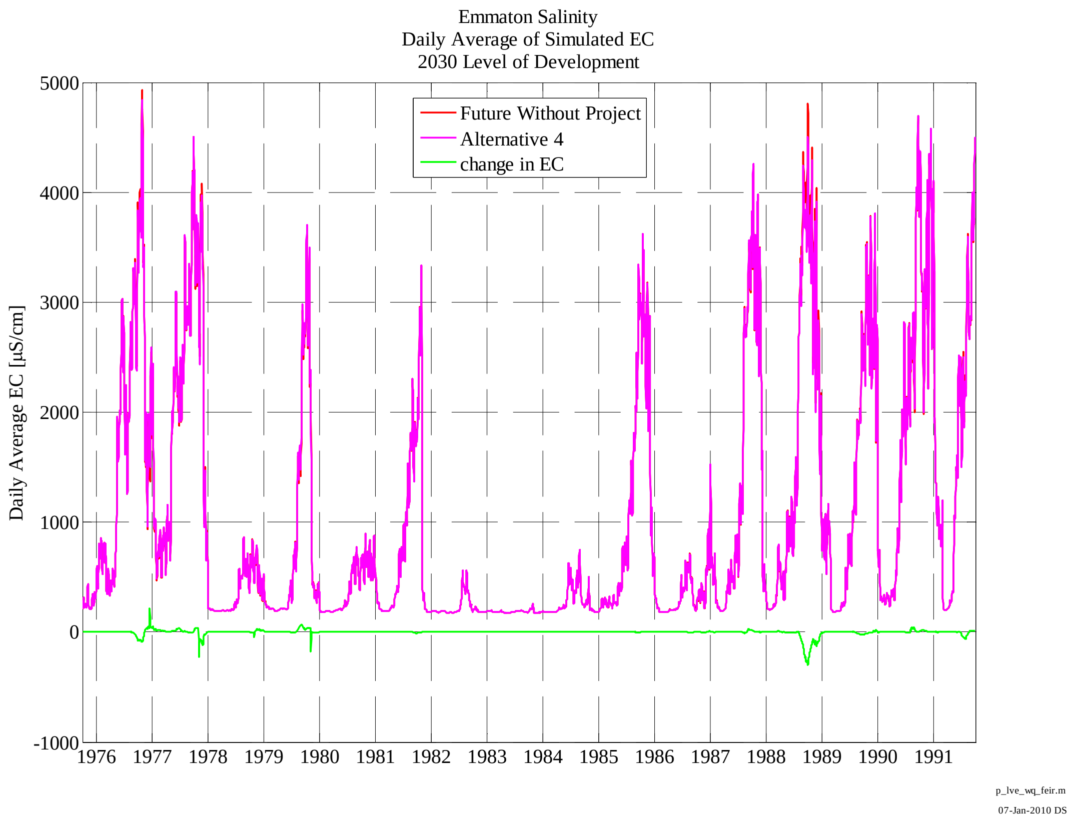
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	247	259	318	628	694	427	469	1,392	2,512	1,803	2,600	3,098
1977	3,986	2,235	1,907	1,141	721	752	876	2,030	2,364	2,445	3,002	3,550
1978	3,519	3,265	998	207	194	190	193	196	221	366	587	540
1979	623	619	428	262	212	196	207	211	316	575	1,378	2,615
1980	3,026	796	346	188	188	184	194	207	249	400	604	553
1981	648	652	612	306	195	189	222	357	653	984	1,636	1,737
1982	2,517	318	180	192	180	190	178	179	186	335	420	245
1983	206	184	182	193	185	181	181	177	179	188	192	180
1984	214	178	179	184	185	181	202	226	451	380	510	283
1985	304	204	182	233	263	260	272	389	668	981	1,586	2,675
1986	2,945	2,488	952	266	183	183	199	205	316	430	574	279
1987	305	315	723	703	271	195	318	482	651	1,041	2,570	3,346
1988	3,419	3,107	769	219	224	491	442	753	918	1,448	3,251	3,844
1989	3,690	2,887	1,925	806	895	192	191	240	576	916	1,554	2,299
1990	2,844	2,926	2,711	527	295	300	381	985	2,001	2,098	2,516	3,873
1991	3,244	3,082	3,735	1,717	931	235	249	856	2,039	2,035	2,964	3,729
Avg	1,984	1,470	1,009	486	364	272	298	555	894	1,027	1,621	2,053
W/AN/BN	1,864	1,121	467	213	189	186	193	200	274	382	609	671
D/C	2,076	1,741	1,431	698	499	338	380	832	1,376	1,528	2,409	3,128

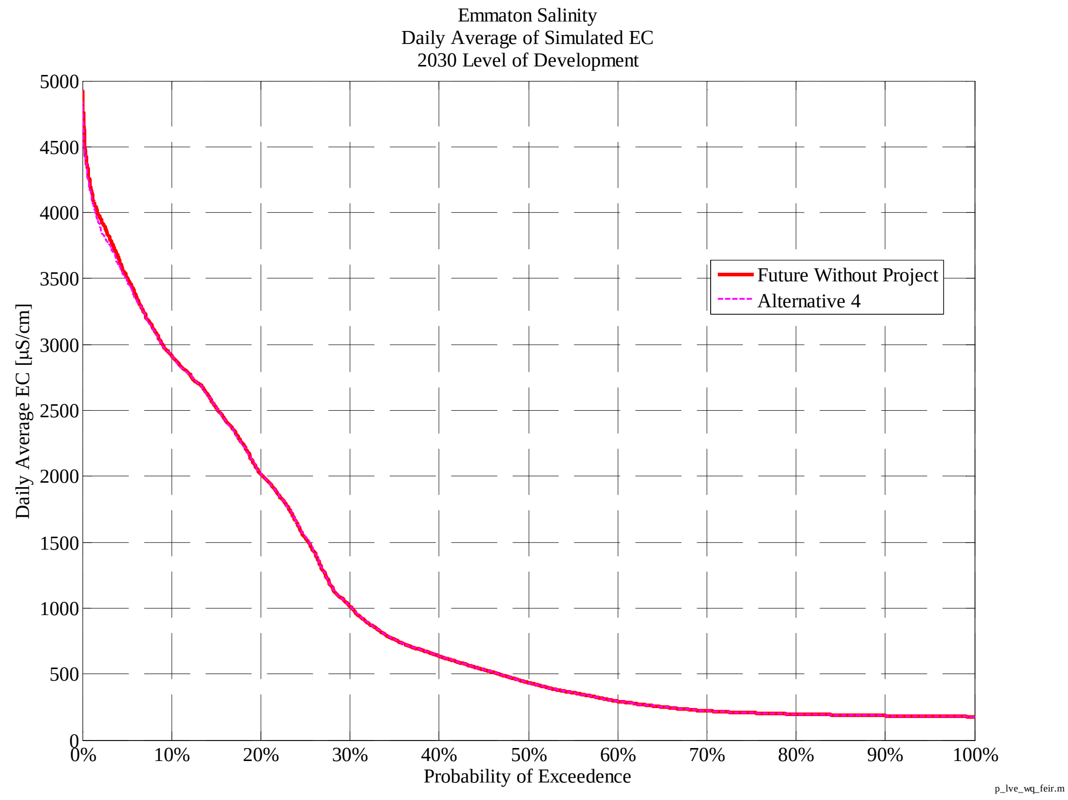
Percent (%) Change from Future Without Project for Emmaton Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.3%
1977	-1.9%	0.3%	3.2%	2.5%	2.3%	1.0%	0.2%	0.4%	1.2%	0.5%	0.1%	-0.1%
1978	0.6%	-2.9%	-2.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1979	-1.5%	2.4%	4.1%	1.4%	0.1%	0.0%	0.0%	-0.1%	-0.3%	-0.6%	2.5%	1.7%
1980	1.1%	-1.5%	-1.4%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.4%
1982	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1986	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.9%	-0.8%
1987	0.5%	-0.8%	0.4%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.3%	0.6%
1988	0.3%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	-0.6%	-0.4%	-0.1%	-1.9%	-5.8%
1989	-4.4%	-3.1%	-2.7%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.5%	-0.9%
1990	-0.5%	-0.2%	0.3%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.3%	1.4%	0.2%
1991	0.4%	0.3%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-2.2%	-0.4%	0.3%
Avg	-0.4%	-0.3%	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.4%
W/AN/BN	0.0%	-0.3%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.2%	0.1%
D/C	-0.6%	-0.4%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.1%	-0.2%	-0.2%	-0.8%


Emmaton Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.20%
0.14%
0.13%
0.01%
-0.02%
0.03%
-0.14%
-0.01%
-0.41%
-0.36%
-0.34%
0.12%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Emmaton Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
Probability of Exceedence
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
p_lve_wq_feir.m
07-Jan-2010 DS

Jersey Point

Future Without Project

Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	290	227	426	714	812	572	341	735	1,505	2,475	2,461	2,903
1977	2,858	1,613	2,281	1,385	536	501	555	1,065	1,513	1,941	1,833	2,318
1978	2,181	2,308	1,732	344	255	251	267	233	221	390	775	717
1979	390	393	724	387	276	239	237	249	253	853	1,621	2,647
1980	2,646	1,058	712	266	260	234	223	244	238	310	658	673
1981	369	361	1,203	650	238	211	267	296	436	1,563	2,434	2,557
1982	2,381	1,076	210	234	216	233	197	181	194	254	389	227
1983	219	200	221	272	275	242	202	187	196	208	197	187
1984	260	192	210	225	213	197	230	248	312	548	651	659
1985	262	289	204	233	288	255	266	308	453	1,511	2,320	2,794
1986	2,365	2,407	1,633	429	260	250	237	227	248	542	621	263
1987	222	243	1,005	1,013	416	234	273	356	463	1,402	1,764	2,360
1988	2,455	2,364	1,484	337	241	333	345	457	576	1,641	2,129	2,790
1989	2,427	2,853	1,823	1,089	688	266	228	240	454	1,502	2,382	2,602
1990	2,235	2,191	2,494	1,076	349	271	294	549	1,180	2,686	2,850	2,824
1991	1,971	1,996	2,907	1,528	762	335	271	519	1,310	2,651	2,034	2,467
Avg	1,471	1,236	1,204	636	380	289	277	381	597	1,280	1,570	1,812
W/AN/BN	1,492	1,090	777	308	251	235	228	224	237	444	702	768
D/C	1,454	1,349	1,536	892	481	331	316	503	877	1,930	2,245	2,624

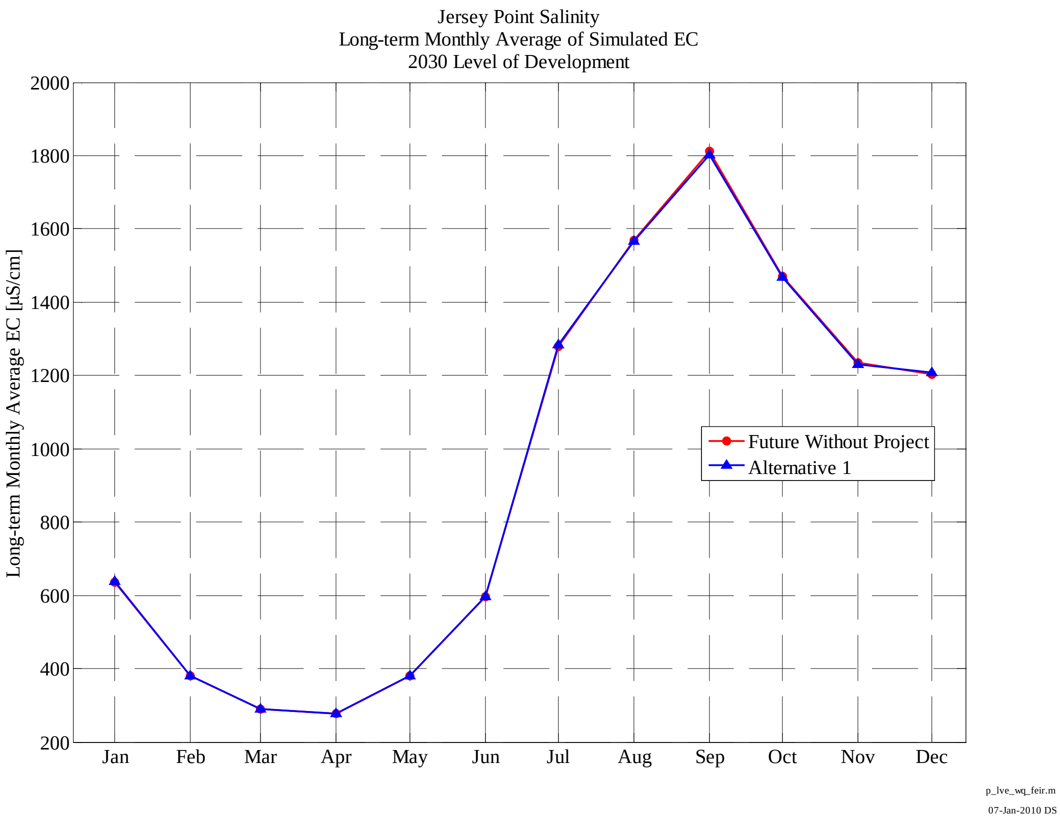
Alternative 1

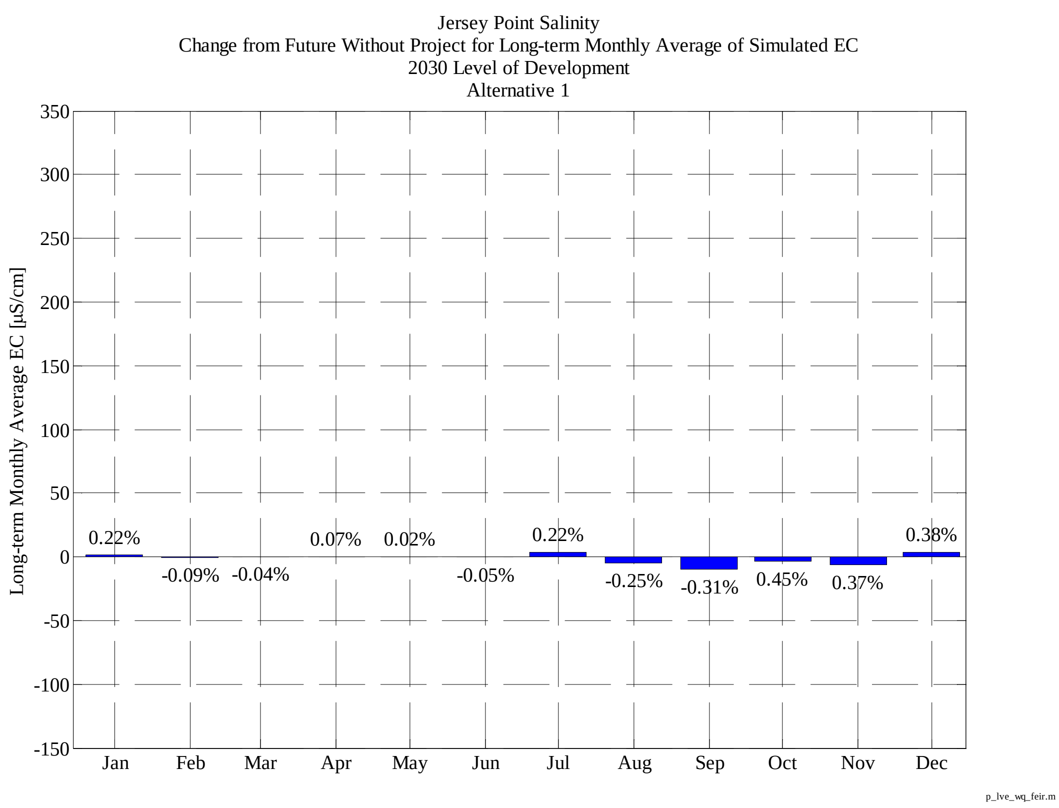
Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

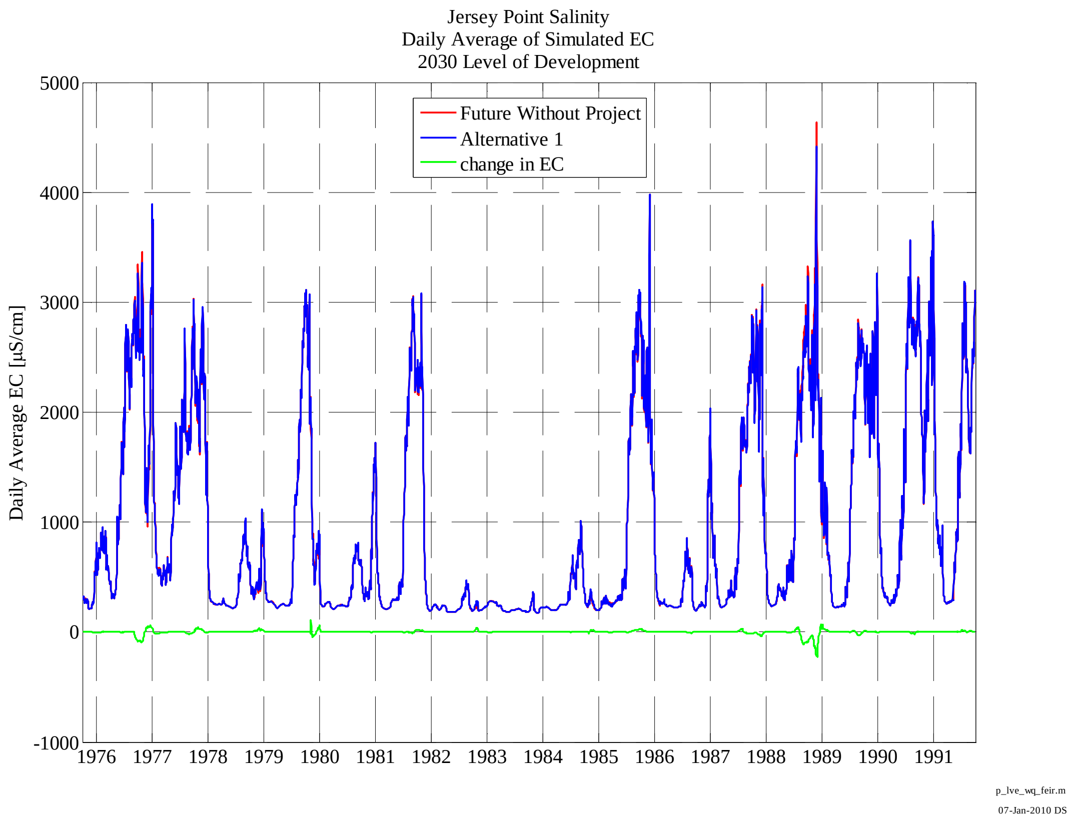
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	290	227	422	711	811	572	342	737	1,504	2,478	2,467	2,849
1977	2,772	1,621	2,329	1,381	526	497	554	1,064	1,513	1,943	1,823	2,306
1978	2,207	2,332	1,731	344	255	251	266	233	221	390	775	718
1979	393	409	744	391	276	239	238	249	253	853	1,621	2,647
1980	2,647	1,043	729	271	259	234	223	244	238	311	659	674
1981	369	361	1,203	650	238	211	266	296	436	1,561	2,428	2,563
1982	2,397	1,082	210	234	216	233	197	181	194	254	390	230
1983	238	202	221	270	275	242	202	186	196	208	197	187
1984	261	193	210	225	213	198	230	247	312	547	651	660
1985	261	305	207	233	288	252	266	308	453	1,509	2,330	2,816
1986	2,384	2,412	1,637	429	260	251	237	227	248	543	614	261
1987	222	243	1,005	1,012	416	235	275	357	463	1,418	1,761	2,346
1988	2,445	2,341	1,472	337	241	333	346	456	575	1,665	2,084	2,694
1989	2,375	2,714	1,802	1,121	696	267	228	240	453	1,507	2,371	2,586
1990	2,242	2,194	2,492	1,075	349	271	295	550	1,180	2,688	2,840	2,822
1991	1,973	1,999	2,908	1,528	762	335	271	519	1,311	2,663	2,037	2,473
Avg	1,467	1,230	1,208	638	380	289	277	381	597	1,284	1,565	1,802
W/AN/BN	1,504	1,096	783	309	251	235	228	224	237	444	701	768
D/C	1,439	1,334	1,538	894	481	330	316	503	876	1,937	2,238	2,606

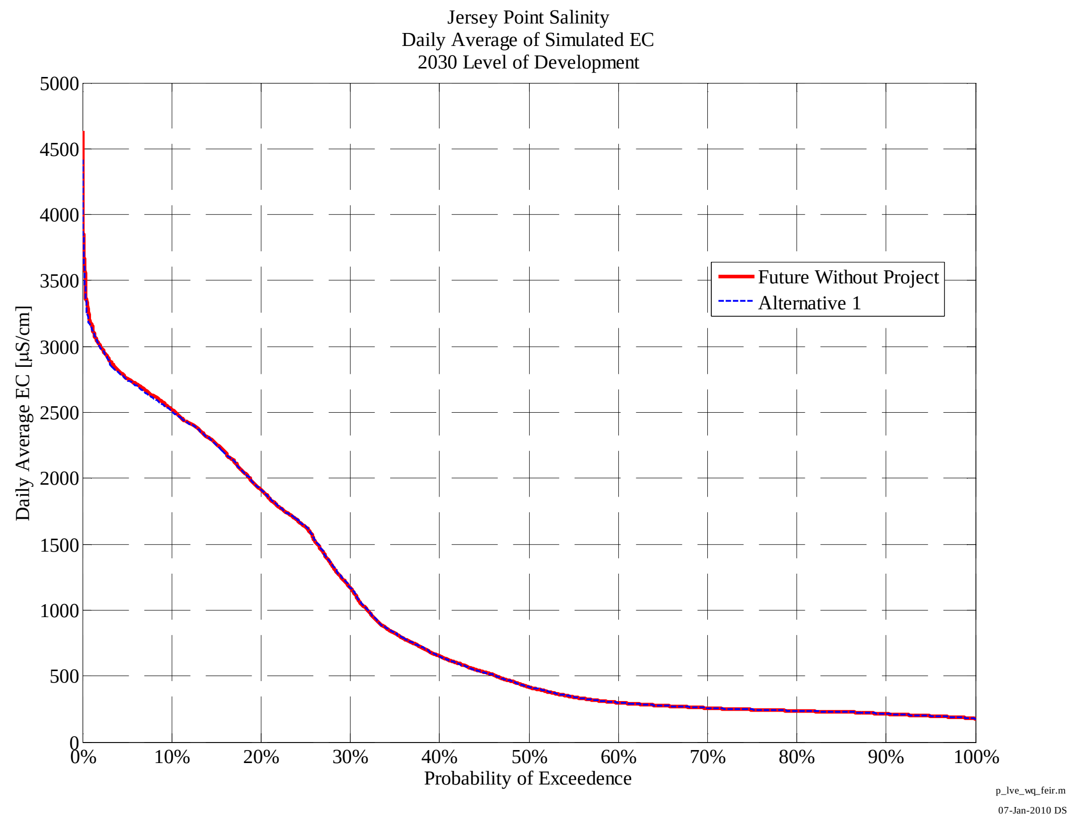
Percent (%) Change from Future Without Project for Jersey Point Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	-0.9%	-0.4%	-0.1%	-0.1%	0.1%	0.3%	-0.1%	0.2%	0.2%	-1.9%
1977	-3.0%	0.5%	2.1%	-0.3%	-1.9%	-0.6%	-0.2%	-0.1%	0.0%	0.1%	-0.6%	-0.5%
1978	1.2%	1.1%	-0.1%	-0.1%	0.0%	-0.1%	-0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
1979	0.9%	4.0%	2.8%	1.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	-1.5%	2.4%	1.6%	-0.3%	0.2%	0.0%	-0.1%	0.0%	0.1%	0.2%	0.3%
1981	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.2%	0.2%
1982	0.7%	0.6%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	1.2%
1983	8.8%	1.3%	-0.1%	-0.8%	-0.2%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%
1984	0.4%	0.1%	0.0%	-0.1%	0.0%	0.3%	0.3%	0.0%	-0.1%	-0.1%	0.0%	0.1%
1985	-0.4%	5.3%	1.5%	0.1%	0.0%	-1.3%	0.1%	0.1%	0.1%	-0.1%	0.4%	0.8%
1986	0.8%	0.2%	0.2%	0.1%	0.0%	0.3%	-0.1%	0.1%	0.1%	0.1%	-1.2%	-0.7%
1987	0.0%	-0.1%	0.0%	0.0%	0.0%	0.2%	0.5%	0.3%	0.0%	1.1%	-0.2%	-0.6%
1988	-0.4%	-1.0%	-0.8%	-0.1%	0.0%	0.0%	0.4%	-0.3%	-0.3%	1.4%	-2.1%	-3.5%
1989	-2.2%	-4.9%	-1.1%	2.9%	1.1%	0.3%	0.0%	0.0%	-0.2%	0.3%	-0.5%	-0.6%
1990	0.3%	0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%	-0.4%	-0.1%
1991	0.1%	0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.1%	0.0%	0.5%	0.1%	0.2%
Avg	0.5%	0.4%	0.4%	0.2%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.2%	-0.2%	-0.3%
W/AN/BN	1.8%	0.8%	0.8%	0.2%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%
D/C	-0.6%	0.0%	0.1%	0.2%	-0.1%	-0.2%	0.1%	0.1%	-0.1%	0.4%	-0.3%	-0.7%


Jersey Point Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.22%
-0.09%
-0.04%
0.07%
0.02%
-0.05%
0.22%
-0.25%
-0.31%
0.45%
0.37%
0.38%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

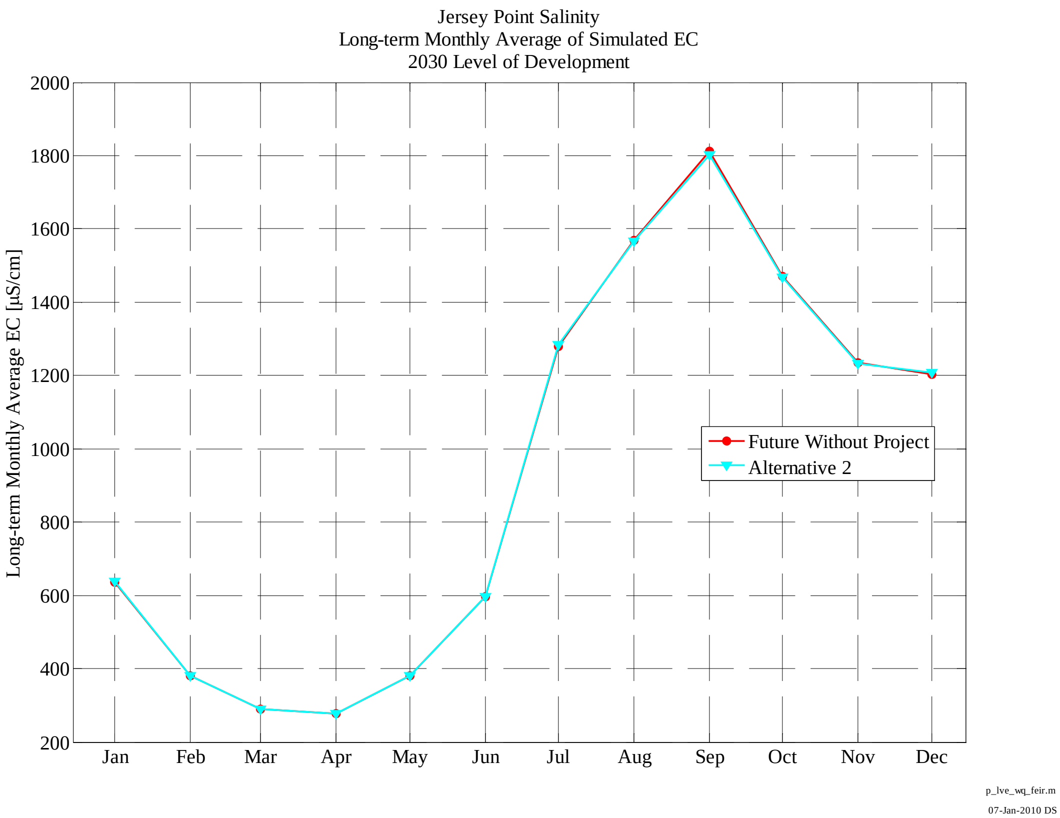
Alternative 2

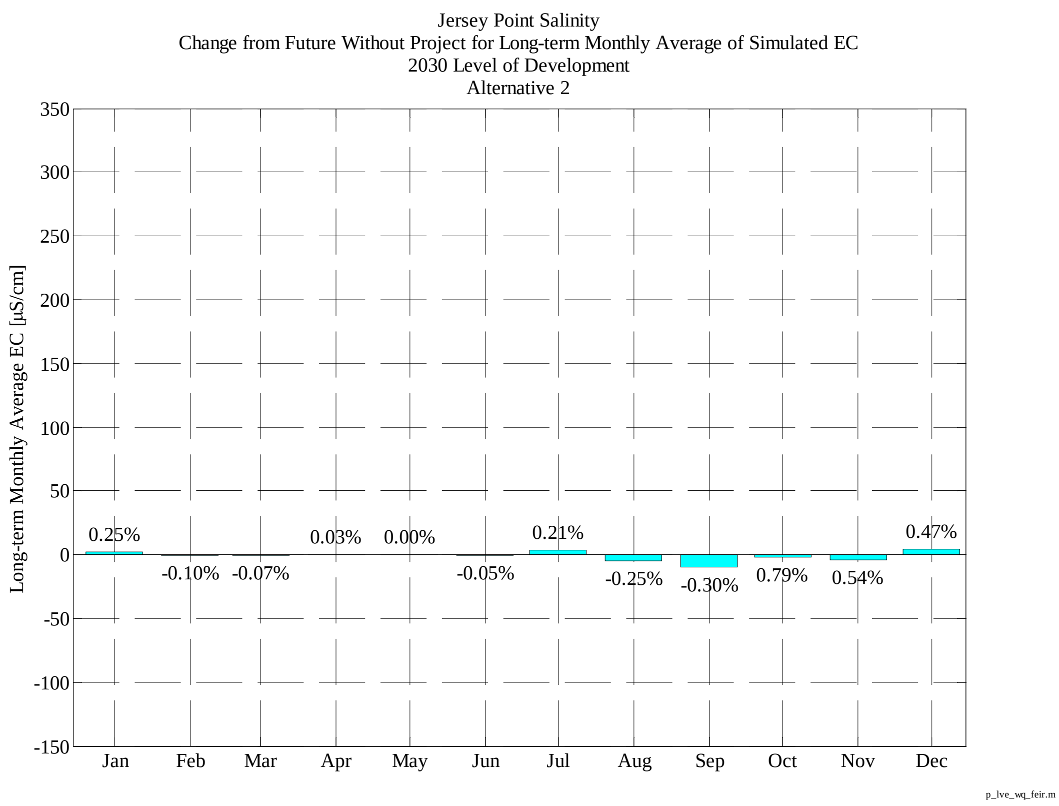
Jersey Point Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

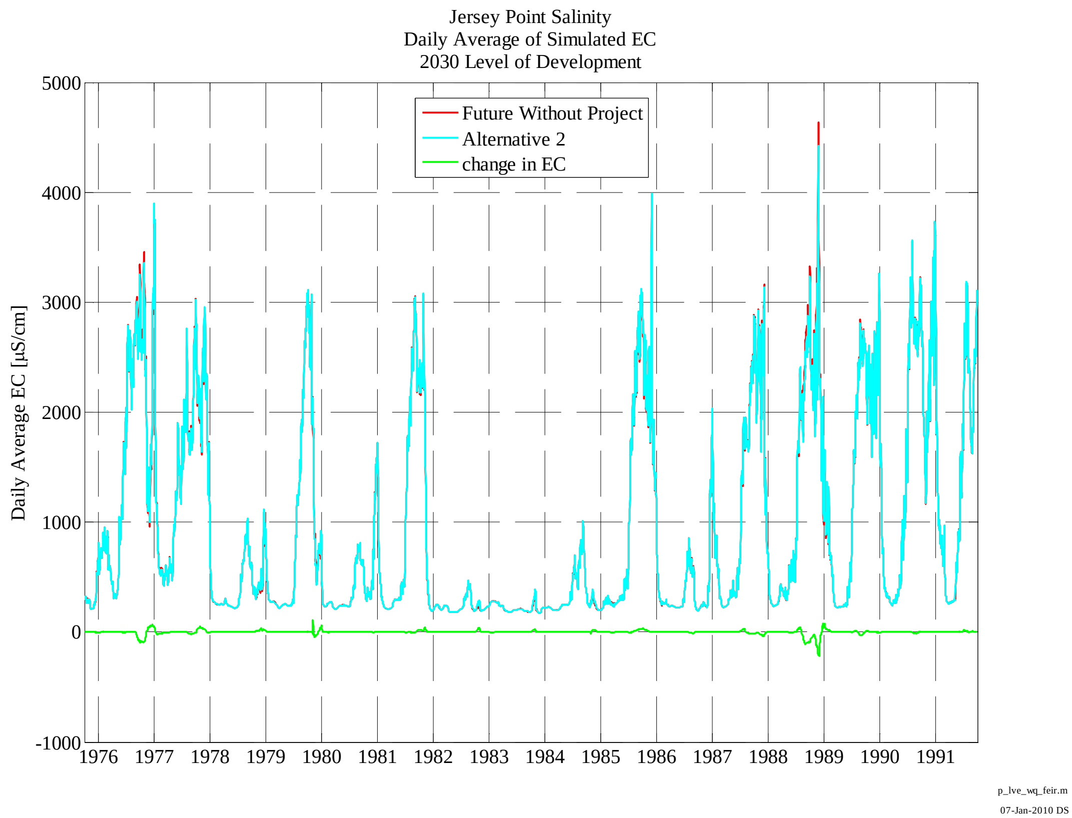
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	290	227	424	712	811	572	342	737	1,504	2,477	2,464	2,845
1977	2,770	1,625	2,336	1,379	526	497	554	1,064	1,513	1,942	1,823	2,306
1978	2,212	2,337	1,731	344	255	251	266	233	221	390	775	718
1979	393	409	744	391	276	239	238	249	253	853	1,621	2,647
1980	2,646	1,042	729	271	259	234	223	244	238	311	659	674
1981	369	361	1,203	650	238	211	267	296	436	1,561	2,429	2,562
1982	2,396	1,091	210	234	216	233	197	181	194	254	390	230
1983	239	202	221	270	275	242	202	186	196	207	197	187
1984	274	194	210	225	213	198	230	247	312	547	651	660
1985	261	306	207	233	288	252	266	308	453	1,509	2,332	2,820
1986	2,390	2,414	1,638	430	260	251	237	227	248	543	614	261
1987	222	243	1,006	1,012	416	234	273	356	463	1,418	1,761	2,347
1988	2,445	2,341	1,472	337	241	333	346	456	575	1,665	2,084	2,694
1989	2,380	2,721	1,808	1,124	697	267	228	240	453	1,507	2,371	2,586
1990	2,242	2,194	2,492	1,075	349	271	295	550	1,180	2,689	2,842	2,822
1991	1,972	1,999	2,908	1,528	762	335	271	519	1,311	2,662	2,036	2,472
Avg	1,469	1,232	1,209	638	380	289	277	381	597	1,283	1,566	1,802
W/AN/BN	1,507	1,099	783	309	251	235	228	224	237	444	701	768
D/C	1,439	1,335	1,539	895	481	330	316	503	876	1,937	2,238	2,606

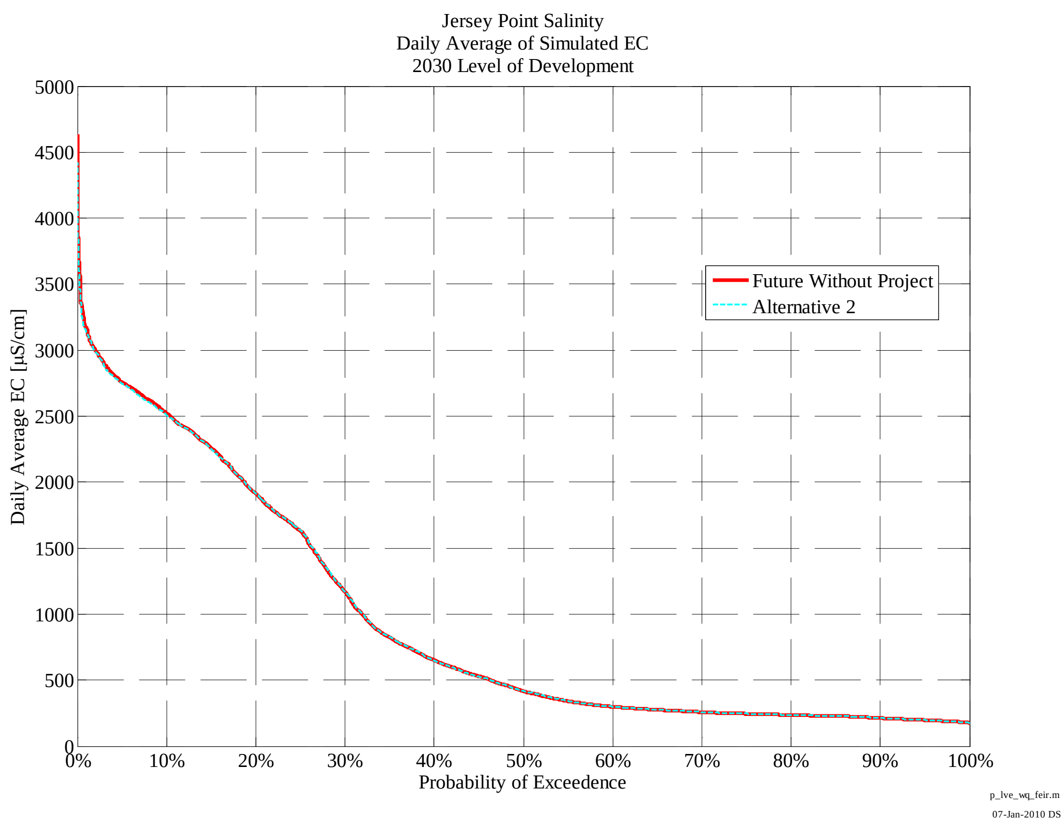
Percent (%) Change from Future Without Project for Jersey Point Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	-0.5%	-0.3%	-0.1%	-0.1%	0.1%	0.3%	-0.1%	0.1%	0.1%	-2.0%
1977	-3.1%	0.7%	2.4%	-0.4%	-2.0%	-0.7%	-0.3%	-0.1%	0.0%	0.1%	-0.6%	-0.5%
1978	1.4%	1.3%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
1979	0.9%	4.0%	2.8%	1.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	-1.5%	2.4%	1.6%	-0.4%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.2%	0.3%
1981	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.2%	0.2%
1982	0.7%	1.5%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	1.2%
1983	8.8%	1.3%	-0.1%	-0.8%	-0.2%	0.0%	0.0%	-0.2%	-0.1%	-0.2%	-0.1%	0.2%
1984	5.2%	0.9%	0.0%	-0.2%	-0.1%	0.3%	0.3%	0.0%	-0.1%	-0.1%	0.0%	0.1%
1985	-0.4%	5.6%	1.6%	0.1%	0.0%	-1.3%	0.1%	0.1%	0.1%	-0.1%	0.5%	0.9%
1986	1.1%	0.3%	0.3%	0.1%	0.0%	0.2%	-0.1%	0.1%	0.1%	0.1%	-1.2%	-0.7%
1987	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	1.1%	-0.2%	-0.6%
1988	-0.4%	-1.0%	-0.8%	-0.1%	0.0%	0.0%	0.4%	-0.3%	-0.3%	1.4%	-2.1%	-3.5%
1989	-1.9%	-4.6%	-0.8%	3.2%	1.2%	0.3%	0.0%	0.0%	-0.2%	0.3%	-0.5%	-0.6%
1990	0.3%	0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.2%	0.0%	0.1%	-0.3%	-0.1%
1991	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.4%	0.1%	0.2%
Avg	0.8%	0.5%	0.5%	0.2%	-0.1%	-0.1%	0.0%	0.0%	-0.1%	0.2%	-0.3%	-0.3%
W/AN/BN	2.6%	1.1%	0.8%	0.2%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.2%
D/C	-0.6%	0.1%	0.2%	0.3%	-0.1%	-0.2%	0.0%	0.0%	-0.1%	0.4%	-0.3%	-0.7%


Jersey Point Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.25%
-0.10%
-0.07%
0.03%
0.00%
-0.05%
0.21%
-0.25%
-0.30%
0.79%
0.54%
0.47%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

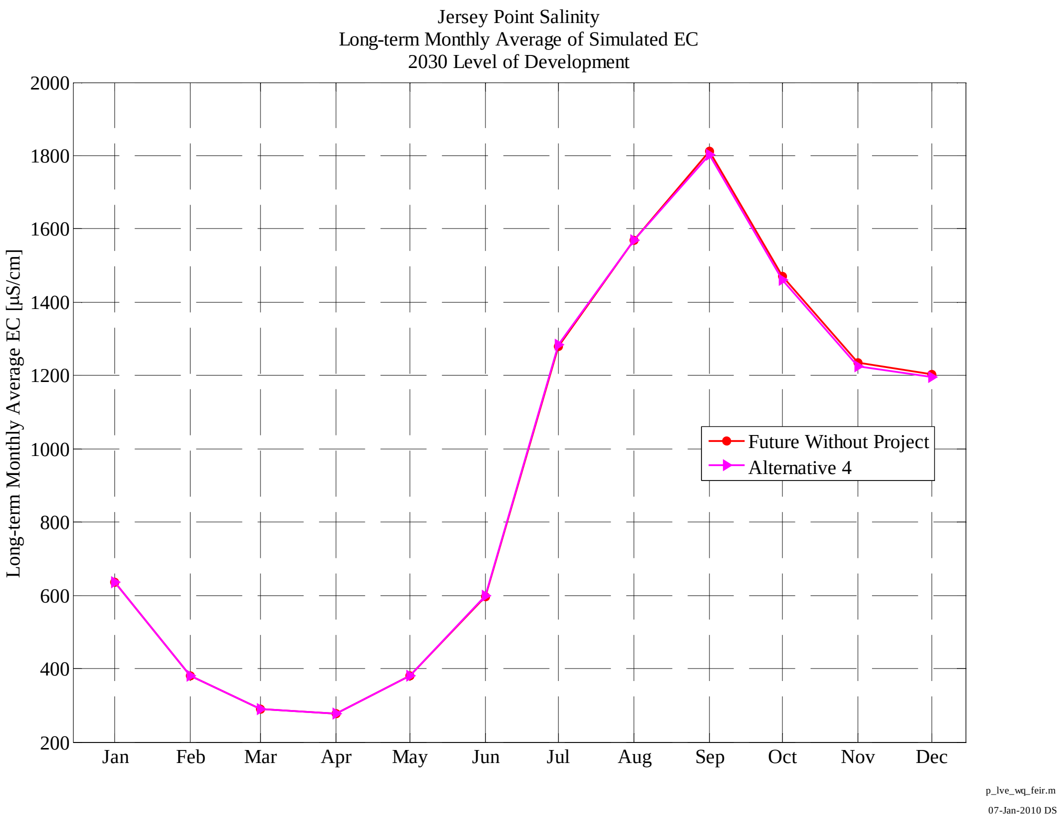
Alternative 4

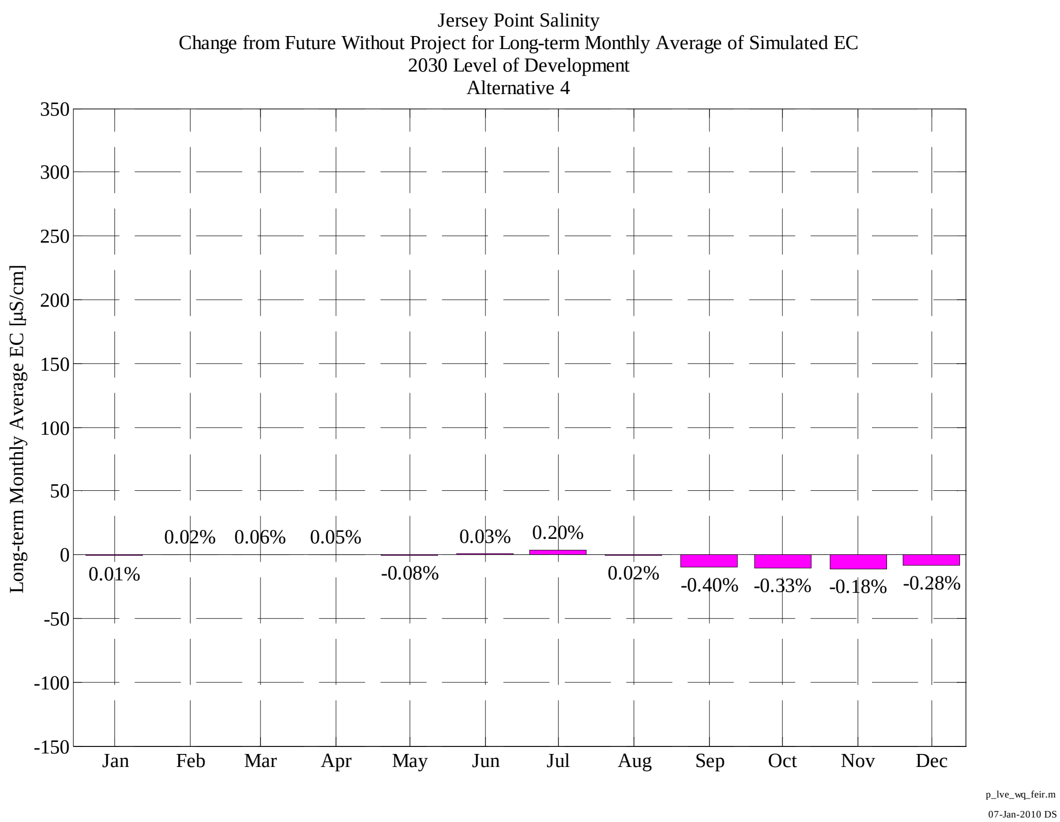
Jersey Point Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 4
2030 Level of Development

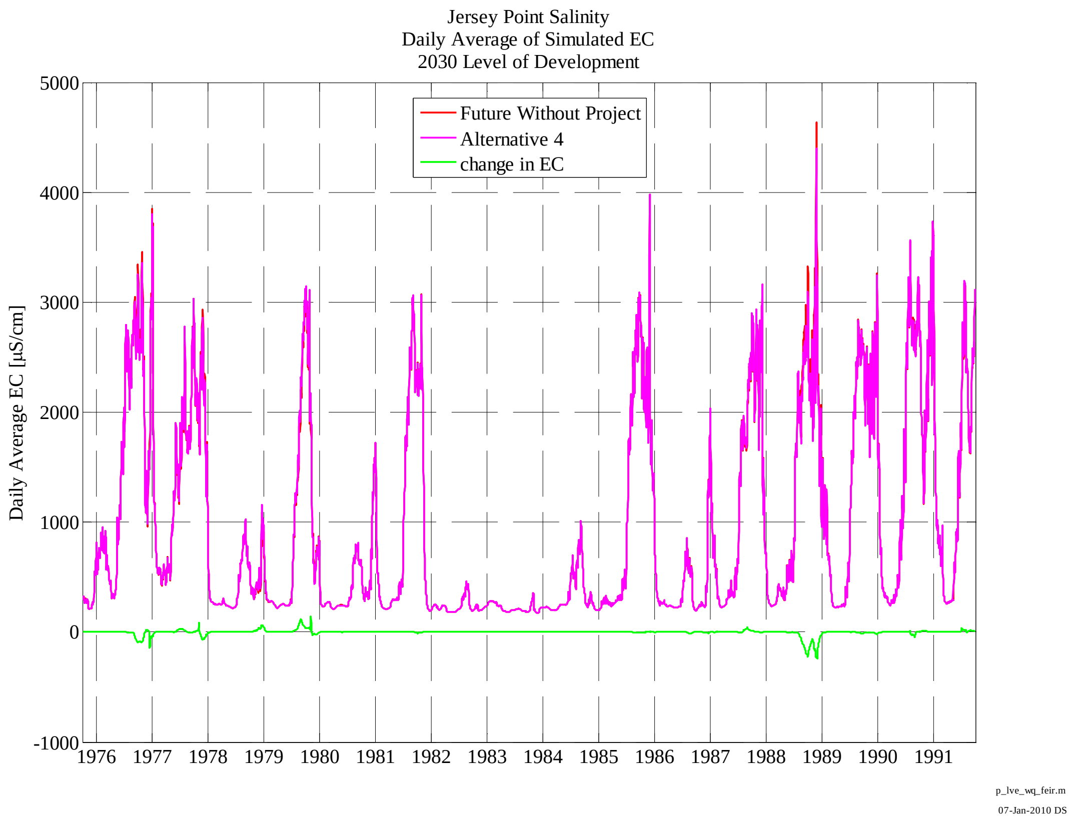
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	290	227	426	714	812	572	341	735	1,505	2,473	2,459	2,840
1977	2,770	1,608	2,244	1,373	538	503	557	1,065	1,530	1,968	1,837	2,315
1978	2,194	2,278	1,693	342	255	251	267	233	221	390	775	718
1979	393	411	773	400	277	239	238	248	252	863	1,683	2,714
1980	2,681	1,061	696	266	260	234	223	243	237	311	659	673
1981	369	361	1,203	650	238	211	266	296	436	1,563	2,437	2,555
1982	2,373	1,075	210	234	216	233	197	181	194	254	389	227
1983	219	200	221	272	275	242	202	187	196	208	197	187
1984	260	192	210	225	213	197	230	248	312	549	652	660
1985	262	289	204	233	288	255	266	308	453	1,511	2,318	2,791
1986	2,362	2,406	1,632	428	260	251	238	227	248	542	612	260
1987	223	242	1,000	1,012	415	234	273	356	463	1,399	1,786	2,381
1988	2,463	2,363	1,482	337	241	333	346	456	574	1,639	2,064	2,620
1989	2,302	2,689	1,746	1,084	688	266	228	240	454	1,502	2,379	2,591
1990	2,229	2,188	2,481	1,070	348	271	294	549	1,180	2,691	2,825	2,819
1991	1,976	2,004	2,910	1,528	762	335	271	519	1,313	2,672	2,040	2,477
Avg	1,460	1,225	1,196	635	381	289	277	381	598	1,283	1,570	1,802
W/AN/BN	1,497	1,089	776	310	251	235	228	224	237	445	710	777
D/C	1,432	1,330	1,522	889	481	331	316	502	879	1,935	2,238	2,599

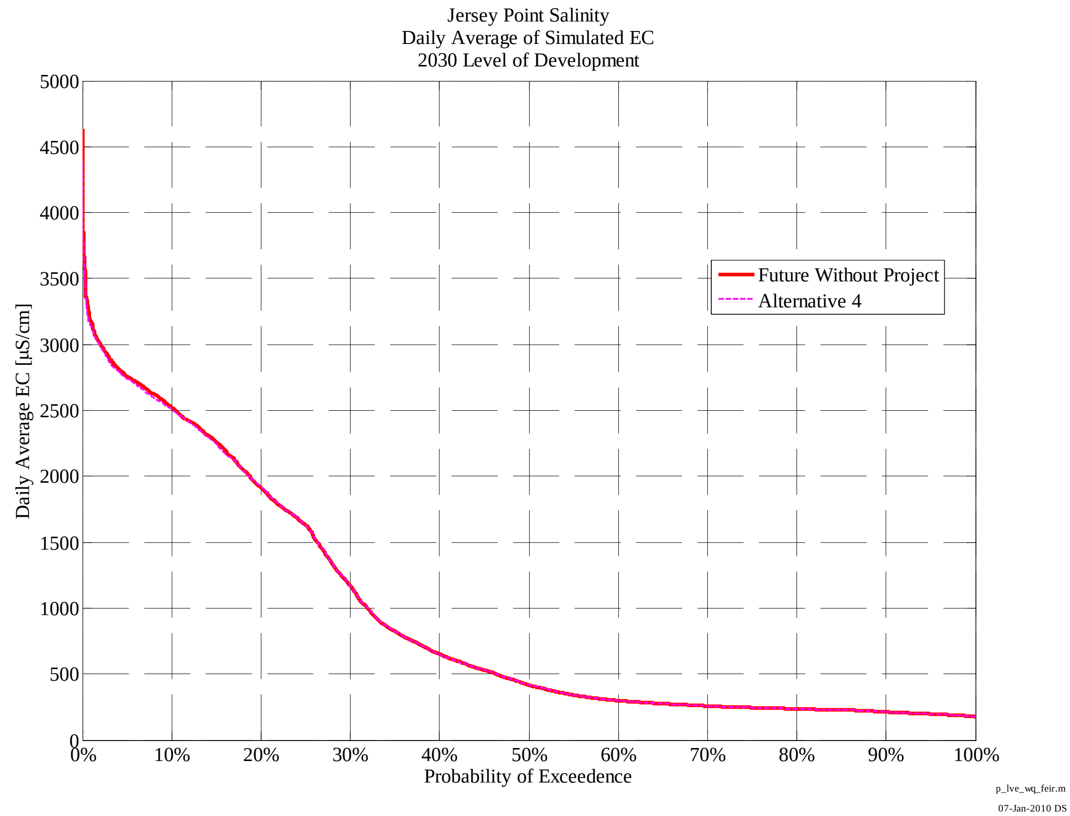
Percent (%) Change from Future Without Project for Jersey Point Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-2.2%
1977	-3.1%	-0.3%	-1.6%	-0.9%	0.4%	0.5%	0.3%	-0.1%	1.1%	1.4%	0.2%	-0.2%
1978	0.6%	-1.3%	-2.2%	-0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.8%	4.6%	6.8%	3.4%	0.4%	0.1%	0.1%	-0.3%	-0.3%	1.1%	3.8%	2.5%
1980	1.3%	0.3%	-2.3%	-0.3%	0.0%	0.0%	0.0%	-0.4%	-0.2%	0.1%	0.1%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.1%	-0.1%
1982	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.1%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1986	-0.1%	0.0%	0.0%	-0.2%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	-1.5%	-1.2%
1987	0.3%	-0.4%	-0.5%	-0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%	-0.2%	1.2%	0.9%
1988	0.3%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.3%	-0.4%	-0.4%	-0.1%	-3.1%	-6.1%
1989	-5.1%	-5.7%	-4.2%	-0.5%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.4%
1990	-0.3%	-0.1%	-0.5%	-0.5%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.9%	-0.2%
1991	0.3%	0.4%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.8%	0.3%	0.4%
Avg	-0.3%	-0.2%	-0.3%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.2%	0.0%	-0.4%
W/AN/BN	0.3%	0.5%	0.3%	0.3%	0.1%	0.1%	0.0%	-0.1%	-0.1%	0.2%	0.4%	0.2%
D/C	-0.8%	-0.7%	-0.8%	-0.2%	0.0%	0.1%	0.1%	-0.1%	0.1%	0.2%	-0.3%	-0.9%


Jersey Point Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
2000
1800
1600
1400
1200
1000
800
600
400
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.01%
0.02%
0.06%
0.05%
-0.08%
0.03%
0.20%
0.02%
-0.40%
-0.33%
-0.18%
-0.28%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jersey Point Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Clifton Court Forebay

Future No Project

Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	302	313	343	469	560	582	461	430	498	629	676	736
1977	761	715	610	877	910	820	600	566	575	548	604	625
1978	741	701	815	717	582	544	270	243	343	295	288	300
1979	318	323	359	539	399	316	323	277	335	288	418	588
1980	684	546	414	385	319	209	301	311	339	337	280	283
1981	334	360	429	603	546	588	364	338	361	389	624	708
1982	602	531	427	561	333	303	176	167	308	333	267	236
1983	200	213	267	284	297	240	177	191	202	220	203	213
1984	238	169	227	295	236	287	301	298	364	276	270	335
1985	320	289	403	449	495	538	384	364	367	382	617	703
1986	684	607	697	668	508	257	232	245	348	292	312	334
1987	354	378	386	616	597	609	393	354	367	359	528	618
1988	690	695	736	631	868	821	486	415	422	385	599	747
1989	799	725	841	661	825	762	581	534	310	383	625	714
1990	673	637	723	775	646	724	573	567	439	631	814	763
1991	798	639	774	879	858	735	538	572	433	630	764	678
Avg	531	490	528	588	561	521	385	367	376	399	493	536
W/AN/BN	495	441	458	493	382	308	254	247	320	292	291	327
D/C	559	528	583	662	701	687	487	460	419	482	650	699

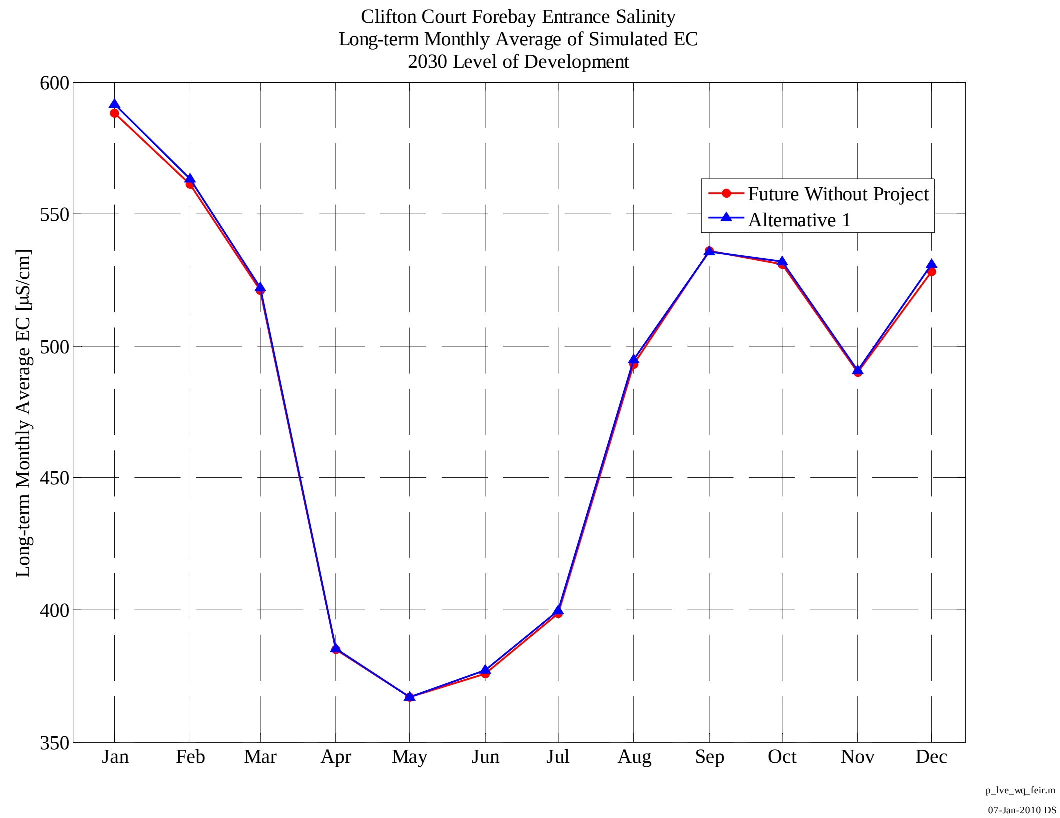
Alternative 1

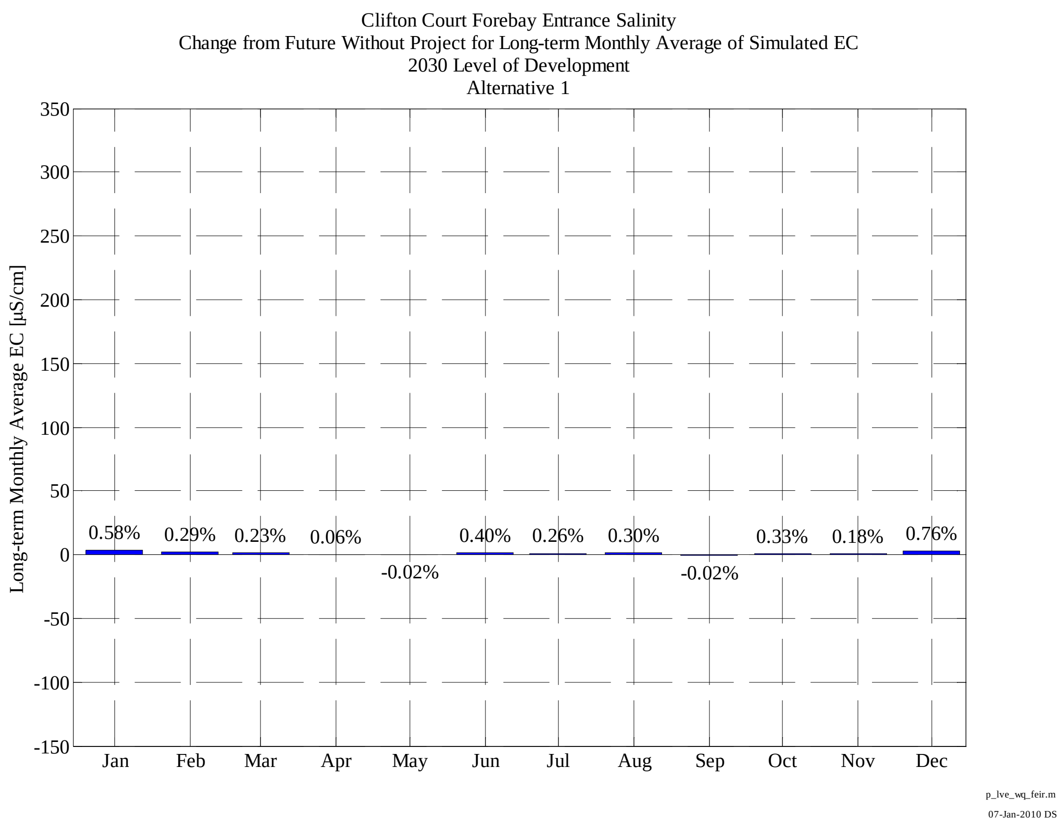
Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

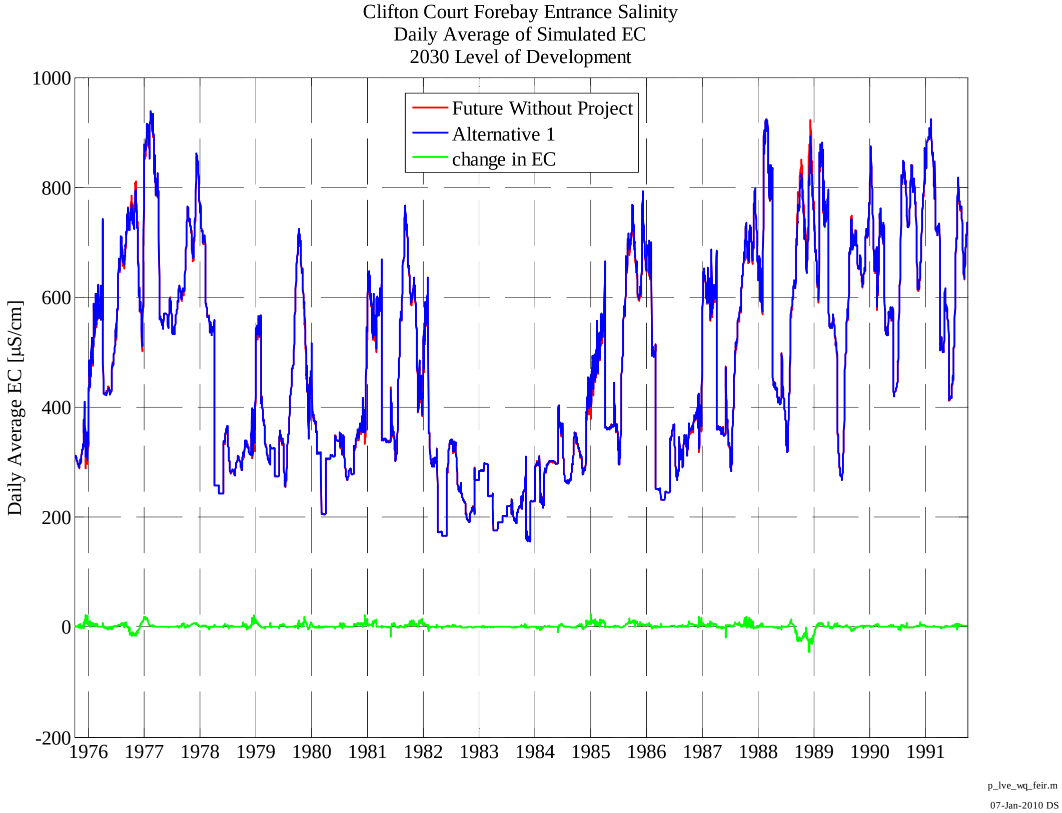
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	314	351	475	563	582	462	429	498	632	681	733
1977	748	706	619	890	912	821	600	566	575	548	604	627
1978	742	707	819	719	582	544	270	243	346	296	288	300
1979	321	323	368	545	398	315	324	277	338	289	418	589
1980	688	555	416	385	319	209	302	311	339	339	281	283
1981	338	366	434	607	555	588	364	337	363	389	625	711
1982	609	534	434	565	333	303	176	166	310	335	268	235
1983	199	212	267	284	297	240	177	191	202	220	202	213
1984	239	168	227	294	234	288	302	298	366	276	270	335
1985	324	287	412	458	500	548	385	364	369	382	620	712
1986	694	612	702	672	508	257	233	245	349	292	314	335
1987	360	381	392	620	601	615	393	353	369	361	534	621
1988	696	699	735	634	869	821	486	414	422	387	603	728
1989	779	705	818	660	831	763	582	536	312	383	625	709
1990	674	638	725	776	650	725	573	569	440	632	815	762
1991	798	642	777	880	859	735	537	572	434	633	768	680
Avg	532	491	531	592	563	522	385	367	377	400	495	536
W/AN/BN	499	444	462	495	382	308	255	247	322	292	292	327
D/C	558	527	585	667	704	689	487	460	420	483	653	698

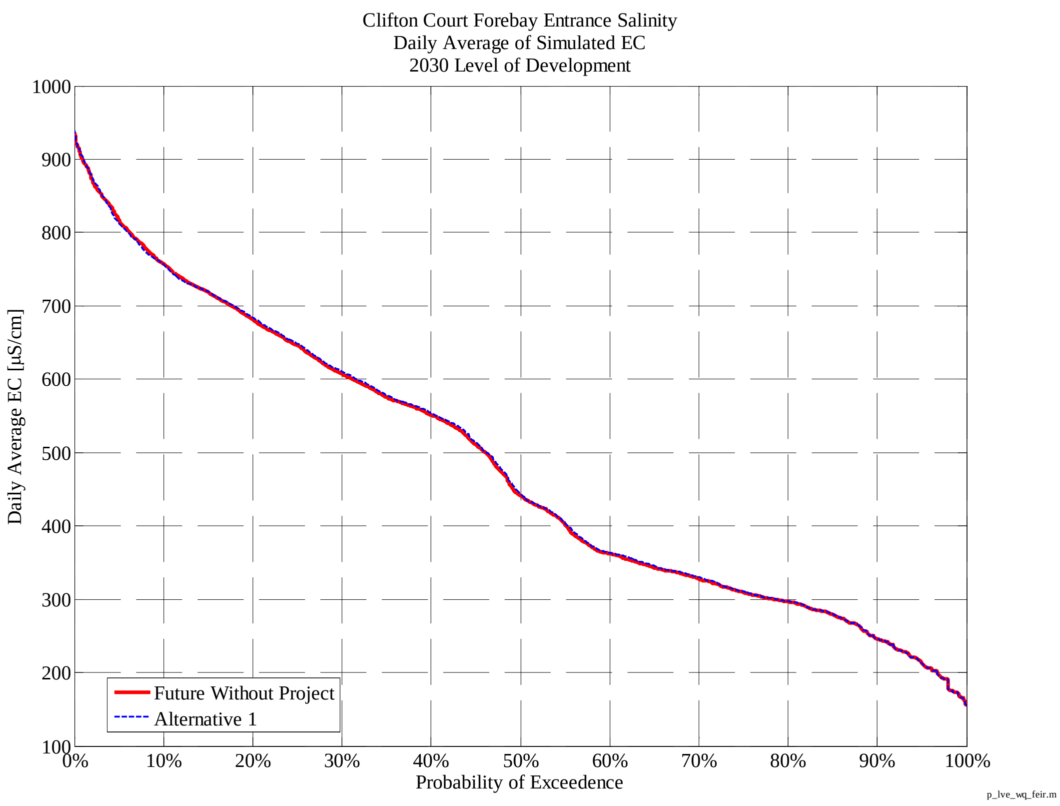
Percent (%) Change from Future Without Project for Clifton Court Forebay Entrance Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.4%	0.4%	2.4%	1.2%	0.7%	0.0%	0.0%	-0.4%	0.2%	0.5%	0.8%	-0.3%
1977	-1.7%	-1.3%	1.4%	1.5%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%
1978	0.2%	0.8%	0.5%	0.2%	0.1%	0.0%	0.1%	0.0%	0.8%	0.3%	0.2%	0.1%
1979	0.8%	-0.2%	2.4%	1.1%	-0.2%	-0.1%	0.3%	0.1%	1.0%	0.3%	0.1%	0.2%
1980	0.5%	1.6%	0.5%	0.2%	-0.1%	0.0%	0.2%	0.1%	0.1%	0.7%	0.3%	0.1%
1981	1.3%	1.6%	1.3%	0.6%	1.6%	0.1%	0.0%	-0.2%	0.6%	0.0%	0.2%	0.4%
1982	1.0%	0.7%	1.8%	0.8%	-0.1%	0.0%	0.0%	-0.1%	0.6%	0.4%	0.2%	-0.1%
1983	-0.3%	-0.2%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.3%	0.2%
1984	0.5%	-0.4%	0.1%	-0.3%	-0.9%	0.4%	0.4%	0.0%	0.6%	0.1%	0.0%	-0.2%
1985	1.0%	-0.5%	2.1%	2.0%	1.0%	1.8%	0.2%	0.0%	0.4%	-0.1%	0.5%	1.2%
1986	1.4%	0.8%	0.6%	0.6%	0.0%	0.0%	0.3%	0.0%	0.5%	0.1%	0.3%	0.3%
1987	1.8%	0.9%	1.4%	0.6%	0.6%	1.0%	-0.2%	-0.3%	0.4%	0.5%	1.1%	0.5%
1988	0.8%	0.6%	-0.1%	0.5%	0.1%	0.0%	-0.1%	-0.2%	0.0%	0.6%	0.6%	-2.5%
1989	-2.5%	-2.7%	-2.8%	-0.1%	0.7%	0.2%	0.1%	0.4%	0.8%	0.1%	0.1%	-0.8%
1990	0.1%	0.3%	0.2%	0.1%	0.6%	0.1%	0.0%	0.2%	0.1%	0.1%	0.1%	-0.2%
1991	0.0%	0.5%	0.4%	0.1%	0.1%	0.1%	-0.2%	0.1%	0.3%	0.5%	0.5%	0.3%
Avg	0.3%	0.2%	0.8%	0.6%	0.3%	0.2%	0.1%	0.0%	0.4%	0.3%	0.3%	0.0%
W/AN/BN	0.6%	0.5%	0.8%	0.4%	-0.2%	0.1%	0.2%	0.0%	0.5%	0.3%	0.1%	0.1%
D/C	0.1%	0.0%	0.7%	0.7%	0.6%	0.4%	0.0%	0.0%	0.3%	0.2%	0.4%	-0.1%


Clifton Court Forebay Entrance Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.58%
0.29%
0.23%
0.06%
-0.02%
0.40%
0.26%
0.30%
-0.02%
0.33%
0.18%
0.76%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 1
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

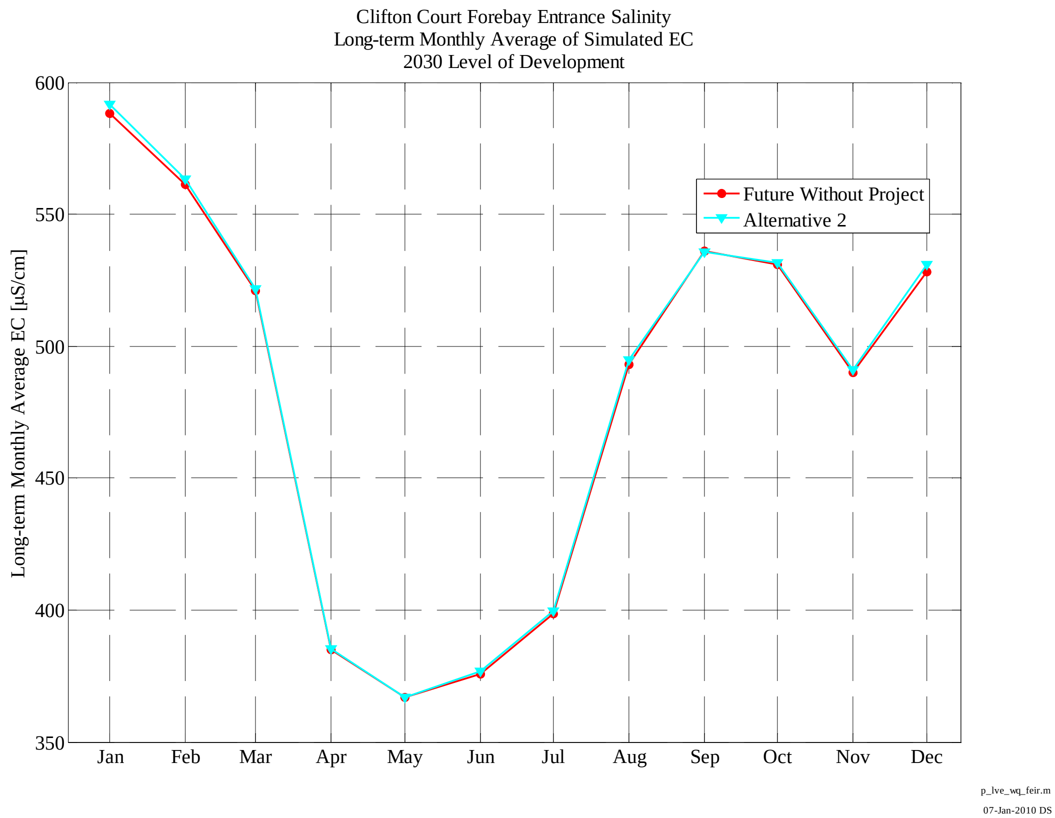
Alternative 2

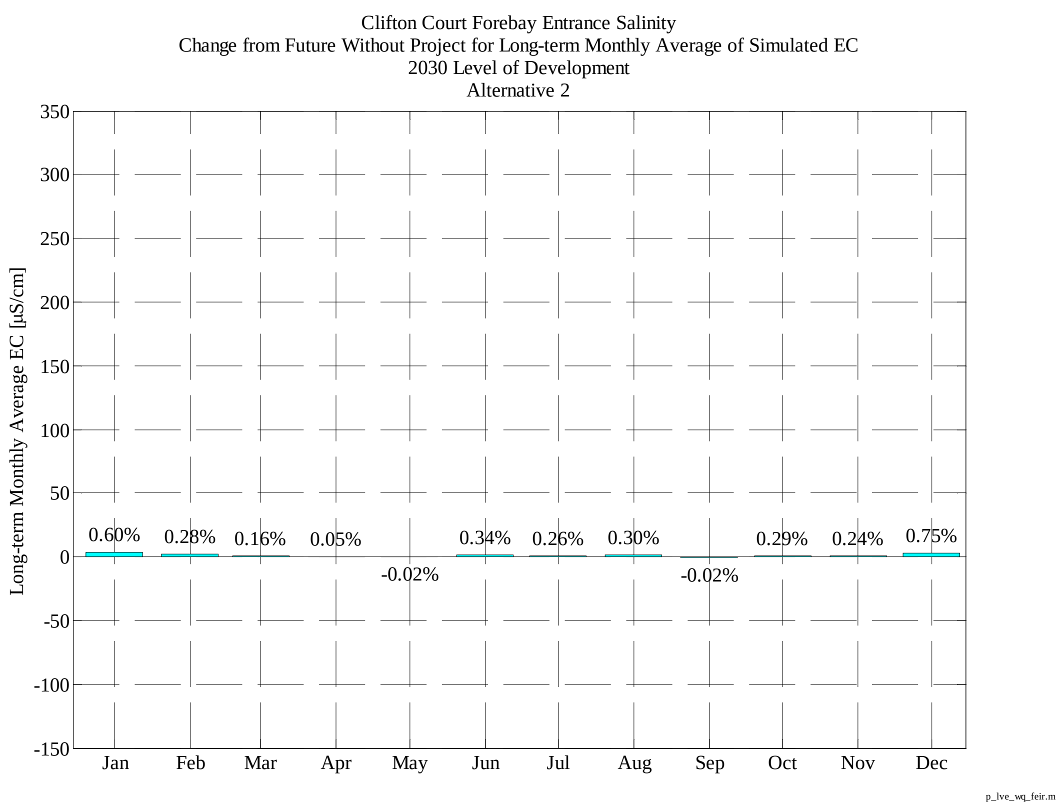
Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

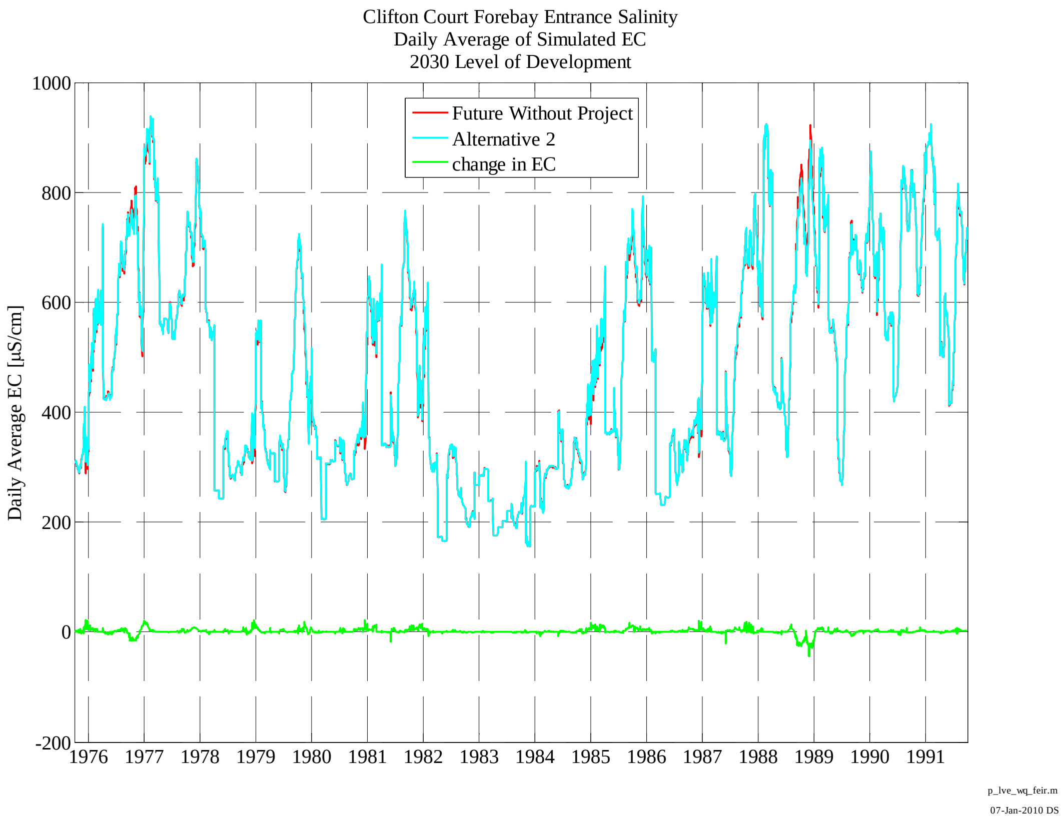
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	314	351	475	564	582	462	429	498	631	680	732
1977	747	706	620	891	913	821	600	566	575	548	604	627
1978	742	708	819	719	582	544	270	243	346	296	288	300
1979	321	323	368	545	398	315	324	277	338	289	418	589
1980	688	555	416	385	319	209	302	311	339	339	281	283
1981	338	366	434	607	555	588	364	337	363	389	625	711
1982	608	536	434	565	333	303	176	166	309	335	268	235
1983	199	212	267	284	297	240	177	191	202	220	202	213
1984	238	168	227	294	234	288	302	298	364	276	270	335
1985	324	287	408	458	500	548	385	364	368	382	621	712
1986	692	612	702	672	508	257	232	245	349	292	314	335
1987	360	381	392	620	601	609	393	353	368	361	534	621
1988	696	699	736	634	869	821	486	414	422	387	603	728
1989	780	707	819	661	831	763	582	536	312	383	625	709
1990	674	639	725	776	650	725	573	569	440	632	815	762
1991	798	642	777	880	859	735	537	572	434	633	767	679
Avg	532	491	531	592	563	522	385	367	377	400	495	536
W/AN/BN	498	445	462	495	381	308	255	247	321	292	292	327
D/C	558	527	585	667	705	688	487	460	420	483	653	698

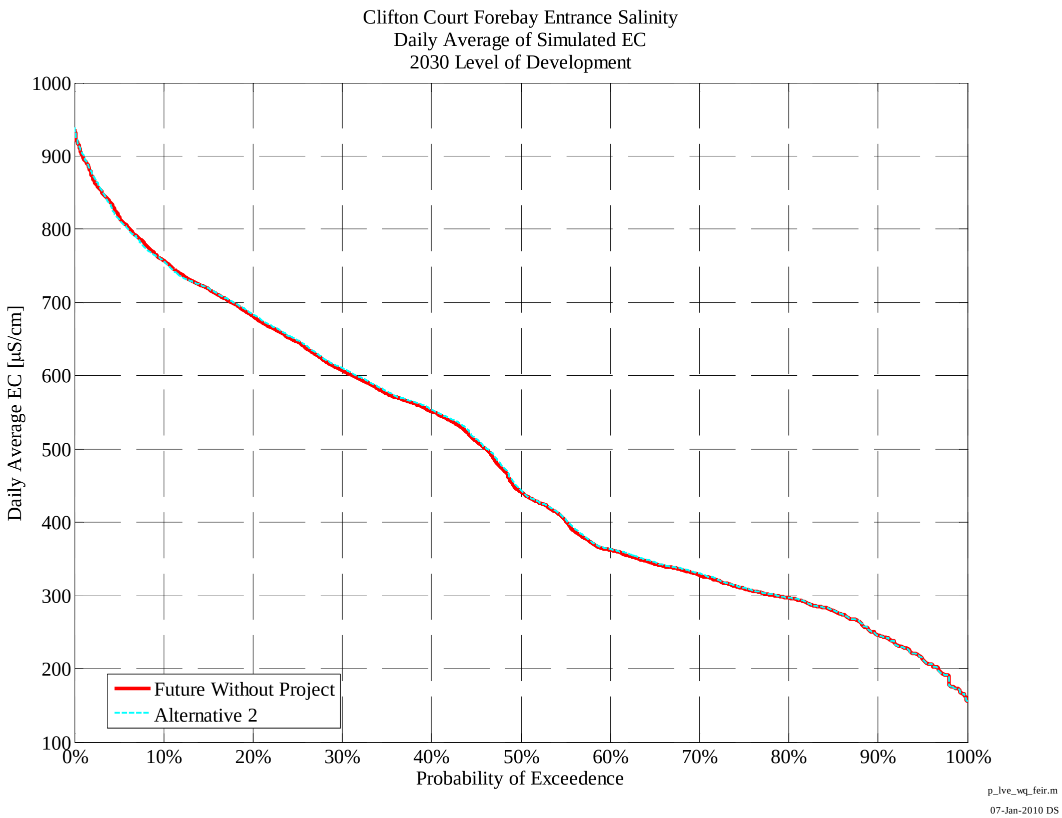
Percent (%) Change from Future Without Project for Clifton Court Forebay Entrance
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.4%	0.4%	2.3%	1.3%	0.7%	0.0%	0.0%	-0.4%	0.2%	0.4%	0.7%	-0.5%
1977	-1.8%	-1.3%	1.6%	1.6%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%
1978	0.3%	1.0%	0.6%	0.3%	0.1%	0.0%	0.1%	0.0%	0.8%	0.3%	0.2%	0.1%
1979	0.8%	-0.2%	2.4%	1.1%	-0.2%	-0.1%	0.3%	0.1%	1.0%	0.3%	0.1%	0.2%
1980	0.5%	1.6%	0.5%	0.2%	-0.1%	-0.1%	0.2%	0.1%	0.1%	0.7%	0.3%	0.1%
1981	1.3%	1.6%	1.3%	0.6%	1.6%	0.1%	0.0%	-0.2%	0.6%	0.0%	0.2%	0.4%
1982	1.0%	1.0%	1.9%	0.8%	-0.1%	0.0%	0.0%	-0.2%	0.4%	0.4%	0.2%	0.0%
1983	-0.3%	-0.2%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.2%	0.0%
1984	0.1%	-0.2%	0.0%	-0.2%	-1.0%	0.4%	0.4%	0.0%	0.1%	0.1%	0.0%	-0.2%
1985	1.0%	-0.5%	1.4%	2.0%	1.0%	1.8%	0.2%	0.0%	0.3%	-0.1%	0.6%	1.3%
1986	1.2%	0.8%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.3%	0.5%
1987	1.6%	0.8%	1.5%	0.6%	0.6%	0.0%	-0.2%	-0.3%	0.3%	0.5%	1.1%	0.5%
1988	0.8%	0.6%	-0.1%	0.5%	0.1%	0.0%	-0.1%	-0.2%	0.0%	0.6%	0.7%	-2.5%
1989	-2.5%	-2.5%	-2.7%	0.0%	0.8%	0.2%	0.1%	0.4%	0.8%	0.1%	0.0%	-0.8%
1990	0.1%	0.3%	0.2%	0.1%	0.6%	0.1%	0.0%	0.2%	0.1%	0.1%	0.1%	-0.2%
1991	0.0%	0.4%	0.4%	0.1%	0.1%	0.1%	-0.2%	0.1%	0.3%	0.5%	0.5%	0.2%
Avg	0.3%	0.2%	0.7%	0.6%	0.3%	0.2%	0.0%	0.0%	0.3%	0.3%	0.3%	0.0%
W/AN/BN	0.5%	0.6%	0.8%	0.4%	-0.2%	0.0%	0.1%	0.0%	0.4%	0.3%	0.1%	0.1%
D/C	0.1%	0.0%	0.7%	0.8%	0.7%	0.3%	0.0%	-0.1%	0.3%	0.2%	0.4%	-0.1%


Clifton Court Forebay Entrance Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.60%
0.28%
0.16%
0.05%
-0.02%
0.34%
0.26%
0.30%
-0.02%
0.29%
0.24%
0.75%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 2
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

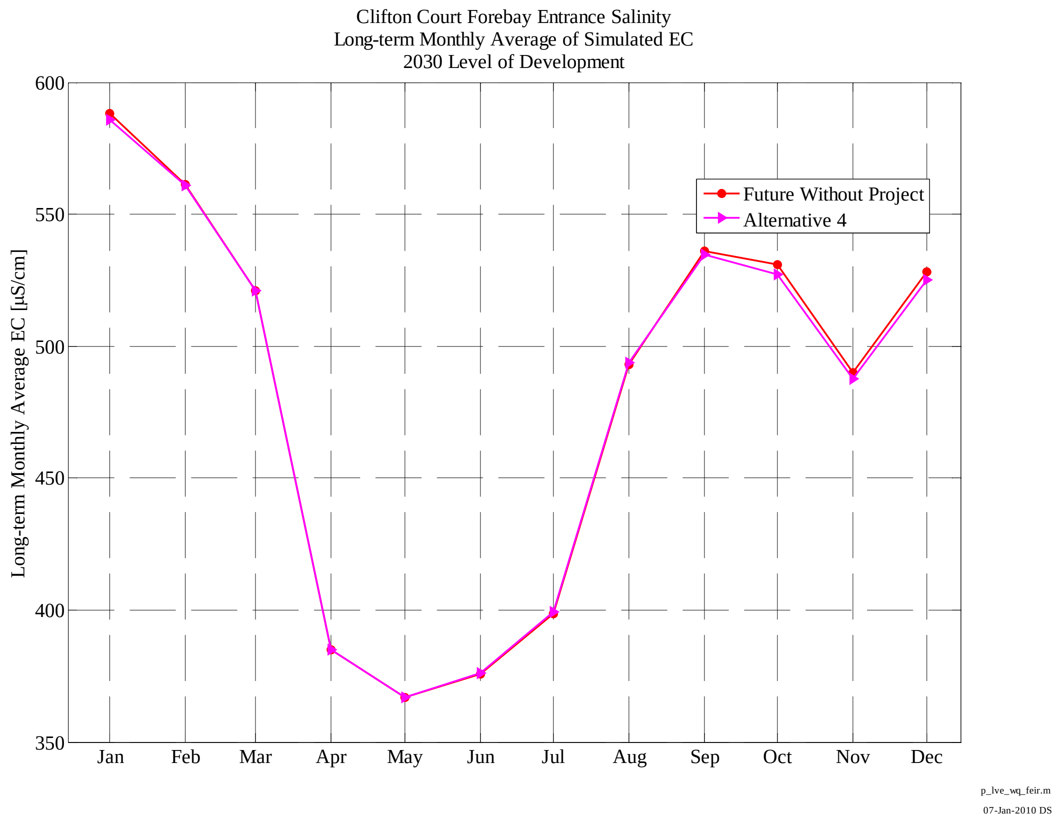
Alternative 4

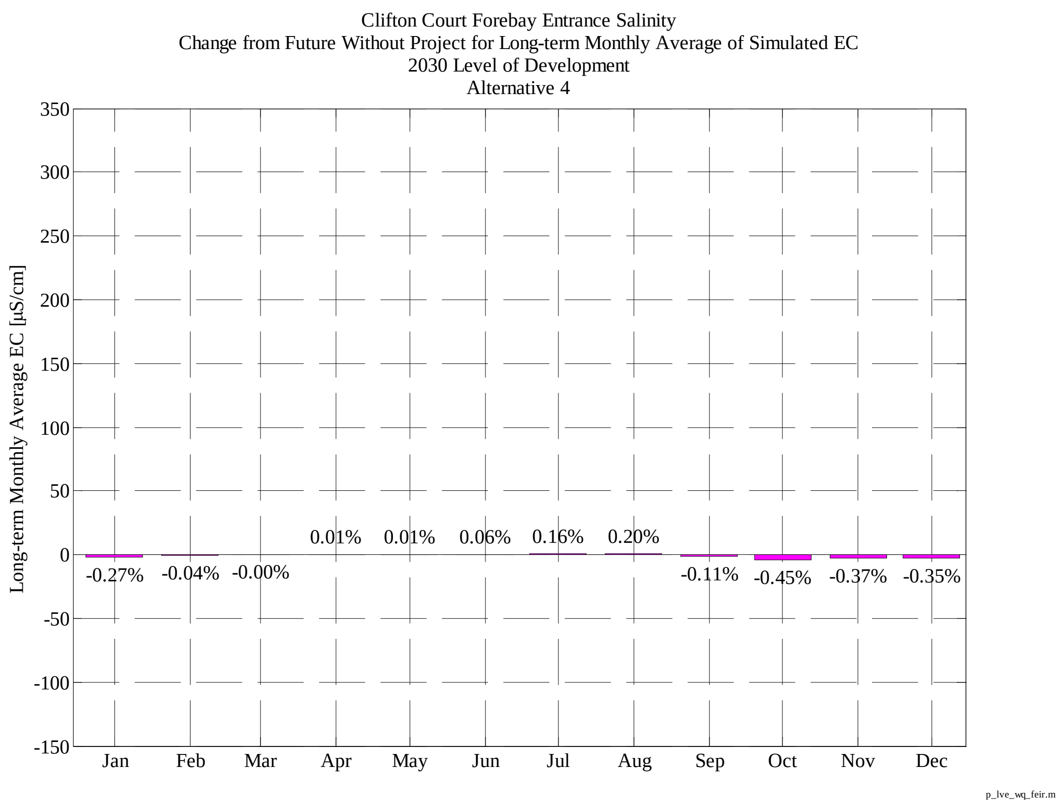
Clifton Court Forebay Entrance Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

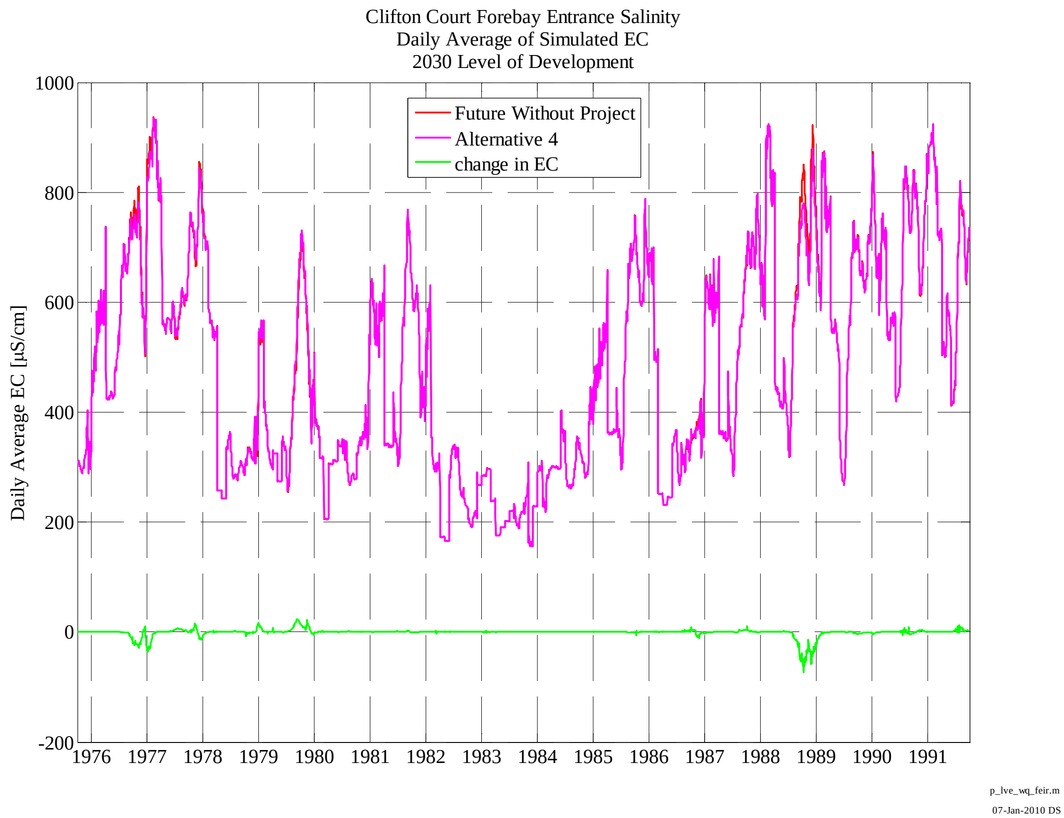
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	302	313	343	469	560	582	461	430	497	629	675	726
1977	740	697	603	851	907	820	601	567	577	554	608	627
1978	743	708	804	714	582	544	270	243	343	295	289	301
1979	316	322	365	547	399	316	324	277	335	290	428	608
1980	694	558	413	384	319	210	301	311	339	337	281	283
1981	334	360	429	603	546	588	364	338	361	389	624	708
1982	601	530	426	561	333	303	176	166	308	333	267	236
1983	200	213	267	284	297	240	177	191	202	220	203	213
1984	238	169	227	295	236	287	301	298	364	276	270	336
1985	320	289	403	449	495	538	384	364	367	382	617	702
1986	683	607	697	669	509	257	232	245	348	292	313	336
1987	358	371	384	615	597	609	393	354	367	358	530	622
1988	693	696	736	630	868	821	486	415	423	384	587	709
1989	746	691	809	649	823	761	581	534	310	383	625	712
1990	671	635	722	772	645	724	572	567	439	632	816	760
1991	797	642	775	880	859	735	538	572	434	636	770	680
Avg	527	488	525	586	561	521	385	367	376	399	494	535
W/AN/BN	496	444	457	493	382	308	254	247	320	292	293	330
D/C	551	522	578	658	700	687	487	460	420	483	650	694

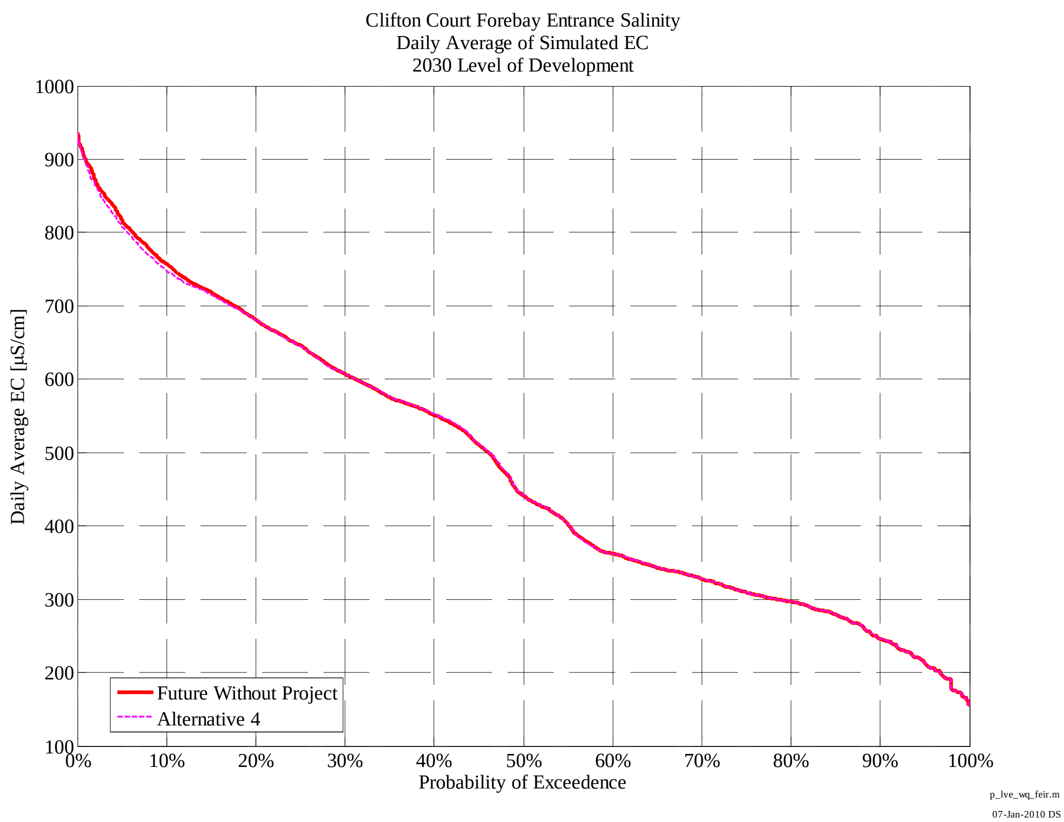
Percent (%) Change from Future Without Project for Clifton Court Forebay Entrance
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.4%
1977	-2.8%	-2.6%	-1.2%	-3.0%	-0.4%	0.0%	0.2%	0.1%	0.3%	1.0%	0.7%	0.3%
1978	0.3%	1.1%	-1.3%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.2%
1979	-0.4%	-0.3%	1.5%	1.4%	0.1%	0.0%	0.1%	0.0%	0.0%	0.6%	2.3%	3.4%
1980	1.5%	2.1%	-0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.1%
1981	0.2%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.2%	0.1%	0.1%	0.1%
1982	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1986	-0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.5%
1987	1.1%	-1.8%	-0.5%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.3%	0.5%
1988	0.4%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	-2.1%	-5.1%
1989	-6.7%	-4.7%	-3.8%	-1.7%	-0.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.3%
1990	-0.4%	-0.2%	-0.2%	-0.4%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	-0.4%
1991	-0.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.9%	0.8%	0.4%
Avg	-0.5%	-0.4%	-0.3%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.2%	-0.1%
W/AN/BN	0.1%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%	0.6%
D/C	-0.9%	-1.0%	-0.6%	-0.6%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	-0.7%


Clifton Court Forebay Entrance Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.27%
-0.04%
-0.00%
0.01%
0.01%
0.06%
0.16%
0.20%
-0.11%
-0.45%
-0.37%
-0.35%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Clifton Court Forebay Entrance Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Jones Pumping Plant

Future Without Project

Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	323	337	416	506	597	614	496	440	499	633	667	715
1977	716	700	635	870	930	895	622	571	577	549	605	628
1978	734	699	815	736	602	568	285	262	370	358	323	331
1979	351	353	440	571	389	309	334	299	349	316	431	583
1980	645	539	486	388	360	218	314	330	346	385	314	320
1981	358	383	489	622	583	610	403	358	380	408	622	694
1982	589	538	473	607	323	317	182	182	339	366	287	241
1983	191	211	273	346	325	272	193	198	213	230	192	222
1984	270	170	250	297	228	295	322	324	382	322	314	362
1985	337	325	442	493	538	567	424	378	386	405	614	687
1986	664	602	700	685	540	283	243	263	370	341	348	363
1987	369	387	438	631	632	632	431	371	377	381	536	616
1988	678	691	738	653	903	898	520	424	425	386	602	733
1989	777	716	834	678	879	816	602	548	322	390	627	701
1990	665	635	723	783	673	827	635	598	447	632	800	744
1991	786	641	770	862	881	758	550	585	441	632	762	677
Avg	528	495	558	608	587	555	410	383	389	421	503	538
W/AN/BN	492	444	491	519	395	323	268	265	338	331	316	346
D/C	557	535	610	677	735	735	520	475	428	491	648	688

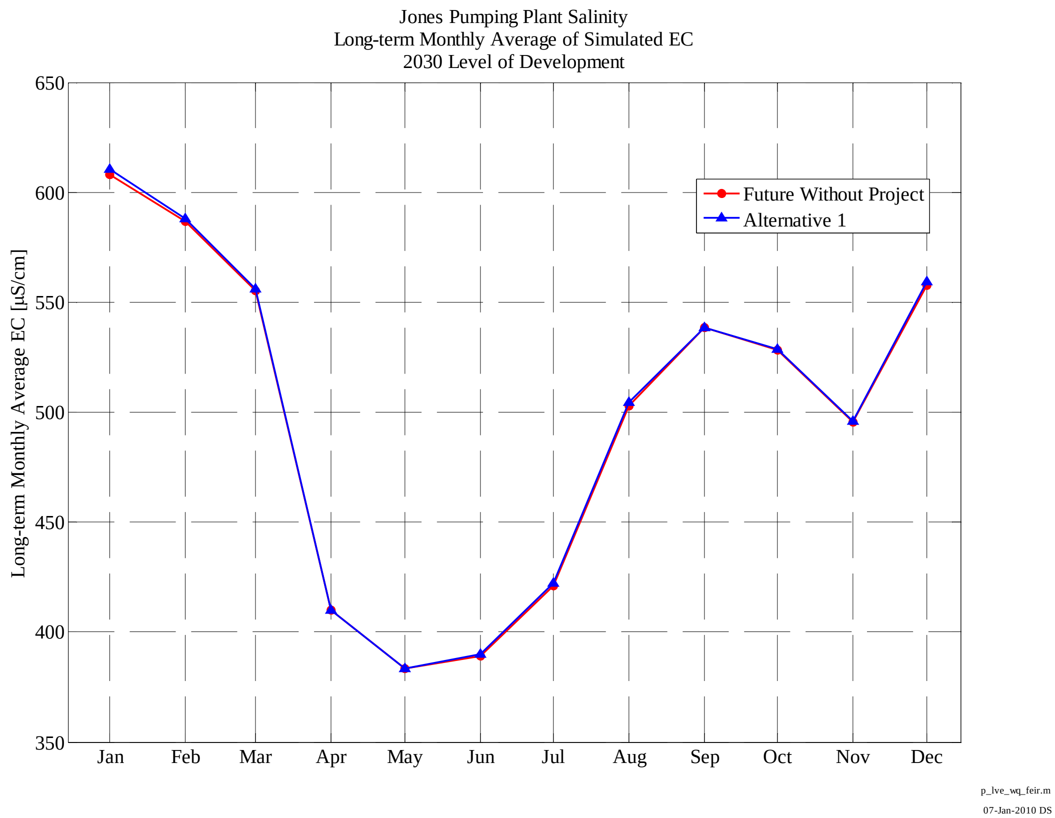
Alternative 1

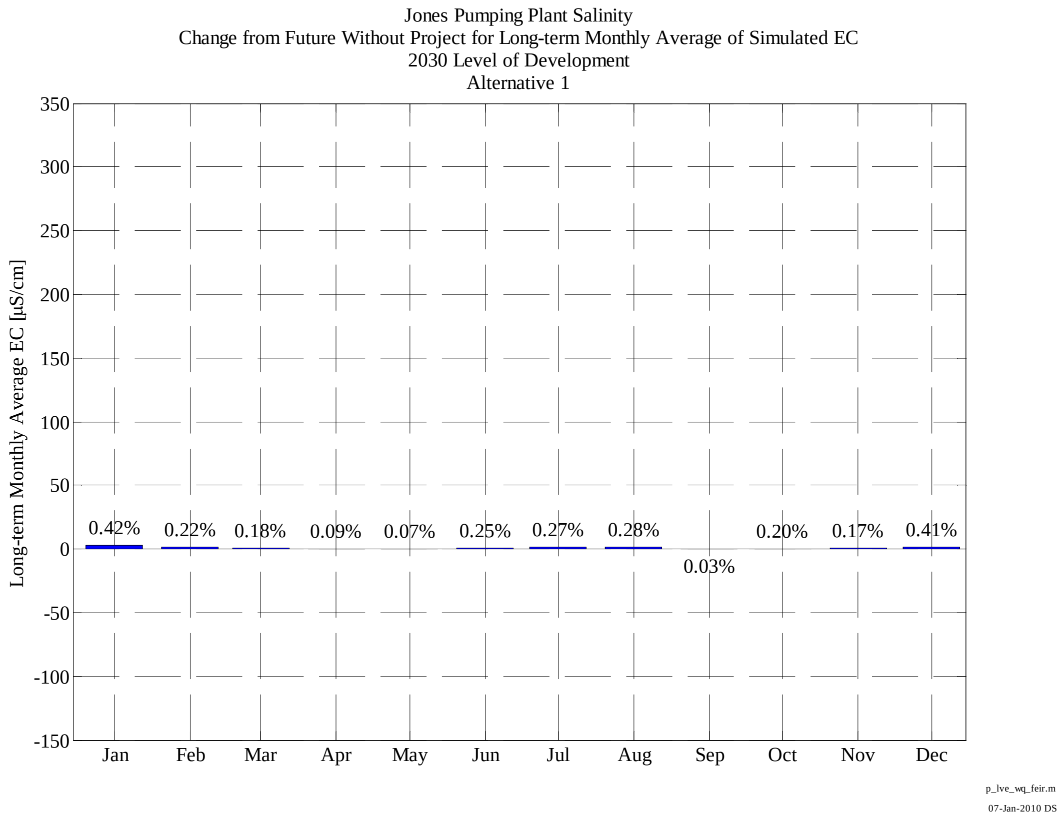
Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

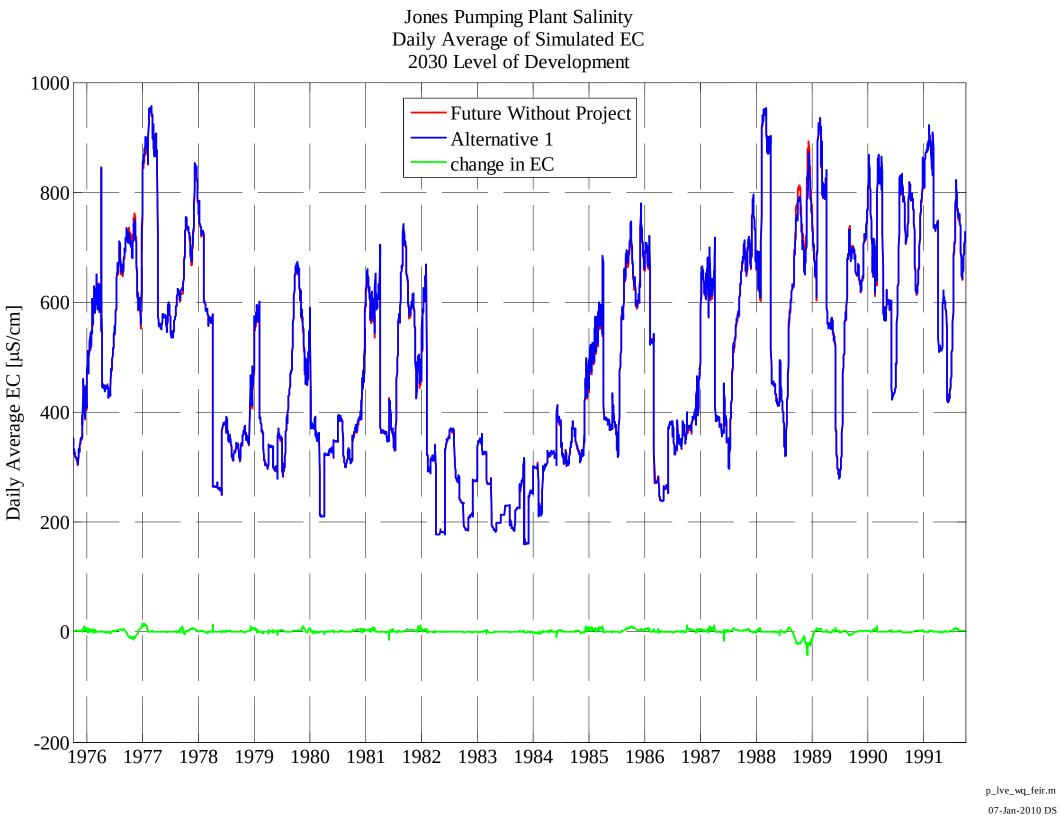
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	325	339	421	510	599	614	496	439	499	635	672	713
1977	705	693	643	881	931	896	622	571	577	550	606	631
1978	735	704	819	738	602	568	286	262	372	360	324	332
1979	352	354	445	574	389	309	335	301	351	318	431	584
1980	648	545	488	388	360	218	315	331	346	386	315	320
1981	361	387	492	625	588	611	403	358	381	408	623	696
1982	593	541	479	609	323	317	182	182	340	367	288	241
1983	190	210	273	346	326	272	193	198	213	230	192	222
1984	271	170	250	296	227	296	324	325	383	323	314	362
1985	339	324	447	499	542	575	424	378	387	405	617	695
1986	672	606	704	690	541	284	243	263	371	341	350	364
1987	375	390	440	634	635	638	431	371	378	383	541	618
1988	682	694	738	656	903	899	520	423	425	388	605	718
1989	758	698	813	678	883	817	602	550	324	391	627	696
1990	666	637	725	784	677	827	635	599	448	633	800	743
1991	786	643	773	862	883	758	550	585	443	636	766	679
Avg	529	496	559	611	588	556	410	383	390	422	504	538
W/AN/BN	495	447	494	520	396	324	268	266	339	332	316	346
D/C	555	534	610	681	738	737	520	475	429	492	651	688

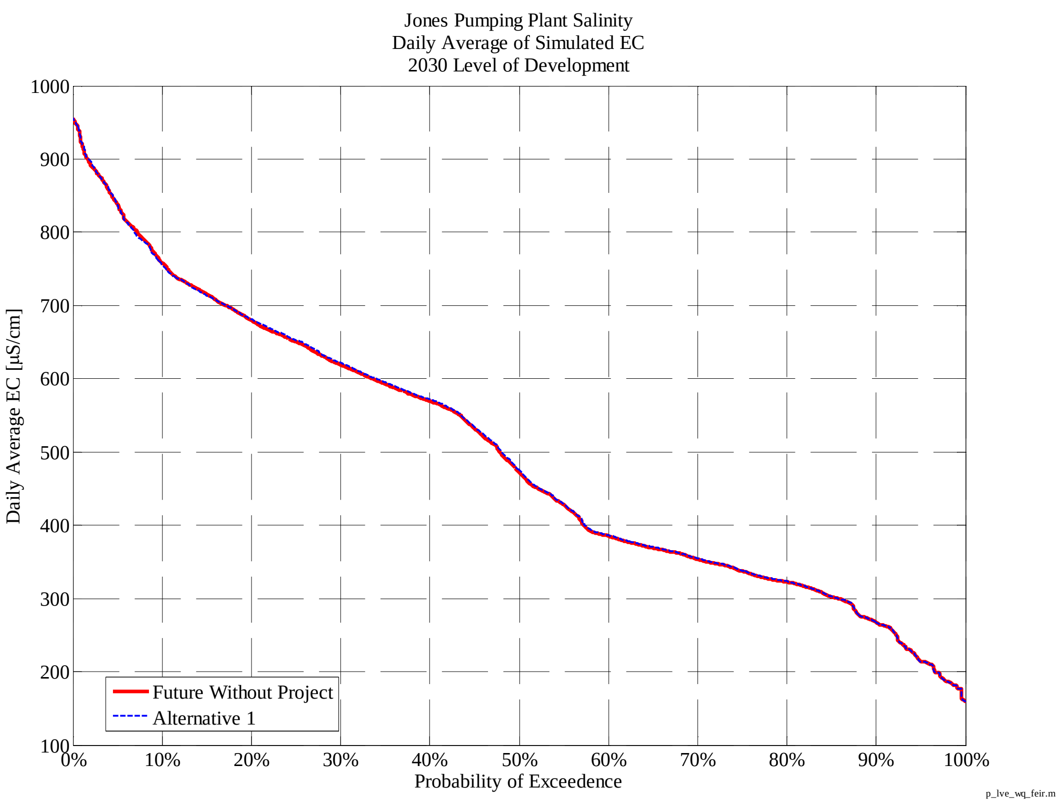
Percent (%) Change from Future Without Project for Jones Pumping Plant Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.6%	0.6%	1.1%	0.7%	0.3%	0.0%	0.0%	-0.1%	0.1%	0.4%	0.7%	-0.3%
1977	-1.5%	-1.1%	1.1%	1.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.6%
1978	0.2%	0.8%	0.5%	0.3%	0.1%	0.0%	0.4%	0.0%	0.4%	0.4%	0.2%	0.2%
1979	0.2%	0.2%	1.2%	0.5%	0.0%	0.0%	0.3%	0.6%	0.6%	0.4%	0.0%	0.3%
1980	0.4%	1.2%	0.4%	0.2%	-0.1%	0.0%	0.2%	0.3%	0.0%	0.4%	0.3%	0.1%
1981	0.8%	1.1%	0.5%	0.5%	0.9%	0.1%	0.0%	0.0%	0.4%	0.0%	0.2%	0.3%
1982	0.7%	0.6%	1.3%	0.5%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%	0.0%
1983	-0.2%	-0.1%	0.1%	0.0%	0.2%	-0.1%	-0.2%	0.0%	0.0%	0.0%	-0.1%	0.2%
1984	0.5%	-0.3%	-0.1%	-0.4%	-0.5%	0.2%	0.6%	0.1%	0.4%	0.3%	0.1%	0.0%
1985	0.6%	-0.2%	1.1%	1.2%	0.7%	1.3%	0.1%	0.0%	0.2%	0.0%	0.5%	1.1%
1986	1.2%	0.6%	0.5%	0.8%	0.1%	0.3%	0.1%	0.0%	0.2%	0.1%	0.3%	0.2%
1987	1.6%	0.7%	0.6%	0.5%	0.4%	0.9%	0.1%	-0.1%	0.4%	0.5%	0.9%	0.4%
1988	0.5%	0.5%	0.0%	0.5%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.6%	0.6%	-2.0%
1989	-2.4%	-2.6%	-2.5%	-0.1%	0.5%	0.1%	0.0%	0.3%	0.7%	0.1%	0.0%	-0.6%
1990	0.0%	0.3%	0.3%	0.2%	0.6%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	-0.2%
1991	0.0%	0.4%	0.4%	0.0%	0.2%	0.0%	0.0%	0.1%	0.3%	0.6%	0.5%	0.3%
Avg	0.2%	0.2%	0.4%	0.4%	0.2%	0.2%	0.1%	0.1%	0.2%	0.3%	0.3%	0.0%
W/AN/BN	0.4%	0.4%	0.6%	0.3%	0.0%	0.1%	0.2%	0.1%	0.3%	0.3%	0.1%	0.1%
D/C	0.0%	0.0%	0.3%	0.5%	0.4%	0.3%	0.0%	0.0%	0.2%	0.3%	0.4%	-0.1%


Jones Pumping Plant Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.42%
0.22%
0.18%
0.09%
0.07%
0.25%
0.27%
0.28%
0.03%
0.20%
0.17%
0.41%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

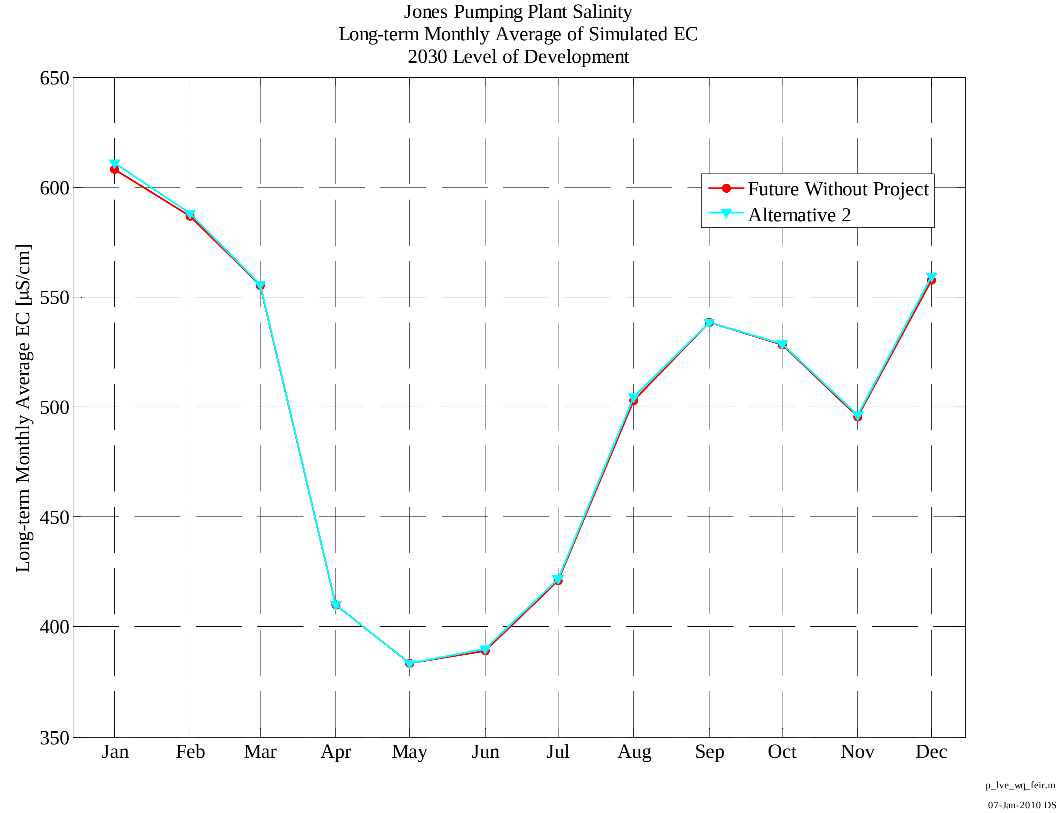
Alternative 2

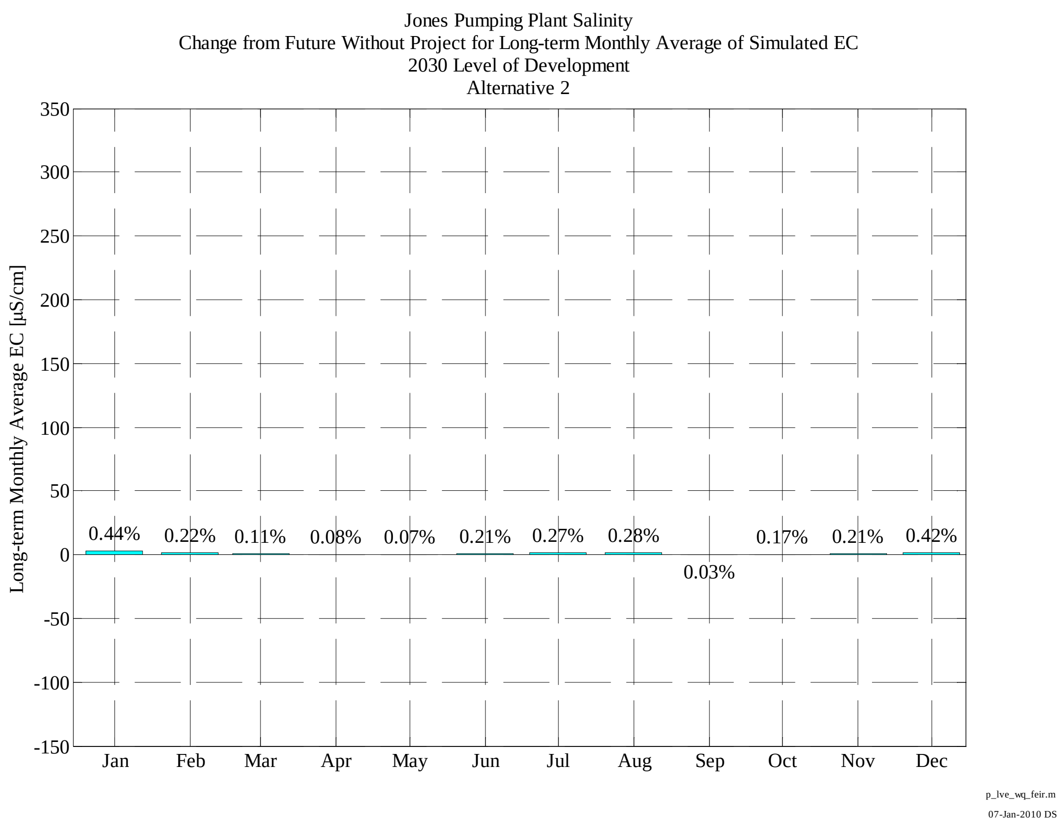
Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

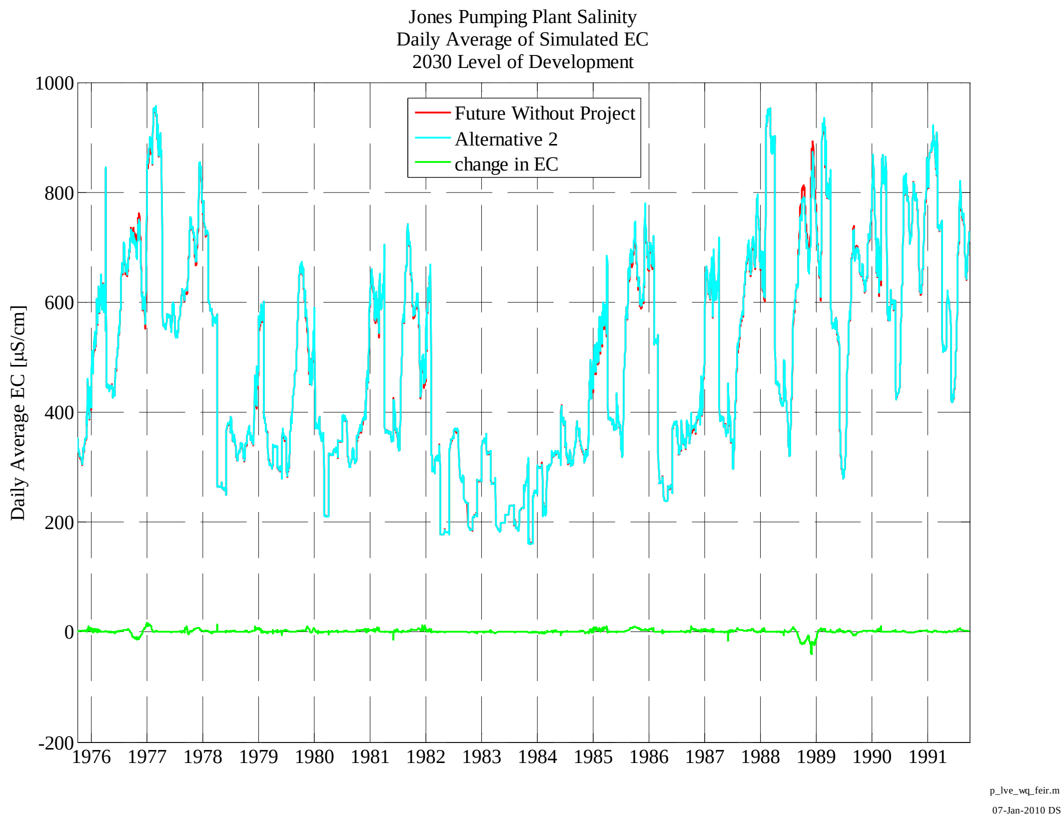
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	325	339	421	510	599	614	496	439	499	635	671	712
1977	705	692	644	882	931	896	622	571	577	550	606	631
1978	736	705	819	738	602	568	286	262	372	360	324	332
1979	352	354	445	574	389	309	335	301	351	318	431	584
1980	648	545	488	388	360	218	315	331	346	386	315	320
1981	361	387	492	625	588	611	403	358	381	408	623	696
1982	593	543	480	609	323	317	182	182	340	367	288	241
1983	190	210	273	346	326	272	193	198	213	230	192	222
1984	270	170	250	296	227	296	324	325	382	323	314	362
1985	339	324	445	499	542	575	424	378	387	405	617	695
1986	672	606	704	690	541	284	243	263	370	341	350	365
1987	374	390	440	634	635	632	431	371	378	383	541	618
1988	682	694	738	656	903	899	520	423	425	388	605	718
1989	758	699	814	678	884	817	602	550	325	391	627	696
1990	666	637	725	784	677	827	635	599	448	633	800	743
1991	786	643	773	862	883	758	550	585	443	636	766	679
Avg	529	496	559	611	588	556	410	383	390	422	504	538
W/AN/BN	494	448	494	520	396	323	268	266	339	332	316	346
D/C	555	534	610	681	738	737	520	475	429	492	651	688

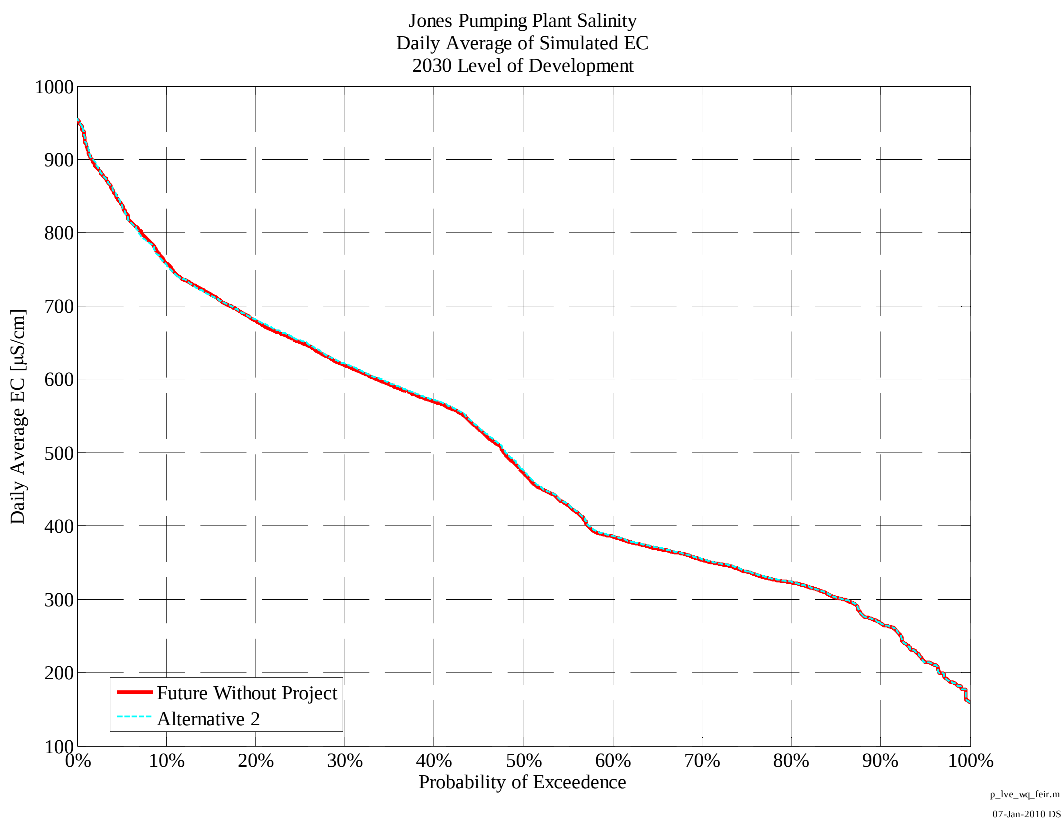
Percent (%) Change from Future Without Project for Jones Pumping Plant Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.6%	0.6%	1.1%	0.8%	0.4%	0.0%	0.0%	-0.1%	0.1%	0.4%	0.6%	-0.4%
1977	-1.5%	-1.1%	1.3%	1.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%
1978	0.2%	0.9%	0.6%	0.3%	0.1%	0.0%	0.4%	0.0%	0.4%	0.4%	0.2%	0.2%
1979	0.3%	0.3%	1.2%	0.5%	0.0%	0.0%	0.3%	0.6%	0.6%	0.4%	0.0%	0.3%
1980	0.4%	1.2%	0.4%	0.2%	-0.1%	0.0%	0.2%	0.3%	0.1%	0.4%	0.2%	0.1%
1981	0.8%	1.1%	0.5%	0.5%	0.9%	0.1%	0.0%	0.0%	0.4%	0.0%	0.2%	0.3%
1982	0.7%	0.9%	1.4%	0.5%	0.0%	0.0%	0.0%	-0.1%	0.2%	0.2%	0.1%	0.0%
1983	-0.2%	-0.1%	0.1%	0.0%	0.3%	-0.1%	-0.2%	0.0%	0.0%	0.0%	-0.1%	0.1%
1984	0.2%	-0.3%	0.0%	-0.4%	-0.7%	0.2%	0.6%	0.1%	0.0%	0.3%	0.1%	0.0%
1985	0.6%	-0.3%	0.6%	1.2%	0.7%	1.3%	0.1%	0.0%	0.2%	0.0%	0.5%	1.2%
1986	1.2%	0.7%	0.6%	0.8%	0.1%	0.1%	0.0%	0.0%	0.2%	0.2%	0.3%	0.3%
1987	1.5%	0.7%	0.6%	0.5%	0.4%	0.0%	0.0%	-0.1%	0.3%	0.5%	0.9%	0.5%
1988	0.5%	0.5%	0.0%	0.5%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.6%	0.6%	-2.0%
1989	-2.3%	-2.3%	-2.4%	0.0%	0.5%	0.1%	0.0%	0.2%	0.7%	0.1%	0.0%	-0.6%
1990	0.1%	0.3%	0.3%	0.1%	0.6%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	-0.1%
1991	0.0%	0.4%	0.4%	0.0%	0.2%	0.0%	0.0%	0.1%	0.3%	0.6%	0.5%	0.2%
Avg	0.2%	0.2%	0.4%	0.4%	0.2%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%	0.0%
W/AN/BN	0.4%	0.5%	0.6%	0.3%	0.0%	0.0%	0.2%	0.1%	0.2%	0.3%	0.1%	0.1%
D/C	0.0%	0.0%	0.3%	0.6%	0.4%	0.2%	0.0%	0.0%	0.2%	0.3%	0.4%	-0.1%


Jones Pumping Plant Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
350
Future Without Project
Alternative 2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.44%
0.22%
0.11%
0.08%
0.07%
0.21%
0.27%
0.28%
0.03%
0.17%
0.21%
0.42%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

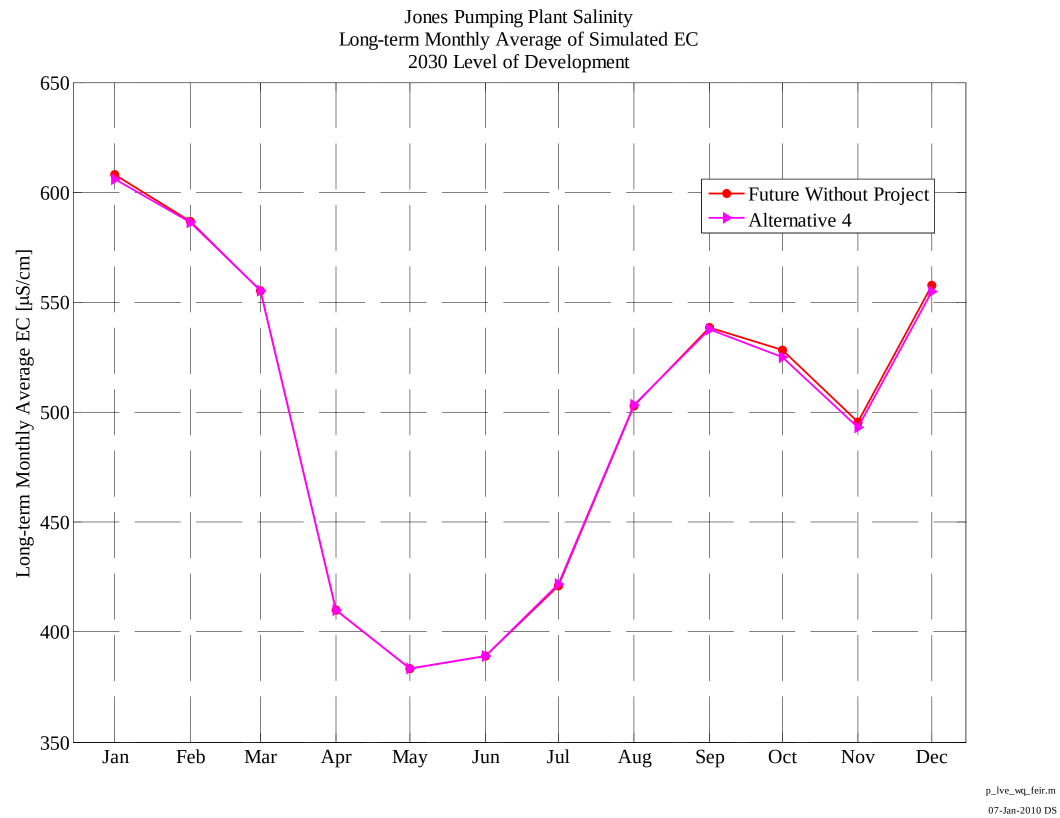
Alternative 4

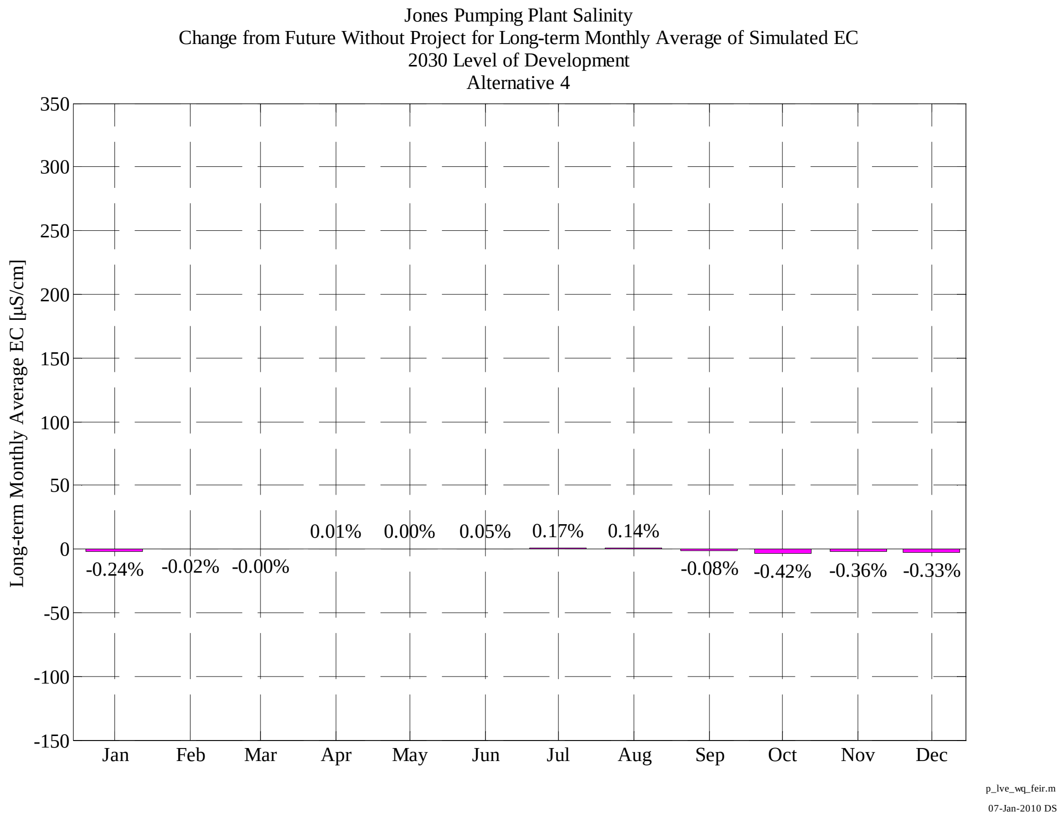
Jones Pumping Plant Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

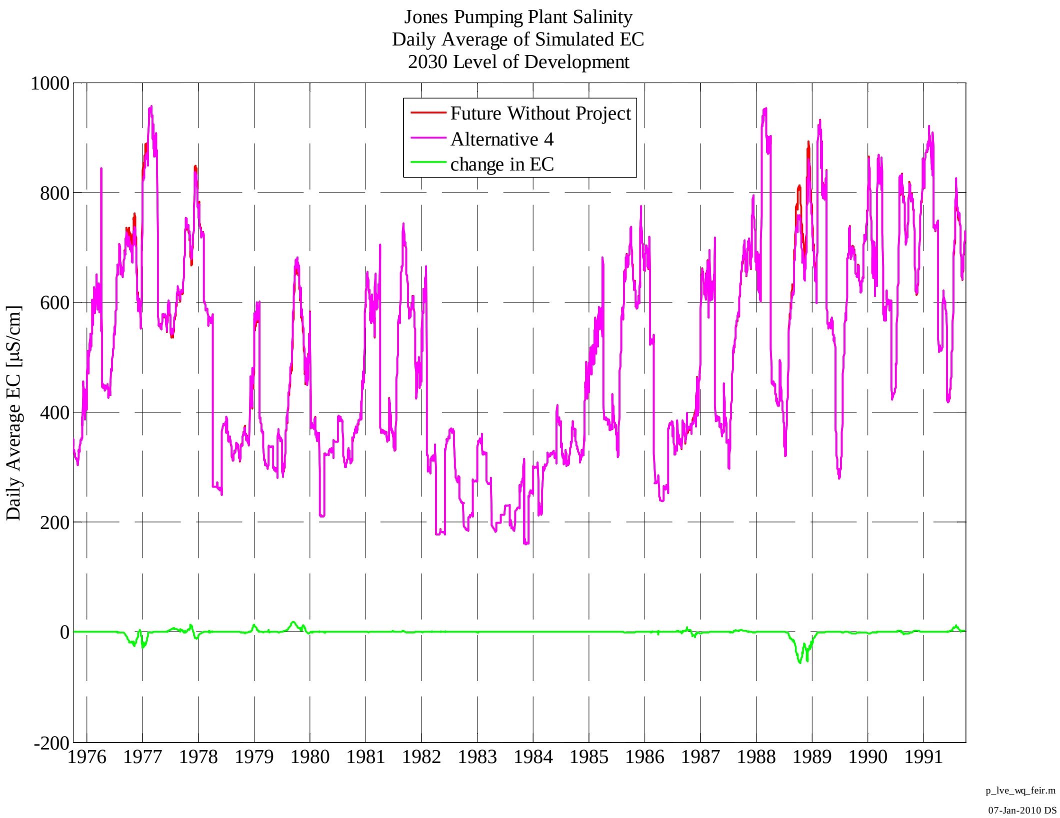
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	323	337	416	506	597	614	496	440	499	633	666	706
1977	697	683	628	849	929	895	623	572	579	555	610	630
1978	737	705	805	734	602	568	285	262	370	359	324	332
1979	350	352	445	577	390	309	334	299	349	318	439	600
1980	653	547	485	387	360	218	314	330	346	385	314	320
1981	358	383	489	622	583	611	403	358	380	408	623	695
1982	588	538	473	607	323	317	182	182	339	366	287	241
1983	191	211	273	346	325	272	193	198	213	230	192	222
1984	270	170	250	297	228	295	322	324	382	322	314	362
1985	337	325	442	493	538	567	424	378	386	405	614	686
1986	663	602	700	685	540	283	243	263	370	341	349	365
1987	373	381	436	629	631	632	431	371	377	381	538	618
1988	681	691	737	653	903	898	520	424	426	385	589	702
1989	727	685	805	668	878	816	602	548	322	390	627	699
1990	663	634	722	780	672	827	635	598	447	633	799	742
1991	785	643	772	862	881	758	550	585	442	639	768	680
Avg	525	493	555	606	586	555	410	383	389	422	503	537
W/AN/BN	493	446	490	519	396	323	268	265	338	331	317	349
D/C	549	529	605	674	735	735	520	475	429	492	648	684

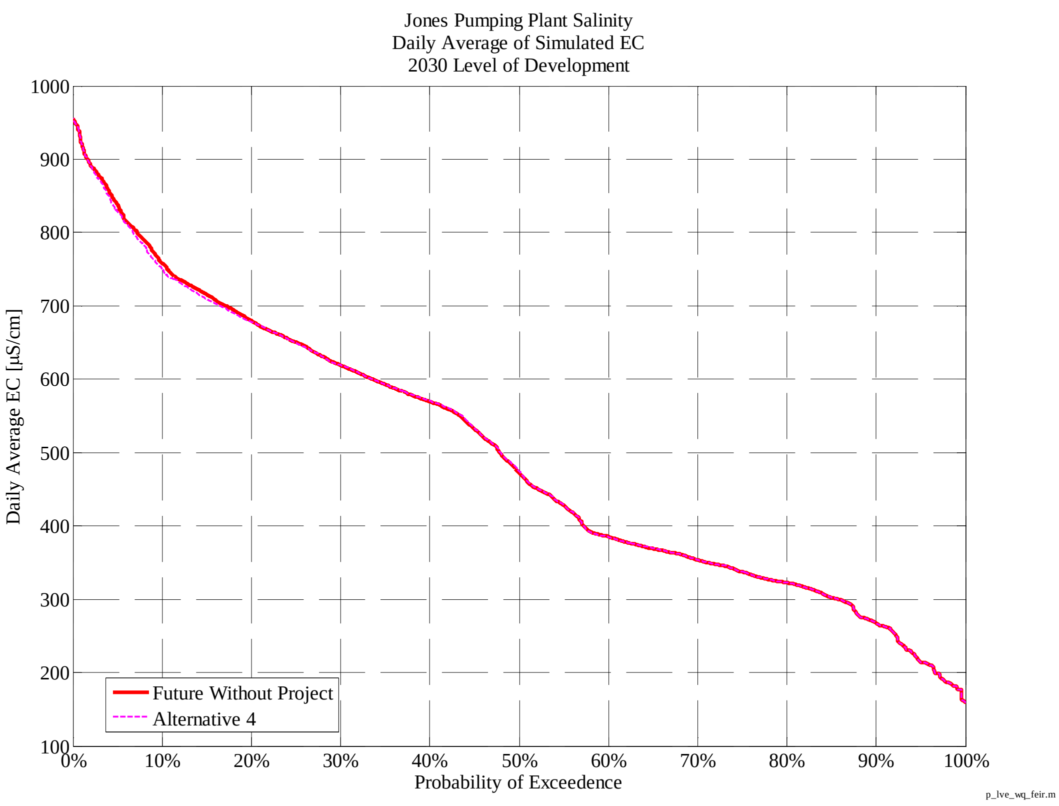
Percent (%) Change from Future Without Project for Jones Pumping Plant Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.2%
1977	-2.6%	-2.5%	-1.2%	-2.4%	-0.2%	0.0%	0.1%	0.0%	0.3%	1.0%	0.8%	0.4%
1978	0.4%	1.0%	-1.2%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%
1979	-0.3%	-0.2%	1.1%	1.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.5%	1.8%	2.9%
1980	1.3%	1.6%	-0.1%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
1981	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%
1982	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1986	-0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.5%
1987	1.1%	-1.5%	-0.4%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.3%	0.4%
1988	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	-2.0%	-4.1%
1989	-6.4%	-4.3%	-3.4%	-1.5%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.3%
1990	-0.4%	-0.2%	-0.1%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.1%	-0.4%
1991	-0.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	1.0%	0.8%	0.4%
Avg	-0.4%	-0.4%	-0.3%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%	-0.1%
W/AN/BN	0.2%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.5%
D/C	-0.9%	-0.9%	-0.6%	-0.5%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	-0.5%


Jones Pumping Plant Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.24%
-0.02%
-0.00%
0.01%
0.00%
0.05%
0.17%
0.14%
-0.08%
-0.42%
-0.36%
-0.33%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Jones Pumping Plant Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

City of Stockton Intake

Future Without Project

City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	331	232	300	357	354	441	398	366	433	436	458
1977	453	410	425	632	549	496	465	439	395	377	377	384
1978	436	446	583	493	522	476	315	256	331	261	229	244
1979	306	317	250	441	396	302	317	291	273	234	295	382
1980	410	380	303	331	311	221	286	310	321	314	232	227
1981	322	353	320	423	347	466	438	347	270	295	426	448
1982	387	367	257	380	290	295	192	173	294	320	240	224
1983	199	209	258	287	289	239	190	194	207	224	194	207
1984	242	182	229	284	231	272	303	303	287	222	216	278
1985	310	277	266	303	355	432	440	360	270	293	419	450
1986	428	409	483	433	378	270	245	250	329	239	235	270
1987	334	354	276	434	377	482	482	369	271	279	353	401
1988	441	456	526	408	456	494	517	413	303	296	403	468
1989	474	484	553	438	464	483	471	347	233	299	436	455
1990	413	418	492	529	379	399	366	362	321	453	531	483
1991	471	428	532	641	539	567	526	377	307	452	462	422
Avg	371	364	374	422	390	390	375	324	299	312	343	363
W/AN/BN	344	330	338	378	345	296	264	254	292	259	234	262
D/C	391	390	403	457	425	464	461	379	304	353	427	441

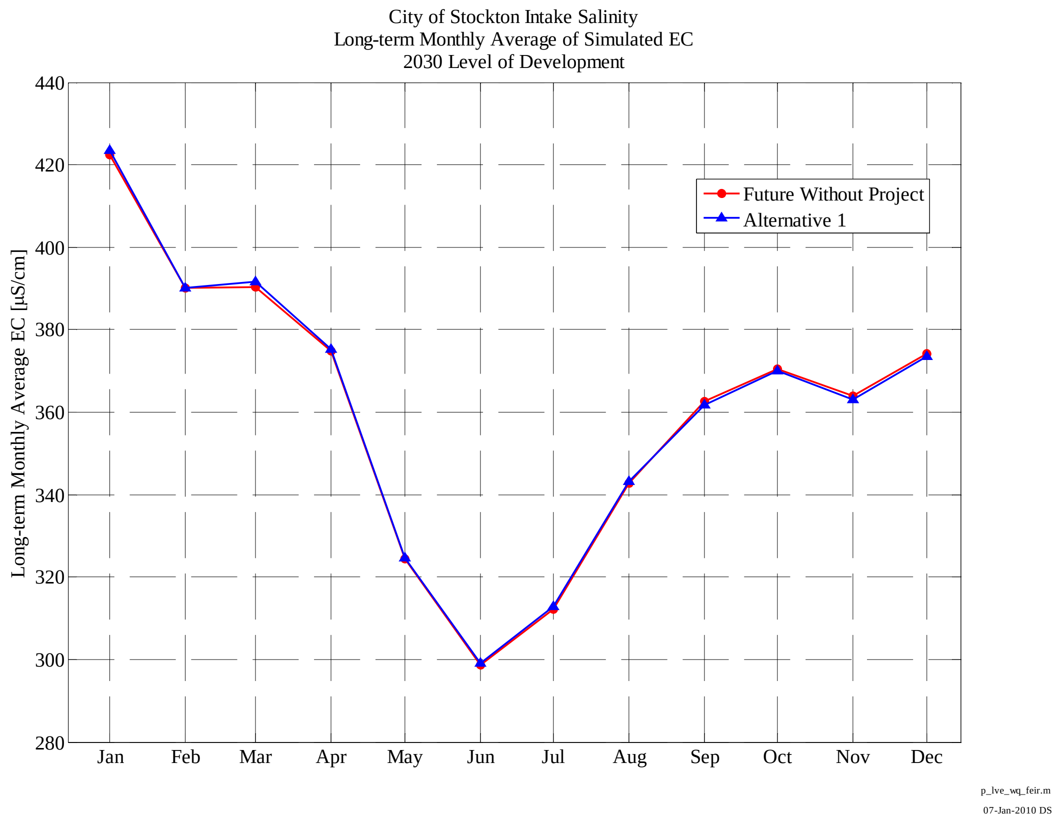
Alternative 1

City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

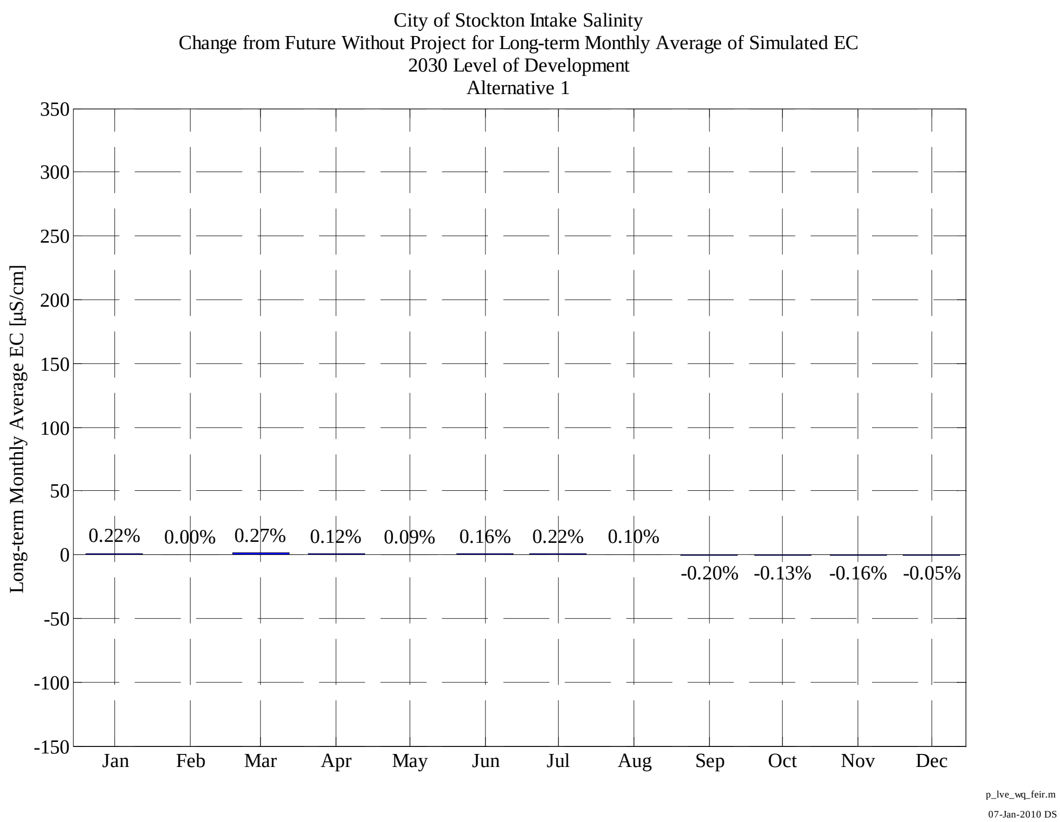
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	332	232	299	357	354	441	398	366	434	437	455
1977	446	407	432	640	550	496	465	439	395	377	377	384
1978	438	450	585	498	518	476	315	256	331	263	230	244
1979	305	316	252	442	393	302	318	291	275	235	296	383
1980	411	384	306	331	310	221	287	310	321	315	232	227
1981	322	353	320	423	347	466	438	347	270	295	425	447
1982	387	368	256	382	290	295	192	173	293	320	239	223
1983	199	210	258	287	289	239	190	194	207	224	194	207
1984	242	182	229	284	231	273	304	303	287	222	216	279
1985	310	273	266	304	356	439	442	360	271	293	420	453
1986	430	410	484	435	378	270	245	250	329	239	234	269
1987	335	353	275	434	376	486	484	369	272	281	355	401
1988	441	455	523	408	457	498	520	414	303	298	403	457
1989	466	469	532	439	466	483	472	348	234	299	435	452
1990	413	419	492	529	379	399	366	363	322	454	531	482
1991	473	430	533	640	541	568	528	380	310	455	464	423
Avg	370	363	374	423	390	392	375	325	299	313	343	362
W/AN/BN	344	331	339	380	344	297	264	254	292	260	235	262
D/C	390	388	401	457	426	466	462	380	305	354	428	439

Percent (%) Change from Future Without Project for City of Stockton Intake Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

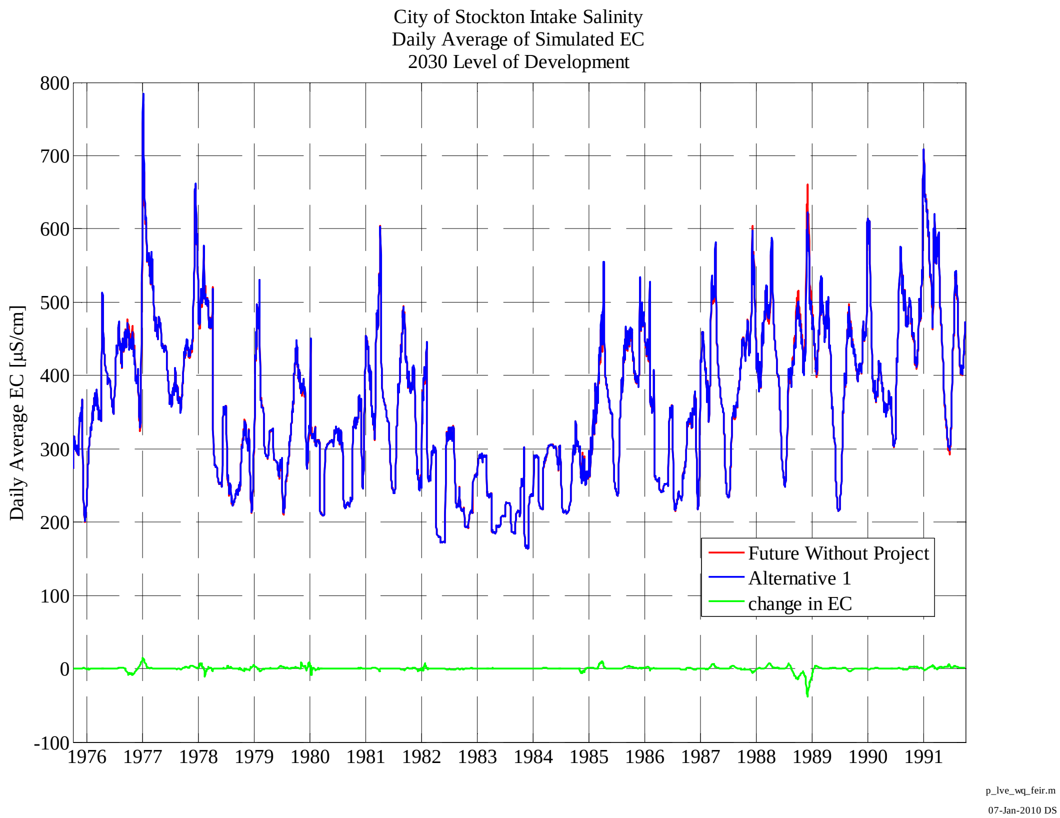
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	-0.7%
1977	-1.6%	-0.7%	1.6%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%
1978	0.4%	0.8%	0.2%	1.0%	-0.7%	0.0%	-0.2%	0.1%	0.0%	0.8%	0.3%	0.1%
1979	-0.5%	-0.3%	0.9%	0.3%	-0.5%	-0.1%	0.2%	0.1%	0.7%	0.6%	0.2%	0.3%
1980	0.2%	1.1%	1.1%	-0.1%	-0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%
1981	0.1%	0.2%	0.0%	0.0%	0.2%	0.0%	-0.1%	0.0%	0.1%	0.0%	-0.1%	-0.2%
1982	0.1%	0.3%	-0.7%	0.5%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.2%	-0.3%	-0.3%
1983	-0.2%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
1985	0.0%	-1.5%	0.0%	0.4%	0.2%	1.7%	0.5%	0.1%	0.1%	0.0%	0.3%	0.7%
1986	0.5%	0.2%	0.2%	0.5%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.2%	-0.3%
1987	0.4%	-0.1%	-0.1%	0.0%	-0.1%	0.9%	0.4%	0.1%	0.1%	0.7%	0.7%	-0.1%
1988	-0.2%	-0.3%	-0.7%	0.0%	0.1%	1.0%	0.6%	0.2%	0.1%	0.7%	0.2%	-2.4%
1989	-1.8%	-3.1%	-3.8%	0.1%	0.5%	0.1%	0.1%	0.3%	0.2%	0.1%	-0.1%	-0.6%
1990	0.1%	0.1%	0.0%	-0.1%	0.1%	0.2%	0.0%	0.1%	0.1%	0.1%	-0.1%	-0.1%
1991	0.5%	0.6%	0.1%	-0.2%	0.4%	0.3%	0.3%	0.6%	1.2%	0.6%	0.5%	0.2%
Avg	-0.1%	-0.2%	-0.1%	0.2%	0.0%	0.3%	0.1%	0.1%	0.2%	0.2%	0.1%	-0.2%
W/AN/BN	0.1%	0.3%	0.3%	0.3%	-0.2%	0.1%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%
D/C	-0.3%	-0.5%	-0.3%	0.1%	0.2%	0.4%	0.2%	0.1%	0.2%	0.3%	0.2%	-0.4%

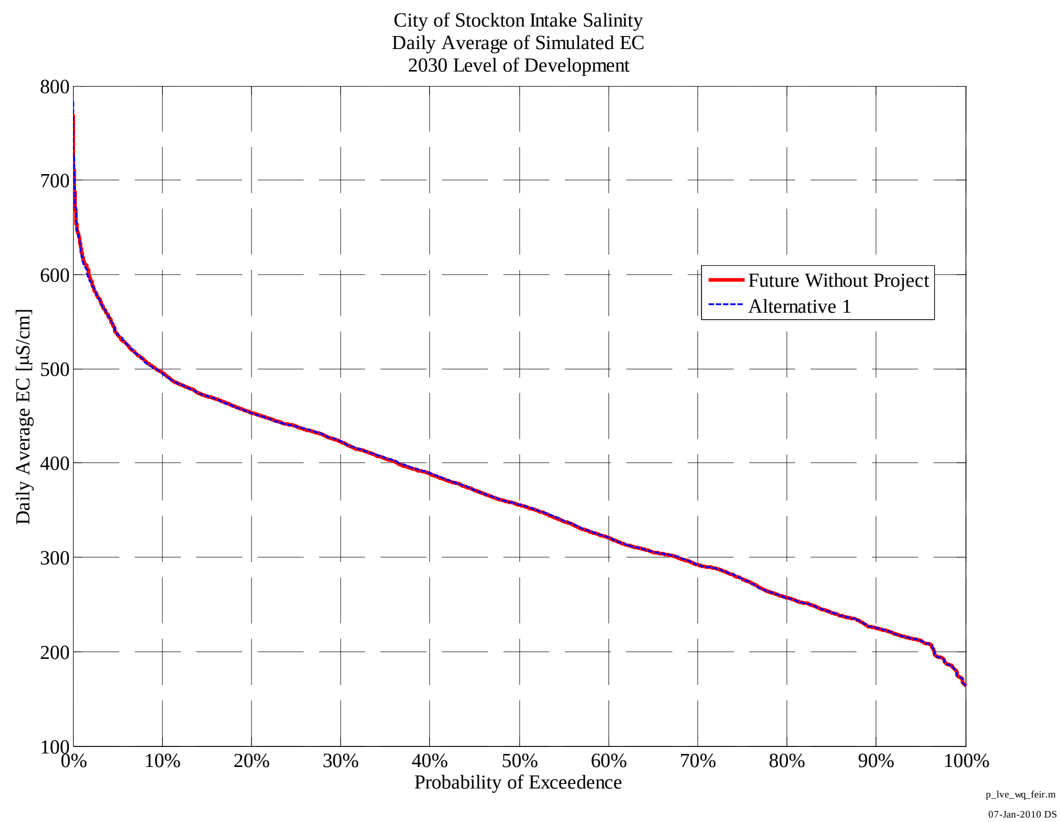


City of Stockton Intake Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
440
420
400
380
360
340
320
300
280
Future Without Project
Alternative 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



City of Stockton Intake Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.22%
0.00%
0.27%
0.12%
0.09%
0.16%
0.22%
0.10%
-0.20%
-0.13%
-0.16%
-0.05%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Future Without Project
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

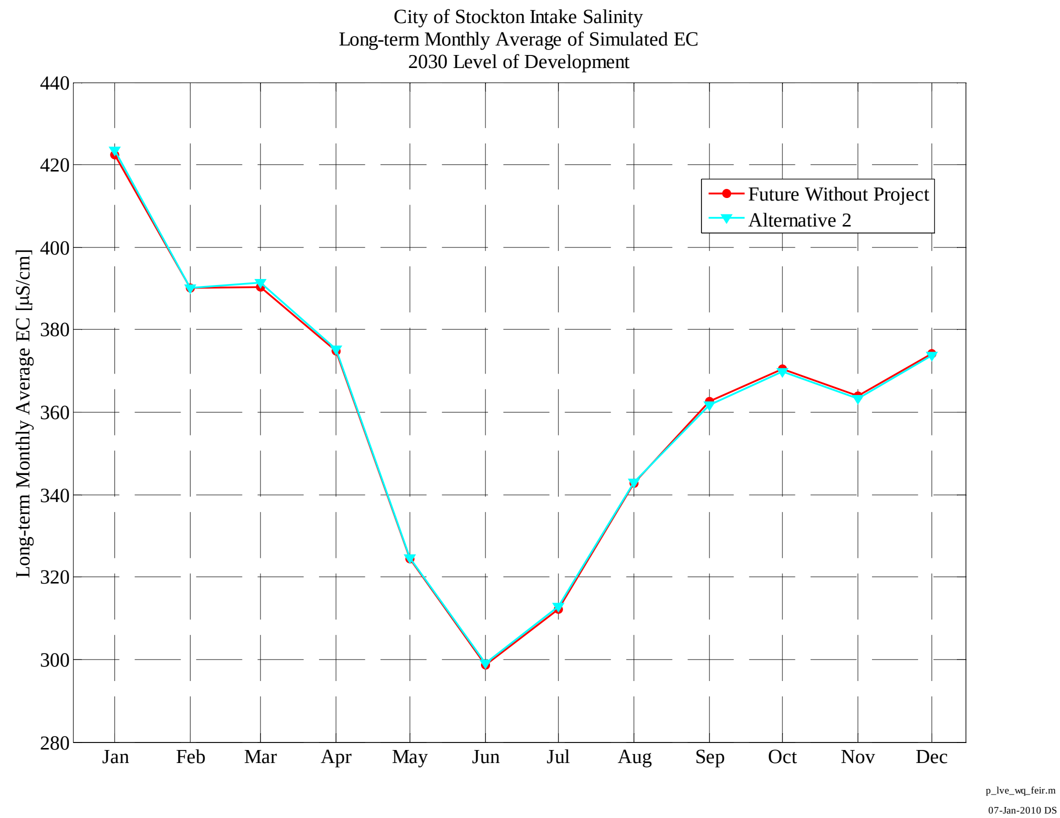
Alternative 2

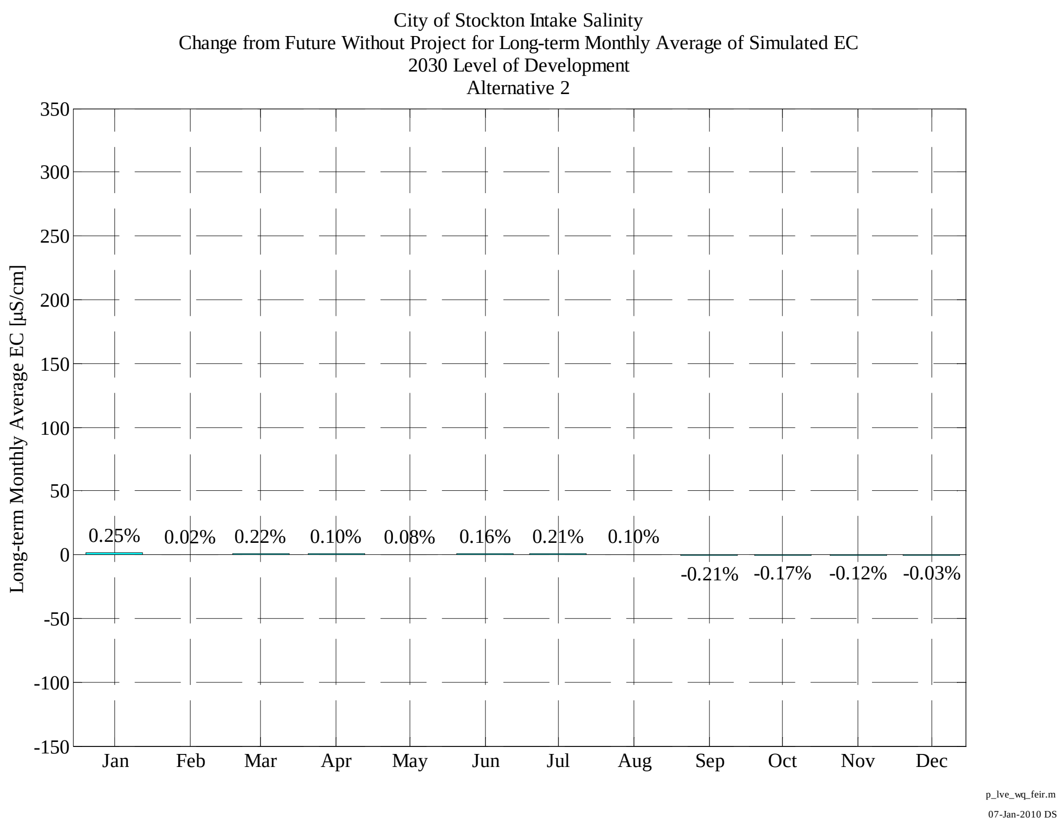
City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

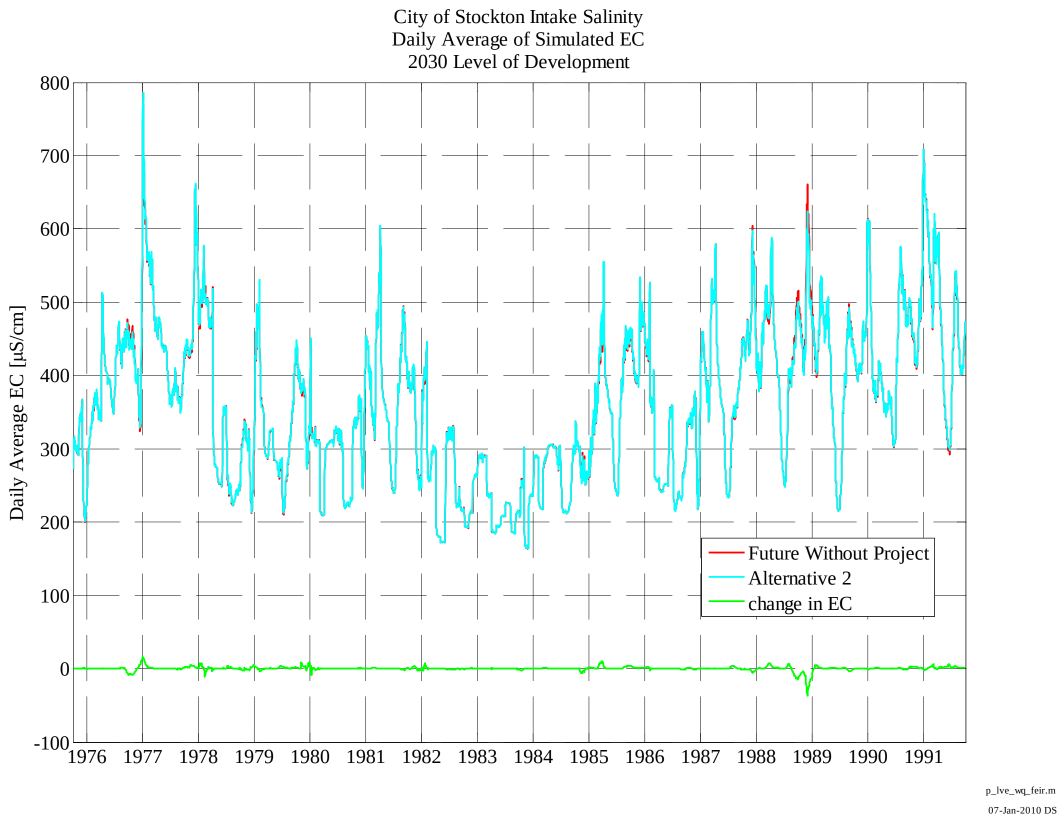
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	332	232	300	357	354	441	398	366	434	436	454
1977	446	407	433	641	551	496	465	439	395	377	377	384
1978	438	450	585	498	518	476	315	256	331	263	230	244
1979	305	316	252	442	393	302	318	291	275	235	296	383
1980	411	384	306	331	310	221	287	310	321	315	232	227
1981	322	353	320	424	347	467	438	347	270	295	425	447
1982	387	370	256	382	290	295	192	173	293	320	239	223
1983	199	210	258	287	289	239	190	194	207	224	194	207
1984	240	182	229	284	232	273	304	303	287	222	216	279
1985	310	273	266	304	356	439	442	360	271	293	420	453
1986	430	410	485	435	378	270	245	250	329	239	234	269
1987	335	353	275	434	376	482	482	369	272	281	355	401
1988	441	455	523	409	457	498	520	414	303	298	403	457
1989	466	470	533	439	466	483	472	348	234	300	435	452
1990	413	419	492	529	379	399	366	363	322	454	531	482
1991	473	430	533	640	541	568	528	380	310	455	464	423
Avg	370	363	374	424	390	391	375	325	299	313	343	362
W/AN/BN	344	332	339	380	344	297	264	254	292	260	235	262
D/C	390	388	401	458	426	465	461	380	305	354	428	439

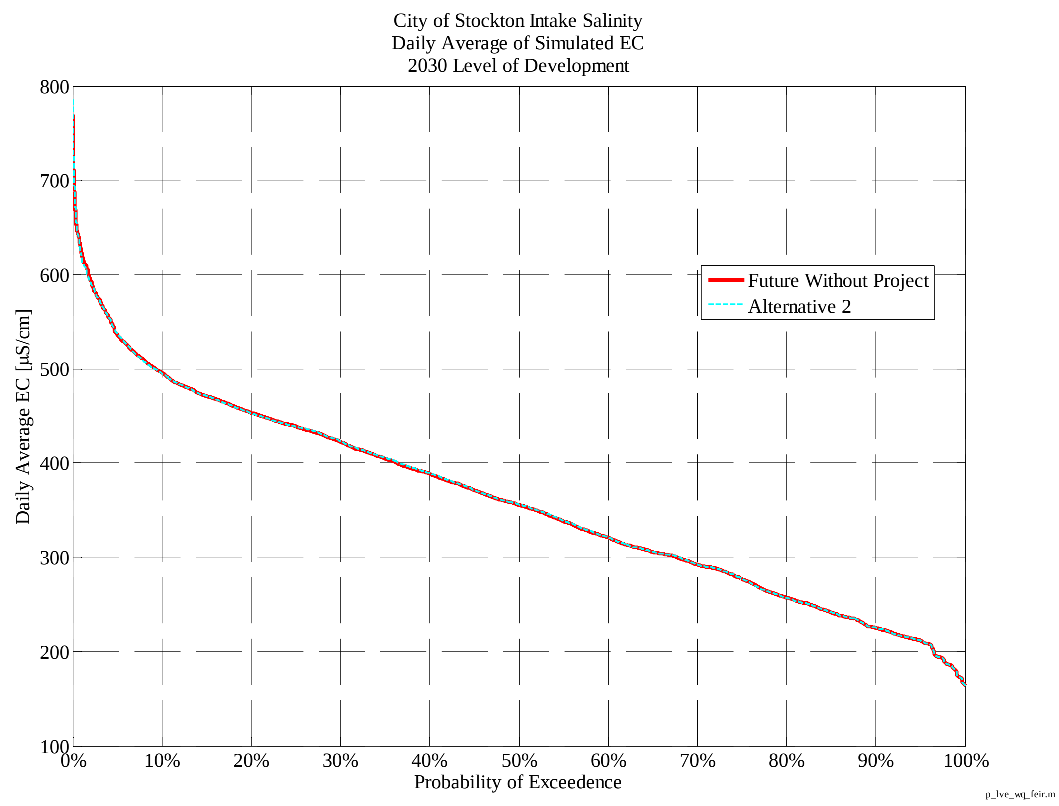
Percent (%) Change from Future Without Project for City of Stockton Intake Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	-0.9%
1977	-1.7%	-0.7%	1.8%	1.4%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%
1978	0.5%	0.9%	0.3%	1.0%	-0.7%	0.1%	-0.2%	0.1%	0.0%	0.8%	0.3%	0.1%
1979	-0.5%	-0.3%	0.9%	0.3%	-0.5%	-0.1%	0.2%	0.1%	0.7%	0.6%	0.2%	0.3%
1980	0.2%	1.1%	1.1%	-0.1%	-0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%
1981	0.0%	0.2%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.2%
1982	0.0%	0.6%	-0.7%	0.5%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.2%	-0.3%	-0.3%
1983	-0.2%	0.2%	0.0%	0.1%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	-0.2%
1984	-0.7%	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
1985	0.0%	-1.5%	0.0%	0.3%	0.2%	1.6%	0.5%	0.1%	0.1%	0.0%	0.4%	0.8%
1986	0.5%	0.3%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.3%
1987	0.3%	-0.1%	-0.1%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.1%	0.7%	0.7%	-0.1%
1988	-0.2%	-0.3%	-0.7%	0.0%	0.1%	1.0%	0.6%	0.2%	0.1%	0.7%	0.2%	-2.4%
1989	-1.7%	-2.9%	-3.6%	0.2%	0.5%	0.0%	0.1%	0.3%	0.2%	0.2%	-0.2%	-0.6%
1990	0.1%	0.1%	0.0%	-0.1%	0.2%	0.2%	0.0%	0.1%	0.1%	0.1%	0.0%	-0.1%
1991	0.5%	0.5%	0.1%	-0.2%	0.4%	0.3%	0.3%	0.6%	1.2%	0.5%	0.4%	0.2%
Avg	-0.2%	-0.1%	0.0%	0.2%	0.0%	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	-0.2%
W/AN/BN	0.0%	0.4%	0.3%	0.3%	-0.2%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%
D/C	-0.3%	-0.5%	-0.3%	0.2%	0.2%	0.4%	0.2%	0.1%	0.2%	0.2%	0.2%	-0.4%


City of Stockton Intake Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
440
420
400
380
360
340
320
300
280
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.25%
0.02%
0.22%
0.10%
0.08%
0.16%
0.21%
0.10%
-0.21%
-0.17%
-0.12%
-0.03%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Future Without Project
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

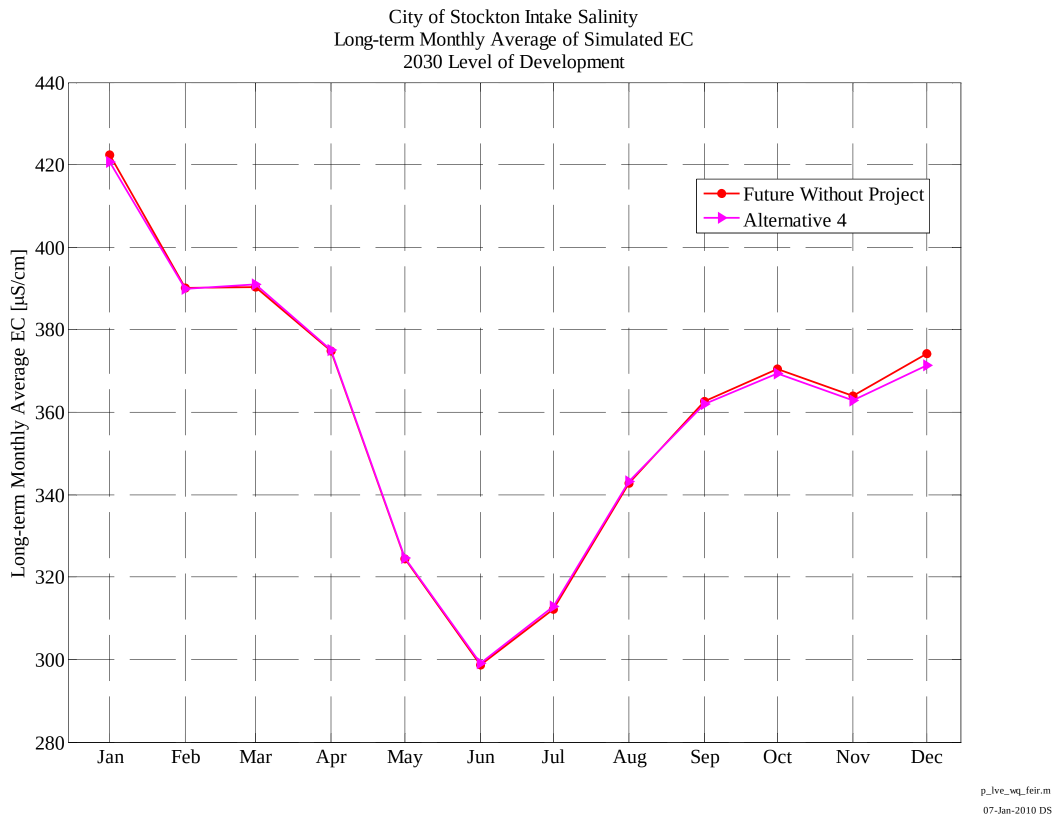
Alternative 4

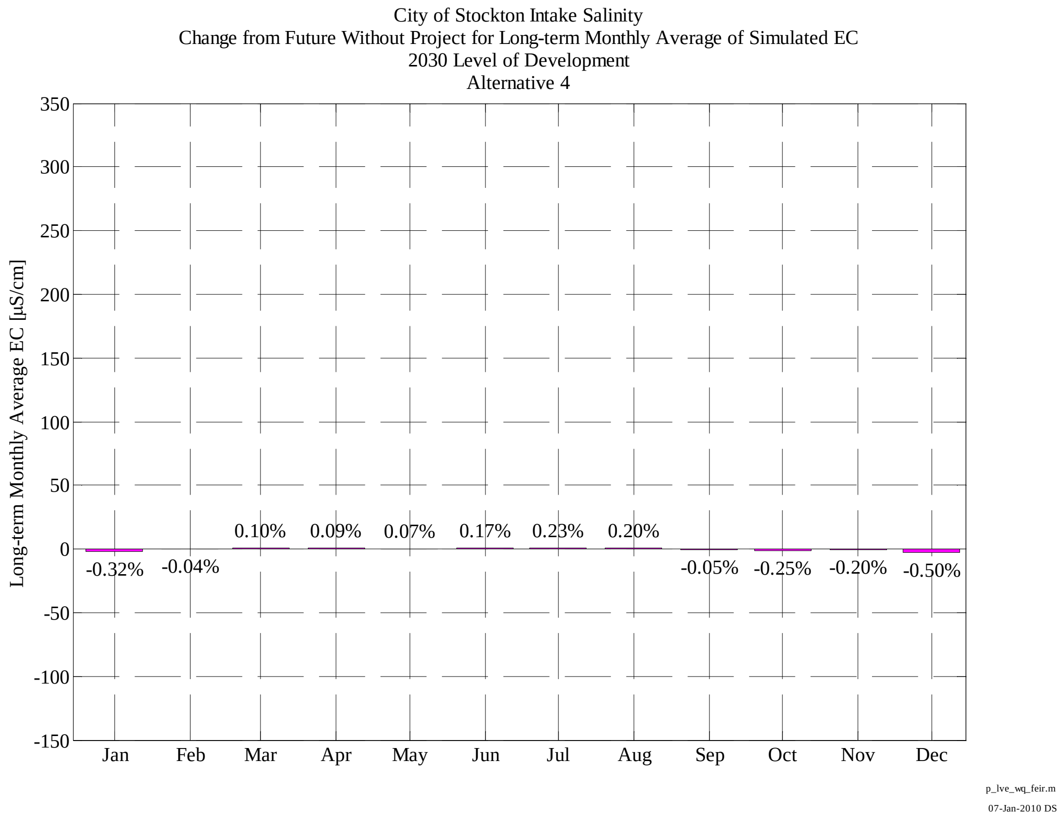
City of Stockton Intake Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 4
2030 Level of Development

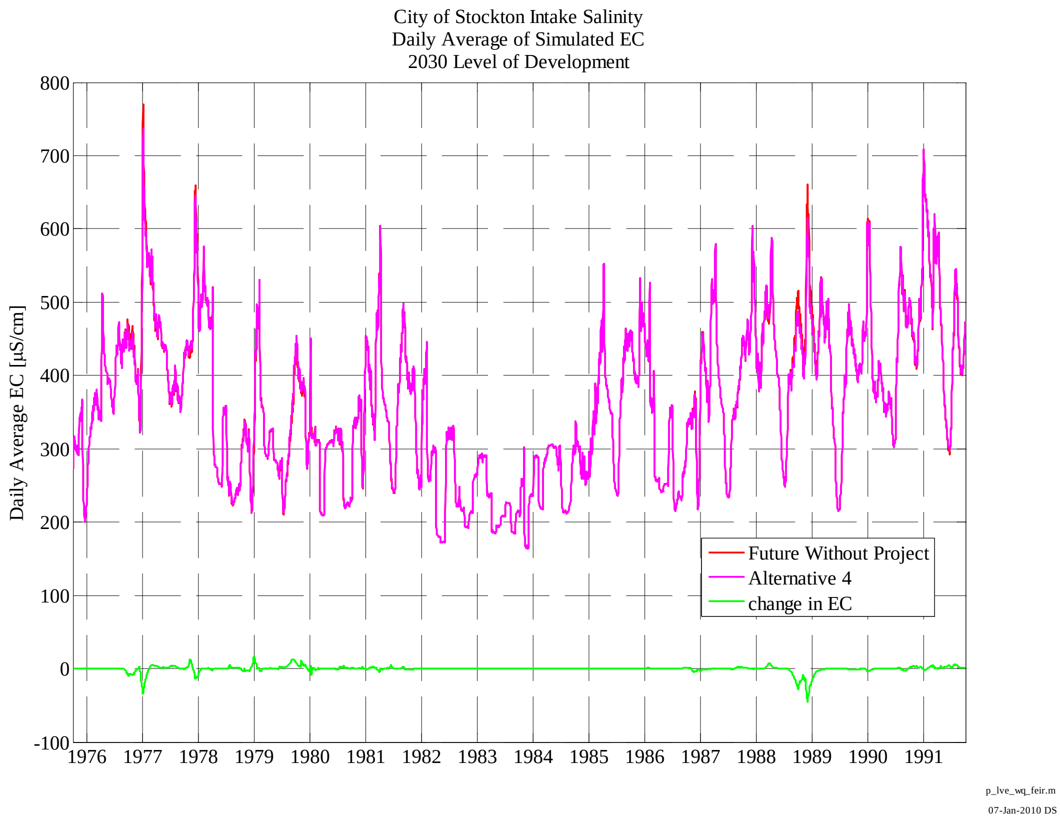
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	303	331	232	300	357	354	441	398	366	433	435	453
1977	445	406	414	614	550	501	468	441	396	381	379	384
1978	438	453	573	492	522	476	315	256	331	262	231	245
1979	304	315	255	445	393	302	318	291	274	236	301	394
1980	414	386	303	331	310	221	286	310	321	316	233	227
1981	322	353	321	423	348	466	438	348	272	295	427	448
1982	386	367	257	380	290	295	192	173	294	320	240	223
1983	199	209	258	287	289	239	190	194	207	224	194	207
1984	242	182	229	284	231	272	303	303	287	222	216	279
1985	310	277	266	303	355	431	440	360	270	293	419	449
1986	427	409	483	434	378	270	245	250	329	239	235	270
1987	335	350	274	432	376	482	482	369	271	279	354	403
1988	442	457	526	408	456	498	520	414	303	296	398	451
1989	456	463	525	430	462	482	471	347	233	299	435	454
1990	411	418	491	526	378	399	366	362	321	454	530	481
1991	474	430	533	640	541	568	528	379	310	456	466	424
Avg	369	363	371	421	390	391	375	325	299	313	343	362
W/AN/BN	344	332	337	379	345	296	264	254	292	260	236	264
D/C	389	387	398	453	425	465	461	380	305	354	427	439

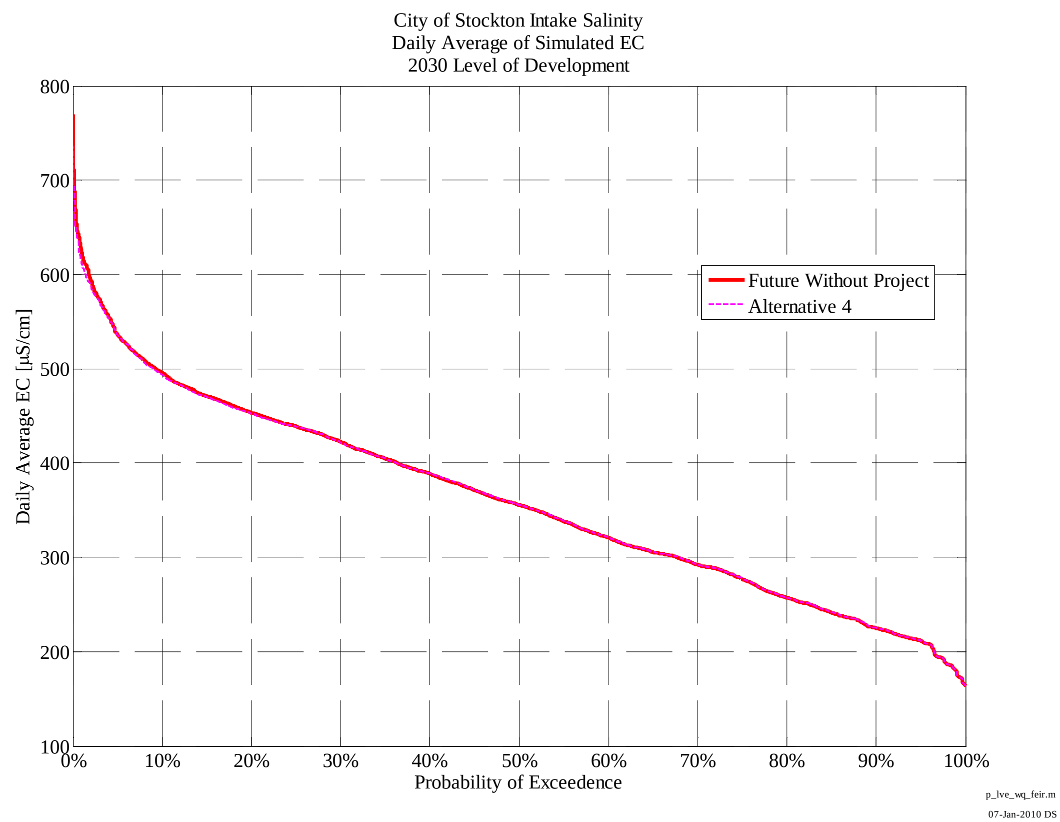
Percent (%) Change from Future Without Project for City of Stockton Intake Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.1%
1977	-1.8%	-0.9%	-2.5%	-2.9%	0.2%	0.9%	0.5%	0.4%	0.4%	1.0%	0.5%	0.0%
1978	0.4%	1.4%	-1.8%	-0.3%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.6%	0.6%	0.4%
1979	-0.7%	-0.7%	2.1%	1.1%	-0.6%	-0.1%	0.1%	-0.1%	0.5%	0.8%	2.0%	3.0%
1980	1.1%	1.6%	-0.1%	-0.2%	-0.3%	0.0%	0.1%	-0.1%	-0.1%	0.4%	0.6%	0.1%
1981	0.2%	0.1%	0.2%	0.0%	0.4%	-0.2%	-0.1%	0.1%	0.8%	0.0%	0.1%	0.0%
1982	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1986	-0.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
1987	0.2%	-0.9%	-0.7%	-0.4%	-0.2%	0.0%	0.1%	0.0%	0.0%	-0.1%	0.2%	0.5%
1988	0.2%	0.1%	-0.1%	0.0%	0.0%	0.9%	0.6%	0.2%	0.1%	-0.1%	-1.1%	-3.7%
1989	-3.8%	-4.2%	-5.0%	-2.0%	-0.5%	-0.2%	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.3%
1990	-0.3%	-0.1%	-0.3%	-0.5%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.2%	-0.3%
1991	0.6%	0.7%	0.2%	-0.2%	0.4%	0.3%	0.3%	0.5%	1.1%	0.9%	0.7%	0.4%
Avg	-0.3%	-0.2%	-0.5%	-0.3%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	-0.1%
W/AN/BN	0.1%	0.3%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.3%	0.5%	0.5%
D/C	-0.5%	-0.6%	-0.9%	-0.7%	0.0%	0.2%	0.1%	0.1%	0.3%	0.2%	0.0%	-0.5%


City of Stockton Intake Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Long-term Monthly Average EC [µS/cm]
440
420
400
380
360
340
320
300
280
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.32%
-0.04%
0.10%
0.09%
0.07%
0.17%
0.23%
0.20%
-0.05%
-0.25%
-0.20%
-0.50%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Future Without Project
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


City of Stockton Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Antioch

Future Without Project

San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	500	374	820	1,523	1,817	1,232	719	1,752	3,278	4,509	4,807	5,682
1977	5,738	3,504	4,337	2,484	1,056	1,144	1,370	2,474	3,293	4,095	3,855	4,725
1978	4,349	4,621	3,168	408	256	251	264	233	257	832	1,632	1,545
1979	947	1,053	1,297	541	274	241	238	252	416	1,674	3,180	5,076
1980	5,265	2,181	1,111	292	262	240	222	245	284	689	1,512	1,519
1981	885	873	2,088	907	262	215	267	467	1,060	2,786	4,150	4,557
1982	4,710	1,486	216	236	219	233	200	183	197	466	940	395
1983	348	210	220	274	278	244	205	188	197	208	216	202
1984	403	208	209	223	214	197	228	270	638	1,086	1,325	910
1985	455	413	211	360	534	435	341	560	1,127	2,697	3,970	5,211
1986	4,804	4,720	2,806	587	255	251	238	231	372	1,128	1,361	467
1987	332	377	1,887	1,883	681	256	395	739	1,111	2,673	3,619	4,813
1988	5,089	4,917	2,514	404	279	679	703	1,055	1,390	3,235	4,256	5,399
1989	4,892	5,416	3,686	2,213	1,435	312	226	351	1,091	2,611	3,987	4,801
1990	4,698	4,642	4,965	1,809	578	478	641	1,388	2,701	4,823	5,161	5,456
1991	3,910	4,266	5,618	2,910	1,691	470	318	1,206	2,947	4,775	3,991	4,973
Avg	2,958	2,454	2,197	1,066	631	430	411	725	1,272	2,393	2,998	3,483
W/AN/BN	2,975	2,068	1,290	366	251	237	228	229	337	869	1,452	1,445
D/C	2,944	2,754	2,903	1,610	926	580	553	1,110	2,000	3,578	4,200	5,068

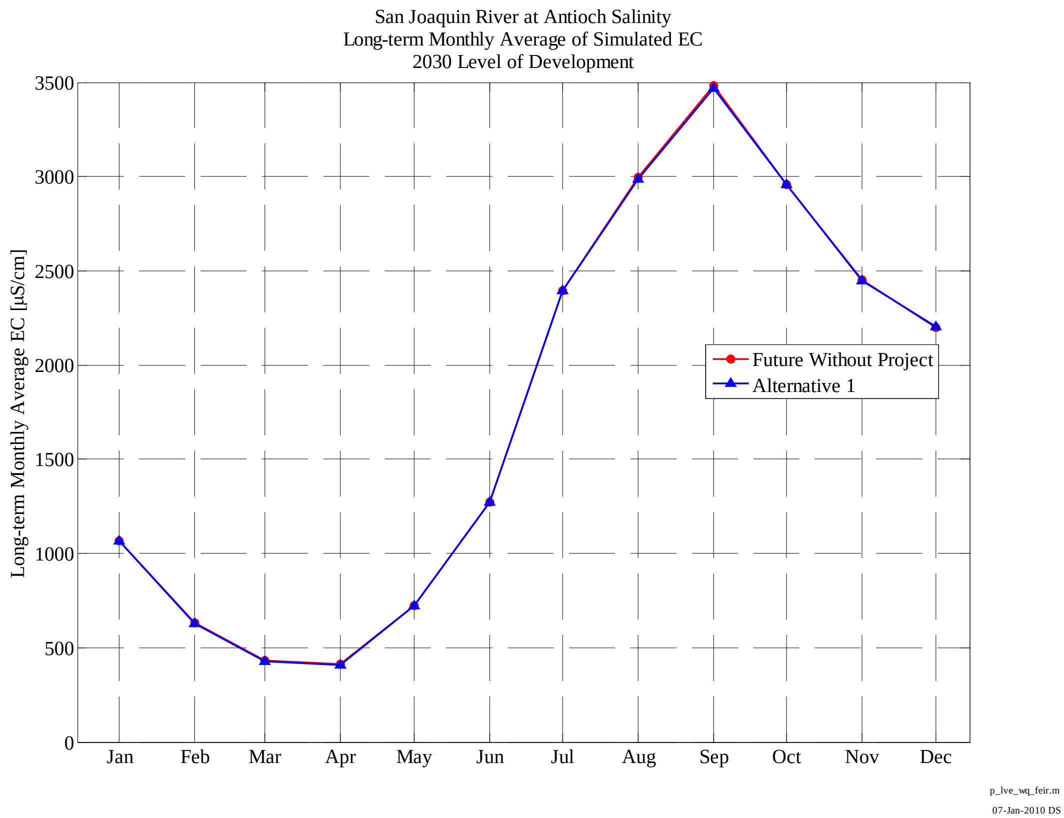
Alternative 1

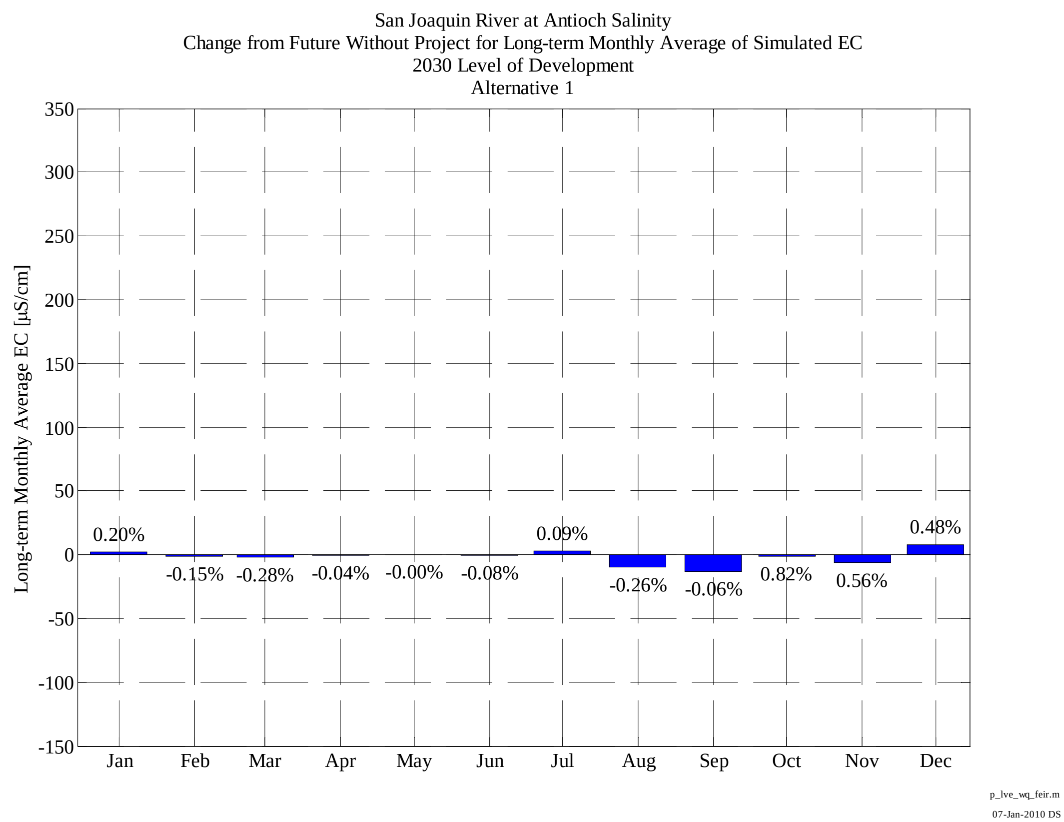
San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

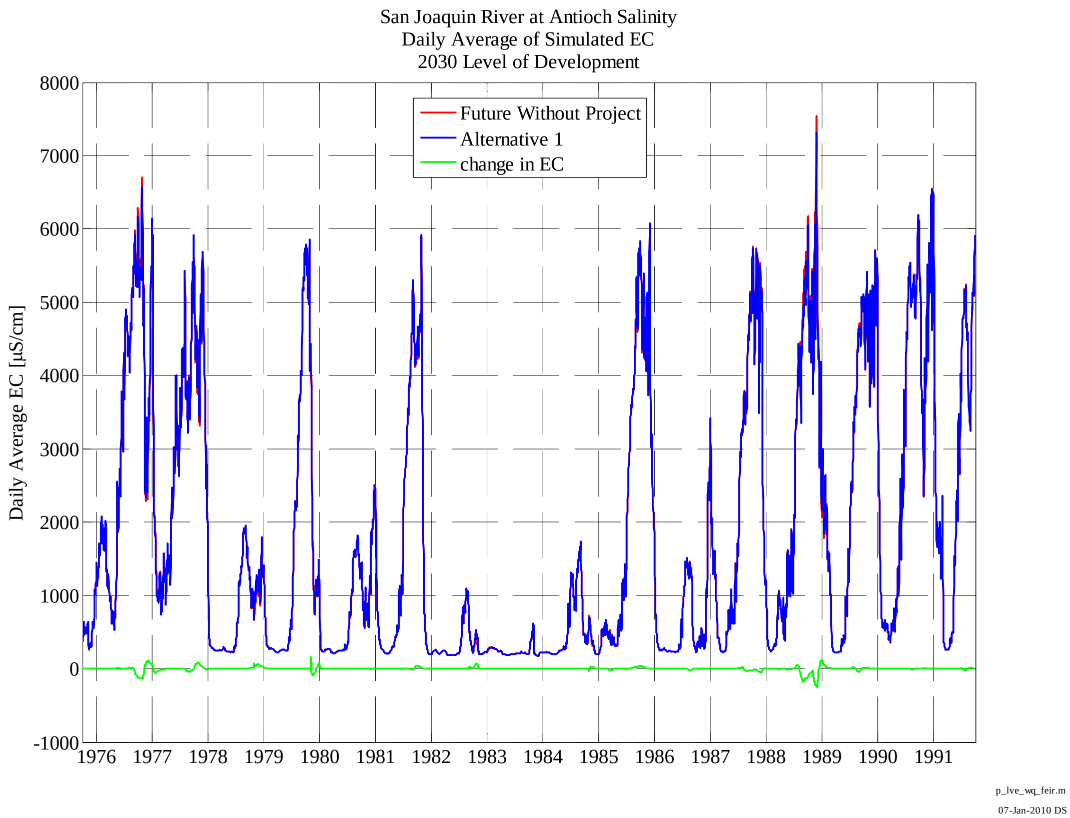
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	500	374	816	1,520	1,815	1,231	720	1,757	3,276	4,513	4,815	5,607
1977	5,610	3,536	4,415	2,456	1,026	1,136	1,366	2,471	3,292	4,098	3,826	4,703
1978	4,412	4,665	3,167	407	256	251	264	234	257	833	1,632	1,546
1979	963	1,100	1,331	546	274	241	238	252	415	1,673	3,180	5,076
1980	5,265	2,134	1,130	298	261	240	222	244	284	690	1,515	1,522
1981	885	873	2,087	907	262	215	267	468	1,059	2,783	4,143	4,571
1982	4,738	1,491	216	236	219	233	200	183	197	466	941	409
1983	397	218	220	272	278	244	205	188	197	208	216	203
1984	405	209	209	223	214	198	229	270	636	1,084	1,324	910
1985	451	433	216	360	534	419	339	560	1,128	2,694	3,982	5,240
1986	4,832	4,726	2,811	587	255	252	238	231	372	1,129	1,346	463
1987	328	376	1,888	1,883	681	256	395	741	1,111	2,684	3,604	4,786
1988	5,071	4,879	2,501	405	279	673	700	1,048	1,384	3,265	4,169	5,258
1989	4,827	5,235	3,689	2,272	1,448	313	226	352	1,089	2,619	3,970	4,784
1990	4,711	4,645	4,964	1,807	578	478	641	1,390	2,700	4,823	5,153	5,457
1991	3,913	4,271	5,620	2,909	1,690	470	318	1,206	2,948	4,768	3,989	4,981
Avg	2,957	2,448	2,205	1,068	629	428	411	725	1,272	2,396	2,988	3,470
W/AN/BN	3,002	2,078	1,298	367	251	237	228	229	337	869	1,451	1,447
D/C	2,922	2,736	2,911	1,613	924	577	552	1,110	1,999	3,583	4,183	5,043

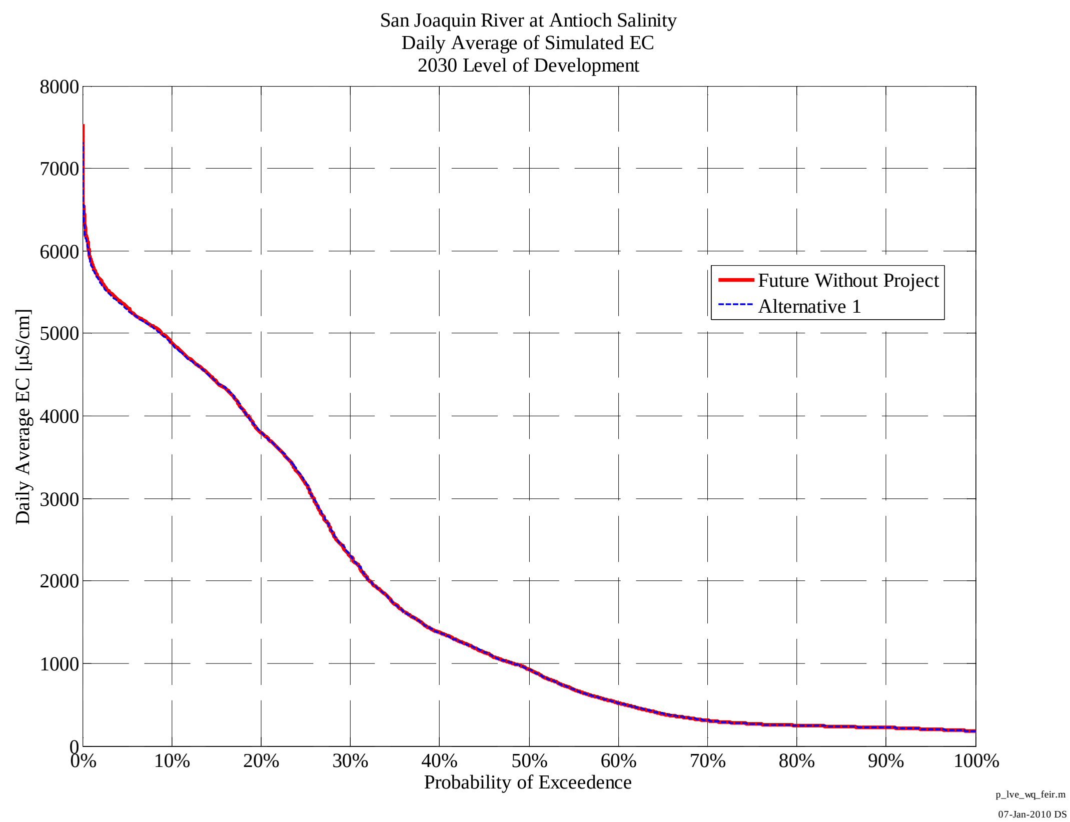
Percent (%) Change from Future Without Project for San Joaquin River at Antioch Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	-0.5%	-0.2%	-0.1%	-0.1%	0.2%	0.3%	-0.1%	0.1%	0.1%	-1.3%
1977	-2.2%	0.9%	1.8%	-1.1%	-2.8%	-0.7%	-0.2%	-0.1%	0.0%	0.1%	-0.7%	-0.5%
1978	1.5%	1.0%	0.0%	-0.2%	0.0%	-0.1%	-0.1%	0.1%	0.0%	0.1%	0.0%	0.1%
1979	1.7%	4.5%	2.6%	0.9%	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	-2.1%	1.7%	2.1%	-0.3%	0.2%	0.0%	-0.1%	-0.1%	0.1%	0.2%	0.2%
1981	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.2%	0.3%
1982	0.6%	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%	3.6%
1983	14.1%	3.6%	-0.1%	-0.9%	-0.2%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.3%	0.2%
1984	0.5%	0.2%	0.0%	-0.1%	0.0%	0.3%	0.3%	0.0%	-0.2%	-0.2%	0.0%	0.0%
1985	-1.0%	4.9%	2.4%	0.0%	0.0%	-3.7%	-0.6%	0.0%	0.1%	-0.1%	0.3%	0.6%
1986	0.6%	0.1%	0.2%	0.0%	0.1%	0.3%	-0.1%	0.1%	0.0%	0.1%	-1.1%	-0.8%
1987	-1.2%	-0.3%	0.0%	0.0%	0.0%	-0.1%	0.2%	0.2%	0.0%	0.4%	-0.4%	-0.6%
1988	-0.4%	-0.8%	-0.5%	0.1%	0.0%	-1.0%	-0.4%	-0.7%	-0.4%	0.9%	-2.0%	-2.6%
1989	-1.3%	-3.3%	0.1%	2.7%	0.9%	0.3%	0.0%	0.1%	-0.2%	0.3%	-0.4%	-0.4%
1990	0.3%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	-0.2%	0.0%
1991	0.1%	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.2%
Avg	0.8%	0.6%	0.5%	0.2%	-0.2%	-0.3%	0.0%	0.0%	-0.1%	0.1%	-0.3%	-0.1%
W/AN/BN	2.7%	1.1%	0.6%	0.3%	0.0%	0.1%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.5%
D/C	-0.6%	0.2%	0.4%	0.1%	-0.2%	-0.6%	-0.1%	0.0%	-0.1%	0.2%	-0.4%	-0.5%


San Joaquin River at Antioch Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.20%
-0.15%
-0.28%
-0.04%
-0.00%
-0.08%
0.09%
-0.26%
-0.06%
0.82%
0.56%
0.48%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

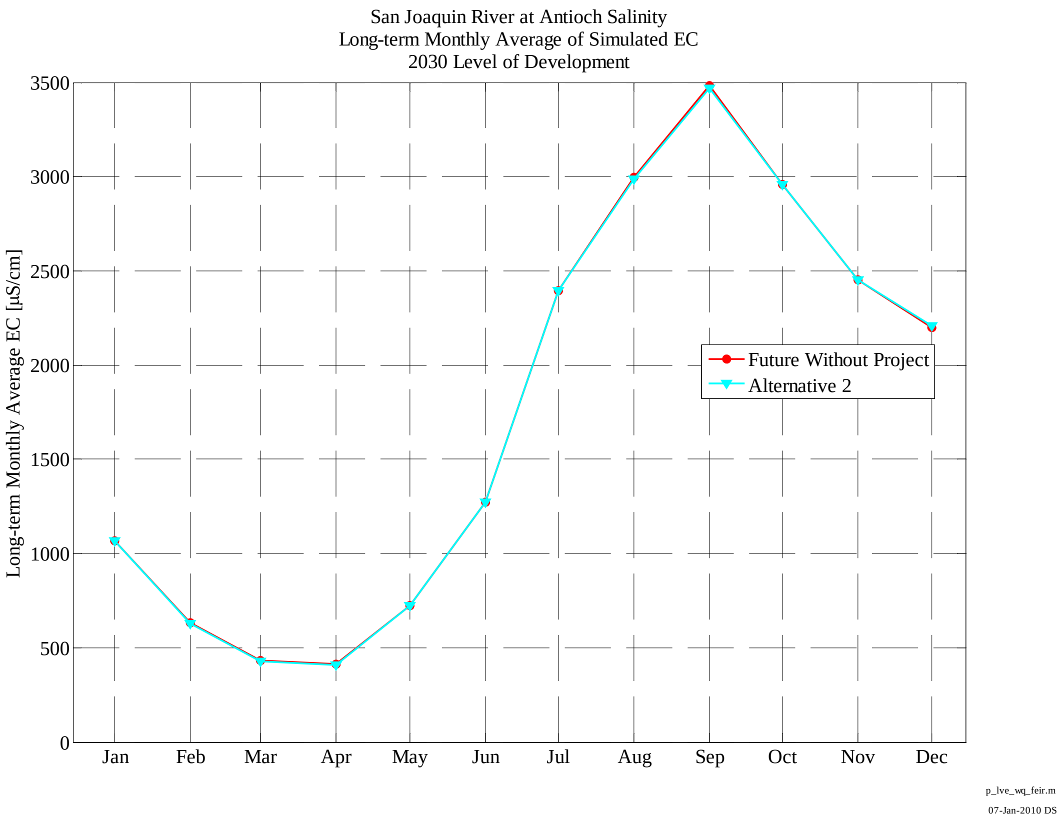
Alternative 2

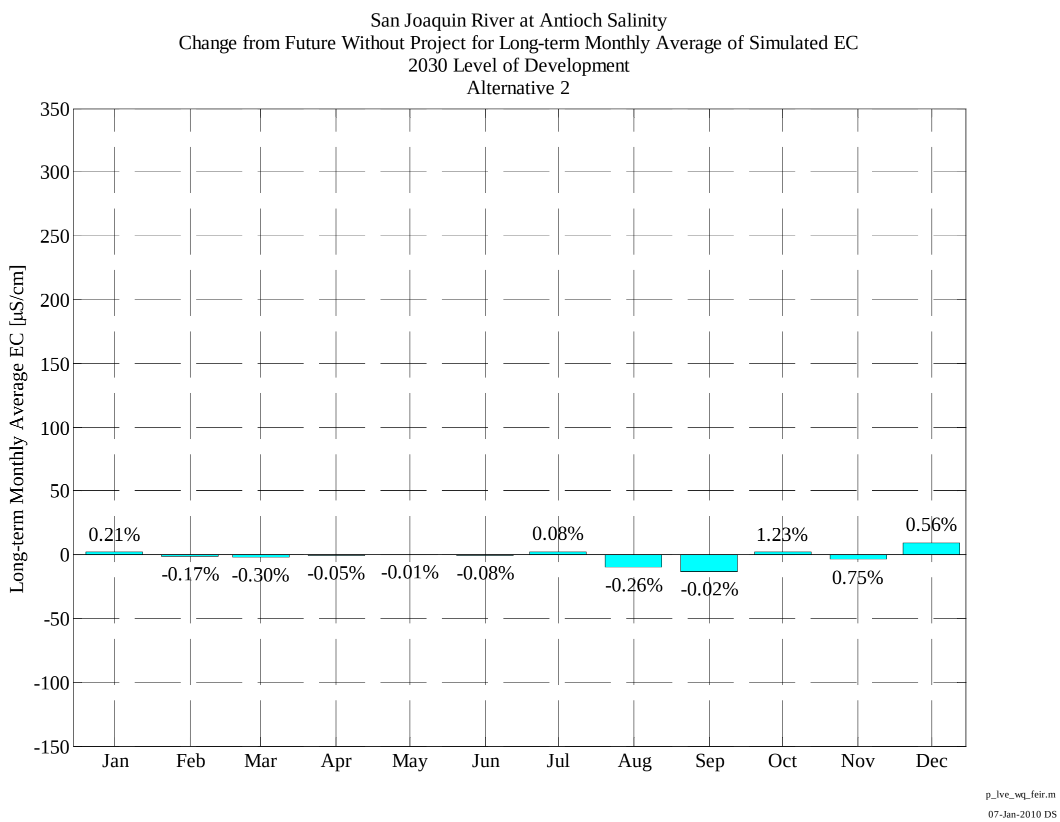
San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

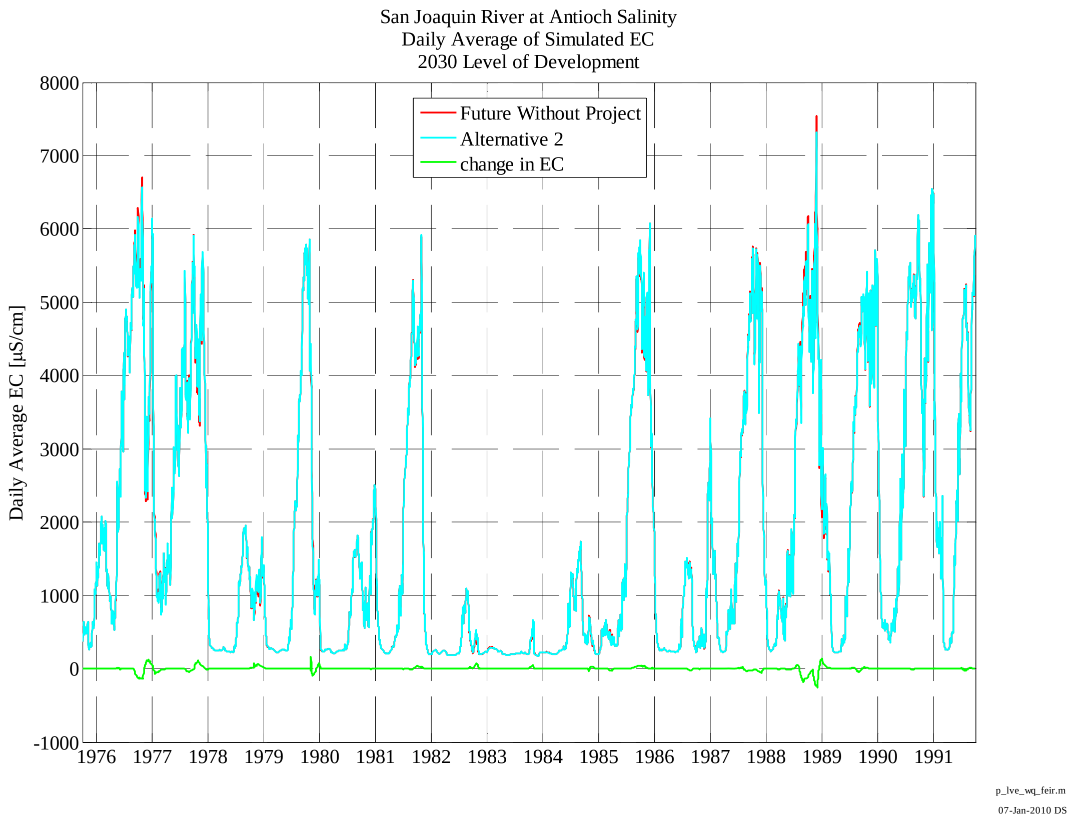
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	500	374	818	1,521	1,816	1,231	720	1,756	3,276	4,510	4,811	5,602
1977	5,606	3,544	4,425	2,451	1,023	1,135	1,366	2,471	3,292	4,096	3,826	4,703
1978	4,421	4,673	3,170	408	256	251	264	234	257	833	1,632	1,546
1979	963	1,100	1,331	546	274	241	238	252	415	1,673	3,180	5,076
1980	5,265	2,134	1,130	298	261	240	222	245	284	690	1,515	1,522
1981	885	873	2,088	907	262	215	267	468	1,059	2,783	4,143	4,571
1982	4,736	1,494	216	236	219	233	200	183	197	466	941	408
1983	397	218	220	272	277	244	206	188	197	208	216	204
1984	428	212	209	223	214	198	229	270	636	1,084	1,324	910
1985	451	434	216	360	534	419	340	560	1,128	2,695	3,984	5,246
1986	4,841	4,730	2,812	587	256	252	238	231	372	1,129	1,346	462
1987	329	376	1,888	1,883	681	256	395	740	1,111	2,684	3,604	4,787
1988	5,071	4,879	2,500	405	279	672	700	1,047	1,384	3,265	4,170	5,258
1989	4,836	5,244	3,700	2,278	1,449	313	226	352	1,089	2,619	3,970	4,785
1990	4,712	4,645	4,964	1,807	578	478	641	1,390	2,700	4,823	5,154	5,457
1991	3,912	4,270	5,620	2,909	1,690	470	318	1,206	2,948	4,769	3,989	4,979
Avg	2,960	2,450	2,207	1,068	629	428	410	725	1,272	2,395	2,988	3,470
W/AN/BN	3,007	2,080	1,298	367	251	237	228	229	337	869	1,451	1,447
D/C	2,922	2,738	2,913	1,614	924	577	552	1,110	1,998	3,583	4,183	5,043

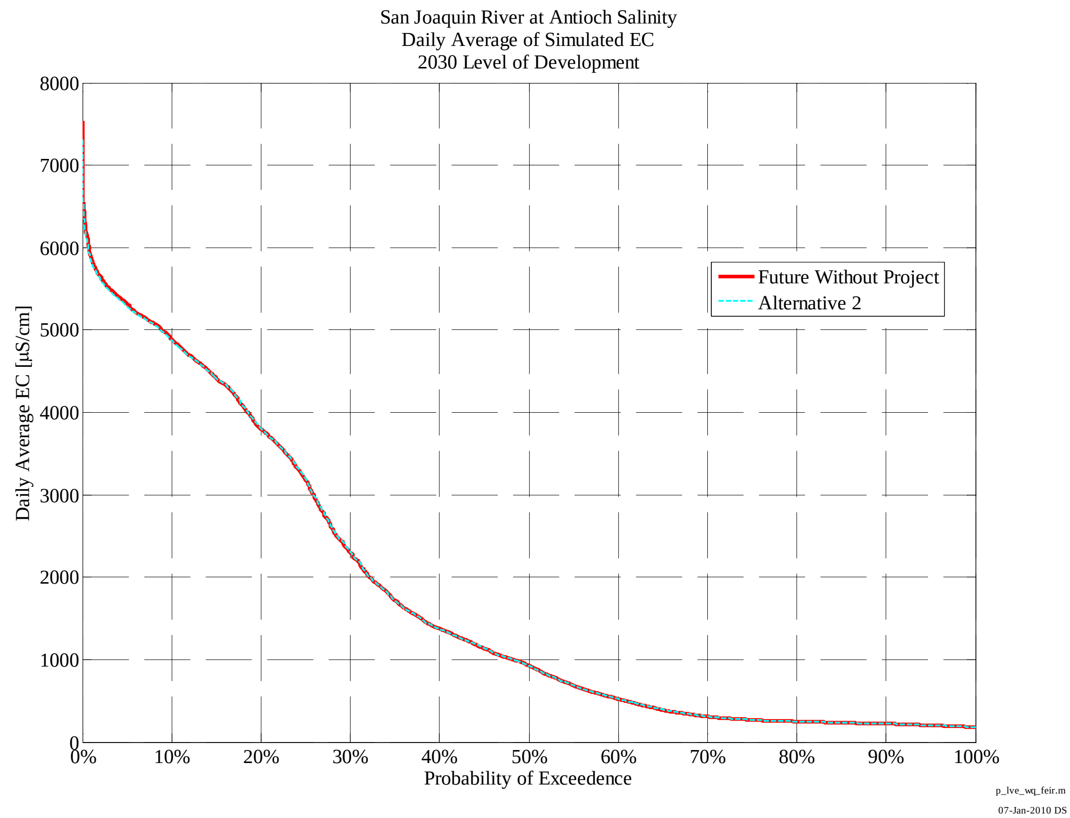
Percent (%) Change from Future Without Project for San Joaquin River at Antioch
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	-0.1%	-0.2%	-0.1%	-0.1%	0.0%	0.2%	0.2%	-0.1%	0.0%	0.1%	-1.4%
1977	-2.3%	1.1%	2.0%	-1.3%	-3.1%	-0.8%	-0.3%	-0.1%	0.0%	0.0%	-0.8%	-0.5%
1978	1.7%	1.1%	0.1%	-0.2%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.1%	0.0%	0.1%
1979	1.7%	4.5%	2.6%	1.0%	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	-2.1%	1.7%	2.1%	-0.4%	0.0%	0.0%	-0.1%	-0.1%	0.1%	0.2%	0.2%
1981	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	-0.2%	0.3%
1982	0.6%	0.5%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%	3.5%
1983	14.2%	3.6%	-0.1%	-0.8%	-0.3%	0.0%	0.0%	-0.2%	-0.1%	-0.2%	0.2%	1.0%
1984	6.2%	1.9%	0.0%	-0.2%	-0.2%	0.2%	0.3%	0.0%	-0.2%	-0.1%	0.0%	0.0%
1985	-1.0%	5.3%	2.5%	0.0%	0.0%	-3.6%	-0.6%	0.0%	0.0%	-0.1%	0.4%	0.7%
1986	0.8%	0.2%	0.2%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.1%	-1.1%	-0.9%
1987	-1.0%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.4%	-0.4%	-0.5%
1988	-0.3%	-0.8%	-0.5%	0.1%	0.0%	-1.0%	-0.4%	-0.7%	-0.4%	0.9%	-2.0%	-2.6%
1989	-1.1%	-3.2%	0.4%	2.9%	1.0%	0.4%	0.0%	0.1%	-0.2%	0.3%	-0.4%	-0.3%
1990	0.3%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	-0.1%	0.0%
1991	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.1%
Avg	1.2%	0.7%	0.6%	0.2%	-0.2%	-0.3%	0.0%	0.0%	-0.1%	0.1%	-0.3%	0.0%
W/AN/BN	3.6%	1.4%	0.7%	0.3%	-0.1%	0.1%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.6%
D/C	-0.6%	0.3%	0.5%	0.2%	-0.2%	-0.6%	-0.1%	0.0%	-0.1%	0.2%	-0.4%	-0.5%


San Joaquin River at Antioch Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.21%
-0.17%
-0.30%
-0.05%
-0.01%
-0.08%
0.08%
-0.26%
-0.02%
1.23%
0.75%
0.56%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
-1000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

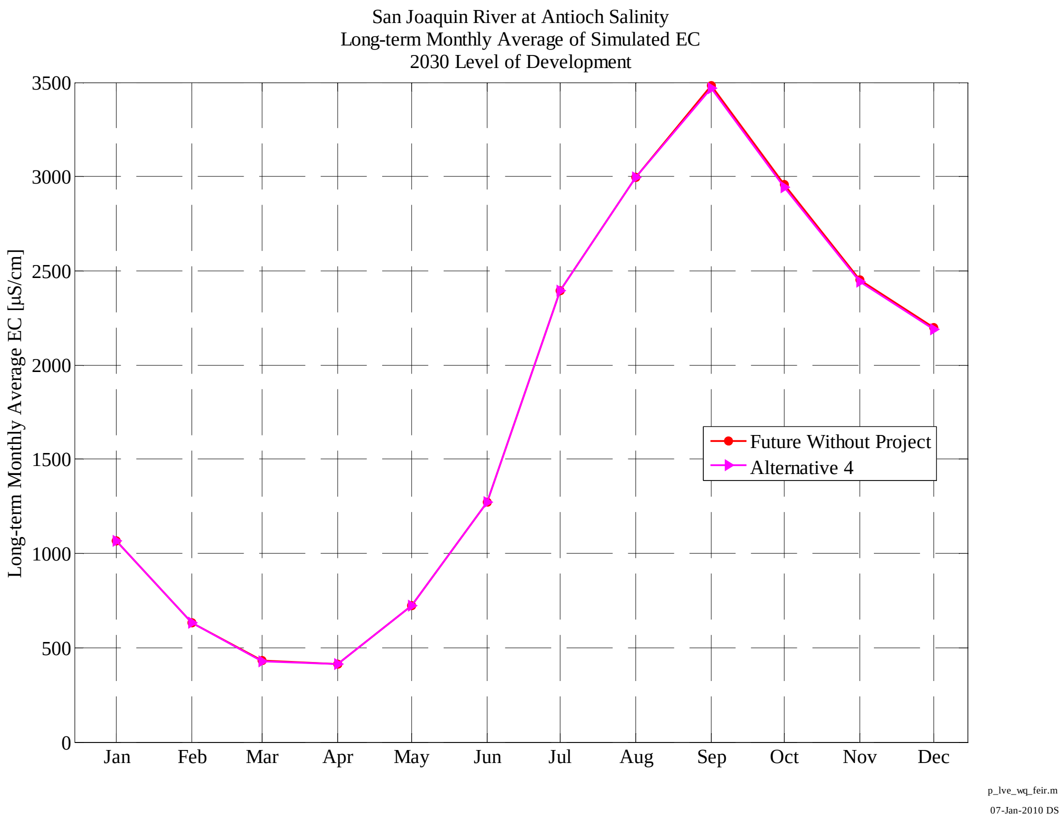
Alternative 4

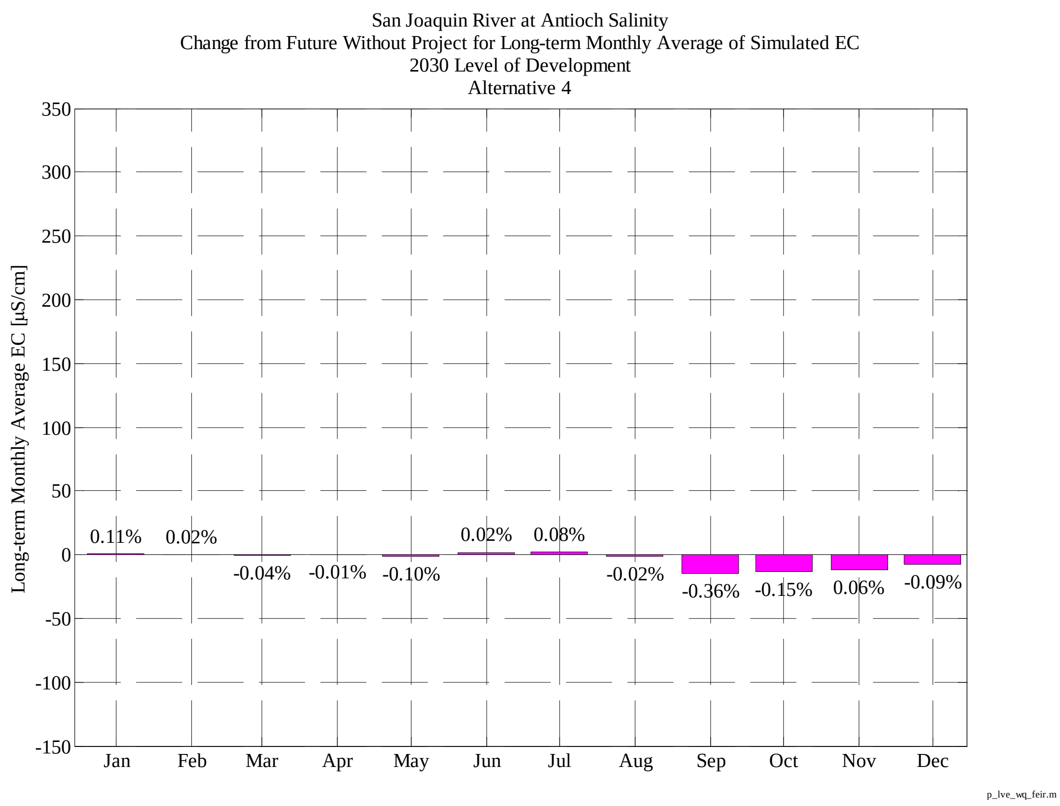
San Joaquin River at Antioch Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

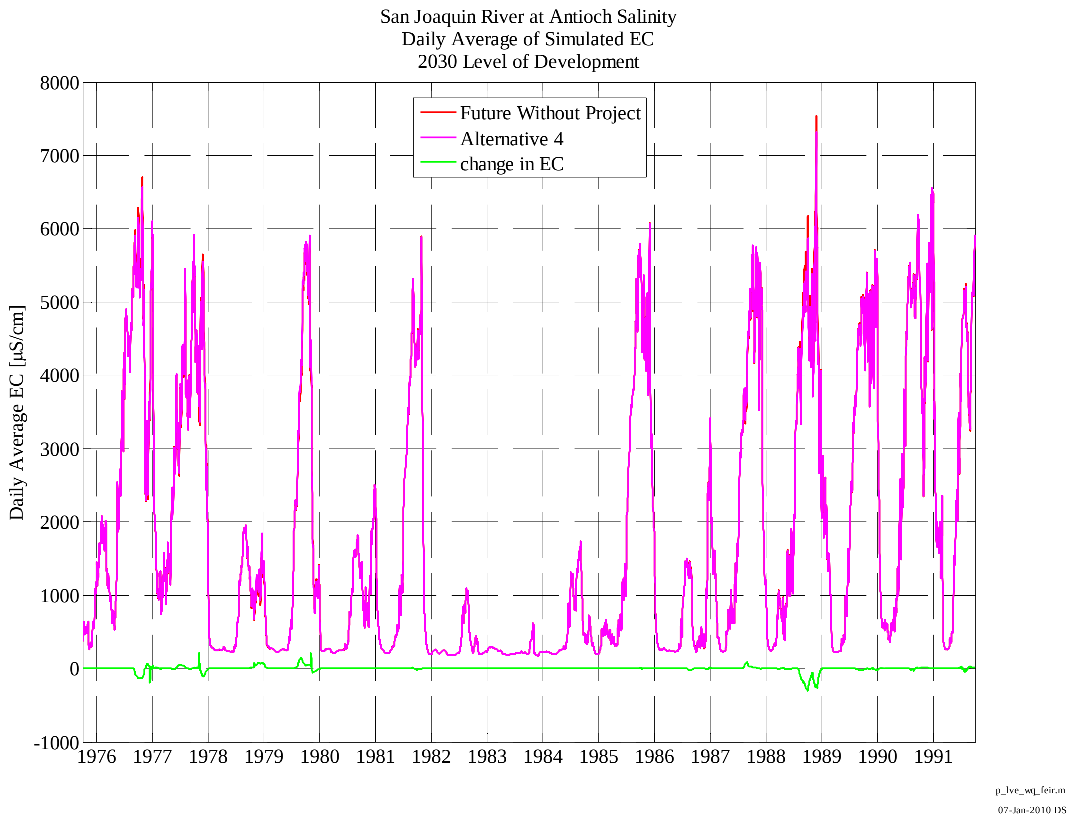
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	500	374	821	1,524	1,817	1,232	719	1,752	3,278	4,507	4,805	5,596
1977	5,607	3,508	4,341	2,494	1,057	1,143	1,372	2,466	3,323	4,137	3,858	4,720
1978	4,362	4,585	3,110	405	256	251	264	233	257	832	1,632	1,546
1979	964	1,107	1,369	560	276	241	238	252	415	1,678	3,262	5,160
1980	5,313	2,170	1,087	291	262	240	222	244	284	690	1,513	1,519
1981	885	873	2,088	907	262	215	267	467	1,060	2,786	4,154	4,550
1982	4,696	1,485	216	236	219	233	200	183	197	466	940	395
1983	348	210	220	274	278	244	205	188	197	208	216	202
1984	403	208	209	223	214	197	228	270	638	1,087	1,326	910
1985	456	413	211	360	534	435	341	560	1,127	2,697	3,968	5,207
1986	4,799	4,718	2,805	585	255	252	238	231	372	1,128	1,343	458
1987	332	380	1,883	1,883	680	256	395	739	1,111	2,672	3,665	4,847
1988	5,101	4,915	2,512	405	279	673	699	1,046	1,384	3,231	4,143	5,153
1989	4,734	5,214	3,592	2,213	1,436	312	226	351	1,090	2,613	3,980	4,779
1990	4,687	4,636	4,950	1,803	578	478	641	1,388	2,701	4,823	5,143	5,459
1991	3,919	4,279	5,623	2,909	1,690	470	318	1,206	2,953	4,765	3,994	4,989
Avg	2,944	2,442	2,190	1,067	631	429	411	724	1,274	2,395	2,996	3,468
W/AN/BN	2,984	2,069	1,288	368	251	237	228	229	337	870	1,462	1,456
D/C	2,913	2,732	2,891	1,611	926	579	553	1,108	2,003	3,581	4,190	5,033

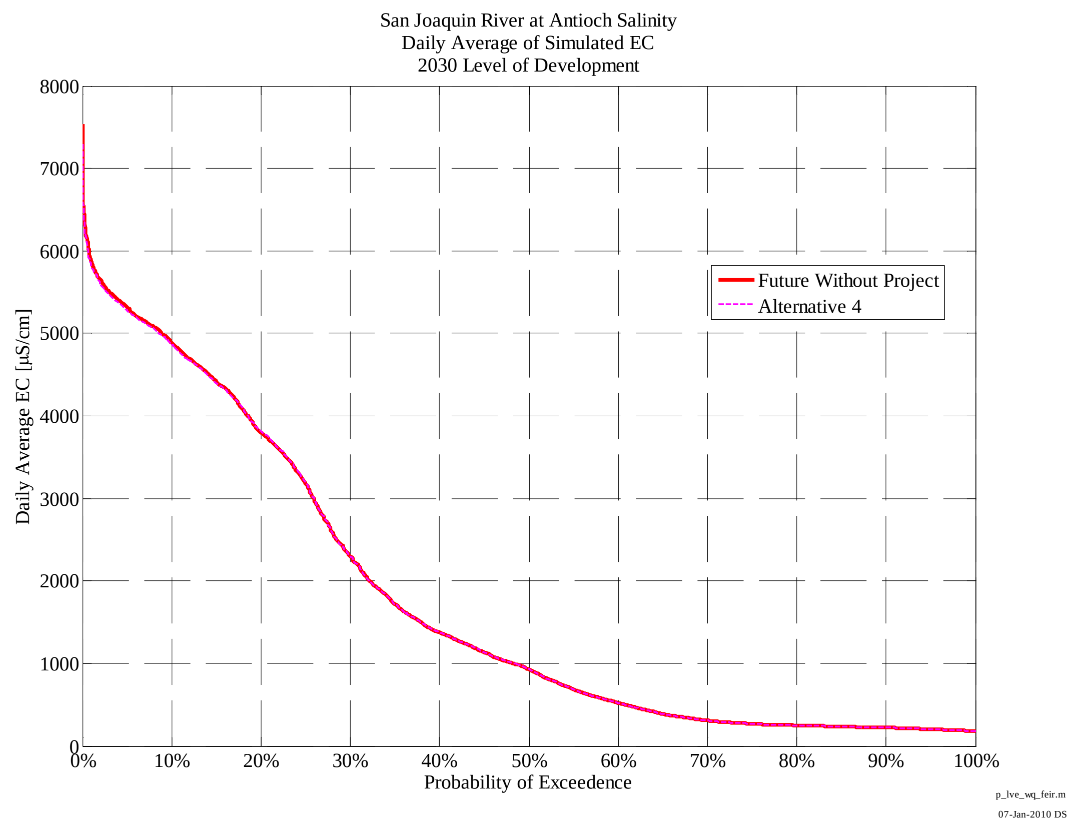
Percent (%) Change from Future Without Project for San Joaquin River at Antioch
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.5%
1977	-2.3%	0.1%	0.1%	0.4%	0.2%	-0.1%	0.2%	-0.3%	0.9%	1.0%	0.1%	-0.1%
1978	0.3%	-0.8%	-1.8%	-0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	1.8%	5.1%	5.5%	3.4%	0.5%	0.1%	0.1%	-0.2%	-0.2%	0.3%	2.6%	1.7%
1980	0.9%	-0.5%	-2.2%	-0.4%	0.0%	0.0%	0.0%	-0.2%	-0.1%	0.1%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.1%	-0.1%
1982	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1986	-0.1%	0.0%	0.0%	-0.4%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	-1.3%	-1.8%
1987	0.2%	0.7%	-0.2%	0.0%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	1.3%	0.7%
1988	0.2%	0.0%	-0.1%	0.0%	0.0%	-1.0%	-0.6%	-0.8%	-0.4%	-0.1%	-2.7%	-4.6%
1989	-3.2%	-3.7%	-2.5%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.1%	-0.2%	-0.5%
1990	-0.2%	-0.1%	-0.3%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.4%	0.1%
1991	0.2%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.2%	0.1%	0.3%
Avg	-0.1%	0.1%	-0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	-0.4%
W/AN/BN	0.4%	0.5%	0.2%	0.3%	0.1%	0.1%	0.0%	-0.1%	-0.1%	0.1%	0.2%	0.0%
D/C	-0.6%	-0.3%	-0.3%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.1%	0.1%	-0.2%	-0.6%


San Joaquin River at Antioch Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.11%
0.02%
-0.04%
-0.01%
-0.10%
0.02%
0.08%
-0.02%
-0.36%
-0.15%
0.06%
-0.09%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
-1000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Antioch Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
8000
7000
6000
5000
4000
3000
2000
1000
0
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Old River at Rock Slough

Future Without Project

Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	248	227	224	346	383	349	357	392	557	832	900	1,014
1977	1,088	884	735	1,097	611	454	423	468	644	671	787	837
1978	1,015	904	972	486	361	356	313	277	261	232	287	302
1979	258	247	302	396	344	291	337	327	259	302	520	821
1980	961	623	377	348	496	426	339	346	287	238	258	282
1981	261	265	441	526	269	257	408	386	284	483	841	926
1982	795	606	236	315	296	301	202	183	225	235	224	206
1983	193	213	303	422	327	252	206	207	222	254	209	190
1984	197	214	242	304	256	224	316	351	269	257	274	360
1985	255	229	219	224	241	255	401	384	283	472	823	969
1986	918	800	838	482	404	320	261	273	268	256	283	235
1987	246	278	337	624	362	296	407	411	291	440	676	841
1988	958	936	849	393	379	369	425	419	344	469	824	1,074
1989	1,079	1,001	1,076	587	490	406	389	310	244	487	847	954
1990	850	800	934	799	347	301	310	326	428	867	1,067	1,057
1991	1,039	750	1,081	1,088	619	472	462	358	451	861	960	901
Avg	648	561	573	527	387	333	347	339	332	460	611	685
W/AN/BN	620	515	467	393	355	310	282	281	256	253	294	342
D/C	669	597	655	632	411	351	398	384	392	620	858	952

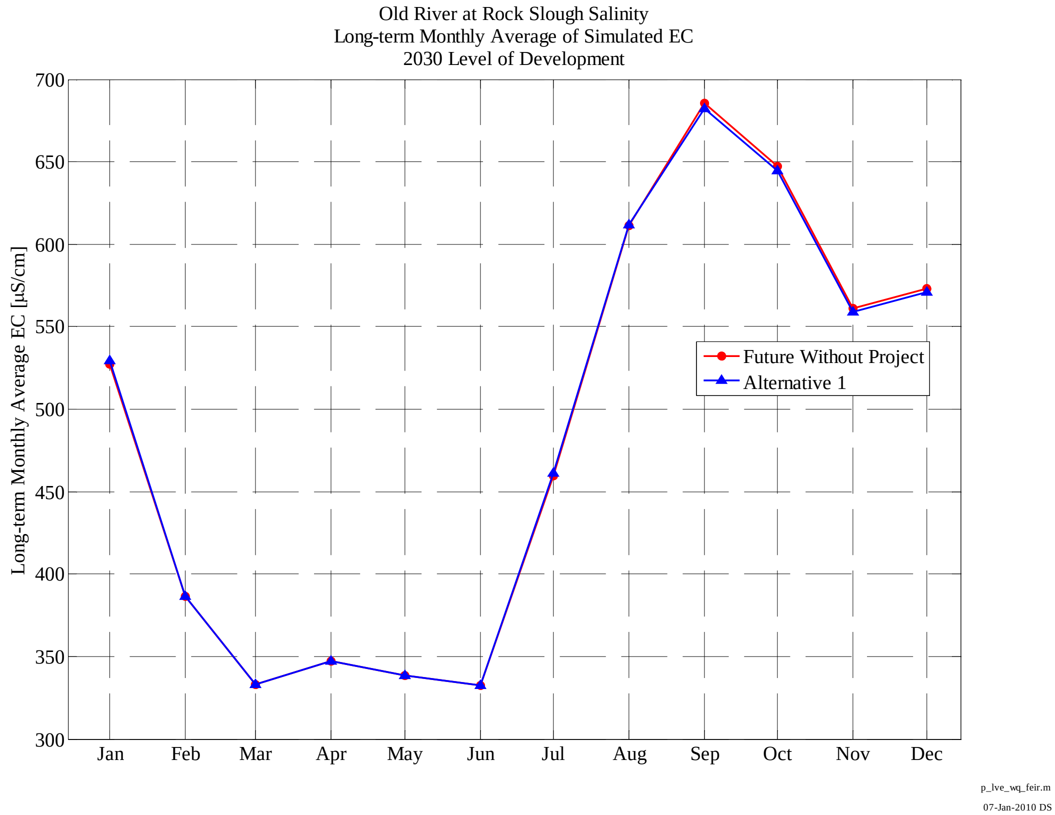
Alternative 1

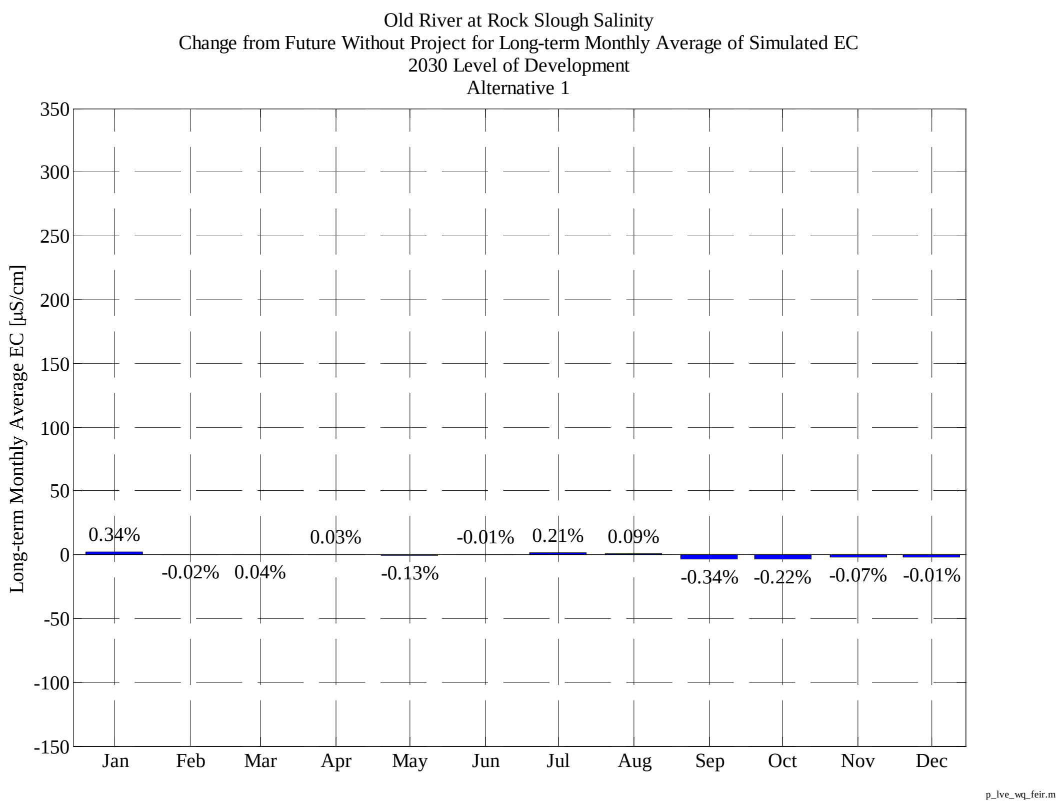
Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

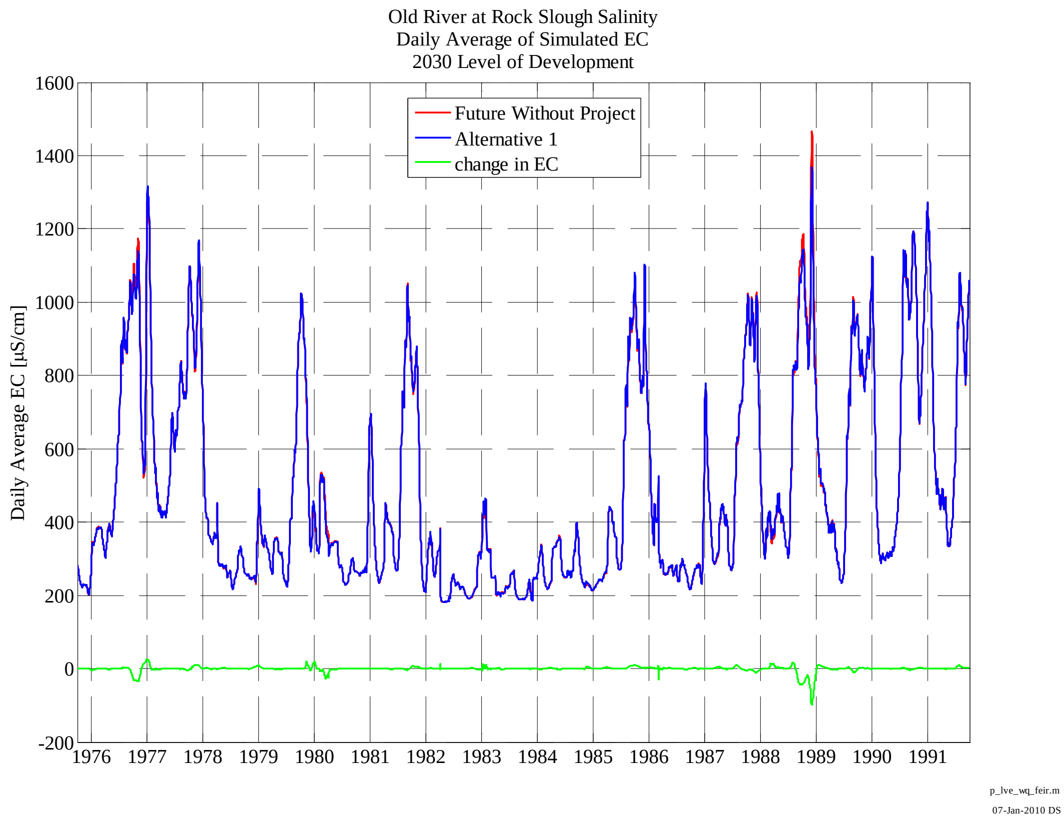
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	248	228	223	343	382	348	356	392	558	833	902	1,004
1977	1,056	869	752	1,109	610	453	422	468	643	672	786	833
1978	1,017	914	977	486	361	356	313	279	261	232	288	303
1979	257	247	308	400	344	291	336	326	259	302	520	822
1980	961	632	382	353	492	407	333	344	287	238	258	282
1981	261	266	440	526	269	258	408	384	283	483	839	926
1982	801	609	236	316	296	301	203	183	225	235	224	206
1983	193	213	302	428	327	252	207	205	221	254	208	190
1984	197	213	242	302	255	226	316	349	268	257	274	360
1985	256	232	221	225	241	258	403	384	283	472	826	977
1986	926	803	840	485	404	318	262	274	268	256	282	234
1987	247	278	337	624	362	299	410	410	291	445	682	838
1988	955	931	841	392	379	381	429	421	344	475	826	1,034
1989	1,045	958	1,017	594	496	408	386	309	244	488	845	946
1990	852	802	935	798	347	301	310	326	428	868	1,067	1,054
1991	1,039	752	1,083	1,089	619	472	462	358	451	867	964	904
Avg	644	559	571	529	386	333	347	338	332	461	612	682
W/AN/BN	622	519	470	396	354	307	281	280	256	253	294	342
D/C	662	591	650	633	412	353	398	384	392	622	860	946

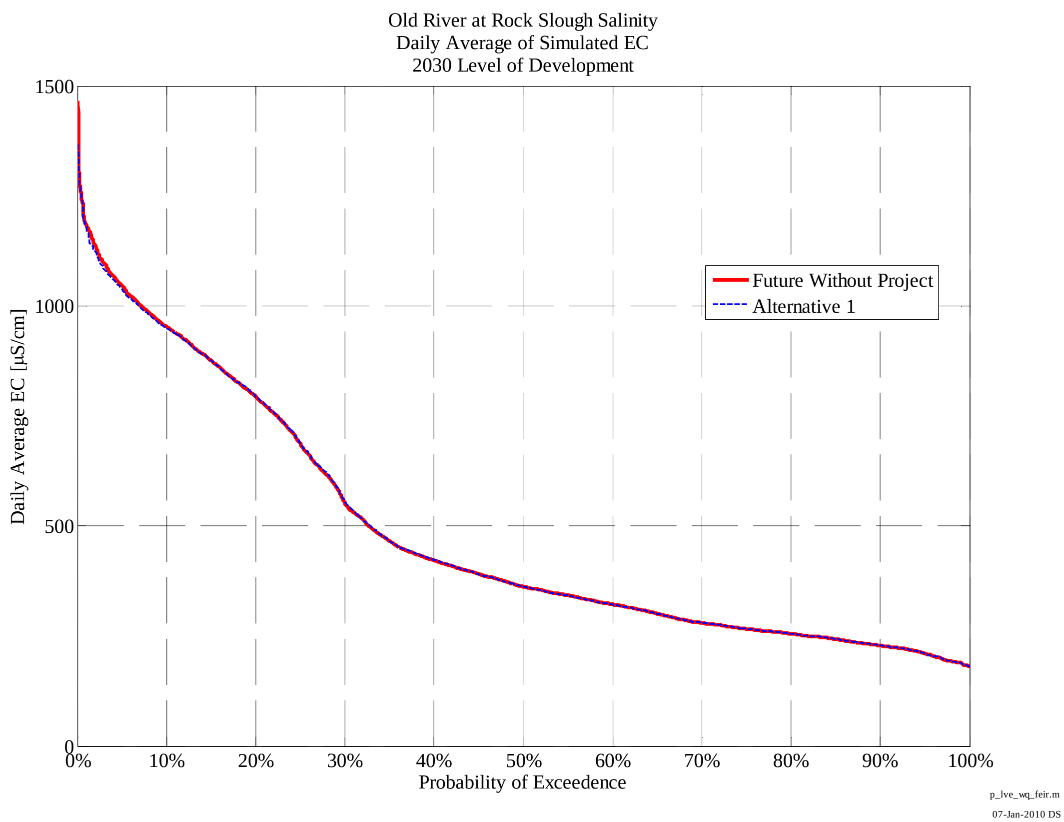
Percent (%) Change from Future Without Project for Old River at Rock Slough Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	0.1%	-0.3%	-0.8%	-0.2%	-0.1%	-0.4%	-0.1%	0.1%	0.1%	0.3%	-1.0%
1977	-2.9%	-1.7%	2.3%	1.2%	-0.2%	-0.3%	-0.2%	-0.1%	0.0%	0.1%	-0.1%	-0.4%
1978	0.1%	1.0%	0.4%	0.1%	0.0%	-0.1%	-0.1%	0.8%	0.2%	0.1%	0.2%	0.2%
1979	-0.2%	0.3%	2.0%	1.1%	-0.1%	-0.1%	-0.2%	-0.3%	-0.1%	0.0%	0.0%	0.1%
1980	0.0%	1.5%	1.2%	1.3%	-0.9%	-4.6%	-1.7%	-0.5%	0.0%	0.1%	0.1%	0.1%
1981	0.1%	0.2%	0.0%	0.0%	0.0%	0.1%	-0.1%	-0.5%	-0.1%	-0.1%	-0.2%	0.0%
1982	0.8%	0.6%	0.0%	0.1%	0.2%	0.0%	0.5%	-0.1%	0.0%	0.0%	0.0%	-0.2%
1983	0.2%	0.1%	-0.5%	1.4%	-0.1%	-0.1%	0.5%	-1.1%	-0.3%	-0.2%	-0.1%	0.0%
1984	0.1%	-0.2%	-0.1%	-0.5%	-0.2%	0.8%	0.2%	-0.6%	-0.1%	-0.1%	0.0%	0.0%
1985	0.1%	1.3%	0.9%	0.2%	0.1%	0.9%	0.5%	0.1%	0.0%	-0.1%	0.4%	0.8%
1986	0.8%	0.3%	0.2%	0.6%	0.1%	-0.7%	0.5%	0.6%	0.2%	0.0%	-0.2%	-0.4%
1987	0.5%	0.0%	-0.1%	0.0%	0.0%	0.9%	0.7%	-0.2%	0.0%	1.1%	0.8%	-0.3%
1988	-0.4%	-0.5%	-1.0%	-0.3%	-0.1%	3.2%	1.1%	0.5%	0.0%	1.2%	0.2%	-3.7%
1989	-3.2%	-4.3%	-5.4%	1.2%	1.2%	0.4%	-0.6%	-0.3%	0.0%	0.2%	-0.2%	-0.8%
1990	0.2%	0.2%	0.0%	-0.1%	-0.1%	0.1%	0.0%	-0.2%	0.0%	0.2%	-0.1%	-0.2%
1991	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.1%	0.7%	0.5%	0.3%
Avg	-0.2%	-0.1%	0.0%	0.3%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.2%	0.1%	-0.3%
W/AN/BN	0.3%	0.5%	0.5%	0.6%	-0.1%	-0.7%	-0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%
D/C	-0.6%	-0.5%	-0.4%	0.2%	0.1%	0.6%	0.1%	-0.1%	0.0%	0.4%	0.2%	-0.6%


Old River at Rock Slough Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
300
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.34%
-0.02%
0.04%
0.03%
-0.13%
-0.01%
0.21%
0.09%
-0.34%
-0.22%
-0.07%
-0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1600
1400
1200
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

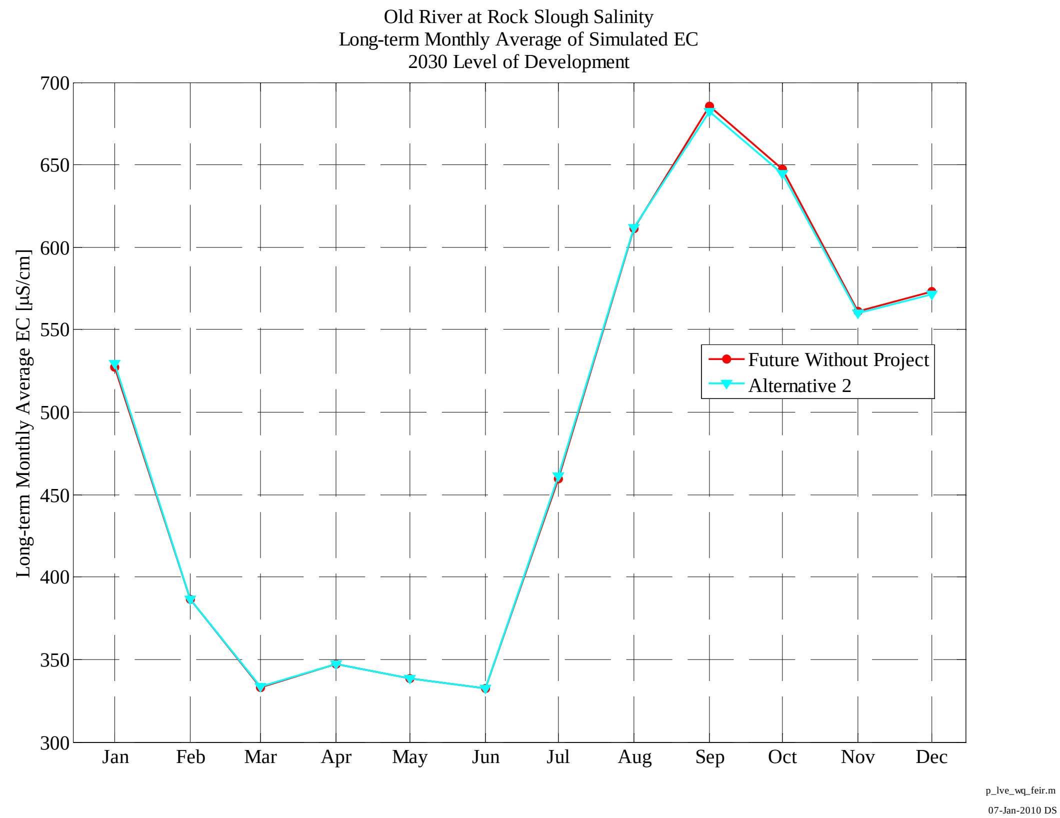
Alternative 2

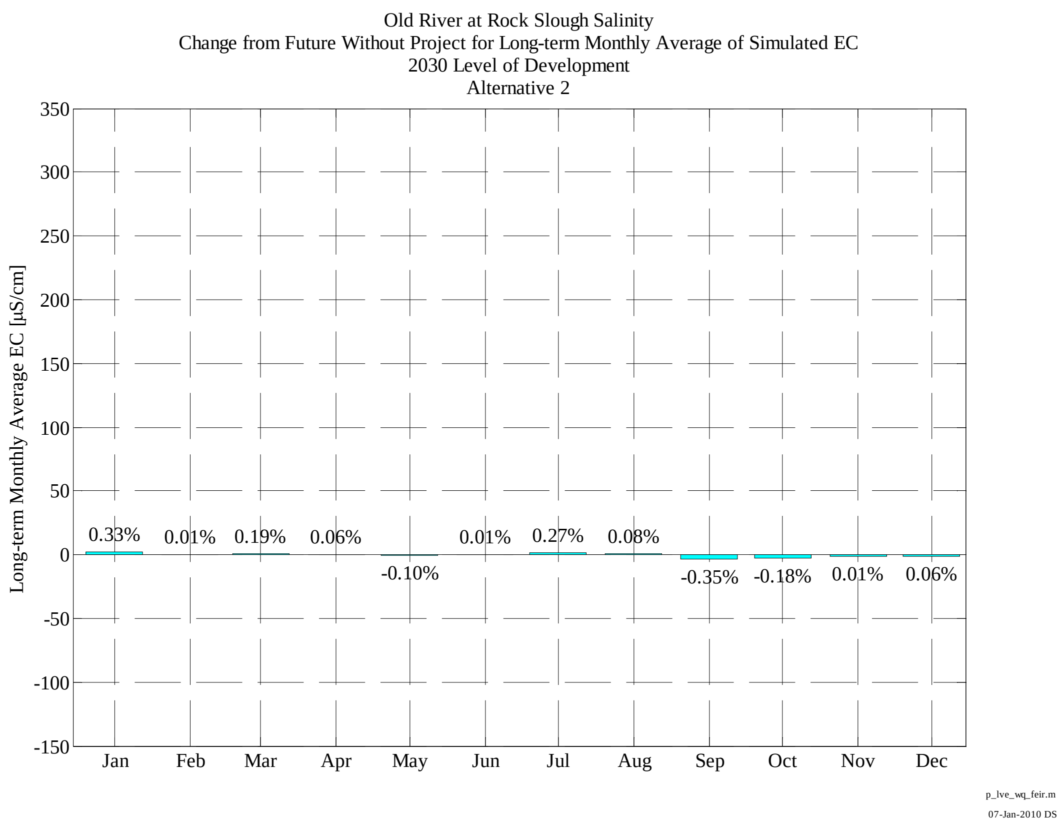
Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

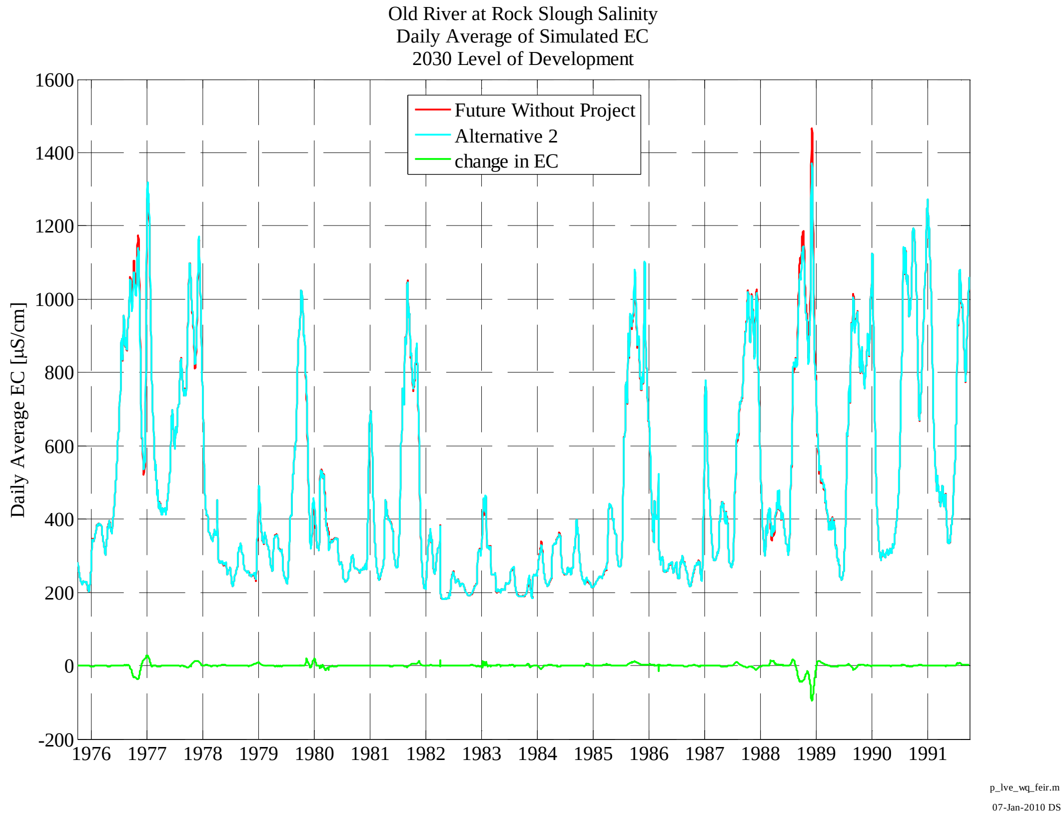
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	248	228	223	344	383	349	356	392	558	833	901	1,002
1977	1,055	869	754	1,111	611	453	422	468	643	672	786	833
1978	1,018	916	978	486	361	356	313	279	261	232	288	303
1979	257	247	308	400	344	291	336	326	259	302	520	822
1980	961	632	382	353	494	418	336	344	287	238	258	282
1981	261	266	441	526	269	258	408	384	283	483	839	926
1982	801	613	237	316	296	301	203	183	225	235	224	206
1983	193	213	302	428	327	252	208	207	222	256	208	189
1984	198	213	242	299	254	226	316	349	269	257	274	360
1985	256	232	221	225	241	258	403	384	283	472	827	978
1986	927	803	840	485	404	320	261	274	268	256	282	234
1987	247	278	337	624	362	296	406	409	290	445	682	838
1988	955	931	841	392	379	381	429	421	344	475	826	1,034
1989	1,046	961	1,019	596	496	408	386	309	244	488	845	946
1990	852	802	935	798	347	301	310	326	428	868	1,067	1,054
1991	1,039	751	1,082	1,089	619	472	462	358	451	866	964	903
Avg	645	560	571	529	387	334	347	338	332	461	612	682
W/AN/BN	622	520	470	395	354	309	282	280	256	254	293	342
D/C	662	591	650	634	412	353	398	383	392	622	860	946

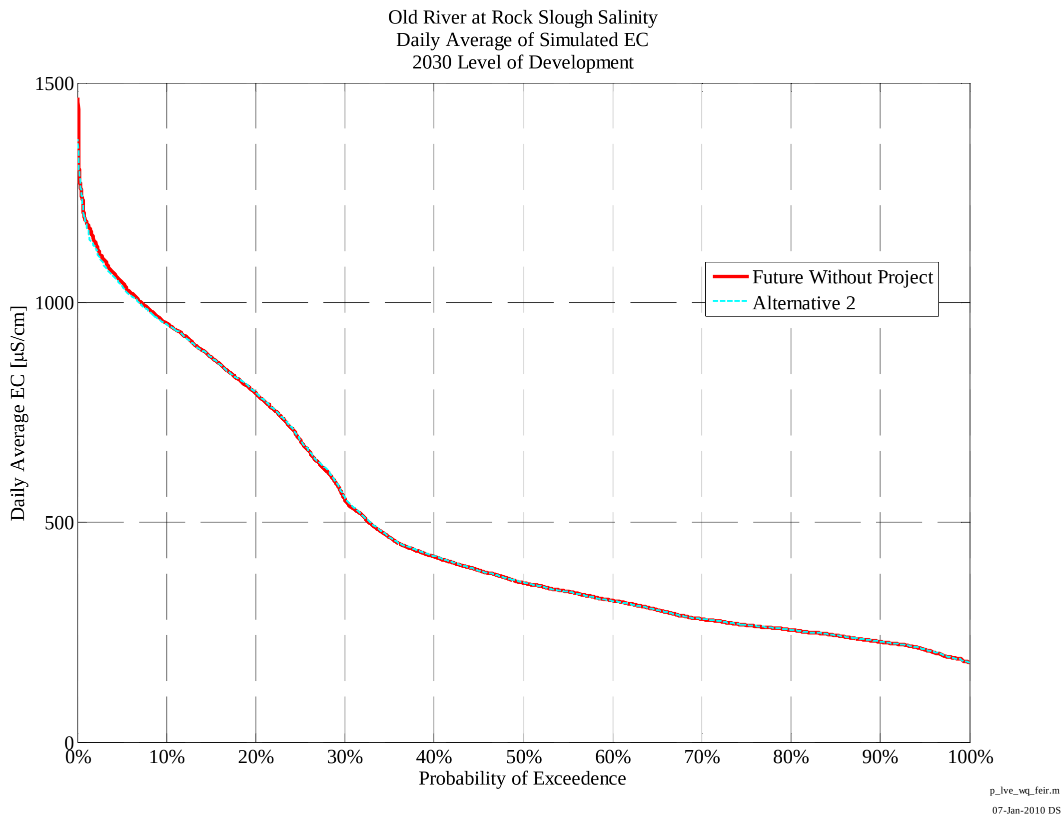
Percent (%) Change from Future Without Project for Old River at Rock Slough Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.1%	0.1%	-0.1%	-0.5%	-0.1%	0.0%	-0.4%	-0.1%	0.1%	0.1%	0.2%	-1.1%
1977	-3.0%	-1.7%	2.6%	1.3%	-0.1%	-0.3%	-0.2%	-0.1%	0.0%	0.0%	-0.1%	-0.5%
1978	0.2%	1.3%	0.6%	0.1%	0.0%	0.0%	-0.1%	0.8%	0.2%	0.1%	0.2%	0.2%
1979	-0.2%	0.3%	2.0%	1.1%	-0.1%	-0.1%	-0.2%	-0.3%	-0.1%	0.0%	0.0%	0.1%
1980	0.0%	1.5%	1.2%	1.3%	-0.4%	-2.0%	-0.8%	-0.4%	0.0%	0.1%	0.1%	0.1%
1981	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	-0.1%	-0.5%	-0.1%	-0.1%	-0.2%	0.1%
1982	0.7%	1.2%	0.2%	0.1%	0.2%	0.0%	0.6%	-0.1%	-0.1%	0.0%	0.0%	-0.1%
1983	0.2%	0.1%	-0.4%	1.4%	-0.1%	-0.1%	1.0%	-0.2%	0.1%	0.8%	-0.2%	-0.1%
1984	0.6%	-0.3%	-0.1%	-1.5%	-0.6%	0.8%	0.2%	-0.6%	-0.1%	-0.1%	0.0%	0.0%
1985	0.1%	1.4%	1.0%	0.2%	0.1%	0.9%	0.5%	0.1%	0.0%	0.0%	0.4%	1.0%
1986	0.9%	0.4%	0.3%	0.7%	0.1%	-0.1%	0.3%	0.6%	0.1%	0.0%	-0.2%	-0.4%
1987	0.4%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.2%	-0.5%	-0.1%	1.1%	0.8%	-0.3%
1988	-0.4%	-0.5%	-1.0%	-0.3%	-0.1%	3.2%	1.1%	0.5%	0.0%	1.2%	0.2%	-3.7%
1989	-3.1%	-4.0%	-5.2%	1.5%	1.3%	0.4%	-0.6%	-0.3%	0.0%	0.2%	-0.2%	-0.8%
1990	0.2%	0.2%	0.0%	-0.1%	-0.1%	0.1%	0.0%	-0.2%	0.0%	0.2%	0.0%	-0.2%
1991	0.0%	0.2%	0.1%	0.0%	0.0%	0.2%	-0.1%	0.0%	0.1%	0.6%	0.4%	0.3%
Avg	-0.2%	0.0%	0.1%	0.3%	0.0%	0.2%	0.1%	-0.1%	0.0%	0.3%	0.1%	-0.3%
W/AN/BN	0.4%	0.6%	0.5%	0.4%	-0.1%	-0.2%	0.1%	0.0%	0.0%	0.1%	0.0%	-0.1%
D/C	-0.6%	-0.5%	-0.3%	0.2%	0.1%	0.5%	0.0%	-0.1%	0.0%	0.4%	0.2%	-0.6%


Old River at Rock Slough Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
Future Without Project
Alternative 2
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
0.33% 0.01% 0.19% 0.06% -0.10% 0.01% 0.27% 0.08% -0.35% -0.18% 0.01% 0.06%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
1600
1400
1200
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Alternative 4

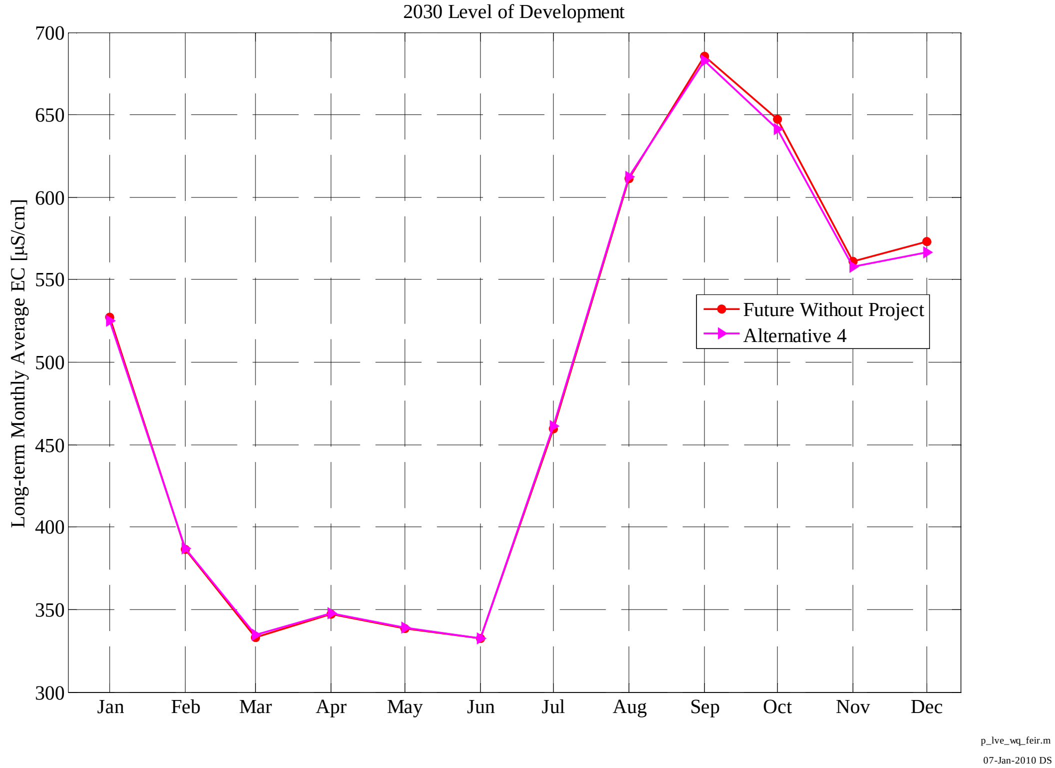
Old River at Rock Slough Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	248	227	224	346	383	349	357	392	557	832	899	1,000
1977	1,053	866	719	1,066	625	465	426	470	647	681	792	836
1978	1,019	910	948	481	361	357	313	277	261	232	287	302
1979	257	247	317	411	346	292	337	326	258	304	537	852
1980	976	641	373	347	493	425	339	345	286	238	258	282
1981	261	265	441	526	269	258	408	386	284	483	842	926
1982	792	605	236	315	296	301	202	183	225	235	224	206
1983	193	213	303	422	327	252	206	207	222	254	209	190
1984	197	214	242	304	256	224	316	351	269	257	275	360
1985	255	229	219	224	241	255	401	384	283	472	823	968
1986	917	800	838	484	404	324	261	273	268	256	281	234
1987	247	274	333	622	361	296	407	412	291	439	679	847
1988	963	937	848	393	379	381	430	422	344	468	812	1,013
1989	1,001	942	1,004	575	487	405	388	310	244	487	847	950
1990	846	799	932	794	346	301	310	326	428	869	1,065	1,051
1991	1,039	754	1,084	1,089	619	472	462	359	452	871	967	905
Avg	642	558	566	525	387	335	348	339	332	461	612	683
W/AN/BN	622	519	465	395	355	311	282	280	256	254	296	347
D/C	657	588	645	626	412	354	399	384	392	622	858	944

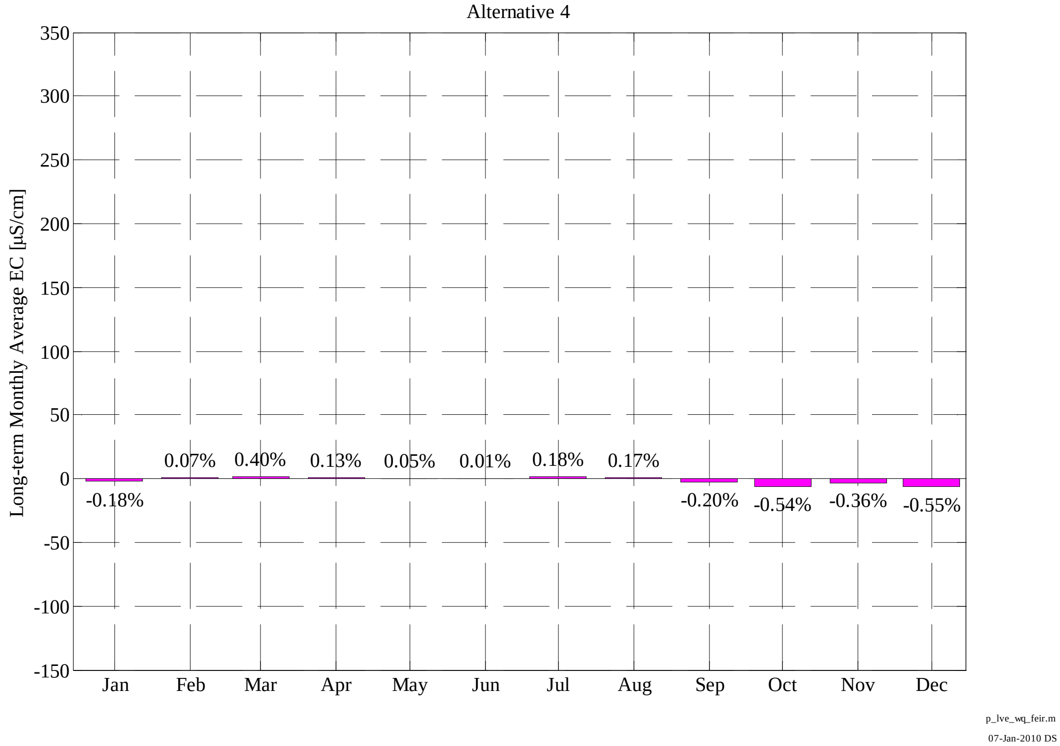
Percent (%) Change from Future Without Project for Old River at Rock Slough Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

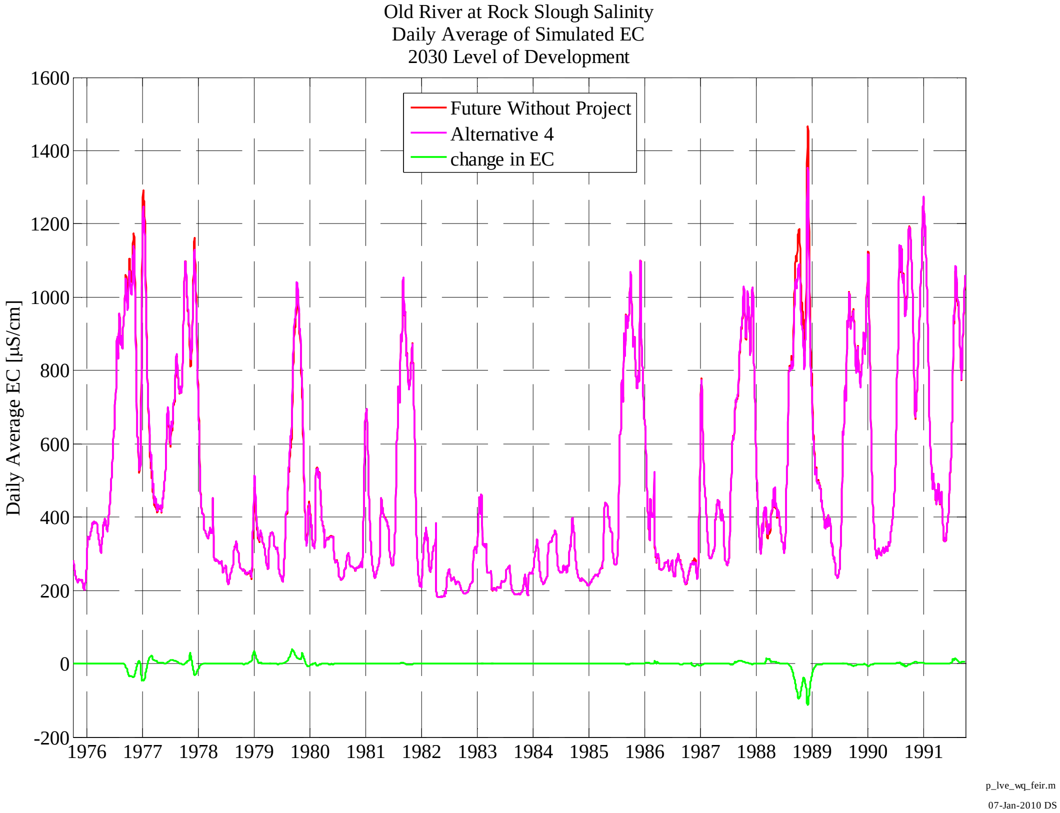
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-1.4%
1977	-3.2%	-2.1%	-2.2%	-2.8%	2.3%	2.4%	0.8%	0.4%	0.6%	1.3%	0.6%	-0.1%
1978	0.4%	0.6%	-2.5%	-0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	-0.4%	0.1%	5.0%	3.9%	0.4%	0.1%	0.1%	-0.1%	-0.3%	0.7%	3.2%	3.8%
1980	1.6%	3.0%	-1.3%	-0.5%	-0.6%	-0.4%	-0.1%	-0.3%	-0.3%	0.0%	0.1%	0.0%
1981	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.1%	0.0%
1982	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
1986	-0.1%	0.0%	0.0%	0.4%	0.1%	1.2%	0.1%	0.0%	0.0%	0.0%	-0.4%	-0.3%
1987	0.4%	-1.7%	-1.1%	-0.4%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.2%	0.4%	0.8%
1988	0.5%	0.1%	-0.1%	0.0%	0.0%	3.2%	1.3%	0.8%	0.0%	-0.1%	-1.5%	-5.6%
1989	-7.3%	-6.0%	-6.6%	-2.1%	-0.6%	-0.2%	-0.1%	0.0%	0.0%	-0.1%	0.0%	-0.4%
1990	-0.5%	-0.2%	-0.3%	-0.6%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.2%	-0.2%	-0.5%
1991	0.0%	0.5%	0.2%	0.1%	0.0%	0.2%	0.1%	0.1%	0.2%	1.1%	0.7%	0.5%
Avg	-0.5%	-0.4%	-0.6%	-0.2%	0.1%	0.4%	0.1%	0.0%	0.0%	0.2%	0.2%	-0.2%
W/AN/BN	0.2%	0.5%	0.2%	0.4%	0.0%	0.1%	0.0%	-0.1%	-0.1%	0.1%	0.4%	0.5%
D/C	-1.1%	-1.0%	-1.1%	-0.6%	0.2%	0.6%	0.2%	0.1%	0.1%	0.2%	0.0%	-0.8%

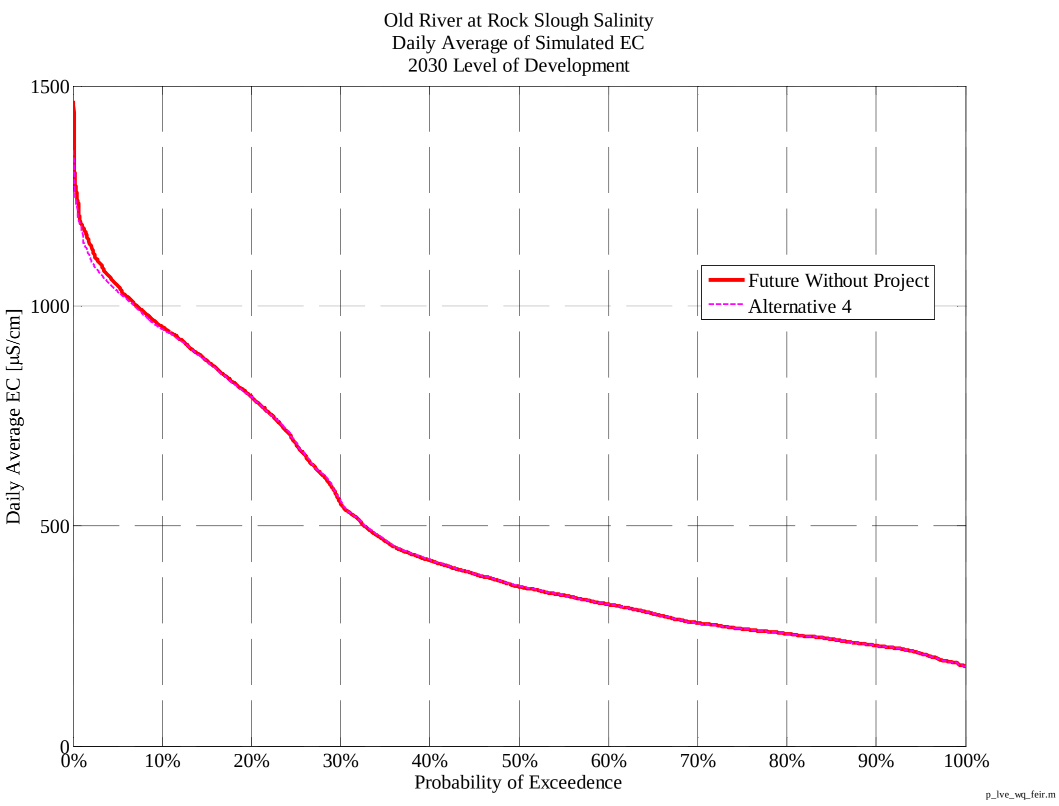
Old River at Rock Slough Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development



Old River at Rock Slough Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4




Old River at Rock Slough Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1600
1400
1200
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River at Rock Slough Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Barker Slough at North Bay Aqueduct

Future Without Project

Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	191	191	205	213	234	234	221	214	213	211	205	198
1977	198	202	200	206	223	231	238	238	248	223	216	208
1978	207	207	236	322	588	549	525	312	220	203	200	201
1979	202	206	208	265	462	525	341	247	211	203	199	200
1980	198	198	218	307	524	600	352	252	210	201	199	199
1981	200	207	207	229	295	265	259	226	212	214	199	196
1982	202	207	243	372	570	471	541	352	224	201	200	197
1983	198	231	325	364	575	707	664	354	229	196	196	197
1984	198	203	275	409	289	254	227	211	204	200	197	200
1985	199	224	279	289	295	278	275	228	211	208	207	207
1986	205	206	232	308	431	604	498	295	219	205	200	200
1987	201	204	207	216	248	268	272	270	224	209	205	208
1988	211	216	214	267	358	380	340	236	214	210	206	207
1989	208	223	212	220	233	254	256	229	210	203	205	205
1990	204	200	203	217	246	325	325	265	215	210	206	206
1991	214	212	215	216	243	253	339	267	218	207	206	207
Avg	202	209	230	276	363	387	355	262	218	207	203	202
W/AN/BN	201	208	248	335	491	530	450	289	217	201	199	199
D/C	203	209	216	230	264	276	281	242	218	211	206	204

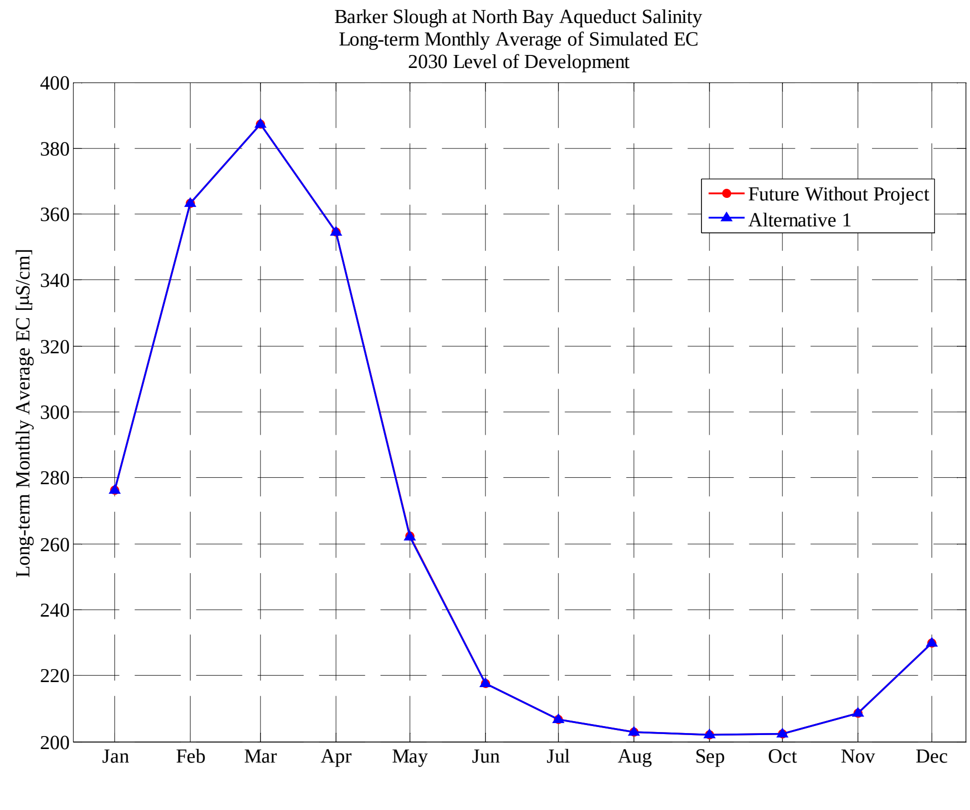
Alternative 1

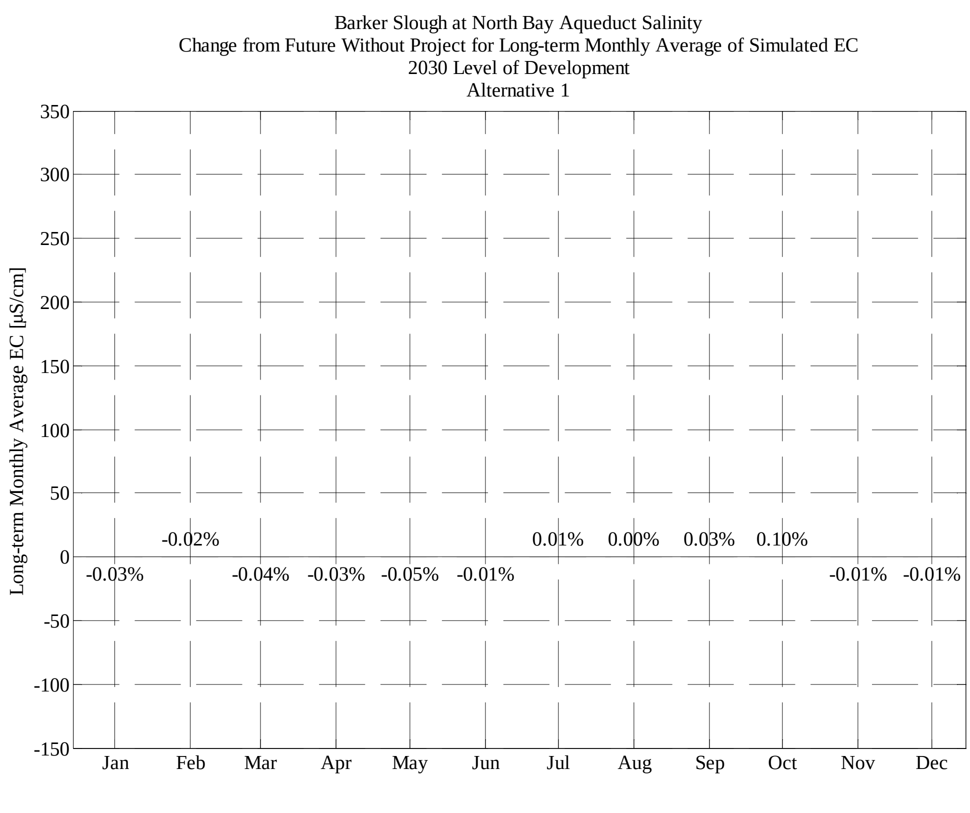
Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

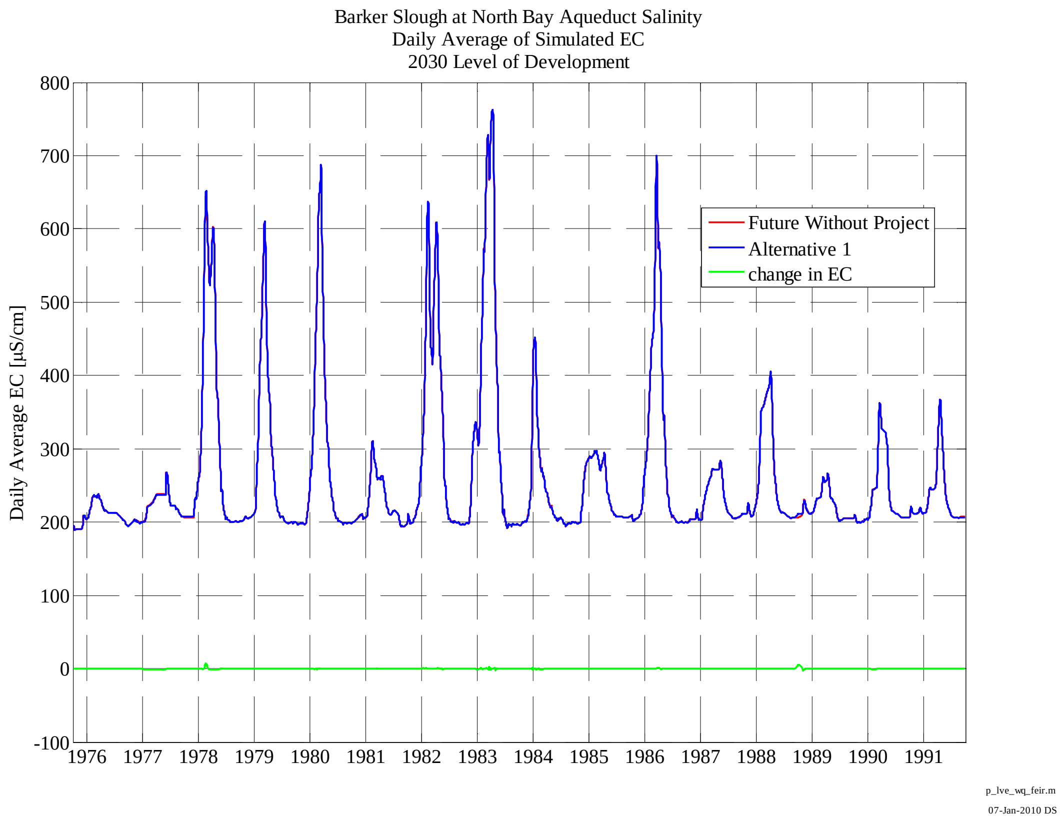
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	191	191	205	213	234	234	221	214	213	212	205	198
1977	198	202	200	205	223	231	237	238	248	223	216	208
1978	207	207	236	322	592	548	524	312	220	203	200	201
1979	202	206	208	265	462	525	341	247	211	203	199	200
1980	198	198	218	307	524	600	353	252	210	201	199	199
1981	200	207	207	229	295	265	259	226	212	214	199	196
1982	202	207	243	373	570	471	542	352	224	201	200	197
1983	198	231	325	364	575	707	664	354	229	196	196	197
1984	198	203	275	409	288	253	227	211	204	200	197	200
1985	199	224	279	289	295	278	275	228	211	208	207	207
1986	205	206	232	308	431	604	498	295	219	205	200	200
1987	201	204	207	216	248	268	272	270	224	209	205	208
1988	211	216	214	267	358	380	340	236	214	210	206	208
1989	212	222	212	221	233	254	256	229	210	203	205	205
1990	204	200	203	217	245	325	325	265	215	210	206	206
1991	214	212	215	216	243	253	340	267	218	207	206	207
Avg	202	208	230	276	363	387	355	262	218	207	203	202
W/AN/BN	201	208	248	335	492	530	450	289	217	201	199	199
D/C	203	209	216	230	264	276	281	241	218	211	206	205

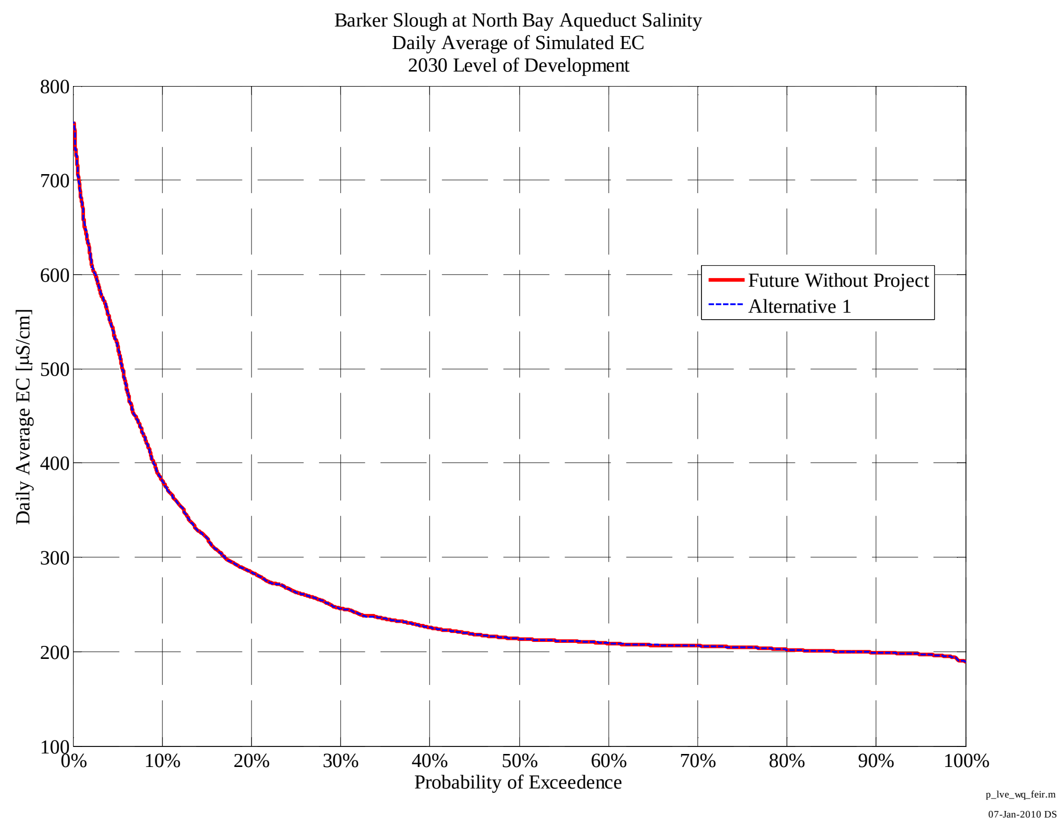
Percent (%) Change from Future Without Project for Barker Slough at North Bay Aqueduct
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1977	-0.2%	-0.1%	-0.2%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.1%	0.1%	0.0%	0.0%
1978	0.1%	0.1%	0.1%	0.0%	0.6%	-0.2%	-0.3%	-0.2%	-0.1%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.2%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%
1989	1.5%	-0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	-0.1%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.2%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%


Barker Slough at North Bay Aqueduct Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
400
380
360
340
320
300
280
260
240
220
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.03%
-0.02%
-0.04%
-0.03%
-0.05%
-0.01%
0.01%
0.00%
0.03%
0.10%
-0.01%
-0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Future Without Project
Alternative 1
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

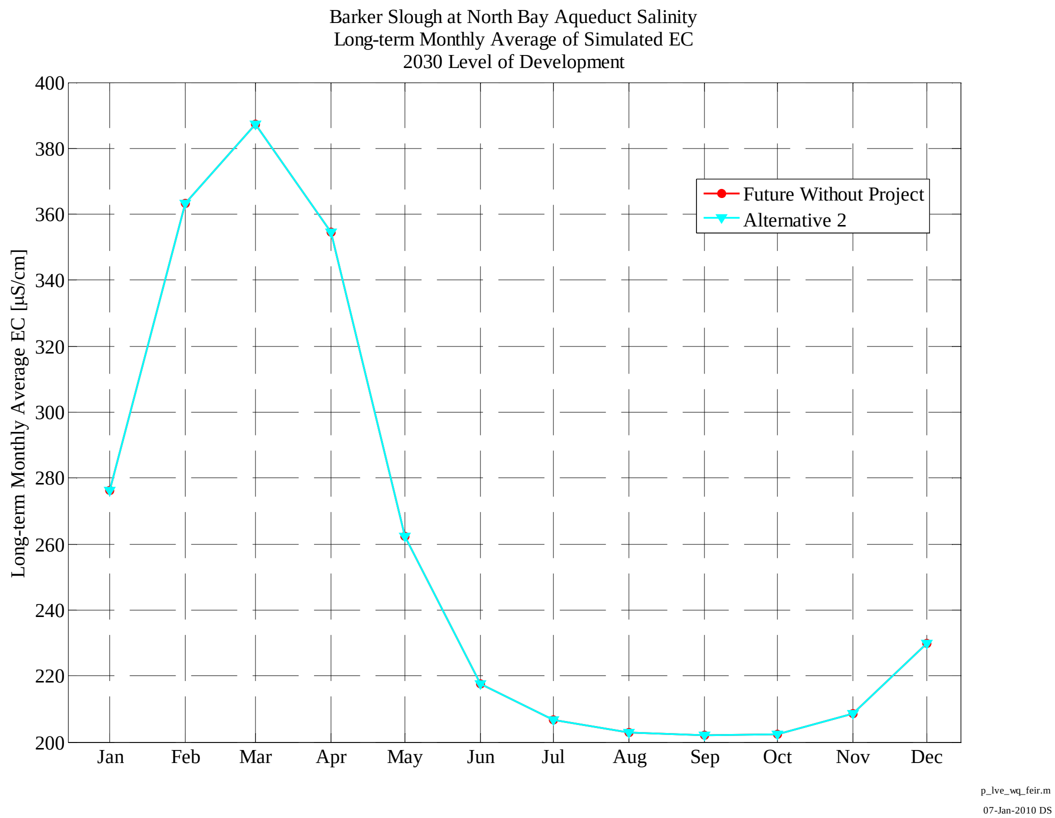
Alternative 2

Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

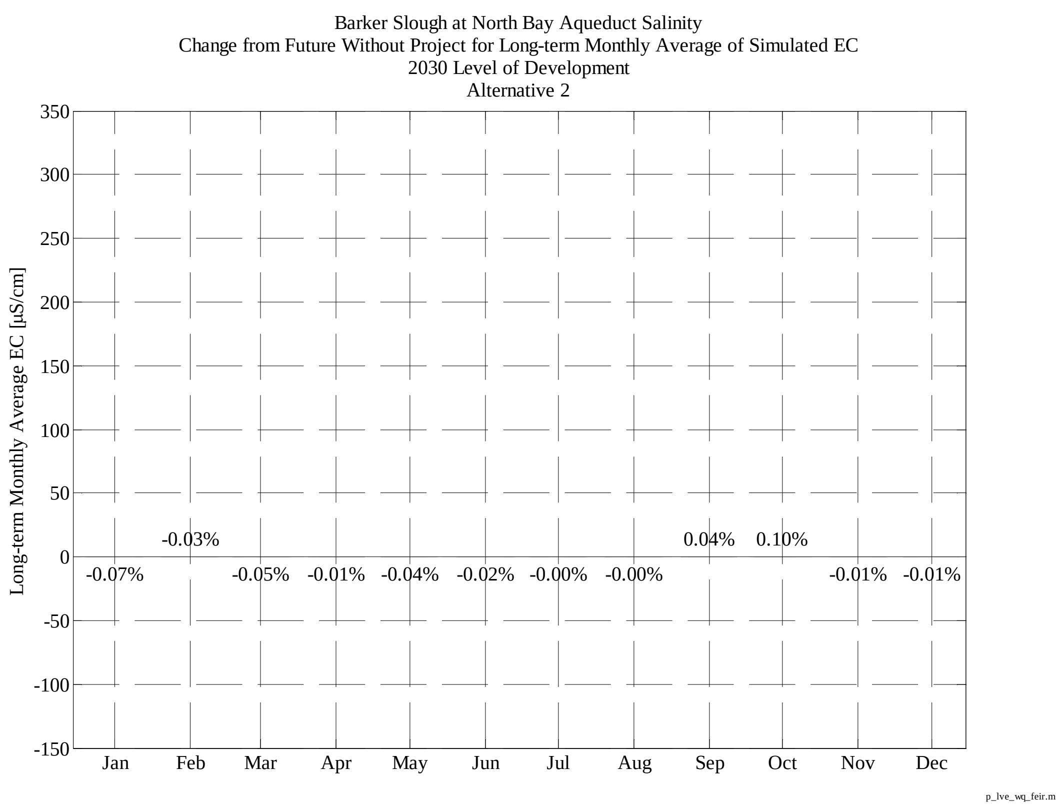
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	191	191	205	213	234	234	221	214	212	212	205	198
1977	198	202	200	205	222	231	238	238	248	222	216	208
1978	207	207	235	320	591	549	524	312	220	203	200	201
1979	202	206	208	265	462	525	341	247	211	203	199	200
1980	198	198	218	307	524	600	353	252	210	201	199	199
1981	200	207	207	229	295	265	259	226	212	214	199	196
1982	202	207	243	373	570	471	542	352	224	201	200	197
1983	198	231	325	364	575	707	664	354	229	196	196	197
1984	198	202	275	409	288	253	227	211	204	200	197	200
1985	199	224	279	289	295	278	275	228	211	208	207	207
1986	205	206	232	308	431	604	498	295	219	205	200	200
1987	201	204	207	216	248	268	272	270	224	209	205	208
1988	211	216	214	267	358	380	340	236	214	210	206	208
1989	212	222	212	221	233	254	256	229	210	203	205	205
1990	204	200	203	217	245	325	325	265	215	210	206	206
1991	214	212	215	216	243	253	340	267	218	207	206	207
Avg	202	208	230	276	363	387	355	262	218	207	203	202
W/AN/BN	201	208	248	335	492	530	450	289	217	201	199	199
D/C	203	209	216	230	264	276	281	241	218	211	206	205

Percent (%) Change from Future Without Project for Barker Slough at North Bay
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

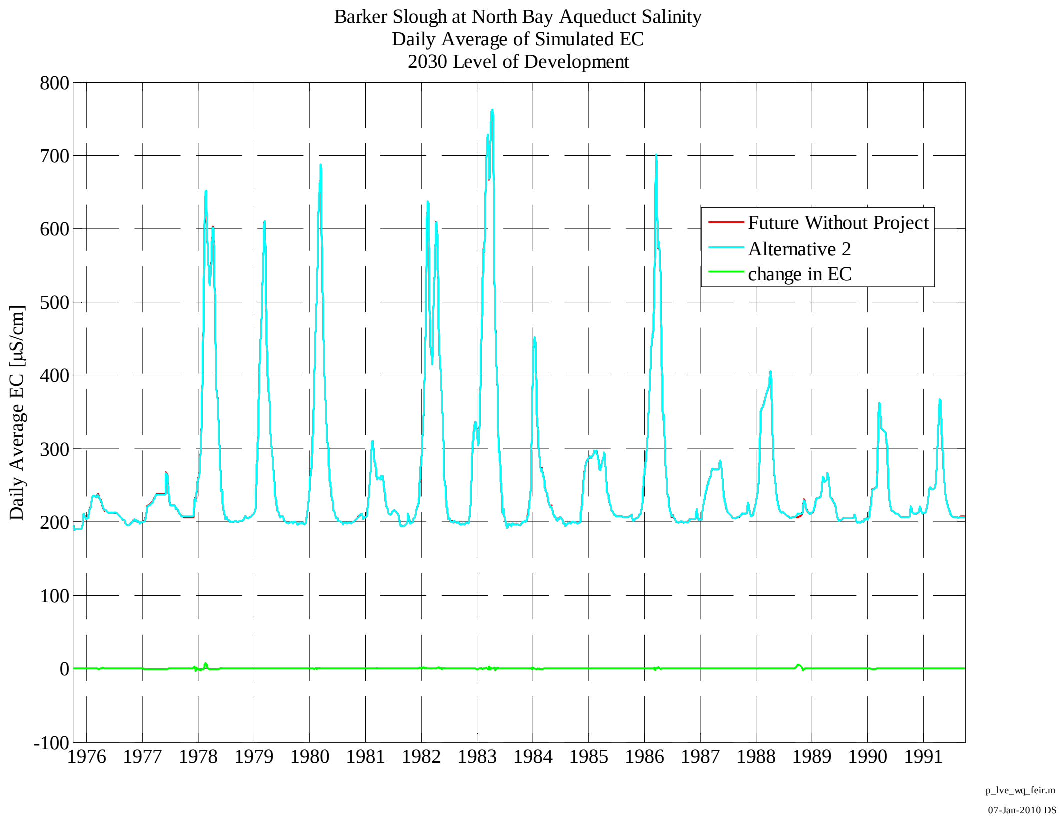
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.2%	0.2%	0.0%	-0.1%	0.1%	0.0%	0.1%
1977	-0.1%	0.0%	-0.2%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	0.0%	0.0%	0.0%
1978	0.1%	0.1%	-0.1%	-0.5%	0.6%	-0.2%	-0.2%	-0.2%	-0.1%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.2%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%
1989	1.5%	-0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	-0.1%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
D/C	0.2%	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%

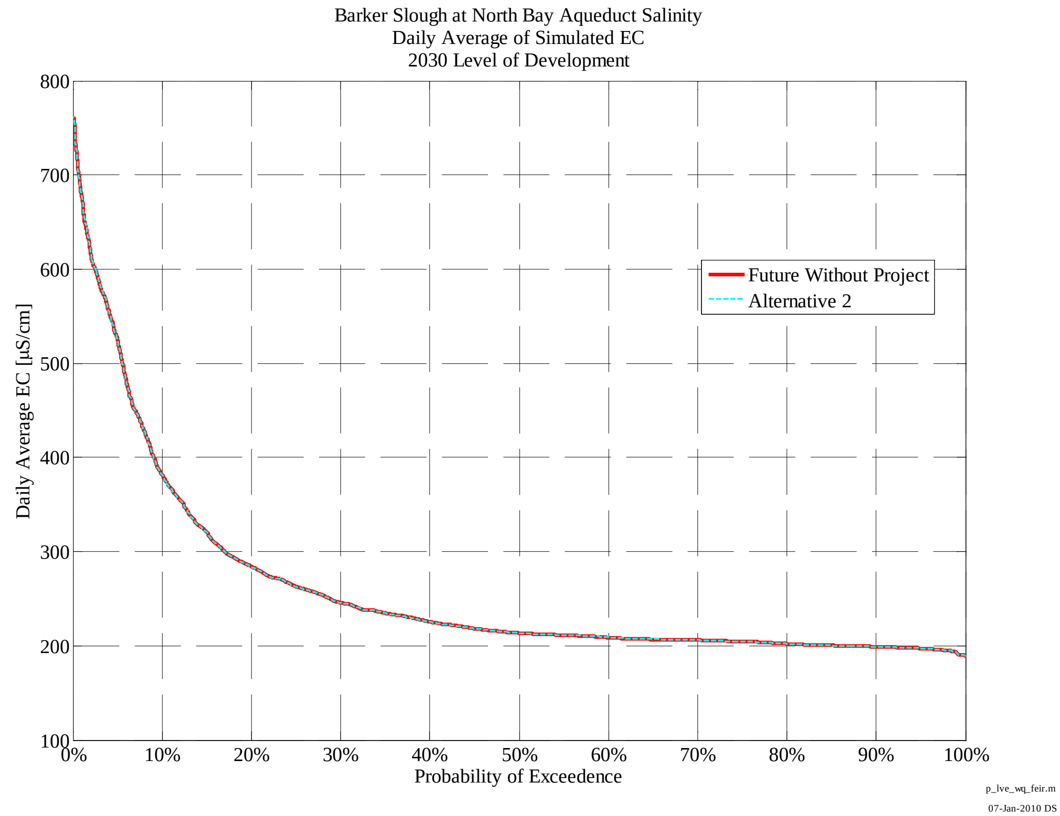


Barker Slough at North Bay Aqueduct Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
400
380
360
340
320
300
280
260
240
220
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS



Barker Slough at North Bay Aqueduct Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.07%
-0.03%
-0.05%
-0.01%
-0.04%
-0.02%
-0.00%
-0.00%
0.04%
0.10%
-0.01%
-0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Future Without Project
Alternative 2
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS

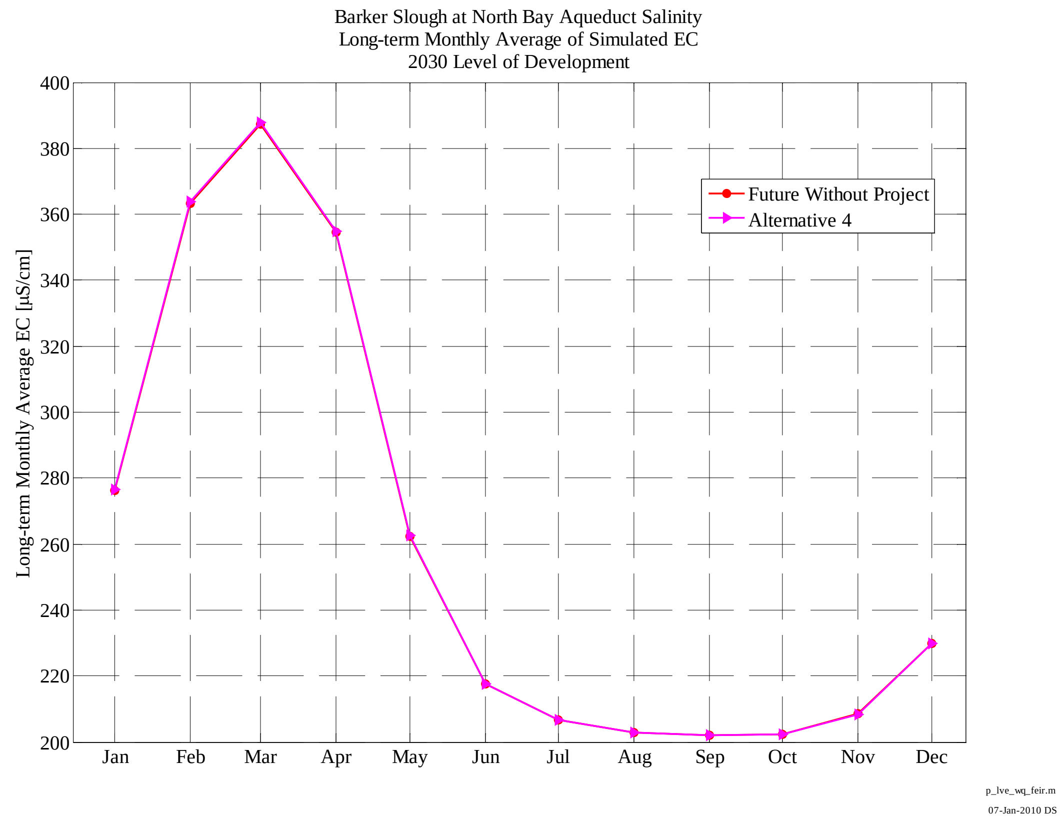
Alternative 4

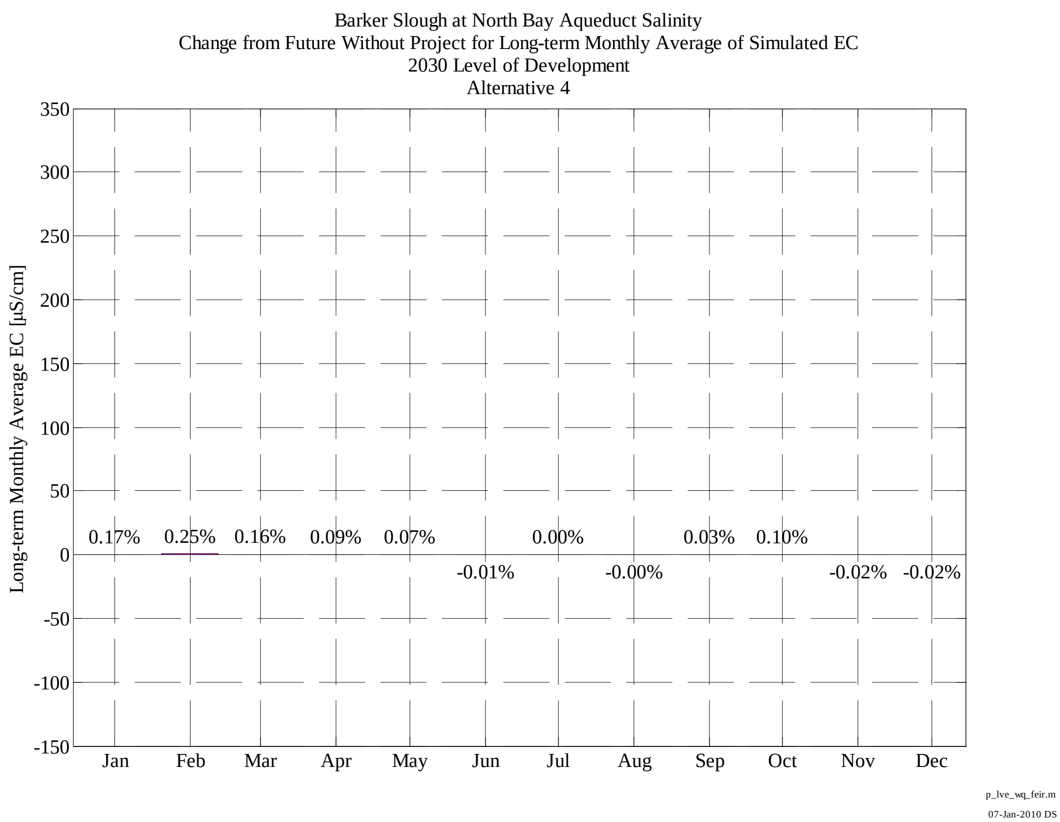
Barker Slough at North Bay Aqueduct Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

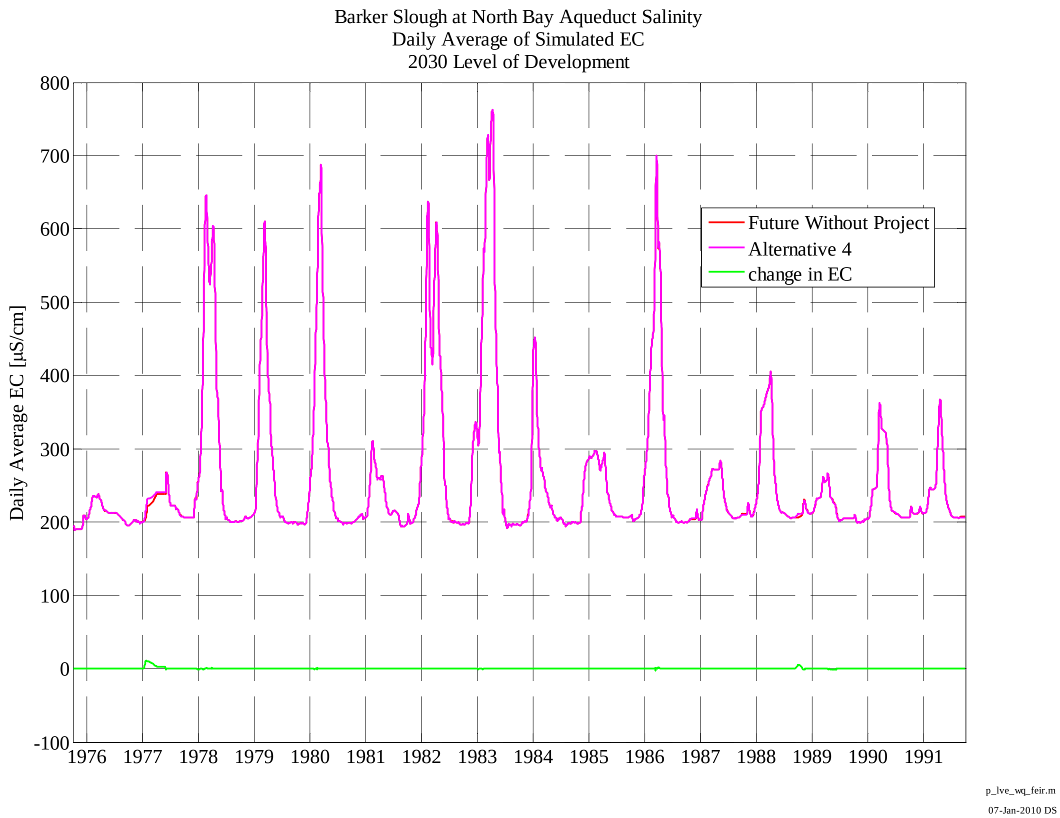
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	191	191	205	213	234	234	221	214	213	211	205	198
1977	198	202	200	212	232	237	241	241	248	223	216	208
1978	207	207	235	321	588	550	525	312	220	203	200	201
1979	202	206	208	265	462	525	341	247	211	203	199	200
1980	198	198	218	307	524	600	352	252	210	201	199	199
1981	200	207	207	229	295	265	259	226	212	214	199	196
1982	202	207	243	372	570	471	541	352	224	201	200	197
1983	198	231	325	364	575	707	664	354	229	196	196	197
1984	198	203	275	409	289	254	227	211	204	200	197	200
1985	199	224	279	289	295	278	275	228	211	208	207	207
1986	205	206	232	308	431	604	499	295	219	205	200	200
1987	201	205	207	216	248	268	272	270	224	209	205	207
1988	211	216	214	267	358	380	340	236	214	210	206	208
1989	212	222	212	221	233	254	256	229	210	203	205	205
1990	204	200	203	217	246	325	325	265	215	210	206	206
1991	214	212	215	216	243	253	340	267	218	207	206	207
Avg	202	208	230	277	364	388	355	262	218	207	203	202
W/AN/BN	201	208	248	335	491	530	450	289	217	201	199	199
D/C	203	209	216	231	265	277	281	242	218	211	206	205

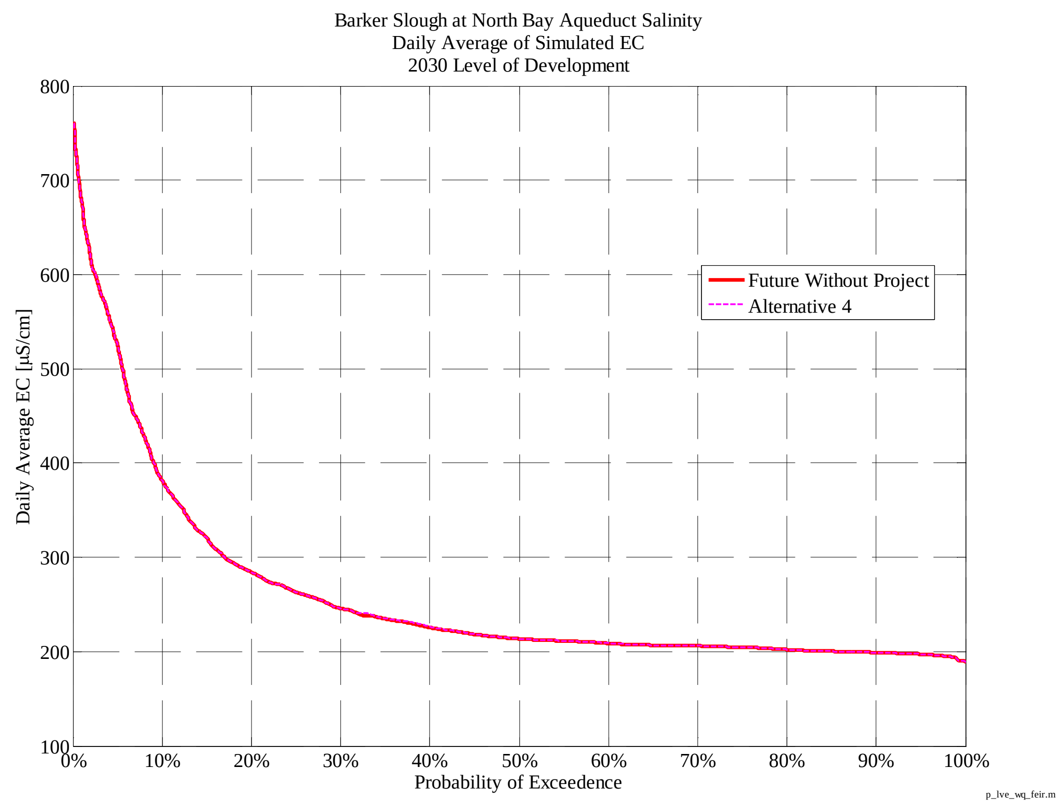
Percent (%) Change from Future Without Project for Barker Slough at North Bay
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	-0.1%	2.9%	4.1%	2.4%	1.3%	1.3%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	-0.1%	-0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%
1989	1.6%	-0.4%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.3%	-0.2%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.1%	0.0%	0.0%	0.2%	0.3%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.2%	0.0%	0.0%	0.3%	0.5%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%


Barker Slough at North Bay Aqueduct Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
400
380
360
340
320
300
280
260
240
220
200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.17%
0.25%
0.16%
0.09%
0.07%
-0.01%
0.00%
-0.00%
0.03%
0.10%
-0.02%
-0.02%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Future Without Project
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Barker Slough at North Bay Aqueduct Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Cache Slough at City of Vallejo Intake

Future Without Project

Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	197	197	200	205	209	239	227	209	205	201	195	196
1977	199	206	208	208	207	249	242	218	206	200	199	200
1978	203	214	404	743	801	797	603	336	242	205	199	199
1979	200	204	207	646	764	566	359	261	215	203	198	199
1980	201	202	324	640	758	632	384	264	221	204	199	199
1981	199	204	206	440	333	223	270	229	206	202	198	197
1982	198	200	425	709	638	644	716	537	257	206	201	200
1983	199	200	200	666	781	791	661	388	248	208	199	198
1984	198	201	489	550	471	285	247	215	203	201	197	197
1985	198	198	198	198	199	211	288	234	206	201	198	198
1986	199	203	204	530	748	790	545	300	232	206	200	199
1987	200	204	206	207	208	210	259	228	205	199	196	200
1988	204	208	211	571	648	392	298	231	206	200	198	204
1989	210	214	215	215	213	227	257	222	202	198	196	196
1990	197	201	204	205	205	242	293	238	207	201	197	199
1991	205	209	209	210	212	227	315	271	211	199	197	202
Avg	200	204	257	434	462	420	373	274	217	202	198	199
W/AN/BN	200	203	322	641	709	644	502	329	231	205	199	199
D/C	201	205	206	273	271	247	272	231	206	200	197	199

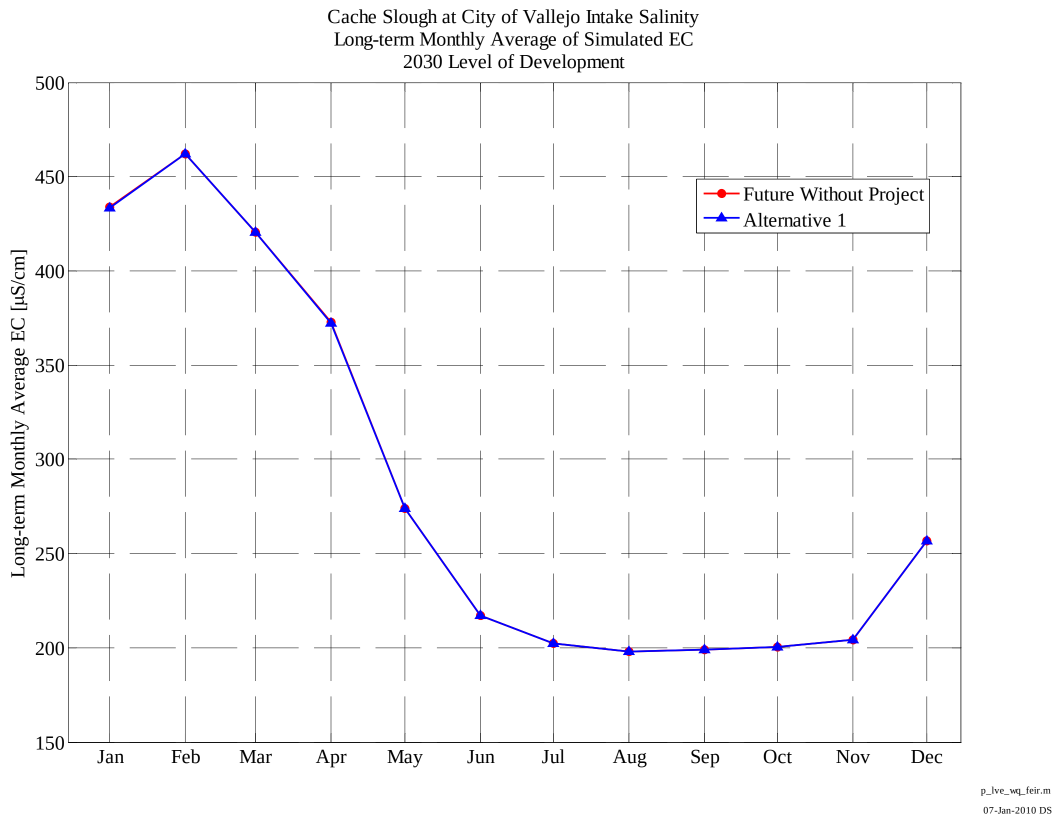
Alternative 1

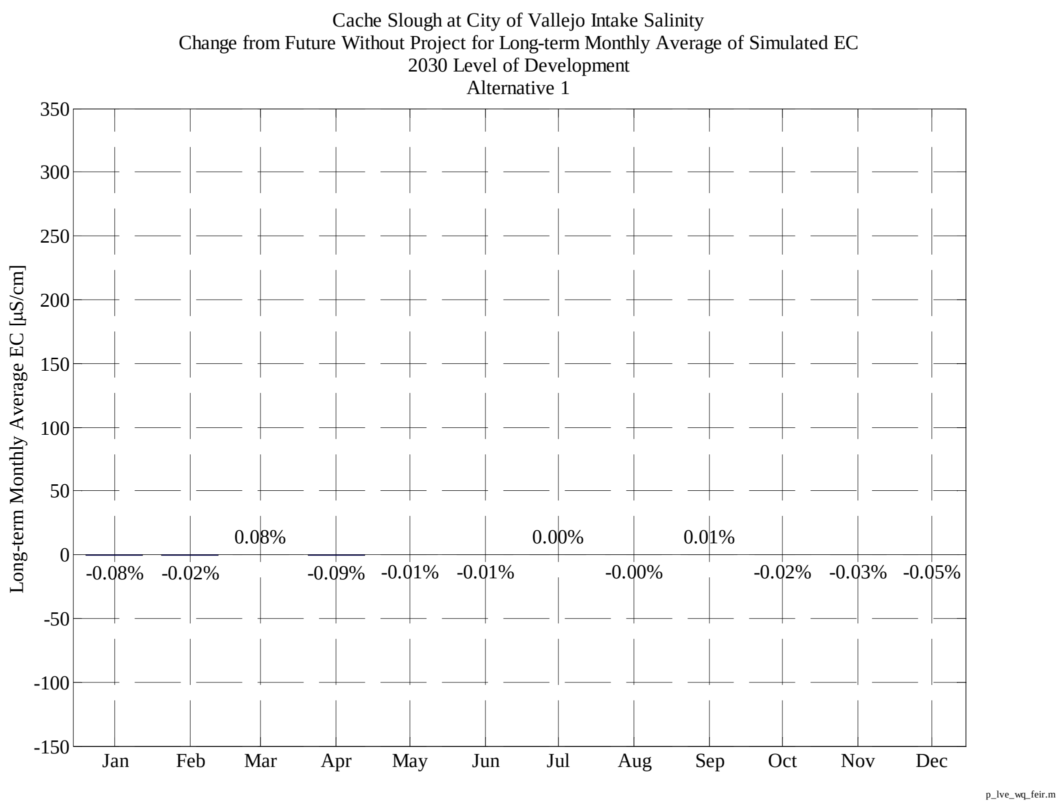
Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

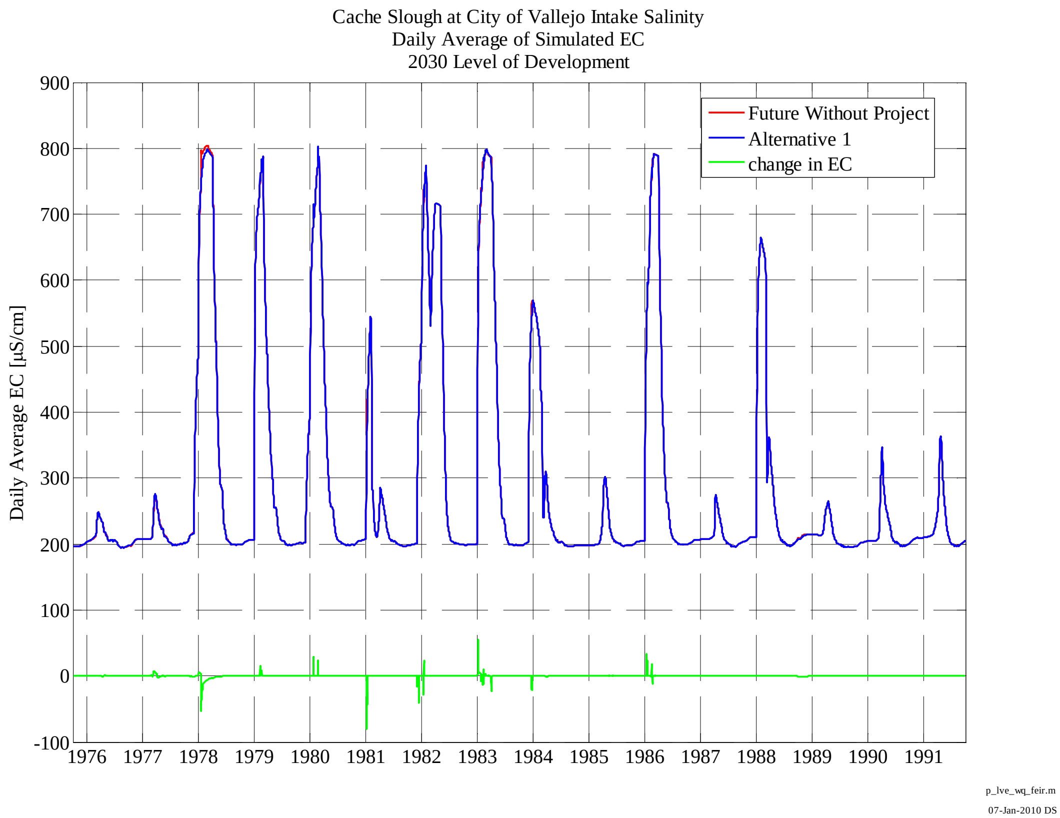
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	197	197	200	205	209	239	227	209	205	201	195	196
1977	199	206	208	208	208	253	240	218	206	200	199	201
1978	203	214	404	731	792	793	601	335	242	205	199	199
1979	200	204	207	646	765	566	359	261	215	203	198	199
1980	201	202	324	641	759	632	384	265	221	204	199	199
1981	199	204	206	435	333	223	270	229	206	202	198	197
1982	198	200	423	709	638	644	716	537	257	206	201	200
1983	199	199	200	671	781	791	658	388	248	208	199	198
1984	198	201	488	550	471	285	247	215	203	201	197	197
1985	198	198	198	198	199	211	288	234	206	201	198	198
1986	199	203	204	532	748	790	545	300	232	206	200	199
1987	200	204	206	207	208	210	259	228	205	199	196	200
1988	204	208	211	571	648	392	298	231	206	200	198	204
1989	209	213	214	215	213	227	257	222	202	198	196	196
1990	197	201	204	205	205	242	293	238	207	201	197	199
1991	205	209	209	210	212	227	315	271	211	199	197	202
Avg	200	204	257	433	462	420	372	274	217	202	198	199
W/AN/BN	200	203	321	640	708	643	501	329	231	205	199	199
D/C	201	205	206	273	271	247	272	231	206	200	197	199

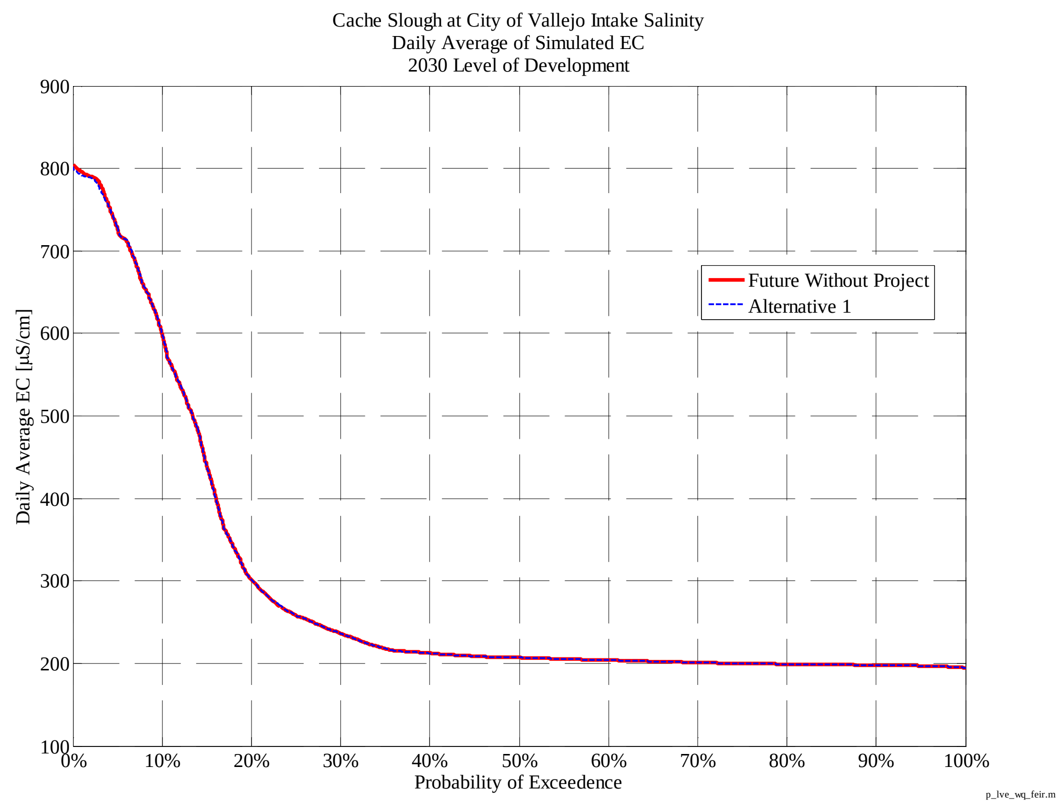
Percent (%) Change from Future Without Project for Cache Slough at City of Vallejo Intake
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.2%
1977	0.2%	0.1%	0.0%	0.1%	0.3%	1.7%	-0.5%	0.0%	0.0%	0.0%	0.0%	0.1%
1978	0.0%	-0.2%	0.0%	-1.7%	-1.1%	-0.5%	-0.4%	-0.2%	-0.1%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	-1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	-0.5%	0.1%	0.1%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1989	-0.5%	-0.4%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	-0.1%	0.1%	0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%


Cache Slough at City of Vallejo Intake Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
500
450
400
350
300
250
200
150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.08%
-0.02%
0.08%
-0.09%
-0.01%
-0.01%
0.00%
-0.00%
0.01%
-0.02%
-0.03%
-0.05%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
Future Without Project
Alternative 1
change in EC
900
800
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
Future Without Project
Alternative 1
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

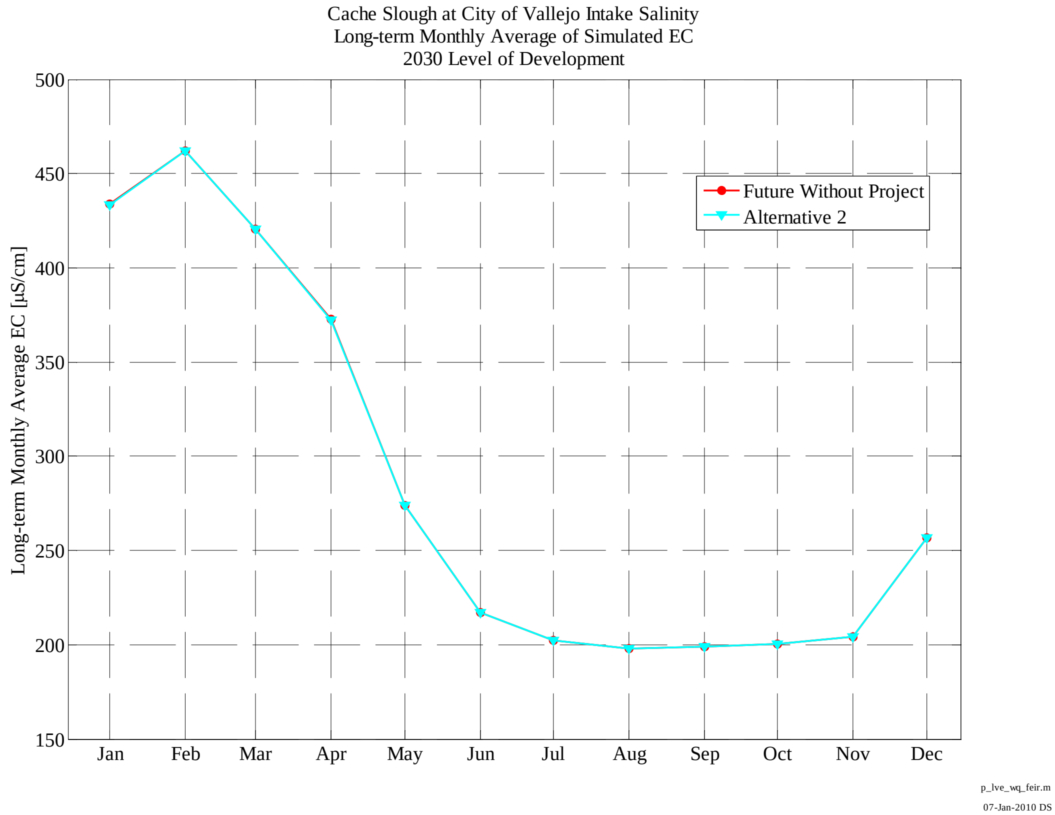
Alternative 2

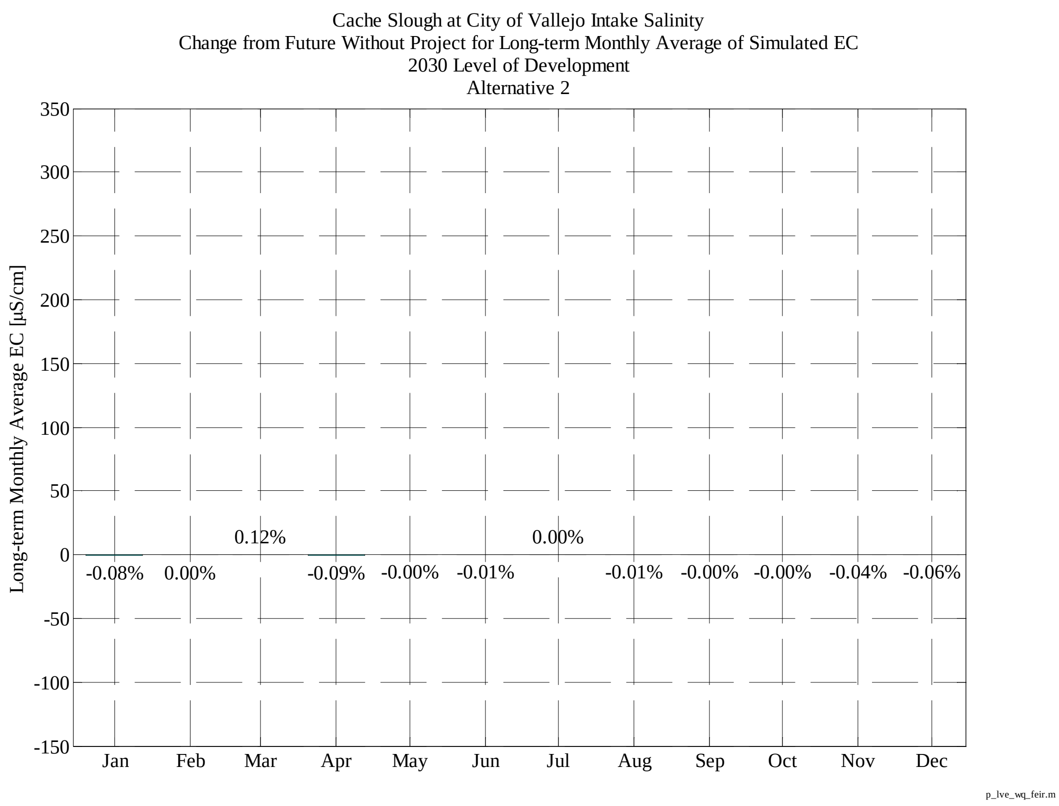
Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

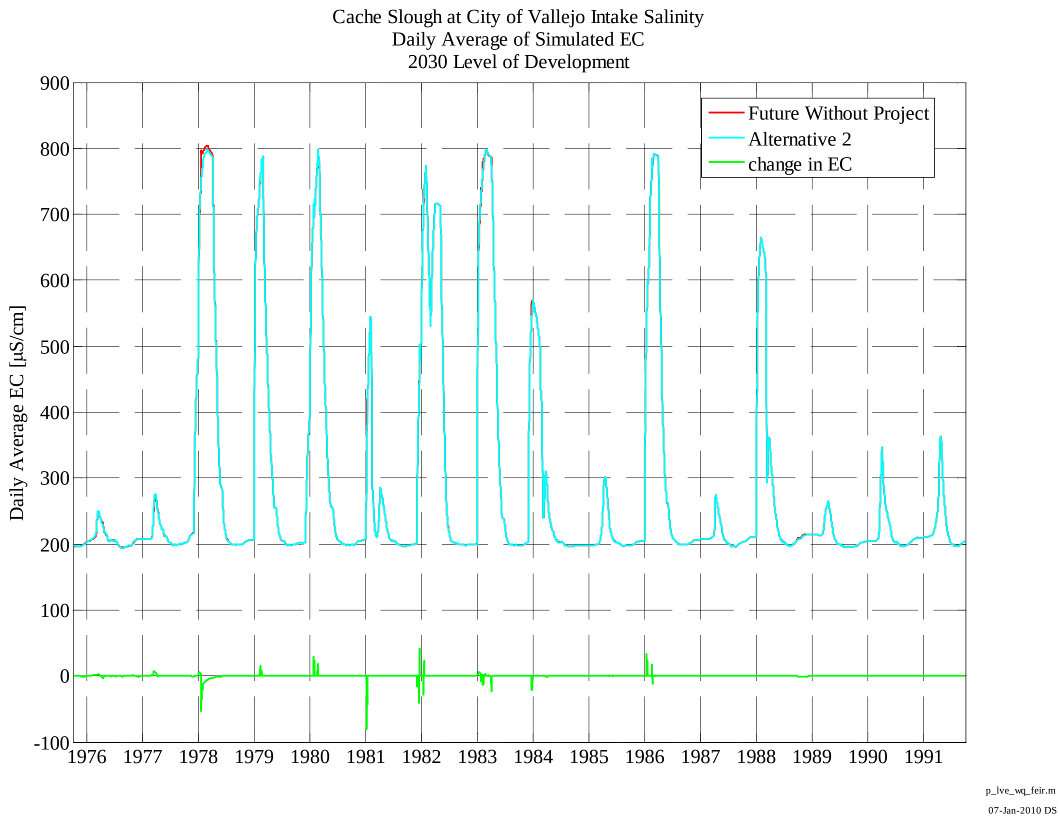
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	197	197	199	205	210	241	226	209	205	202	195	196
1977	199	206	208	208	208	253	242	218	206	200	199	201
1978	203	214	404	731	792	793	601	335	242	205	199	199
1979	200	204	207	646	765	566	359	261	215	203	198	199
1980	201	202	324	642	759	632	384	265	221	204	199	199
1981	199	204	206	435	333	223	270	229	206	202	198	197
1982	198	200	425	709	638	644	716	537	257	206	201	200
1983	199	199	200	670	781	791	658	388	248	208	199	198
1984	198	201	488	550	471	285	247	215	203	201	197	197
1985	198	198	198	198	199	211	288	234	206	201	198	198
1986	199	203	204	532	748	790	545	300	232	206	200	199
1987	200	204	206	207	208	210	259	228	205	199	196	200
1988	204	208	211	571	648	392	298	231	206	200	198	204
1989	209	213	214	215	213	227	257	222	202	198	196	196
1990	197	201	204	205	205	242	293	238	207	201	197	199
1991	205	209	209	210	212	227	315	271	211	199	197	202
Avg	200	204	257	433	462	420	372	274	217	202	198	199
W/AN/BN	200	203	322	640	708	643	501	328	231	205	199	199
D/C	201	205	206	273	271	247	272	231	206	200	197	199

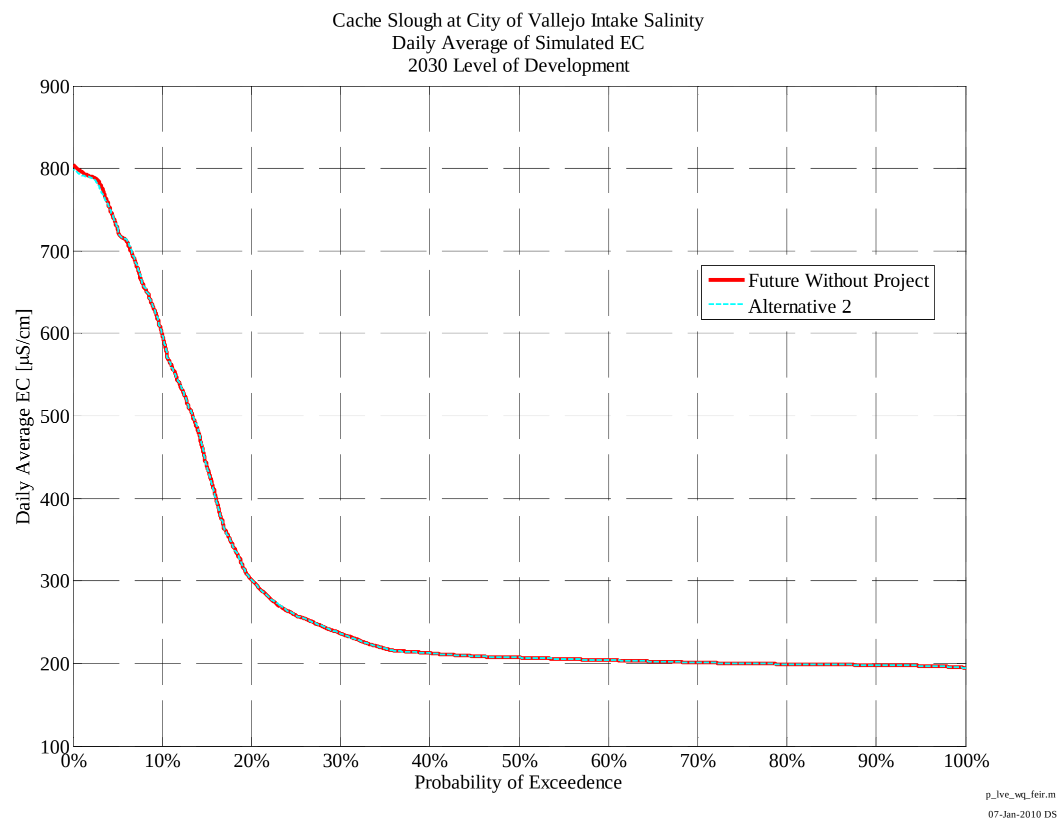
Percent (%) Change from Future Without Project for Cache Slough at City of Vallejo
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.2%	-0.1%	-0.4%	0.1%	0.6%	0.7%	-0.5%	0.1%	0.0%	0.0%	-0.1%	0.0%
1977	0.3%	0.0%	-0.2%	0.0%	0.2%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1978	0.0%	-0.2%	0.0%	-1.7%	-1.1%	-0.5%	-0.4%	-0.2%	-0.1%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	-1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	-0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1989	-0.5%	-0.4%	-0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	-0.1%	-0.1%	0.1%	0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%


Cache Slough at City of Vallejo Intake Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
500
450
400
350
300
250
200
150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.08%
0.00%
0.12%
-0.09%
-0.00%
-0.01%
0.00%
-0.01%
-0.00%
-0.00%
-0.04%
-0.06%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

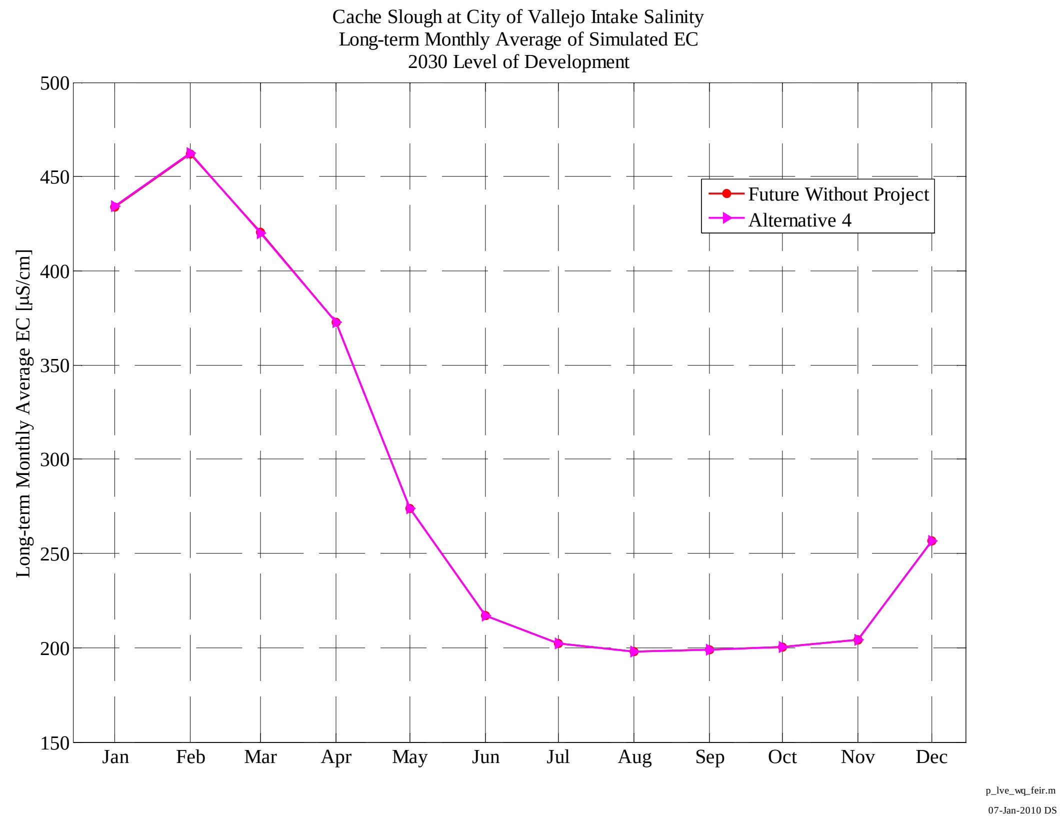
Alternative 4

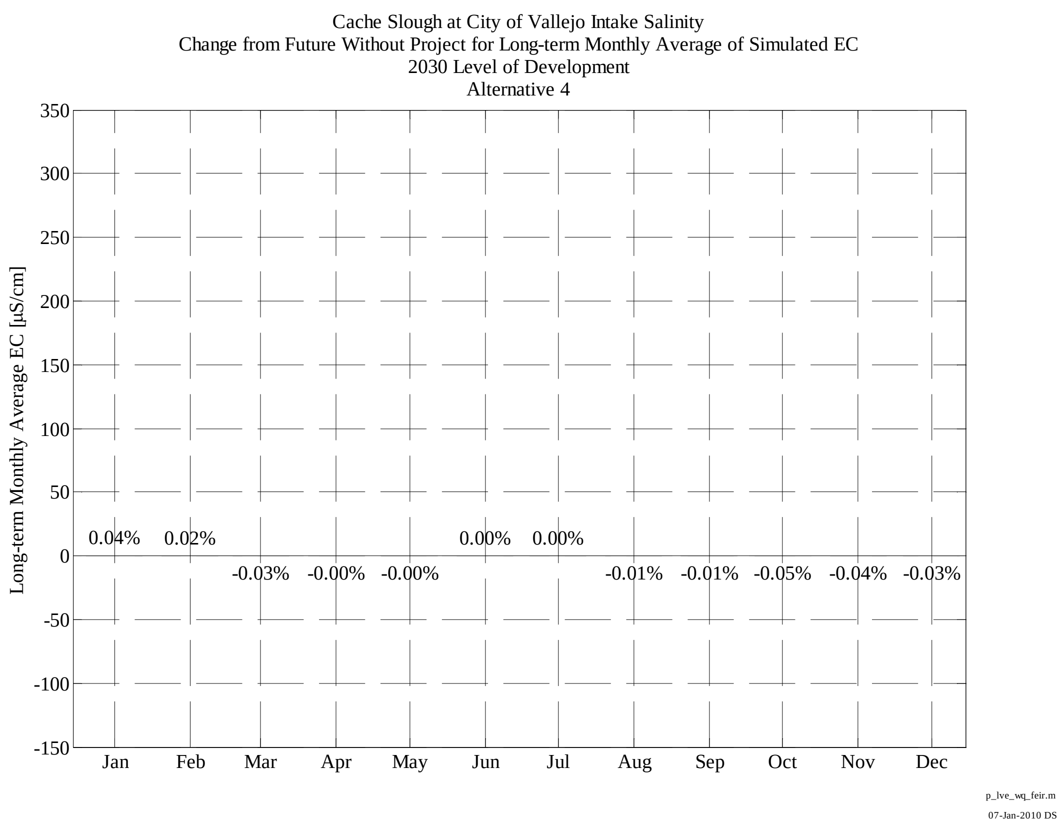
Cache Slough at City of Vallejo Intake Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

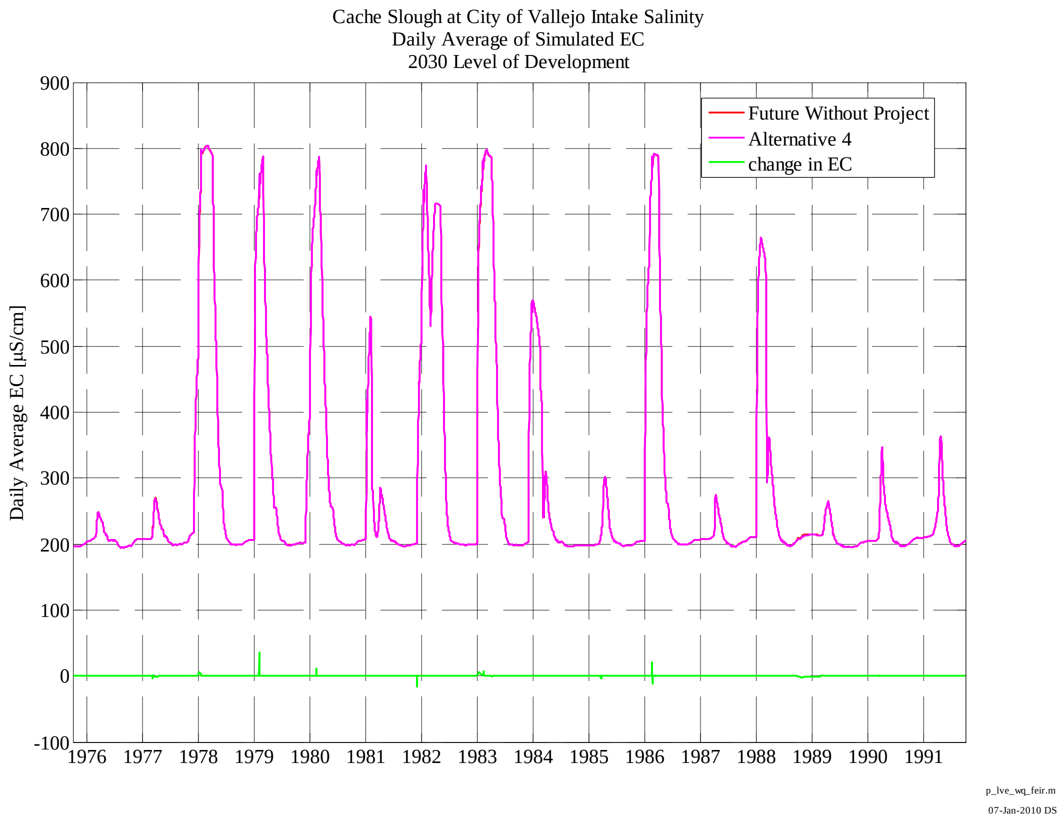
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	197	197	200	205	209	239	227	209	205	201	195	196
1977	199	206	208	208	207	248	241	218	206	200	199	200
1978	203	214	405	746	801	797	603	336	242	205	199	199
1979	200	204	206	646	765	566	359	261	215	203	198	199
1980	201	202	324	640	758	632	384	264	221	204	199	199
1981	199	204	206	440	333	223	270	229	206	202	198	197
1982	198	200	424	709	638	644	716	537	257	206	201	200
1983	199	199	200	670	782	791	661	388	248	208	199	198
1984	198	201	489	550	471	285	247	215	203	201	197	197
1985	198	198	198	198	199	211	288	234	206	201	198	198
1986	199	203	204	530	748	790	545	300	232	206	200	199
1987	200	204	206	207	208	210	259	228	205	199	196	200
1988	204	208	211	571	648	392	298	231	206	200	198	204
1989	209	212	214	214	213	227	257	222	202	198	196	196
1990	197	201	204	205	205	242	293	238	207	201	197	199
1991	205	209	209	210	212	227	315	271	211	199	197	202
Avg	200	204	257	434	462	420	373	274	217	202	198	199
W/AN/BN	200	203	322	642	709	644	502	329	231	205	199	199
D/C	201	204	206	273	271	246	272	231	206	200	197	199

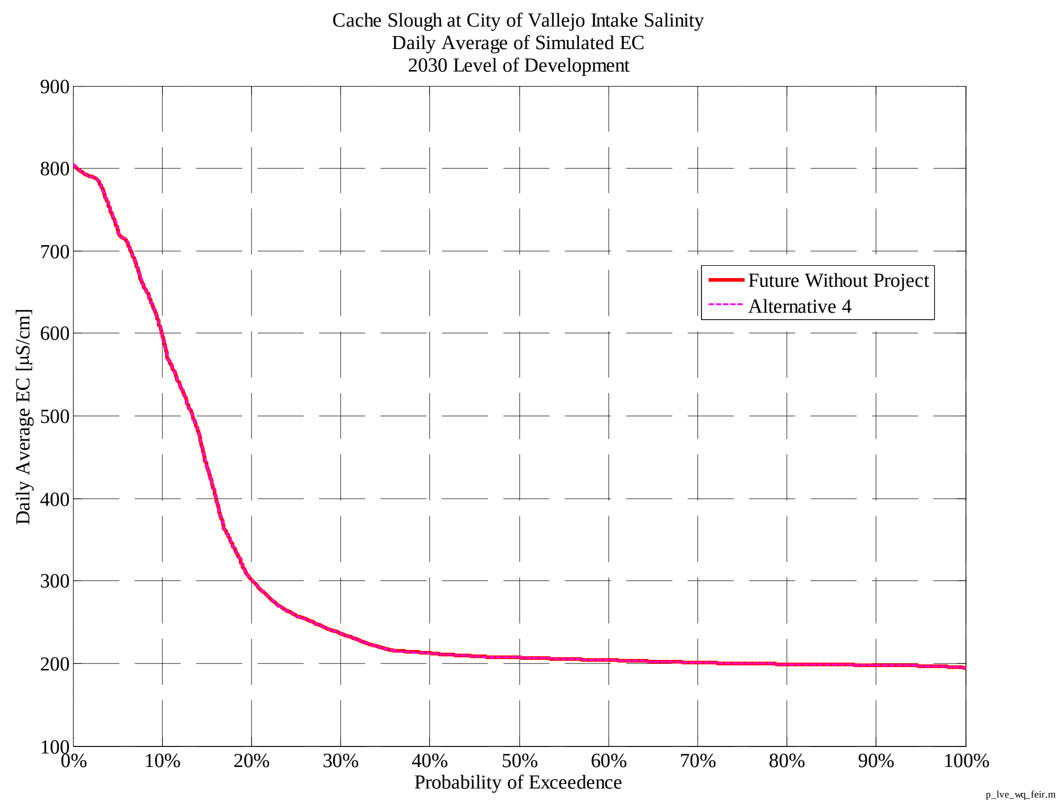
Percent (%) Change from Future Without Project for Cache Slough at City of Vallejo
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
1988	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%
1989	-0.7%	-0.7%	-0.4%	-0.3%	-0.2%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Cache Slough at City of Vallejo Intake Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
500
450
400
350
300
250
200
150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.04%
0.02%
-0.03%
-0.00%
-0.00%
0.00%
0.00%
-0.01%
-0.01%
-0.05%
-0.04%
-0.03%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0
-100
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Future Without Project
Alternative 4
change in EC
p_lve_wq_feir.m
07-Jan-2010 DS


Cache Slough at City of Vallejo Intake Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
900
800
700
600
500
400
300
200
100
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Probability of Exceedence
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS

Old River near Tracy Road Bridge

Future Without Project

Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	381	465	708	728	832	876	472	432	549	665	660	641
1977	532	611	797	845	946	978	609	570	644	644	631	657
1978	696	708	817	786	627	593	272	248	380	514	468	440
1979	483	487	704	690	371	298	328	282	417	595	515	514
1980	446	509	730	386	333	214	308	316	341	433	425	463
1981	436	477	693	730	828	727	369	347	562	635	609	593
1982	486	564	737	749	309	299	176	169	350	389	325	244
1983	182	207	269	321	305	249	185	192	203	222	177	226
1984	337	165	232	299	216	304	305	306	463	568	509	446
1985	372	465	719	728	753	716	391	371	577	660	599	565
1986	498	538	722	792	541	260	239	250	375	536	462	425
1987	390	420	675	732	880	743	396	358	543	668	613	618
1988	532	596	761	807	942	929	484	414	530	656	623	661
1989	573	615	768	805	936	873	580	573	645	649	641	615
1990	628	622	748	839	945	965	714	616	579	657	729	728
1991	656	642	759	854	946	769	526	613	586	667	744	711
Avg	477	506	677	693	669	612	397	379	484	572	546	534
W/AN/BN	447	454	601	575	386	317	259	252	361	465	412	394
D/C	500	546	736	785	890	842	505	477	580	656	650	643

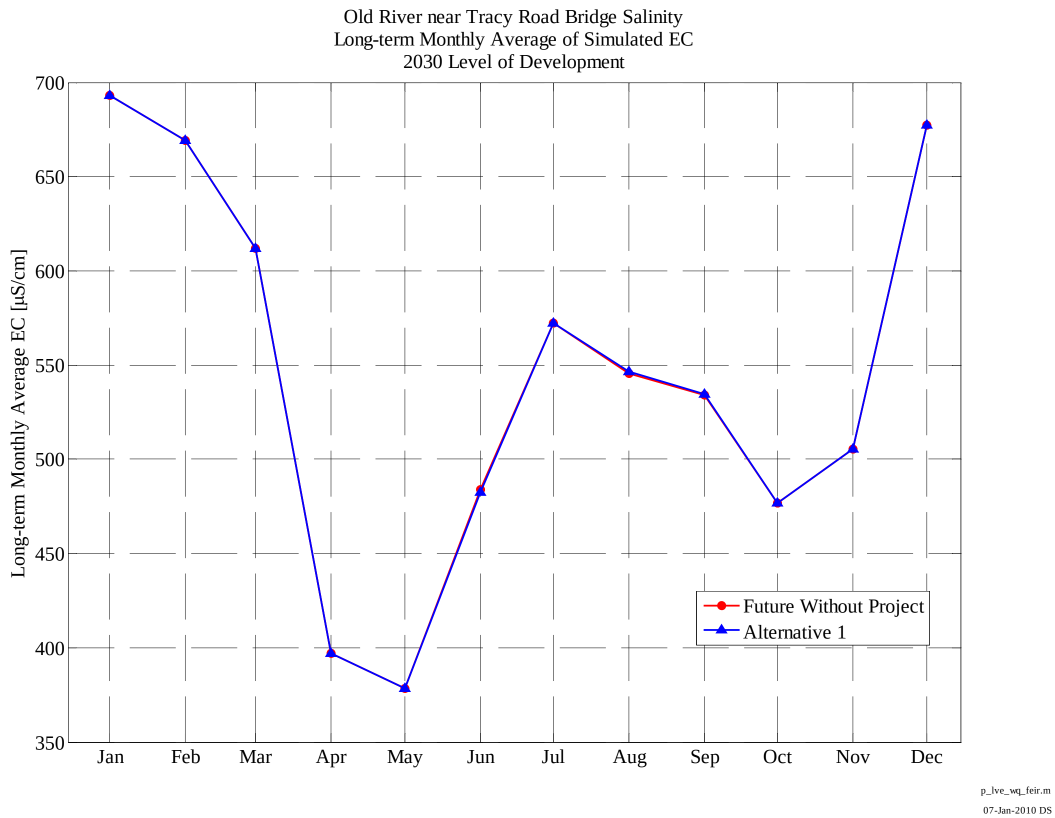
Alternative 1

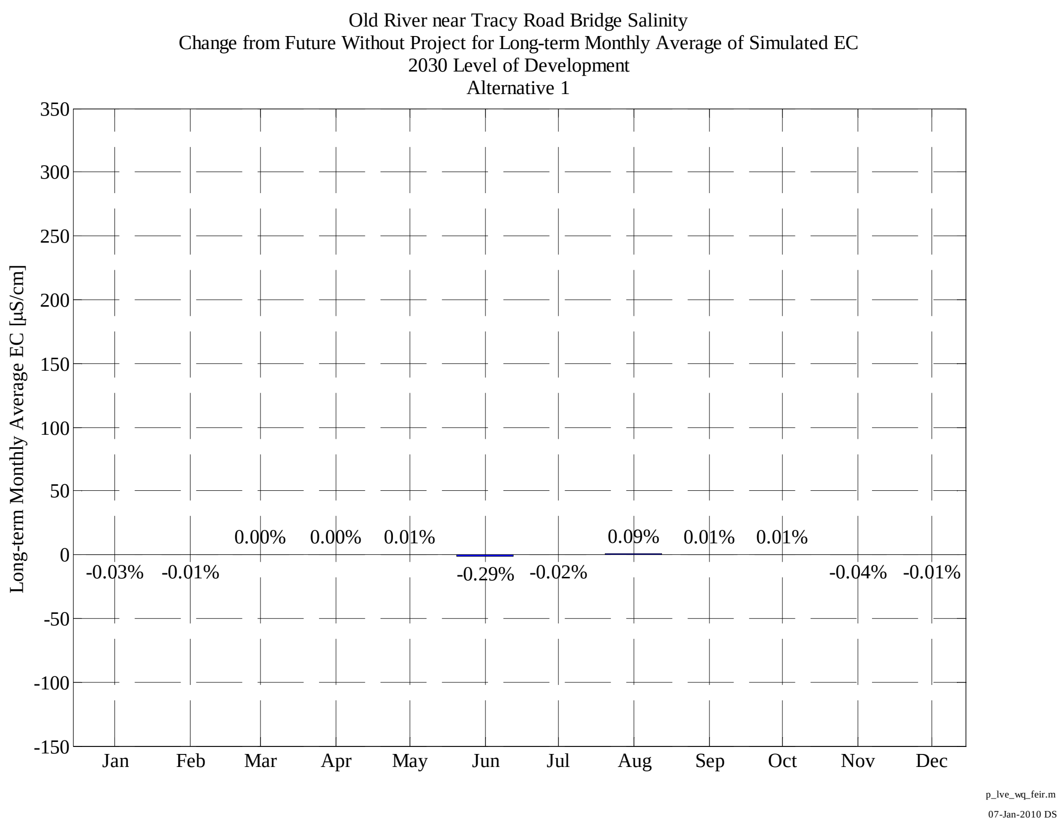
Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2030 Level of Development

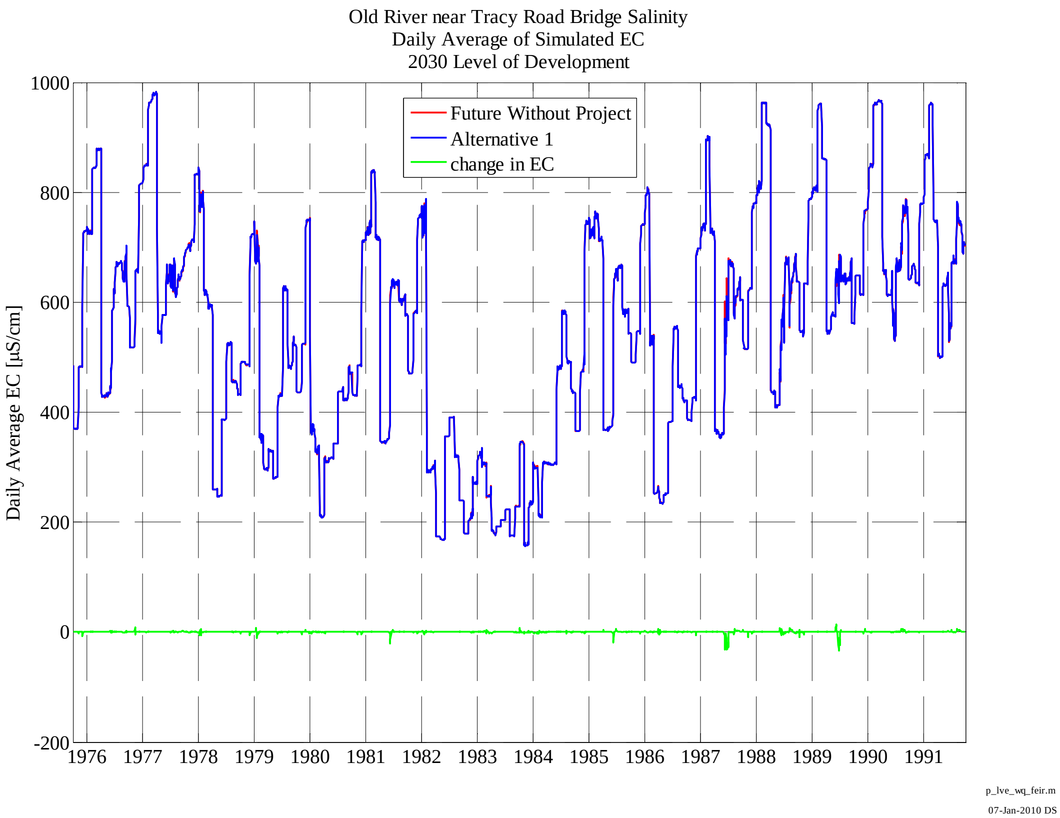
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	381	465	707	728	832	876	472	432	549	665	660	641
1977	532	611	797	845	946	978	609	570	644	645	631	658
1978	696	707	816	786	627	593	272	248	380	514	468	440
1979	483	487	704	690	371	298	328	282	416	595	514	514
1980	446	509	730	386	333	214	307	316	341	433	425	463
1981	436	477	693	730	828	727	369	347	560	635	609	593
1982	486	564	737	749	309	299	176	169	350	389	325	244
1983	182	207	269	321	306	249	185	192	203	222	177	226
1984	337	165	232	298	215	304	306	306	463	568	509	446
1985	372	465	719	728	753	717	391	371	576	661	599	565
1986	498	538	722	792	541	260	239	250	375	536	462	425
1987	390	420	675	733	880	743	396	358	524	667	614	619
1988	532	595	761	807	942	929	484	414	530	656	626	660
1989	573	615	768	805	936	873	580	573	641	648	641	615
1990	628	622	748	838	945	965	714	616	580	657	733	728
1991	656	642	759	854	946	769	527	613	587	667	747	712
Avg	477	505	677	693	669	612	397	379	482	572	546	534
W/AN/BN	447	454	601	574	386	317	259	252	361	465	412	394
D/C	500	546	736	785	890	842	505	477	577	656	651	644

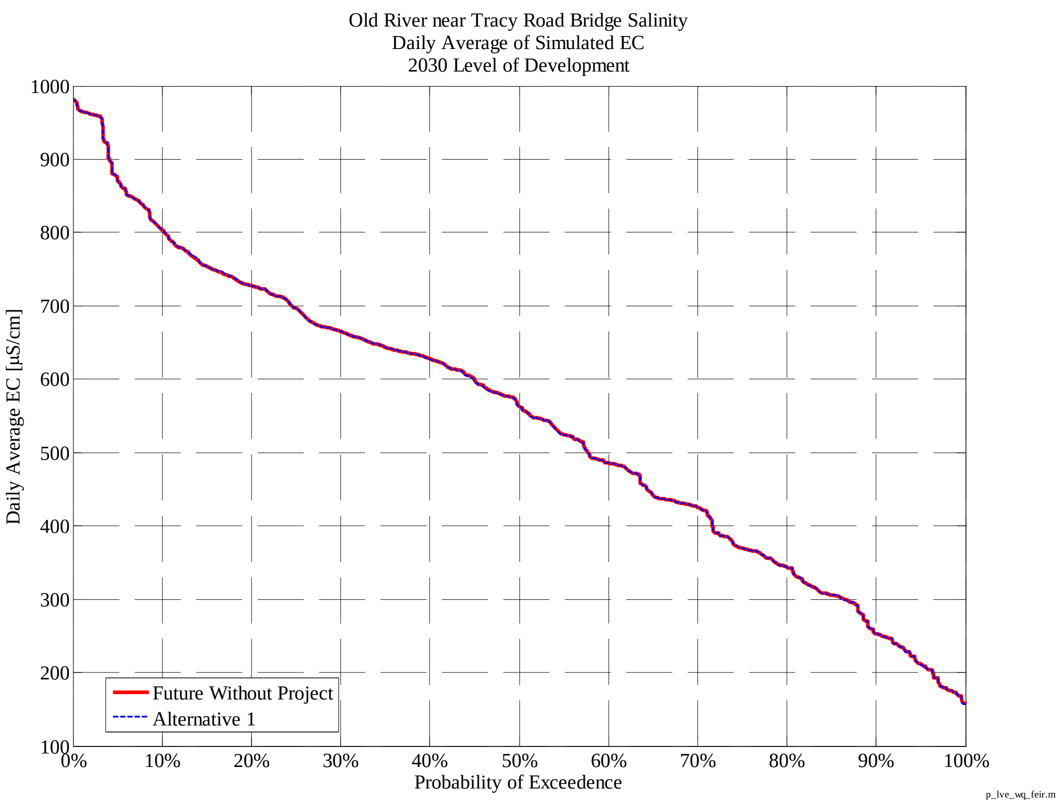
Percent (%) Change from Future Without Project for Old River near Tracy Road Bridge
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.1%	0.0%	0.0%	0.2%	-0.1%	-0.2%	0.0%	0.0%	0.0%	-0.1%	-0.2%
1984	0.1%	-0.4%	-0.1%	-0.5%	-0.4%	-0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-3.4%	-0.3%	0.2%	0.2%
1988	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.5%	-0.2%
1989	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.7%	-0.2%	0.0%	0.0%
1990	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.4%	0.2%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	0.0%	0.1%	0.0%
W/AN/BN	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.5%	0.0%	0.2%	0.1%


Old River near Tracy Road Bridge Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.03%
-0.01%
0.00%
0.00%
0.01%
-0.29%
-0.02%
0.09%
0.01%
0.01%
-0.04%
-0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
Probability of Exceedence
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
p_lve_wq_feir.m
07-Jan-2010 DS

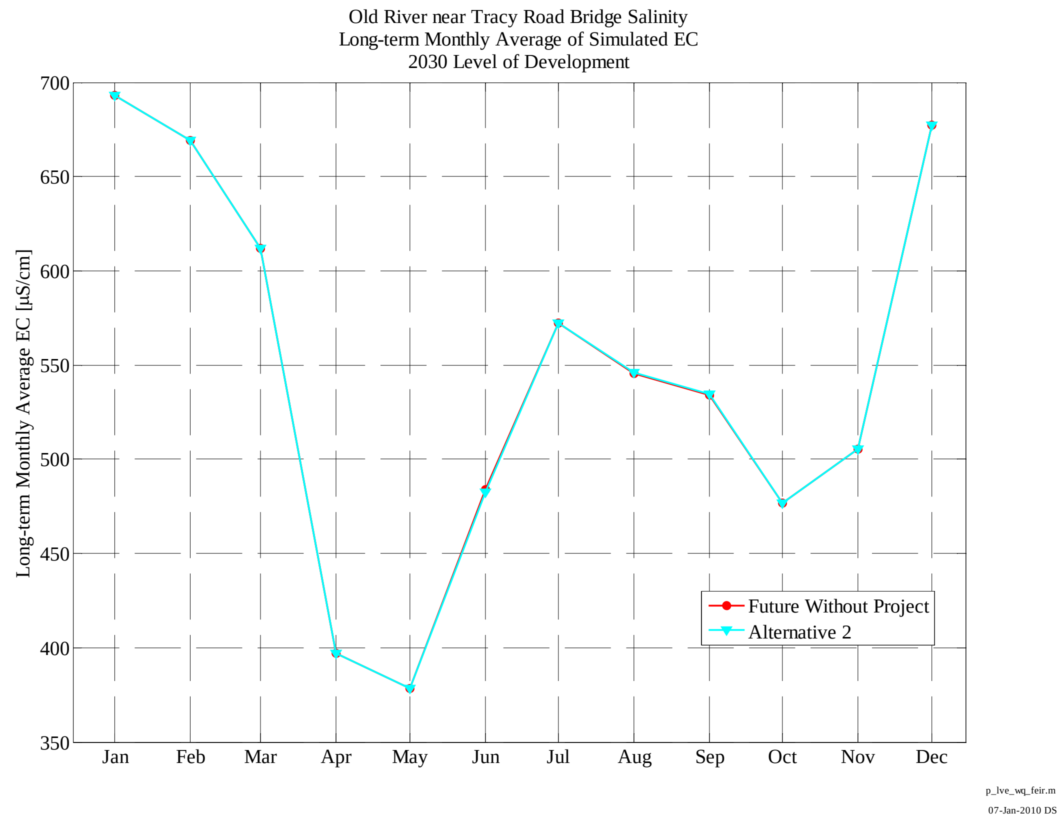
Alternative 2

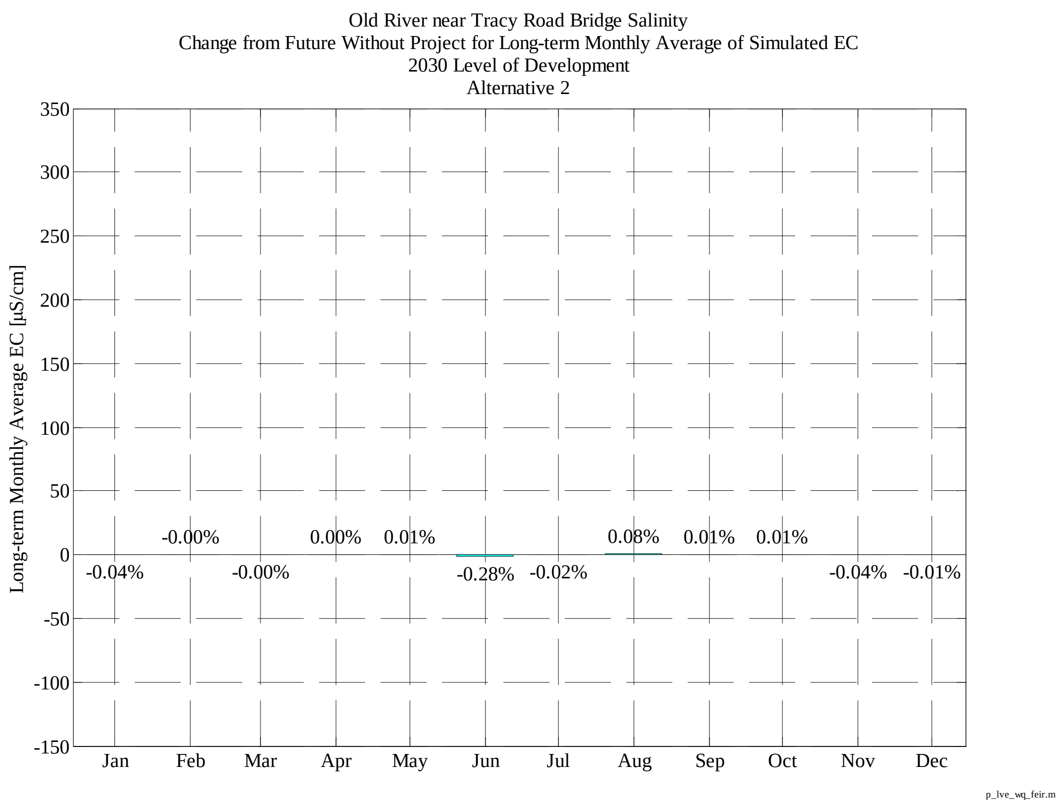
Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

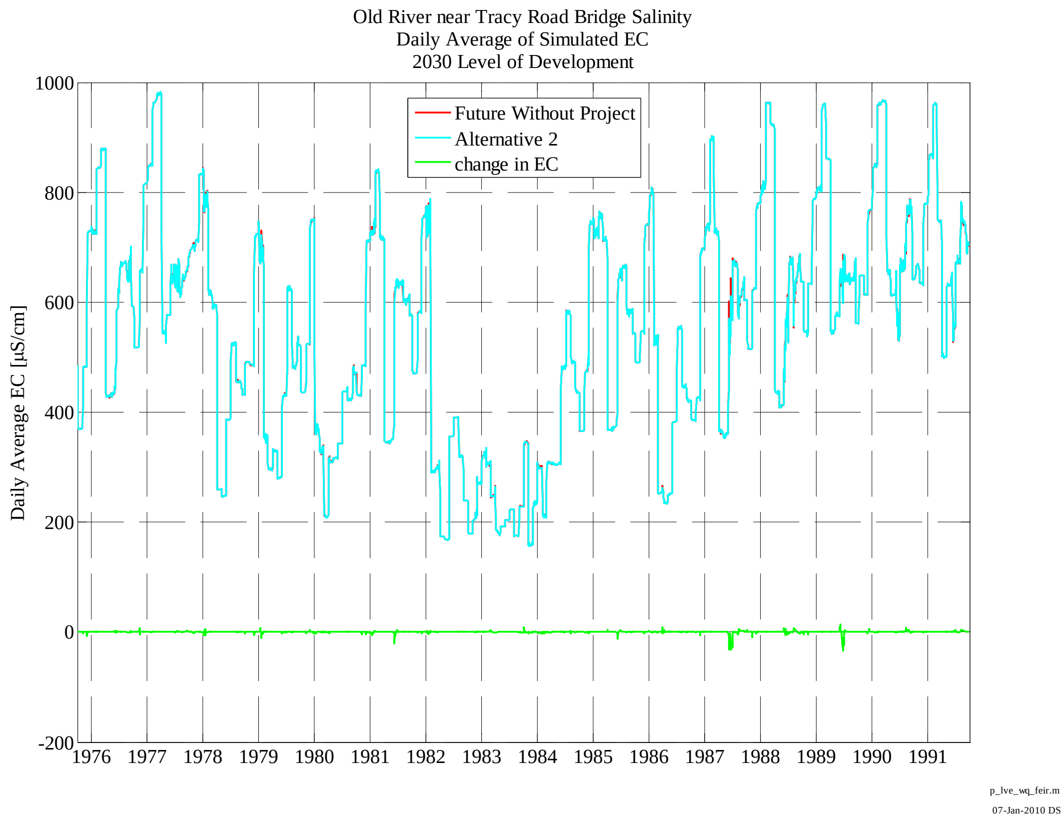
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	381	465	707	728	832	876	472	432	549	665	660	641
1977	532	611	797	845	946	978	609	570	644	645	631	658
1978	696	707	816	786	627	593	272	248	380	514	468	440
1979	483	487	704	690	371	298	328	282	416	595	514	514
1980	446	509	730	386	333	214	307	316	341	433	425	463
1981	436	477	693	729	828	727	369	347	560	635	609	593
1982	486	564	737	749	309	299	176	169	350	389	325	244
1983	182	207	269	321	306	249	185	192	203	222	177	226
1984	337	164	232	298	215	303	306	306	463	568	509	446
1985	372	464	719	728	753	717	391	371	576	661	599	565
1986	498	538	721	792	541	260	239	250	375	536	462	425
1987	390	420	675	733	880	743	396	358	524	667	614	619
1988	532	595	761	807	942	929	484	414	530	656	626	660
1989	573	615	768	805	936	873	580	573	641	648	641	615
1990	628	622	748	838	945	965	714	616	580	657	732	728
1991	656	642	759	854	946	769	527	613	587	667	747	712
Avg	477	505	677	693	669	612	397	379	483	572	546	534
W/AN/BN	447	454	601	574	386	317	259	252	361	465	412	394
D/C	500	546	736	785	890	842	505	477	577	655	651	644

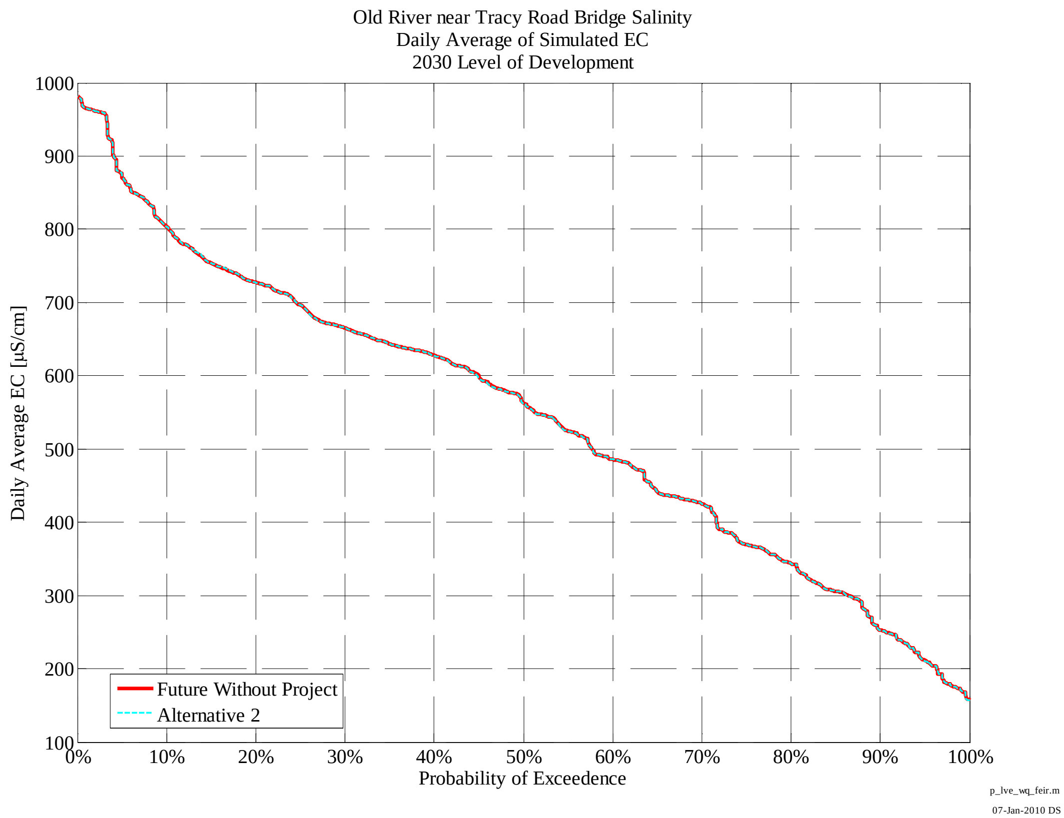
Percent (%) Change from Future Without Project for Old River near Tracy Road Bridge
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	-0.1%	-0.1%	0.1%	0.0%	0.0%	0.0%	-0.3%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.3%	-0.1%	-0.2%	0.0%	0.0%	0.0%	-0.1%	-0.2%
1984	0.1%	-0.5%	0.0%	-0.5%	-0.4%	-0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-3.5%	-0.3%	0.2%	0.2%
1988	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.5%	-0.1%
1989	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.7%	-0.2%	0.0%	0.0%
1990	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.3%	0.1%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	0.0%	0.1%	0.0%
W/AN/BN	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.5%	0.0%	0.2%	0.0%


Old River near Tracy Road Bridge Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.04%
-0.00%
-0.00%
0.00%
0.01%
-0.28%
-0.02%
0.08%
0.01%
0.01%
-0.04%
-0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 2
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

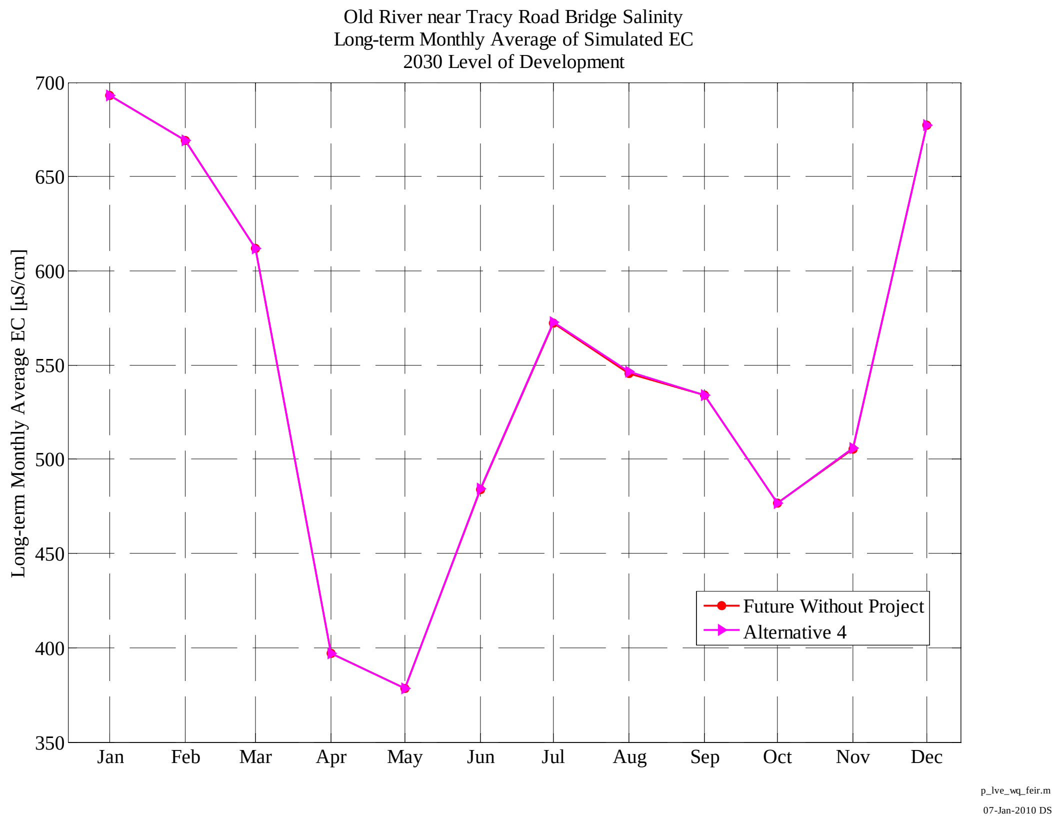
Alternative 4

Old River near Tracy Road Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

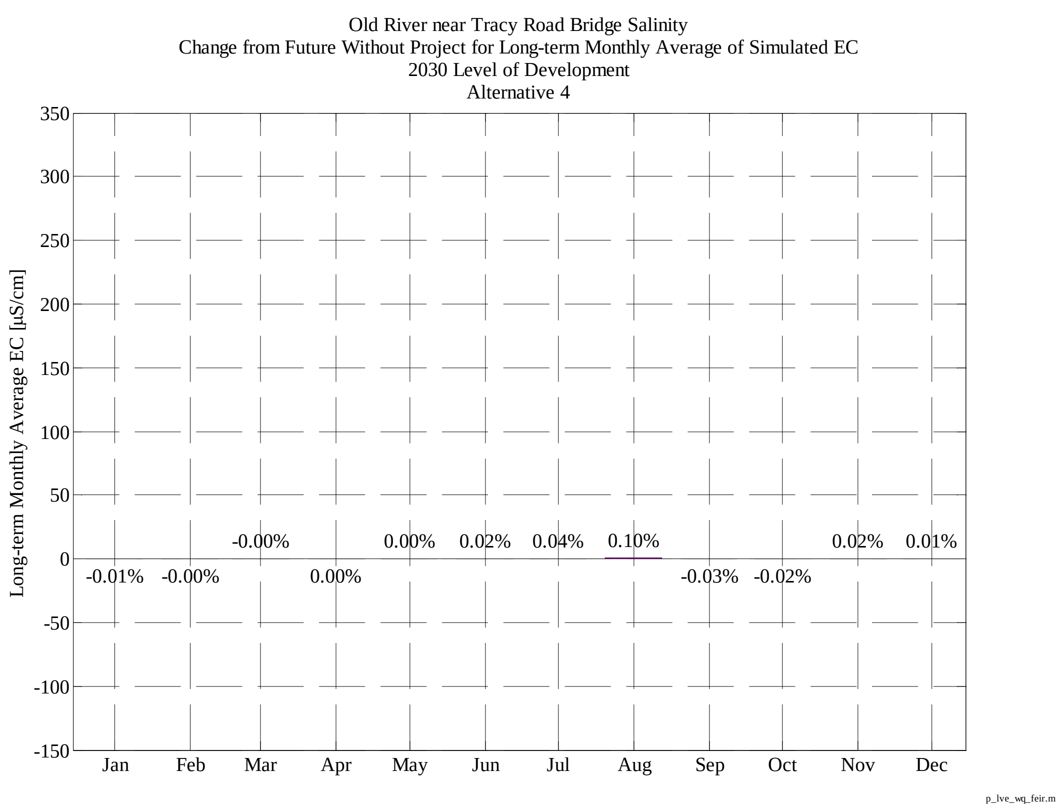
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	381	465	708	728	832	876	472	432	549	665	660	641
1977	532	612	797	845	946	978	609	570	644	648	634	659
1978	695	708	816	786	627	593	272	248	380	514	468	440
1979	483	487	704	690	371	298	328	282	417	595	515	514
1980	446	509	730	386	333	214	307	316	341	433	425	463
1981	436	477	693	730	828	727	369	347	562	635	609	593
1982	486	564	737	748	309	299	176	169	350	389	325	244
1983	182	207	269	321	305	249	185	192	203	222	177	226
1984	337	165	232	299	216	304	305	306	463	568	509	446
1985	372	465	719	728	753	716	391	371	577	660	599	565
1986	498	538	722	792	541	260	239	250	375	536	462	425
1987	390	420	675	732	880	743	396	358	543	669	615	619
1988	532	595	761	807	942	929	484	414	530	656	616	654
1989	572	615	768	805	936	873	580	573	646	649	641	615
1990	628	622	749	838	945	965	714	616	579	657	737	727
1991	656	642	759	854	946	769	526	613	587	667	749	712
Avg	477	506	677	693	669	612	397	379	484	573	546	534
W/AN/BN	447	454	601	575	386	317	259	252	361	465	412	394
D/C	500	546	736	785	890	842	505	477	580	656	651	643

Percent (%) Change from Future Without Project for Old River near Tracy Road Bridge
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

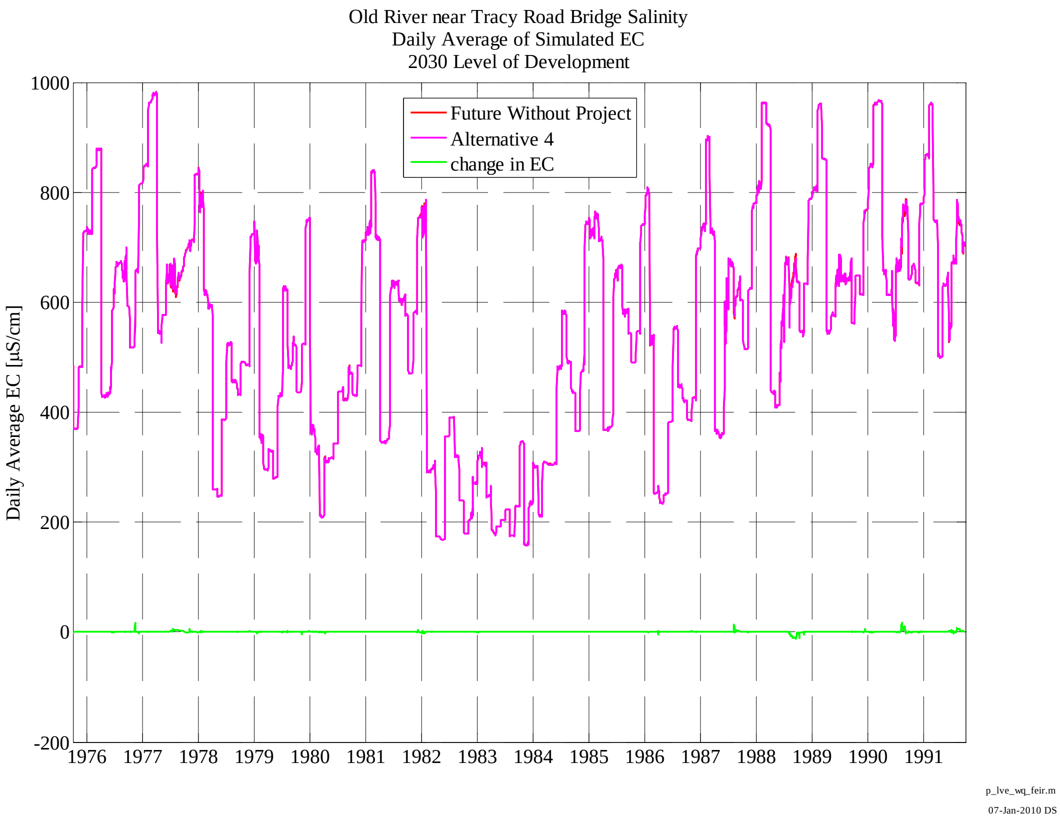
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%	0.6%	0.3%
1978	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.1%	-1.1%
1989	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.6%	0.2%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	-0.1%

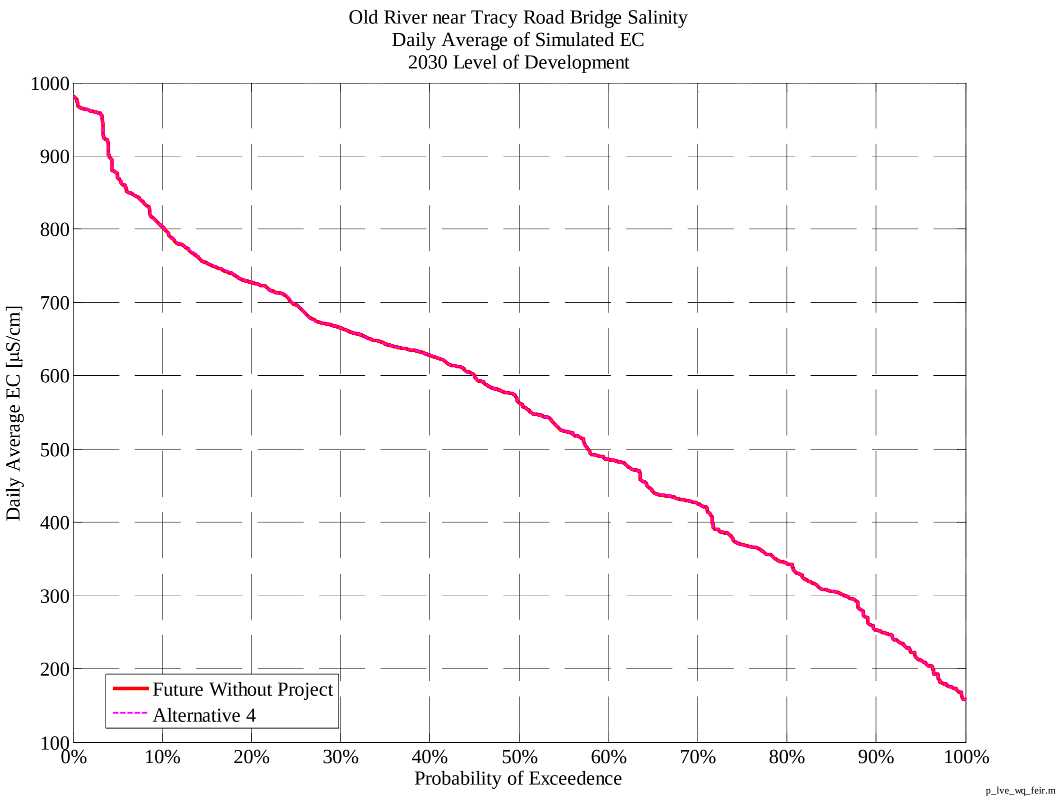


Old River near Tracy Road Bridge Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS



Old River near Tracy Road Bridge Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.01%
-0.00%
-0.00%
0.00%
0.00%
0.02%
0.04%
0.10%
-0.03%
-0.02%
0.02%
0.01%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Tracy Road Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

Old River near Middle River

Future Without Project

Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	369	472	718	708	830	866	432	417	642	657	587	587
1977	515	645	807	826	946	963	541	566	641	663	659	675
1978	682	701	821	737	597	571	262	241	378	510	440	425
1979	481	481	713	647	341	290	322	273	402	605	471	512
1980	434	515	738	355	307	206	301	309	337	430	405	461
1981	425	477	703	704	819	708	347	332	596	623	588	571
1982	470	569	744	693	292	280	174	165	349	384	310	239
1983	179	196	266	272	289	226	175	190	201	220	170	224
1984	337	159	223	289	201	297	297	294	456	565	478	428
1985	363	456	726	703	742	704	367	354	608	653	568	537
1986	486	537	729	764	487	250	230	243	374	536	431	412
1987	377	417	686	711	876	715	362	344	647	658	616	597
1988	511	613	768	778	942	912	444	400	649	661	654	627
1989	536	623	778	785	942	855	544	559	635	631	623	560
1990	638	610	759	827	945	954	647	607	664	650	638	629
1991	649	627	771	843	945	746	497	613	661	662	657	685
Avg	466	506	684	665	656	596	371	369	515	569	518	510
W/AN/BN	439	451	605	537	359	303	252	245	357	464	386	386
D/C	487	549	746	765	888	825	464	466	638	651	621	607

Alternative 1

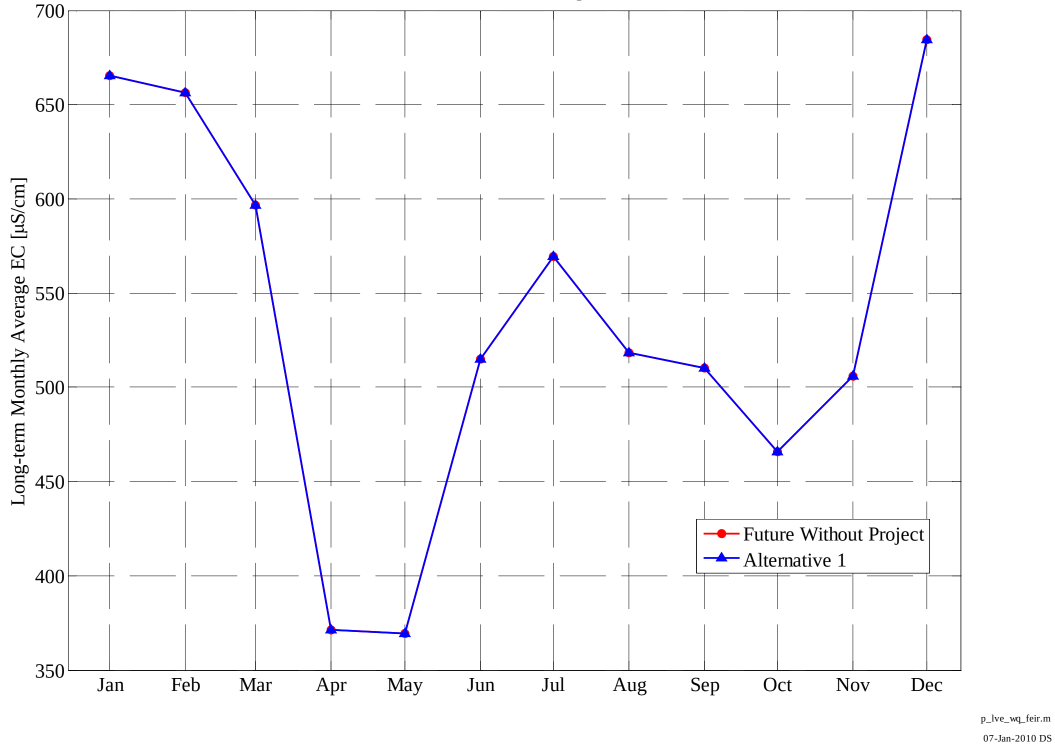
Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 1
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	369	472	718	708	830	866	432	417	642	657	587	587
1977	515	645	807	826	946	963	541	566	641	663	659	675
1978	682	701	821	737	597	571	262	241	378	511	440	425
1979	481	481	713	647	341	290	322	273	402	605	471	512
1980	434	515	738	355	307	206	301	309	337	430	405	461
1981	425	477	703	704	819	708	347	332	596	623	588	571
1982	470	569	744	693	292	280	174	165	349	384	310	239
1983	179	196	266	272	289	226	175	190	201	220	170	224
1984	337	159	223	289	201	297	297	294	456	565	478	428
1985	363	456	726	703	742	704	367	354	608	653	568	537
1986	486	537	729	764	487	250	230	243	374	536	431	412
1987	377	417	686	711	876	715	362	344	647	658	616	597
1988	511	613	768	778	942	912	444	400	649	661	654	627
1989	536	623	778	785	942	855	544	559	635	631	623	560
1990	638	610	759	827	945	954	647	607	664	650	638	629
1991	649	627	771	843	945	746	497	613	661	662	657	685
Avg	466	506	684	665	656	596	371	369	515	569	518	510
W/AN/BN	439	451	605	537	359	303	252	245	357	464	386	386
D/C	487	549	746	765	888	825	464	466	638	651	621	607

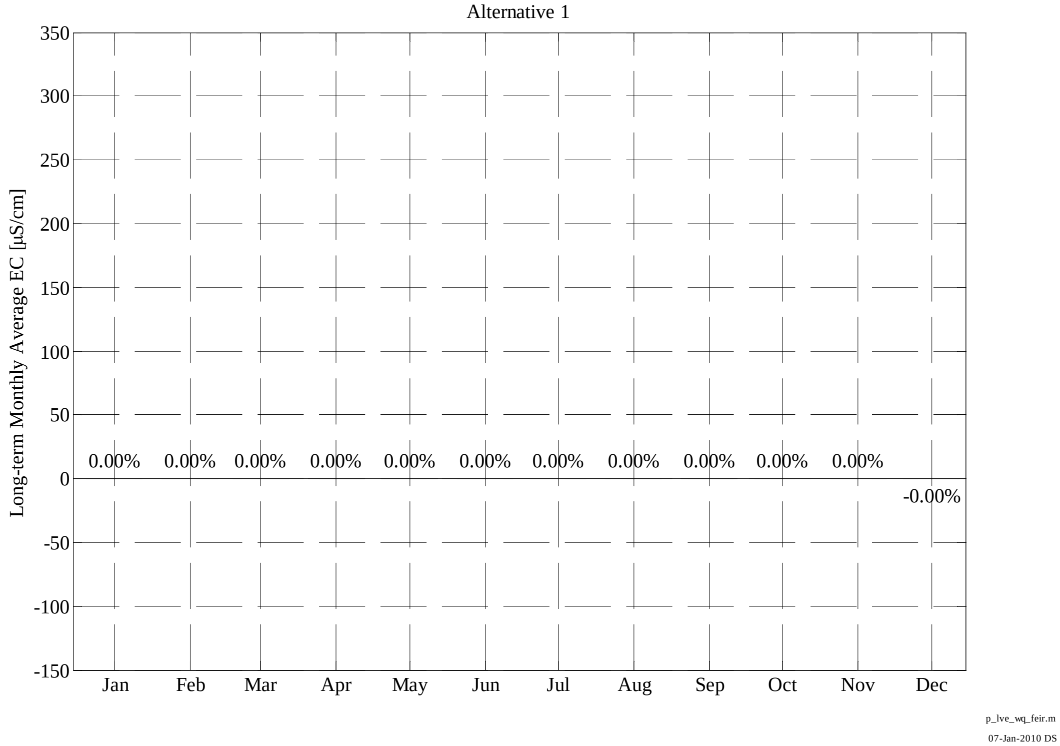
Percent (%) Change from Future Without Project for Old River near Middle River Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

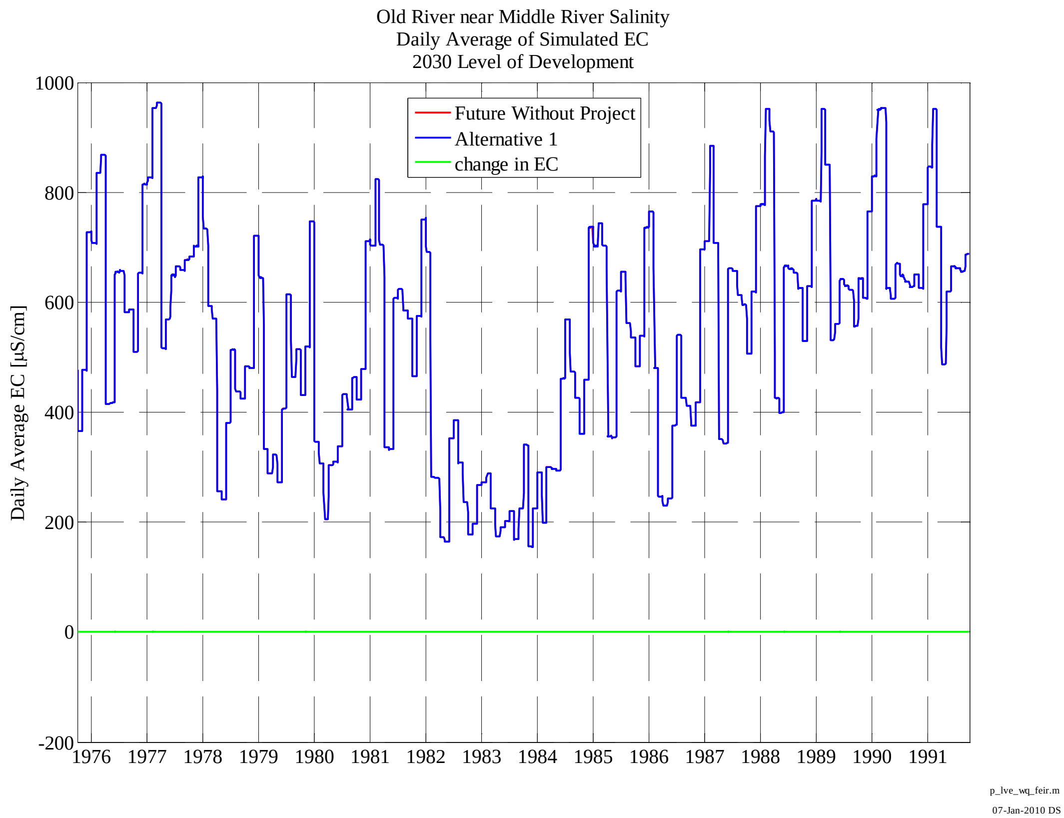
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

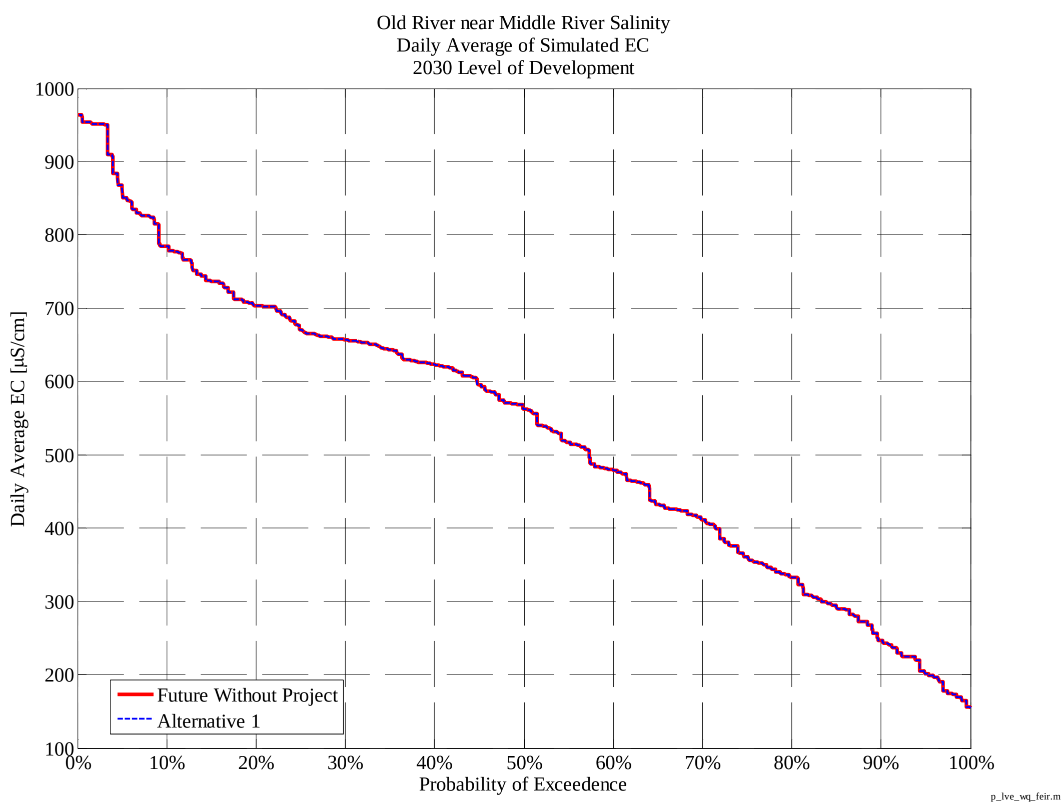
Old River near Middle River Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development



Old River near Middle River Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1




Old River near Middle River Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS

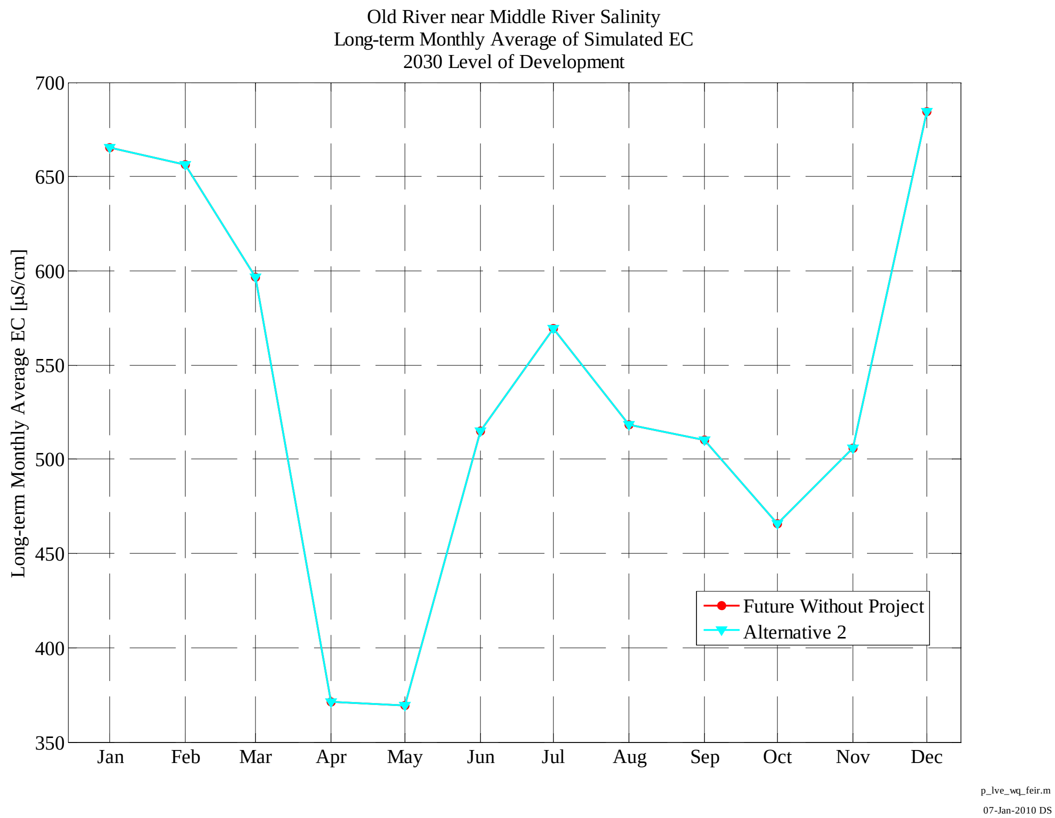
Alternative 2

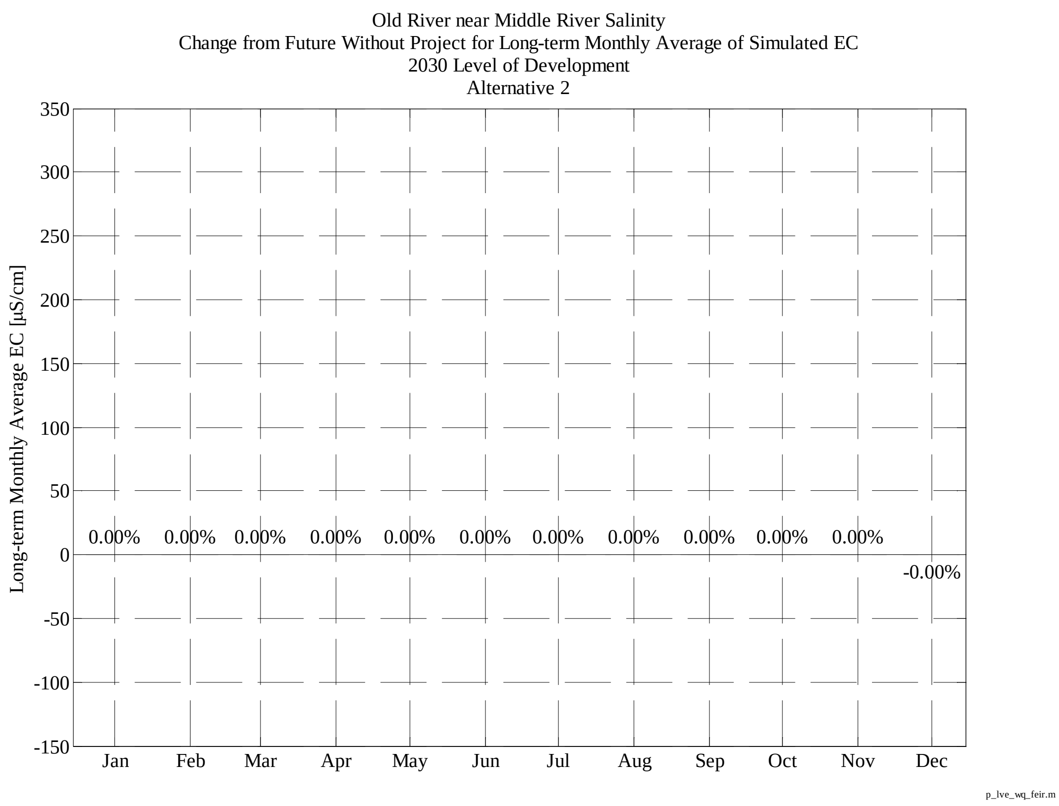
Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

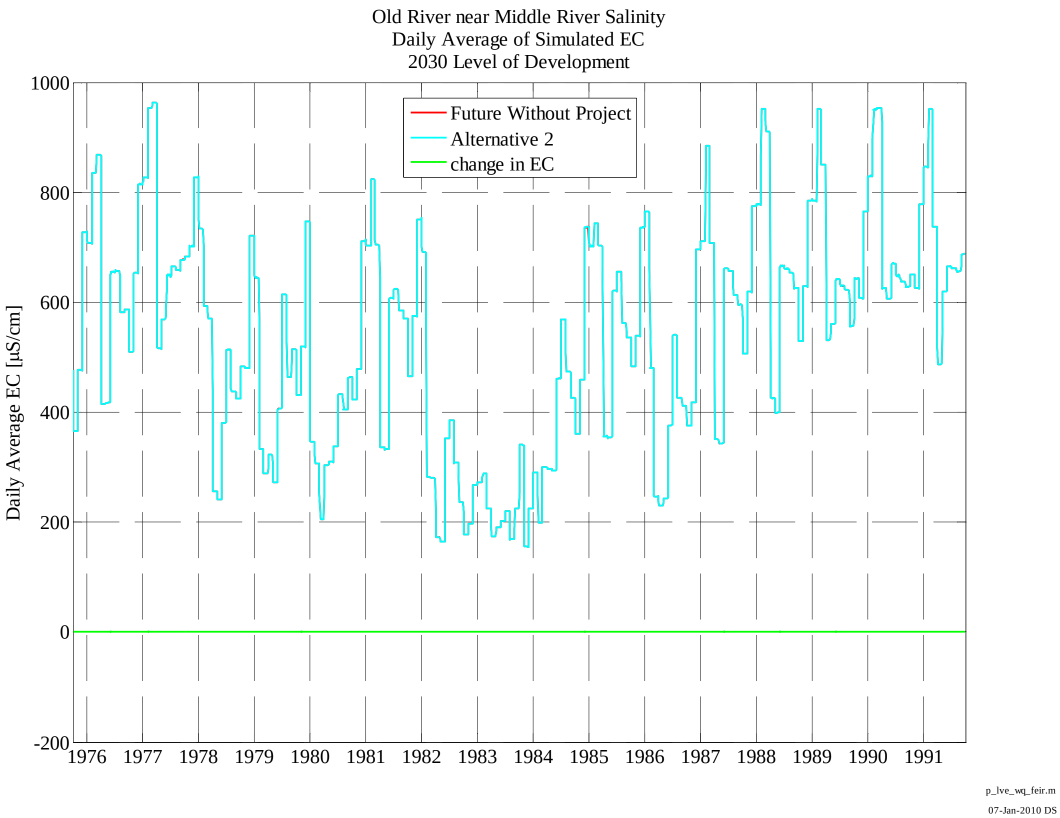
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	369	472	718	708	830	866	432	417	642	657	587	587
1977	515	645	807	826	946	963	541	566	641	663	659	675
1978	682	701	821	737	597	571	262	241	378	511	440	425
1979	481	481	713	647	341	290	322	273	402	605	471	512
1980	434	515	738	355	307	206	301	309	337	430	405	461
1981	425	477	703	704	819	708	347	332	596	623	588	571
1982	470	569	744	693	292	280	174	165	349	384	310	239
1983	179	196	266	272	289	226	175	190	201	220	170	224
1984	337	159	223	289	201	297	297	294	456	565	478	428
1985	363	456	726	703	742	704	367	354	608	653	568	537
1986	486	537	729	764	487	250	230	243	374	536	431	412
1987	377	417	686	711	876	715	362	344	647	658	616	597
1988	511	613	768	778	942	912	444	400	649	661	654	627
1989	536	623	778	785	942	855	544	559	635	631	623	560
1990	638	610	759	827	945	954	647	607	664	650	638	629
1991	649	627	771	843	945	746	497	613	661	662	657	685
Avg	466	506	684	665	656	596	371	369	515	569	518	510
W/AN/BN	439	451	605	537	359	303	252	245	357	464	386	386
D/C	487	549	746	765	888	825	464	466	638	651	621	607

Percent (%) Change from Future Without Project for Old River near Middle River Salinity
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

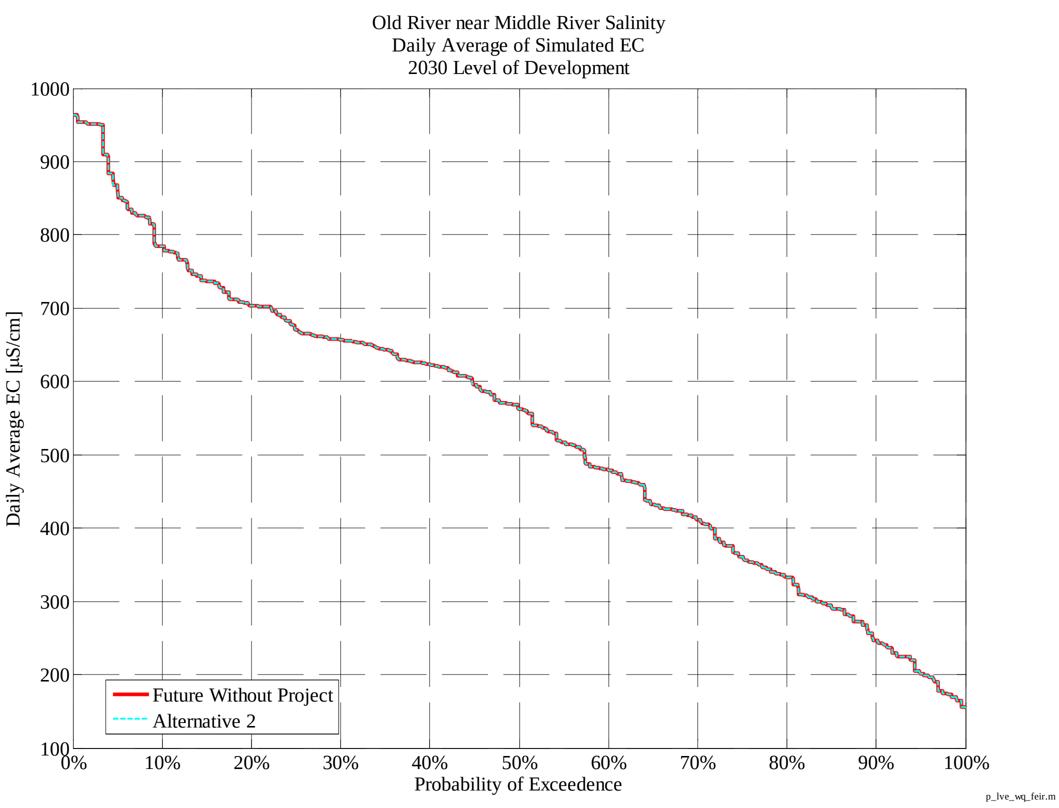
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Old River near Middle River Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS



Old River near Middle River Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS



Old River near Middle River Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 2
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

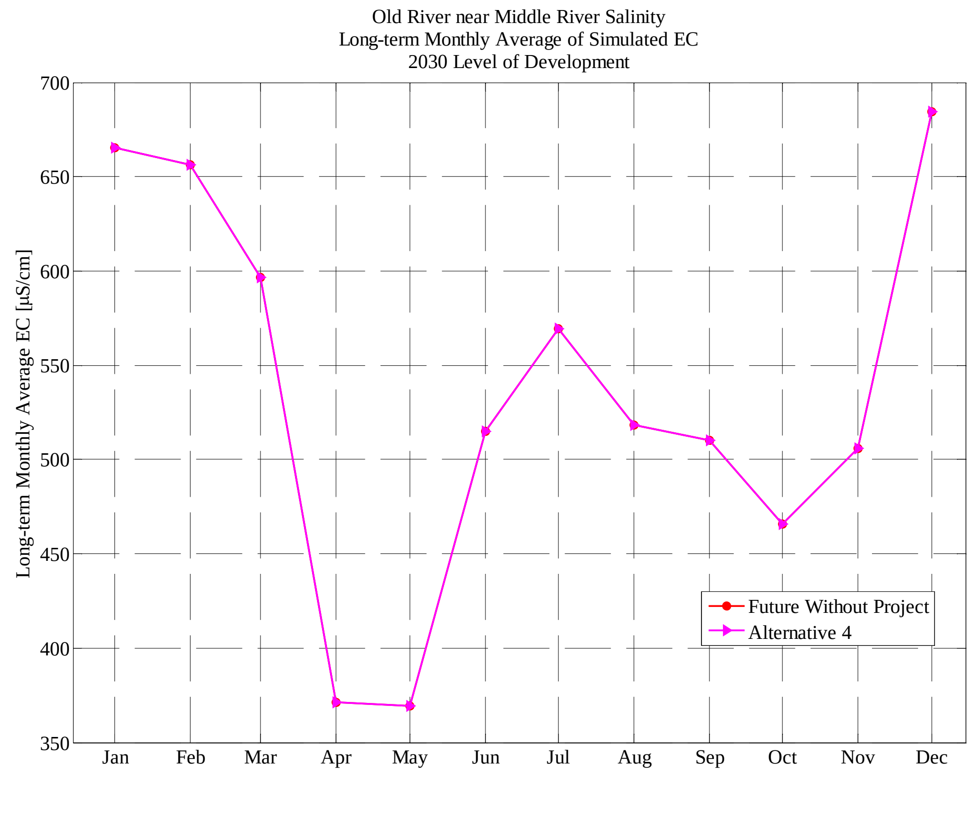
Alternative 4

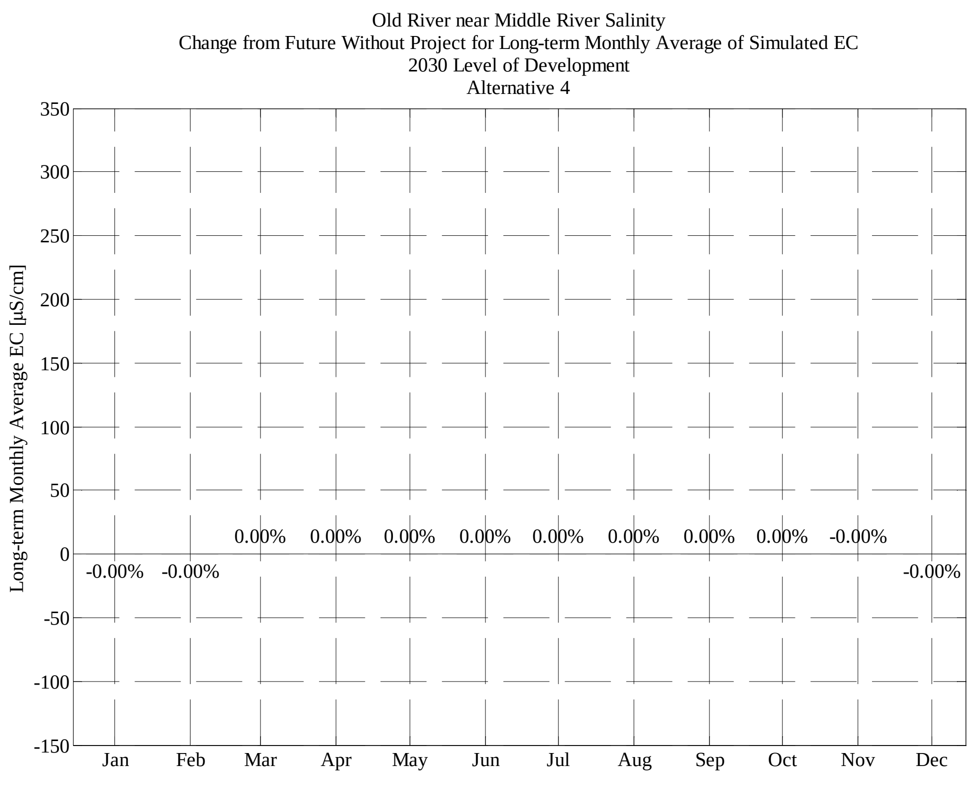
Old River near Middle River Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

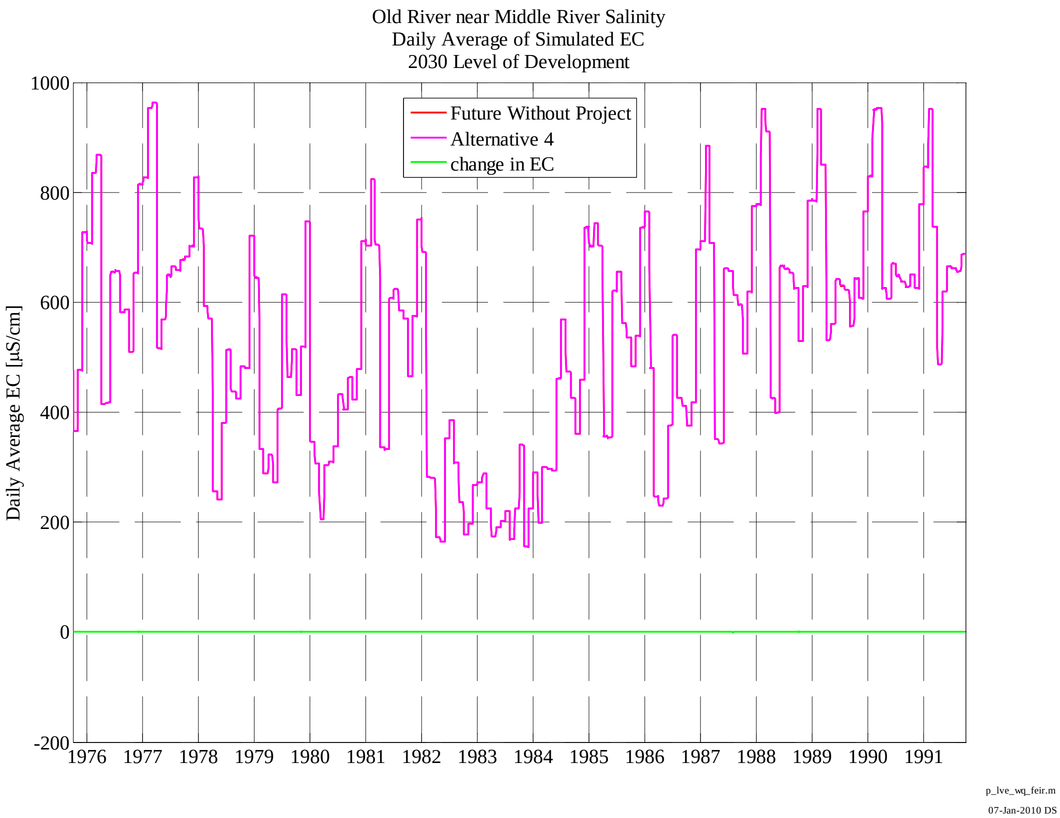
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	369	472	718	708	830	866	432	417	642	657	587	587
1977	515	645	807	826	946	963	541	566	641	663	659	675
1978	683	701	821	737	597	571	262	241	378	511	440	425
1979	481	481	713	647	341	290	322	273	402	605	471	512
1980	434	515	738	355	307	206	301	309	337	430	405	461
1981	425	477	703	704	819	708	347	332	596	623	588	571
1982	470	569	744	693	292	280	174	165	349	384	310	239
1983	179	196	266	272	289	226	175	190	201	220	170	224
1984	337	159	223	289	201	297	297	294	456	565	478	428
1985	363	456	726	703	742	704	367	354	608	653	568	537
1986	486	537	729	764	487	250	230	243	374	536	431	412
1987	377	417	686	711	876	715	362	344	647	658	616	597
1988	511	613	768	778	942	912	444	400	649	661	654	627
1989	536	623	778	785	942	855	544	559	635	632	623	560
1990	638	610	759	827	945	954	647	607	664	650	638	629
1991	649	627	771	843	945	746	496	613	661	662	657	685
Avg	466	506	684	665	656	596	371	369	515	569	518	510
W/AN/BN	439	451	605	537	359	303	252	245	357	464	386	386
D/C	487	549	746	765	888	825	464	466	638	651	621	607

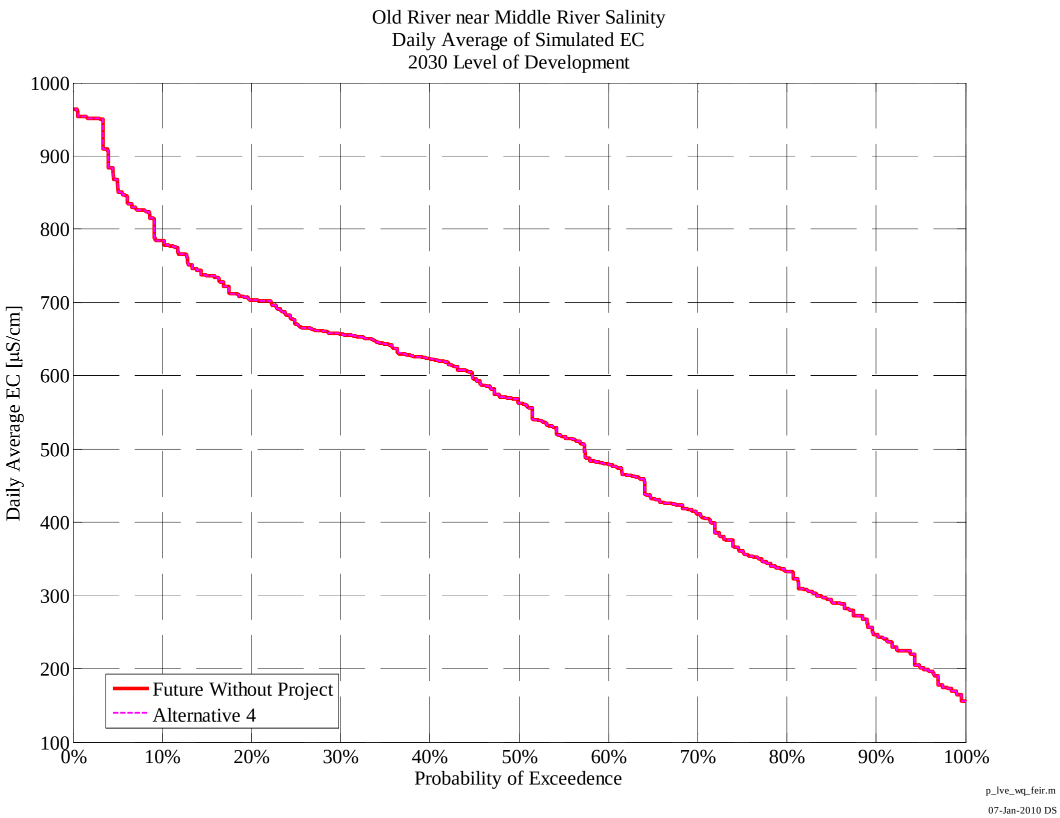
Percent (%) Change from Future Without Project for Old River near Middle River Salinity
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


Old River near Middle River Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
-0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


Old River near Middle River Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 4
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Brandt Bridge

Future Without Project

San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	368	471	714	708	827	866	436	417	636	659	588	586
1977	512	643	797	824	942	963	549	565	636	663	658	674
1978	680	699	817	738	596	570	262	241	377	510	440	424
1979	479	479	710	646	341	289	321	273	400	604	470	511
1980	433	513	732	355	306	206	300	309	337	429	405	459
1981	423	475	698	703	816	708	347	332	589	623	588	570
1982	468	568	742	693	292	279	174	165	348	384	309	238
1983	179	196	266	272	289	225	175	190	201	219	169	223
1984	336	159	223	288	200	296	296	294	454	563	479	427
1985	362	453	722	703	741	703	367	353	602	653	568	537
1986	483	535	724	763	487	250	230	243	373	535	431	411
1987	375	415	681	709	871	716	364	343	638	659	616	596
1988	508	612	762	777	937	913	449	400	643	669	653	626
1989	532	622	775	784	938	856	550	559	631	649	626	560
1990	636	607	754	826	941	953	659	607	661	670	639	627
1991	647	625	765	839	942	748	499	611	659	672	656	683
Avg	464	505	680	664	654	596	374	369	512	573	518	509
W/AN/BN	437	450	602	536	359	302	251	245	356	463	386	385
D/C	485	547	741	764	884	825	469	465	633	658	621	607

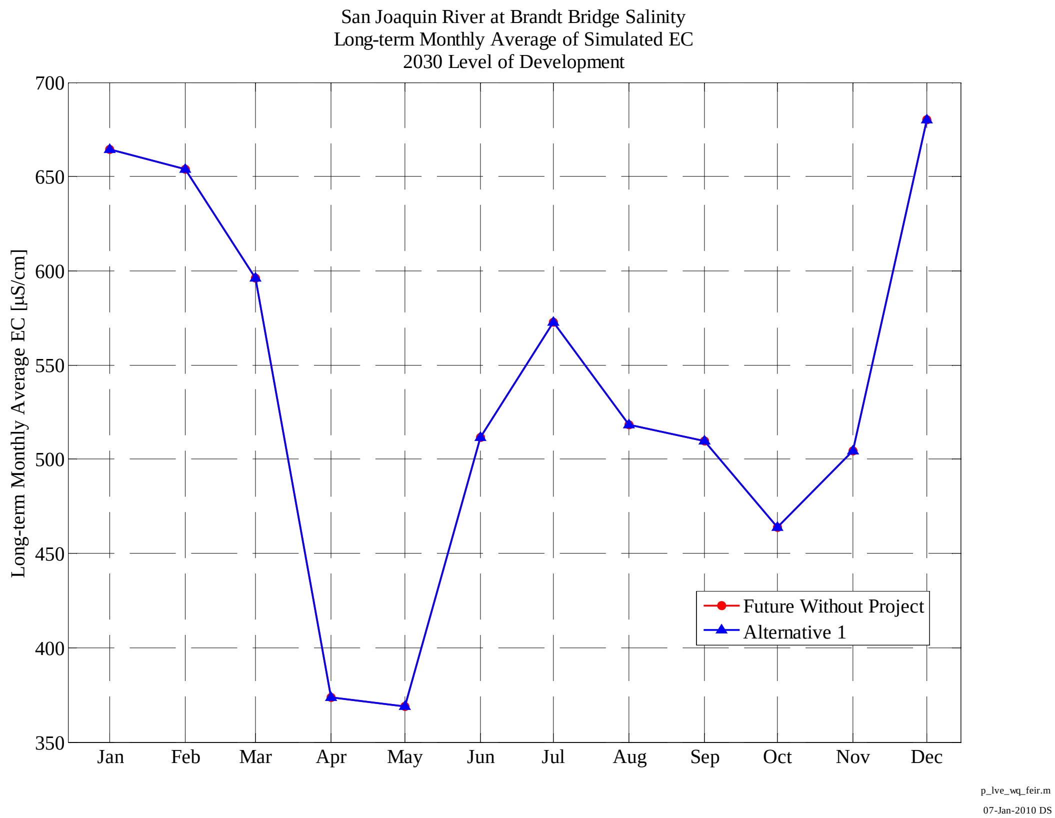
Alternative 1

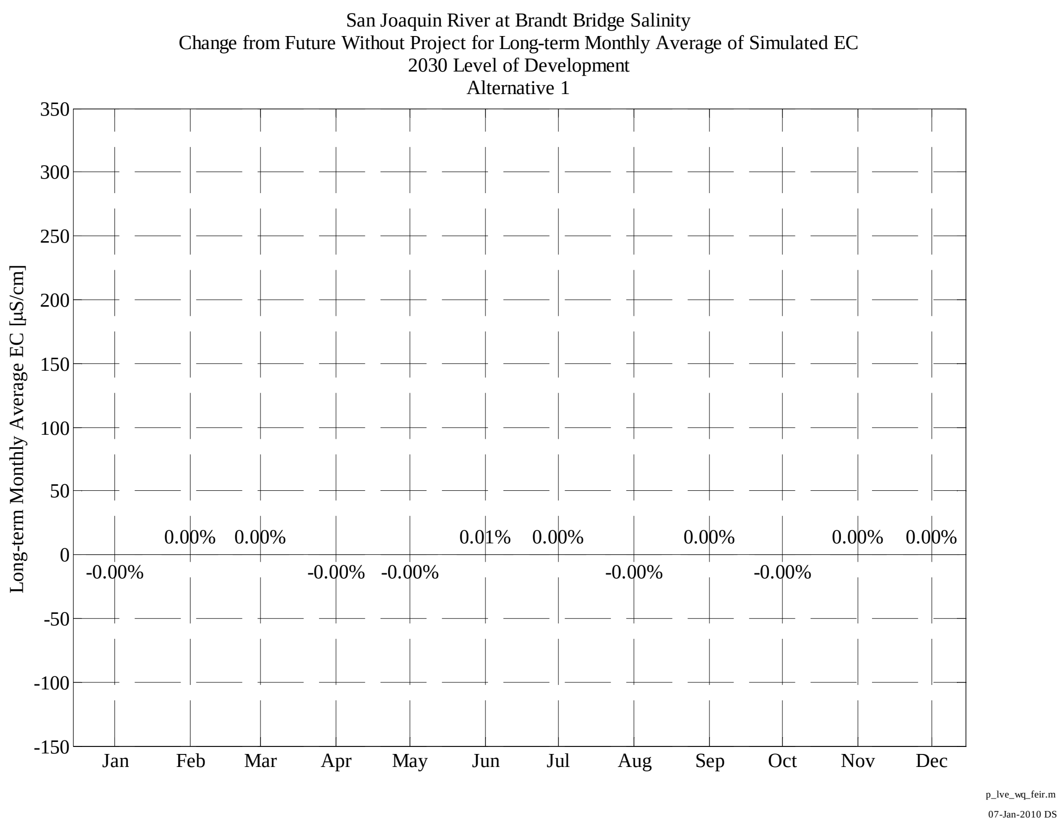
San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

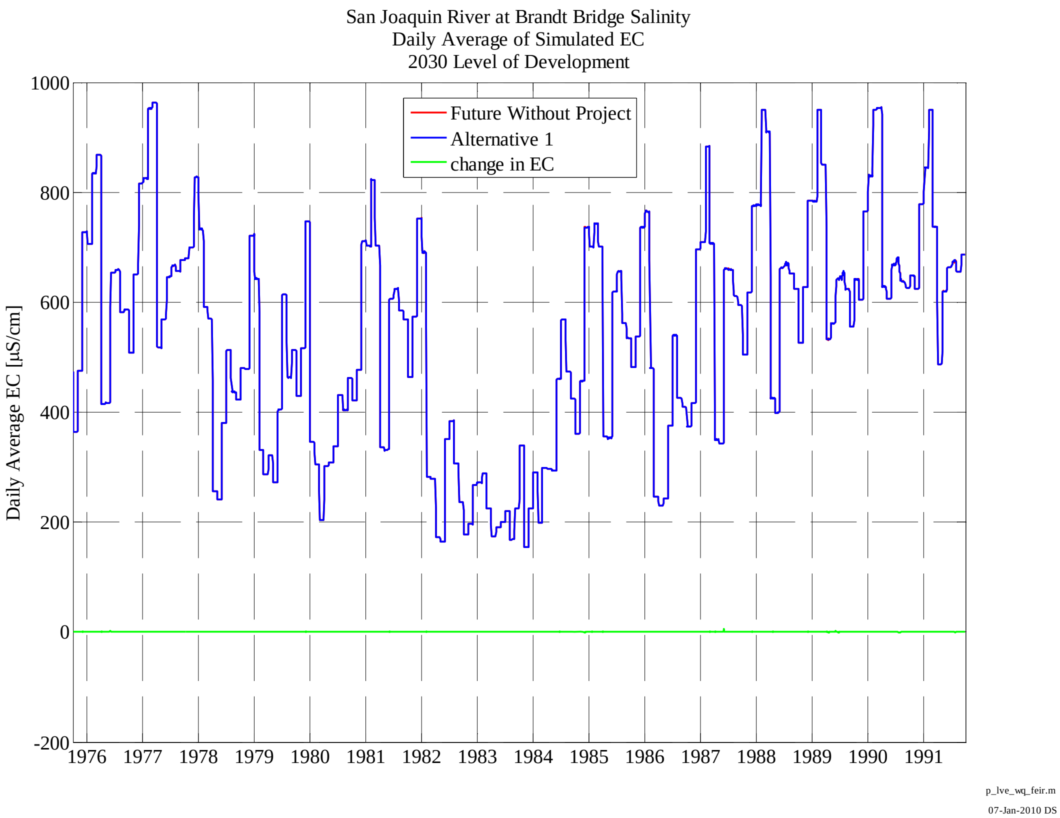
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	368	471	714	708	827	866	436	417	636	659	588	586
1977	512	643	797	824	942	963	549	565	636	663	658	674
1978	680	699	817	738	596	570	262	241	377	510	440	424
1979	479	479	710	646	341	289	321	273	400	604	470	511
1980	433	513	732	355	306	206	300	309	337	429	405	459
1981	423	475	698	703	816	708	347	332	589	623	588	570
1982	468	568	742	693	292	279	174	165	348	384	309	238
1983	179	196	266	272	289	225	175	190	201	219	169	223
1984	336	159	223	288	200	296	296	294	454	563	479	427
1985	362	453	722	703	741	703	367	353	602	653	568	537
1986	483	535	724	763	487	250	230	243	373	535	431	411
1987	375	415	681	709	871	716	364	343	638	659	616	596
1988	508	612	762	777	937	913	449	400	643	670	653	626
1989	532	622	775	784	938	856	550	559	631	649	626	560
1990	636	607	754	826	941	953	659	607	661	670	638	627
1991	647	625	766	839	942	748	499	611	659	672	656	683
Avg	464	505	680	664	654	596	374	369	512	573	518	509
W/AN/BN	437	450	602	536	359	302	251	245	356	463	386	385
D/C	485	547	741	764	884	825	469	465	633	658	621	607

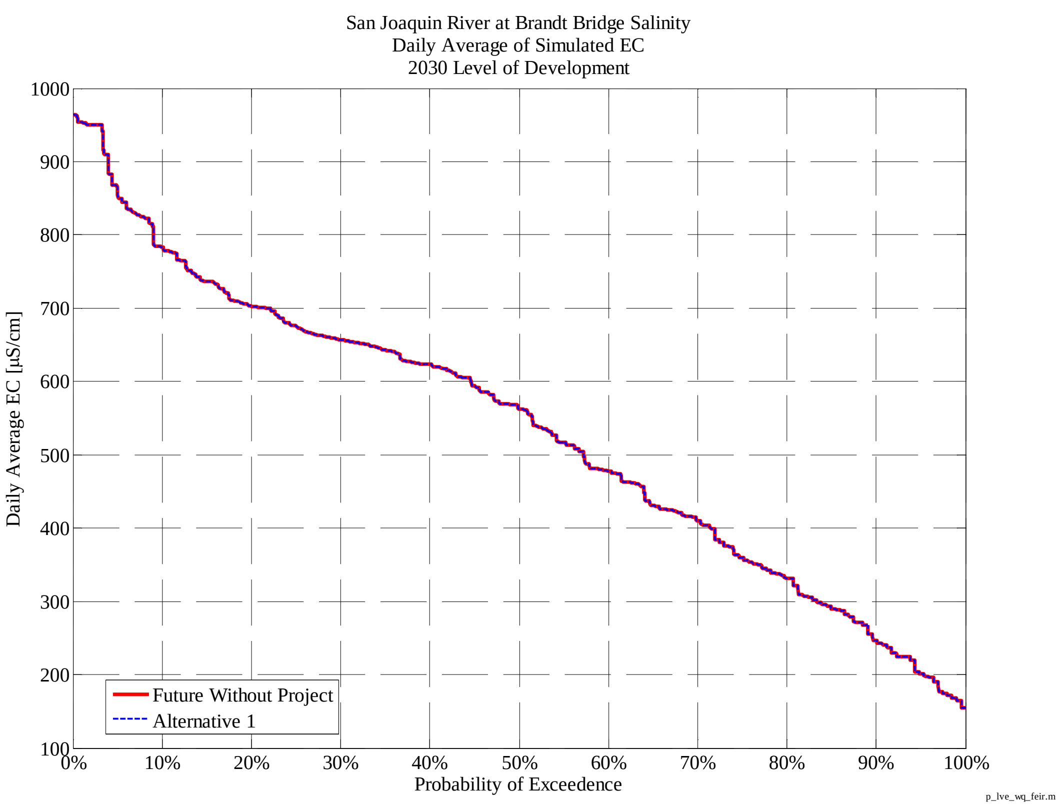
Percent (%) Change from Future Without Project for San Joaquin River at Brandt Bridge
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Brandt Bridge Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
0.00%
0.00%
-0.00%
-0.00%
0.01%
0.00%
-0.00%
0.00%
-0.00%
0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 1
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

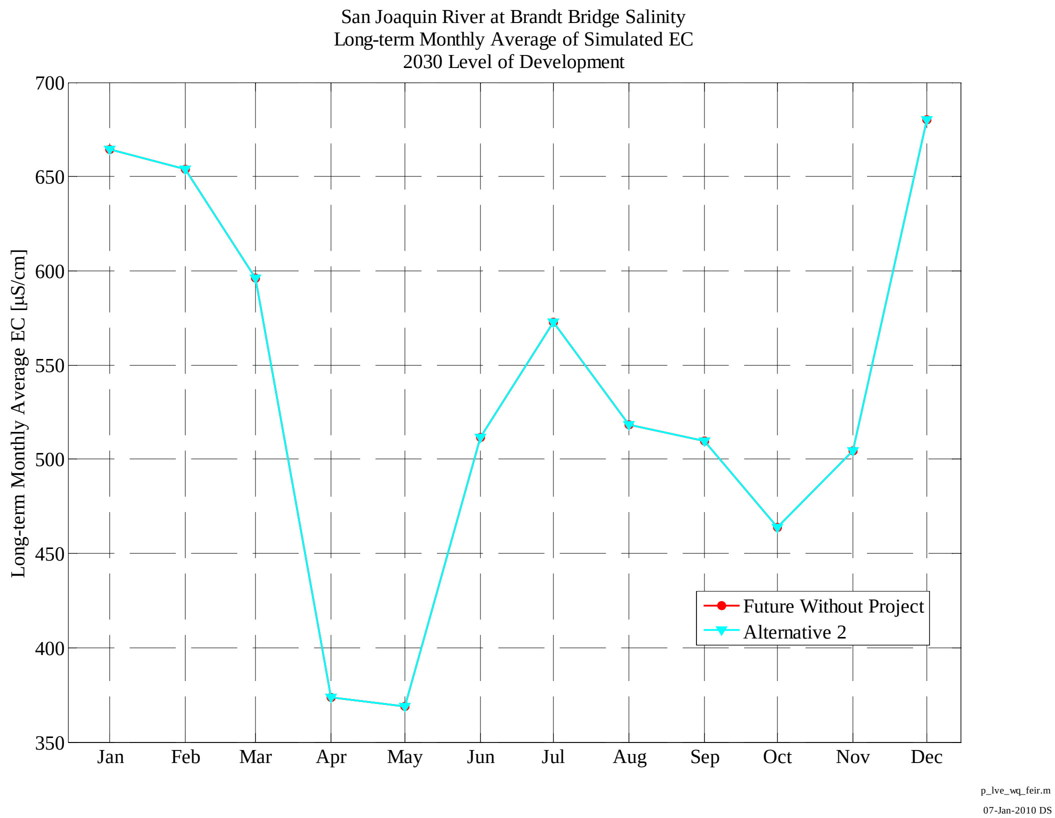
Alternative 2

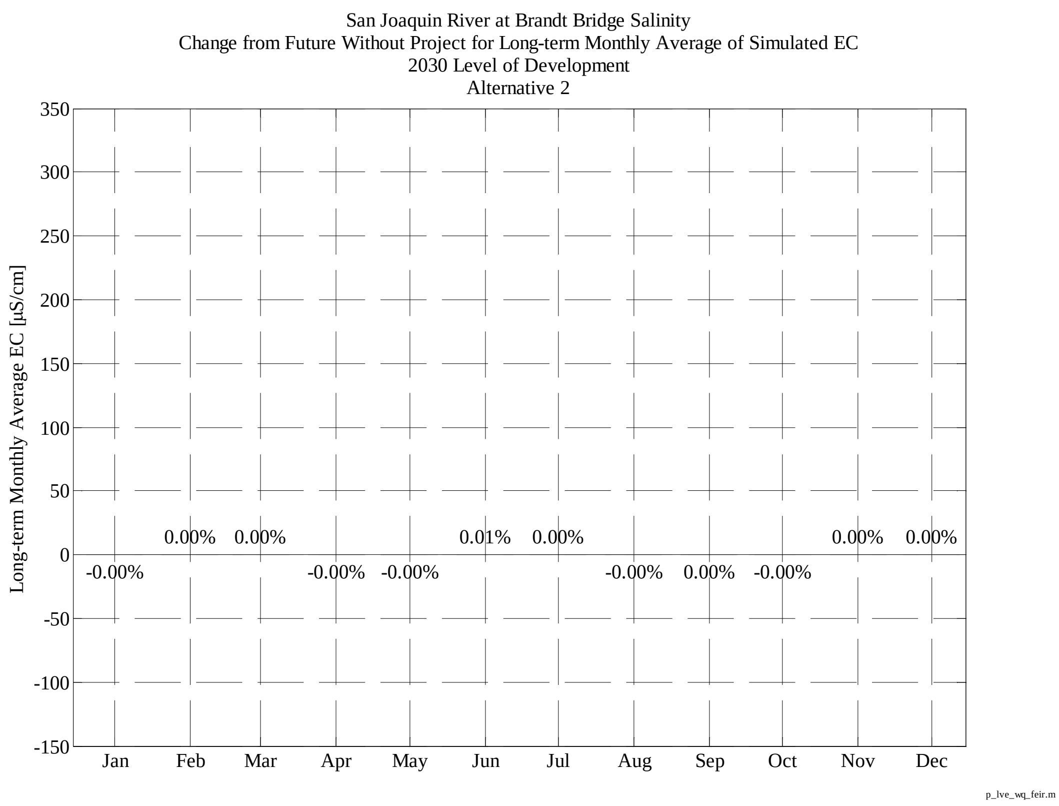
San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 2
2030 Level of Development

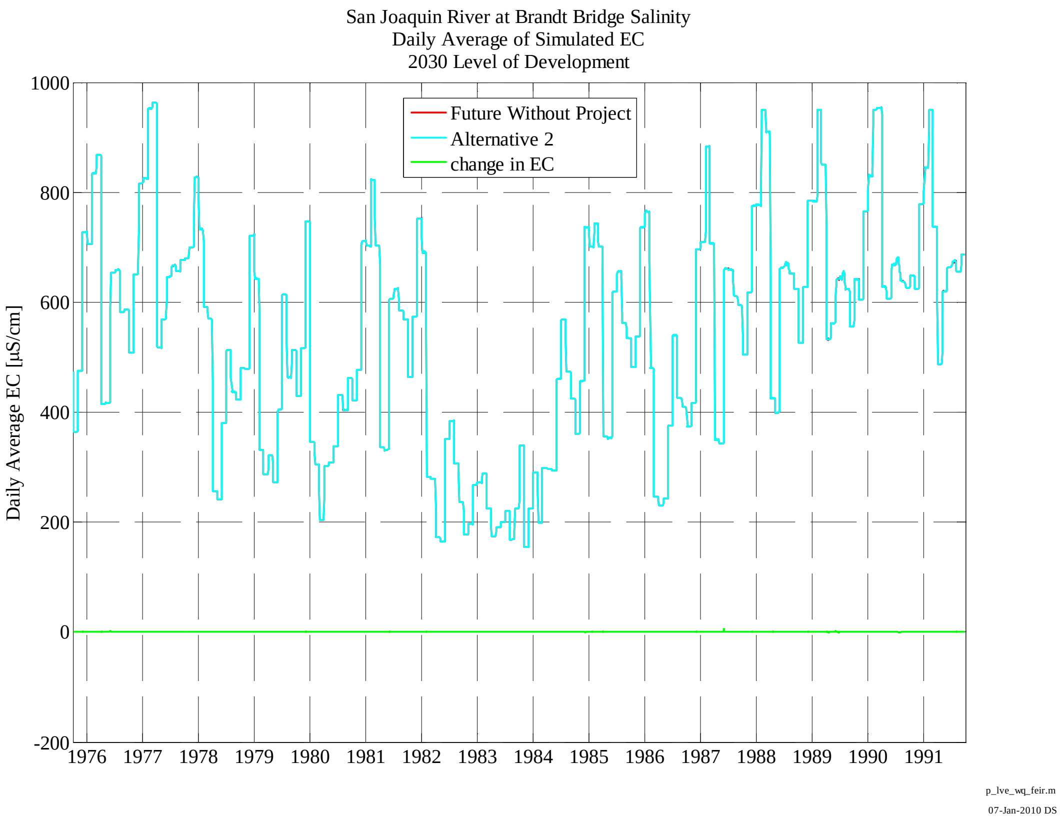
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	368	471	714	708	827	866	436	417	636	659	588	586
1977	512	643	797	824	942	963	549	565	636	663	658	674
1978	680	699	817	738	596	570	262	241	377	510	440	424
1979	479	479	710	646	341	289	321	273	400	604	470	511
1980	433	513	732	355	306	206	300	309	337	429	405	459
1981	423	475	698	703	816	708	347	332	589	623	588	570
1982	468	568	742	693	292	279	174	165	348	384	309	238
1983	179	196	266	272	289	225	175	190	201	219	169	223
1984	336	159	223	288	200	296	296	294	454	563	479	427
1985	362	453	722	703	741	703	367	353	602	653	568	537
1986	483	535	724	763	487	250	230	243	373	535	431	411
1987	375	415	681	709	871	716	364	343	638	659	616	596
1988	508	612	762	777	937	913	449	400	643	670	653	626
1989	532	622	775	784	938	856	550	559	631	649	626	560
1990	636	607	754	826	941	953	659	607	661	670	638	627
1991	647	625	766	839	942	748	499	611	659	672	656	683
Avg	464	505	680	664	654	596	374	369	512	573	518	509
W/AN/BN	437	450	602	536	359	302	251	245	356	463	386	385
D/C	485	547	741	764	884	825	469	465	633	658	621	607

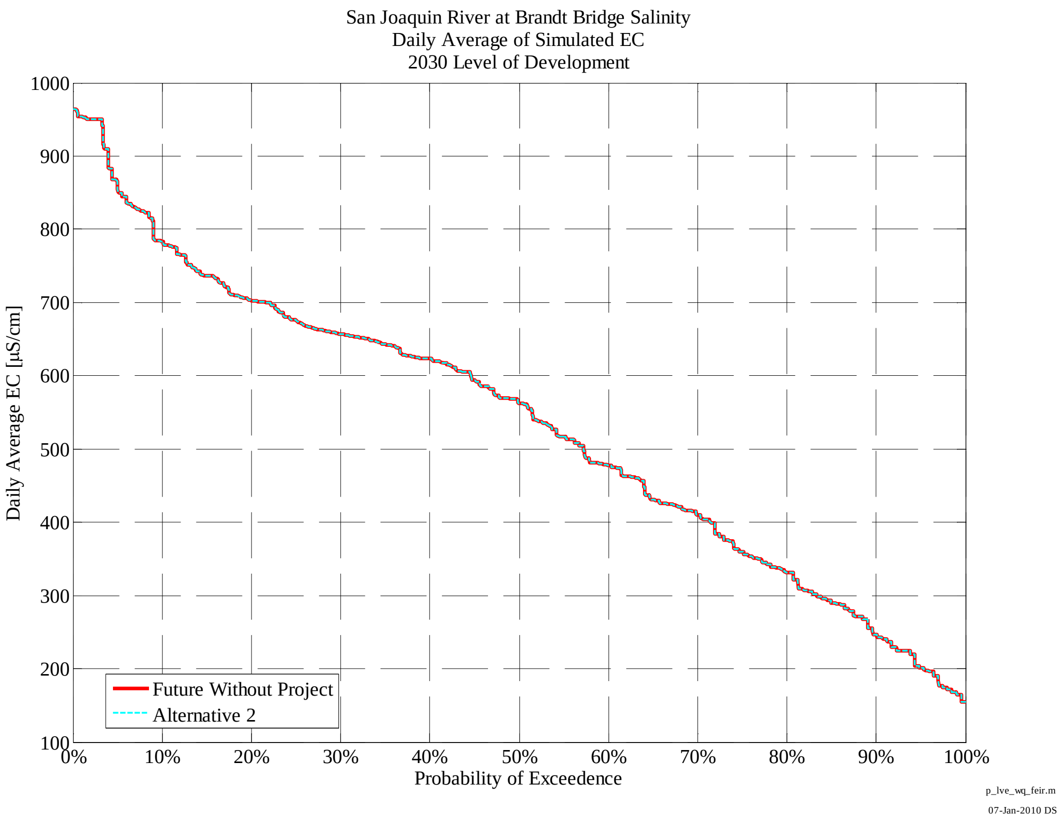
Percent (%) Change from Future Without Project for San Joaquin River at Brandt Bridge
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Brandt Bridge Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
-0.00%
0.00%
0.00%
-0.00%
-0.00%
0.01%
0.00%
-0.00%
0.00%
-0.00%
0.00%
0.00%
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

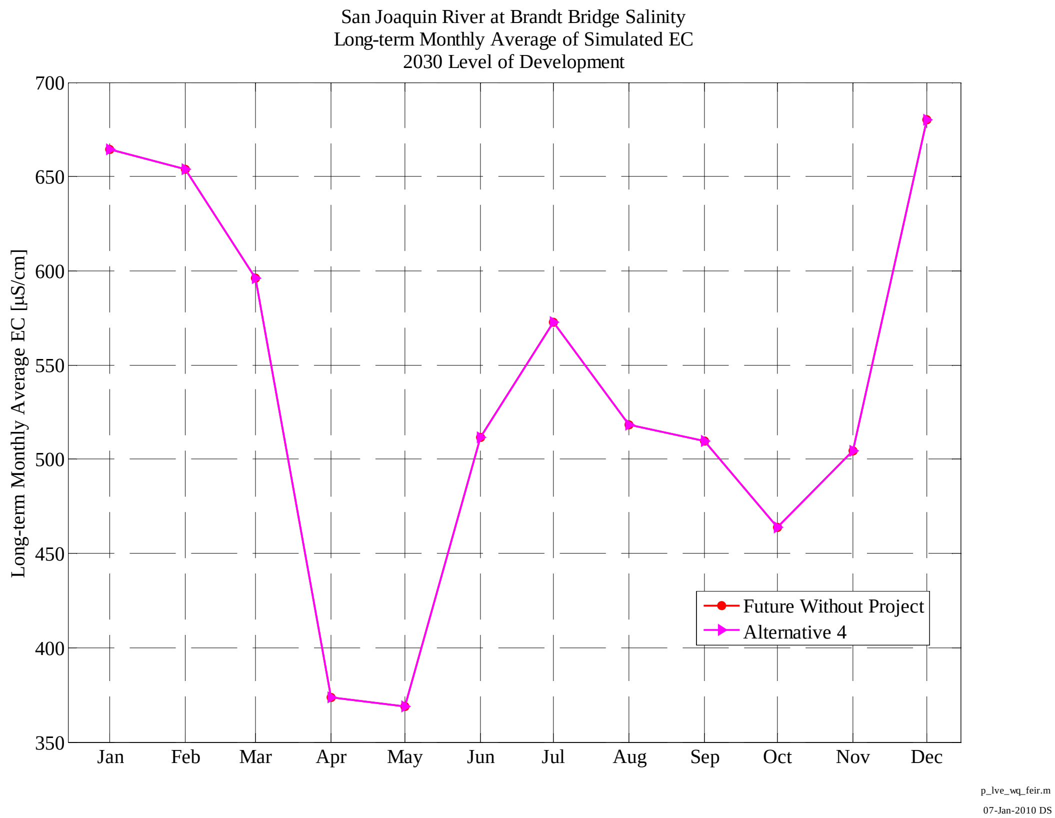
Alternative 4

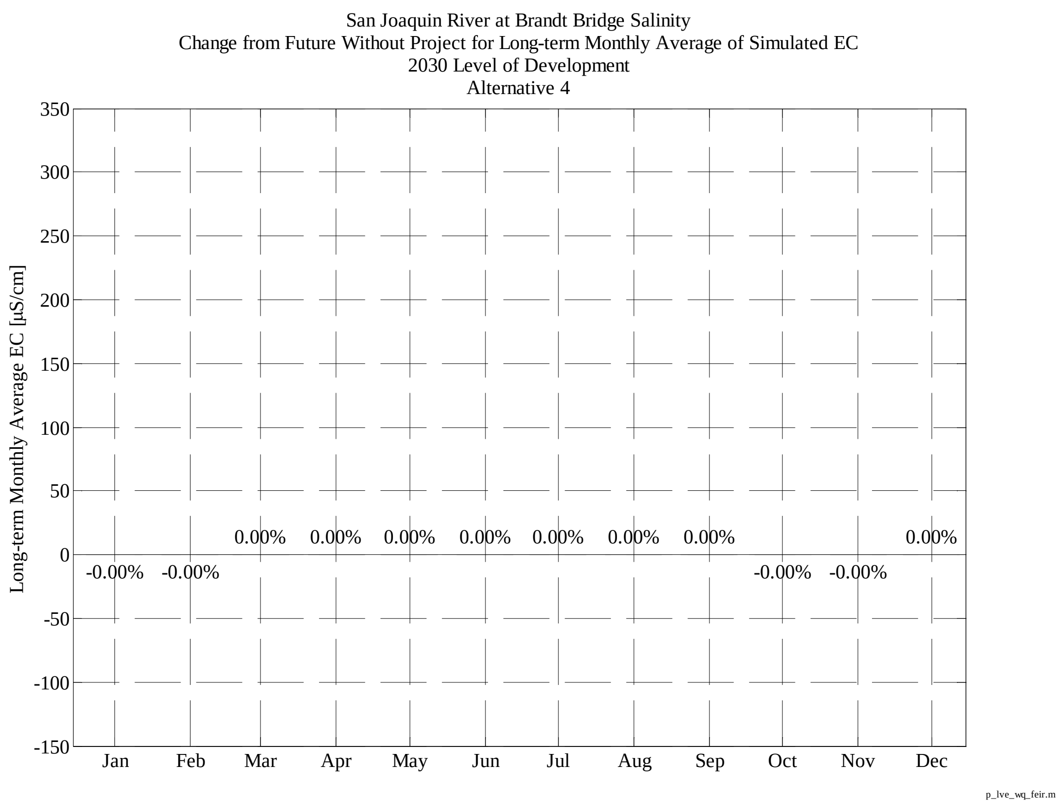
San Joaquin River at Brandt Bridge Salinity
Monthly Average of Simulated Values (EC, μS/cm)
Alternative 4
2030 Level of Development

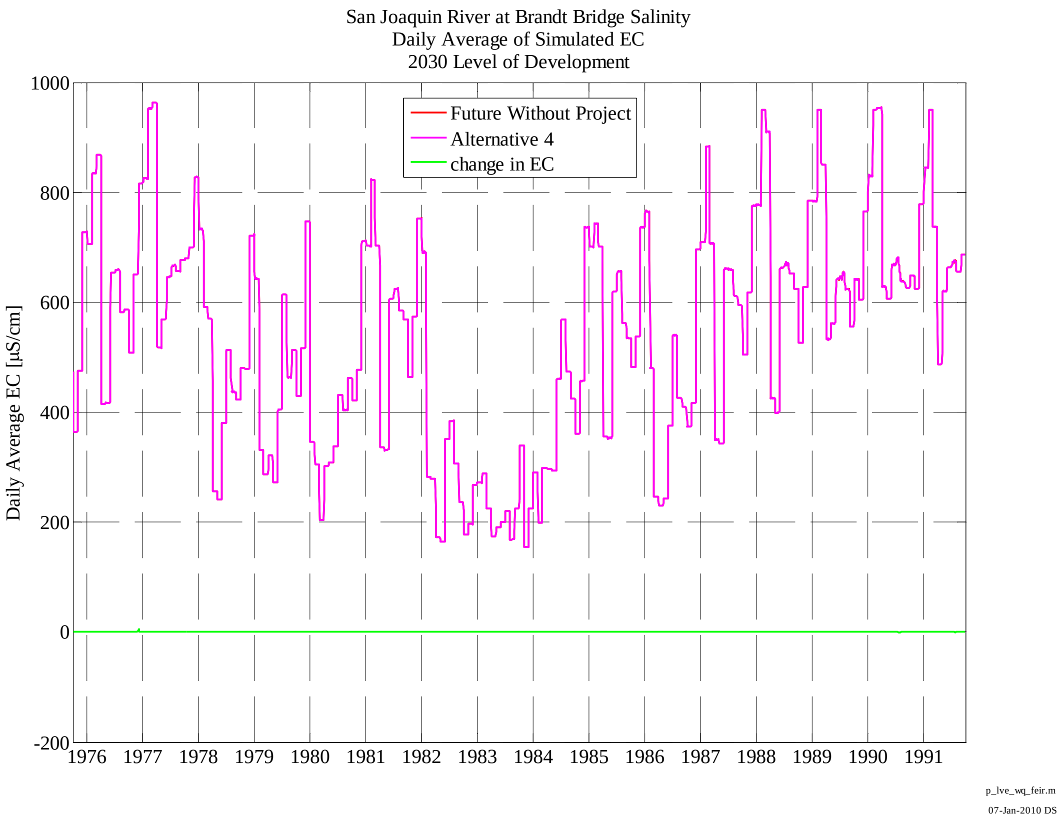
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	368	471	714	708	827	866	436	417	636	659	588	586
1977	512	643	797	824	942	963	549	565	636	663	658	674
1978	680	699	817	738	596	570	262	241	377	510	440	424
1979	479	479	710	646	341	289	321	273	400	604	470	511
1980	433	513	732	355	306	206	300	309	337	429	405	459
1981	423	475	698	703	816	708	347	332	589	623	588	570
1982	468	568	742	693	292	279	174	165	348	384	309	238
1983	179	196	266	272	289	225	175	190	201	219	169	223
1984	336	159	223	288	200	296	296	294	454	563	479	427
1985	362	453	722	703	741	703	367	353	602	653	568	537
1986	483	535	724	763	487	250	230	243	373	535	431	411
1987	375	415	681	709	871	716	364	343	638	659	616	596
1988	508	612	762	777	937	913	449	400	643	669	653	626
1989	532	622	775	784	938	856	550	559	631	649	626	560
1990	636	607	754	826	941	953	659	607	661	670	638	627
1991	647	625	765	839	942	748	499	611	659	673	656	683
Avg	464	505	680	664	654	596	374	369	512	573	518	510
W/AN/BN	437	450	602	536	359	302	251	245	356	463	386	385
D/C	485	547	741	764	884	825	469	465	633	658	621	607

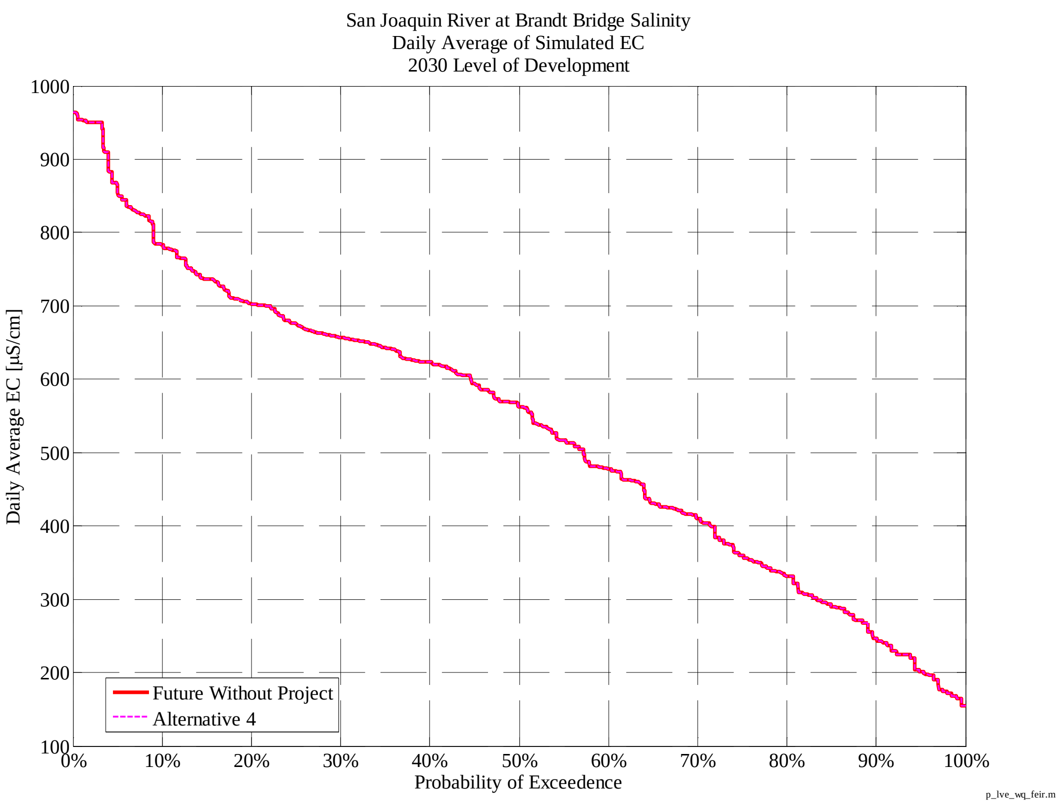
Percent (%) Change from Future Without Project for San Joaquin River at Brandt Bridge
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Brandt Bridge Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
-0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
-0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Brandt Bridge Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

San Joaquin River at Vernalis

Future Without Project

San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	364	473	725	702	830	857	404	403	640	648	576	583
1977	507	649	812	820	949	950	493	562	621	649	649	672
1978	678	699	823	723	589	562	255	237	376	507	429	419
1979	478	477	719	637	330	286	319	267	390	605	456	508
1980	429	515	744	343	302	204	299	305	333	427	397	457
1981	419	477	709	697	821	701	331	321	592	614	577	564
1982	463	571	747	678	282	274	172	162	348	380	301	235
1983	177	193	266	264	286	220	174	189	198	217	164	222
1984	338	155	222	289	197	297	291	287	449	559	466	420
1985	359	453	731	698	741	699	349	341	606	649	555	531
1986	480	536	732	757	473	244	229	240	371	532	419	407
1987	372	415	694	706	879	700	337	331	647	648	605	589
1988	503	616	772	770	947	903	416	388	648	644	645	619
1989	523	626	782	779	948	848	519	543	622	612	615	554
1990	640	604	764	824	948	947	601	600	648	626	628	621
1991	645	622	776	841	948	735	476	607	649	648	648	682
Avg	461	505	689	658	654	589	354	361	509	560	508	505
W/AN/BN	435	449	608	527	351	298	248	241	352	461	376	381
D/C	481	548	752	760	890	815	436	455	630	638	611	602

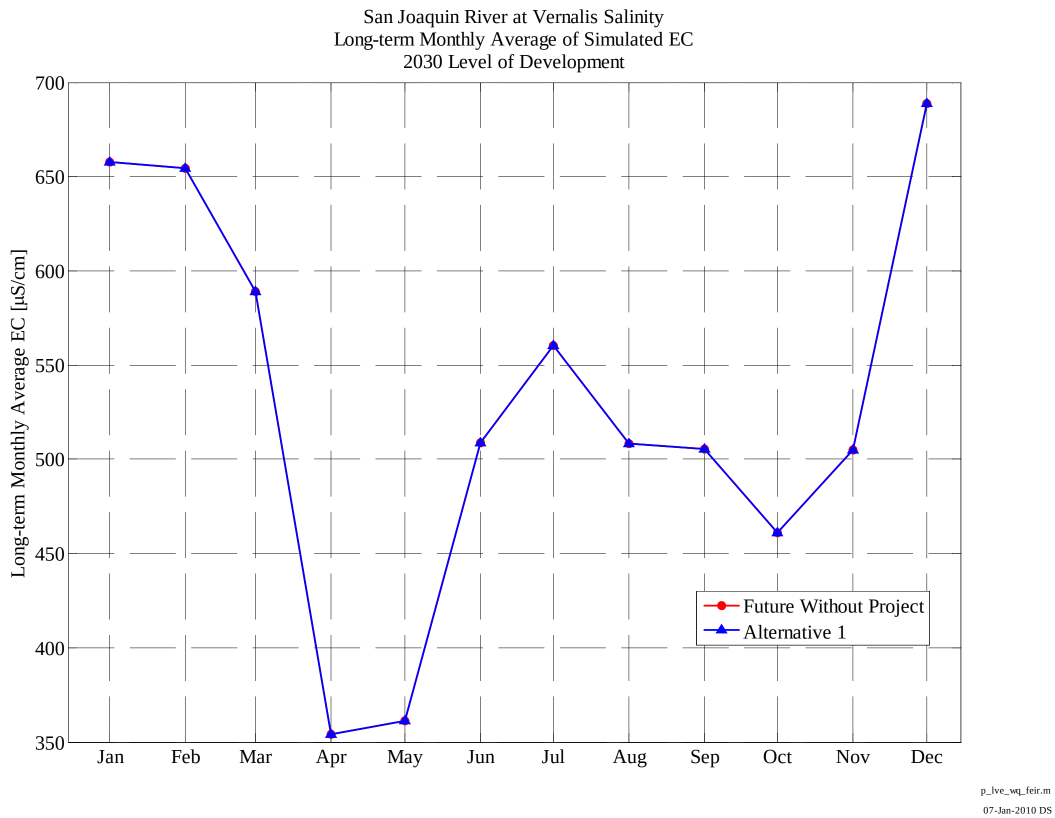
Alternative 1

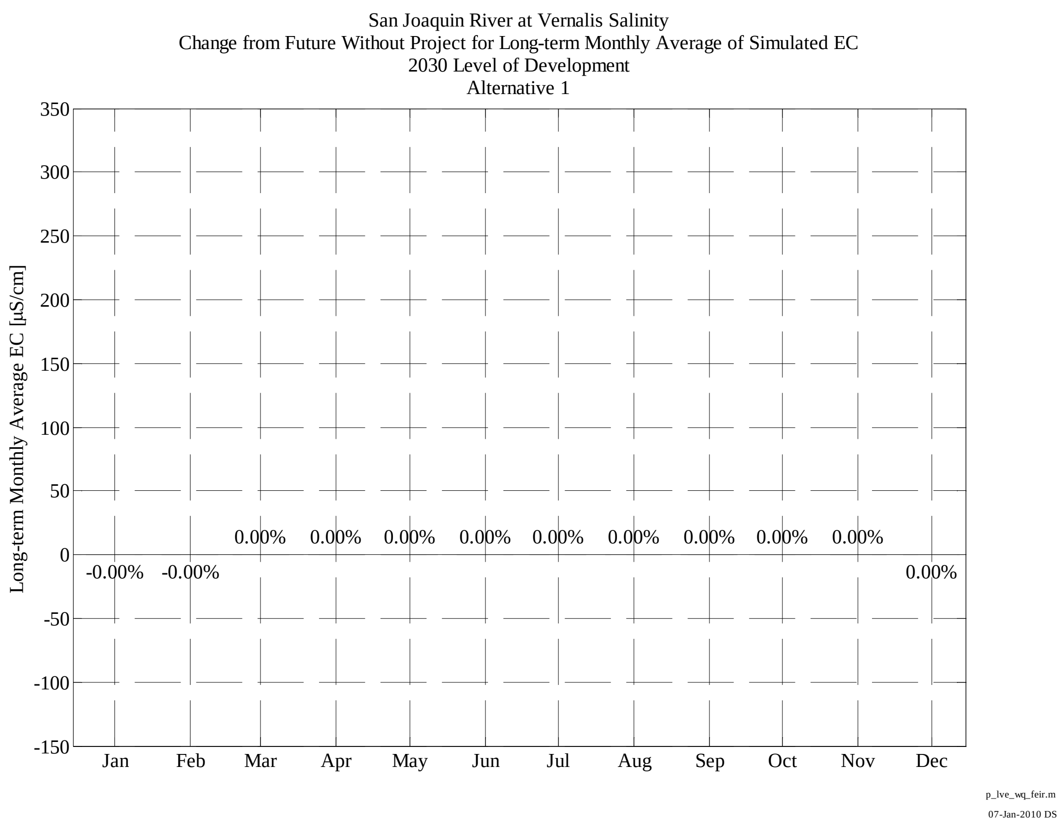
San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 1
2030 Level of Development

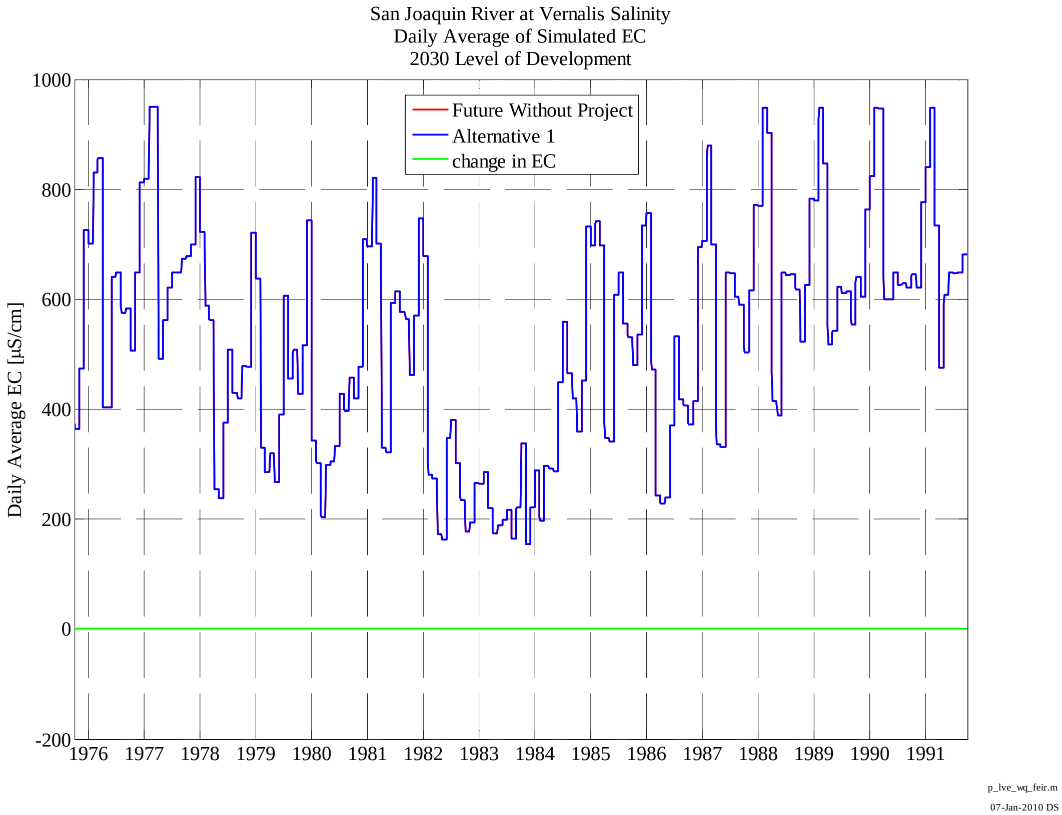
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	364	473	725	702	830	857	404	403	640	648	576	583
1977	507	649	812	820	949	950	493	562	621	649	649	672
1978	678	699	823	723	589	562	255	237	376	507	429	419
1979	478	477	719	637	330	286	319	267	390	605	456	508
1980	429	515	744	343	302	204	299	305	333	427	397	457
1981	419	477	709	697	821	701	331	321	592	614	577	564
1982	463	571	747	678	282	274	172	162	348	380	301	235
1983	177	193	266	264	286	220	174	189	198	217	164	222
1984	338	155	222	289	197	297	291	287	449	559	466	420
1985	359	453	731	698	741	699	349	341	606	649	555	531
1986	480	536	732	757	473	244	229	240	371	532	419	407
1987	372	415	694	706	879	700	337	331	647	648	605	589
1988	503	616	772	770	947	903	416	388	648	644	645	619
1989	523	626	782	779	948	848	519	543	622	612	615	554
1990	640	604	764	824	948	947	601	600	648	626	628	621
1991	645	622	776	841	948	735	476	607	649	648	648	682
Avg	461	505	689	658	654	589	354	361	509	560	508	505
W/AN/BN	435	449	608	527	351	298	248	241	352	461	376	381
D/C	481	548	752	760	890	815	436	455	630	638	611	602

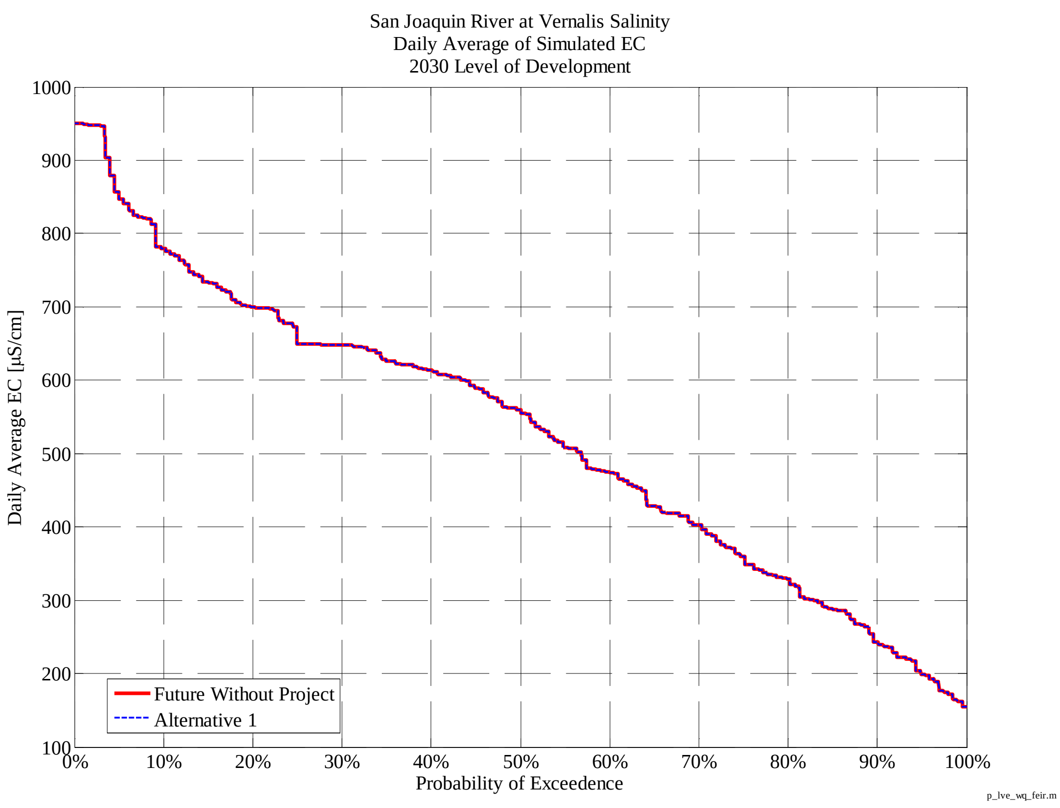
Percent (%) Change from Future Without Project for San Joaquin River at Vernalis Salinity
(Alternative 1 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Vernalis Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 1
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
-0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 1
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

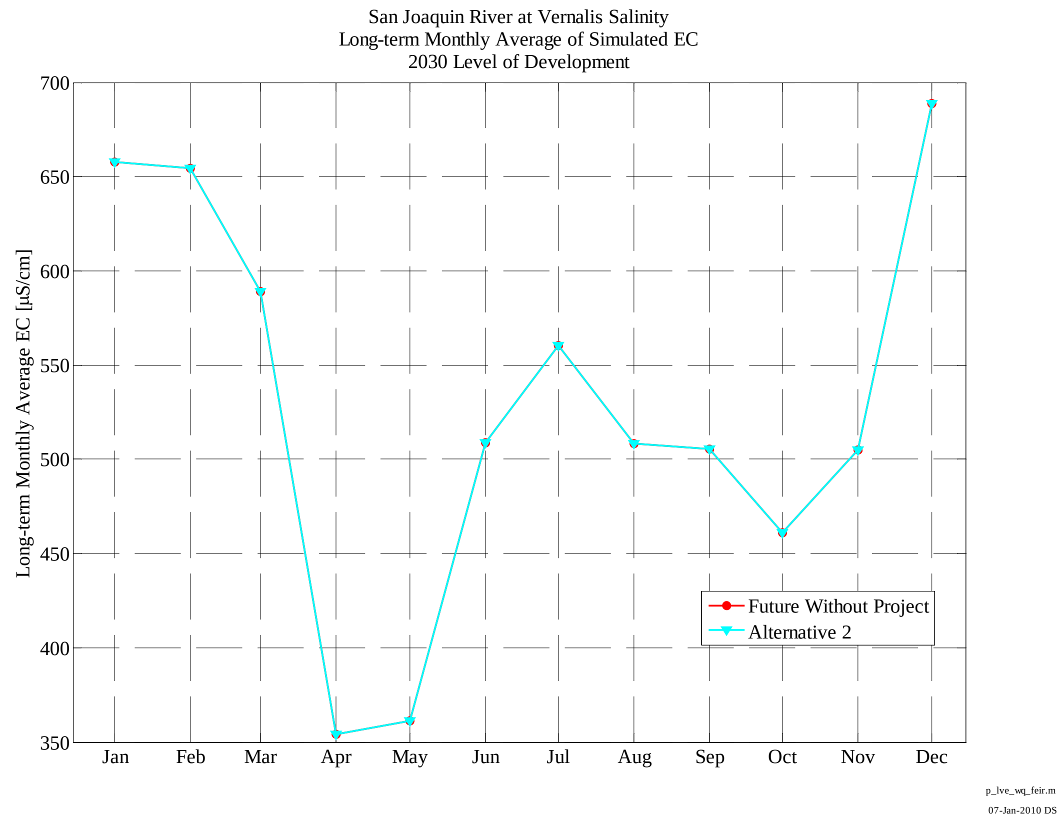
Alternative 2

San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 2
2030 Level of Development

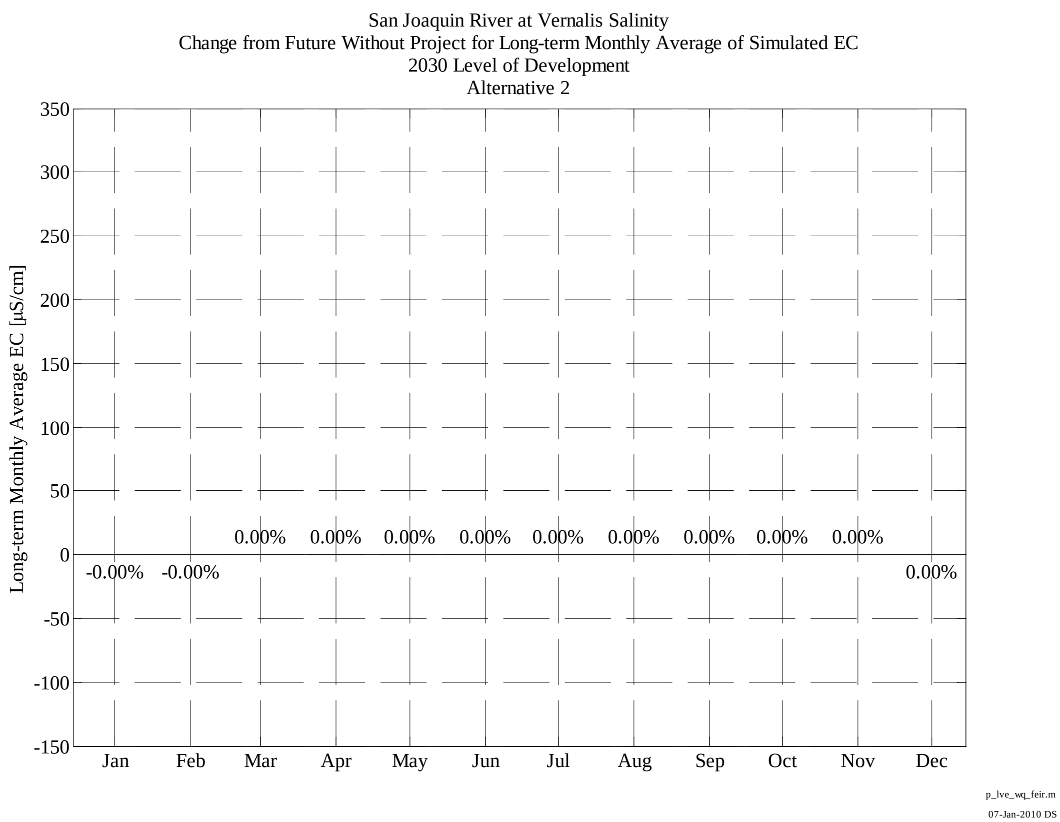
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	364	473	725	702	830	857	404	403	640	648	576	583
1977	507	649	812	820	949	950	493	562	621	649	649	672
1978	678	699	823	723	589	562	255	237	376	507	429	419
1979	478	477	719	637	330	286	319	267	390	605	456	508
1980	429	515	744	343	302	204	299	305	333	427	397	457
1981	419	477	709	697	821	701	331	321	592	614	577	564
1982	463	571	747	678	282	274	172	162	348	380	301	235
1983	177	193	266	264	286	220	174	189	198	217	164	222
1984	338	155	222	289	197	297	291	287	449	559	466	420
1985	359	453	731	698	741	699	349	341	606	649	555	531
1986	480	536	732	757	473	244	229	240	371	532	419	407
1987	372	415	694	706	879	700	337	331	647	648	605	589
1988	503	616	772	770	947	903	416	388	648	644	645	619
1989	523	626	782	779	948	848	519	543	622	612	615	554
1990	640	604	764	824	948	947	601	600	648	626	628	621
1991	645	622	776	841	948	735	476	607	649	648	648	682
Avg	461	505	689	658	654	589	354	361	509	560	508	505
W/AN/BN	435	449	608	527	351	298	248	241	352	461	376	381
D/C	481	548	752	760	890	815	436	455	630	638	611	602

Percent (%) Change from Future Without Project for San Joaquin River at Vernalis
(Alternative 2 - Future Without Project) / Future Without Project
2030 Level of Development

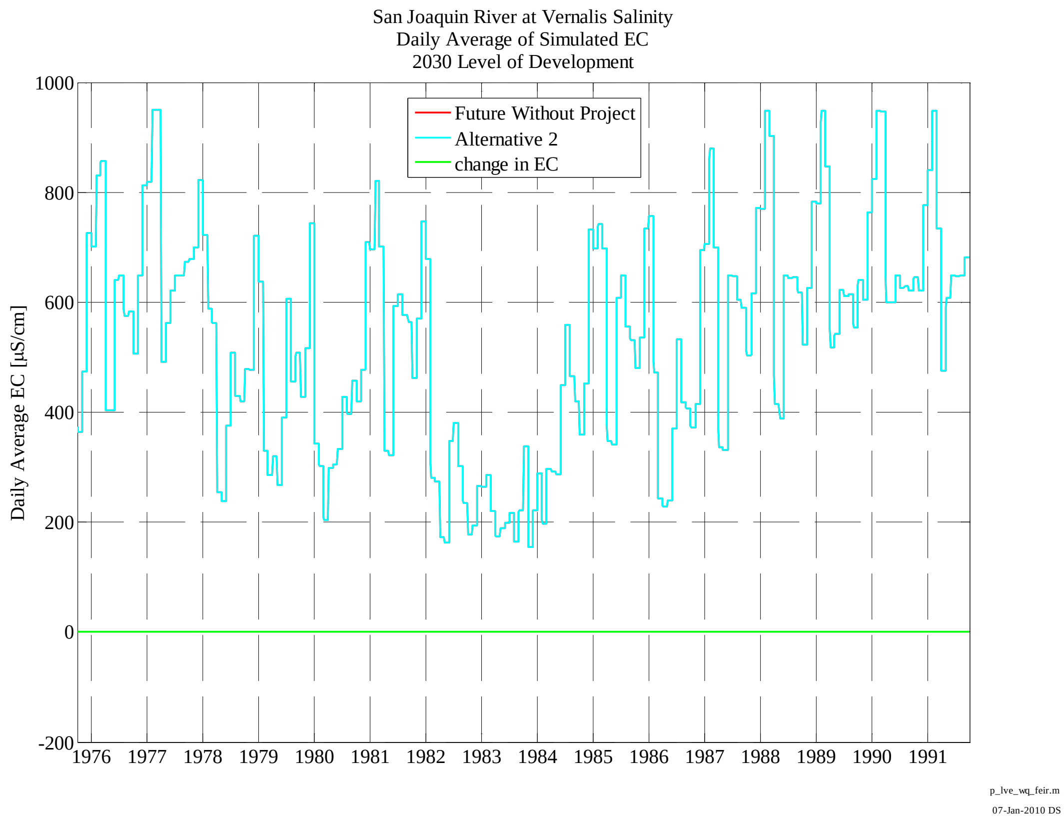
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

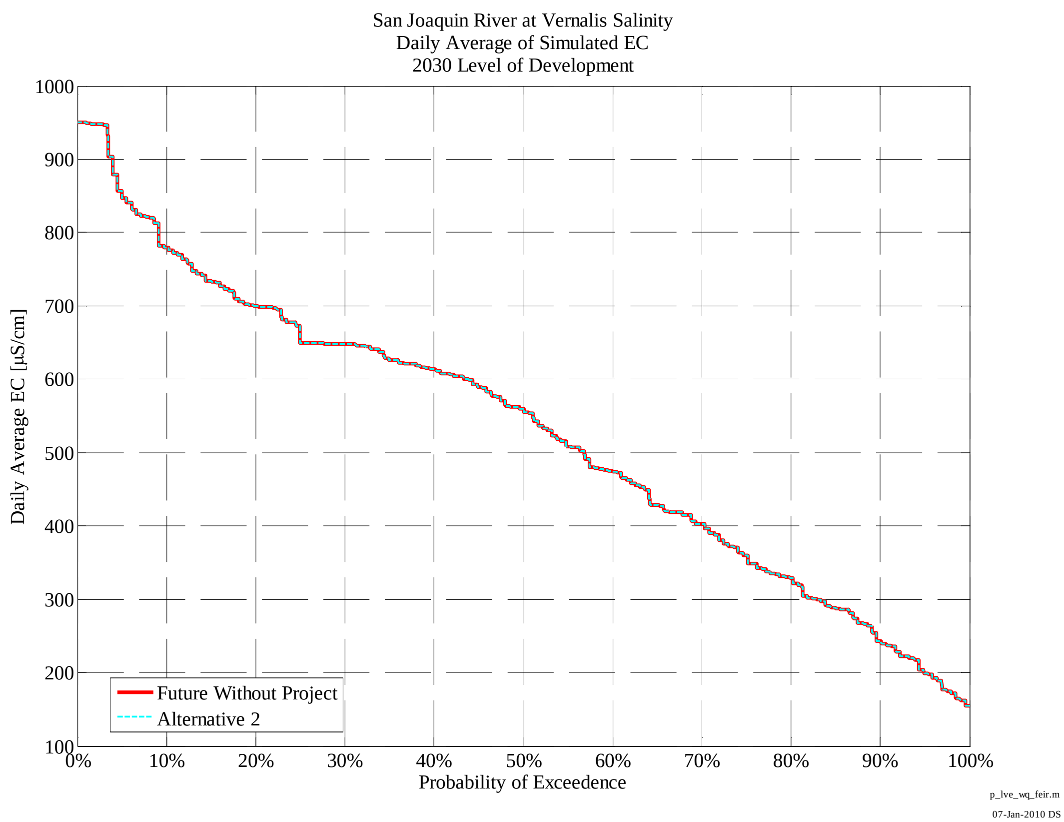


San Joaquin River at Vernalis Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_wq_feir.m
07-Jan-2010 DS



San Joaquin River at Vernalis Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 2
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
-0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 2
change in EC
Daily Average EC [μS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [μS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 2
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

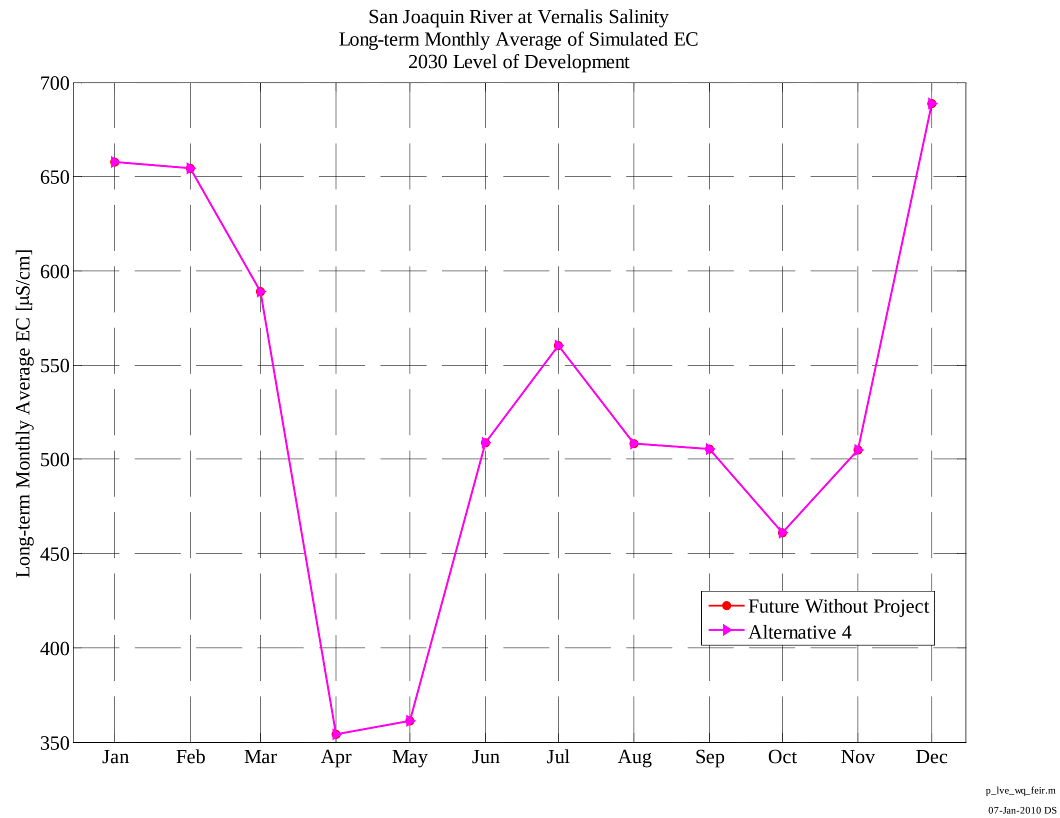
Alternative 4

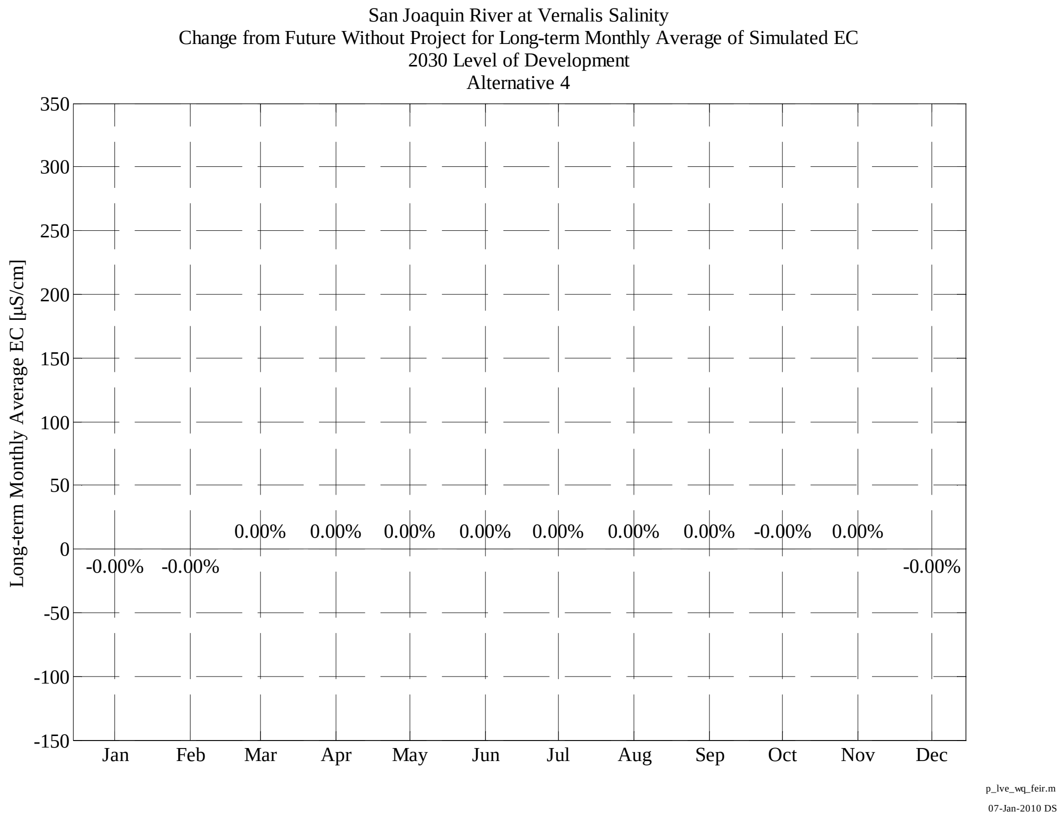
San Joaquin River at Vernalis Salinity
Monthly Average of Simulated Values (EC, µS/cm)
Alternative 4
2030 Level of Development

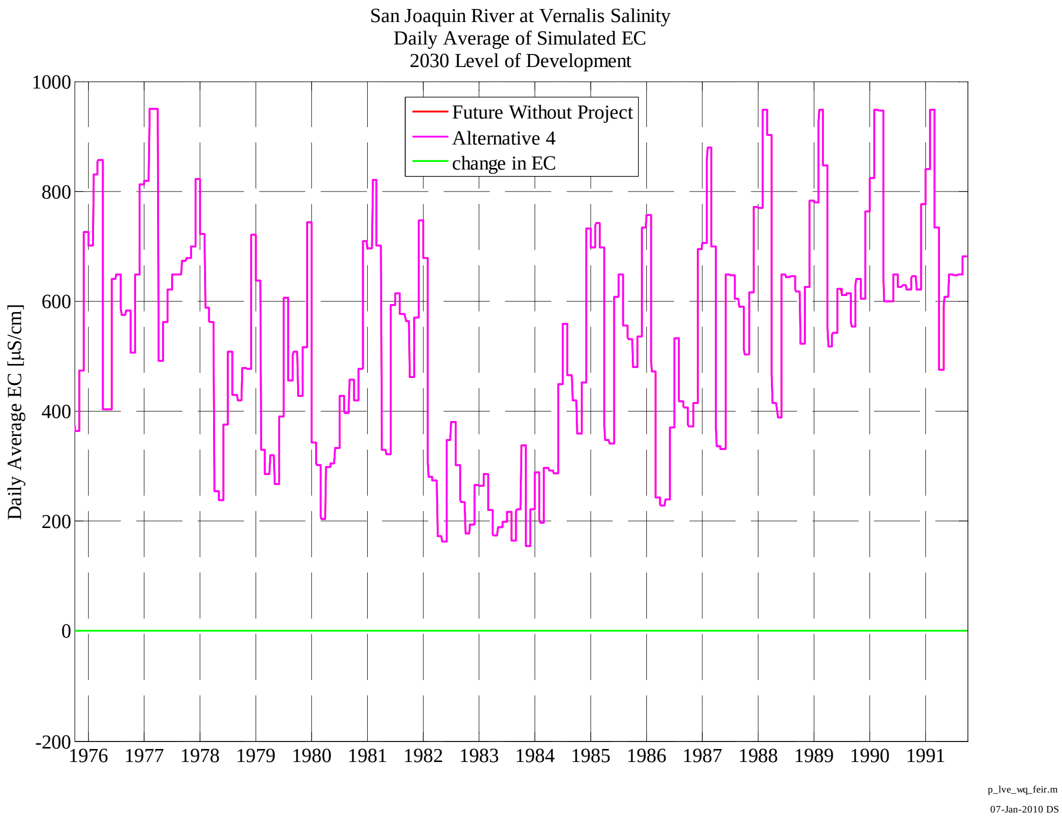
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	364	473	725	702	830	857	404	403	640	648	576	583
1977	507	649	812	820	949	950	493	562	621	649	649	672
1978	678	699	823	723	589	562	255	237	376	507	429	419
1979	478	477	719	637	330	286	319	267	390	605	456	508
1980	429	515	744	343	302	204	299	305	333	427	397	457
1981	419	477	709	697	821	701	331	321	592	614	577	564
1982	463	571	747	678	282	274	172	162	348	380	301	235
1983	177	193	266	264	286	220	174	189	198	217	164	222
1984	338	155	222	289	197	297	291	287	449	559	466	420
1985	359	453	731	698	741	699	349	341	606	649	555	531
1986	480	536	732	757	473	244	229	240	371	532	419	407
1987	372	415	694	706	879	700	337	331	647	648	605	589
1988	503	616	772	770	947	903	416	388	648	644	645	619
1989	523	626	782	779	948	848	519	543	623	612	615	554
1990	640	604	764	824	948	947	601	600	648	626	628	621
1991	645	622	776	841	948	735	476	607	649	648	648	682
Avg	461	505	689	658	654	589	354	361	509	560	508	505
W/AN/BN	435	449	608	527	351	298	248	241	352	461	376	381
D/C	481	548	752	760	890	815	436	455	630	638	611	602

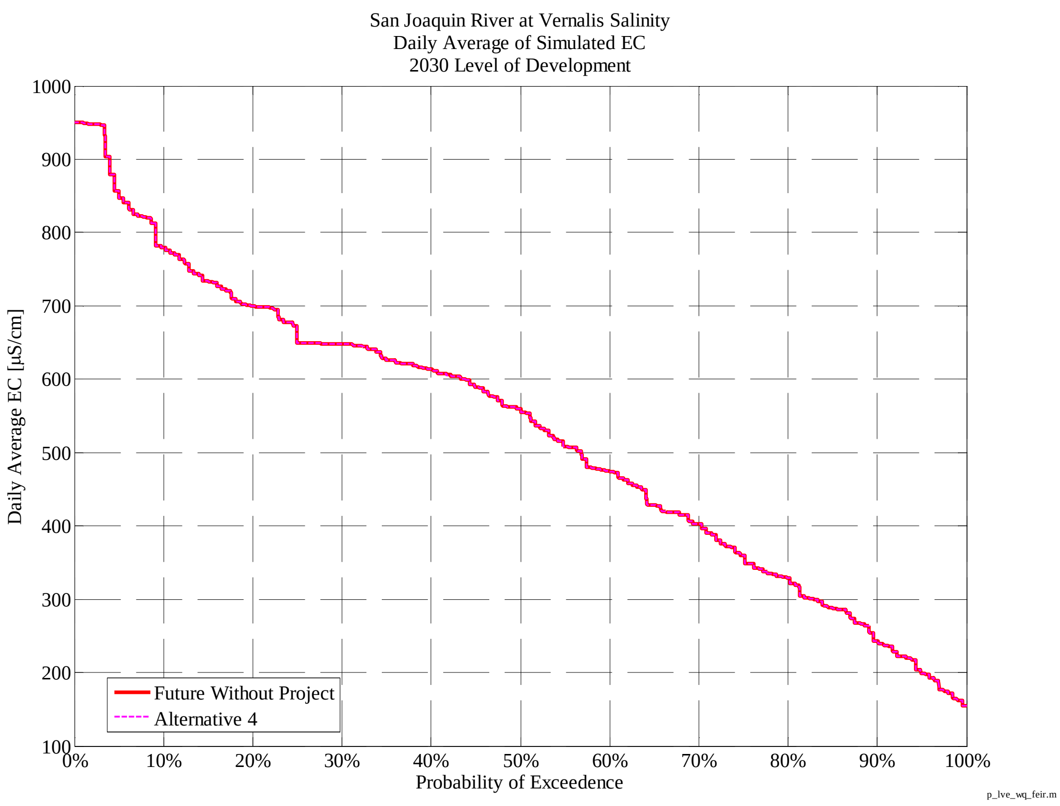
Percent (%) Change from Future Without Project for San Joaquin River at Vernalis
(Alternative 4 - Future Without Project) / Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1977	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1978	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1979	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1980	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1984	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1985	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1986	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1987	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1988	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1989	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
1990	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Avg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
W/AN/BN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
D/C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%


San Joaquin River at Vernalis Salinity
Long-term Monthly Average of Simulated EC
2030 Level of Development
Long-term Monthly Average EC [µS/cm]
700
650
600
550
500
450
400
350
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_wq_feir.m
07-Jan-2010 DS


San Joaquin River at Vernalis Salinity
Change from Future Without Project for Long-term Monthly Average of Simulated EC
2030 Level of Development
Alternative 4
Long-term Monthly Average EC [µS/cm]
350
300
250
200
150
100
50
0
-50
-100
-150
-0.00%
-0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
-0.00%
0.00%
-0.00%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_wq_feir.m
07-Jan-2010 DS

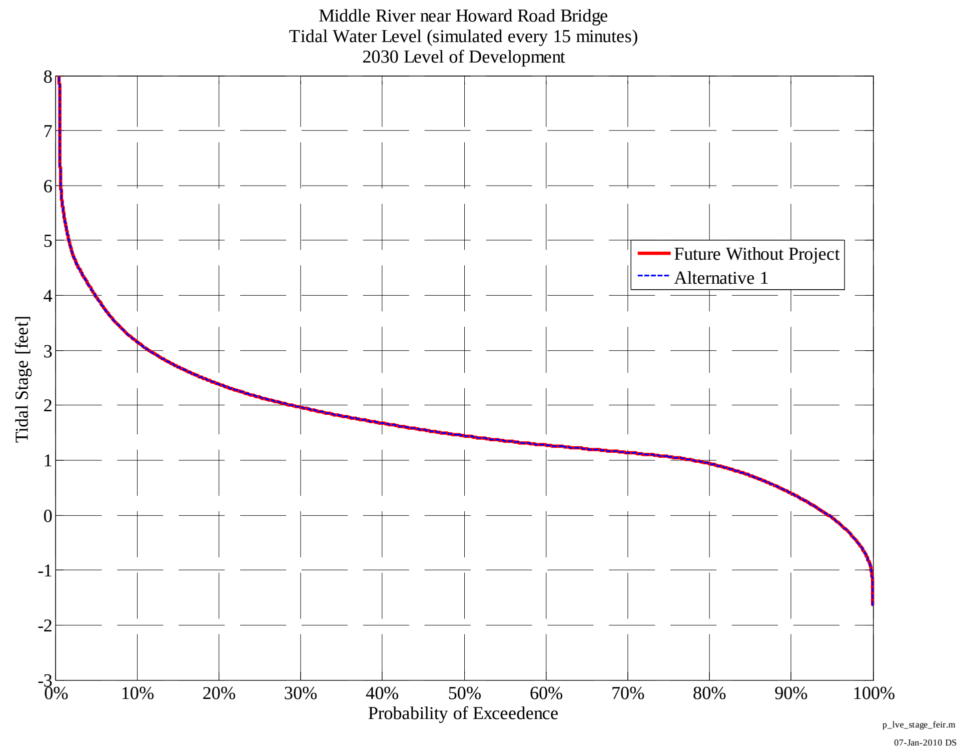

San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2030 Level of Development
Future Without Project
Alternative 4
change in EC
Daily Average EC [µS/cm]
1000
800
600
400
200
0
-200
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
p_lve_wq_feir.m
07-Jan-2010 DS

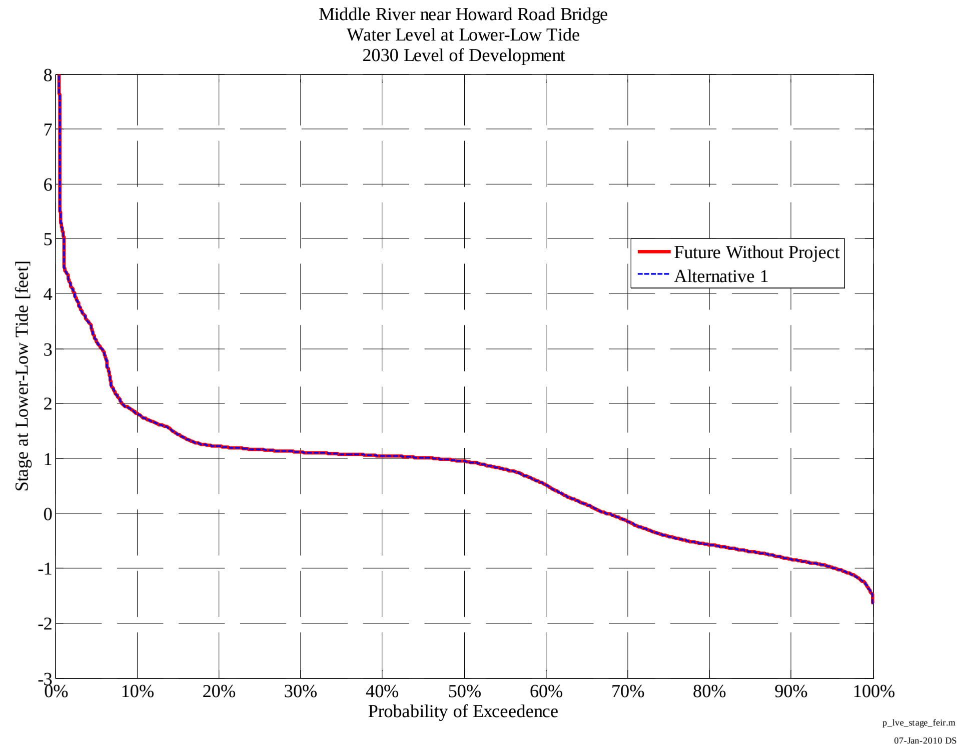

San Joaquin River at Vernalis Salinity
Daily Average of Simulated EC
2030 Level of Development
Daily Average EC [µS/cm]
1000
900
800
700
600
500
400
300
200
100
Future Without Project
Alternative 4
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Probability of Exceedence
p_lve_wq_feir.m
07-Jan-2010 DS

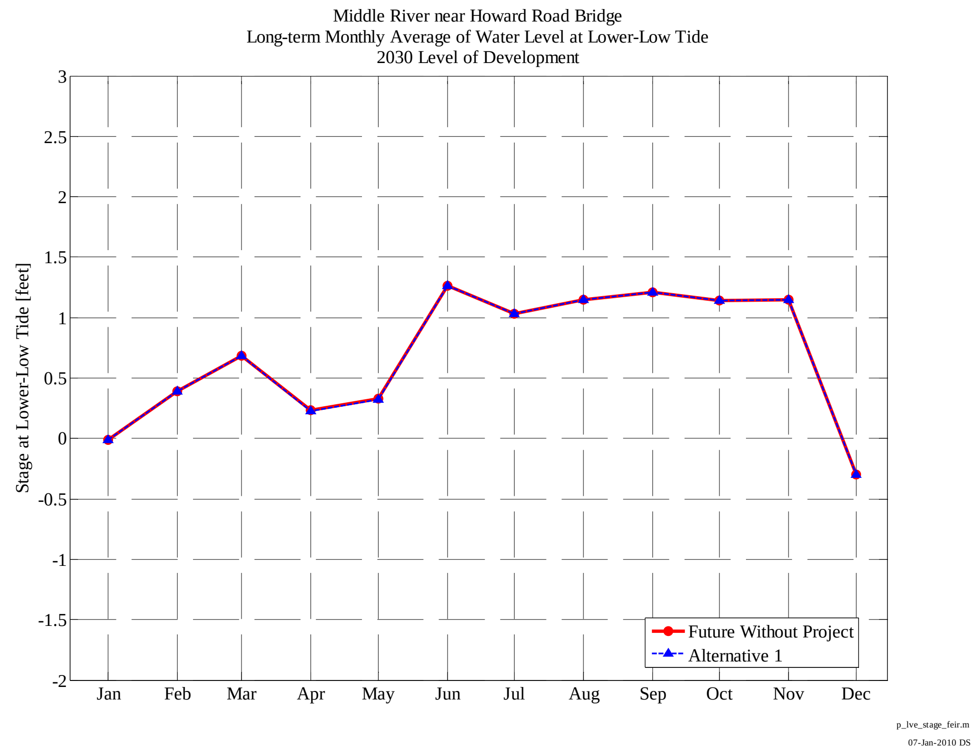
Water Level

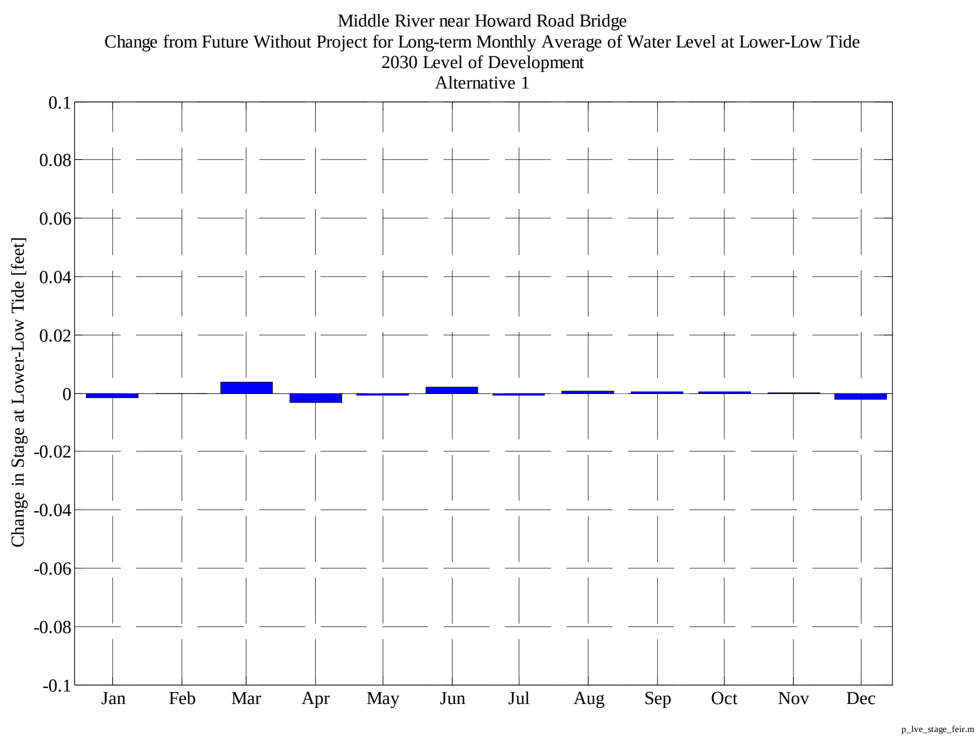
Middle River near Howard Road Bridge

Alternative 1

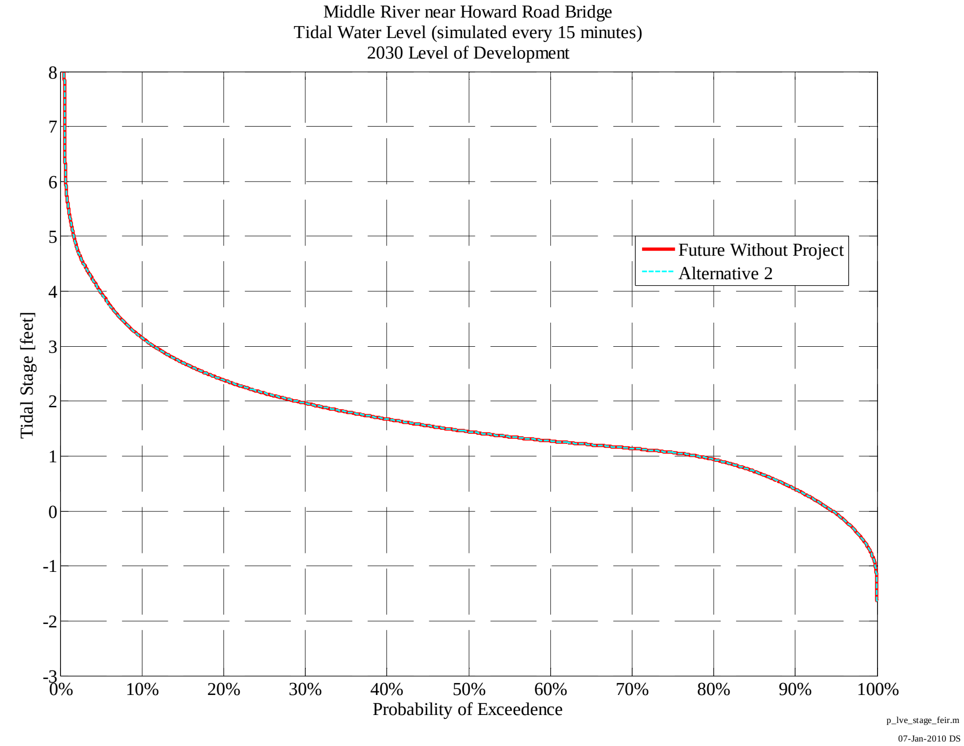


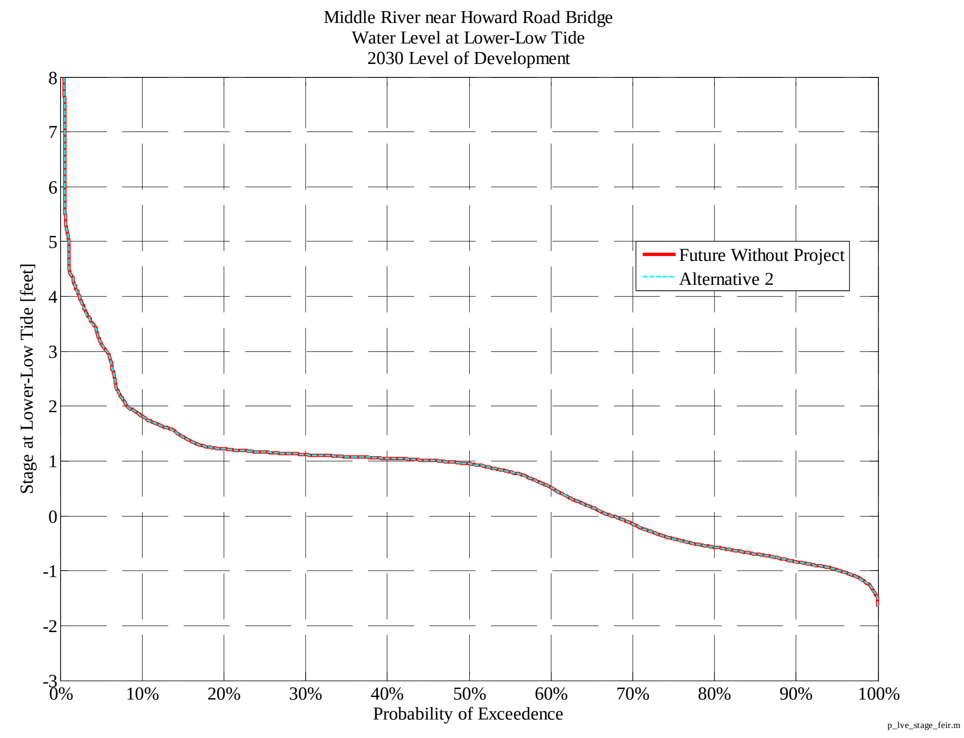


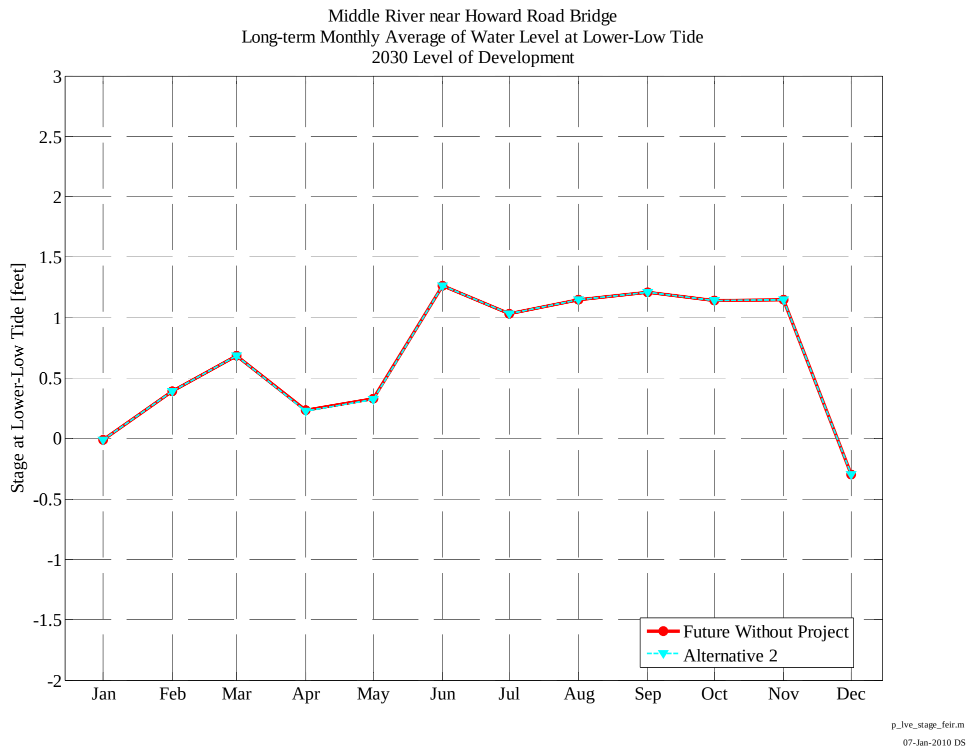

Middle River near Howard Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS

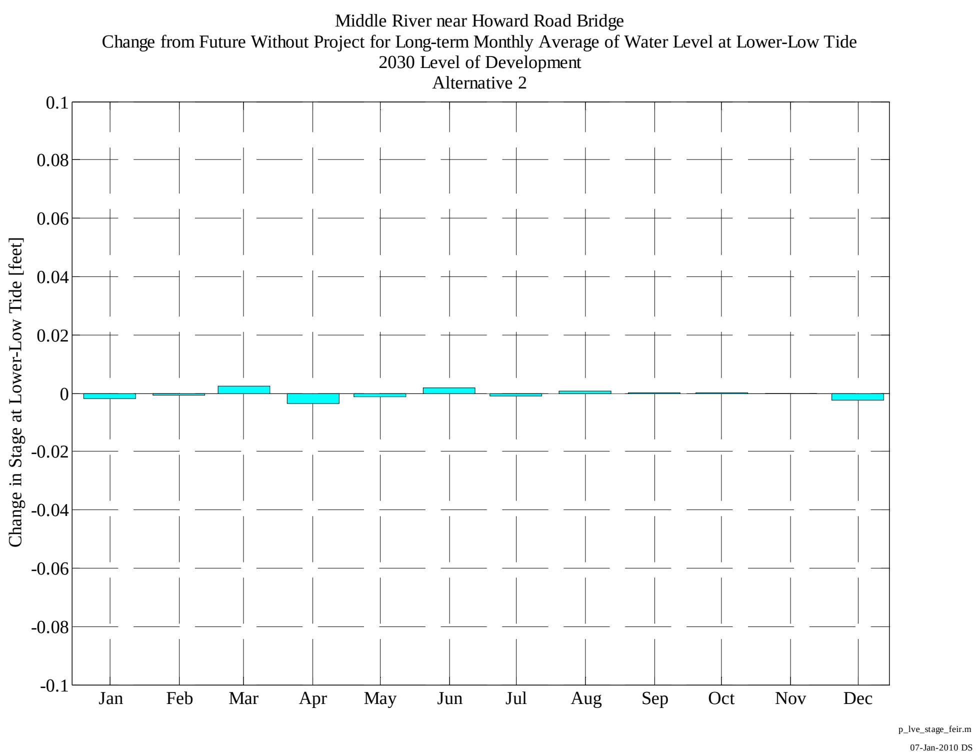

Middle River near Howard Road Bridge
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

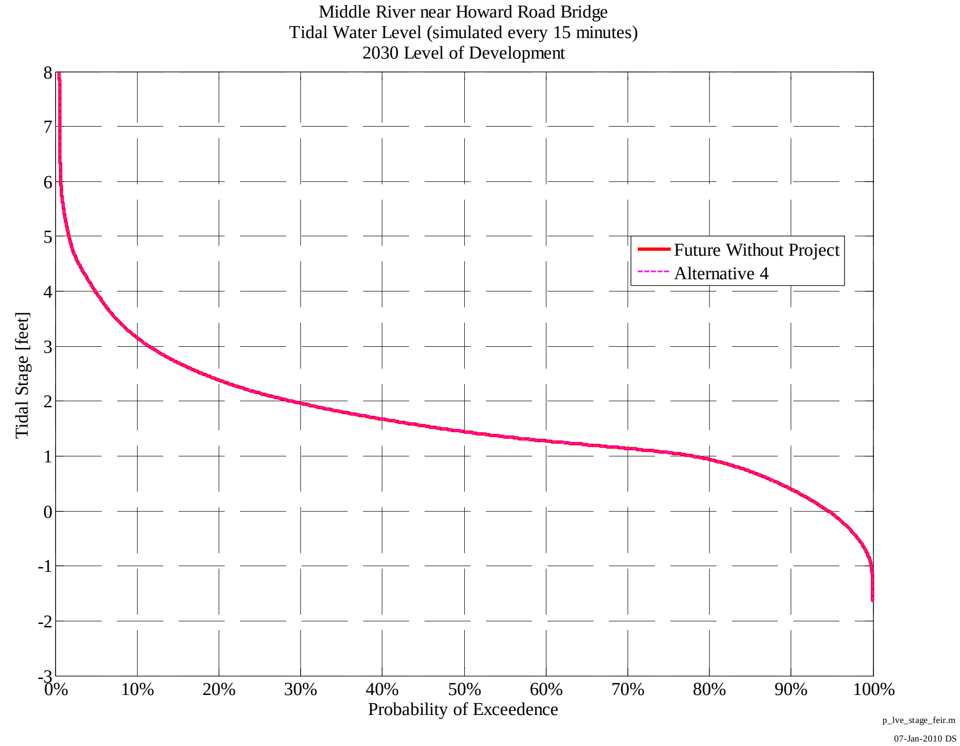


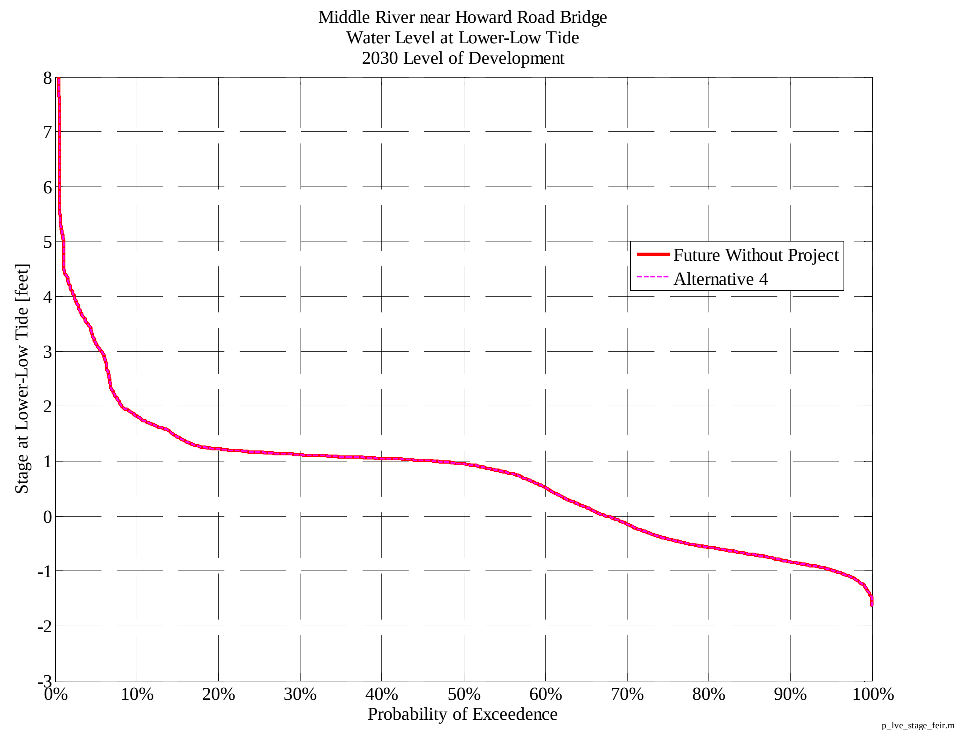


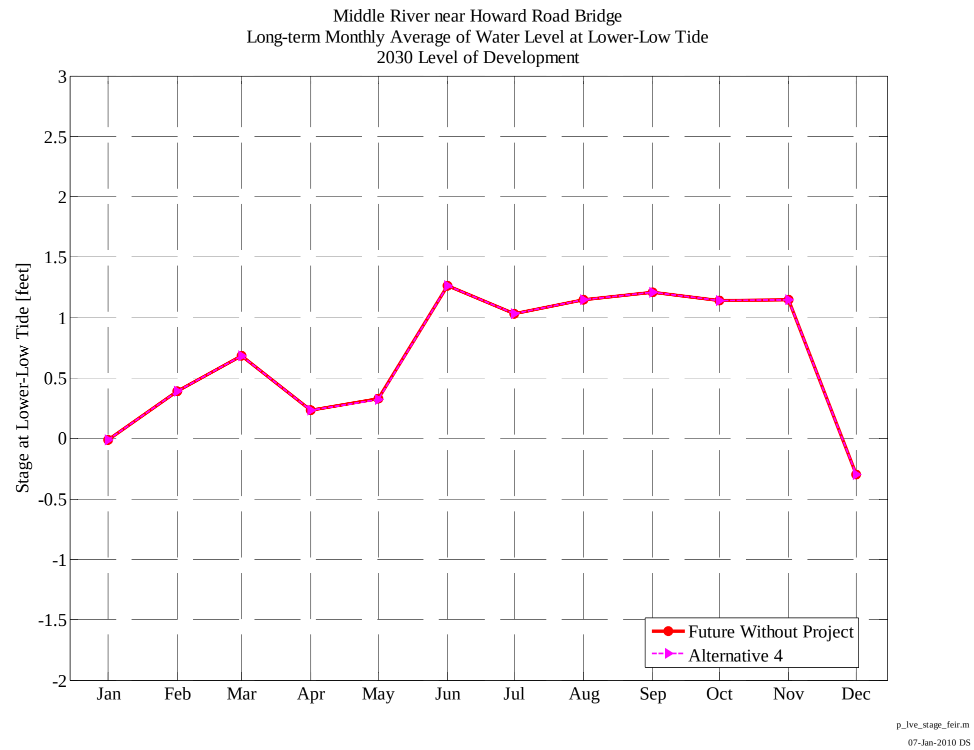

Middle River near Howard Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

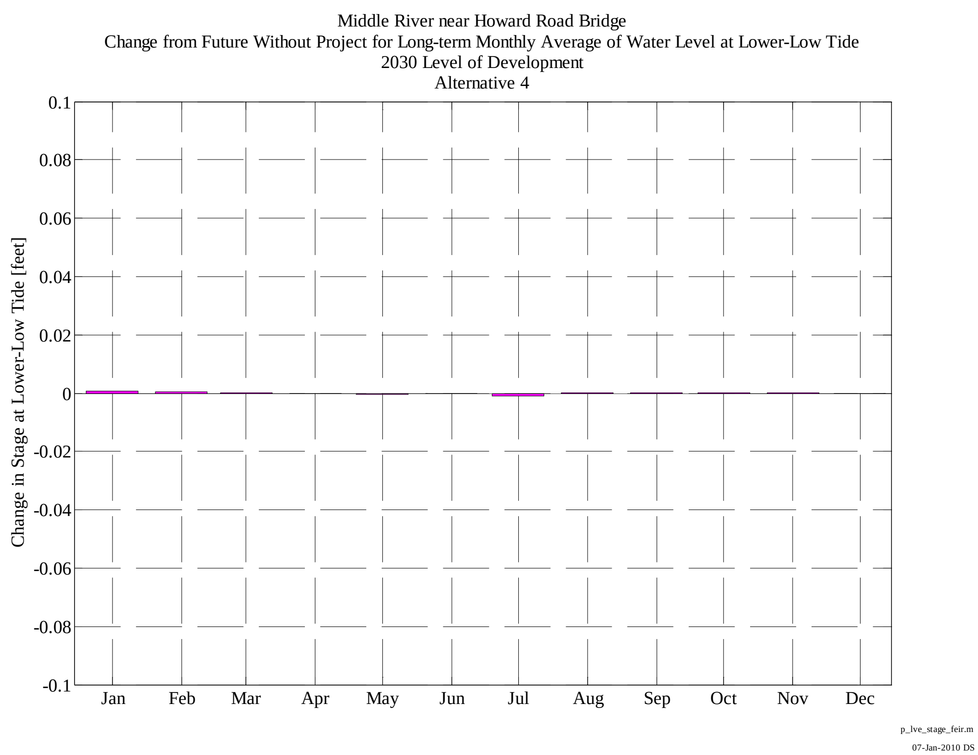

Middle River near Howard Road Bridge
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



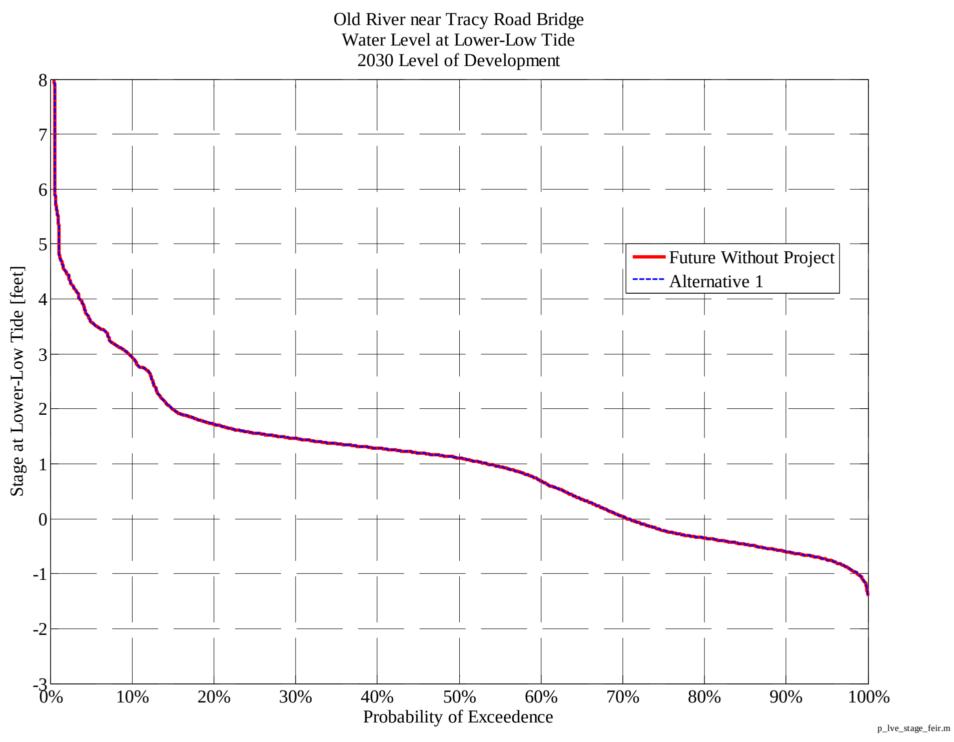


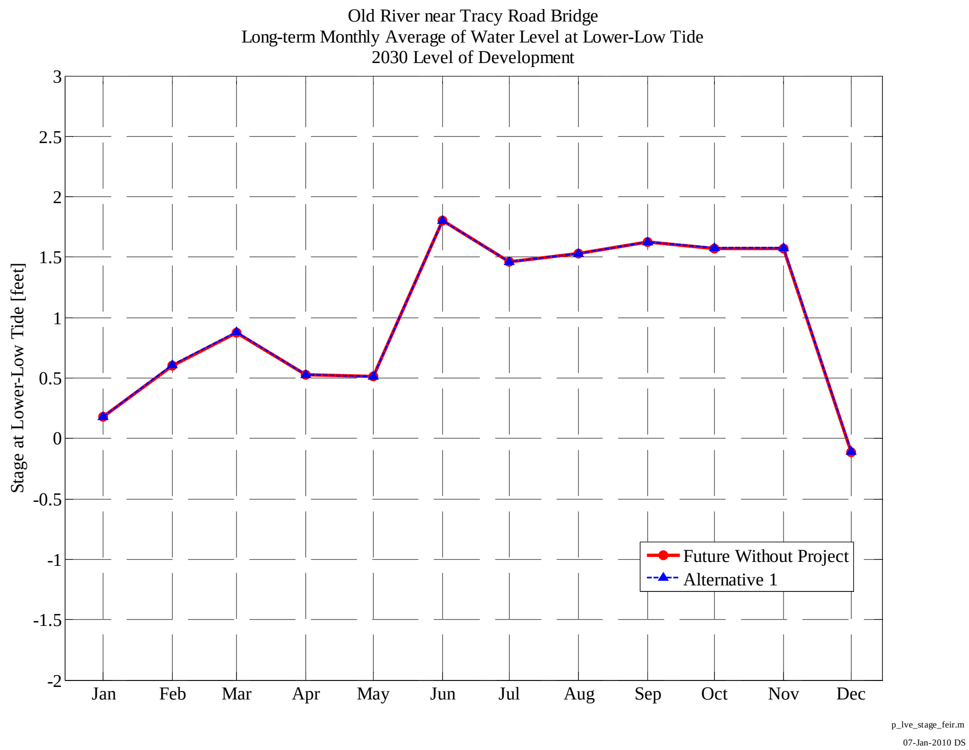

Middle River near Howard Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS

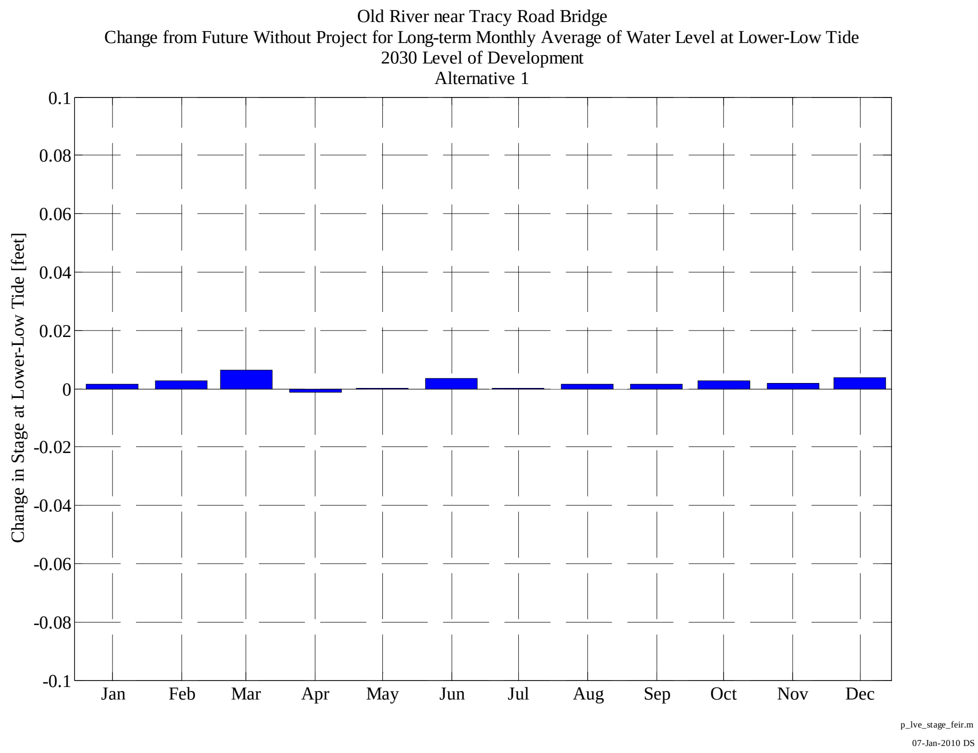

Middle River near Howard Road Bridge
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Old River near Tracy Road Bridge

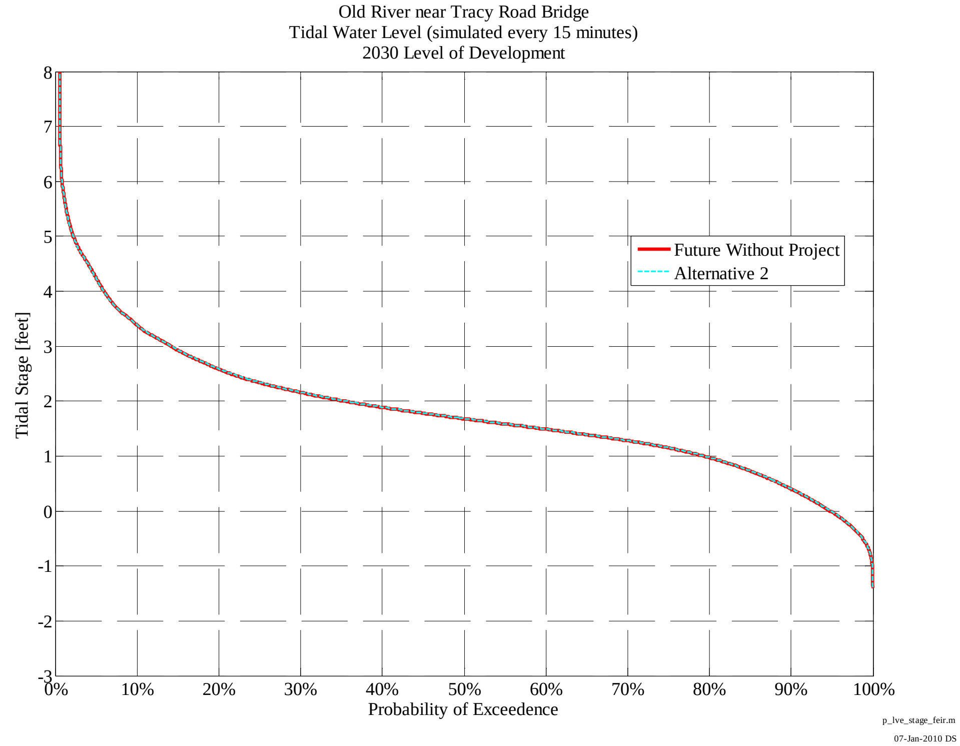
Alternative 1

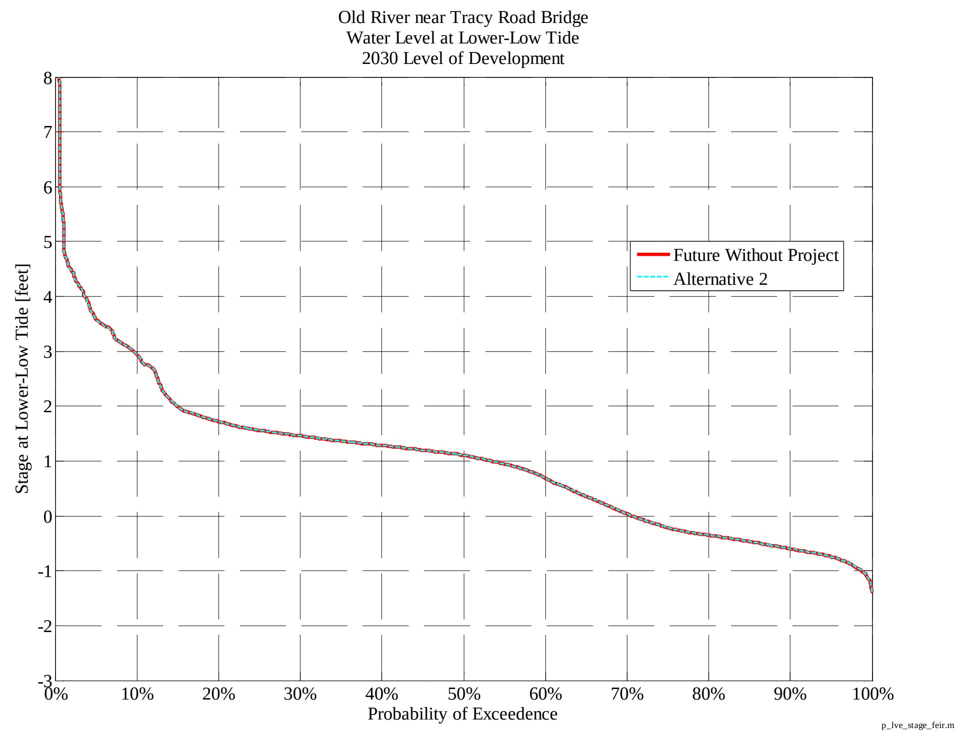


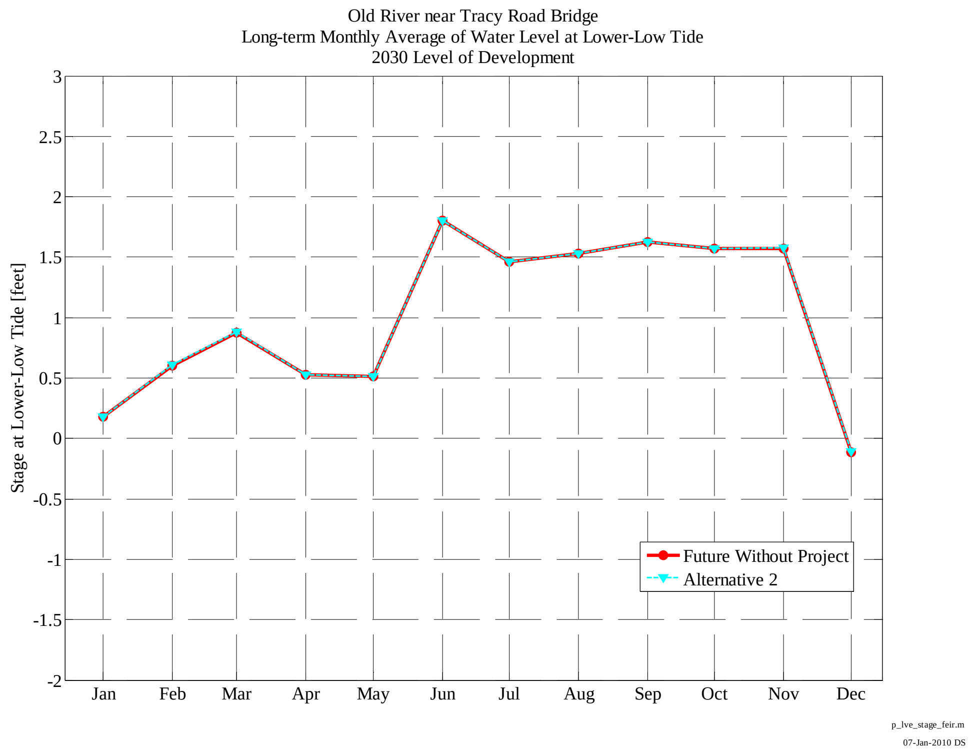

Old River near Tracy Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS

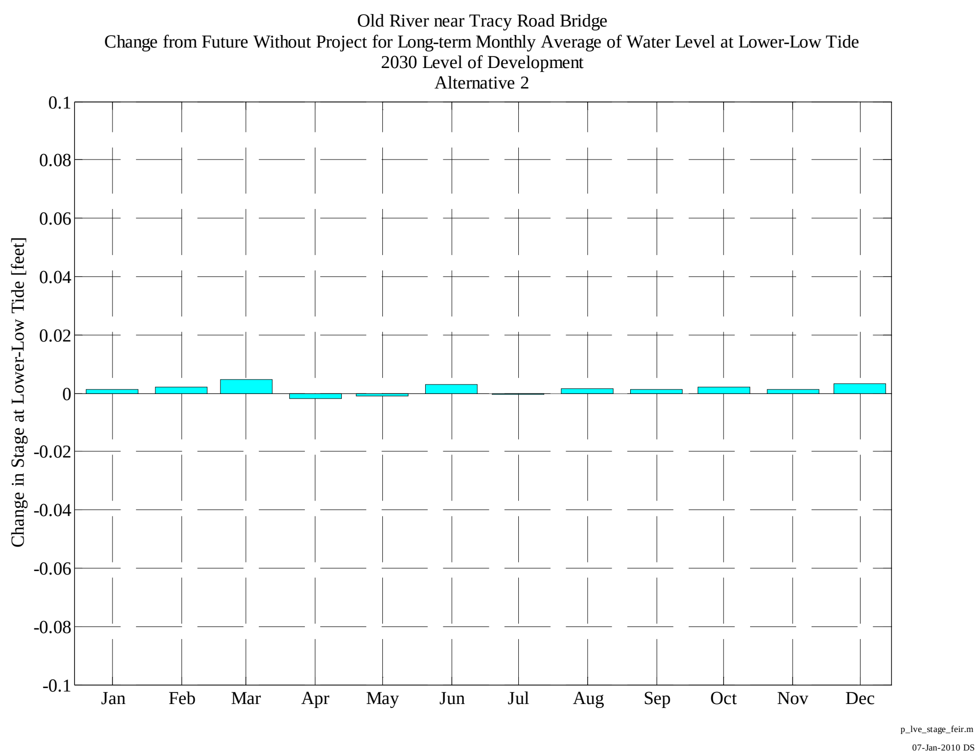

Old River near Tracy Road Bridge
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

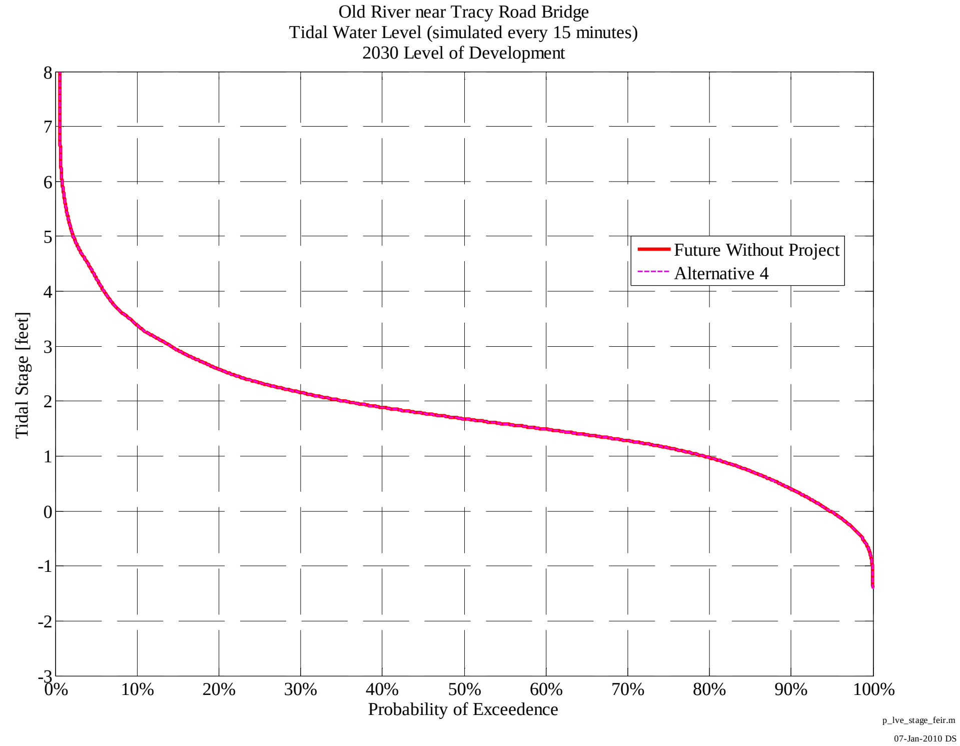


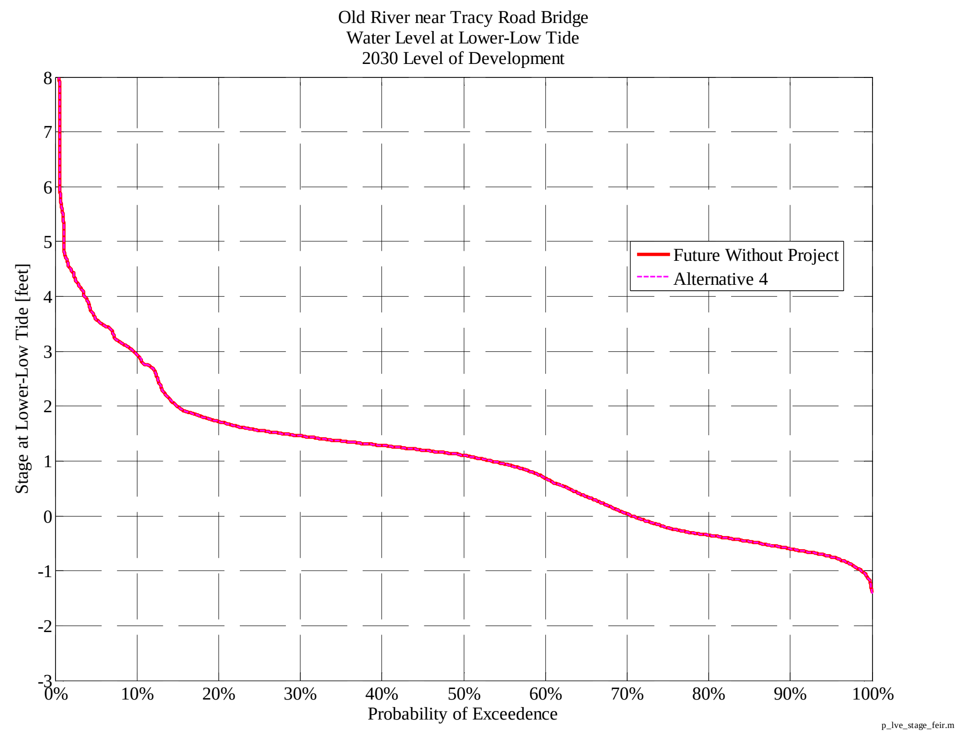


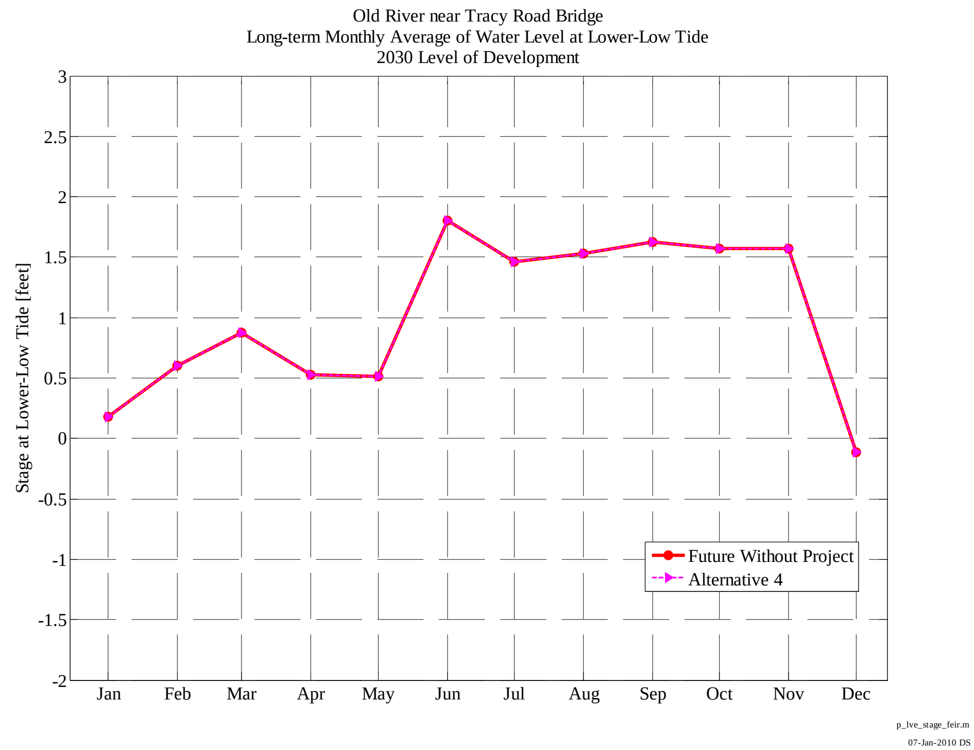

Old River near Tracy Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

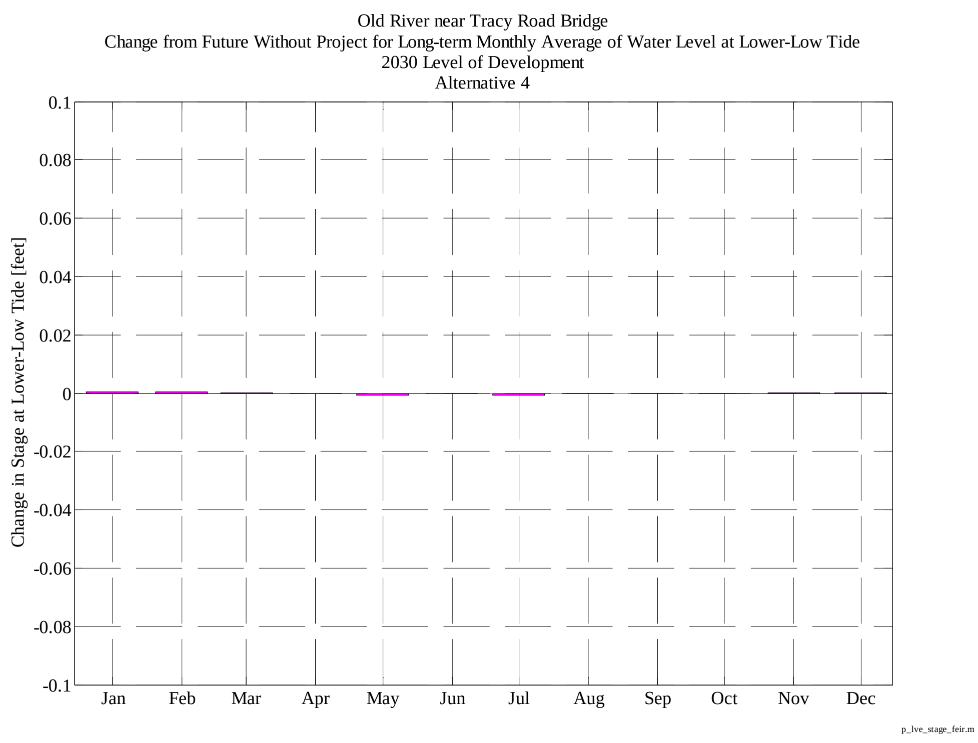

Old River near Tracy Road Bridge
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



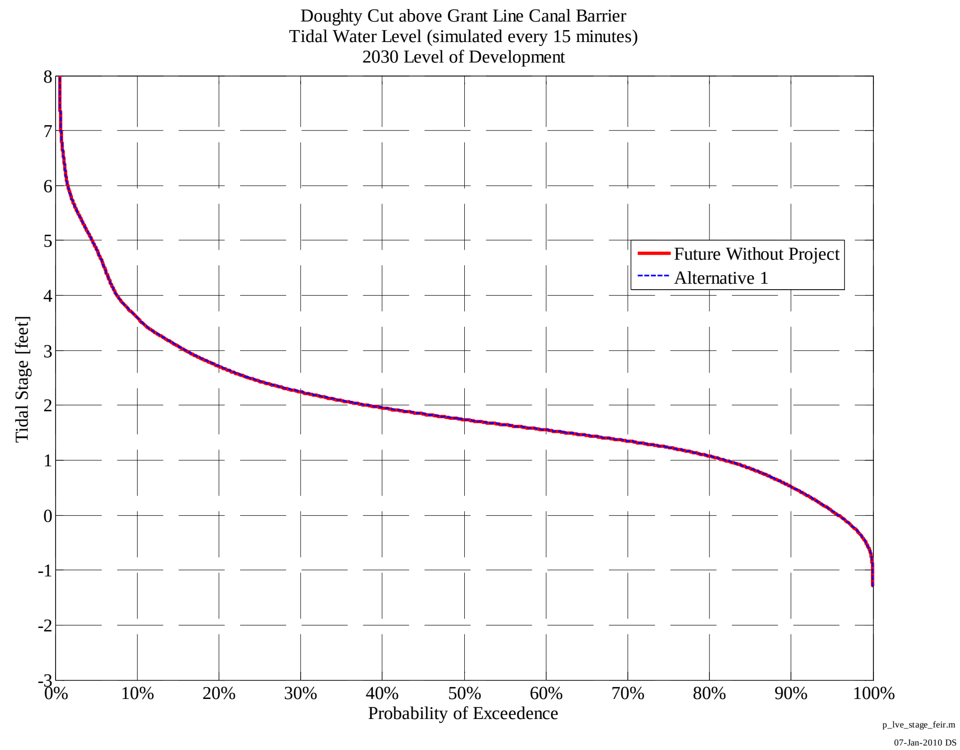


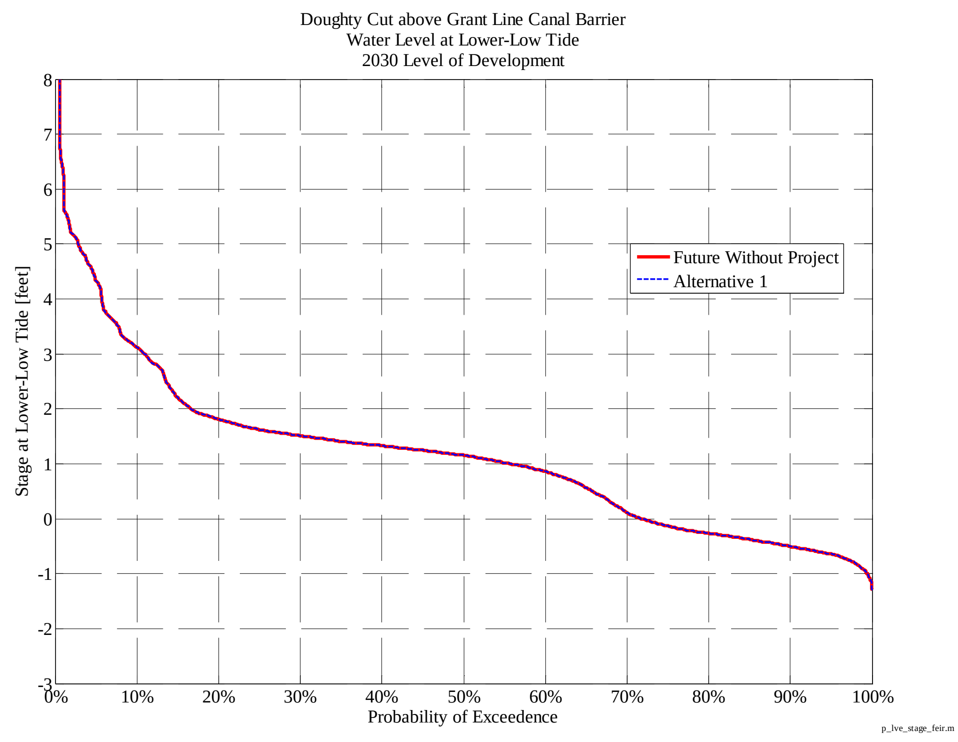

Old River near Tracy Road Bridge
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS

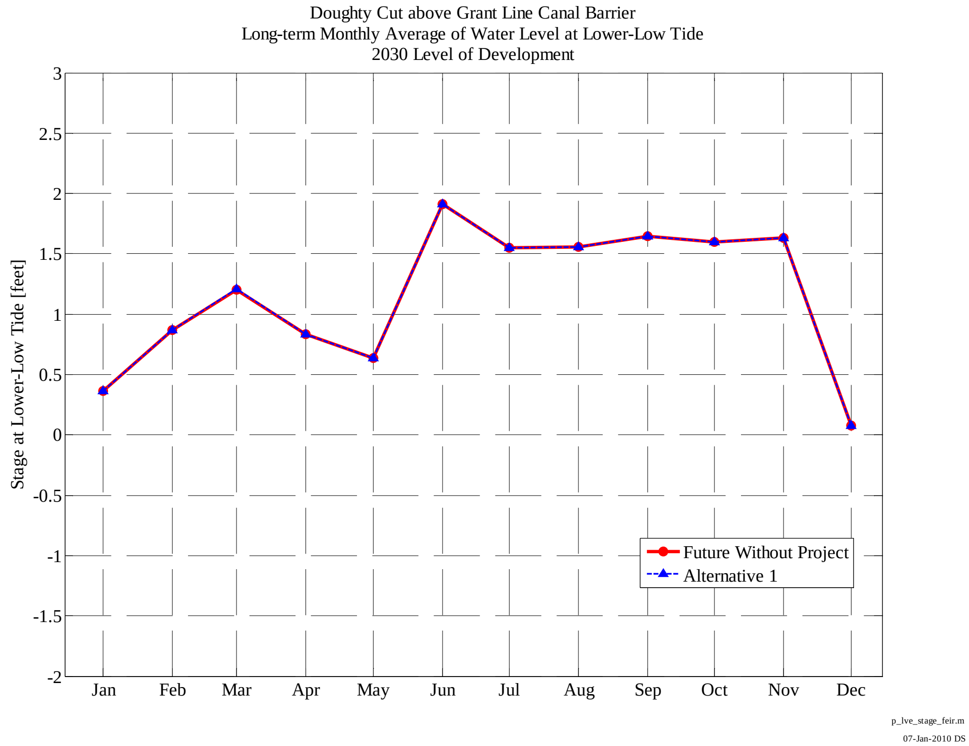

Old River near Tracy Road Bridge
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

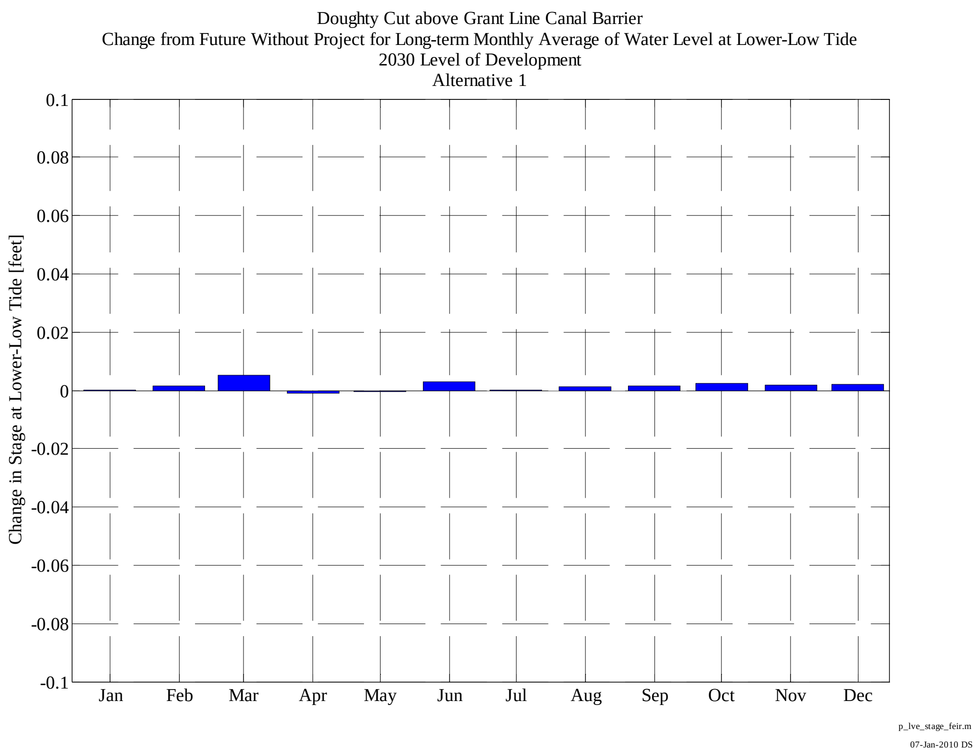
Doughty Cut above Grant Line Canal Barrier

Alternative 1

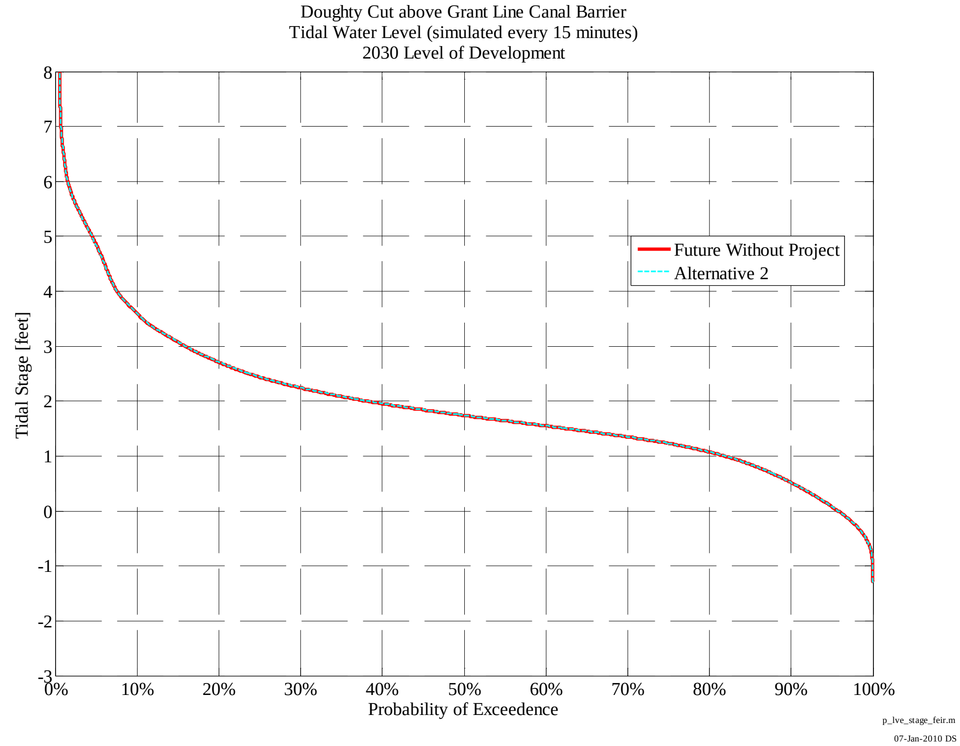


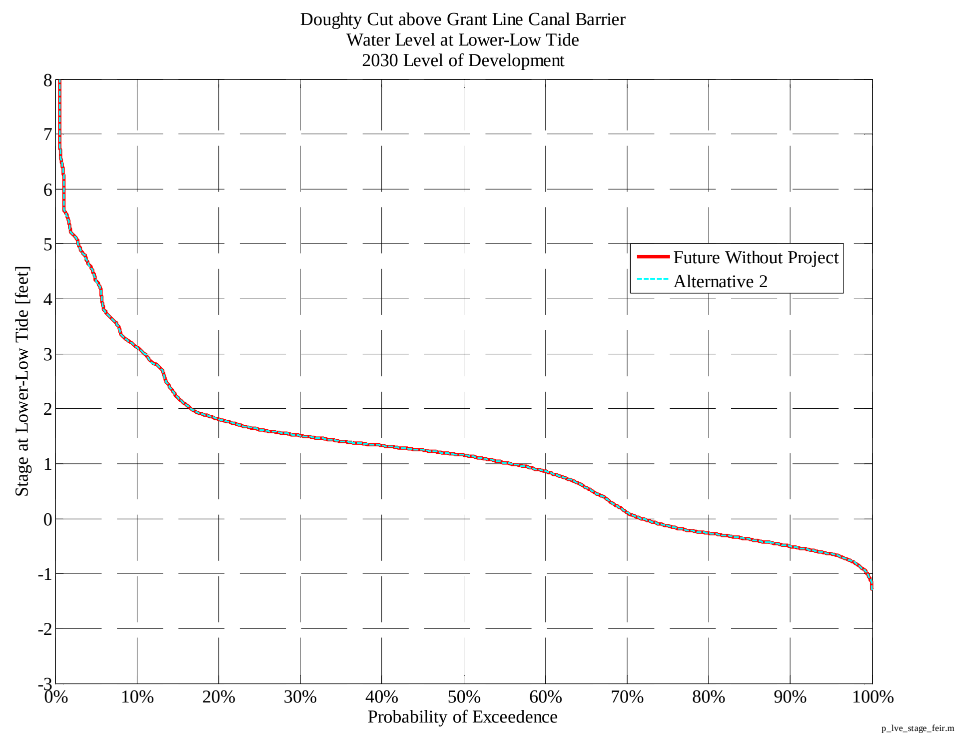


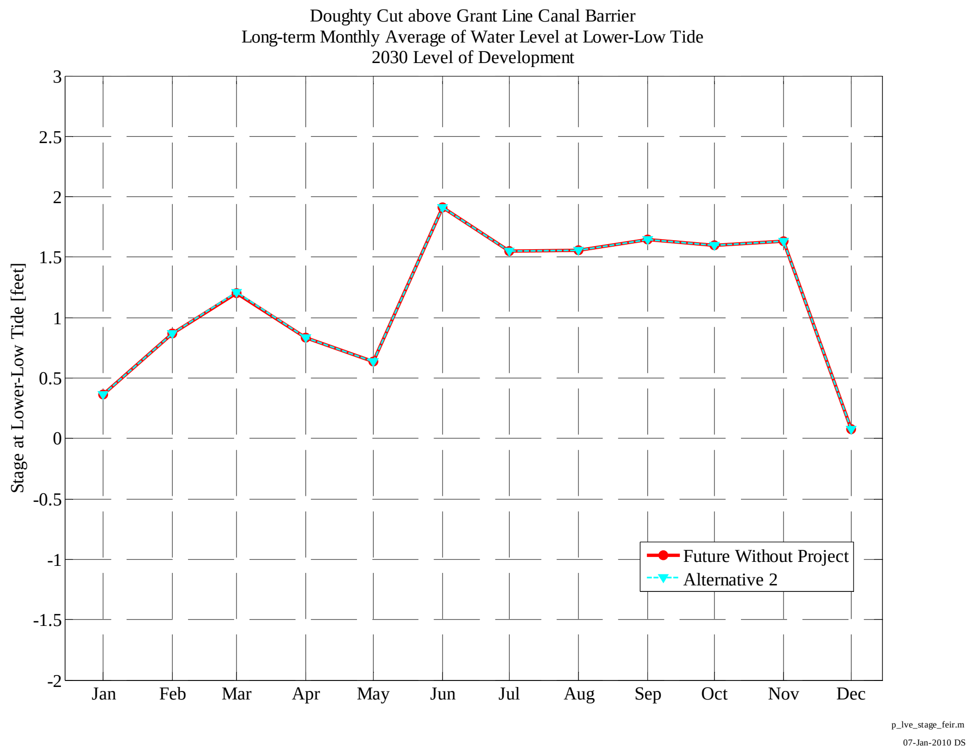

Doughty Cut above Grant Line Canal Barrier
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS

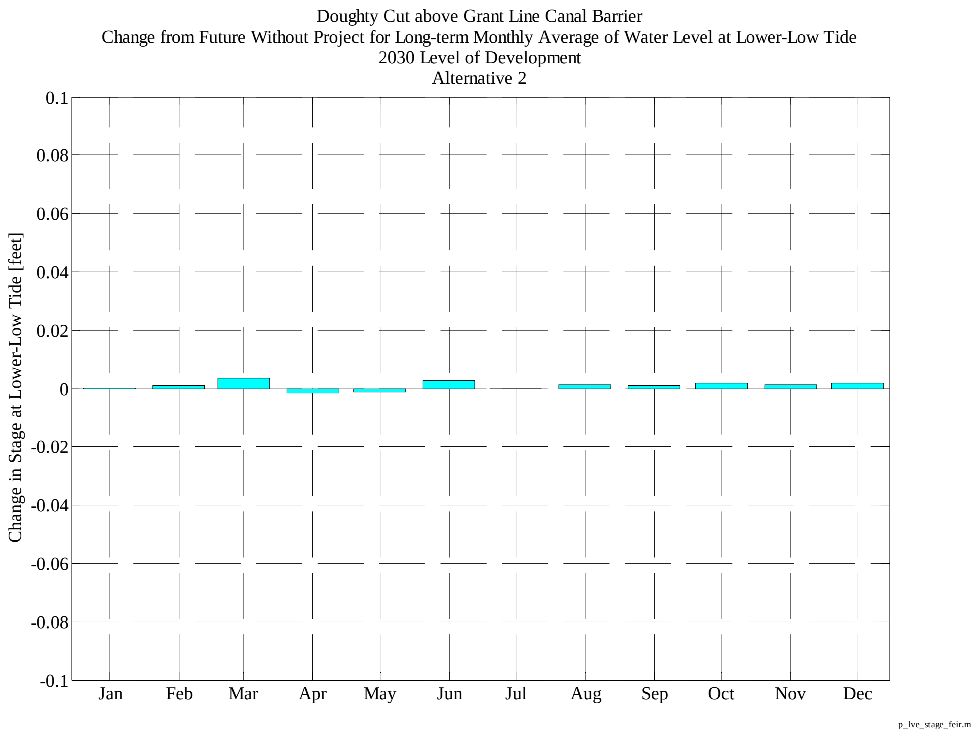

Doughty Cut above Grant Line Canal Barrier
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

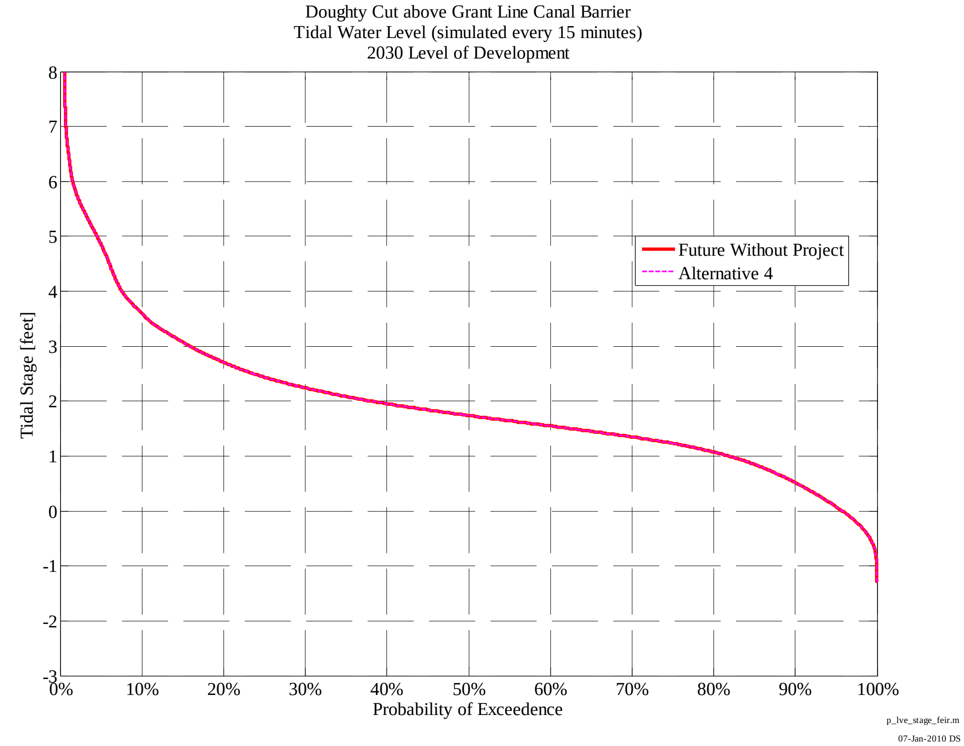


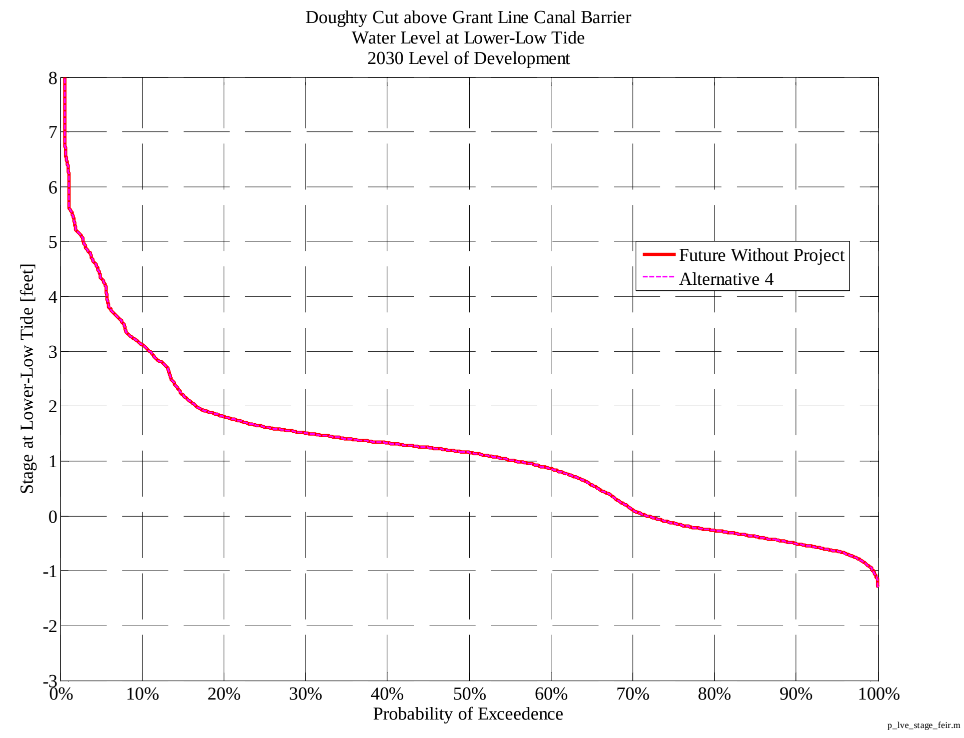



Doughty Cut above Grant Line Canal Barrier
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

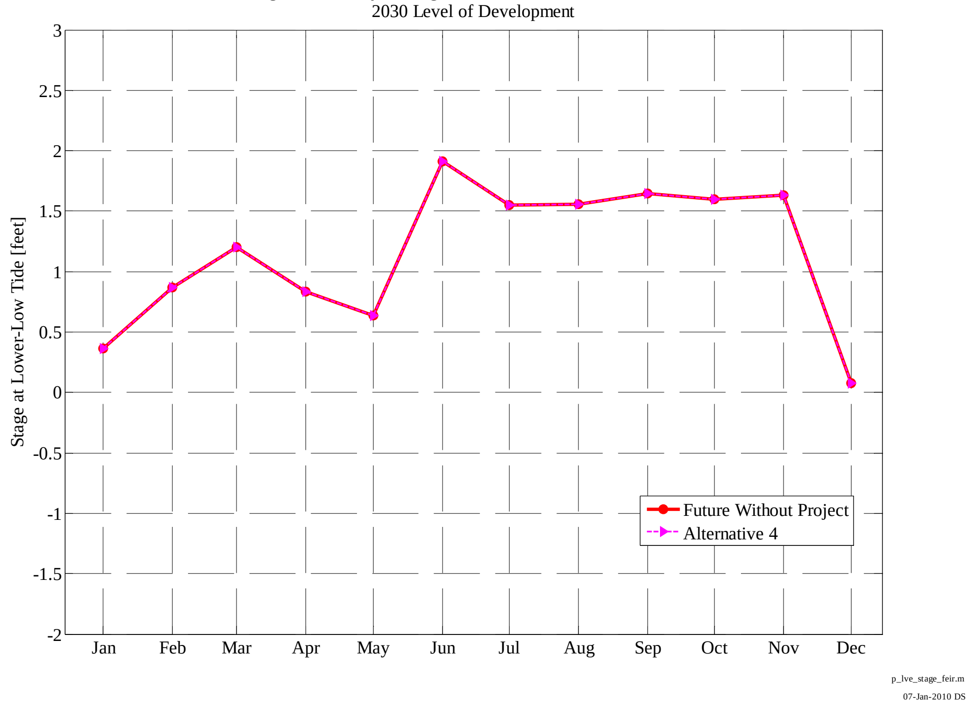

Doughty Cut above Grant Line Canal Barrier
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4

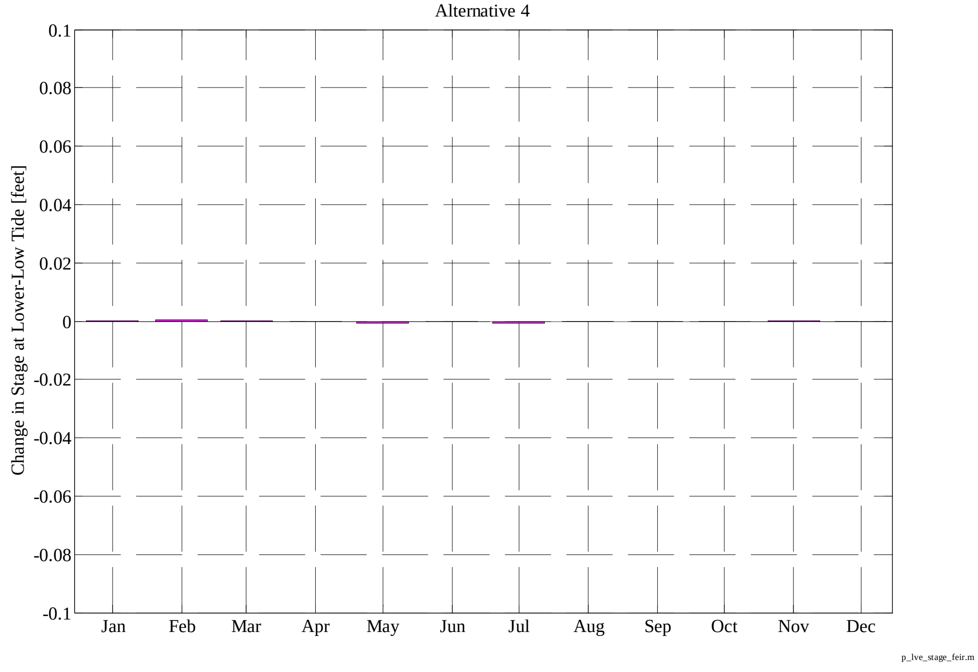




Doughty Cut above Grant Line Canal Barrier
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development

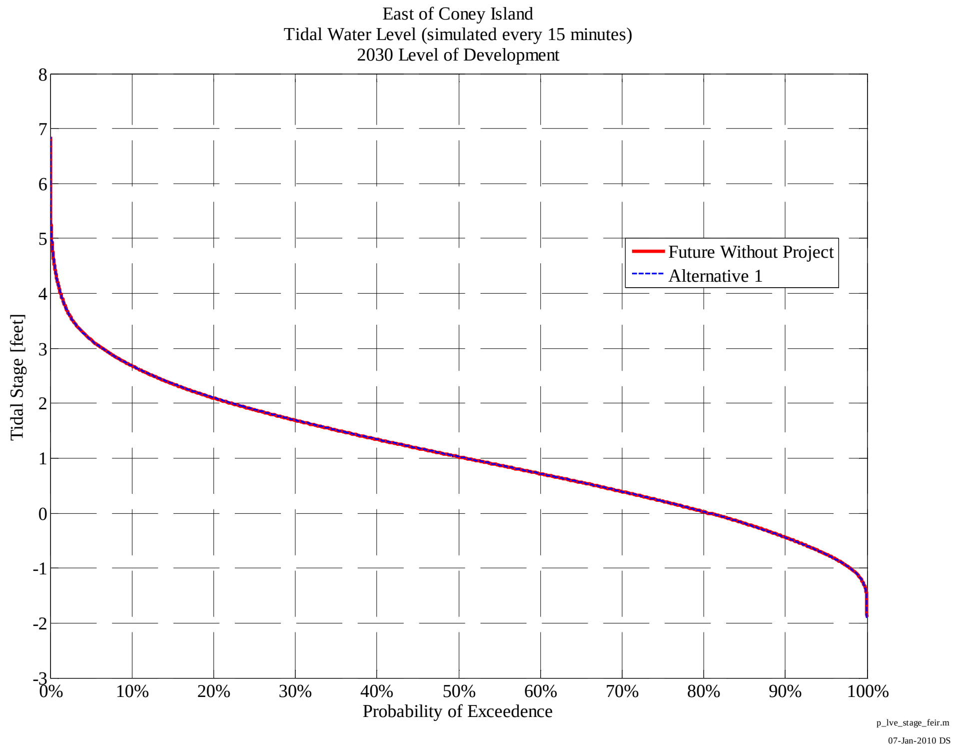


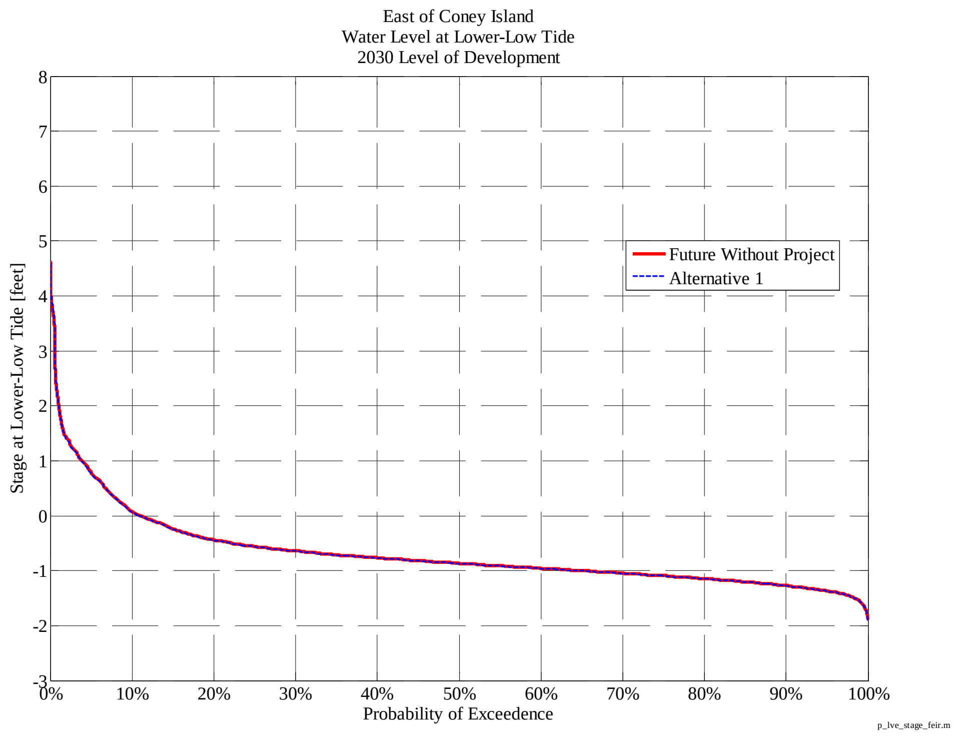
Doughty Cut above Grant Line Canal Barrier
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 4

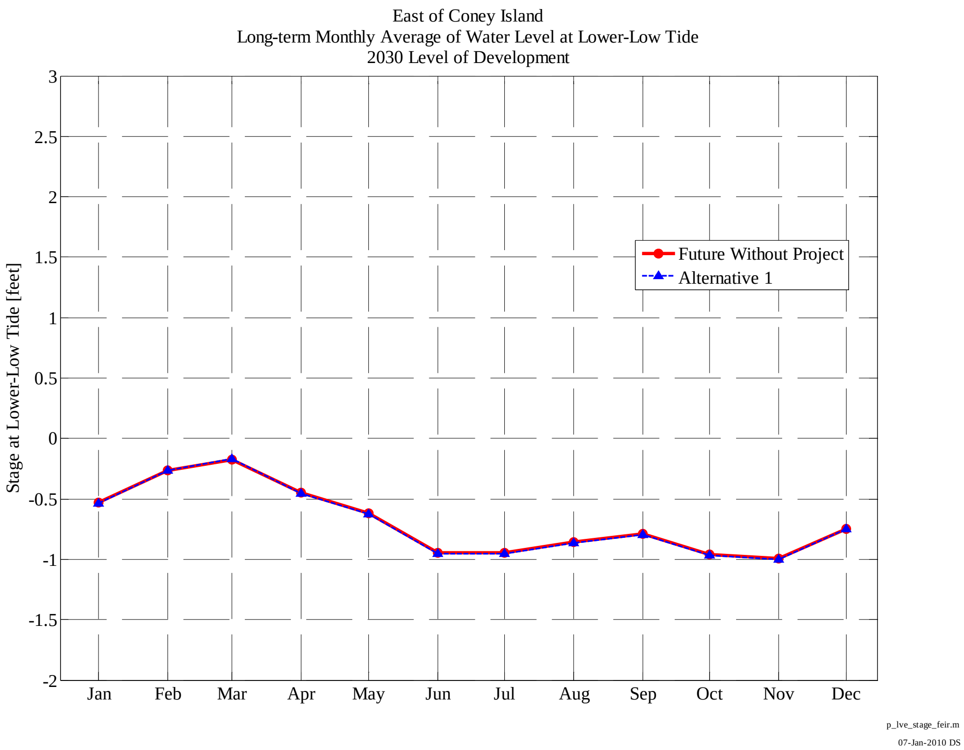


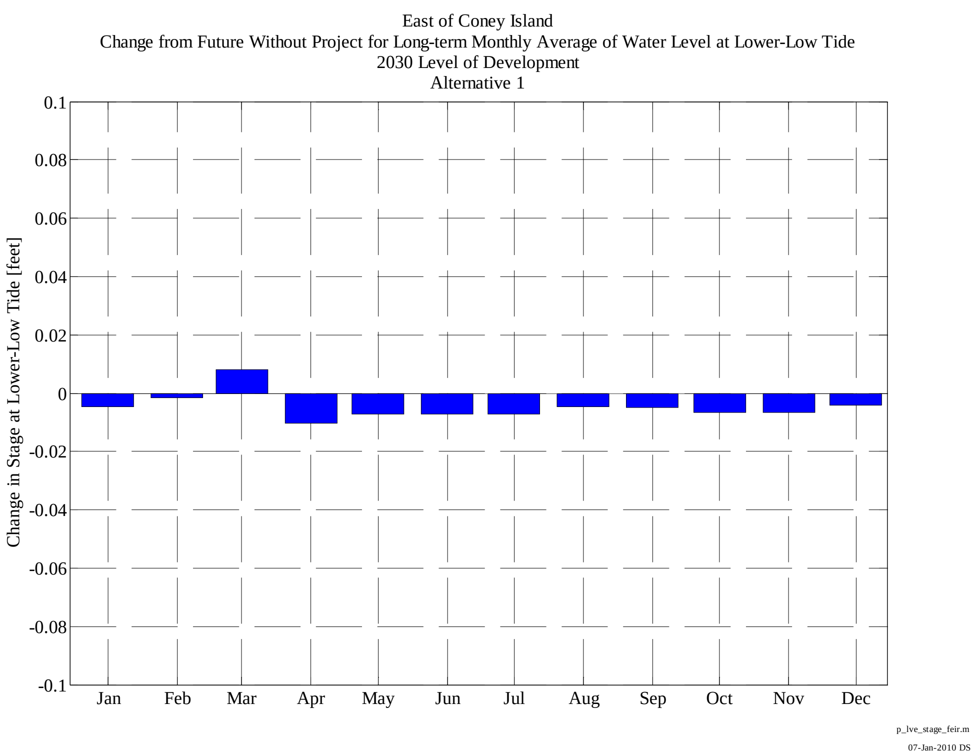
East of Coney Island

Alternative 1

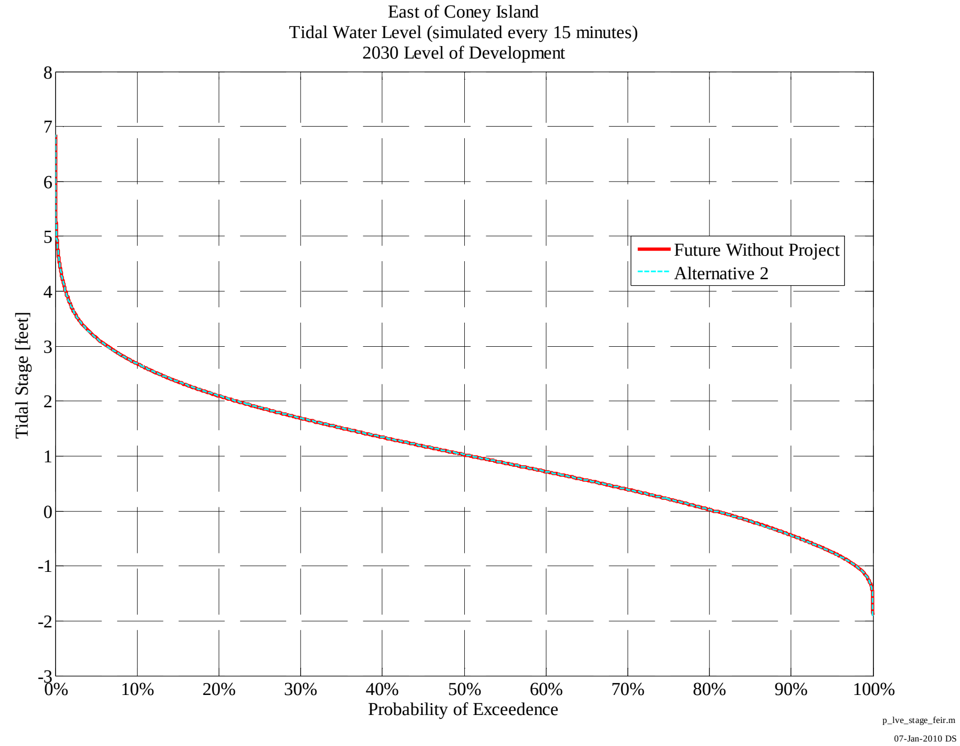


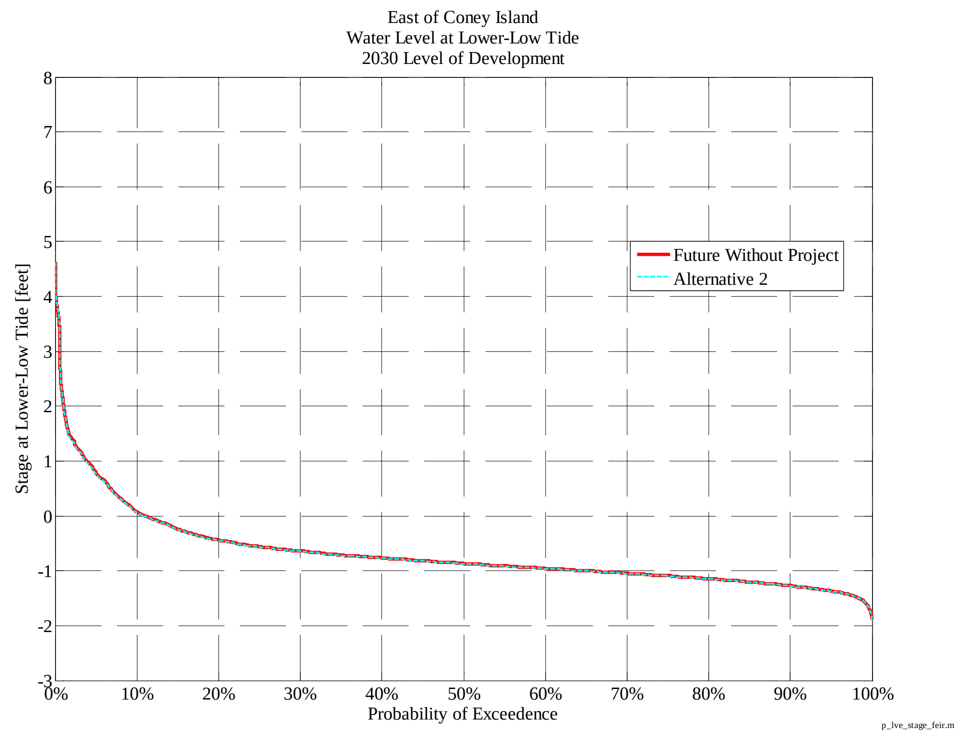


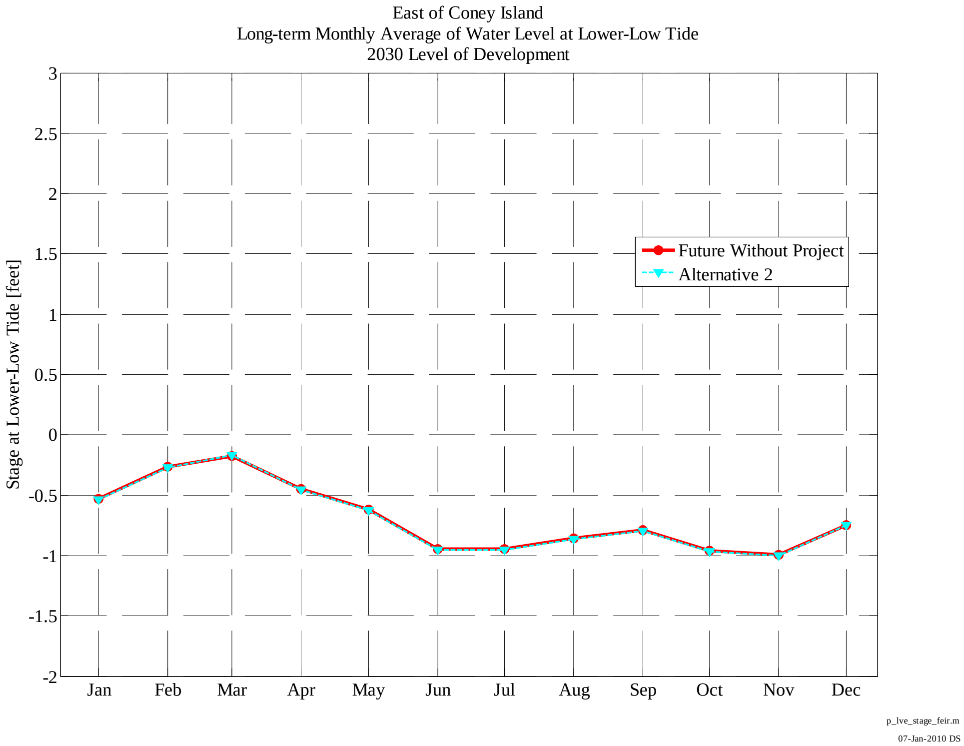

East of Coney Island
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Future Without Project
Alternative 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

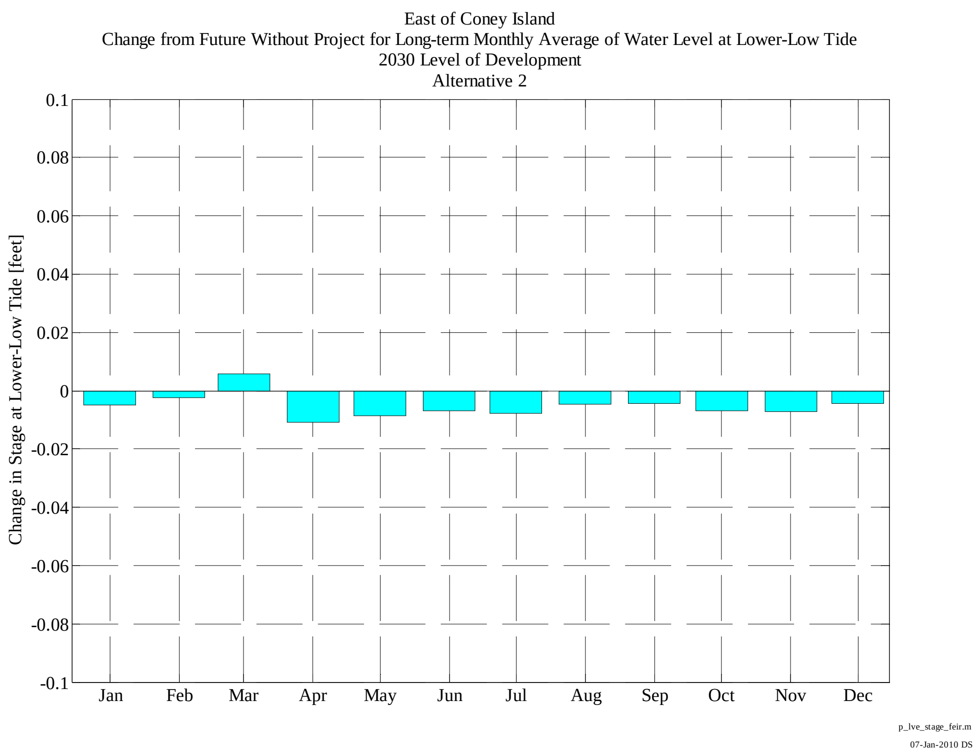

East of Coney Island
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

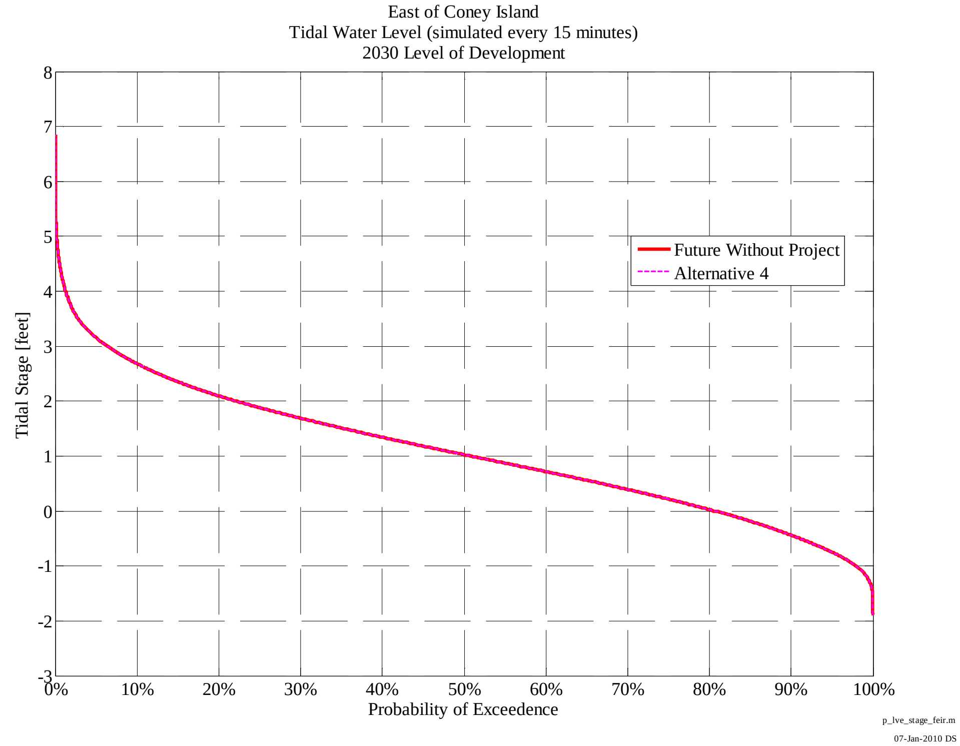


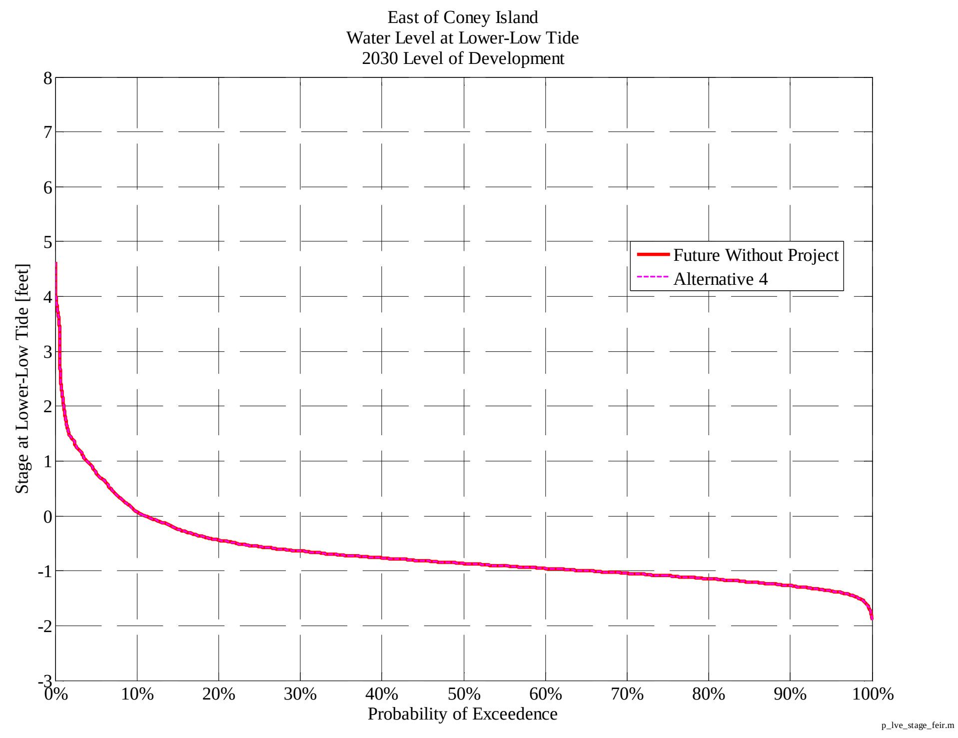


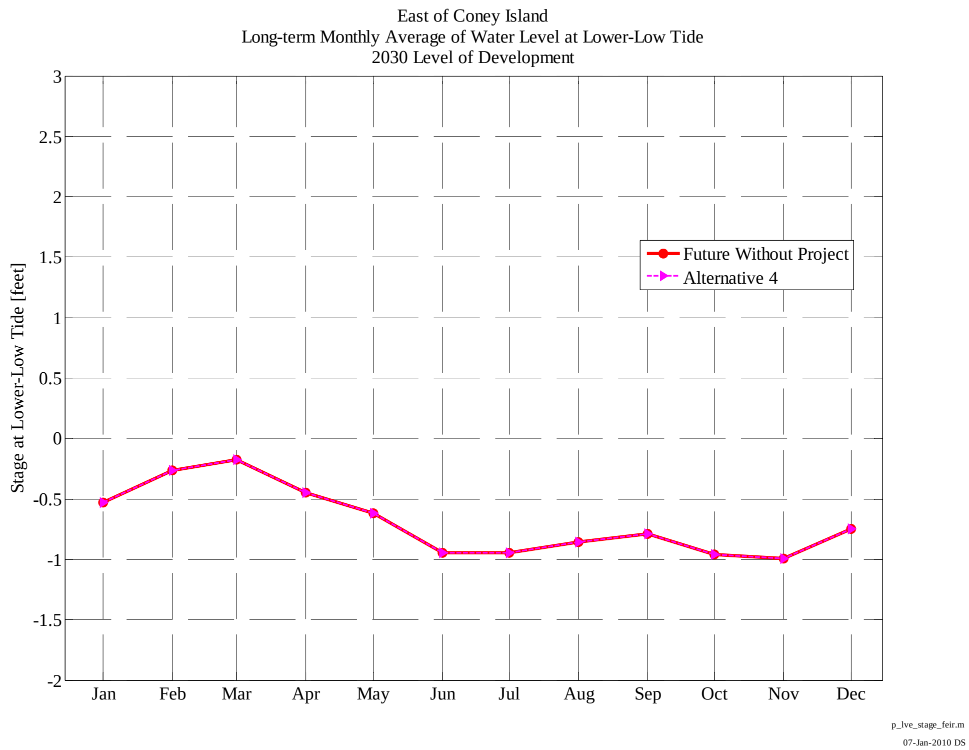

East of Coney Island
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Future Without Project
Alternative 2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

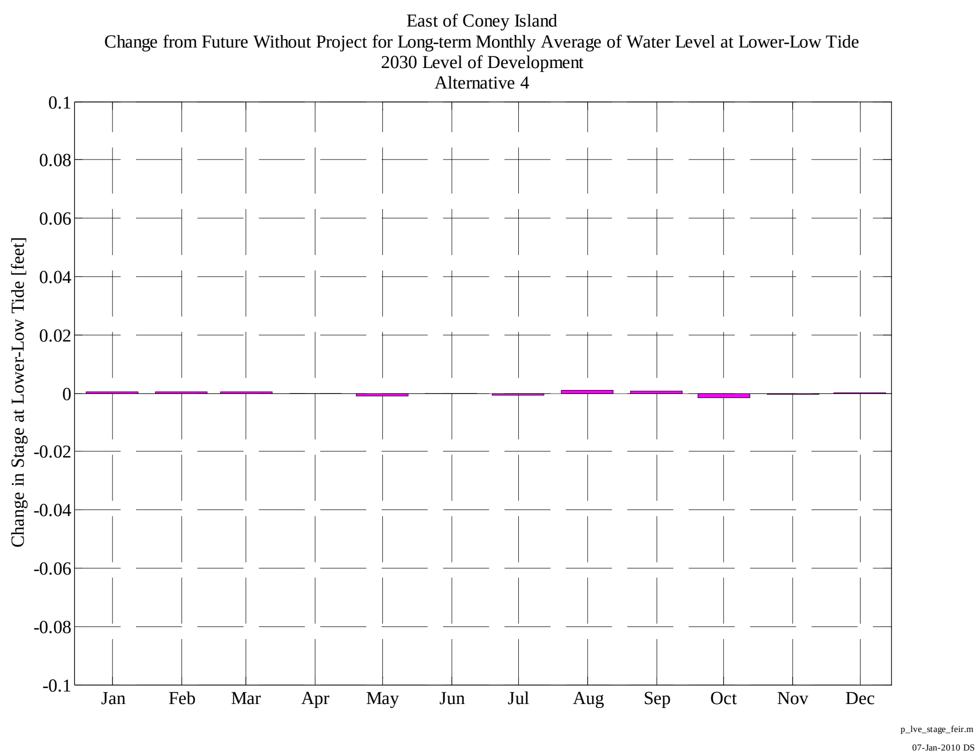

East of Coney Island
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



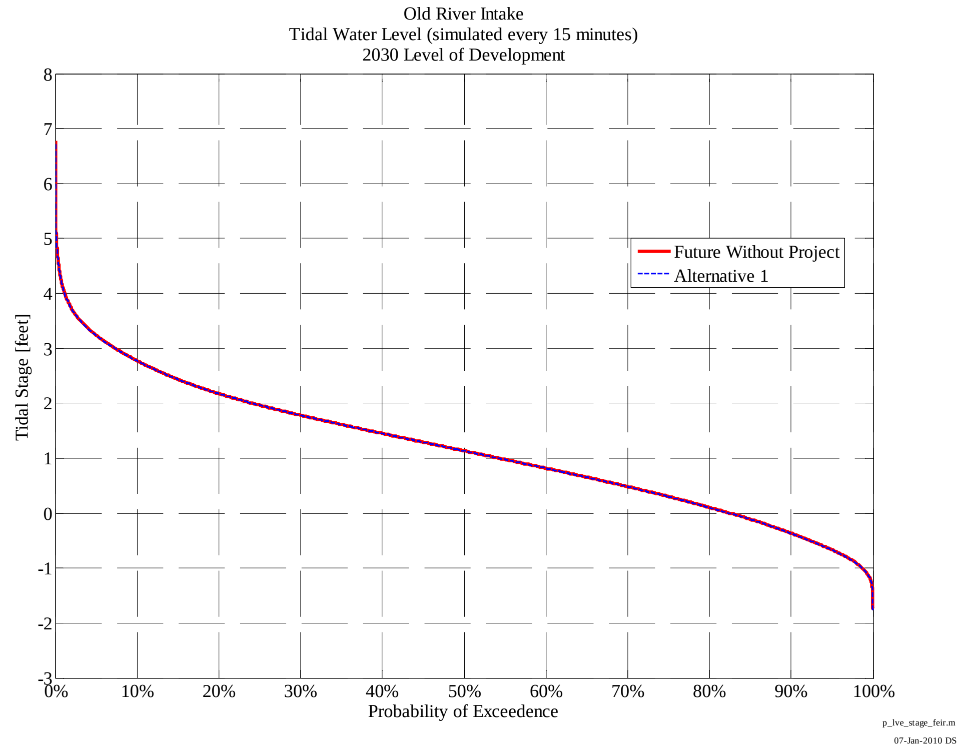


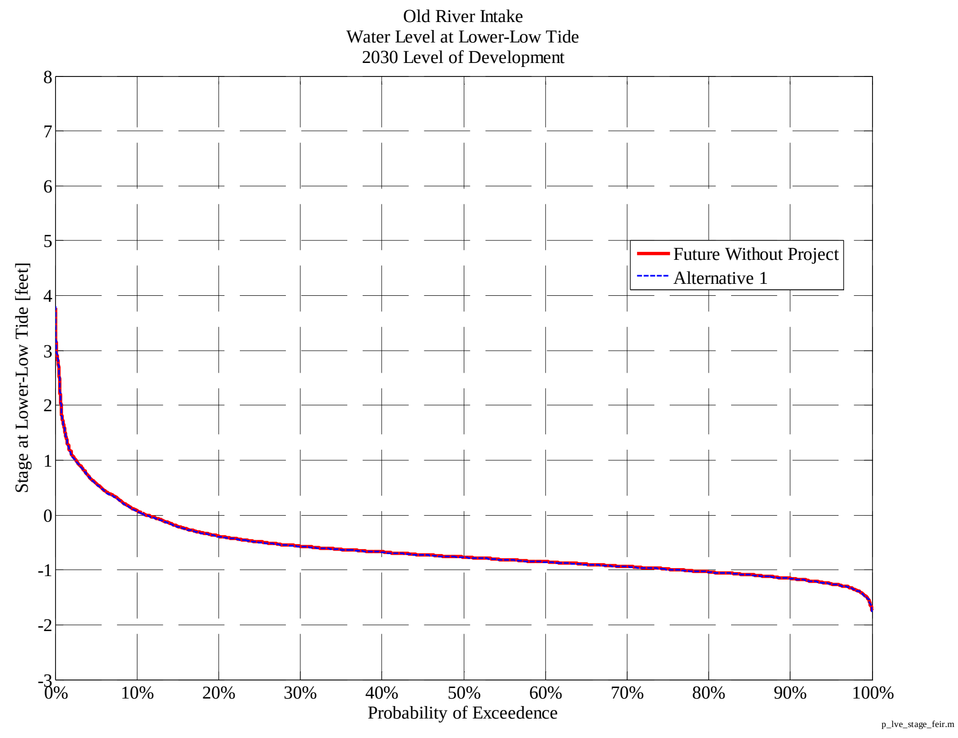

East of Coney Island
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Future Without Project
Alternative 4
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

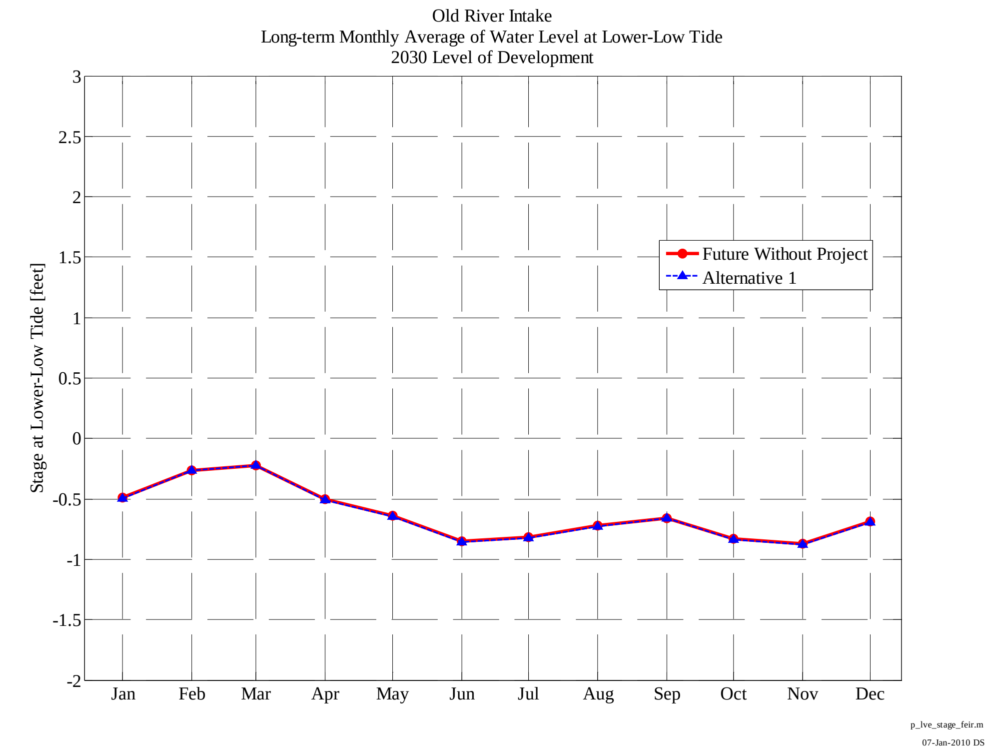

East of Coney Island
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

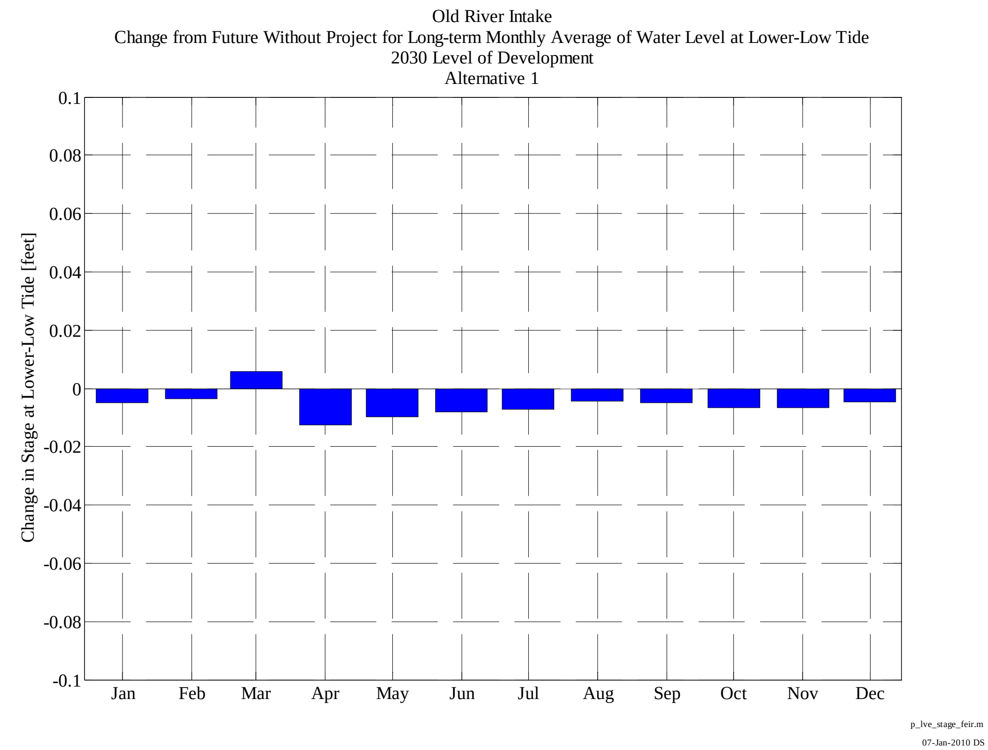
Old River Intake

Alternative 1

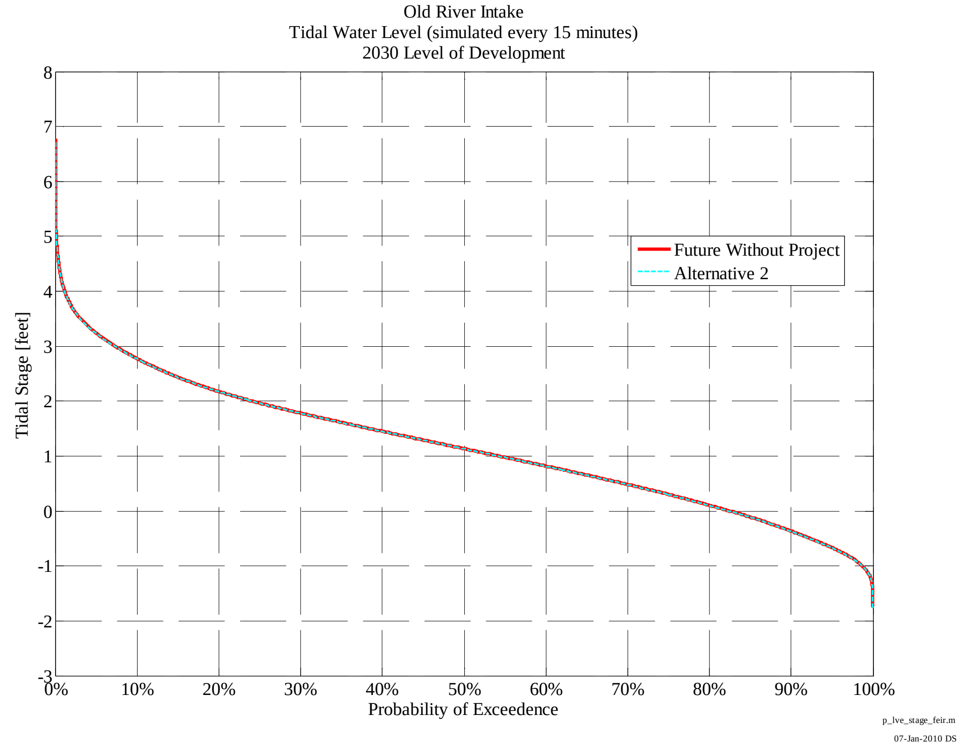


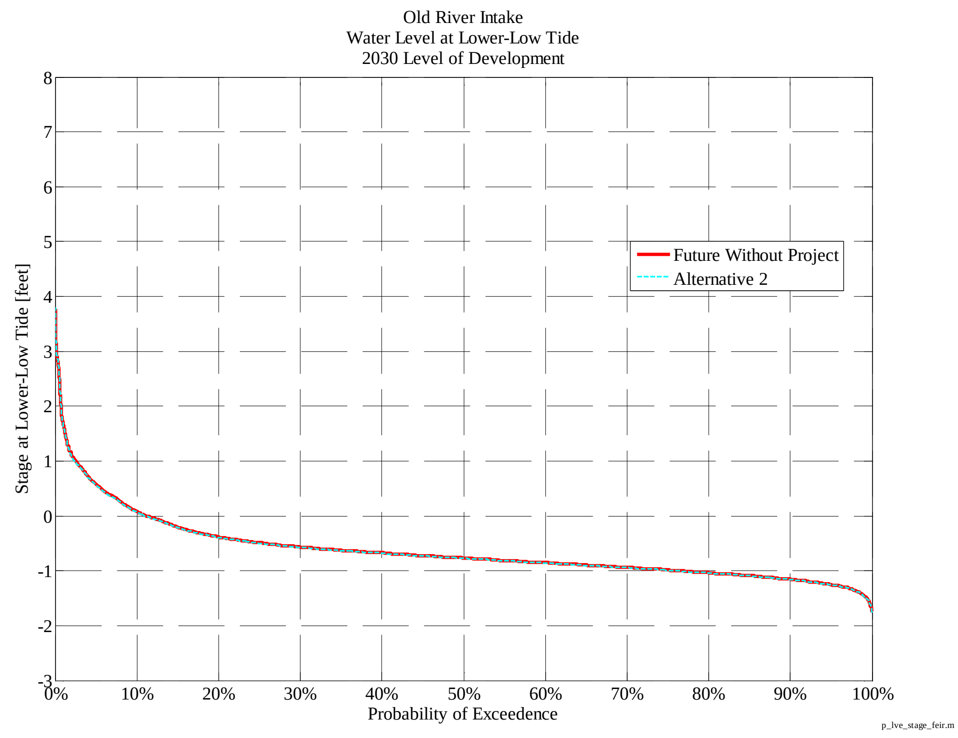


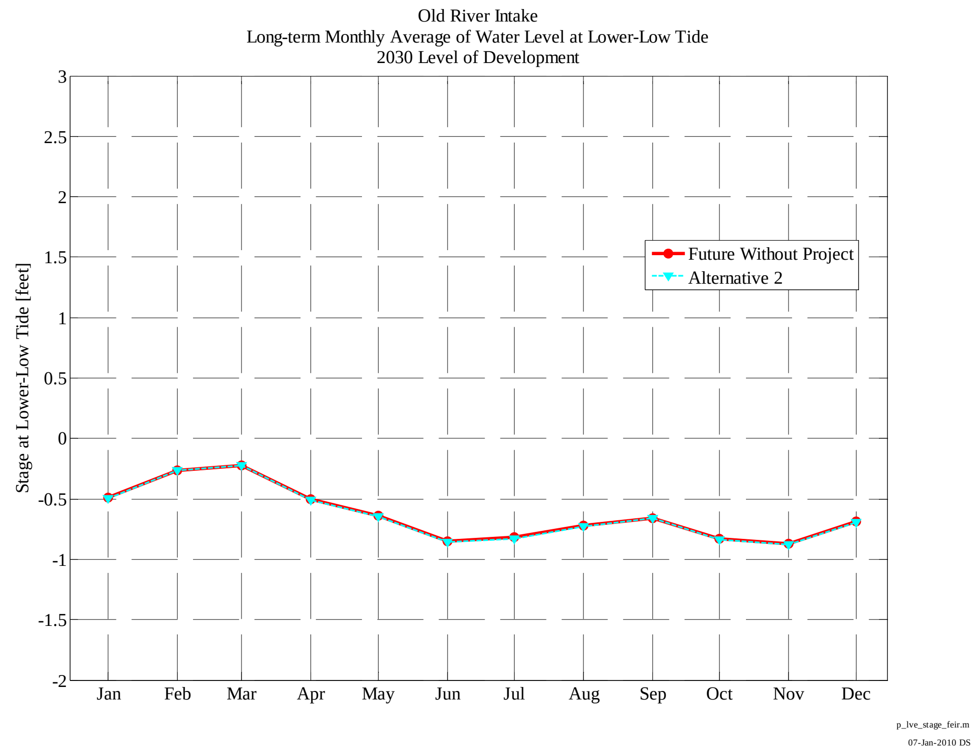

Old River Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_stage_feir.m
07-Jan-2010 DS

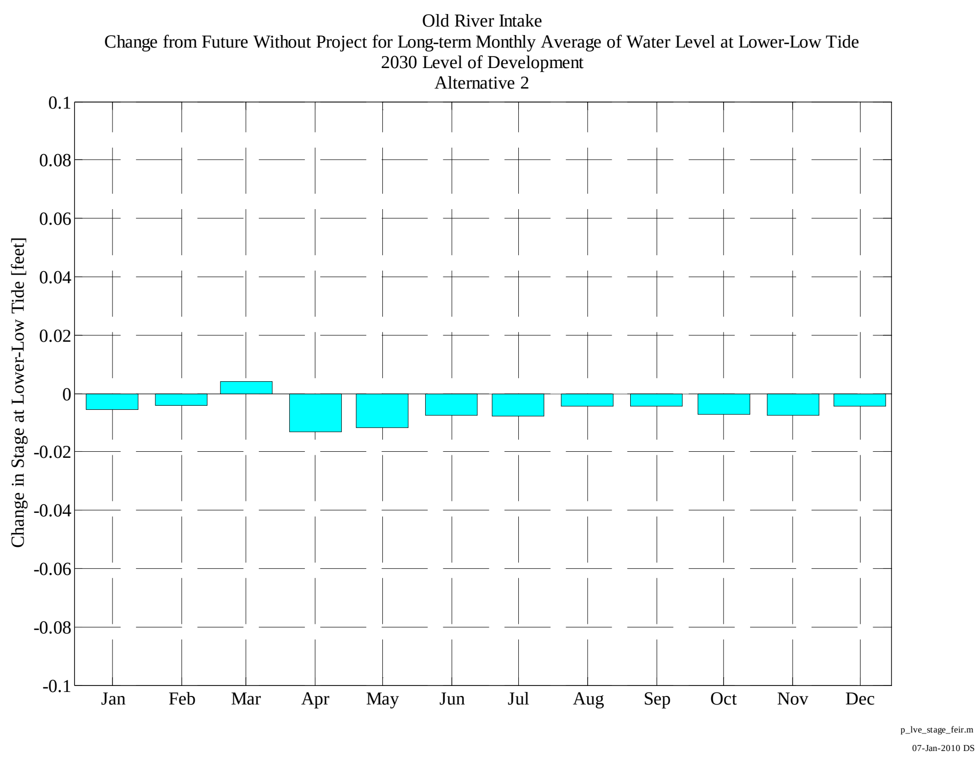

Old River Intake
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

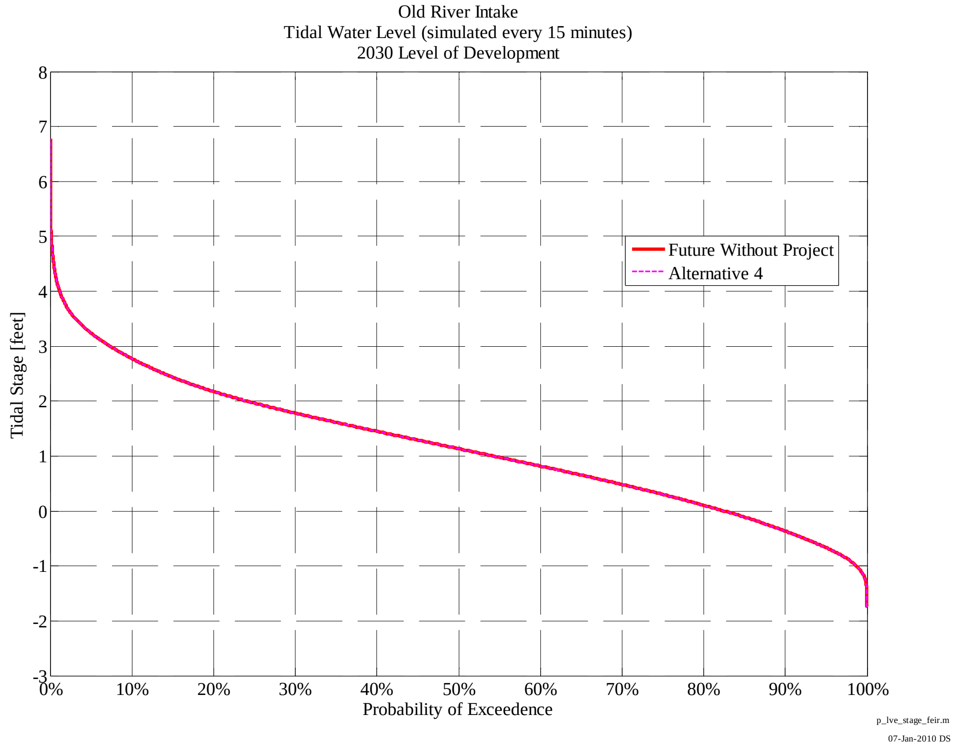


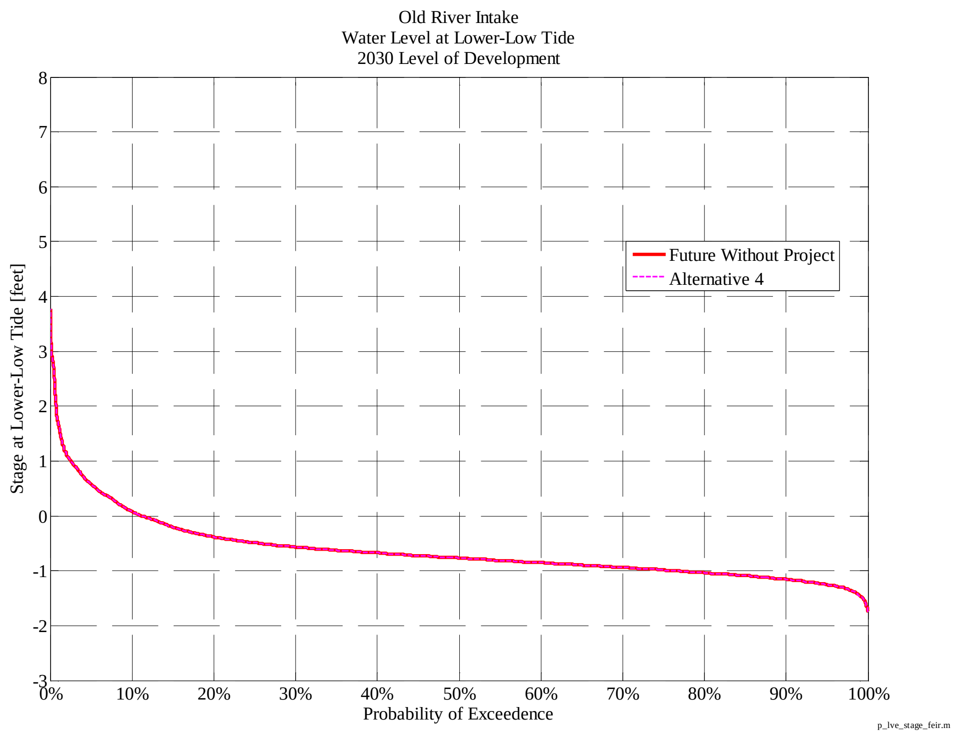


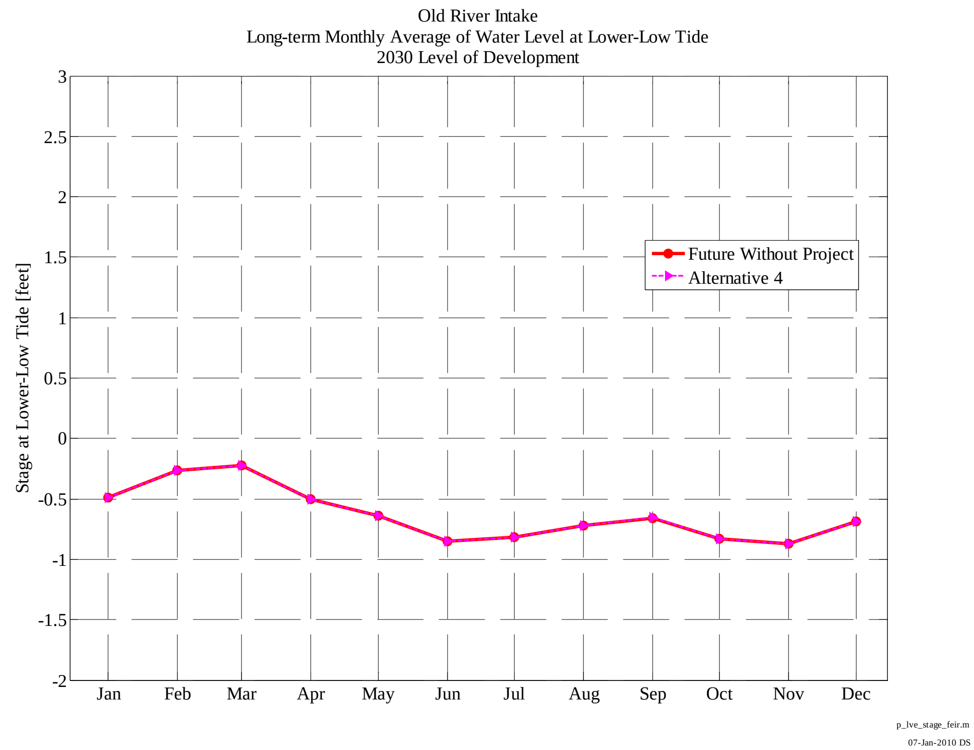

Old River Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_stage_feir.m
07-Jan-2010 DS

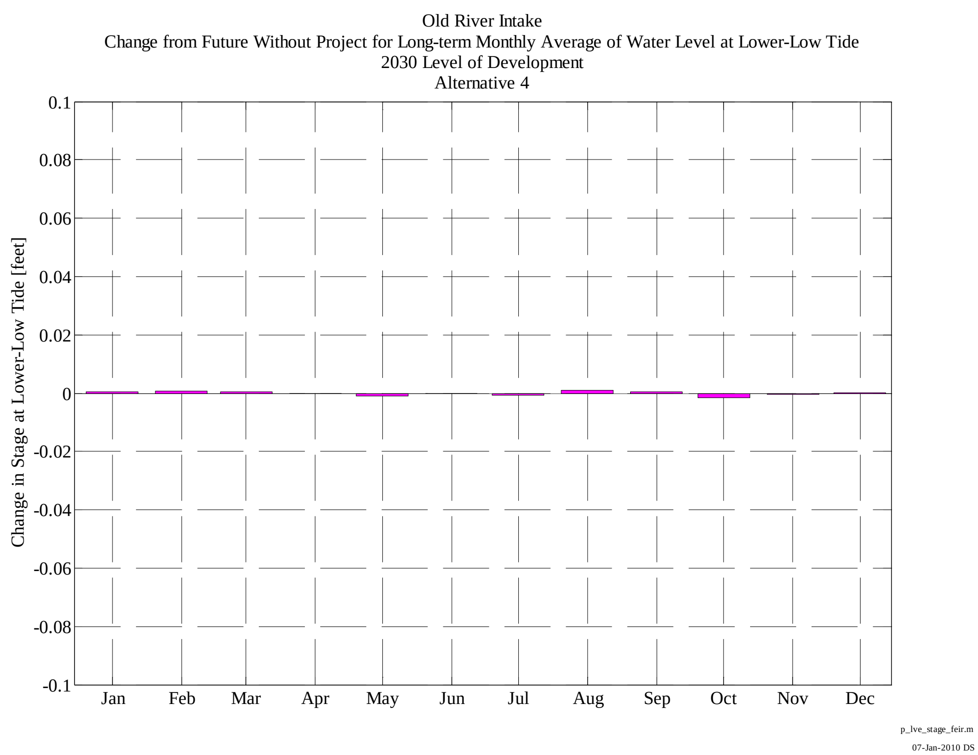

Old River Intake
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4



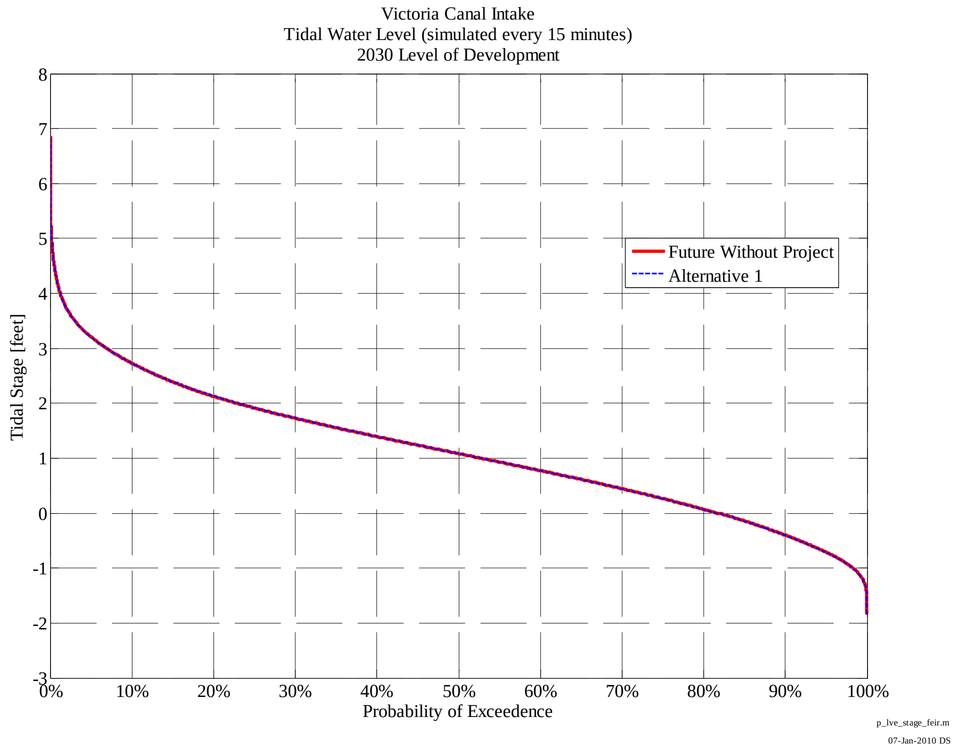


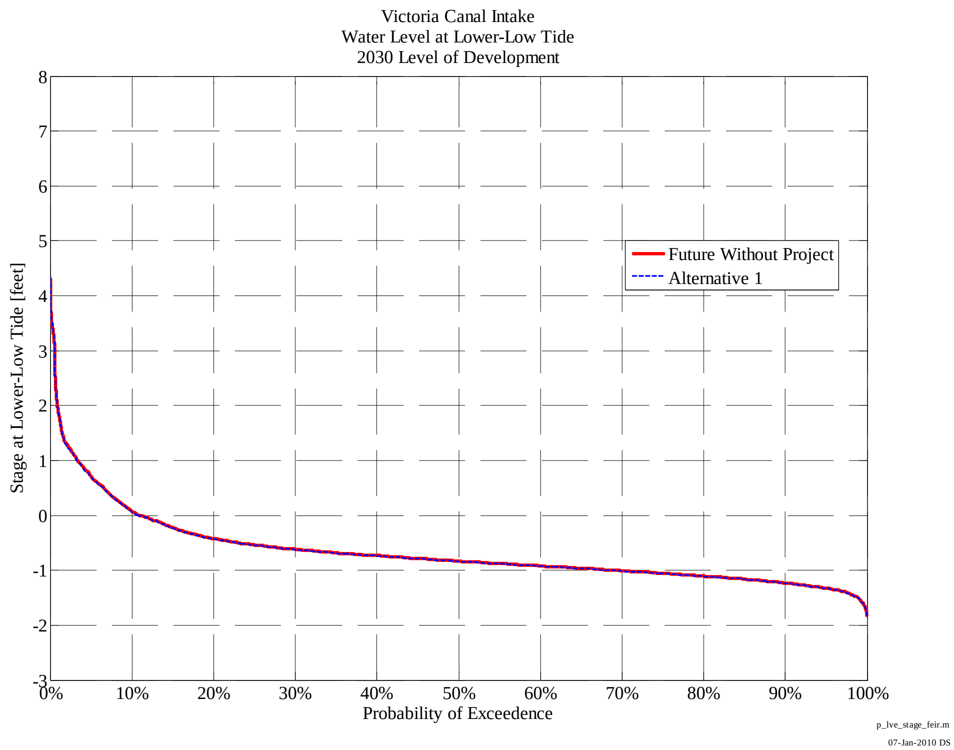

Old River Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS

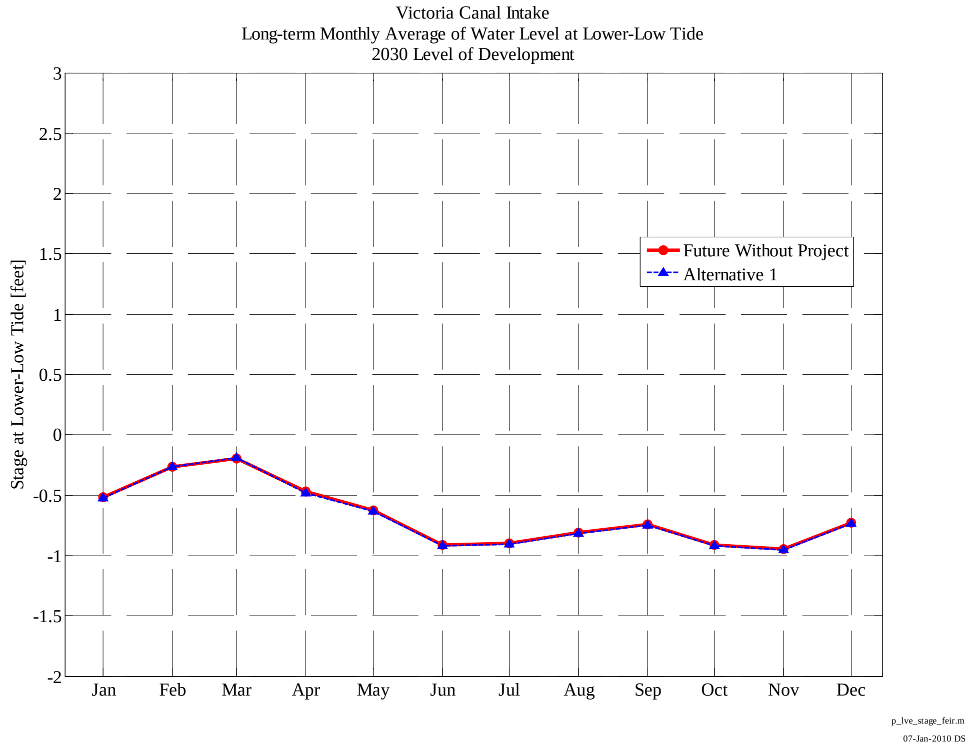

Old River Intake
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

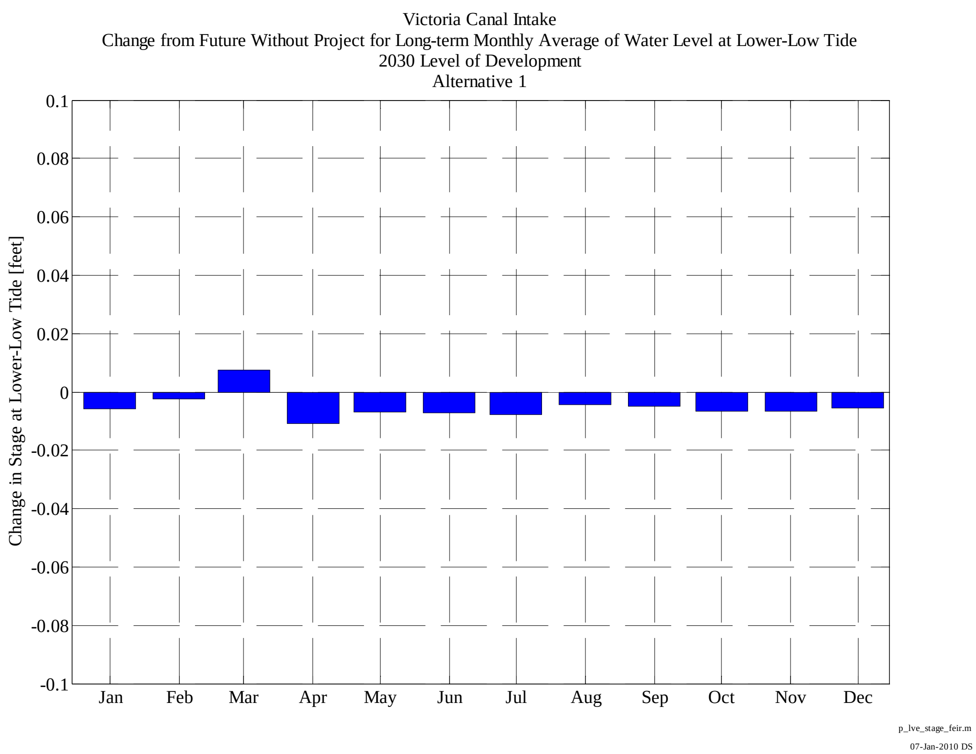
Victoria Canal Intake

Alternative 1

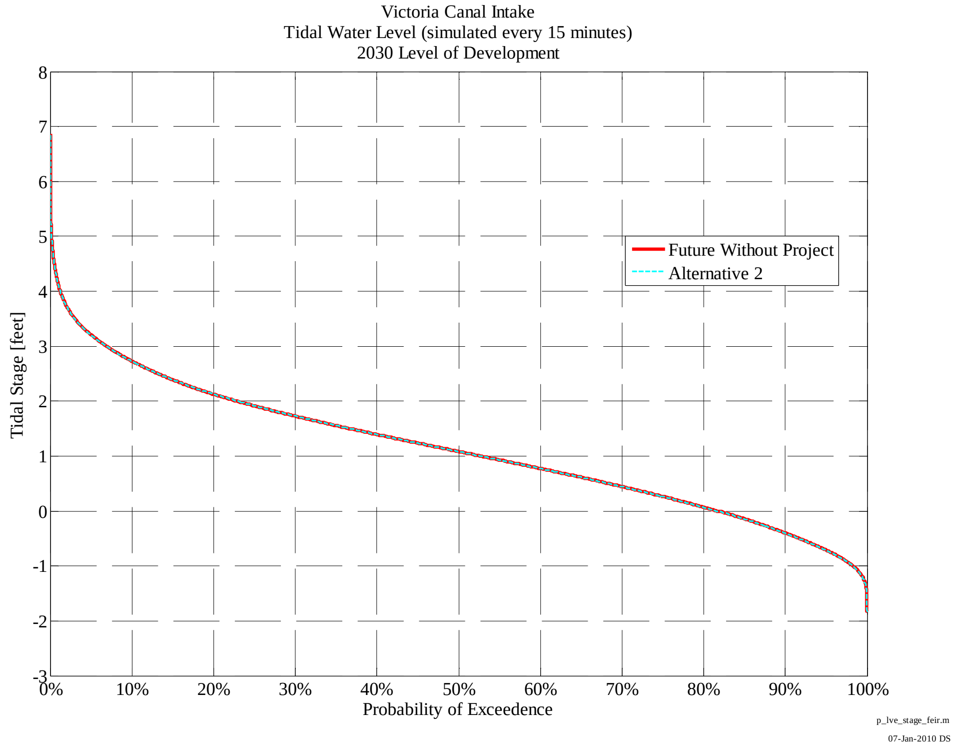


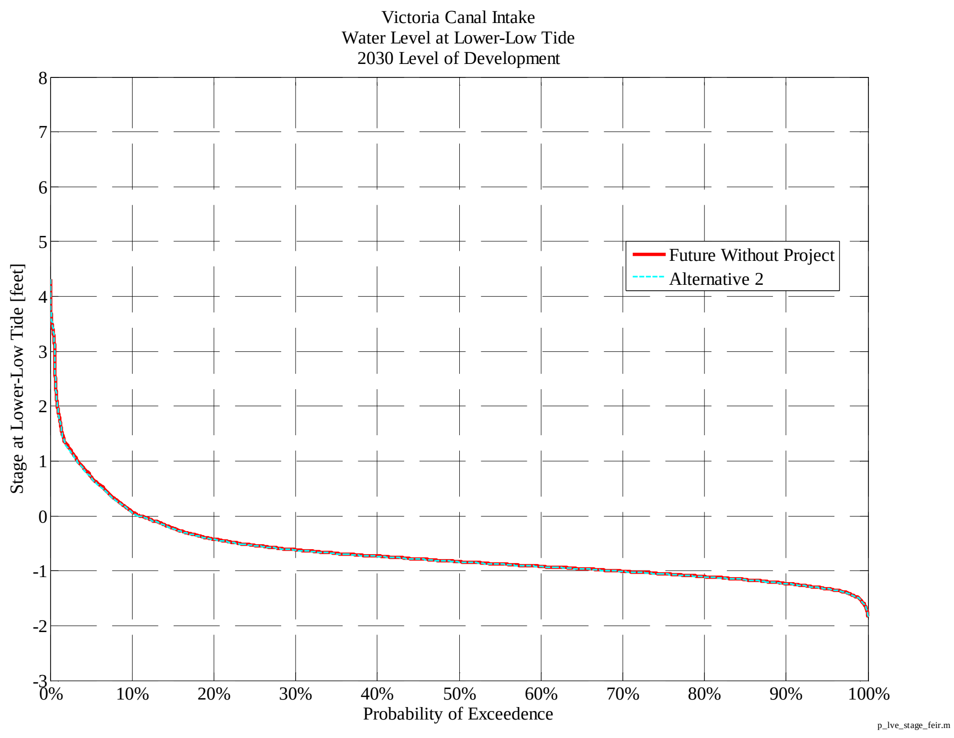


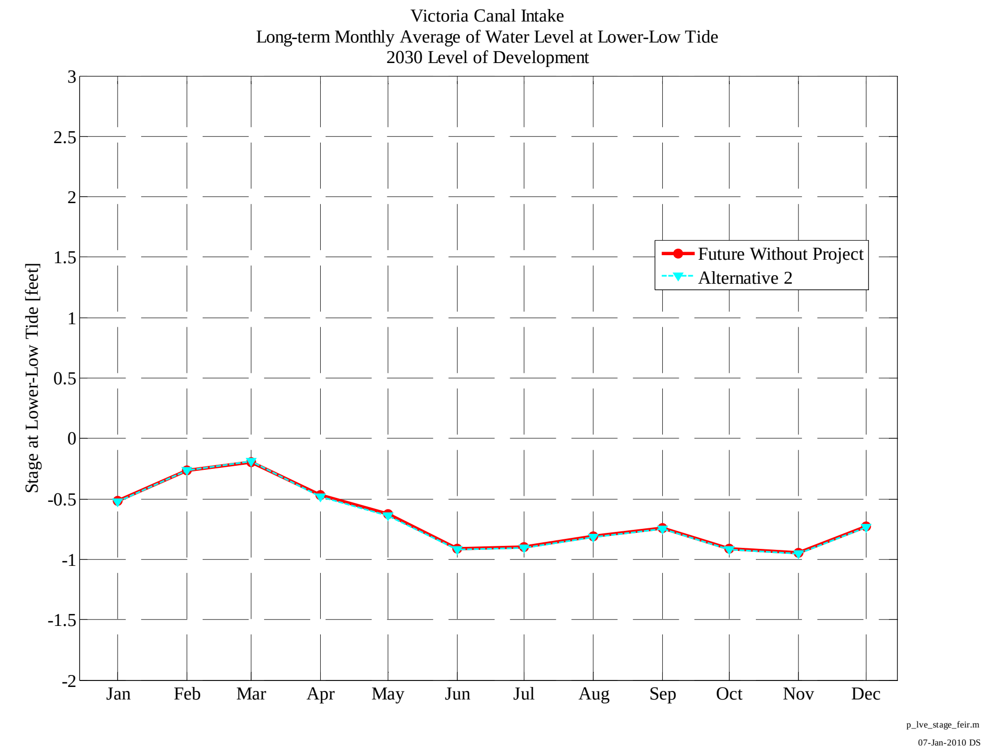

Victoria Canal Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Future Without Project
Alternative 1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

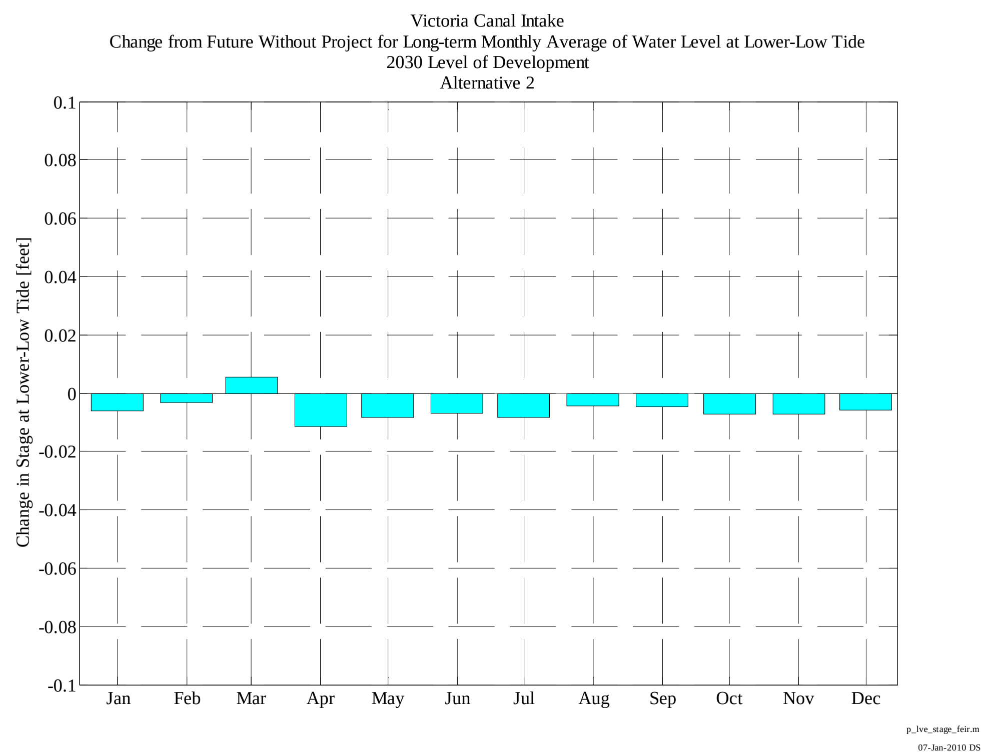

Victoria Canal Intake
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 1
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 2

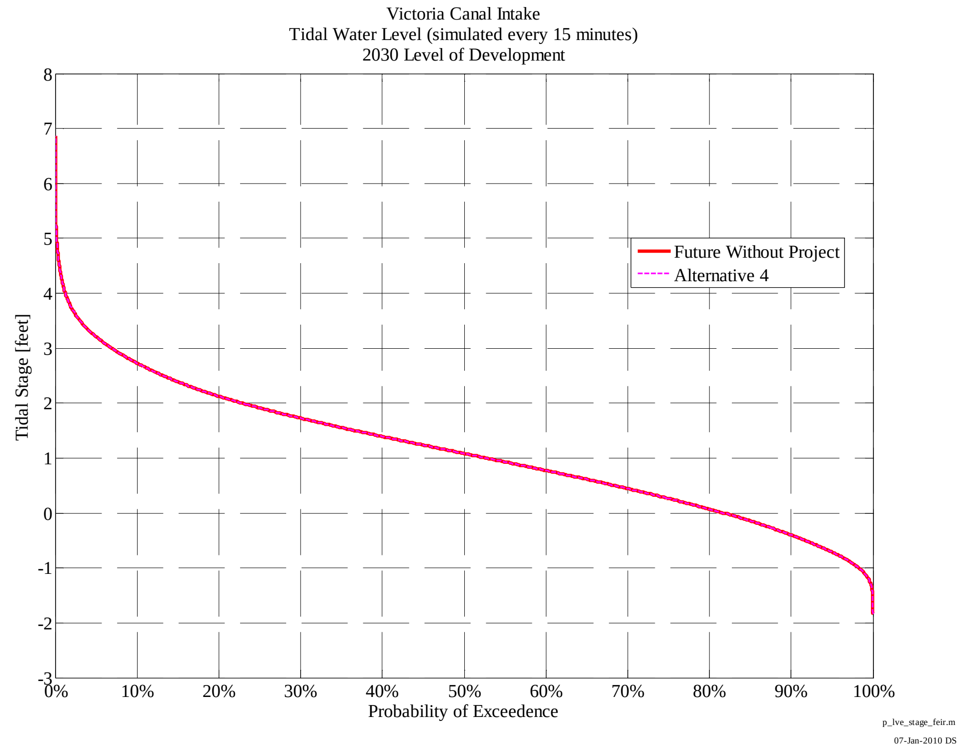


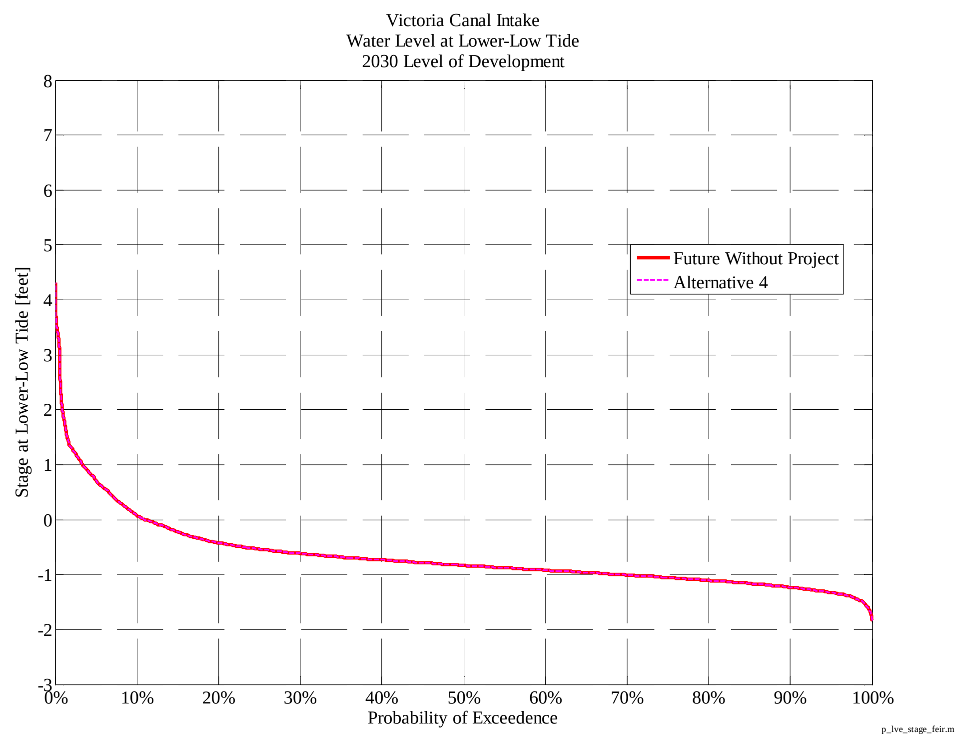


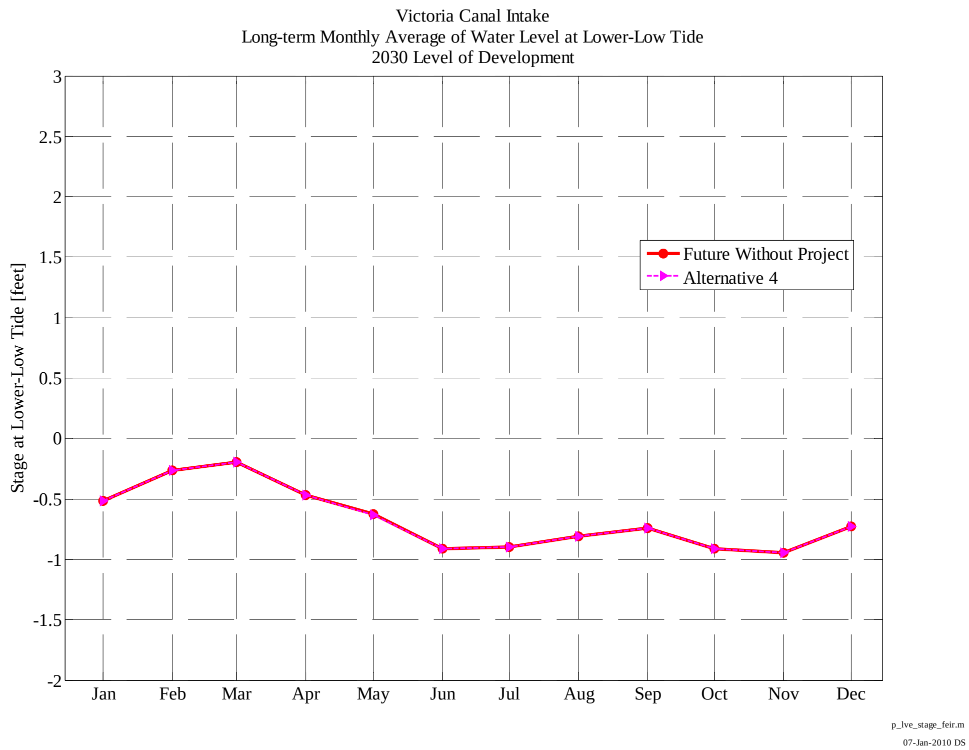

Victoria Canal Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Future Without Project
Alternative 2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

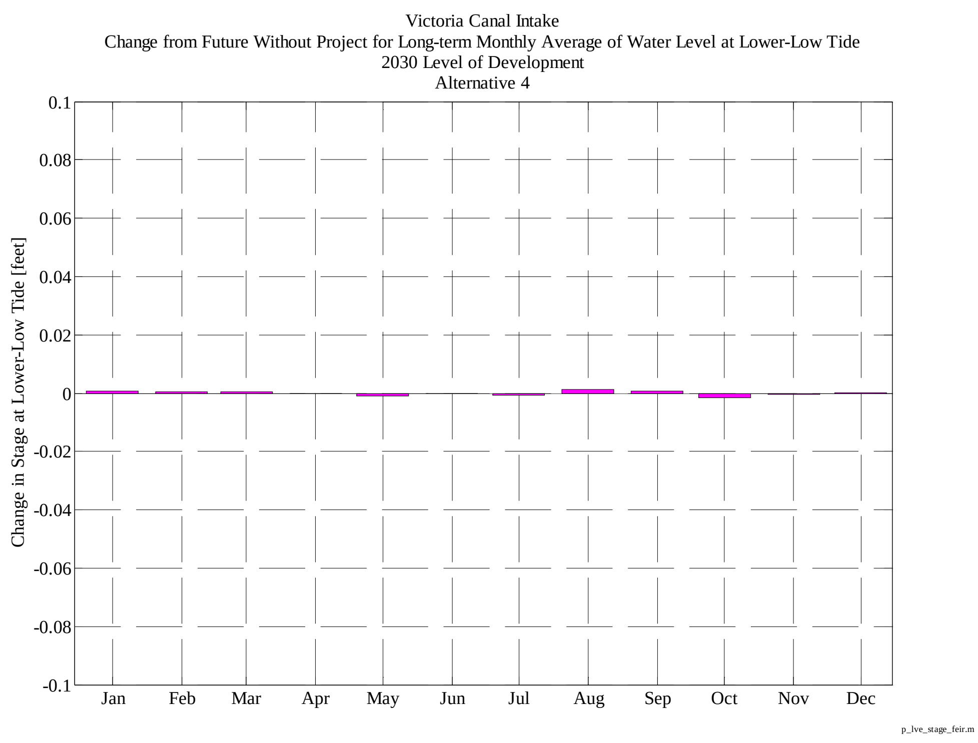

Victoria Canal Intake
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 2
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

Alternative 4






Victoria Canal Intake
Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Stage at Lower-Low Tide [feet]
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 4
p_lve_stage_feir.m
07-Jan-2010 DS


Victoria Canal Intake
Change from Future Without Project for Long-term Monthly Average of Water Level at Lower-Low Tide
2030 Level of Development
Alternative 4
Change in Stage at Lower-Low Tide [feet]
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_stage_feir.m
07-Jan-2010 DS

C-6 STATISTICAL WATER QUALITY IMPACT ANALYSIS

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Tables

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Introduction

Changes in timing and location of diversions have the potential to affect water quality conditions in the Delta. The water quality impacts and benefits analysis focuses on salinity (reported as electrical conductivity and chloride concentration) as an indicator of Delta water quality because salinity is the Delta water quality constituent most likely to be affected by shifts in the timing and location of pumping in the Delta. Salinity is also the constituent for which the most monitoring data and calibrated Delta modeling tools exist.

To assess the potential water quality impacts and benefits of the project alternatives, the results of CalSim II studies were input into the DSM2 water quality model for the Delta, and estimated Delta salinity concentrations were compared between each project alternative study and the relevant without project conditions under the existing or future level of development. Water quality analysis for these project alternatives was performed for the 16-year period from 1975 – 1991. The modeling results presented in this section have been updated to reflect the current modeling assumptions specified in Appendix C3.

It is important to note that not all of the differences in simulated salinity are necessarily due to changes in operations under the project alternatives. Model artifacts as discussed in Section 4.2.2 and project operations both contribute to potential water quality impacts. In order to determine if the changes in water quality posed potentially significant impacts, several statistical tests were used (Zar, 1999).

D1641 Water Quality Standards

Compliance with the D1641 water quality standards was assessed at the standard compliance locations in each of the model runs (without project and four alternatives). The compliance locations included Emmaton, Jersey Point, Brandt Bridge, Old River near Middle River, Old River near Tracy Bridge, and Old River at Rock Slough. The standards for each station are listed below in **Table C6-1.**

TABLE C6-1:
SUMMARY OF WATER QUALITY STANDARDS FOR SELECT LOCATIONS IN THE DELTA

Compliance Location	Description	Value
Sac River @ Emmaton	14 day running average of mean EC during the spring and summer months depending on water year type	0.45-2.78 (mmhos/cm) depending on water year type and time of year
San Joaquin River @ Jersey Pt	14 day running average of mean EC during the spring and summer months depending on water year type	.45 -2.20 (mmhos/cm) depending on water year type and time of year
San Joaquin River @ Brandt Bridge	Maximum 30 day running average of mean daily EC	Apr – Aug 0.7 (mmhos/cm) Sep – Mar 1.0 (mmhos/cm)
Old River near Middle River	Maximum 30 day running average of mean daily EC	Apr – Aug 0.7 (mmhos/cm) Sep – Mar 1.0 (mmhos/cm)
Old River @ Tracy Bridge	Maximum 30 day running average of mean daily EC	Apr – Aug 0.7 (mmhos/cm) Sep – Mar 1.0 (mmhos/cm)
Old River @ Rock Slough	Maximum mean daily Cl	250 Cl

Potential standards violations were found in all model runs, including the existing and future without project runs. In reality, water system operators manage the system so that water quality standard violations are avoided. However, a recognized issue in using CalSim II inputs to DSM2 is that the estimation of Delta water quality is approached differently by the two models. This sometimes leads to a condition in which the CalSim II model estimates the amount of outflow required to avoid causing a Delta water quality violation, but the subsequent DSM2 estimate of Delta salinity shows that the standard was exceeded. This model mismatch is responsible for water quality standard violations in the existing condition model run but also contributes to the number of violations under the project alternatives.

If the project alternative operations caused a significant impact to water quality standards, the frequency of standards violations in the without project case and alternatives would be significantly different. Specifically, if project operations caused a water quality impact, the frequency of violations for that project would be significantly greater than the frequency of violations for the without project operation. The occurrence of standards violations under the without project conditions were compared to the occurrence under the various alternative conditions. A contingency table (χ^2) was used to determine if the occurrence of standards violations under the project alternatives were significantly different (more or less frequent) than the occurrence under the without project condition. The χ^2 was calculated using the Yates correction for continuity. The following example demonstrates the calculation used (**Table C6-2**).

TABLE C6-2:
EXAMPLE OF 2-BY-2 CONTINGENCY TABLE

	Days With Violation	Days Without Violation	Total
Without Project	a	b	a+b
Alternative	c	d	c+d
Total	a+c	b+d	a+b+c+d = N

$$\chi^2 = \frac{N(ad - bc - \frac{N}{2})^2}{(a+b)(c+d)(b+d)(a+c)}$$

The p-values were calculated using the EXCEL function CHIDIST for one degree of freedom. At the 95% confidence interval, a significant result is a calculated p-value less than 0.05. If there was a significant difference between the without project violations and alternatives, it was assumed that the changes in operations cause a significant impact to water quality. **Table C6-3** through **Table C6-5** present the contingency tables and the results for each alternative.

At all locations and scenarios there were no significant differences between the frequency of water standards violations in the without project and alternatives conditions. Therefore, we conclude that there were no significant impacts.

Protection of Beneficial Uses

In addition to assessing project compliance with enforceable water quality standards, water quality changes were analyzed elsewhere in the Delta to ensure that the project alternatives did not affect beneficial uses. Unlike the standards violation analysis described above, the analysis of potential impacts to beneficial uses involved a direct comparison of water quality in the without project conditions and water quality with each of the project alternatives. Small differences, described in more detail below, were eliminated from further consideration and water quality changes that could be large enough to cause a change in beneficial use were further investigated. Changes in water quality were analyzed at existing and planned Delta drinking water intakes: Jones Pumping Plant, Clifton Court Forebay, Barker Slough, Cache Slough, San Joaquin River at Antioch and San Joaquin River at Empire Tract.

A sizeable increase in salinity was defined as a salinity difference between a project alternative and the without project condition greater than 5% and greater than 5 mg/l Cl. A sizeable decrease in salinity was defined as a salinity difference between a project alternative and the without project condition that is less than -5% and greater than -5 mg/l Cl.

If there was no statistically significant difference in the number of increases compared to decreases, then the changes found in the alternatives runs were attributed to threshold sensitivity and it was assumed that there would be no significant impact to beneficial uses. If there was a statistically significant difference, then it was assumed that project operations have to potential impact beneficial uses and was investigated further.

A one-tailed binomial test was used to determine if the likelihood of water quality degradation was significantly greater than the likelihood of a water quality improvement for a given alternative. The p-values were calculated using the EXCEL function BINOMDIST which required the following input: the number of improvements, total number of improvements plus degradations, an expected probability of 0.5, and a flag to indicate the functional form (“false” returns the probability mass function). At the 95% confidence interval, a significant result is a calculated p-value less than 0.05. **Table C6-6** through **Table C6-8** present the data used and the results.

There were no statistically significant sizable increases or decreases to water quality under any of the alternatives for both levels of development compared to the without project conditions. There would be no significant impacts to water quality and no significant impacts to beneficial uses based on the modeling results.

TABLE C6-3: CHI-SQUARED AND P-VALUES FOR WATER QUALITY STANDARDS VIOLATIONS IN ALTERNATIVE 1 AND WITHOUT PROJECT CONDITIONS

	Emmaton				**Jersey Point**				**Brandt Bridge**				**Old River near Middle River**				**Old River near Tracy Bridge**				**Old River at Rock Slough**			
	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value
2030 Level of Development																								
Future Without Project	149	5695			358	5486			94	5750			93	5751			150	5694			272	5572		
Alternative 1	149	5695	0.003	0.953	362	5482	0.01	0.91	94	5750	0.005	0.941	93	5751	0.01	0.94	150	5694	0.00	0.95	254	5590	0.58	0.45
2005 Level of Development																								
Existing Condition	203	5641			369	5475			175	5669			171	5673			258	5586			294	5550		
Alternative 1	201	5643	0.003	0.960	370	5474	0.00	1.00	175	5669	0.003	0.957	171	5673	0.00	0.96	255	5589	0.01	0.93	270	5574	0.99	0.32

TABLE C6-4: CHI-SQUARED AND P-VALUES FOR WATER QUALITY STANDARDS VIOLATIONS IN ALTERNATIVE 2 AND WITHOUT PROJECT CONDITIONS

	Emmaton				**Jersey Point**				**Brandt Bridge**				**Old River near Middle River**				**Old River near Tracy Bridge**				**Old River at Rock Slough**			
	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value
2030 Level of Development																								
Future Without Project	149	5695			358	5486			94	5750			93	5751			150	5694			272	5572		
Alternative 2	149	5695	0.003	0.953	362	5482	0.01	0.91	94	5750	0.005	0.941	93	5751	0.01	0.94	150	5694	0.00	0.95	254	5590	0.58	0.45
2005 Level of Development																								
Existing Condition	203	5641			369	5475			175	5669			171	5673			258	5586			294	5550		
Alternative 2	198	5646	0.041	0.839	369	5475	0.00	0.97	175	5669	0.003	0.957	171	5673	0.00	0.96	255	5589	0.01	0.93	269	5575	1.07	0.30

TABLE C6-5: CHI-SQUARED AND P-VALUES FOR WATER QUALITY STANDARDS VIOLATIONS IN ALTERNATIVE 4 AND WITHOUT PROJECT CONDITIONS

	Emmaton				**Jersey Point**				**Brandt Bridge**				**Old River near Middle River**				**Old River near Tracy Bridge**				**Old River at Rock Slough**			
	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value	# of days **with** Water Quality Violation	# of days **without** Water Quality Violation	χ^2	p-value
2030 Level of Development																								
Future Without Project	149	5695			358	5486			94	5750			93	5751			150	5694			272	5572		
Alternative 4	149	5695	0.003	0.953	355	5489	0.01	0.94	94	5750	0.01	0.94	93	5751	0.01	0.94	151	5693	0.00	1.00	230	5614	3.50	0.06
2005 Level of Development																								
Existing Condition	203	5641			369	5475			175	5669			171	5673			258	5586			294	5550		
Alternative 4	201	5643	0.003	0.960	366	5478	0.01	0.94	175	5669	0.00	0.96	171	5673	0.00	0.96	260	5584	0.00	0.96	265	5579	1.47	0.22

TABLE C6-6: BINOMIAL DISTRIBUTION TEST FOR POTENTIAL IMPACTS TO BENEFICIAL USES IN ALTERNATIVE 1

	Jones Pumping (CVP)				West Canal at Clifton Ct Forebay (SWP)				Barker Slough (NBA)			
	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value
2030 Level of Development	0	0	0	1.00	0	1	1	1.00	0	0	0	1.00
2005 Level of Development	0	0	0	1.00	0	0	0	1.00	0	0	0	1.00

	Cache Slough (City of Vallejo)				San Joaquin River at Empire Tract (City of Stockton DWSP)				San Joaquin River at Antioch (City of Antioch)			
	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value
2030 Level of Development	0	0	0	1.00	0	0	0	1.00	1	0	1	0.50
2005 Level of Development	0	0	0	1.00	0	0	0	1.00	2	4	6	0.89

TABLE C6-7: BINOMIAL DISTRIBUTION TEST FOR POTENTIAL IMPACTS TO BENEFICIAL USES IN ALTERNATIVE 2

	Jones Pumping (CVP)				West Canal at Clifton Ct Forebay (SWP)				Barker Slough (NBA)			
	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value
2030 Level of Development	0	0	0	1.00	0	0	0	1.00	0	0	0	1.00
2005 Level of Development	0	0	0	1.00	0	0	0	1.00	0	0	0	1.00

	Cache Slough (City of Vallejo)				San Joaquin River at Empire Tract (City of Stockton DWSP)				San Joaquin River at Antioch (City of Antioch)			
	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value
2030 Level of Development	0	0	0	1.00	0	0	0	1.00	3	0	3	0.13
2005 Level of Development	0	0	0	1.00	0	0	0	1.00	4	2	6	0.34

TABLE C6-8: BINOMIAL DISTRIBUTION TEST FOR POTENTIAL IMPACTS TO BENEFICIAL USES IN ALTERNATIVE 4

	Jones Pumping (CVP)				West Canal at Clifton Ct Forebay (SWP)				Barker Slough (NBA)			
	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value
2030 Level of Development	0	1	1	1.00	0	2	2	1.00	0	0	0	1.00
2005 Level of Development	1	2	3	0.88	3	5	8	0.86	0	0	0	1.00

	Cache Slough (City of Vallejo)				San Joaquin River at Empire Tract (City of Stockton DWSP)				San Joaquin River at Antioch (City of Antioch)			
	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value	Sizeable Salinity Increase	Sizeable Salinity Decrease	Sum	p-value
2030 Level of Development	0	0	0	1.00	0	1	1	1.00	2	0	2	0.25
2005 Level of Development	0	1	1	1.00	2	3	5	0.81	2	7	9	0.98

C-7 FISHERY ANALYSIS

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Introduction

Appendix C-7 provides a description of the methods used for evaluating the fisheries effects that were discussed in the updated Chapter 4.3, which is provided in Volume 4 of the Final EIS/EIR. Supporting detailed results and analysis are also included. The possible direct effects on Delta fish include changes in the numbers of fish salvaged at the SWP and CVP export facilities as a result of changes in water project operations, as well as possible changes in the vulnerability of various species and life stages of fish to entrainment (e.g., small planktonic fish eggs and larvae passing through the intake screen into the diversion) at the Rock Slough, Old River, and AIP intakes and the proposed new Los Vaqueros Delta Intake. Possible indirect effects on Delta fisheries include alterations in hydrodynamic conditions affecting fishery habitat within the Delta.

The methods used in this portion of the fishery analysis for examining potential effects of the project on Delta fishery resources are as follows:

1. **Entrainment Indices from Salvage Data.** Comparison of entrainment indices for juvenile and adult salmonids, based on CalSim II modeling of the project alternatives and average fish density as determined by salvage data;

2. **Particle Tracking Analysis**. Estimates of potential entrainment and changes in Delta hydrodynamics based on results of the particle tracking model (PTM) and fish surveys of fish density;

3. **Hydrologic Effects of Operations**. Evaluation of changes in Delta flows based on CalSim II modeling of the project alternatives; and

4. **Old and Middle River Flow Evaluation Based on DSM2 Model Studies**. Evaluation of changes in flows in Old and Middle Rivers (OMR) based on DSM2 hydrodynamic modeling of the project alternatives.

The CalSim II and DSM2 studies described in the updated Chapter 4.2 and updated Appendices C-2 and C-3 were used in performing these fishery impact analyses. Additional studies were run for the PTM analyses, as described within this chapter.

Entrainment Indices from Salvage Data

Alternatives 1, 2 and 4 could affect fish populations in the Delta by changing levels of entrainment at the Rock Slough, Old River, and AIP Intakes, and, in Alternatives 1 and 2, the proposed new Los Vaqueros Delta intake (new Delta Intake), as well as at the SWP and CVP export pumps and their associated fish salvage facilities. To evaluate potential impacts of the project alternatives, entrainment estimates for winter-run, spring-run, fall-run, and late fall-run chinook salmon and Central Valley steelhead were developed. Historical salmonid salvage data and modeled diversions from the CalSim II model were integrated to produce fish entrainment estimates that account for the spatial and temporal distribution of specific salmonid populations, and reflect the effects on these fish populations of changes in the timing, magnitude and location of pumping modifications. The salmonid entrainment estimates are represented as index values because they represent an estimate of average potential entrainment based on averages of available fish density data from CVP and SWP fish salvage operations. The entrainment index values should be considered as relative indicators of entrainment, and not as precise numerical estimates of future fish entrainment. Insufficient salvage data are available for green sturgeon to have included this species in this analysis; possible effects of the project alternatives on green sturgeon are evaluated in the discussion of particle fate analysis below. Effects on species that occur in the Delta as larvae are also considered in the particle fate analysis.

In this analysis based on salvage data, fish entrainment is assumed to vary in direct proportion to the seasonal density of fish in the immediate vicinity of an intake, the exclusion efficiency of any screens (which varies by fish length), and the diversion rate associated with the intake. The entrainment indices were developed through a two-step process as described below. First, average monthly densities were determined from salvage at the SWP and CVP export pumps. Then, the average monthly densities were multiplied by diversion values for the without project conditions and for the project alternatives from CalSim II output modeled monthly over a period representing 82 years of historical hydrology (see Appendix C). The results were summed across all intakes and averaged across the modeling period to produce the entrainment indices, which are given in numbers of fish entrained per year. To gauge the effects of the project alternatives, the entrainment indices developed from without project conditions were compared to the entrainment indices for each of the project alternatives.

Determination of Fish Densities

Methodology

This section describes the method used to calculate fish densities from salvage data. The general approach is described, including a discussion of the available data, followed by a detailed description of the procedure used to produce the salvage-based densities.

Density Determination Based on Salvage Facility Data

Estimates of fish occurrence in the Delta that reflect the seasonal and geographic distribution of each of the selected fish species were calculated from salvage of the selected species at the SWP and CVP export facilities. The data were converted to fish densities (number of fish per acre-foot

(AF) of water). This section discusses the procedure that was used to determine densities of each of the selected fish species from the salvage data. Fish salvage and loss estimates are only available from these facilities for fish greater than 20 mm in length.

For this analysis, salvage data was used for the period from 1995 to 2008, which spans both non-POD and POD years, and the 2008 modified flow regime, as well as a range of water year types. Salvage data at the SWP and CVP facilities are reported daily.

Expanded salvage numbers are used to calculate the steelhead densities. For chinook salmon, estimated loss numbers derived from salvage data are available from CDFG and are used to determine densities for all four runs of salmon. Estimated loss is calculated by CDFG from raw salvage data and takes into account factors including predation, louver efficiencies and includes consideration of release and potential survival from the salvage process. Because of the consideration of other sources of losses other than salvage, estimated losses are higher than raw salvage numbers for salmonids. A representative salmonid loss estimate for each month of the year is calculated by averaging monthly loss estimates obtained from the CDFG database from 1995 through 2008. Average monthly densities are then estimated by dividing the total number of salmonids in each species category in each month by the total volume of water exported at each facility in that month (available in the same CDFG data set). The average monthly densities of salmonid are calculated separately for the SWP and CVP export facilities. As a conservative estimate, the maximum salmonid loss density between these two sites is selected to represent the salvage-based density used in the entrainment index calculations.

Salmonids at all Intakes

The densities calculated using the salvage data are shown in **Figure C7-1**. Since spatially-distributed salmonid data are not available from survey sampling within the Delta, the densities based on loss estimates (for the chinook salmon) and expanded salvage estimates (for steelhead) reported at the CDFG salvage data site for the SWP and CVP export facilities are assumed to be representative of the seasonal densities of juvenile chinook salmon and steelhead at all intake locations included in this analysis. Loss estimates take into consideration the pre-louver predation loss, salmonids that went through the louvers, and salmonids that were returned alive to the Delta after the salvage process, as estimated by CDFG.

The reported juvenile chinook salmon densities at the SWP export facility tend to be higher than corresponding densities at the CVP facility, while the reverse is true for steelhead densities. The higher of the SWP or CVP density estimates were used in the analysis to represent the density of juvenile chinook salmon and steelhead at the Rock Slough, Old River, AIP and new Delta Intake locations. As the salmonids reported in the SWP and CVP salvage are all juveniles greater than 20 mm in length, we conservatively assumed 99.5% exclusion efficiency (see **Table C7-1**) at the screened intakes (Old River, AIP, Rock Slough, and new Delta intakes), and 100% entrainment at the other intakes (Rock Slough Intake in Existing Conditions, and SWP and CVP export pumps).

Chinook Salmon and Steelhead Densities

Fish Densities (1995-2008) in units of Average Number / AF

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Winter Run Salmon												
SWP Skinner Salvage	1.0E-02	6.6E-03	9.0E-03	3.2E-03	7.7E-05	0	0	0	0	0	0	2.1E-03
CVP Tracy Salvage	1.3E-03	1.0E-03	1.5E-03	1.7E-03	2.5E-05	0	0	0	0	0	0	2.8E-04
max density	**1.0E-02**	**6.6E-03**	**9.0E-03**	**3.2E-03**	**7.7E-05**	**0**	**0**	**0**	**0**	**0**	**0**	**2.1E-03**
Spring Run Salmon												
SWP Skinner Salvage	9.9E-06	2.0E-04	1.1E-02	1.3E-01	6.5E-02	8.9E-04	0	0	5.1E-06	1.1E-05	0	0
CVP Tracy Salvage	1.3E-05	7.4E-05	8.9E-03	5.4E-02	2.0E-02	4.0E-04	0	0	0	0	0	0
max density	**1.3E-05**	**2.0E-04**	**1.1E-02**	**1.3E-01**	**6.5E-02**	**8.9E-04**	**0**	**0**	**5.1E-06**	**1.1E-05**	**0**	**0**
Fall Run Salmon												
SWP Skinner Salvage	7.6E-04	1.5E-02	7.0E-03	5.1E-02	2.2E-01	2.6E-02	4.5E-04	5.6E-05	5.1E-04	2.0E-04	1.5E-04	1.6E-05
CVP Tracy Salvage	1.0E-02	2.5E-02	7.5E-03	1.9E-02	6.0E-02	1.6E-02	8.8E-05	1.9E-05	7.5E-05	1.0E-04	1.2E-04	1.3E-05
max density	**1.0E-02**	**2.5E-02**	**7.5E-03**	**5.1E-02**	**2.2E-01**	**2.6E-02**	**4.5E-04**	**5.6E-05**	**5.1E-04**	**2.0E-04**	**1.5E-04**	**1.6E-05**
Late Fall Run Salmon												
SWP Skinner Salvage	3.9E-03	3.6E-04	5.4E-05	2.0E-05	0	0	0	6.5E-06	6.7E-06	3.2E-05	7.6E-05	9.7E-04
CVP Tracy Salvage	3.7E-04	4.0E-05	0	8.0E-06	0	1.7E-05	0	0	0	1.9E-06	3.9E-05	2.3E-04
max density	**3.9E-03**	**3.6E-04**	**5.4E-05**	**2.0E-05**	**0**	**1.7E-05**	**0**	**6.5E-06**	**6.7E-06**	**3.2E-05**	**7.6E-05**	**9.7E-04**
Steelhead												
SWP Skinner Salvage	2.5E-03	4.9E-03	6.6E-03	1.6E-03	7.7E-04	1.2E-04	2.0E-05	1.2E-06	0	2.3E-05	3.3E-05	1.7E-04
CVP Tracy Salvage	3.2E-03	6.1E-03	8.3E-03	4.8E-03	1.3E-03	3.0E-04	8.2E-05	0	0	0	1.7E-05	6.4E-05
max density	**3.2E-03**	**6.1E-03**	**8.3E-03**	**4.8E-03**	**1.3E-03**	**3.0E-04**	**8.2E-05**	**1.2E-06**	**0**	**2.3E-05**	**3.3E-05**	**1.7E-04**

Figure C7-1: Average monthly density of juvenile chinook salmon and Central Valley steelhead calculated from SWP and CVP salvage.

Average Fish Densities

The average monthly salmonid fish density estimates calculated from salvage data are shown in **Figure C7-2**. As shown in the figure, the period from January through July is the general period when salmonid densities are higher in the vicinity of the intakes (although there is significant variation among the species within that period), while the months of August through December represent a period of the year when densities are relatively low.

As shown in Table C7-1**,** the effectiveness of a positive barrier fish screen with a 1.75 mm mesh in reducing the densities of larval and juvenile fish vulnerable to entrainment into a water diversion ranges from 76.9% for 5-7mm larval fish to 100% for adults (Weisberg, et al., 1987).

TABLE C7-1: EXCLUSION EFFICIENCY OF FISH SCREEN AT ROCK SLOUGH, OLD RIVER, AIP, AND NEW DELTA INTAKE.[1]

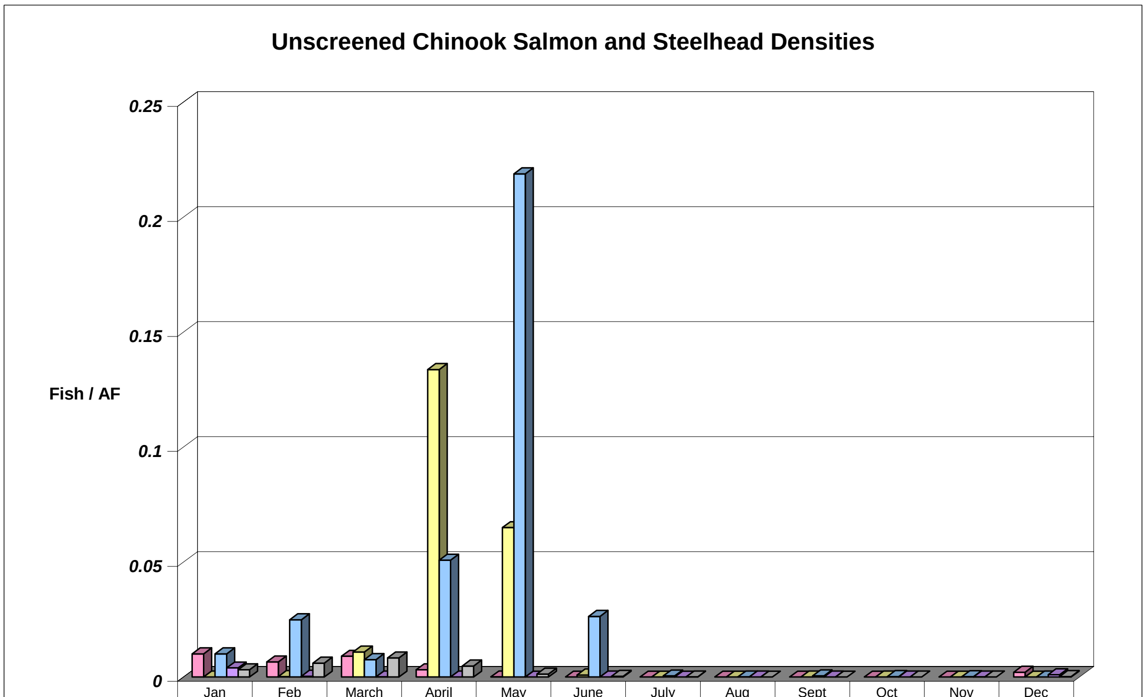
Size Class	Exclusion Efficiency (Percentage)
5-7 mm	0.769
8-10 mm	0.776
11-14 mm	0.951
>= 15 mm	0.995
>= 45 mm	1.000

These screen efficiencies were assumed in this analysis for the Old River Intake, AIP, Rock Slough, and new Delta Intake. A fish screen was not included in the analysis for the Rock Slough Intake in the Existing Conditions case, as described in updated Sections 4.2 and 4.3 of the Final EIS/EIR. The actual effectiveness of the fish screens at these intakes is likely to be even higher than those determined by the study, as conditions used by the study included impingement losses from higher approach velocities towards the fish screens, in contrast to the Old River, AIP, and new Delta intakes, where the water is pumped perpendicular to the direction of river flow at a low approach velocity. This results in a relatively high sweep velocity past the screened intake relative to the slow approach velocity towards the screen, which results in a low incidence of impingement. However, even the conservative application of the fish screen effectiveness estimates used here indicates that shifting water diversions from the SWP and CVP intakes to intakes with positive barrier fish screens can reduce the direct entrainment losses of larval and early juvenile lifestages of fish such as delta and longfin smelt associated with those shifted diversions. Diversions at intakes with positive barrier fish screens nearly completely prevent direct entrainment losses of adult smelt and juvenile chinook salmon, steelhead, sturgeon and striped bass.

Figure C7-2 shows the pre-screened densities at each of the intakes used in this analysis. An average “effective” fish density accounts for fish screen efficiency at the Old River, AIP, Rock

[1]Weisberg, et al., 1987. “Reductions in Ichthyoplankton Entrainment with Fine, Mesh, Wedge-Wire Screens,” North American Journal of Fisheries Management 7:386-393, 1987. Exclusion efficiency assumes a 1.75 mm fish screen mesh slot opening.

Slough, and new Delta intakes. To calculate the average effective densities, the average fish densities are multiplied by the quantity (1.0 minus the screen efficiency). This gives the fish densities that would be expected to be entrained (pass through) the intake screen mesh and be lost from the Delta per acre-foot of diversion. In the case of juvenile salmonids, which occur in the Delta at sizes greater than 20 mm in length based on 20mm survey data, a conservative screen efficiency of 99.5% is assumed; thus, only 0.5% of the salmonids are expected to be entrained through the screened intakes. The effective fish densities estimated for the Existing Condition Rock Slough intake and the SWP and CVP intakes remain unchanged.



	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Winter Run	1.0E-02	6.6E-03	9.0E-03	3.2E-03	7.7E-05	0	0	0	0	0	0	2.1E-03
Spring Run	1.3E-05	2.0E-04	1.1E-02	1.3E-01	6.5E-02	8.9E-04	0	0	5.1E-06	1.1E-05	0	0
Fall Run	1.0E-02	2.5E-02	7.5E-03	5.1E-02	2.2E-01	2.6E-02	4.5E-04	5.6E-05	5.1E-04	2.0E-04	1.5E-04	1.6E-05
Late Fall Run	3.9E-03	3.6E-04	5.4E-05	2.0E-05	0	1.7E-05	0	6.5E-06	6.7E-06	3.2E-05	7.6E-05	9.7E-04
Steelhead	3.2E-03	6.1E-03	8.3E-03	4.8E-03	1.3E-03	3.0E-04	8.2E-05	1.2E-06	0	2.3E-05	3.3E-05	1.7E-04

Figure C7-2: Average unscreened monthly chinook salmon and Central Valley steelhead densities.

Development of Entrainment Index at Each Intake

Once the monthly average salmonid densities and monthly pumping flow rates were determined, the entrainment indices were calculated. This section presents the methodology used to calculate the entrainment indices, and analysis of the indices.

Methodology

For the SWP and CVP export facilities, and for the Rock Slough intake in the Existing Condition case, it is assumed that 100% of the fish density in the volume of water diverted is entrained into the facility and lost from the Delta. As noted above, CDFG loss estimates were used to estimate densities for chinook salmon and Central Valley steelhead at the CVP and SWP facilities, so these values include an estimate of salvage survival. For screened intakes (Old River, AIP, new Delta intakes, and Rock Slough in all other scenarios), estimated average monthly salmonid densities were classified by size (length class), so that the number of each selected fish species entrained through the fish screens (accounting for size-specific fish exclusion by the fish screens) could be estimated. The fish density for each size class is multiplied by the intake flow rate, as determined in the CalSim II runs, and by (1.0 minus the screen efficiency) to estimate the number of each species entrained for each size class. The resultant numbers of entrained fish for each size class are then summed to determine the total number of entrained fish at a screened intake.

Flows are based on results of CalSim II simulations for each simulated month as summarized below:

- 2005 Level of Development (Existing Condition and three alternatives)
- 2030 Level of Development (Future Without Project conditions and three alternatives)

Salmonid densities, as discussed in the methodology section, are derived from loss estimates developed from salvage data and are assumed to be the same at all the intakes included in this impact analysis. As the intakes in reality vary in location, this assumption of uniform densities represents an order-of-magnitude approximation of the salmonid densities at the intakes. The data presented in the results tables are carried out to two significant figures due to the higher precision of the loss estimates. The chinook salmon sub-species considered in this analysis are the winter run, spring run, fall run, and late fall-run sub-species. Central Valley steelhead are also included in this analysis.

Results of Entrainment Index Calculations

This section presents the results of the salmonid entrainment index calculations. The total estimated entrainment index and percent change for each species of fish are shown in **Table C7-2** for the 2005 level of development and in **Table C7-3** for the 2030 level of development. For each of the alternatives shown in the tables, the shaded numbers represent improvements (a reduction in estimated entrainment losses) in salmonid entrainment numbers when compared to the Existing Condition.

2005 Level of Development. As shown in Table C7-2, Alternatives 1 and 2 show some reductions in entrainment losses for all salmonid species (ranging from 4% to about 10%) relative to the Existing Condition. Alternative 4 shows either no change or more modest reductions of about 2% to 3%.

TABLE C7-2: ESTIMATED SALMONID ENTRAINMENT INDEX FOR 2005 LEVEL OF DEVELOPMENT

2005 Level of Development

	Winter Run Salmon		Spring Run Salmon		Fall Run Salmon		Late Fall Run Salmon		Steelhead	
	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base
Base	12,000		30,000		62,000		2,400		8,300	
Alt1	12,000	0.0%	27,000	-10.0%	58,000	-6.5%	2,300	-4.2%	8,000	-3.6%
Alt2	12,000	0.0%	27,000	-10.0%	58,000	-6.5%	2,300	-4.2%	8,000	-3.6%
Alt4	12,000	0.0%	29,000	-3.3%	61,000	-1.6%	2,400	0.0%	8,200	-1.2%

2030 Level of Development. Table C7-3 presents estimated entrainment indices and percent changes for the 2030 level of development.

As with the 2005 level of development, Alternatives 1 and 2 show some reductions in entrainment losses for all salmonid species (ranging from about 4% to about 7%). Alternative 4 shows no change compared to the Future Without Project case.

TABLE C7-3: ESTIMATED SALMONID ENTRAINMENT INDEX FOR 2030 LEVEL OF DEVELOPMENT

2030 Level of Development

	Winter Run Salmon		Spring Run Salmon		Fall Run Salmon		Late Fall Run Salmon		Steelhead	
	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base	total fish entrained / year	% change compared to new base
Base	12,000		31,000		62,000		2,400		8,300	
Alt1	12,000	0.0%	29,000	-6.5%	58,000	-6.5%	2,300	-4.2%	8,100	-2.4%
Alt2	12,000	0.0%	29,000	-6.5%	58,000	-6.5%	2,300	-4.2%	8,100	-2.4%
Alt4	12,000	0.0%	31,000	0.0%	62,000	0.0%	2,400	0.0%	8,300	0.0%

Discussion

The results of the entrainment index calculations are interpreted and discussed with respect to impact analysis in Chapter 4, Section 4.3. In general, Alternatives 1 and 2 show some reductions in estimated entrainment losses for all species under both 2005 and 2030 levels of development and under both severe and moderate fisheries restrictions. This is largely because delivery of CVP and SWP water supply to the South Bay water agencies is shifted to occur through the expanded Los Vaqueros Reservoir and South Bay Connection, and thus is being diverted at the efficiently screened Old River, AIP, Rock Slough, and new Delta intakes, instead of passing through the existing SWP and CVP export pump intakes. The improved screening provided by the shift in delivery results in a decrease in potential entrainment of 2 percent to 8 percent for the chinook salmon and Central Valley steelhead, which are large enough to experience completely effective screen efficiency at the Old River, AIP, Rock Slough, and new Delta intakes. These comparisons are relative to the without project condition, in which Delta water supply for the South Bay water agencies is delivered through the CVP and SWP export facilities.

Alternative 4 shows mild benefits to no change in estimated entrainment losses for all species under the 2005 level of development, and no change in estimated entrainment losses for all species under the 2030 level of development. The reductions in potential fish entrainment in Alternative 4 are smaller than in Alternatives 1 and 2, and are made possible by improved fish screening at CCWD intakes and the increased storage capacity of Los Vaqueros Reservoir, since there would be an increased number of years in which the No Diversion Period would apply due to increased storage, particularly in dry periods.

Particle Tracking Analysis

Methodology

The particle tracking model (PTM) simulates the transport and fate of neutrally buoyant particles in the Delta channels and estimates the probability that a parcel of water starting at one location will arrive at another location in a given time frame.

PTM uses velocity, flow, and water elevation information from DSM2-Hydro to simulate the movement of virtual particles in the Delta on a 15-minute time-step throughout the simulation period. If a particle leaves the Delta system by way of an export or diversion or through any other model boundary, this information is recorded for latter analysis and termed the “fate” of the particle. Additionally, the percentage of particles remaining within channels in each geographic region is tabulated and analyzed.

Use of PTM for fishery analysis has gained popularity over the last decade; however, the PTM tool has a number of limitations in application to fishery analysis. Chiefly, since the particles simulated in the model are neutrally buoyant (and therefore have no swimming behavior or other independent movement), results of these analyses are most relevant to the planktonic early larval stages of various organisms that do not move independently in the water column. The particles are not considered to reflect movements of juvenile or adult fish within the Delta, or of larvae that are able to move independently in the water column (for example, by varying their buoyancy).

PTM was used in this EIS/EIR to assess the effect of hydrodynamic changes on Delta hydrodynamics and entrainment. Delta hydrodynamics and general entrainment changes were assessed through a straightforward Particle Fate Analysis (PFA), while a more detailed survey-weighted Potential Entrainment Index (PEI) was developed and applied to the spring seasonal period (March through June) to evaluate effects on specific sensitive species. Additional assumptions and limitations of the analysis are described below.

Particle Release Locations

Particles were released in the model at various locations within the Delta that are either known to represent important fish habitat or areas where entrainment risk could change under the operation of the project alternatives. For the PFA, the biological relevance of each release location (shown in **Table C7-4** and **Figure C7-3**) varies significantly depending on the aquatic species and the season. For instance, adult delta smelt generally move upstream into the Delta in the winter prior to spawning. Although PTM cannot simulate this swimming behavior of the adults, PTM may be a useful tool to predict the movement of delta smelt larvae after they hatch in the spring. For the PEI, particle insertion nodes were selected to represent a subset of stations in the CDFG 20mm survey (**Figure C7-4**) from Suisun Bay eastward. These stations encompass the geographical extent of delta smelt distribution during the spring, and also cover the area of potential influence of water diversions in the Delta. **Table C7-5** presents the 20mm stations, the associated DSM2 nodes and surface areas which are used in the PEI calculation.

To evaluate hydrologic and operational variability, particle releases were simulated at the start of each month for water years 1976 through 1991. One thousand particles were released over a period of 26 hours (to encompass a full tidal cycle), starting at 11:00 pm on the second day of each month.

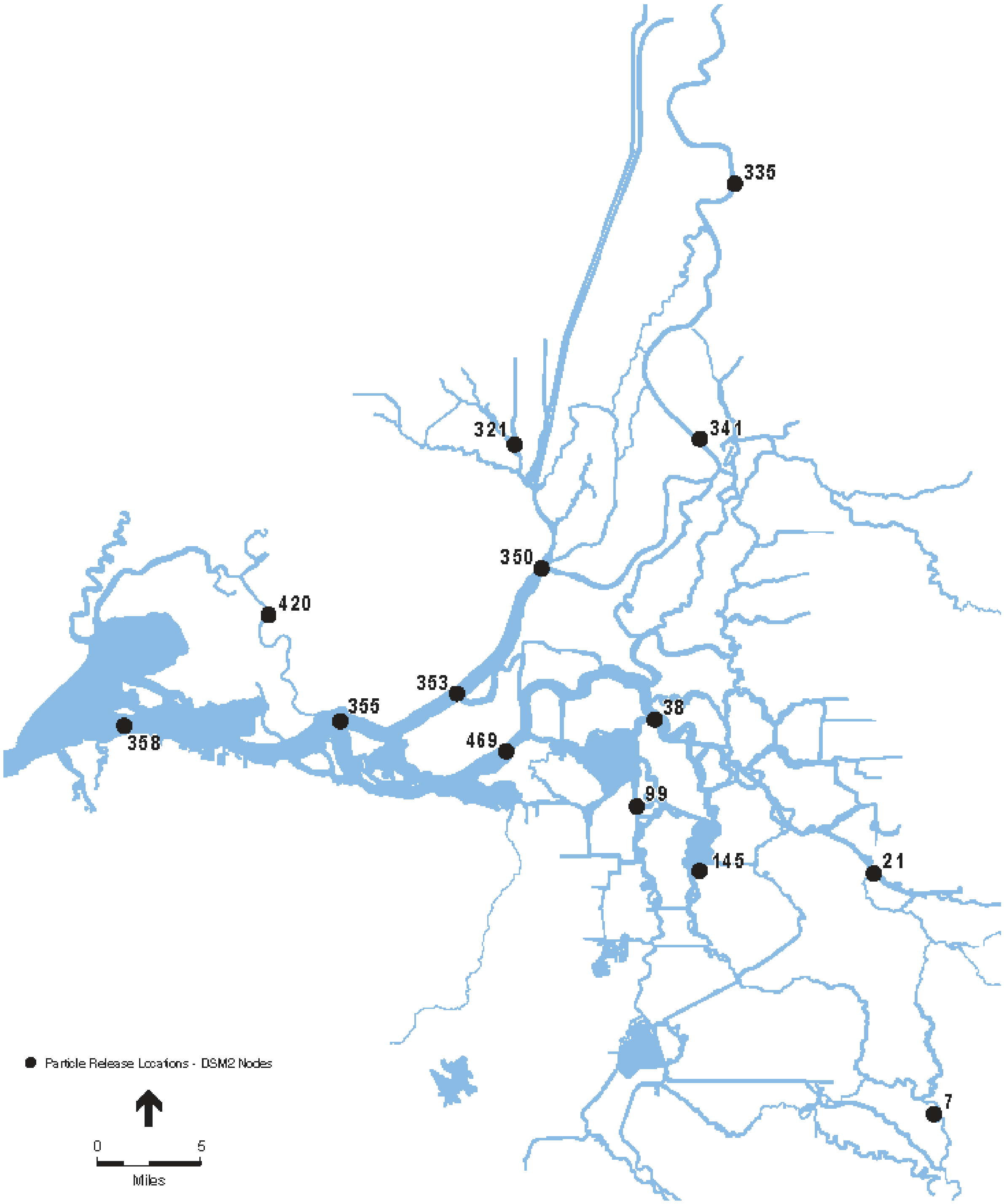


Figure C7-3: PTM Particle Release Locations for Particle Fate Analysis

TABLE C7-4: PARTICLE RELEASE LOCATIONS FOR PARTICLE FATE ANALYSIS IDENTIFIED BY DSM2 NODE NUMBER

DSM2 Node	Description
335	Sacramento River at Freeport
341	Sacramento River above Delta Cross Channel
321	Cache Slough
350	Sacramento River at Rio Vista
353	Sacramento River at Emmaton
355	Sacramento River at Collinsville
469	San Joaquin River at Jersey Island
38	San Joaquin River at mouth of Old River
99	Old River at Holland Tract
145	Middle River at Empire Tract
21	San Joaquin River west of Rough and Ready Island
7	San Joaquin River at Mossdale
358	Suisun Bay at Port Chicago
420	Montezuma Slough

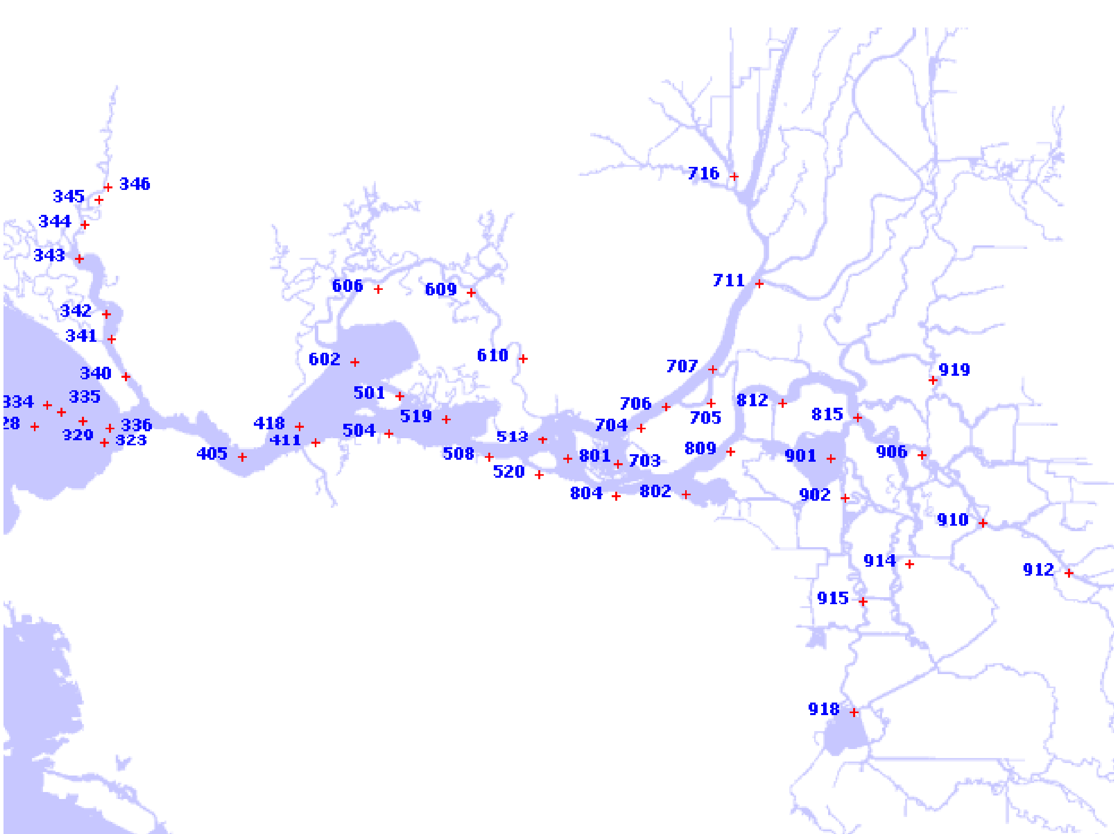


Figure C7-4: 20mm Survey Stations

TABLE C7-5: PARTICLE RELEASE LOCATIONS FOR PEI BY 20MM STATION AND ASSOCIATED DSM2 NODE NUMBER

20mm Station	DSM2 Node	Description	Surface Area (Acres)
411	359	Suisun Bay West of Point Edith	2,119
418	367	Suisun Bay near Mothball Fleet	2,756
501	238	Suisun Bay between Roe and Ryer Islands	3,692
504	358*	Suisun Bay at Port Chicago	2,403
508	356	Suisun Bay off Chipps Island	2,296
513	465	Sacramento River near Van Sickle Island	1,703
519	227	Honker Bay	4,101
520	463	New York Slough	438
602	365	Grizzly Bay Northeast of Suisun Slough	7,361
606	428	Montezuma Slough off of Joice Island	1,332
609	421	Montezuma Slough at Nurse Island	727
610	418	Montezuma Slough near Birds Landing	259
703	459	Sherman Lake	2,091
704	354	Sacramento River near Sherman Lake	605
705	352	Horseshoe Bend	277
706	353*	Sacramento River at Emmaton	931
707	352	Sacramento River at 3 Mile Slough	1,859
711	350*	Sacramento River at Rio Vista	1,000
716	321*	Cache Slough	6,219
719	314	Sacramento Deep Water Ship Channel	1,454
724	344	Sacramento River near Georgiana Slough	994
801	462	San Joaquin River near Mouth	2,226
804	46	San Joaquin River near West Island	1,195
809	469*	San Joaquin River at Jersey Island	1,392
812	42	San Joaquin River at Bradford Island	1,767
815	39	San Joaquin River at Potato Slough	4,023
901	232	Franks Tract	3,822
902	99*	Old River at Holland Cut	1,744
906	34	San Joaquin River at Medford Island	1,780
910	26	San Joaquin River between Hog and Turner Cut	1,925
912	21*	San Joaquin River west of Rough and Ready Island	1,225
914	145	Middle River at Empire Cut	1,554
915	86	Old River at Railroad Bridge	1,146
918	75	Old River near Coney Island	1,601
919	249	Little Potato Slough	2,043

*DSM2 node also included in the PFA

Model Output

Particle movement was tracked for 120 days; particle location is reported at 28 days and 120 days, using the metrics shown in **Figure C7-5** and **Table C7-6**, classified as flux past a specific location, potential entrainment at water intakes, or the percent remaining in channels in specific regions of the Delta and Suisun Bay and Marsh.

TABLE C7-6: PTM OUTPUT LOCATIONS

Name	Description
Flux Past Specific Location	
Past Chipps Island	Particles that pass Chipps Island
Past Martinez	Particles that pass Martinez
Past SMSCG	Particles that enter Montezuma Slough past the Suisun Marsh Salinity Control Gates
Potential Entrainment at Intakes	
Exports	Potential entrainment at Banks and Jones Pumping Plants combined
Agricultural Diversions	Potential entrainment at combined Agricultural Diversions in the Delta and Suisun Bay and Marsh
Old River	Potential entrainment at CCWD's existing intake on Old River (all alternatives) and the proposed new Delta intake on Old River (Alternatives 1 and 2 only) combined
Rock Slough	Potential entrainment at CCWD's existing intake on Rock Slough
AIP	Potential entrainment at the AIP on Victoria Canal
Remaining in Channel Regions	
South-Eastern Delta	Southeast of Victoria Canal and Trapper Slough. Includes Head of Old and Middle Rivers and San Joaquin River south of Rindge Tract
South-Central Delta	Centered on Old and Middle Rivers. Includes Franks Tract, Mildred Island and the channels around Los Vaqueros intakes and export locations
Eastern Delta	Encompassing Georgiana Slough, Snodgrass Slough, and all channels to the east. Includes San Joaquin River from Mokelumne River to Fourteen Mile Slough
Northern Delta	Sacramento River and tributaries above Rio Vista
Western Delta	Centered on Sherman Island. Includes western portion of San Joaquin and Sacramento Rivers and Three Mile Slough
Suisun Bay and Marsh	Region encompassing Suisun Bay and Marsh

PTM output locations and defined geographic regions are listed in Table C7-6 and illustrated in Figure C7-5. For the PFA, these output locations were selected because they are considered representative of major classes of particle fate. "Past Chipps Island" represents the percentage of particles that travel past Chipps Island at the western boundary of the Delta and into Suisun Bay. "Past SMSCG" represents the percentage of particles that enter Suisun Marsh past the Suisun Marsh Salinity Control Gates (SMSCG) on Montezuma Slough. "Past Martinez" represents the percentage of particles that travel past Martinez, the downstream boundary of the DSM2 model grid; once particles travel past Martinez, they cannot reenter the model domain on the subsequent tide. "Exports" represents the combined percentage of particles that were potentially entrained at the SWP Banks Pumping Plant and the CVP Jones Pumping Plant. "Old River" represents the combined percentage of particles that were potentially entrained at the Old River Intake (for all alternatives) and the new Delta Intake (Alternatives 1 and 2 only). "Rock Slough" and "AIP" represent potential entrainment at those respective Delta intakes. "Agricultural Diversions" represents the combined percentage of particles that were entrained in agricultural diversions located throughout the Delta and Suisun Bay and Marsh. The six regions defined under "Remaining in Channel Regions" represent the percentage of particles that remain within the Delta regions at the end of the simulation. The region boundaries are defined to group similar hydrodynamic, biological, water quality and/or water management characteristics.

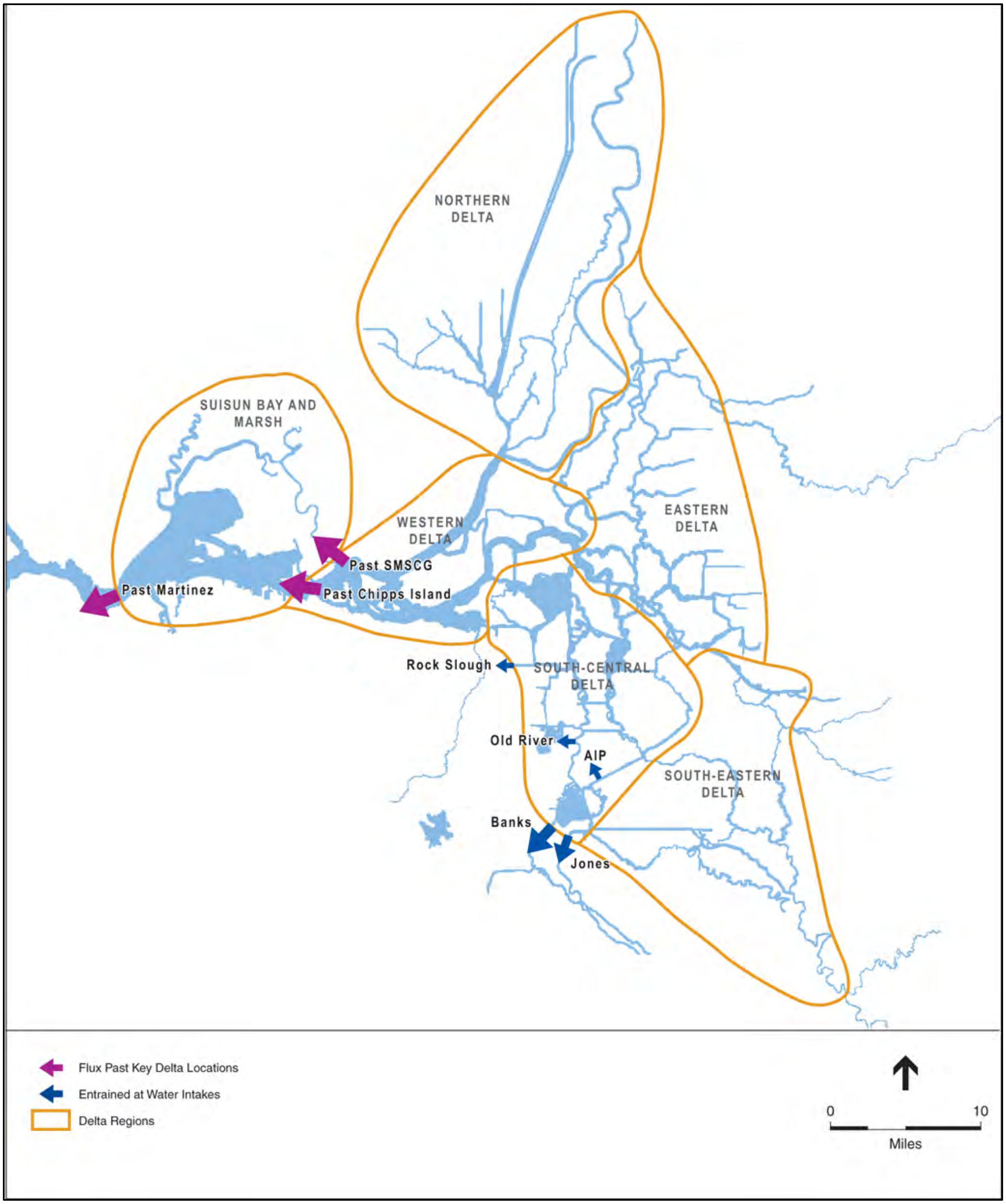


Figure C7-5: PTM Output Locations

Assumptions and Limitations

The application of DSM2-PTM to aquatic resources is limited by several factors, and requires consideration of the lifestage of the fish, the efficiency of fish screens at the intake with respect to size-specific exclusion of fish from entrainment, and modeling artifacts. The interpretation of these factors for this project analysis is described below.

Movement of aquatic organisms. PTM studies estimate the influence of modeled Delta hydrodynamics on neutrally buoyant particles. As such, the studies are only appropriate to represent the influence of Delta hydrodynamics on organic material and planktonic organisms (such as phytoplankton and zooplankton) that would behave as passively drifting particles. The interpretation is often extended to apply to the larval stages of some fish species rearing in the Delta, which may be advected (i.e., transported) by Delta tidal flows prior to developing the ability to swim and control their position in the water column. The particles are not considered to reflect movements of juvenile or adult fish within the Delta.

Biological interpretation of particle release timing and location. The PFA is set up as a comprehensive analysis, with particle releases occurring at fourteen locations, every month of each year for the 16-year planning study (water years 1976 to 1991). In considering specific aquatic organisms, the seasonal timing and location in which particle releases are simulated should be interpreted appropriately. As discussed above, a practical application of PTM results for specific fish species must be limited to use for larval stages of Delta fish. It follows that this application of PTM should only be used at times and locations when larval stages are likely to occur (e.g. particle release locations in early spring on the lower Sacramento River may be interpreted to represent Delta smelt spawning locations, from which passively drifting larvae would be expected to emerge). Therefore, to facilitate interpretation for various aquatic organisms, the PFA results are summarized by release location and the season of release (winter, spring, and fall). The PEI provides a more comprehensive biological interpretation of the PTM results for delta smelt, longfin smelt and striped bass.

Positive barrier fish screens. The PTM simulation assumes that particles are entrained at water intakes (removing particles from the channels) based on the flow split between the channel and the water diversion, without regard for any fish protection facilities. Therefore, PTM results must be further interpreted to account for the efficiency of positive barrier fish screens. Both delta smelt and longfin smelt larvae hatch at sizes (approximately 5 mm) that would be partially excluded from entrainment by positive barrier screens (see Table C7-1), making the use of screen efficiency assumptions appropriate for these species at screened water intakes.

Larvae evaluated with PTM studies are assumed to be 5 mm for the PFA; or to fall within one of three size bins (5-7mm, 8-10mm and 11-14mm) determined from the 20mm field surveys for the PEI analysis. No larval growth is assumed during the simulation periods. Since screen efficiencies increase with fish size, this results in the application of conservatively lower screen efficiencies to all particles at screened intakes, independent of growth since release (or "hatch") in the Delta.

The potential entrainment at water intakes with positive barrier fish screens (Rock Slough except in Existing Condition, Old River and AIP intakes) is reduced according to the screen exclusion efficiency as follows:

Potential entrainment = (PTM entrainment estimate) multiplied by
(1.0 minus the screen exclusion efficiency)

This method determines the potential entrainment through positive barrier fish screens, but does not determine the ultimate fate of the larvae that are protected from entrainment by the screens. In other words, since the screen efficiency is applied post simulation, the screened out particles have already been removed from the simulation and their fate is left unresolved in the PTM study. To account for this, an approximation was made of the fate of the screened out particles. This was accomplished by inserting particles near each screened intake, tracking particle fate with respect to entrainment or flux out of the Delta, and applying the proportional fate to the screened out particles (i.e. adding back in the screened out particles as entrainment or flux at the indicated locations). For simplification, re-entrainment was not considered at the immediate intake being evaluated. Although this treatment is not as ideal as including particle screening capability directly in the model, it does provide a reasonable estimate of the ultimate fate of a screened out particle, so the effects of screening are estimated in the final results.

Geometry of Water Intakes. Because DSM2 is a one-dimensional model, it does not recognize the difference between an intake at the end of a channel and an intake on the side of a channel. Particles are entrained at water intakes in a PTM simulation based on advection and dispersion calculations made where the intake boundary intersects the one-dimensional arc that represents the Delta channel. This does not reflect the strong influence of longitudinal flow in the actual three-dimensional river, which tends to sweep neutral particles past side-of-channel intakes that have low approach velocities (Old River and AIP intakes have been designed to achieve an approach velocity of 0.2 ft/sec for the protection of delta smelt and other fish species; the new Delta Intake on Old River would be designed with similar criteria). This issue is not reflected in the larval fish entrainment analysis performed using PTM for this project, and could contribute to an over-estimate of larval entrainment at side-of-channel intakes.

Dispersion of particles. As discussed in Kimmerer and Nobriga (2008), PTM has limitations regarding the dispersion of particles, including the simplistic assumed velocity profiles that do not adjust for channel geometry or bottom roughness and the mixing of particles at channel nodes. These factors may have a significant effect on particle dispersion, especially in the near-field. Dispersion issues in the near-field are amplified in the central and south Delta due to the DSM2 channel grid, where nodes are very close together. Additionally, because agricultural diversions are simulated at almost every DSM2 node in the central and south Delta, simulated particle releases in this region are likely to contain errors in the estimation of agricultural entrainment that are due to the near-field dispersion issue.

Agricultural intakes. When particles are released in close proximity to simulated agricultural diversions, the particle tracking results are sensitive to small changes in hydrodynamics, such that minor changes in flows create relatively large changes in the percent of particles potentially entrained at nearby agricultural intakes. This is partly due to the underestimation of particle dispersion, addressed above, and the density of particles at the release location. When particles are released in the model, they are in a dense grouping until dispersion mixes the particles. When nodes are close together, dispersion does not have a sufficient time to act before particles are entrained at nearby simulated agricultural intakes.

Since the agricultural diversions are not altered between PTM simulations of project alternatives and PTM simulations of without project conditions, comparative changes in particle entrainment in the agricultural diversions appears to be an artifact of the modeling, and does not directly result from the operation of the project alternatives, or provide biologically meaningful information about the effects of the project alternatives on Delta fish.

Open water areas. The open water areas of the Delta (e.g. Franks Tract and Mildred Island) are not well represented in the particle tracking analysis. The model assumes these regions are completely mixed environments, such that a particle that enters on one side of the flooded lake has the possibility of exiting on the other side of the lake in a short time period. In reality, these environments have complicated dynamics that effectively “trap” particles within the regions or can move them in ways that the model does not capture.

20mm survey densities. Historical 20mm survey results from 1995-2009 are used to determine the initial spatial patterns of abundance for the PEI analysis. Future distribution patterns and timing may deviate from the historical averages. The PEI includes two stations (719 and 724) that have been sampled only since 2008, but are thought to be representative of important delta smelt habitat near the Cache Slough complex. In general, it is expected that under the flow regime specified under the OCAP BOs, fish densities would be lower in the central and south Delta during the spring, which would tend to lower entrainment across the board. This effect is difficult to confirm using the available 20mm survey data, because implementation of the OCAP BOs began in 2008, meaning less than 2 years of survey data under these new operations are available for comparison to historical operations at the time of this analysis. In addition, survey densities in the south Delta may also be underestimated when low hydraulic residence times occur in the south Delta. The March through June timeframe in the PEI covers the timing for the larval stage of delta smelt most completely. The PEI covers the window for larval stage longfin smelt and striped bass less ideally (longfin smelt larvae are present from January through March-April, while striped bass larvae span the period from April through July). Nonetheless, the PEI includes use of the data from the 20mm survey data, which is the most appropriate and complete data source for larval stage assessment of these three species.

Potential Entrainment Index (PEI) Calculation

This section describes the procedure used for determining the Potential Entrainment Index (PEI). The PEI method was used to combine the PTM analysis of Delta flows with survey results of fish distribution, abundance and timing patterns. The PEI method accounts for some of the spatial and temporal variation in the location and density of specific species and provides a biological interpretation of PTM analysis. It was originally developed by DWR to evaluate the effect of operations on potential entrainment and for use in planning real time operations to minimize salvage (Nam, 2009). In this application for the analysis of the Los Vaqueros Reservoir Expansion Project, PEI results from with- and without-project model simulations are compared, to determine the relative effect of the project alternatives.

In the PEI method, PTM results are weighted according to the relative abundance of larval stage fish present (as determined by the 20mm survey) near the initial particle release locations to determine the percent of population entrained. Analysis of the percentage of population entrained has been cited as a valid metric for evaluation of effects to delta smelt (USFWS, 2008). The PEI was calculated for the March through June time period. The steps used to calculate the PEI are summarized below:

1) <u>Determine fish densities at each 20mm survey location.</u> The 20mm survey database was obtained from DFG. The entire historical record (1995-2009) was used. The monthly average Catch per Unit Effort (CPUE) was calculated for each station by size class and converted to density in term of number of fish per acre-foot of water sampled (# fish/AF). Only fish below 15mm were included in the analysis as beyond that size, the fish begin to acquire swimming behavior and behave less like neutrally buoyant particles. The CPUE was sorted by three size classes (5-7mm, 8-10mm and 11-14mm) as these corresponded to the size categories used to classify screen efficiencies.

2) <u>Determine the monthly fish abundance at each station.</u> Monthly average densities by size class for each station were multiplied by the associated surface area (Table C7-4) and by a constant depth. Surface areas were determined by DWR using engineering judgment aided by the use of a Voronoi diagram which allowed an unbiased method for apportioning areas among stations.

3) <u>Determine monthly PTM entrainment percentage from each 20mm survey location.</u> As described above, 1000 particles were released at DSM2 nodes corresponding to the 20mm survey locations (Table C7-5 and Figure C7-4) and the percent of particles potentially entrained at each intake within 28 days was determined (subject to reduction by screen efficiency factors). The intakes that were included in the PEI analysis were the Exports (Banks and Jones) and the Rock Slough, Old River and AIP, and the New Delta Intakes. The 28 day period was selected as it corresponds to the approximate period for when the behavior of larval delta smelt most closely represents neutrally buoyant particles.

4) <u>Determine monthly weighted entrainment and cumulative weighted entrainment (March-June) at each intake.</u> For each intake, the percentage of PTM entrainment from a given station (see step 3 above) for a given month was multiplied by the abundance from that station (see steps 1 and 2 above) for the same month and then the total from all stations was summed to determine monthly weighted entrainment . The monthly weighted entrainment for each intake was then summed across the months of March through June to obtain the cumulative weighted entrainment.

5) <u>Divide cumulative weighted entrainment by the cumulative population to obtain percentage of population entrained for each intake.</u> The cumulative population was considered to be fish

abundance (determined in Step 2) summed across all 20mm stations included in the PEI summed across the months of March through June. The cumulative weighted entrainment determined in Step 4 was divided by the cumulative population to obtain the PEI, which is expressed as the percentage of cumulative population entrained. PEI was determined for the individual intakes and also for the combined set of intakes.

The strength of the PEI analysis is that it attempts to explicitly account for the spatial and temporal variation in the fish species of concern. The PTM results are made more meaningful when particle fate from a given location is related to relative abundance at that location through the PEI method. A similar approach has been used (Kimmerer, 2008) and cited in the USFWS OCAP BO as a valid tool for estimating the effect of operations on delta smelt abundance. The PEI is relevant for evaluating effects on abundance, as the metric provided is percent of population entrained. The March through June PEI is most relevant for delta smelt because this is the period when most Delta smelt larvae occur in the Delta. The PEI analysis is useful for identifying effects on larval stages of striped bass and longfin smelt, which are also present in the Central and South Delta during the same time period.

The PEI method as applied in this analysis has two limitations that must be considered along with the results of the analysis. One of these is the averaging of fish survey results into monthly density values for each station over the period of record. This averaging could remove from the PEI results some of the effects of variability in fish density that are driven by changes in hydrology from year to year. This would limit the benefit of the spatial and temporal fish information used for the method, by applying the same density values over wet and dry years. An improvement to the method would be to develop fish density values for specific Sacramento Valley water year types, or to otherwise capture the effects of hydrology in the fish density values used. An attempt was made to do so for this analysis, but the 20mm survey data were not available for sufficient years of each water year type to allow useful averages to be developed.

The second factor that can affect use of the PEI method as applied in this analysis is the effectiveness of fish sampling in the south Delta, due to relatively short hydraulic residence time in this area under historical water export operations, which may underestimate fish densities in this area. This represents a potential limitation in the 20mm survey data used in this PEI analysis. Future research into the effectiveness of sampling throughout the Delta region, and development of correction factors for differences if needed, will help address this potential limitation.

The PEI uses a subset of all the 20mm stations. The other stations located west and downstream of Suisun Bay register very little entrainment. Thus, the PEI is expected to be conservative since the PEI would likely be even lower when accounting for the fish that are present in these regions.

Figure C7-6, **Figure C7-7**, and **Figure C7-8** show the density patterns for delta smelt, longfin smelt and striped bass.

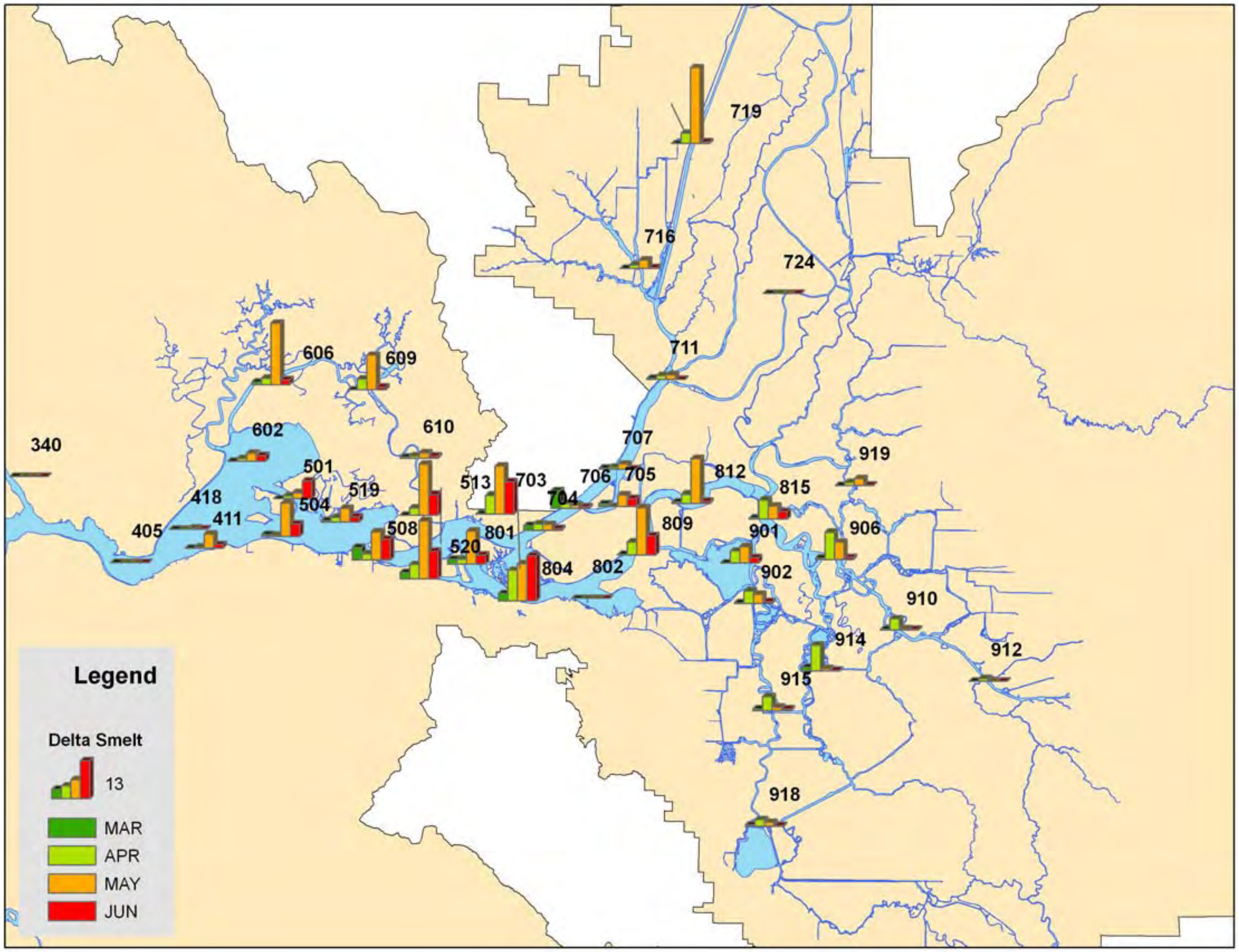


Figure C7-6: Delta Smelt Average Densities (1995-2009) used for PEI

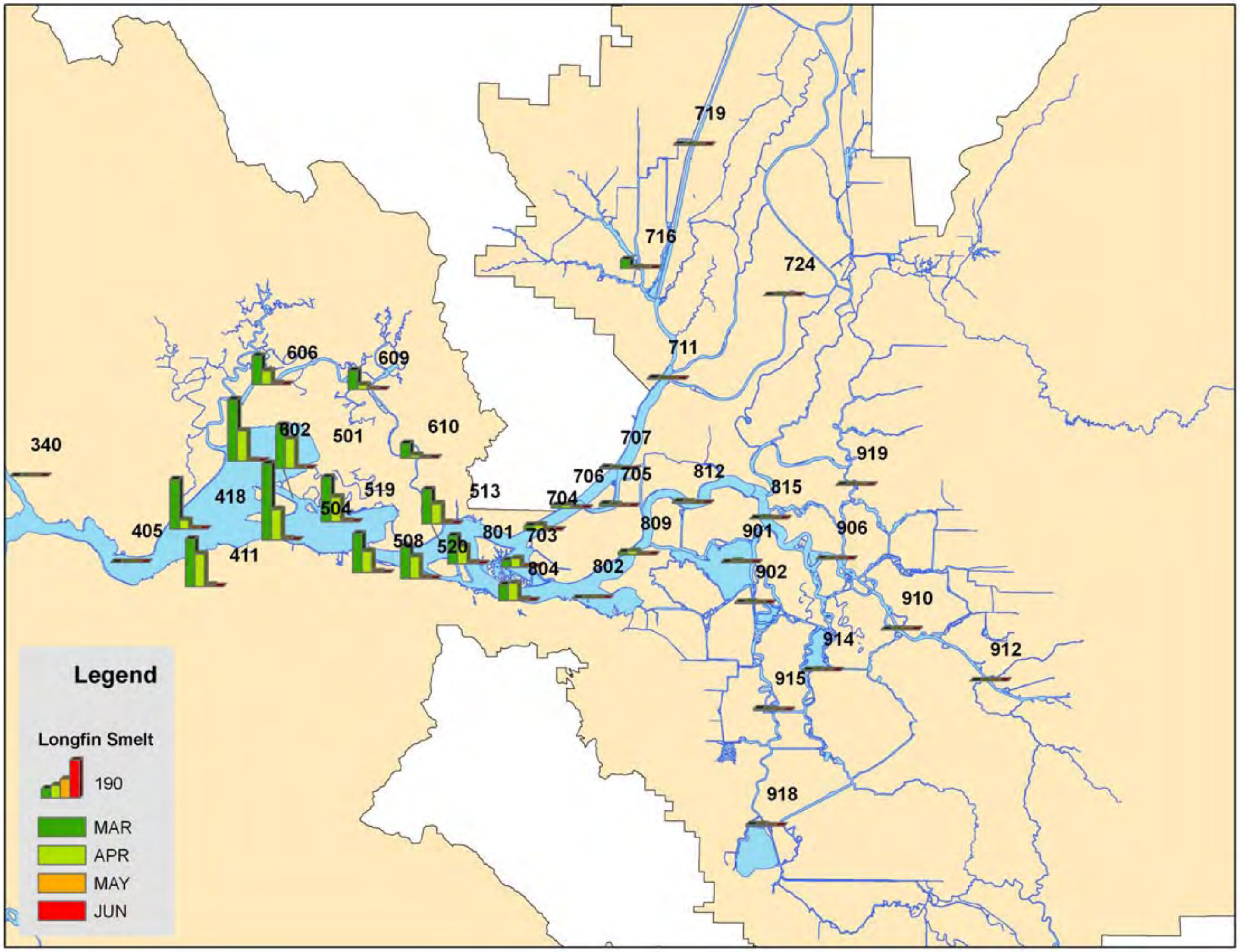


Figure C7-7: Longfin Smelt Average Densities (1995-2009) used for PEI

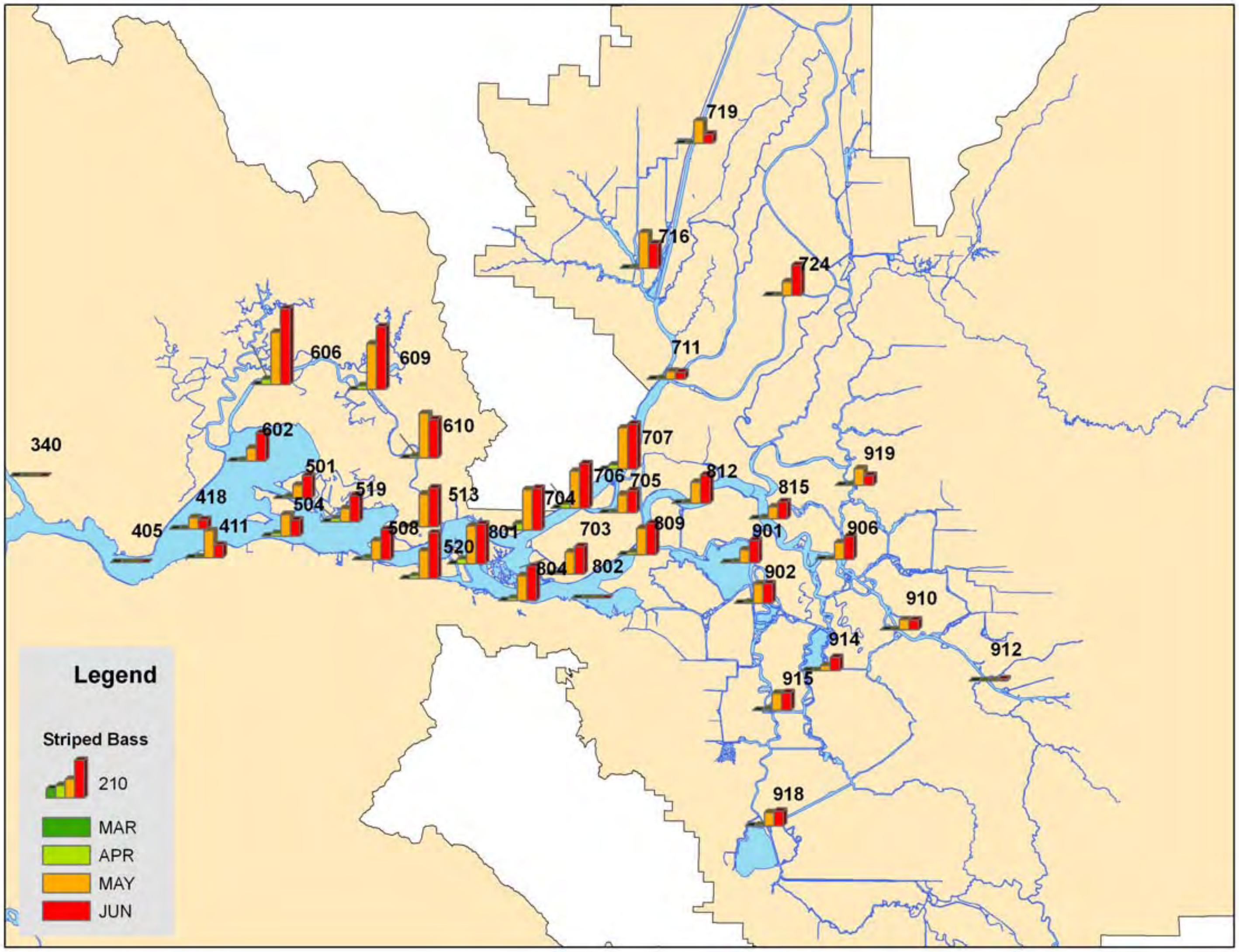


Figure C7-8: Striped Bass Average Densities (1995-2009) used for PEI

Results

For the Los Vaqueros Reservoir Expansion Project, the PTM tool is used to evaluate the direct and indirect effects of operation of each of the project alternatives. Direct effects are due to changes in potential entrainment of fish at water intakes. Indirect effects are due to changes in Delta hydrodynamics, which may affect aquatic habitat. The assessment relies on a comparative analysis of conditions within the estuary under without project conditions and with the proposed project under the 2005 and 2030 levels of development.

A summary of percent particle fate for particles originating on the San Joaquin River at Jersey Island for the 2030 level of development is shown below. Results are summarized by the season during which the particles are released (e.g. Winter (“W”) averages the results for particles released during December, January, and February). The release location on the San Joaquin River at Jersey Island is presented as an example of the PTM results to illustrate the choice of simulation period. Results for all release locations are evaluated for changes in Delta hydrodynamics and potential entrainment at water intakes, as shown in subsequent sections below.

Table C7-7 presents results 28 days after particles were released; this time frame has both biological and operational relevance. For delta smelt larvae, swim bladders are nearly fully developed and fin-folds begin to appear 25 to 40 days post-hatch (Bennett 2005); at this stage, neutrally buoyant particles may no longer represent larval movement. Additionally, since the CalSim II model simulates operations at a monthly time-step, significant changes in river flows and export operations at the start of each month cause abrupt changes in the particle movement within the Delta and Suisun Bay. Thus, limiting particle simulations to approximately one month may be appropriate for immediate application to predictions of smelt larvae entrainment through effectively screened intakes.

TABLE C7-7:
SEASONAL PERCENT PARTICLE FATE 28 DAYS AFTER PARTICLES ARE RELEASED

Seasonal[1] Percent Particle Fate, Long-term Average (1976 to 1991)
28 Days after Particles are Released at
San Joaquin River at Jersey Island
2030 Level of Development

Monitoring Location	Future Without Project			Change from Future Without Project (Alternative - Future Without Project)								
				Alt 1			Alt 2			Alt 4		
	W	S	F	W	S	F	W	S	F	W	S	F
Potentially Entrained at Water Intakes												
Exports (Banks and Jones)	10	1	14	0	0	0	0	0	0	0	0	0
Agricultural Diversions	0	1	0	0	0	0	0	0	0	0	0	0
Rock Slough[2]	0	0	0	0	0	0	0	0	0	0	0	0
Old River[2]	0	0	0	0	0	0	0	0	0	0	0	0
AIP[2]	0	0	0	0	0	0	0	0	0	0	0	0
Remaining in Channel Regions												
South-Eastern Delta	0	0	0	0	0	0	0	0	0	0	0	0
South-Central Delta	8	5	10	0	0	0	0	0	0	0	0	0
Eastern Delta	4	3	6	0	0	0	0	0	0	0	0	0
Northern Delta	0	0	0	0	0	0	0	0	0	0	0	0
Western Delta	9	13	21	0	0	0	0	0	0	0	0	0
Suisun Bay and Marsh	13	16	19	0	1	0	0	0	0	0	0	0
Past Specific Locations												
Past Suisun Gates	6	5	5	0	0	0	0	0	0	0	0	0
Past Chipps Island	66	71	46	0	0	0	0	0	0	0	0	0
Past Martinez	59	62	32	0	0	0	0	0	0	0	0	0

1 Seasonal averages:
W is Winter (December through February), S is Spring (March through June), and F is Fall (September through November)
2 Output from the particle tracking model has been adjusted to account for fish screens at the Rock Slough, Old River and AIP intakes for the Future Without Project and for each alternative and the new Delta Intake for the Future Without Project and Alternatives 1 and 2, assuming the larvae are 5mm in length and do not grow after hatch.

At the end of 28 days, a percentage of particles are still remaining in Delta channels. Due to the uncertainty in the ultimate fate of particles that are still remaining within the channels 28 days after release, the simulations were continued through 120 days post-release (**Table C7-8**), when almost all particles have moved out of the Delta. Because the results are more conclusive with respect to ultimate particle fate, the analysis of impacts to aquatic resources relies on the results 120 days after particles are released. When applied to entrainment estimates, this approach using 120 days of simulation may conservatively over-estimate the number of smelt entrained through effectively screened intakes in the latter portion of each simulation.

TABLE C7-8:
SEASONAL PERCENT PARTICLE FATE 120 DAYS AFTER PARTICLES ARE RELEASED

Seasonal[1] Percent Particle Fate, Long-term Average (1976 to 1991)
120 Days after Particles are Released at
San Joaquin River at Jersey Island
2030 Level of Development

Monitoring Location	Future Without Project			Change from Future Without Project (Alternative - Future Without Project)								
				Alt 1			Alt 2			Alt 4		
	W	S	F	W	S	F	W	S	F	W	S	F
Potentially Entrained at Water Intakes												
Exports (Banks and Jones)	16	7	27	0	0	0	0	0	0	0	0	0
Agricultural Diversions	0	2	0	0	0	0	0	0	0	0	0	0
Rock Slough[2]	0	0	0	0	0	0	0	0	0	0	0	0
Old River[2]	0	0	0	0	0	0	0	0	0	0	0	0
AIP[2]	0	0	0	0	0	0	0	0	0	0	0	0
Remaining in Channel Regions												
South-Eastern Delta	0	0	0	0	0	0	0	0	0	0	0	0
South-Central Delta	0	0	0	0	0	0	0	0	0	0	0	0
Eastern Delta	0	0	0	0	0	0	0	0	0	0	0	0
Northern Delta	0	0	0	0	0	0	0	0	0	0	0	0
Western Delta	0	0	0	0	0	0	0	0	0	0	0	0
Suisun Bay and Marsh	1	2	1	0	0	0	0	0	0	0	0	0
Past Specific Locations												
Past Suisun Gates	8	6	9	0	0	0	0	0	0	0	0	0
Past Chipps Island	75	83	63	0	0	0	0	0	0	0	0	0
Past Martinez	83	88	71	0	0	0	0	0	0	0	0	0

1 Seasonal averages:
W = Winter (December through February), S = Spring (March through June), and F = Fall (September through November)
2 Output from the particle tracking model has been adjusted to account for fish screens at the Rock Slough, Old River and AIP intakes for the Future Without Project and for each alternative and the new Delta Intake for the Future Without Project and Alternatives 1 and 2, assuming the larvae are 5mm in length and do not grow after hatch.

Particle Fate Analysis - Delta Hydrodynamics

To assess changes in Delta hydrodynamics due to each project alternative, the change in the percentage of particles that travel past Chipps Island, the western boundary of the Delta, relative to without project conditions, is analyzed below. This analysis, along with the analysis presented in the “Hydrologic Effects of Operations” and “Old and Middle River Flow Evaluation” sections within this appendix, supports the findings for Impact 4.3.6.

Table C7-9 and **Table C7-10** show the percentage of neutrally buoyant particles that have traveled past Chipps Island 120 days after the particles originated at the specified release locations for the 2005 level of development and 2030 level of development, respectively. The three leftmost numeric columns of each table show the average percentage of particles that pass Chipps Island for the without project alternative for particles released during Winter (December through February), Spring (March through June), and Fall (September through November). The remaining columns show the change from the without project condition in percentage of particles that have traveled past Chipps Island for each season. Negative fluxes occur for the Suisun Bay at Port Chicago and Montezuma Slough locations as these are downstream from Chipps Island.

The percentage of particles passing Chipps Island tends to be greatest for particles originating in the Western Delta or upstream on the Sacramento River. Particles originating in the central and southern Delta have a lower probability of passing Chipps Island, yet a notable percentage of the particles originating in the spring do pass Chipps Island within 120 days after release. For instance, without the project, for the 2005 level of development, 46 percent of particles originating in the spring on Old River at Holland Tract pass Chipps Island within 120 days after release, and 25 percent of particles originating in the spring at Middle River at Empire Cut pass Chipps Island within 120 days after release, as shown below in Table C7-9. Thus, averaged over the 16-year PTM study, there remains a reasonable probability that particles in the south-central Delta may avoid entrainment at South Delta salvage facilities and exit the Delta through advection, in the absence of behavior.

Changes in particle fate between the alternatives and the without project condition were assessed. Changes in the percent of particles passing Chipps Island were in the range of -1 to 2 percent; this is consistent with the small change in Delta outflow discussed in the “Hydrologic Effects of Operations” section. Additionally, this level of change is within the level of model noise in CalSim II (see section 4.2), which is used as input for the PTM model.

Overall, the particle tracking results presented in Table C7-9 and Table C7-10 indicate no significant changes in particle fate at key rearing areas of larval and juvenile delta smelt and longfin smelt within the Delta, or rearing areas for green sturgeon on the Sacramento River, between the without project conditions and each of the project alternatives. These results support the conclusion that the project alternatives do not create adverse impacts to delta smelt, longfin smelt and green sturgeon relative to without project conditions.

TABLE C7-9:
LONG-TERM, SEASONAL AVERAGE PERCENT OF PARTICLES TRAVELING PAST CHIPPS ISLAND 120 DAYS AFTER PARTICLES ARE RELEASED AT DESIGNATED LOCATIONS
2005 LEVEL OF DEVELOPMENT

	Existing Conditions			Change from Existing Conditions								
				Alt 1			Alt 2			Alt 4		
Release Location	W	S	F	W	S	F	W	S	F	W	S	F
Sacramento River at Freeport	69	70	45	1	0	0	0	1	0	0	0	0
Sacramento River above Delta Cross Channel	65	71	40	0	1	0	0	1	0	0	1	0
Cache Slough at Sac Ship Channel	28	7	11	0	0	0	0	0	0	0	0	0
Sacramento River at Rio Vista	79	82	65	0	0	0	0	0	0	0	0	0
Sacramento River at Emmaton	83	87	75	1	0	0	0	0	0	0	0	-1
Sacramento River at Collinsville	88	91	84	0	0	0	0	0	0	0	0	0
San Joaquin River at Jersey Island	75	83	63	0	0	-1	0	0	0	0	1	0
San Joaquin River at mouth of Old River	47	65	27	0	0	0	0	0	0	0	1	0
Old River at Holland Tract	22	46	5	1	2	0	1	2	0	1	2	1
Middle River at Empire Cut	9	25	0	0	1	0	0	1	0	0	1	0
San Joaquin River west of Rough and Ready Island	23	38	5	0	1	0	0	0	0	0	0	0
San Joaquin River at Mossdale	13	23	3	0	0	0	0	0	0	0	0	0
Suisun Bay at Port Chicago	-2	-1	-3	0	0	0	0	0	0	0	0	0
Montezuma Slough	-1	0	4	0	0	0	0	0	0	0	0	0

1 Seasonal averages:
W is Winter (December through February), S is Spring (March through June), and F is Fall (September through November)
2 Output from the particle tracking model has been adjusted to account for fish screens at the Rock Slough, Old River and AIP intakes for the Future Without Project and for each alternative and the new Delta Intake for the Future Without Project and Alternatives 1 and 2, assuming the larvae are 5mm in length and do not grow after hatch.

TABLE C7-10:
LONG-TERM, SEASONAL AVERAGE PERCENT OF PARTICLES TRAVELING PAST CHIPPS ISLAND 120 DAYS AFTER PARTICLES ARE RELEASED AT DESIGNATED LOCATIONS 2030 LEVEL OF DEVELOPMENT

	Future Without Project			Change from Future Without Project								
				Alt 1			Alt 2			Alt 4		
Release Location	W	S	F	W	S	F	W	S	F	W	S	F
Sacramento River at Freeport	71	71	46	0	0	0	0	0	0	0	0	0
Sacramento River above Delta Cross Channel	66	72	42	0	0	0	0	0	0	0	0	0
Cache Slough at Sac Ship Channel	31	6	10	0	0	0	0	0	0	0	0	0
Sacramento River at Rio Vista	79	82	65	2	2	2	0	0	0	0	0	0
Sacramento River at Emmaton	84	87	75	0	0	0	0	0	0	0	0	1
Sacramento River at Collinsville	89	91	84	0	0	0	0	0	0	0	0	0
San Joaquin River at Jersey Island	75	83	63	0	0	0	0	0	0	0	0	0
San Joaquin River at mouth of Old River	48	66	28	0	0	0	0	0	0	0	0	0
Old River at Holland Tract	24	49	7	0	0	0	0	0	0	0	-1	0
Middle River at Empire Cut	12	28	0	0	0	0	0	0	0	0	0	0
San Joaquin River west of Rough and Ready Island	24	40	6	0	0	0	0	0	0	0	0	0
San Joaquin River at Mossdale	13	25	3	0	0	0	0	0	0	0	-1	0
Suisun Bay at Port Chicago	-1	-1	-3	0	0	0	0	0	0	0	0	0
Montezuma Slough	-1	0	4	0	0	0	0	0	0	0	0	0

1 Seasonal averages:
W is Winter (December through February), S is Spring (March through June), and F is Fall (September through November)
2 Output from the particle tracking model has been adjusted to account for fish screens at the Rock Slough, Old River and AIP intakes for the Future Without Project and for each alternative and the new Delta Intake for the Future Without Project and Alternatives 1 and 2, assuming the larvae are 5mm in length and do not grow after hatch.

Particle Fate Analysis - Potential Entrainment

To assess changes in potential entrainment, the change in the total percentage of particles potentially entrained at any water intake is analyzed below. This analysis, along with the analysis presented in the "Entrainment Indices from Field Surveys" section within this appendix, supports the findings for Impact 4.3.7.

Table C7-11 and **Table C7-12** show the total percentage of particles potentially entrained at the any of the water intakes, including intakes on Old River, Victoria Canal, and Rock Slough; the SWP Banks Pumping Plant; the CVP Jones Pumping Plant; and the agricultural intakes. The three leftmost numeric columns of each table show the average percentage of particles entrained for the without project alternative for particles released during Winter (December through February), Spring (March through June), and Fall (September through November). The remaining columns show the change from the without project condition in percentage of particles that are entrained at any of the water intakes (listed above) for each season.

In general, PTM results indicate the project alternatives do not significantly increase the number of particles "pulled" into the south Delta, as is evident in the results for particle releases along the Sacramento River (near delta smelt spawning habitat) and on the San Joaquin River at Jersey Point.

In Alternatives 1 and 2, there are generally small reductions in the percentage of particles entrained, which reflects a benefit of reduced potential for fish entrainment in these alternatives. Some of these benefits are related to the relocation of some South Bay water agencies' Delta diversions to the expanded Los Vaqueros system, which provides improved fish screening relative to the SWP and CVP facilities. The benefit for larval fish as determined by PTM is not as substantial as the reductions for individual salmonid species evaluated with the fish indices (see "Entrainment Indices from Salvage Data"), in part because the PTM analysis assumes larvae are neutrally buoyant particles, 5mm in length, with no growth assumed during the study period. Nonetheless, since the positive barrier fish screens are less than 100% efficient for the smaller size classes (e.g. planktonic larvae less than approximately 15 mm), this assumption results in a conservative estimate for the number of larval fish protected by positive barrier fish screens.

PTM results for Alternative 4 show no significant change from the without project condition, as all changes remain below 2 percent, which is within the noise of the CalSim II model (see updated Section 4.2) and also relatively low when compared to the seasonal variability.

These results support the conclusion that the project alternatives do not create adverse impacts to delta smelt, longfin smelt and green sturgeon relative to without project conditions.

TABLE C7-11:
LONG-TERM, SEASONAL AVERAGE PERCENT OF PARTICLES POTENTIALLY ENTRAINED 120 DAYS AFTER PARTICLES ARE RELEASED AT DESIGNATED LOCATIONS
2005 LEVEL OF DEVELOPMENT

	Existing Conditions			Change from Existing Conditions								
				Alt 1			Alt 2			Alt 4		
Release Location	W	S	F	W	S	F	W	S	F	W	S	F
Sacramento River at Freeport	22	22	45	-1	-1	-1	-1	-1	0	0	0	0
Sacramento River above Delta Cross Channel	28	22	53	-1	-1	-1	-1	-1	-1	0	0	0
Cache Slough at Sac Ship Channel	18	65	34	0	0	0	0	0	0	0	0	0
Sacramento River at Rio Vista	12	10	25	0	0	0	0	0	0	0	0	0
Sacramento River at Emmaton	6	5	14	0	0	0	0	0	0	0	0	0
Sacramento River at Collinsville	2	2	6	0	0	0	0	0	0	0	0	0
San Joaquin River at Jersey Island	17	10	27	0	0	0	0	0	0	0	0	0
San Joaquin River at mouth of Old River	48	29	68	-1	-1	-1	-1	-1	-1	0	-1	0
Old River at Holland Tract	75	49	93	-3	-3	-2	-3	-2	-2	-1	-2	-1
Middle River at Empire Cut	89	72	98	-3	-2	-3	-3	-2	-3	0	0	0
San Joaquin River west of Rough and Ready Island	72	58	92	-2	-1	-2	-2	-1	-2	0	0	0
San Joaquin River at Mossdale	85	74	95	-1	-1	-2	-1	-1	-1	0	0	0
Suisun Bay at Port Chicago	0	0	1	0	0	0	0	0	0	0	0	0
Montezuma Slough	0	0	1	0	0	0	0	0	0	0	0	0

1 Seasonal averages:
W is Winter (December through February), S is Spring (March through June), and F is Fall (September through November)
2 Output from the particle tracking model has been adjusted to account for fish screens at the Rock Slough, Old River and AIP intakes for the Future Without Project and for each alternative and the new Delta Intake for the Future Without Project and Alternatives 1 and 2, assuming the larvae are 5mm in length and do not grow after hatch.

TABLE C7-12:
LONG-TERM, SEASONAL AVERAGE PERCENT OF PARTICLES POTENTIALLY ENTRAINED 120 DAYS AFTER PARTICLES ARE RELEASED AT DESIGNATED LOCATIONS 2030 LEVEL OF DEVELOPMENT

	Future Without Project			Change from Future Without Project								
				Alt 1			Alt 2			Alt 4		
Release Location	W	S	F	W	S	F	W	S	F	W	S	F
Sacramento River at Freeport	21	22	44	0	0	0	0	0	0	0	0	0
Sacramento River above Delta Cross Channel	27	21	52	0	0	0	0	0	0	0	0	0
Cache Slough at Sac Ship Channel	18	64	33	0	0	0	0	0	0	0	0	0
Sacramento River at Rio Vista	12	10	25	-1	-2	-1	0	0	0	0	0	0
Sacramento River at Emmaton	6	5	14	0	0	0	0	0	0	0	0	0
Sacramento River at Collinsville	2	2	5	0	0	0	0	0	0	0	0	0
San Joaquin River at Jersey Island	16	10	28	0	0	0	0	0	0	0	0	0
San Joaquin River at mouth of Old River	47	28	67	0	0	0	0	0	0	0	0	0
Old River at Holland Tract	73	47	92	0	0	0	0	0	0	0	1	0
Middle River at Empire Cut	88	71	100	0	-1	0	0	-1	0	0	1	0
San Joaquin River west of Rough and Ready Island	72	57	92	-1	-1	0	0	-1	0	-1	0	0
San Joaquin River at Mossdale	84	73	95	0	0	0	0	0	0	0	1	0
Suisun Bay at Port Chicago	0	0	1	0	0	0	0	0	0	0	0	0
Montezuma Slough	0	0	0	0	0	0	0	0	0	0	0	0

1 Seasonal averages:
W is Winter (December through February), S is Spring (March through June), and F is Fall (September through November)
2 Output from the particle tracking model has been adjusted to account for fish screens at the Rock Slough, Old River and AIP intakes for the Future Without Project and for each alternative and the new Delta Intake for the Future Without Project and Alternatives 1 and 2, assuming the larvae are 5mm in length and do not grow after hatch.

Potential Entrainment Index

The results of the PEI analysis are shown below in **Table C7-13.** The results are considered in light of the strengths and limitations of the PEI method, described on page C7-20. In comparing the Alternatives to the Existing Condition, there are net benefits indicated for delta smelt and striped bass, while there are no impacts to longfin smelt. Under the 2030 Level of Development, there are benefits indicated to striped bass for Alternatives 1 and 2 and no impacts to delta smelt or longfin smelt. Some of the demonstrated benefits are related to the relocation of some South Bay water agencies' Delta diversions to the expanded Los Vaqueros system, which provides improved fish screening relative to the Banks Pumping Plant and Jones Pumping Plant facilities. In general, delta smelt and striped bass show more changes because their proportional representation in the Central and South Delta tends to be higher than longfin smelt in the March-June timeframe (see Figure C7-6, Figure C7-7, and Figure C7-8).

The results of the PEI indicate that the hydrodynamic changes induced by the alternatives do not produce impacts and in some cases provide benefits when timing and distribution of the fish are taken into account.

TABLE C7-13:
CHANGES IN POTENTIAL ENTRAINMENT INDEX DURING THE SPRING FOR COMBINED DELTA WATER SUPPLY DIVERSIONS (BANKS AND JONES PUMPING PLANTS AND CCWD INTAKES)

2005 Level of Development				
Species	**Existing Condition**	**Change in PEI from Existing Condition**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	2.3%	-0.3%	-0.3%	-0.3%
Longfin Smelt	0.3%	0.0%	0.0%	0.0%
Striped Bass	5.3%	-0.4%	-0.4%	-0.5%
2030 Level of Development				
Species	**Future Without Project**	**Change in PEI from Future Without Project**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	1.9%	0.0%	0.0%	0.0%
Longfin Smelt	0.3%	0.0%	0.0%	0.0%
Striped Bass	5.0%	-0.1%	-0.1%	0.0%

The results are shown further broken down by intake (CCWD Intakes, Banks Pumping Plant, and Jones Pumping Plant) in **Table C7-14**.

TABLE C7-14:
CHANGES IN POTENTIAL ENTRAINMENT INDEX DURING THE SPRING CATEGORIZED BY WATER SUPPLY DIVERSION LOCATION

CCWD intakes				
2005 Level of Development				
Species	**Existing Condition**	**Change in PEI from Existing Condition**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	0.3%	-0.2%	-0.2%	-0.2%
Longfin Smelt	0.0%	0.0%	0.0%	0.0%
Striped Bass	0.4%	-0.3%	-0.3%	-0.3%
2030 Level of Development				
Species	**Future Without Project**	**Change in PEI from Future Without Project**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	0.1%	0.0%	0.0%	0.0%
Longfin Smelt	0.0%	0.0%	0.0%	0.0%
Striped Bass	0.2%	0.0%	0.0%	0.0%
Banks Pumping Plant				
2005 Level of Development				
Species	**Existing Condition**	**Change in PEI from Existing Condition**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	1.2%	-0.1%	-0.1%	0.0%
Longfin Smelt	0.2%	0.0%	0.0%	0.0%
Striped Bass	2.7%	-0.2%	-0.2%	-0.1%
2030 Level of Development				
Species	**Future Without Project**	**Change in PEI from Future Without Project**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	1.1%	-0.1%	-0.1%	0.0%
Longfin Smelt	0.2%	0.0%	0.0%	0.0%
Striped Bass	2.7%	-0.2%	-0.2%	0.0%
Jones Pumping Plant				
2005 Level of Development				
Species	**Existing Condition**	**Change in PEI from Existing Condition**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	0.8%	0.0%	0.0%	0.0%
Longfin Smelt	0.1%	0.0%	0.0%	0.0%
Striped Bass	2.2%	0.0%	0.0%	0.0%
2030 Level of Development				
Species	**Future Without Project**	**Change in PEI from Future Without Project**		
		Alt 1	**Alt 2**	**Alt 4**
Delta Smelt	0.7%	0.0%	0.0%	0.0%
Longfin Smelt	0.1%	0.0%	0.0%	0.0%
Striped Bass	2.1%	0.0%	0.0%	0.0%

CCWD Intakes. In the 2005 Level of Development, there are fisheries benefits to delta smelt and striped bass, and no impacts on longfin smelt. In the 2030 Level of Development, there are no impacts to any species.

Banks Pumping Plant. Under both 2005 and 2030 level of development, Alternatives 1 and 2 indicate benefits for both delta smelt and striped bass and no impacts to longfin smelt. Some of these benefits are related to the relocation of some South Bay water agencies' Delta diversions to the expanded Los Vaqueros system, which provides improved fish screening relative to the SWP and CVP facilities. There are no impacts to longfin smelt.

Jones Pumping Plant. There are no significant changes to the PEI at Jones Pumping Plant.

Potential Effects of Project Alternatives on Fishery Habitat within the Delta due to Changes in Hydrology

The proposed project and alternatives would alter the location and timing of water diversions from the Delta. The following analysis addresses the potential for these changes to adversely or beneficially affect Delta fish populations or the quality and quantity of aquatic habitat within the Bay-Delta estuary. Potential effects of proposed project Alternatives on fishery habitat within upstream tributaries and the mainstem Sacramento River are not addressed in this analysis.

Methodology

Effects on fish populations were analyzed using a number of different parameters that have been shown to be, or are thought to be, significant factors that affect habitat conditions and the reproduction of various fish and macroinvertebrate species inhabiting the Bay-Delta estuary. These habitat parameters are grouped into the following three categories:

- those that indicate flows upstream of the Delta, including
    - total Delta inflow (**Table C7-17** and **Table C7-18**),
    - Sacramento River flow at Freeport (**Table C7-19** and **Table C7-20**), and
    - San Joaquin River flow at Vernalis (**Table C7-21** and **Table C7-22**);
- those that are currently regulated by SWRCB D-1641 for fish and wildlife beneficial use, including
    - net Delta outflow (**Table C7-23** and **Table C7-24**),
    - the location of X2 (**Table C7-25** and **Table C7-26**), and
    - the Export-to-Inflow Ratio (**Table C7-27** and **Table C7-28**); and
- those that indicate hydrodynamics within the Delta, including
    - particle tracking analysis (see “Particle Tracking Analysis” section above),
    - net flow on the lower San Joaquin River (Qwest) (**Table C7-29** and **Table C7-30**), and
    - net flow in Old and Middle rivers (see “Old and Middle River Flow Evaluation” section below).

The biological relevance for each of these parameters is discussed in Section 4.3, with a discussion of the potential significance of any changes due to the operation of the project alternatives.

The assessment relies on a comparative analysis of operational and resulting environmental conditions within the estuary between without project conditions and each of the project alternatives. The changes in these parameters for each alternative are obtained from the hydrologic modeling results, which describe water diversion operations over a range of environmental and hydrologic conditions (see Appendix C-3). Hydrologic modeling results provide the technical foundation for assessing adverse effects of project diversions and CVP and SWP export operations on fish species and their habitat within the Bay-Delta estuary.

Changes to each of the parameters are evaluated on a monthly basis, for each month of the modeling simulation for both the 2005 level of development and the 2030 level of development. For the purpose of evaluating the potential effect of each project alternative, the incremental changes for each alternative are averaged by water year type, resulting in a long-term monthly average for each water year type (e.g. long-term average incremental change in January of wet water years).

Results

Each parameter is averaged by month, for each water year type, in the following sections.

Total Pumping at SWP Banks Pumping Plant and CVP Jones Pumping Plant

TABLE C7-15: TOTAL COMBINED PUMPING (CFS) AT BANKS AND JONES UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		6,353	6,604	8,529	6,776	7,274	6,688	1,991	2,175	4,813	10,117	9,349	9,034
	Change from Existing Condition	Alt 1	-3.3%	-2.9%	-3.1%	-2.8%	-2.9%	-1.1%	-7.6%	-7.8%	-2.4%	-2.5%	-2.5%	-2.9%
		Alt 2	-3.2%	-2.6%	-3.0%	-2.6%	-2.8%	-0.6%	-7.5%	-7.7%	-2.0%	-2.9%	-2.5%	-2.8%
		Alt 4	0.2%	0.2%	-0.2%	0.8%	0.6%	0.2%	0.0%	0.0%	3.3%	-0.2%	-0.4%	-0.2%
Wet	Existing Condition		6,965	7,610	8,354	7,904	9,646	9,469	2,961	3,536	7,515	11,162	11,072	10,604
	Percent Change from Existing Condition	Alt 1	-4.0%	-2.8%	-3.2%	-3.1%	-2.5%	-1.7%	-7.5%	-6.5%	-3.5%	-3.0%	-3.1%	-3.4%
		Alt 2	-3.8%	-2.3%	-2.9%	-2.7%	-2.3%	-1.0%	-7.2%	-6.2%	-2.8%	-3.0%	-3.1%	-3.3%
		Alt 4	-0.4%	0.8%	0.2%	0.6%	0.8%	0.1%	0.0%	0.0%	1.4%	0.0%	0.2%	0.3%
Above Normal	Existing Condition		6,314	6,079	8,868	6,565	7,557	8,055	1,763	1,670	5,832	10,249	11,036	10,812
	Percent Change from Existing Condition	Alt 1	-3.5%	-2.2%	-1.9%	-3.2%	-2.6%	-0.3%	-9.7%	-12.0%	-2.1%	-3.5%	-2.8%	-3.8%
		Alt 2	-2.8%	-2.1%	-1.8%	-3.3%	-2.5%	-0.1%	-9.7%	-12.0%	-2.0%	-3.5%	-2.8%	-3.8%
		Alt 4	-0.6%	0.2%	0.3%	0.3%	0.7%	0.5%	0.0%	0.0%	3.8%	0.0%	0.1%	-0.6%
Below Normal	Existing Condition		6,433	7,045	9,494	6,337	6,724	6,845	1,608	1,618	4,123	10,966	9,610	9,548
	Percent Change from Existing Condition	Alt 1	-2.0%	-3.1%	-5.0%	-3.3%	-3.6%	-0.6%	-9.8%	-11.1%	-2.1%	-2.9%	-0.5%	-0.4%
		Alt 2	-2.0%	-2.7%	-4.9%	-3.3%	-3.5%	-0.3%	-9.8%	-11.1%	-2.2%	-2.9%	-0.5%	-0.4%
		Alt 4	0.8%	0.4%	-0.6%	0.5%	0.2%	-0.1%	0.0%	0.0%	5.6%	-0.1%	-0.2%	0.8%
Dry	Existing Condition		5,835	6,092	8,989	6,388	5,832	4,121	1,457	1,497	2,897	10,543	9,243	7,934
	Percent Change from Existing Condition	Alt 1	-4.0%	-3.3%	-2.7%	-1.7%	-3.3%	-1.6%	-6.9%	-8.4%	0.1%	-1.3%	-2.3%	-3.6%
		Alt 2	-3.9%	-3.1%	-2.6%	-1.7%	-3.2%	-0.6%	-7.3%	-8.4%	0.2%	-1.2%	-2.4%	-3.5%
		Alt 4	0.4%	-0.4%	-0.3%	0.8%	0.7%	0.6%	-0.1%	0.1%	6.4%	-0.5%	-0.6%	-1.7%
Critical	Existing Condition		5,751	5,202	6,753	5,638	4,658	2,965	1,367	1,401	1,616	6,090	3,783	4,901
	Percent Change from Existing Condition	Alt 1	-2.5%	-3.3%	-2.4%	-2.5%	-3.6%	0.4%	-3.0%	-4.6%	-0.5%	-1.1%	-4.8%	-2.3%
		Alt 2	-2.5%	-3.2%	-2.4%	-2.0%	-3.6%	0.4%	-3.0%	-4.6%	-0.5%	-5.4%	-3.4%	-2.4%
		Alt 4	1.2%	-0.4%	-1.0%	2.3%	0.2%	0.4%	0.0%	-0.4%	5.1%	-0.3%	-4.6%	-0.1%

TABLE C7-16: TOTAL COMBINED PUMPING (CFS) AT BANKS AND JONES UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		6,155	6,672	8,494	6,828	7,187	6,915	2,182	2,185	4,928	10,009	9,341	8,979
	Change from Future Without Project	Alt 1	-3.4%	-2.2%	-2.6%	-2.4%	-2.6%	-1.3%	-9.6%	-9.2%	-3.3%	-2.5%	-2.2%	-2.6%
		Alt 2	-3.3%	-1.9%	-3.0%	-2.3%	-2.6%	-0.7%	-9.5%	-9.0%	-2.9%	-2.5%	-2.2%	-2.5%
		Alt 4	0.1%	-0.1%	0.6%	0.2%	0.1%	-0.1%	0.1%	0.0%	2.8%	-0.2%	-0.4%	-0.2%
Wet	Future Without Project		6,873	7,770	8,162	8,050	9,549	9,754	3,369	3,541	7,669	11,161	11,148	10,684
	Percent Change from Future Without Project	Alt 1	-4.1%	-2.1%	-3.7%	-3.0%	-2.9%	-1.8%	-9.1%	-7.3%	-3.3%	-2.9%	-2.8%	-3.5%
		Alt 2	-3.9%	-1.7%	-3.4%	-2.9%	-2.8%	-1.3%	-8.8%	-6.9%	-2.6%	-2.8%	-2.8%	-3.3%
		Alt 4	0.1%	-0.3%	-0.3%	0.1%	0.4%	-0.2%	0.0%	0.0%	1.4%	0.0%	0.0%	-0.2%
Above Normal	Future Without Project		6,027	6,334	8,860	6,592	7,228	8,275	1,905	1,713	6,050	10,176	11,242	10,872
	Percent Change from Future Without Project	Alt 1	-4.3%	-0.9%	-2.2%	-2.3%	-2.6%	-0.7%	-13.7%	-14.3%	-3.2%	-3.4%	-2.3%	-2.9%
		Alt 2	-4.3%	0.3%	-2.2%	-2.3%	-2.5%	-0.4%	-13.7%	-14.3%	-3.1%	-3.5%	-2.3%	-2.6%
		Alt 4	-1.7%	1.2%	0.2%	-0.1%	0.1%	0.2%	0.0%	0.0%	2.7%	0.0%	-0.1%	-0.1%
Below Normal	Future Without Project		6,156	7,259	9,531	6,388	6,679	6,999	1,777	1,614	4,195	10,978	9,865	9,505
	Percent Change from Future Without Project	Alt 1	-1.5%	-3.4%	-1.7%	-2.5%	-2.4%	-1.1%	-12.5%	-13.5%	-3.7%	-2.4%	-0.9%	-0.7%
		Alt 2	-1.4%	-3.2%	-4.2%	-2.5%	-2.4%	-0.1%	-12.4%	-13.5%	-3.8%	-2.4%	-0.9%	-0.7%
		Alt 4	1.0%	0.5%	0.7%	0.1%	0.1%	-0.5%	-0.1%	0.0%	3.8%	0.0%	-0.5%	0.3%
Dry	Future Without Project		5,543	6,042	8,528	6,511	5,851	4,382	1,510	1,500	2,982	10,085	8,976	7,683
	Percent Change from Future Without Project	Alt 1	-4.1%	-2.1%	-2.2%	-2.0%	-2.5%	-1.0%	-8.9%	-10.4%	-3.3%	-1.7%	-2.5%	-3.0%
		Alt 2	-4.1%	-2.1%	-2.2%	-2.0%	-2.6%	-0.5%	-9.0%	-10.4%	-3.2%	-1.7%	-2.5%	-3.1%
		Alt 4	0.1%	-1.3%	2.8%	0.0%	-0.3%	0.2%	0.6%	0.0%	7.3%	-0.8%	-1.3%	-1.1%
Critical	Future Without Project		5,645	4,894	7,587	5,408	4,624	3,110	1,368	1,411	1,646	6,102	3,461	4,723
	Percent Change from Future Without Project	Alt 1	-1.8%	-2.5%	-2.7%	-0.6%	-1.9%	0.2%	-3.4%	-5.5%	-2.2%	-1.6%	-1.2%	-1.3%
		Alt 2	-1.7%	-2.5%	-2.6%	-0.7%	-1.9%	0.2%	-3.4%	-5.5%	-2.2%	-1.7%	-1.1%	-1.3%
		Alt 4	0.7%	0.6%	-1.0%	1.4%	-0.2%	0.2%	-0.1%	0.0%	3.0%	0.1%	-0.2%	0.4%

Delta Inflow

TABLE C7-17: DELTA INFLOW (CFS) UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		14,747	18,597	32,636	47,195	58,182	49,100	33,193	27,131	21,719	22,461	18,111	19,072
	Change from Existing Condition	Alt 1	0.0%	-0.2%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.3%	0.0%	-0.1%	-0.1%
		Alt 2	0.0%	-0.2%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.3%	-0.1%	-0.1%	-0.1%
		Alt 4	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.2%	0.0%	-0.1%	0.0%
Wet	Existing Condition		17,155	25,171	55,833	88,215	103,510	87,014	57,740	46,830	34,584	26,779	22,665	28,691
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	-0.1%	0.1%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.1%	0.1%
		Alt 4	-0.1%	0.3%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.0%	0.2%	0.2%
Above Normal	Existing Condition		13,930	19,121	29,540	52,291	65,625	59,382	34,774	28,576	21,822	24,492	20,857	22,022
	Percent Change from Existing Condition	Alt 1	-0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.3%	0.0%	0.1%	-0.2%
		Alt 2	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	-0.2%	0.1%	0.3%	0.0%	0.1%	-0.2%
		Alt 4	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.3%	0.1%	0.3%	-0.1%
Below Normal	Existing Condition		14,514	16,105	23,637	27,687	42,147	30,123	24,656	20,517	16,778	22,673	16,677	14,782
	Percent Change from Existing Condition	Alt 1	0.2%	-0.8%	-0.5%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.2%	0.1%	0.1%	0.7%
		Alt 2	0.2%	-0.8%	-0.5%	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.2%	0.1%	0.1%	0.7%
		Alt 4	0.0%	-0.5%	-0.4%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.1%	0.0%	0.9%
Dry	Existing Condition		13,536	15,121	20,640	20,318	27,073	24,482	17,102	14,403	14,071	20,082	15,843	12,836
	Percent Change from Existing Condition	Alt 1	0.0%	-0.2%	0.3%	0.0%	0.0%	0.1%	0.0%	0.1%	0.9%	0.0%	-0.5%	-0.9%
		Alt 2	0.0%	-0.3%	0.3%	0.0%	0.0%	0.1%	0.0%	0.1%	0.9%	0.0%	-0.5%	-0.9%
		Alt 4	0.2%	-0.5%	0.4%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	-0.2%	-0.3%	-1.1%
Critical	Existing Condition		12,434	11,950	13,967	16,294	17,898	15,739	12,522	9,810	10,981	14,399	10,572	9,641
	Percent Change from Existing Condition	Alt 1	-0.2%	-0.1%	-0.1%	0.5%	0.0%	-0.1%	0.0%	0.0%	0.3%	0.2%	-0.8%	-0.2%
		Alt 2	-0.2%	0.0%	-0.1%	0.5%	0.0%	-0.1%	0.1%	0.0%	0.3%	-1.6%	-0.7%	-0.2%
		Alt 4	-0.1%	-0.2%	0.0%	0.0%	-0.1%	-0.1%	0.1%	-0.1%	0.3%	-0.1%	-1.3%	-0.3%

TABLE C7-18: DELTA INFLOW (CFS) UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		14,650	18,851	32,765	47,421	58,078	49,685	34,427	27,073	21,825	22,365	18,160	19,014
	Change from Future Without Project	Alt 1	0.1%	0.0%	-0.1%	0.0%	0.1%	0.1%	-0.1%	0.1%	0.1%	-0.1%	-0.2%	-0.1%
		Alt 2	0.2%	0.0%	-0.1%	0.0%	0.1%	0.1%	-0.1%	0.0%	0.1%	-0.1%	-0.2%	-0.1%
		Alt 4	0.1%	0.0%	-0.1%	0.0%	0.1%	0.0%	-0.1%	0.0%	0.1%	0.0%	-0.2%	0.0%
Wet	Future Without Project		17,084	25,599	55,620	88,249	103,121	87,645	59,304	46,652	34,614	26,909	22,756	28,747
	Percent Change from Future Without Project	Alt 1	0.2%	-0.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	-0.1%	0.1%	0.0%
		Alt 2	0.2%	-0.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	-0.1%	0.1%	0.0%
		Alt 4	0.2%	-0.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%	0.1%	0.0%
Above Normal	Future Without Project		13,974	19,408	29,566	52,091	65,946	59,905	36,006	28,931	22,113	24,511	21,167	22,167
	Percent Change from Future Without Project	Alt 1	-0.5%	0.2%	-0.1%	0.0%	0.0%	0.3%	-0.2%	0.1%	0.0%	0.0%	0.1%	-0.1%
		Alt 2	-0.5%	0.5%	-0.1%	0.0%	0.0%	0.3%	-0.2%	-0.1%	-0.1%	0.0%	0.1%	0.0%
		Alt 4	-0.5%	0.2%	-0.2%	0.0%	0.0%	0.1%	-0.1%	0.1%	0.0%	0.1%	0.2%	0.1%
Below Normal	Future Without Project		14,279	16,523	24,002	28,046	41,872	30,793	26,136	20,245	16,823	22,642	16,915	14,660
	Percent Change from Future Without Project	Alt 1	0.6%	-0.3%	0.0%	0.0%	-0.1%	-0.1%	-0.2%	0.2%	0.0%	0.1%	-0.2%	0.3%
		Alt 2	0.6%	-0.3%	0.0%	0.0%	-0.1%	-0.1%	-0.2%	0.2%	0.1%	0.1%	-0.2%	0.3%
		Alt 4	0.6%	0.3%	0.1%	0.0%	-0.4%	-0.1%	-0.2%	0.2%	0.0%	0.2%	-0.3%	0.4%
Dry	Future Without Project		13,424	15,100	20,809	20,620	27,169	25,090	18,382	14,396	14,163	19,441	15,662	12,659
	Percent Change from Future Without Project	Alt 1	0.0%	0.1%	-0.1%	0.0%	1.2%	0.1%	0.0%	0.0%	0.5%	-0.2%	-1.1%	-0.7%
		Alt 2	0.0%	0.1%	-0.1%	0.0%	1.2%	0.1%	0.0%	0.0%	0.5%	-0.2%	-1.2%	-0.7%
		Alt 4	0.0%	-0.1%	-0.1%	0.0%	1.2%	0.1%	0.0%	0.0%	0.5%	-0.3%	-1.1%	-0.4%
Critical	Future Without Project		12,327	12,017	14,605	17,094	17,890	16,151	12,686	9,773	11,157	14,437	10,398	9,388
	Percent Change from Future Without Project	Alt 1	0.3%	0.5%	-0.4%	-0.5%	0.1%	0.0%	0.0%	0.0%	-0.2%	-0.3%	-0.1%	0.1%
		Alt 2	0.3%	0.4%	-0.4%	-0.5%	0.1%	0.0%	0.0%	0.0%	-0.2%	-0.3%	-0.1%	0.1%
		Alt 4	0.2%	0.5%	-0.6%	-0.8%	0.0%	-0.1%	0.0%	0.0%	-0.2%	0.1%	-0.3%	0.3%

Sacramento River Inflow

TABLE C7-19: SACRAMENTO RIVER INFLOW (CFS) UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		11,691	15,199	26,085	32,870	38,988	33,566	23,345	19,211	16,465	19,131	15,813	16,487
	Change from Existing Condition	Alt 1	0.0%	-0.2%	-0.1%	0.1%	0.0%	0.0%	-0.1%	0.0%	0.4%	0.0%	-0.1%	-0.1%
		Alt 2	0.0%	-0.2%	-0.1%	0.1%	0.0%	0.0%	-0.1%	0.1%	0.3%	-0.2%	-0.1%	-0.1%
		Alt 4	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.3%	0.0%	-0.1%	0.0%
Wet	Existing Condition		13,535	20,480	43,095	53,807	60,864	51,713	38,959	32,398	23,859	19,754	18,867	24,810
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	-0.2%	0.1%	0.0%	0.0%	-0.1%	0.1%	0.1%	-0.1%	0.1%	0.1%
		Alt 2	0.0%	0.0%	-0.2%	0.1%	0.0%	0.0%	-0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
		Alt 4	-0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.2%	0.0%	0.2%	0.2%
Above Normal	Existing Condition		11,307	15,997	23,802	41,576	48,064	46,277	25,836	21,213	16,063	21,577	18,630	19,474
	Percent Change from Existing Condition	Alt 1	-0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.5%	0.0%	0.2%	-0.3%
		Alt 2	0.3%	0.2%	0.1%	0.0%	0.0%	0.1%	-0.2%	0.1%	0.4%	0.0%	0.2%	-0.3%
		Alt 4	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.5%	0.1%	0.3%	-0.1%
Below Normal	Existing Condition		11,581	13,132	19,332	22,778	32,592	23,327	17,310	14,164	13,826	20,862	14,679	12,494
	Percent Change from Existing Condition	Alt 1	0.3%	-1.0%	-0.6%	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.2%	0.1%	0.2%	0.8%
		Alt 2	0.3%	-1.0%	-0.6%	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.2%	0.1%	0.2%	0.8%
		Alt 4	0.0%	-0.6%	-0.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.3%	0.1%	0.0%	1.1%
Dry	Existing Condition		10,493	12,290	17,756	17,246	22,380	20,473	12,599	10,507	12,441	18,901	14,540	11,038
	Percent Change from Existing Condition	Alt 1	-0.1%	-0.3%	0.3%	0.0%	0.0%	0.1%	0.0%	0.1%	1.0%	0.0%	-0.5%	-1.0%
		Alt 2	0.0%	-0.3%	0.3%	0.0%	0.1%	0.1%	0.0%	0.1%	1.0%	0.0%	-0.6%	-1.0%
		Alt 4	0.3%	-0.7%	0.5%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	-0.2%	-0.4%	-1.2%
Critical	Existing Condition		10,002	9,737	11,888	14,009	14,887	13,124	10,182	7,585	9,965	13,662	9,615	8,297
	Percent Change from Existing Condition	Alt 1	-0.2%	-0.1%	-0.1%	0.5%	0.0%	-0.1%	0.0%	0.0%	0.4%	0.3%	-0.9%	-0.3%
		Alt 2	-0.2%	0.0%	-0.1%	0.5%	0.0%	-0.1%	0.1%	0.0%	0.4%	-1.7%	-0.8%	-0.3%
		Alt 4	-0.1%	-0.3%	0.0%	0.0%	-0.1%	-0.2%	0.1%	-0.2%	0.3%	-0.1%	-1.5%	-0.3%

TABLE C7-20: SACRAMENTO RIVER INFLOW (CFS) UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		11,526	15,255	26,165	33,094	39,068	33,694	23,423	19,057	16,454	19,018	15,845	16,386
	Change from Future Without Project	Alt 1	0.2%	0.0%	-0.1%	0.0%	0.2%	0.1%	-0.1%	0.1%	0.2%	-0.1%	-0.3%	-0.1%
		Alt 2	0.2%	0.0%	-0.1%	0.0%	0.2%	0.1%	-0.1%	0.0%	0.2%	-0.1%	-0.2%	-0.1%
		Alt 4	0.2%	0.0%	-0.1%	0.0%	0.1%	0.1%	-0.1%	0.1%	0.2%	0.0%	-0.2%	0.1%
Wet	Future Without Project		13,422	20,688	42,896	54,024	60,889	51,882	39,128	32,139	23,615	19,702	18,842	24,779
	Percent Change from Future Without Project	Alt 1	0.2%	-0.2%	-0.1%	0.1%	0.0%	0.1%	-0.1%	0.0%	0.2%	-0.1%	0.1%	0.0%
		Alt 2	0.2%	-0.2%	-0.1%	0.1%	0.0%	0.1%	-0.1%	0.0%	0.2%	-0.1%	0.1%	0.0%
		Alt 4	0.3%	-0.2%	-0.1%	0.1%	0.0%	0.1%	-0.1%	0.0%	0.2%	0.0%	0.1%	0.0%
Above Normal	Future Without Project		11,271	16,089	23,952	41,416	48,278	46,146	25,901	21,237	15,991	21,637	18,950	19,593
	Percent Change from Future Without Project	Alt 1	-0.6%	0.2%	0.1%	0.0%	0.0%	0.3%	-0.2%	0.1%	0.0%	0.0%	0.1%	-0.2%
		Alt 2	-0.6%	0.6%	0.1%	0.0%	0.0%	0.3%	-0.2%	-0.1%	-0.1%	0.0%	0.1%	0.0%
		Alt 4	-0.6%	0.2%	0.1%	0.0%	0.0%	0.2%	-0.2%	0.2%	0.0%	0.1%	0.2%	0.1%
Below Normal	Future Without Project		11,273	13,347	19,538	22,995	32,536	23,512	17,280	13,879	13,853	20,853	14,932	12,334
	Percent Change from Future Without Project	Alt 1	0.8%	-0.3%	0.0%	0.0%	-0.2%	-0.2%	-0.3%	0.3%	0.0%	0.1%	-0.3%	0.4%
		Alt 2	0.8%	-0.3%	0.0%	0.0%	-0.2%	-0.2%	-0.3%	0.3%	0.1%	0.1%	-0.3%	0.4%
		Alt 4	0.8%	0.4%	0.1%	0.0%	-0.5%	-0.2%	-0.3%	0.3%	0.0%	0.2%	-0.3%	0.5%
Dry	Future Without Project		10,294	12,084	17,793	17,438	22,505	20,636	12,782	10,440	12,591	18,374	14,409	10,857
	Percent Change from Future Without Project	Alt 1	0.1%	0.1%	-0.1%	0.0%	1.4%	0.2%	0.0%	0.0%	0.5%	-0.2%	-1.3%	-0.8%
		Alt 2	0.0%	0.1%	-0.1%	0.0%	1.4%	0.2%	0.0%	0.0%	0.5%	-0.2%	-1.3%	-0.9%
		Alt 4	0.0%	-0.1%	-0.1%	0.0%	1.4%	0.2%	0.1%	0.0%	0.5%	-0.3%	-1.1%	-0.4%
Critical	Future Without Project		9,816	9,632	12,415	14,687	15,045	13,303	10,044	7,498	10,233	13,738	9,466	8,016
	Percent Change from Future Without Project	Alt 1	0.4%	0.6%	-0.5%	-0.6%	0.1%	0.0%	0.0%	0.1%	-0.2%	-0.3%	-0.1%	0.1%
		Alt 2	0.4%	0.5%	-0.4%	-0.6%	0.2%	0.0%	0.0%	0.1%	-0.2%	-0.3%	-0.1%	0.1%
		Alt 4	0.2%	0.7%	-0.7%	-0.9%	0.1%	-0.1%	0.0%	0.0%	-0.2%	0.1%	-0.3%	0.4%

San Joaquin River Flow at Vernalis

TABLE C7-21: SAN JOAQUIN RIVER FLOW AT VERNALIS (CFS) UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		2,815	2,484	3,246	4,704	6,285	6,547	6,399	6,418	4,601	3,194	2,052	2,299
	Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wet	Existing Condition		3,221	3,211	5,124	9,130	11,173	12,729	10,983	11,343	9,160	6,467	3,130	3,230
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Above Normal	Existing Condition		2,478	2,039	2,953	4,246	6,021	6,022	6,240	5,836	5,060	2,813	2,018	2,297
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Below Normal	Existing Condition		2,779	2,254	2,743	2,915	5,709	4,789	5,479	5,320	2,522	1,781	1,836	2,083
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dry	Existing Condition		2,822	2,247	2,109	2,071	2,585	2,462	3,541	3,443	1,646	1,330	1,365	1,770
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Critical	Existing Condition		2,302	1,979	1,759	1,610	2,181	1,858	1,989	2,074	1,123	929	1,032	1,330
	Percent Change from Existing Condition	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

TABLE C7-22: SAN JOAQUIN RIVER FLOW AT VERNALIS (CFS) UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		2,899	2,675	3,280	4,701	6,094	6,968	7,529	6,514	4,716	3,209	2,072	2,342
	Change from Future Without Project	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wet	Future Without Project		3,321	3,405	5,148	8,958	10,810	13,146	12,342	11,428	9,434	6,646	3,251	3,318
	Percent Change from Future Without Project	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Above Normal	Future Without Project		2,555	2,237	2,773	4,247	6,052	6,597	7,407	6,165	5,419	2,769	2,009	2,323
	Percent Change from Future Without Project	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Below Normal	Future Without Project		2,846	2,453	2,862	3,017	5,457	5,258	6,910	5,329	2,536	1,756	1,823	2,120
	Percent Change from Future Without Project	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dry	Future Without Project		2,906	2,431	2,199	2,161	2,536	2,885	4,635	3,500	1,584	1,214	1,313	1,773
	Percent Change from Future Without Project	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Critical	Future Without Project		2,377	2,153	1,849	1,705	1,997	2,077	2,288	2,117	1,028	887	1,006	1,358
	Percent Change from Future Without Project	Alt 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Alt 4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Delta Outflow

TABLE C7-23: DELTA OUTFLOW (CFS) UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		7,102	11,178	23,773	41,723	51,806	42,136	29,869	22,576	12,616	7,850	5,810	8,224
	Change from Existing Condition	Alt 1	-0.4%	-0.6%	0.1%	-0.2%	-0.1%	0.4%	-0.6%	-0.2%	0.1%	-0.6%	-0.1%	-0.2%
		Alt 2	-0.4%	-0.8%	0.1%	-0.2%	-0.1%	0.3%	-0.6%	-0.2%	0.0%	-0.5%	-0.2%	-0.2%
		Alt 4	-0.3%	-0.3%	0.1%	-0.2%	0.0%	0.2%	-0.5%	-0.1%	0.1%	-0.2%	0.0%	0.0%
Wet	Existing Condition		8,937	16,858	47,614	82,800	95,281	77,803	53,932	41,020	22,886	11,115	8,531	16,155
	Percent Change from Existing Condition	Alt 1	-0.3%	-0.6%	0.0%	-0.2%	0.0%	0.3%	-0.5%	-0.2%	0.2%	-1.1%	-0.3%	-0.3%
		Alt 2	-0.4%	-0.8%	0.0%	-0.2%	-0.1%	0.2%	-0.5%	-0.3%	0.1%	-0.9%	-0.4%	-0.3%
		Alt 4	-0.1%	-0.1%	0.0%	-0.1%	0.0%	0.1%	-0.4%	-0.1%	0.3%	-0.2%	0.0%	0.0%
Above Normal	Existing Condition		6,371	12,282	20,377	47,685	59,780	51,183	31,720	24,617	11,573	9,721	6,798	9,245
	Percent Change from Existing Condition	Alt 1	-0.3%	-0.2%	0.0%	-0.1%	-0.1%	0.2%	-0.7%	-0.2%	0.1%	-0.3%	0.2%	-0.1%
		Alt 2	-0.3%	-0.1%	-0.1%	-0.1%	-0.1%	0.2%	-0.7%	-0.1%	0.1%	-0.3%	0.2%	-0.1%
		Alt 4	0.2%	-0.2%	-0.1%	-0.1%	-0.1%	0.1%	-0.7%	-0.3%	0.1%	-0.4%	0.2%	-0.1%
Below Normal	Existing Condition		6,729	8,180	13,661	21,950	36,216	22,833	21,557	16,367	8,238	7,086	4,000	3,506
	Percent Change from Existing Condition	Alt 1	-1.0%	-1.4%	0.8%	-0.1%	-0.1%	0.5%	-0.6%	-0.4%	-0.4%	-0.1%	0.0%	0.5%
		Alt 2	-1.0%	-1.7%	0.8%	-0.1%	-0.1%	0.4%	-0.6%	-0.4%	-0.4%	-0.1%	0.0%	0.5%
		Alt 4	-0.8%	-1.3%	-0.3%	-0.1%	0.0%	0.4%	-0.6%	-0.4%	-0.2%	-0.1%	0.0%	0.8%
Dry	Existing Condition		6,388	8,152	11,108	14,386	21,537	19,809	14,090	10,472	6,751	5,041	3,825	3,240
	Percent Change from Existing Condition	Alt 1	0.0%	-0.9%	0.8%	-0.6%	-0.1%	0.9%	-0.9%	0.0%	-0.1%	0.0%	-0.8%	0.2%
		Alt 2	0.0%	-1.0%	0.8%	-0.6%	-0.1%	0.6%	-0.8%	0.0%	-0.1%	0.0%	-0.8%	0.2%
		Alt 4	-0.1%	-0.6%	1.0%	-0.3%	-0.1%	0.4%	-0.8%	0.0%	-0.2%	0.0%	-1.0%	0.0%
Critical	Existing Condition		5,360	5,804	6,305	10,833	13,230	11,823	9,248	5,970	5,316	4,009	4,019	3,000
	Percent Change from Existing Condition	Alt 1	-0.6%	-0.1%	-0.4%	0.7%	-0.1%	0.3%	-0.7%	0.0%	0.0%	0.0%	1.1%	0.0%
		Alt 2	-0.7%	-0.1%	-0.4%	0.4%	-0.1%	0.3%	-0.6%	0.0%	0.0%	0.0%	0.1%	0.0%
		Alt 4	-1.2%	-0.1%	1.0%	-1.0%	-0.1%	0.4%	-0.6%	0.1%	0.0%	-0.2%	0.7%	0.0%

TABLE C7-24: DELTA OUTFLOW (CFS) UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		7,142	11,334	23,912	41,921	51,793	42,484	30,921	22,479	12,549	7,917	5,847	8,199
	Change from Future Without Project	Alt 1	0.0%	-0.6%	-0.1%	-0.1%	0.2%	0.5%	-0.9%	-0.3%	0.3%	-0.5%	-0.5%	0.1%
		Alt 2	0.0%	-0.7%	0.0%	-0.1%	0.2%	0.4%	-0.9%	-0.3%	0.2%	-0.6%	-0.5%	0.0%
		Alt 4	0.1%	0.1%	-0.4%	0.0%	0.1%	0.3%	-0.8%	-0.3%	0.3%	-0.2%	-0.4%	0.2%
Wet	Future Without Project		8,876	17,093	47,578	82,693	94,969	78,124	55,098	40,804	22,695	11,154	8,439	16,064
	Percent Change from Future Without Project	Alt 1	0.1%	-1.0%	-0.1%	-0.1%	0.1%	0.4%	-0.6%	-0.3%	0.4%	-1.0%	-0.4%	-0.2%
		Alt 2	0.0%	-1.1%	-0.1%	-0.1%	0.0%	0.3%	-0.6%	-0.3%	0.3%	-1.1%	-0.4%	-0.2%
		Alt 4	0.2%	-0.1%	-0.1%	0.0%	0.0%	0.2%	-0.5%	-0.2%	0.4%	-0.3%	0.0%	0.0%
Above Normal	Future Without Project		6,644	12,270	20,387	47,496	60,429	51,468	32,806	24,894	11,583	9,743	6,804	9,264
	Percent Change from Future Without Project	Alt 1	0.0%	-0.4%	-0.2%	0.0%	0.0%	0.6%	-0.9%	-0.3%	0.2%	-0.2%	0.4%	-0.4%
		Alt 2	0.0%	-0.5%	-0.2%	0.0%	0.0%	0.6%	-0.9%	-0.5%	0.0%	-0.1%	0.4%	-0.4%
		Alt 4	0.0%	-0.4%	-0.3%	0.0%	0.0%	0.3%	-0.9%	-0.4%	0.2%	-0.1%	0.2%	-0.1%
Below Normal	Future Without Project		6,692	8,351	13,966	22,302	36,016	23,345	22,883	16,078	8,155	7,118	4,000	3,378
	Percent Change from Future Without Project	Alt 1	-0.3%	0.2%	-0.6%	0.0%	-0.2%	0.5%	-1.3%	-0.5%	0.4%	-0.4%	0.0%	2.6%
		Alt 2	-0.3%	0.0%	1.2%	0.0%	-0.2%	0.2%	-1.3%	-0.5%	0.5%	-0.4%	0.0%	2.6%
		Alt 4	0.4%	0.2%	-0.2%	0.0%	-0.4%	0.4%	-1.2%	-0.6%	0.4%	-0.4%	0.0%	1.6%
Dry	Future Without Project		6,515	8,161	11,706	14,589	21,623	20,151	15,340	10,426	6,708	5,168	3,971	3,310
	Percent Change from Future Without Project	Alt 1	0.3%	-1.0%	-0.1%	0.1%	1.7%	1.0%	-1.5%	-0.1%	0.2%	0.2%	-1.9%	0.3%
		Alt 2	0.3%	-1.0%	-0.1%	0.1%	1.7%	0.8%	-1.5%	-0.1%	0.2%	0.2%	-1.9%	0.3%
		Alt 4	0.1%	0.9%	-2.1%	0.2%	1.7%	0.7%	-1.5%	-0.1%	0.2%	0.2%	-2.4%	0.9%
Critical	Future Without Project		5,350	6,158	6,075	11,896	13,270	12,110	9,405	5,907	5,419	4,134	4,245	3,053
	Percent Change from Future Without Project	Alt 1	-0.4%	0.6%	0.2%	-1.3%	0.3%	0.5%	-0.8%	0.2%	0.0%	0.0%	-0.6%	0.5%
		Alt 2	-0.4%	0.6%	0.1%	-1.3%	0.3%	0.5%	-0.8%	0.2%	0.0%	0.0%	-0.6%	0.5%
		Alt 4	-0.3%	0.8%	0.2%	-1.6%	0.3%	0.5%	-0.8%	0.2%	-0.1%	0.0%	-0.5%	0.5%

X2 Location

TABLE C7-25: X2 LOCATION (PREVIOUS MONTH, KM) UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		84	85	82	75	67	61	62	64	68	75	81	85
	Change from Existing Condition	Alt 1	0.0	0.0	0.1	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
		Alt 4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Wet	Existing Condition		81	81	77	62	54	51	53	55	57	65	74	79
	Change from Existing Condition	Alt 1	0.1	0.0	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1
		Alt 2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
		Alt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Above Normal	Existing Condition		84	85	81	76	61	55	55	59	63	73	78	82
	Change from Existing Condition	Alt 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
		Alt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Below Normal	Existing Condition		85	85	85	81	72	61	64	65	69	77	82	87
	Change from Existing Condition	Alt 1	0.0	0.1	0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0
		Alt 2	0.0	0.1	0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0
		Alt 4	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Dry	Existing Condition		85	86	85	82	77	70	67	71	75	81	86	89
	Change from Existing Condition	Alt 1	0.0	0.0	0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.1	-0.1	0.0	0.0	-0.1	0.1	0.0	0.0	0.0	0.0
		Alt 4	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.1	0.0	0.0	0.0	0.0
Critical	Existing Condition		89	89	89	88	82	77	75	78	83	86	89	91
	Change from Existing Condition	Alt 1	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.1	0.0	0.0	0.0	-0.1
		Alt 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Alt 4	0.0	0.1	0.1	0.0	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0

TABLE C7-26: X2 LOCATION (PREVIOUS MONTH, KM) UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		84	84	82	75	67	61	61	64	68	75	81	85
	Change from Future Without Project	Alt 1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.1	0.1	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1	0.1	0.1	0.0	0.0	0.0
		Alt 4	0.0	0.0	0.0	0.0	0.1	0.0	-0.1	0.1	0.1	0.0	0.0	0.0
Wet	Future Without Project		81	81	77	62	54	51	53	55	57	65	74	79
	Change from Future Without Project	Alt 1	0.1	0.0	0.1	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	0.0	0.1
		Alt 2	0.1	0.0	0.1	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	0.1	0.1
		Alt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Above Normal	Future Without Project		84	84	81	75	61	55	55	59	63	73	78	82
	Change from Future Without Project	Alt 1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.1	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.1	0.0	0.0	0.0	-0.1	0.1	0.1	0.0	0.0	0.0
		Alt 4	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.1	0.0	0.0	0.0
Below Normal	Future Without Project		85	85	84	81	71	61	64	64	69	77	82	87
	Change from Future Without Project	Alt 1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.0	-0.2	-0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0
		Alt 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0
Dry	Future Without Project		85	86	85	81	76	70	67	70	75	81	86	89
	Change from Future Without Project	Alt 1	0.0	0.0	0.0	0.1	0.0	-0.3	-0.3	0.1	0.1	0.0	0.0	0.1
		Alt 2	0.0	0.0	0.0	0.1	0.0	-0.3	-0.3	0.1	0.1	0.0	0.0	0.1
		Alt 4	0.0	0.0	-0.1	0.2	0.2	-0.3	-0.2	0.1	0.1	0.0	0.0	0.1
Critical	Future Without Project		88	89	89	88	81	76	75	77	83	86	89	90
	Change from Future Without Project	Alt 1	0.0	0.0	0.0	0.0	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0
		Alt 2	0.0	0.0	0.0	0.0	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0
		Alt 4	0.0	0.0	-0.1	-0.1	0.2	0.1	-0.1	0.0	0.0	0.0	0.0	0.0

E:I Ratio

TABLE C7-27: EXPORT-TO-INFLOW RATIO (%) UNDER 2005 LEVEL OF DEVELOPMENT

Export/Inflow Ratio (%) under 2005 Level of Development
Long-term Monthly Average by Water Year Type

Water Year Type			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		45	40	39	24	19	18	7	9	23	45	50	51
	Change from Existing Condition	Alt 1	0.1	0.2	-0.2	0.2	0.1	-0.2	0.0	0.0	1.0	0.1	-0.2	-0.1
		Alt 2	0.2	0.2	-0.2	0.2	0.1	-0.1	0.0	0.0	1.0	-0.1	-0.1	-0.1
		Alt 4	0.2	0.1	-0.2	0.3	0.1	0.1	0.0	0.0	0.9	-0.1	-0.3	-0.1
Wet	Existing Condition		42	36	22	12	12	15	6	7	24	43	49	37
	Change from Existing Condition	Alt 1	0.0	0.2	0.0	0.1	0.1	-0.3	0.0	0.1	0.4	0.3	0.2	0.2
		Alt 2	0.1	0.3	0.0	0.1	0.1	-0.2	0.0	0.1	0.4	0.3	0.2	0.2
		Alt 4	-0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.1
Above Normal	Existing Condition		46	36	40	17	13	15	6	6	28	42	53	49
	Change from Existing Condition	Alt 1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	1.1	0.0	-0.1	-0.2
		Alt 2	0.3	0.1	0.2	0.1	0.1	0.0	0.0	0.0	1.1	0.0	-0.1	-0.2
		Alt 4	-0.2	0.1	0.2	0.0	0.1	0.1	0.0	0.0	1.1	0.0	-0.1	-0.2
Below Normal	Existing Condition		45	45	50	26	19	24	7	8	24	48	57	65
	Change from Existing Condition	Alt 1	0.7	0.3	-1.0	0.1	0.1	-0.1	0.0	0.0	1.4	0.0	-0.1	0.0
		Alt 2	0.7	0.5	-1.0	0.1	0.1	0.0	0.0	0.0	1.4	0.0	-0.1	0.0
		Alt 4	0.5	0.4	-0.3	0.1	0.1	0.0	0.0	0.0	1.3	-0.1	-0.1	-0.1
Dry	Existing Condition		45	41	48	35	26	20	9	11	21	52	57	61
	Change from Existing Condition	Alt 1	-0.2	0.2	-0.3	0.6	0.2	-0.4	0.0	0.0	1.8	-0.2	-0.3	-0.5
		Alt 2	-0.1	0.2	-0.3	0.6	0.2	-0.2	0.0	0.0	1.8	-0.2	-0.3	-0.5
		Alt 4	0.1	0.1	-0.4	0.3	0.2	0.1	0.0	0.0	1.3	-0.2	-0.2	-0.4
Critical	Existing Condition		47	45	47	36	28	20	11	15	15	39	32	50
	Change from Existing Condition	Alt 1	0.4	0.0	-0.1	-0.2	0.0	0.1	0.0	0.0	0.7	0.2	-0.7	0.0
		Alt 2	0.4	0.0	-0.1	0.1	0.0	0.1	0.0	0.0	0.7	-1.2	-0.3	0.0
		Alt 4	0.8	0.0	-0.8	1.0	0.1	0.1	0.0	0.0	0.7	0.0	-1.1	0.1

TABLE C7-28: EXPORT-TO-INFLOW RATIO (%) UNDER 2030 LEVEL OF DEVELOPMENT

Export/Inflow Ratio (%) under 2030 Level of Development
Long-term Monthly Average by Water Year Type

Water Year Type			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		43	39	39	23	19	19	8	9	23	45	50	50
	Change from Future Without Project	Alt 1	0.0	0.3	0.0	0.1	-0.2	-0.2	0.0	0.0	0.8	-0.1	0.0	-0.1
		Alt 2	0.1	0.4	-0.2	0.1	-0.2	-0.1	0.0	0.0	0.8	-0.1	0.0	-0.1
		Alt 4	0.0	0.0	0.2	0.1	-0.1	0.0	0.0	0.0	0.8	-0.1	0.0	-0.2
Wet	Future Without Project		42	35	22	12	12	15	6	7	25	43	49	37
	Change from Future Without Project	Alt 1	0.0	0.6	-0.2	0.0	0.0	-0.3	0.1	0.0	0.4	0.3	0.1	0.1
		Alt 2	0.1	0.7	-0.2	0.0	0.0	-0.2	0.1	0.1	0.4	0.3	0.1	0.1
		Alt 4	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.0	-0.1	-0.1
Above Normal	Future Without Project		43	37	40	17	13	16	6	7	28	42	53	49
	Change from Future Without Project	Alt 1	-0.4	0.5	0.2	0.0	0.0	-0.1	0.0	0.0	0.9	0.0	-0.1	0.0
		Alt 2	-0.3	0.8	0.2	0.0	0.0	-0.1	0.0	0.0	0.9	0.0	-0.1	0.1
		Alt 4	-0.6	0.5	0.1	-0.1	0.1	0.0	0.0	0.0	0.9	0.0	-0.1	-0.1
Below Normal	Future Without Project		45	45	50	26	19	24	7	8	25	49	58	65
	Change from Future Without Project	Alt 1	0.5	-0.3	0.4	0.0	0.0	-0.1	0.0	0.0	1.0	-0.1	-0.3	0.0
		Alt 2	0.5	-0.2	-0.8	0.0	0.0	0.1	0.0	0.0	1.0	-0.1	-0.3	0.0
		Alt 4	0.0	0.1	0.3	0.0	0.1	0.0	0.0	0.0	1.0	-0.1	-0.1	-0.1
Dry	Future Without Project		43	40	45	35	26	20	9	11	21	51	56	60
	Change from Future Without Project	Alt 1	-0.1	0.4	0.1	0.1	-0.7	-0.2	0.0	0.0	1.5	-0.4	-0.3	-0.5
		Alt 2	-0.1	0.4	0.2	0.1	-0.8	-0.1	0.0	0.0	1.5	-0.4	-0.3	-0.5
		Alt 4	0.2	-0.3	1.2	0.0	-0.7	0.0	0.1	0.0	1.5	-0.4	-0.2	-0.5
Critical	Future Without Project		46	42	51	33	28	20	11	15	15	40	29	50
	Change from Future Without Project	Alt 1	0.2	0.0	-0.3	0.6	-0.2	0.0	0.0	0.0	0.4	-0.4	0.4	-0.2
		Alt 2	0.2	0.0	-0.3	0.6	-0.2	0.0	0.0	0.0	0.4	-0.4	0.4	-0.2
		Alt 4	0.2	0.2	-0.4	0.8	-0.1	0.0	0.0	0.0	0.5	-0.1	0.4	0.0

Net Flow on Lower San Joaquin River (Qwest)

TABLE C7-29: NET FLOW (CFS) ON LOWER SAN JOAQUIN RIVER (QWEST) UNDER 2005 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Existing Condition		310	139	452	5,850	7,993	7,001	9,030	7,479	3,201	-2,094	-2,350	-1,662
	Change from Existing Condition	Alt 1	-21.9	-30.1	26.0	-66.3	-33.2	148.9	-151.4	-52.6	-33.3	-44.5	4.8	-4.4
		Alt 2	-25.6	-44.0	23.1	-78.1	-41.9	113.7	-154.4	-58.2	-41.1	-15.0	-2.9	-7.2
		Alt 4	-14.3	-3.9	18.2	-52.6	-21.7	67.1	-143.0	-41.4	-15.2	-14.2	6.9	0.6
Wet	Existing Condition		48	704	5,711	14,738	15,673	14,838	16,292	14,338	6,883	739	-1,813	-1,554
	Change from Existing Condition	Alt 1	-18.3	-90.5	-20.3	-124.1	-62.6	246.8	-203.7	-105.0	22.5	-106.6	-40.9	-57.2
		Alt 2	-28.7	-122.0	-24.3	-147.4	-83.0	182.0	-213.8	-124.5	-1.6	-100.2	-42.7	-66.7
		Alt 4	8.1	-71.5	-11.5	-57.3	-47.8	77.4	-175.8	-62.1	29.6	-23.4	-23.7	-36.1
Above Normal	Existing Condition		-8	205	-585	7,378	9,543	7,287	9,409	7,700	2,323	-1,955	-3,361	-1,802
	Change from Existing Condition	Alt 1	4.7	-40.4	-63.8	-42.0	-35.7	90.9	-171.3	-54.3	-43.8	-38.2	-8.7	21.3
		Alt 2	4.0	-30.9	-69.4	-41.8	-40.4	80.1	-172.4	-50.3	-44.5	-38.2	-9.0	23.6
		Alt 4	42.6	-27.8	-30.1	-42.2	-31.0	46.4	-181.0	-70.8	-44.4	-56.9	-32.0	2.5
Below Normal	Existing Condition		264	-730	-2,012	1,726	6,683	2,954	7,503	5,775	1,496	-4,065	-3,345	-2,641
	Change from Existing Condition	Alt 1	-61.2	81.3	199.7	-22.3	-18.0	103.3	-141.1	-62.6	-49.4	-13.0	-12.3	-57.0
		Alt 2	-60.2	59.0	197.9	-22.6	-21.9	84.3	-141.3	-62.6	-49.4	-13.1	-12.0	-56.7
		Alt 4	-35.1	50.0	43.3	-21.9	1.2	73.5	-144.0	-76.2	-47.1	-23.9	3.7	-65.9
Dry	Existing Condition		970	-99	-2,962	-333	1,678	2,443	4,275	3,007	1,029	-4,767	-3,421	-1,911
	Change from Existing Condition	Alt 1	2.2	-35.7	41.0	-84.7	-19.4	150.7	-125.1	-5.1	-98.4	3.9	24.1	82.7
		Alt 2	-1.7	-39.3	39.2	-84.8	-23.6	106.0	-124.3	-4.9	-98.4	2.7	25.6	81.3
		Alt 4	-23.4	56.8	38.1	-37.3	-15.6	63.3	-123.7	-3.3	-31.4	26.6	-1.3	94.1
Critical	Existing Condition		260	222	-1,911	-849	806	1,296	1,828	1,095	1,345	-2,061	264	-237
	Change from Existing Condition	Alt 1	-46.8	-10.7	-9.0	10.8	-5.3	45.5	-69.3	2.8	-27.5	-25.8	108.2	14.8
		Alt 2	-43.8	-14.9	-10.2	-19.1	-5.2	45.5	-68.0	3.0	-27.5	163.9	57.1	15.7
		Alt 4	-81.6	12.7	71.6	-111.8	8.5	63.5	-61.9	15.9	-21.8	-1.4	128.1	15.5

TABLE C7-30: NET FLOW (CFS) ON LOWER SAN JOAQUIN RIVER (QWEST) UNDER 2030 LEVEL OF DEVELOPMENT

Long-term Monthly Average by Water Year Type

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
All Water Years	Future Without Project		554	236	520	5,802	7,870	7,193	9,994	7,524	3,150	-1,937	-2,316	-1,631
	Change from Future Without Project	Alt 1	1.7	-63.7	-1.9	-35.0	29.5	188.7	-233.7	-72.9	16.8	-31.5	1.5	17.8
		Alt 2	-2.7	-80.1	38.5	-37.0	22.3	149.8	-237.8	-81.8	8.7	-34.0	1.3	11.5
		Alt 4	-4.1	1.3	-38.7	-1.9	28.8	113.9	-215.2	-72.9	18.4	-15.7	3.4	13.6
Wet	Future Without Project		205	738	5,905	14,418	15,376	14,977	17,289	14,365	6,888	843	-1,850	-1,600
	Change from Future Without Project	Alt 1	-22.5	-135.2	16.1	-74.4	18.9	291.6	-296.0	-116.9	47.5	-106.2	-43.0	-26.0
		Alt 2	-34.9	-150.4	13.2	-81.6	3.7	238.5	-308.4	-142.1	22.7	-117.7	-43.6	-36.0
		Alt 4	-28.8	10.5	16.1	2.5	4.7	135.6	-241.3	-90.0	55.3	-38.7	-15.6	-2.7
Above Normal	Future Without Project		378	79	-779	7,315	9,908	7,601	10,456	7,972	2,404	-1,956	-3,556	-1,845
	Change from Future Without Project	Alt 1	85.8	-81.5	-20.3	-10.4	10.1	172.4	-235.0	-96.1	17.1	-21.2	8.4	-10.7
		Alt 2	85.8	-141.9	-19.9	-10.5	2.1	140.4	-235.8	-102.5	12.8	-12.1	7.2	-34.6
		Alt 4	51.4	-68.7	-3.7	17.2	23.3	109.7	-248.7	-136.9	17.3	-21.8	-9.4	-21.6
Below Normal	Future Without Project		488	-754	-1,925	1,786	6,448	3,271	8,773	5,739	1,401	-4,019	-3,501	-2,660
	Change from Future Without Project	Alt 1	-52.7	71.4	-68.0	0.0	-5.2	151.9	-250.1	-113.9	27.0	-41.6	28.6	54.2
		Alt 2	-54.7	55.8	180.3	0.1	-11.7	80.5	-250.4	-114.0	28.9	-43.0	29.0	54.4
		Alt 4	-23.6	-84.0	-43.2	3.6	-9.3	121.8	-235.1	-132.6	27.7	-61.1	30.7	10.8
Dry	Future Without Project		1,314	83	-2,426	-359	1,589	2,599	5,360	3,020	876	-4,276	-3,182	-1,725
	Change from Future Without Project	Alt 1	40.5	-88.2	-5.8	5.5	91.0	161.2	-231.5	-15.5	-34.3	39.2	50.8	77.8
		Alt 2	39.9	-89.8	-6.6	5.5	91.0	137.5	-231.5	-15.3	-34.2	38.6	52.0	79.5
		Alt 4	10.7	106.2	-225.7	20.5	91.5	107.9	-228.4	-15.1	-34.2	51.4	21.5	66.2
Critical	Future Without Project		423	691	-2,574	-451	650	1,386	2,101	1,093	1,246	-2,002	593	-145
	Change from Future Without Project	Alt 1	-24.6	-11.7	60.5	-75.7	19.7	66.0	-81.4	7.6	14.6	25.5	-14.6	8.4
		Alt 2	-24.9	-10.3	53.7	-73.8	19.8	66.0	-81.4	7.6	14.7	27.5	-15.2	8.4
		Alt 4	-5.4	-6.1	93.5	-70.5	36.5	70.9	-81.9	11.1	7.5	-7.2	-1.6	8.4

Old and Middle River Flow Evaluation

Methodology

Estimates of net flow in Old and Middle rivers (OMR) were calculated from DSM2 studies and evaluated for the without project conditions and each of the project alternatives. This evaluation of net OMR flows was performed for the updated modeling analysis in the Final EIS/EIR.

The convention used in this analysis is that the positive direction of net flow in Old and Middle rivers is seaward flow, and that the negative direction of net flow in Old and Middle rivers is southward, towards the CVP and SWP export facilities. Hourly flow values were extracted from the DSM2 output at DSM2 channel 106 for Old River and DSM2 channels 144 and 145 for Middle River, which correspond to the current OMR flow measurement locations on Old and Middle Rivers per the USFWS and NMFS OCAP BOs. To determine net flow in Old and Middle rivers, the hourly flow values at these three locations are added[2] and then a Godin filter is applied to determine the tidally averaged flow (or the tidal residual).

Results

The assessment relies on a comparative analysis of net OMR flow for the water years 1976 through 1991 under without project conditions and with the proposed project for both 2005 level of development and 2030 level of development. Long-term average net OMR flow with and without each of the project alternatives for both the 2005 and 2030 level of development are presented in Section 4.3. Detailed results are presented below.

The tables and figures provided are described below in the sequence in which they appear for each set of conditions. Note that in some of the figures, net flow (i.e. the tidally filtered flow) is referred to as the tidal residual.

Tables of Old and Middle River Net Flow. The monthly average of the tidally filtered flow in Old and Middle rivers is presented for each month of the 16 year simulation, covering water years 1976 through 1991. At the bottom of the table, the long-term monthly averages are provided for the entire 16 year period, along with average monthly values for wetter water year types (wet, above normal and below normal water years), and for dryer water year types (dry and critical water years). The 16-year study period does not include sufficient years in each water year type category to present average values for each water year type (e.g. there is only one below normal water year from 1976 to 1991). Grouping the year types into wetter and dryer water year categories reduces the uneven weighting that would occur by taking long term averages over individual water year types.

A table is presented for the without project condition (Existing Condition for the 2005 level of development and Future Without Project for the 2030 level of development) and for each alternative. Following the same format, another table presents differences in the monthly averages

[2] Combined flow in Old and Middle rivers is equal to the flow in channel 106 plus the flow in channel 144 minus the flow in channel 145. The flow in channel 145 is subtracted because channel 145 is defined in the DSM2 model with positive flow to the south while channels 106 and 144 are defined with positive flow to the north.

of OMR net flow between the alternative and the without project conditions. In the table of differences, a positive value means that OMR net flow was increased in the seaward direction by the alternative, relative to the without project condition. For instance, if OMR net flow is positive (water is moving north towards the Bay on average) in the without project condition, a positive value in the difference table implies the net flow in Old and Middle rivers in the alternative is flowing that much more towards the Bay, while a negative value in the difference table in this case implies that the net seaward flow in Old and Middle rivers has decreased. Likewise, if OMR net flow is negative (water is moving south towards the SWP and CVP export pumps on average) in the without project condition, a positive value in the difference table implies that the net flow in Old and Middle rivers in the alternative, although likely still moving to the south, is moving less southward on average, while a negative value in the difference table implies the water is moving more towards the south..

Figures Comparing Each Alternative to the Without Project Condition. Four figures are provided for each project alternative to illustrate the change in OMR net flow compared to the without project condition.

- The first figure provides a direct comparison between the OMR tidal residuals (net flows) for the project alternative versus the without project condition for the months of January through June.

- The second figure plots time series of OMR tidal residual for the project alternative and without project condition; the changes between the alternative and without project condition (positive value indicates that OMR net flow seaward is increased by the alternative) are also shown.

- The third figure compares the long-term (16-year) monthly average OMR net flow for the without project condition and the project alternative.

- The forth figure shows the differences between the project alternative and the without project condition long term (16-year) monthly average OMR net flow. A positive value means that the alternative is increasing OMR net flow seaward.

2005 Level of Development

Existing Condition

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-7,045	-3,672	-9,274	-4,952	-4,907	-4,384	-359	-644	-2,136	-9,680	-6,895	-7,809
1977	-4,102	-4,469	-2,365	-4,780	-628	-659	-674	-640	-2,143	-1,973	-3,746	-3,998
1978	-1,827	-3,771	-5,113	-3,234	-5,040	-5,040	3,015	2,049	-4,686	-10,015	-10,259	-9,890
1979	-4,520	-5,578	-9,314	-5,080	-5,072	-4,291	1,195	1,299	-3,437	-10,922	-9,598	-8,359
1980	-7,874	-4,994	-9,538	-3,731	-928	-809	1,590	974	-4,294	-8,379	-9,718	-10,017
1981	-5,258	-4,409	-9,265	-4,908	-4,950	-2,673	284	-56	-3,544	-11,007	-10,548	-9,588
1982	-7,115	-9,672	-5,848	-4,511	-5,117	-1,334	7,256	4,720	-4,542	-7,919	-9,182	-7,220
1983	-7,036	-5,057	1,560	5,665	9,880	21,575	4,531	4,129	4,261	1,759	-6,905	-7,117
1984	-8,857	-2,514	8,104	-506	-4,067	-4,505	1,205	642	-3,470	-10,408	-10,213	-7,133
1985	-5,090	-9,283	-9,170	-4,957	-4,990	-3,674	256	-76	-3,526	-10,943	-9,673	-7,785
1986	-7,228	-6,998	-6,690	-2,812	-3,734	2,697	2,915	2,155	-4,099	-10,451	-8,121	-4,792
1987	-2,706	-3,489	-8,607	-4,867	-4,872	-2,737	-163	-240	-3,528	-10,858	-3,689	-4,896
1988	-4,409	-4,439	-5,485	-3,276	-86	-860	-443	-693	-2,234	-8,972	-3,299	-4,098
1989	-3,641	-5,636	-3,939	-4,937	-750	-1,154	-970	-1,347	-5,070	-11,115	-10,494	-7,401
1990	-6,600	-7,017	-4,142	-4,861	-3,461	-1,222	-965	-691	-2,387	-8,417	-4,832	-4,000
1991	-3,239	-3,985	-2,973	-852	-1,959	-904	-907	-1,171	-3,533	-9,457	-3,769	-3,929
Avg	-5,409	-5,312	-5,129	-3,288	-2,543	-623	1,110	651	-3,023	-8,672	-7,559	-6,752
W/AN/BN	-6,351	-5,512	-3,834	-2,030	-2,011	1,185	3,101	2,281	-2,895	-8,048	-9,142	-7,790
D/C	-4,677	-5,156	-6,136	-4,266	-2,956	-2,030	-438	-618	-3,122	-9,158	-6,327	-5,945

Alternative 1

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

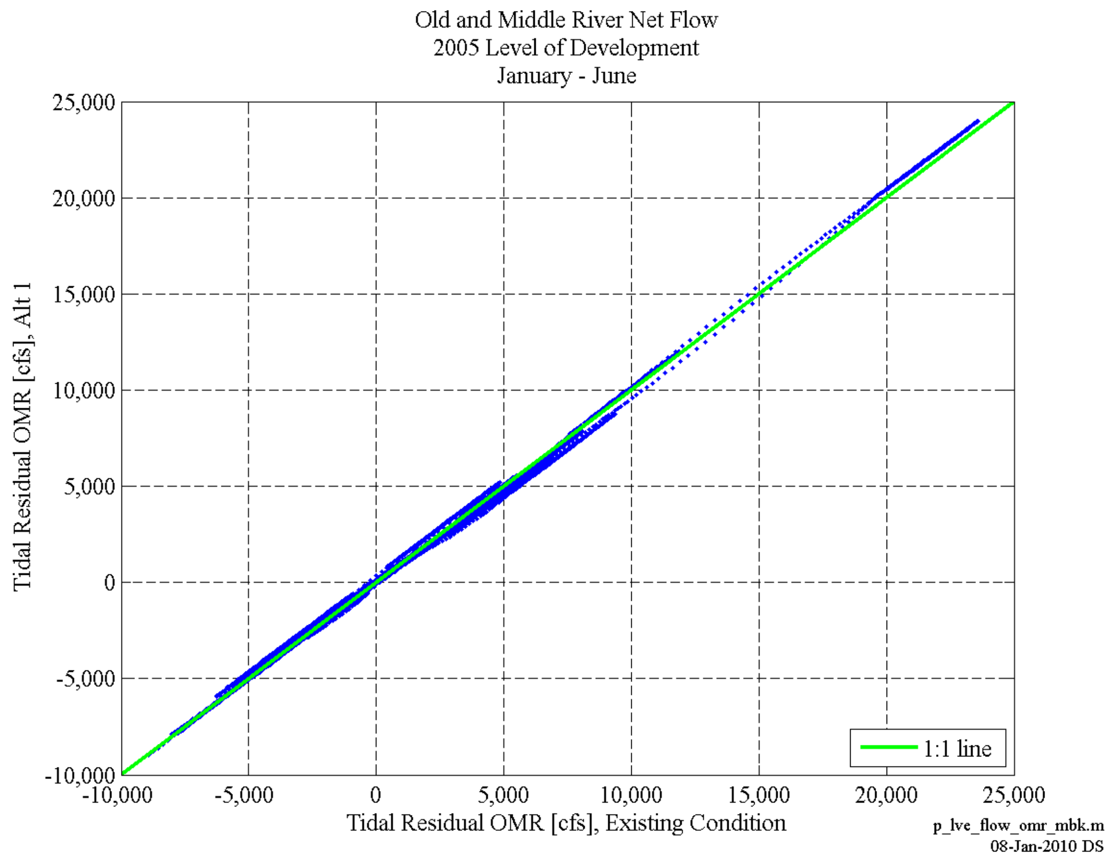
Alternative 1
2005 Level of Development

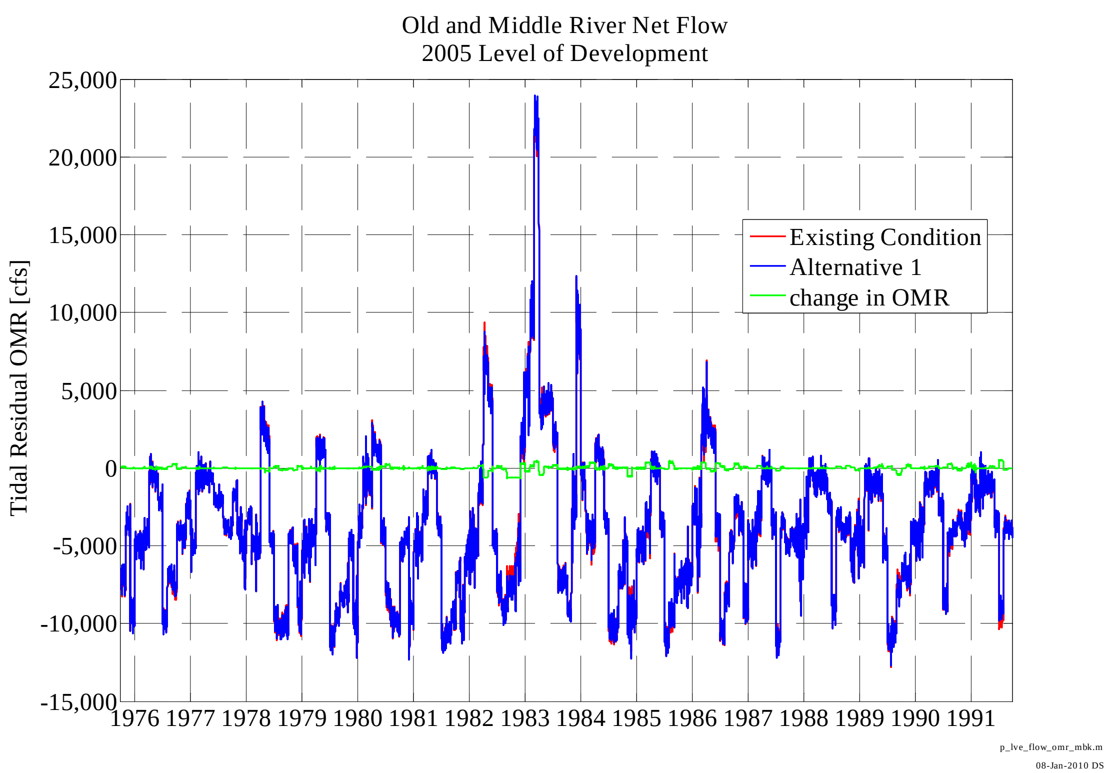
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,979	-3,676	-9,277	-4,955	-4,909	-4,380	-370	-655	-2,137	-9,725	-6,804	-7,568
1977	-4,138	-4,412	-2,375	-4,780	-633	-657	-674	-643	-2,142	-1,973	-3,682	-3,998
1978	-1,830	-3,772	-5,112	-3,235	-5,040	-5,040	2,987	1,863	-4,686	-9,911	-10,382	-9,987
1979	-4,542	-5,706	-9,202	-5,085	-5,074	-4,286	1,095	1,289	-3,438	-10,940	-9,595	-8,374
1980	-7,883	-5,000	-9,566	-3,736	-870	-728	1,498	953	-4,211	-8,175	-9,719	-10,017
1981	-5,250	-4,411	-9,269	-4,912	-4,952	-2,669	264	-66	-3,542	-11,048	-10,554	-9,564
1982	-7,118	-9,729	-5,849	-4,515	-5,118	-1,204	6,658	4,531	-4,543	-7,817	-9,242	-7,836
1983	-7,666	-5,683	1,836	5,462	10,014	21,987	4,107	4,213	4,309	1,931	-6,959	-7,164
1984	-8,896	-2,544	8,179	-471	-3,975	-4,175	1,166	623	-3,466	-10,201	-10,209	-7,123
1985	-5,064	-9,807	-9,177	-4,961	-4,991	-3,325	251	-76	-3,531	-11,003	-9,308	-7,816
1986	-7,228	-7,002	-6,711	-2,821	-3,727	3,067	2,884	1,970	-3,803	-10,345	-8,239	-4,845
1987	-2,442	-3,482	-8,528	-4,870	-4,873	-2,583	-168	-245	-3,525	-11,033	-3,646	-4,925
1988	-4,412	-4,442	-5,499	-3,277	-90	-855	-449	-697	-2,236	-8,963	-3,206	-4,103
1989	-3,509	-5,611	-4,084	-4,940	-752	-1,152	-944	-1,222	-5,070	-11,007	-10,625	-7,809
1990	-6,607	-6,849	-4,142	-4,863	-3,457	-1,218	-887	-579	-2,385	-8,386	-4,585	-4,003
1991	-3,383	-3,985	-2,826	-764	-1,974	-904	-910	-1,086	-3,529	-8,979	-3,864	-3,930
Avg	-5,434	-5,382	-5,100	-3,295	-2,526	-508	1,032	636	-2,996	-8,599	-7,539	-6,816
W/AN/BN	-6,452	-5,634	-3,775	-2,057	-1,970	1,374	2,914	2,206	-2,834	-7,923	-9,192	-7,906
D/C	-4,643	-5,186	-6,131	-4,258	-2,959	-1,971	-432	-586	-3,122	-9,124	-6,253	-5,968

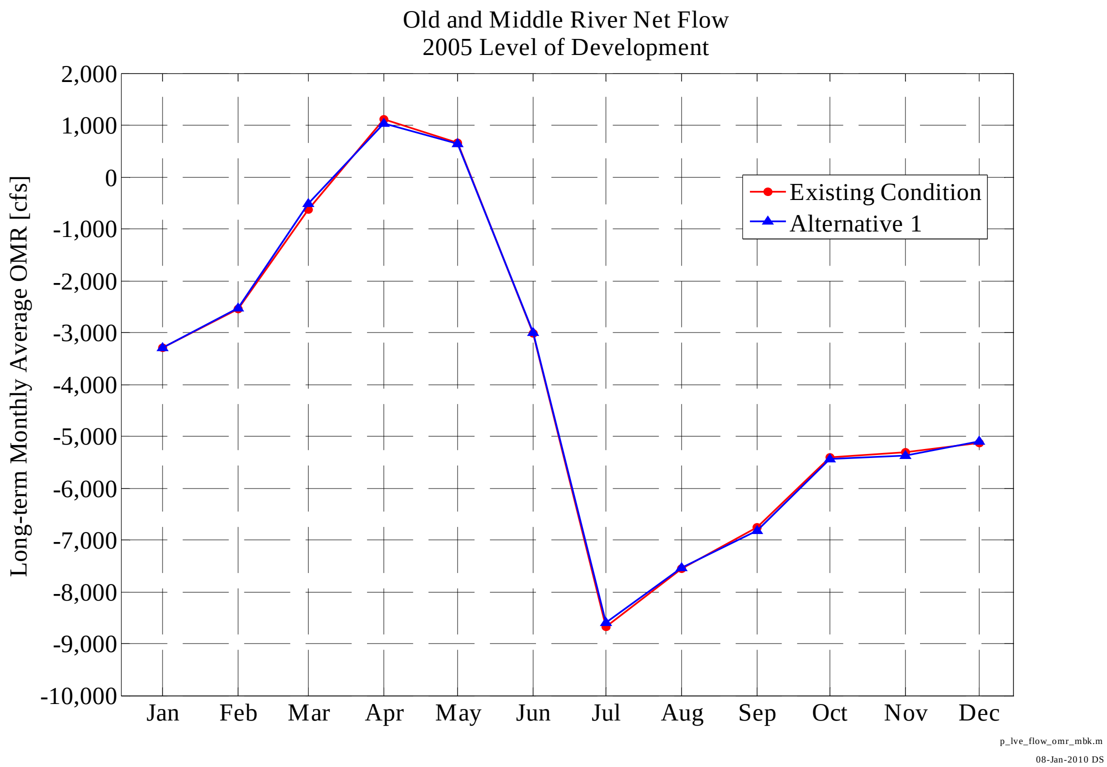
Change in Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

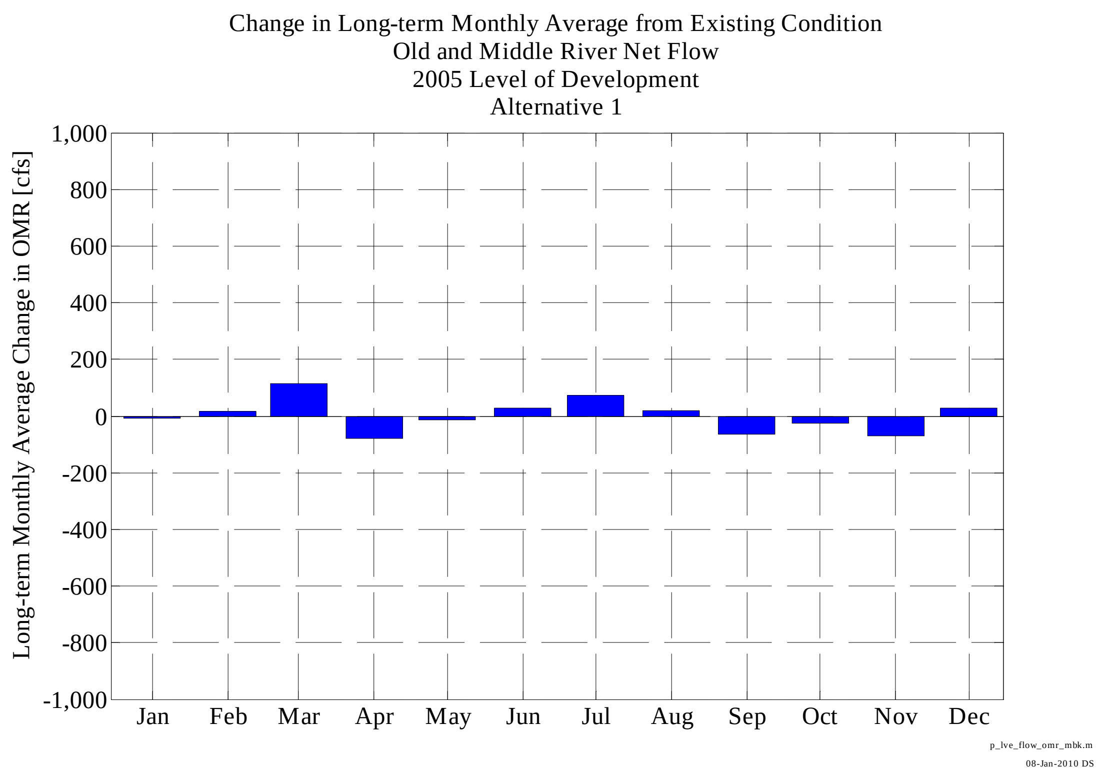
Alternative 1 - Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	66	-3	-3	-2	-2	4	-11	-11	-1	-46	91	242
1977	-36	57	-9	-1	-5	2	0	-3	1	0	64	1
1978	-3	-1	2	-1	-1	0	-27	-186	0	104	-122	-97
1979	-23	-128	112	-5	-2	4	-100	-10	-1	-18	2	-15
1980	-9	-6	-28	-5	58	81	-92	-20	83	203	-1	0
1981	8	-2	-4	-4	-2	4	-20	-10	2	-41	-6	24
1982	-3	-58	-1	-3	-2	131	-598	-189	0	102	-60	-616
1983	-630	-626	275	-203	134	412	-424	83	48	172	-54	-47
1984	-39	-30	75	34	92	330	-39	-19	3	206	4	11
1985	26	-523	-7	-4	-1	349	-5	1	-5	-60	366	-32
1986	0	-4	-21	-9	7	370	-31	-184	296	106	-118	-53
1987	264	7	79	-3	-1	154	-5	-5	3	-176	43	-29
1988	-3	-3	-14	-2	-4	6	-6	-4	-2	9	93	-5
1989	132	25	-145	-3	-2	2	27	126	0	109	-131	-407
1990	-8	167	0	-2	4	4	78	111	2	31	247	-2
1991	-144	0	148	88	-15	0	-4	84	5	478	-95	-1
Avg	-25	-70	29	-8	16	116	-79	-15	27	74	20	-64
W/AN/BN	-101	-122	59	-27	41	190	-187	-75	61	125	-50	-117
D/C	34	-31	5	8	-3	58	6	32	1	34	75	-23


Old and Middle River Net Flow
2005 Level of Development
January - June
Tidal Residual OMR [cfs], Alt 1
Tidal Residual OMR [cfs], Existing Condition
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-10,000
-5,000
0
5,000
10,000
15,000
20,000
25,000
1:1 line
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2005 Level of Development
Tidal Residual OMR [cfs]
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 1
change in OMR
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2005 Level of Development
Long-term Monthly Average OMR [cfs]
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 1
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Change in Long-term Monthly Average from Existing Condition
Old and Middle River Net Flow
2005 Level of Development
Alternative 1
Long-term Monthly Average Change in OMR [cfs]
1,000
800
600
400
200
0
-200
-400
-600
-800
-1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS

Alternative 2

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

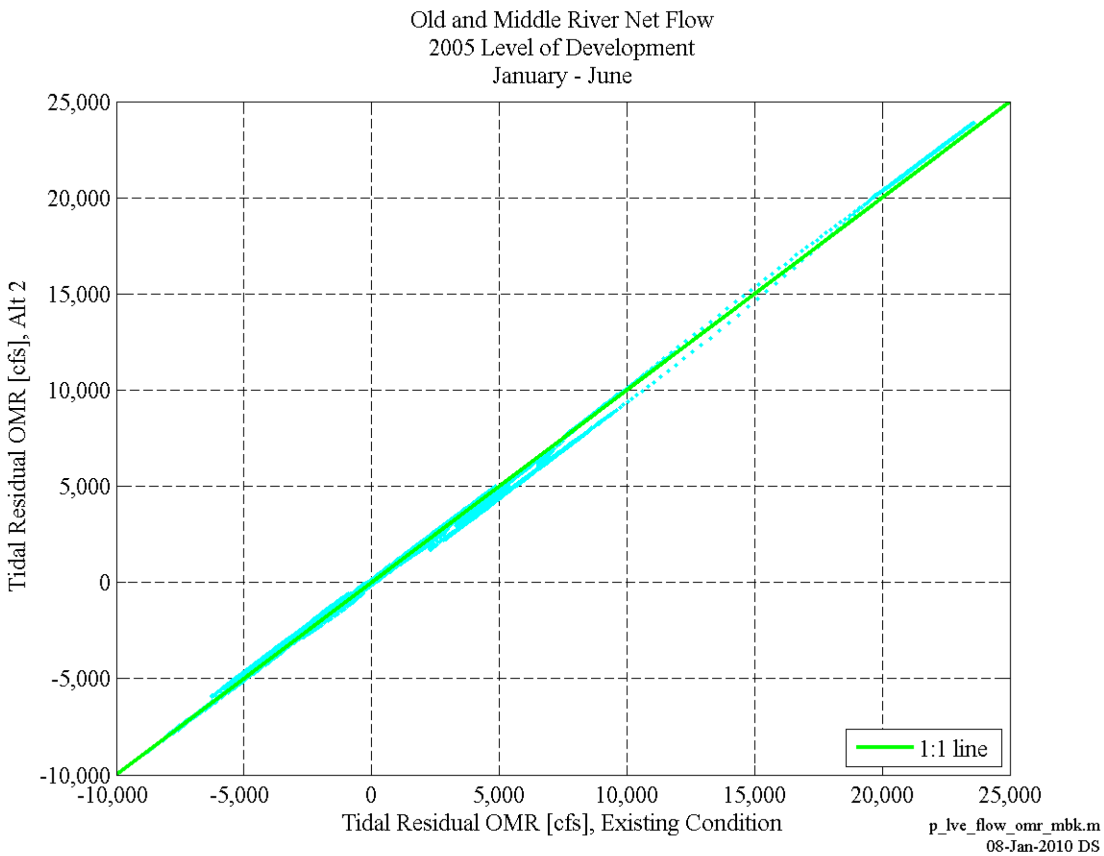
Alternative 2
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,930	-3,675	-9,277	-4,955	-4,909	-4,380	-370	-655	-2,137	-9,724	-6,802	-7,559
1977	-4,139	-4,431	-2,398	-4,781	-633	-656	-674	-643	-2,142	-1,973	-3,706	-3,998
1978	-1,830	-3,772	-5,115	-3,235	-5,040	-5,040	2,987	1,863	-4,686	-9,911	-10,382	-9,987
1979	-4,542	-5,707	-9,202	-5,085	-5,074	-4,286	1,095	1,289	-3,438	-10,940	-9,596	-8,371
1980	-7,880	-4,999	-9,566	-3,736	-918	-728	1,496	953	-4,211	-8,175	-9,719	-10,017
1981	-5,250	-4,411	-9,269	-4,912	-4,952	-2,669	264	-66	-3,542	-11,048	-10,554	-9,564
1982	-7,118	-9,853	-5,851	-4,515	-5,118	-1,204	6,633	4,530	-4,543	-7,818	-9,243	-7,835
1983	-7,666	-5,683	1,835	5,089	9,948	21,912	3,911	3,777	4,180	1,908	-6,974	-7,377
1984	-9,157	-2,741	8,176	-616	-4,035	-4,181	1,166	623	-3,466	-10,202	-10,209	-7,123
1985	-5,064	-9,906	-9,178	-4,960	-4,991	-3,354	251	-76	-3,531	-11,006	-9,308	-7,815
1986	-7,228	-7,002	-6,711	-2,820	-3,771	2,849	2,883	1,970	-3,803	-10,345	-8,239	-4,844
1987	-2,498	-3,484	-8,528	-4,870	-4,873	-2,734	-170	-245	-3,525	-11,032	-3,632	-4,922
1988	-4,412	-4,442	-5,497	-3,277	-90	-855	-449	-697	-2,236	-8,932	-3,180	-4,103
1989	-3,539	-5,590	-4,111	-4,941	-752	-1,152	-944	-1,222	-5,070	-11,010	-10,629	-7,820
1990	-6,607	-6,840	-4,142	-4,863	-3,457	-1,218	-887	-579	-2,385	-8,389	-4,577	-4,002
1991	-3,388	-3,985	-2,819	-764	-1,974	-904	-910	-1,086	-3,529	-8,997	-3,858	-3,930
Avg	-5,453	-5,408	-5,103	-3,328	-2,540	-538	1,018	609	-3,004	-8,600	-7,538	-6,829
W/AN/BN	-6,489	-5,680	-3,776	-2,131	-2,001	1,332	2,881	2,144	-2,852	-7,926	-9,195	-7,936
D/C	-4,647	-5,196	-6,136	-4,258	-2,959	-1,991	-432	-586	-3,122	-9,123	-6,250	-5,968

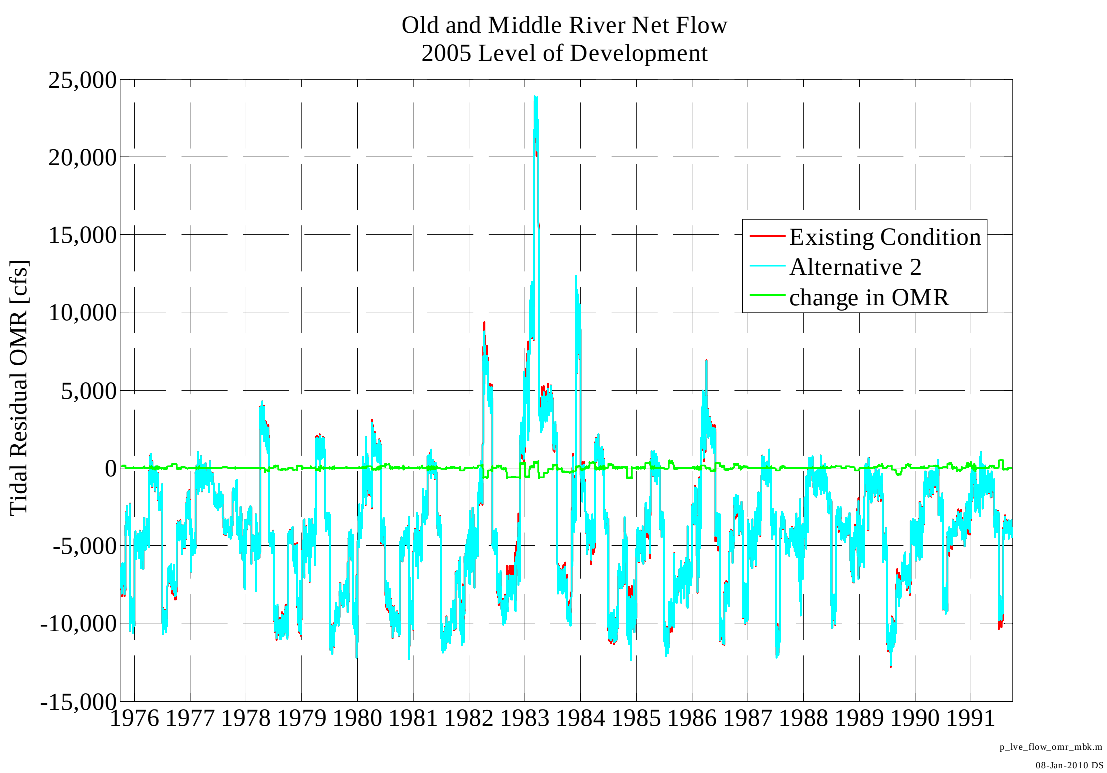
Change in Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

Alternative 2 - Existing Condition
2005 Level of Development

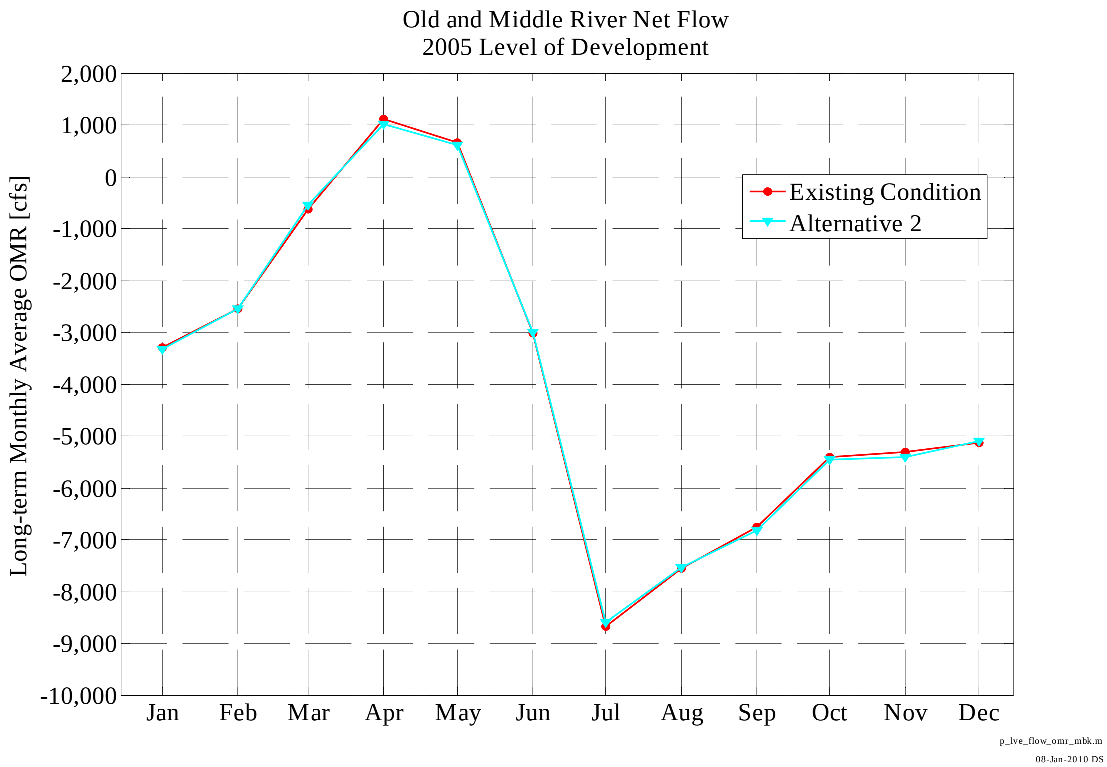
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	115	-3	-3	-2	-2	4	-11	-11	-1	-45	93	250
1977	-37	38	-33	-1	-5	2	0	-3	1	0	40	1
1978	-3	-1	-1	-1	-1	0	-27	-186	0	104	-122	-97
1979	-23	-129	112	-5	-2	4	-101	-10	-1	-18	2	-13
1980	-5	-5	-28	-5	10	81	-94	-20	83	203	-1	0
1981	9	-2	-4	-4	-2	4	-20	-10	2	-41	-6	24
1982	-3	-182	-3	-3	-2	131	-623	-189	0	101	-61	-615
1983	-630	-626	275	-576	68	337	-620	-352	-81	149	-69	-260
1984	-300	-227	72	-110	32	324	-39	-19	4	205	4	11
1985	26	-623	-7	-3	-1	320	-6	1	-5	-63	365	-30
1986	0	-4	-21	-8	-37	151	-33	-184	296	106	-118	-52
1987	208	6	78	-3	-1	3	-7	-5	3	-174	57	-26
1988	-3	-3	-12	-2	-4	5	-6	-4	-2	40	120	-5
1989	101	46	-172	-4	-2	2	27	126	0	105	-135	-418
1990	-8	176	0	-2	4	4	78	111	2	29	255	-2
1991	-149	0	154	88	-15	0	-4	84	5	460	-89	-1
Avg	-44	-96	25	-40	2	86	-93	-42	19	73	21	-77
W/AN/BN	-138	-168	58	-101	10	147	-220	-137	43	122	-52	-147
D/C	29	-40	0	8	-3	38	6	32	1	35	78	-23

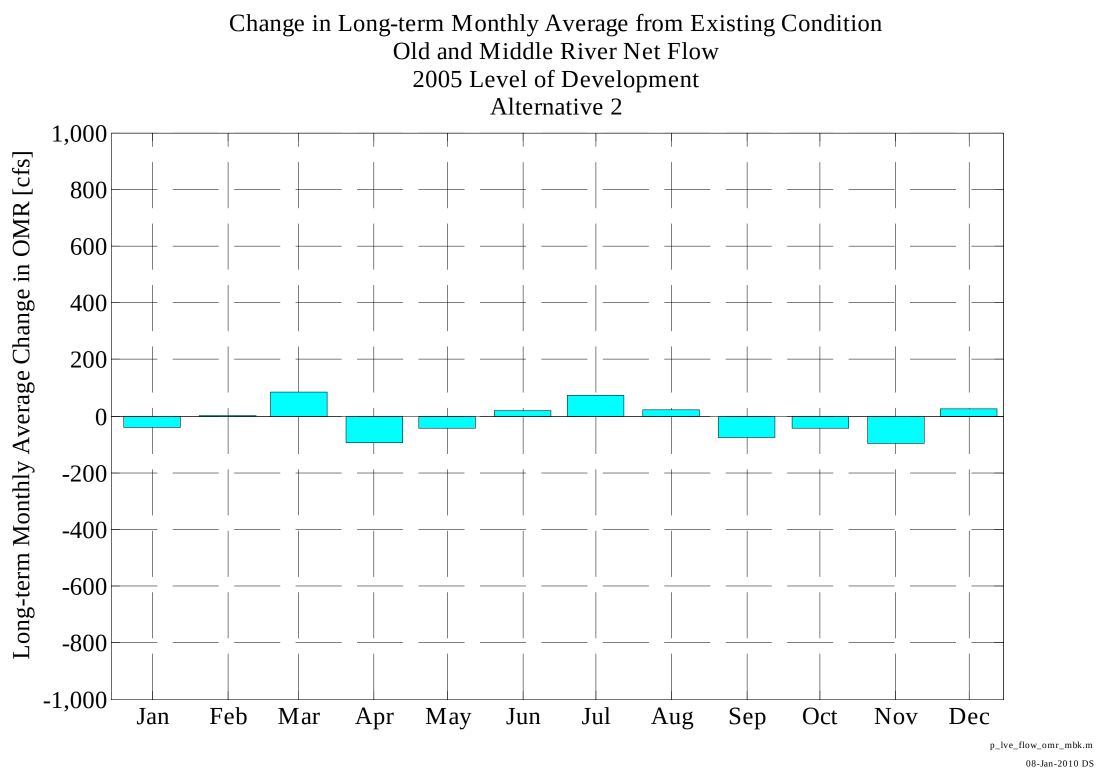


Old and Middle River Net Flow
2005 Level of Development
January - June
Tidal Residual OMR [cfs], Alt 2
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-10,000
-5,000
0
5,000
10,000
15,000
20,000
25,000
Tidal Residual OMR [cfs], Existing Condition
1:1 line
p_lve_flow_omr_mbk.m
08-Jan-2010 DS



Old and Middle River Net Flow
2005 Level of Development
Tidal Residual OMR [cfs]
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Existing Condition
Alternative 2
change in OMR
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2005 Level of Development
Long-term Monthly Average OMR [cfs]
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Existing Condition
Alternative 2
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Change in Long-term Monthly Average from Existing Condition
Old and Middle River Net Flow
2005 Level of Development
Alternative 2
Long-term Monthly Average Change in OMR [cfs]
1,000
800
600
400
200
0
-200
-400
-600
-800
-1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS

Alternative 4

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

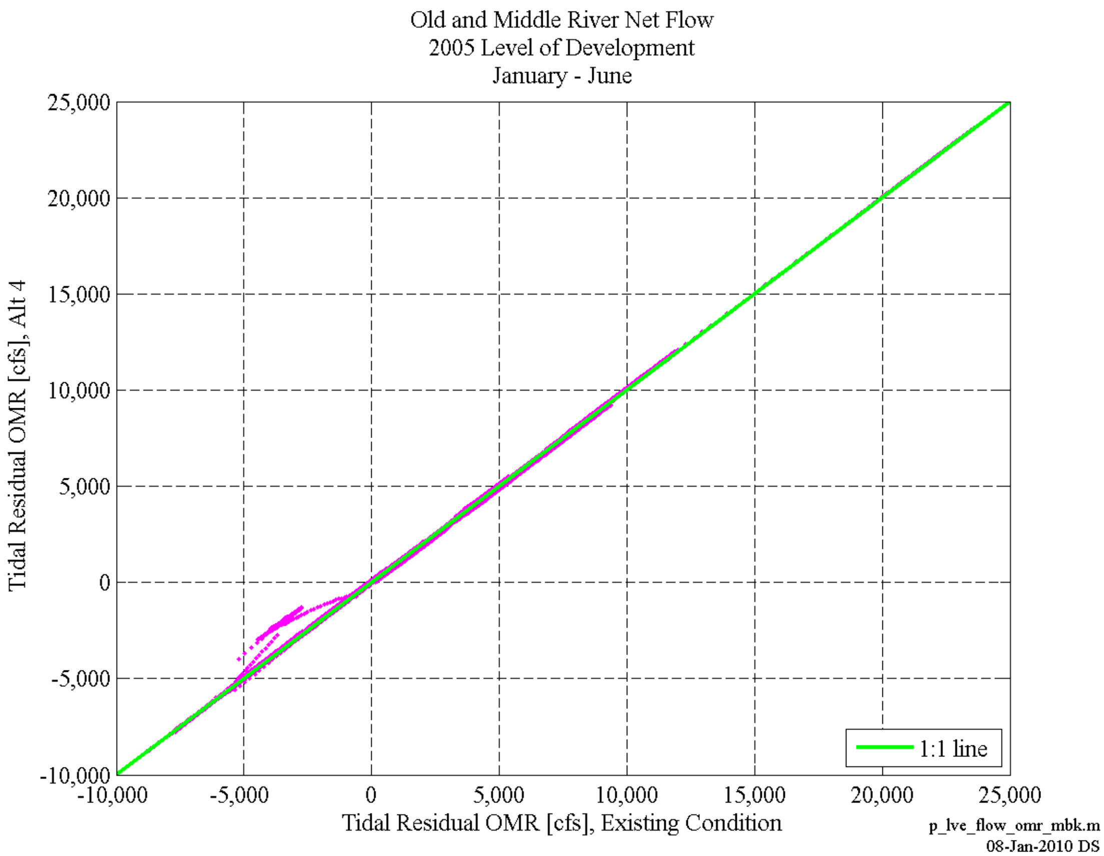
Alternative 4
2005 Level of Development

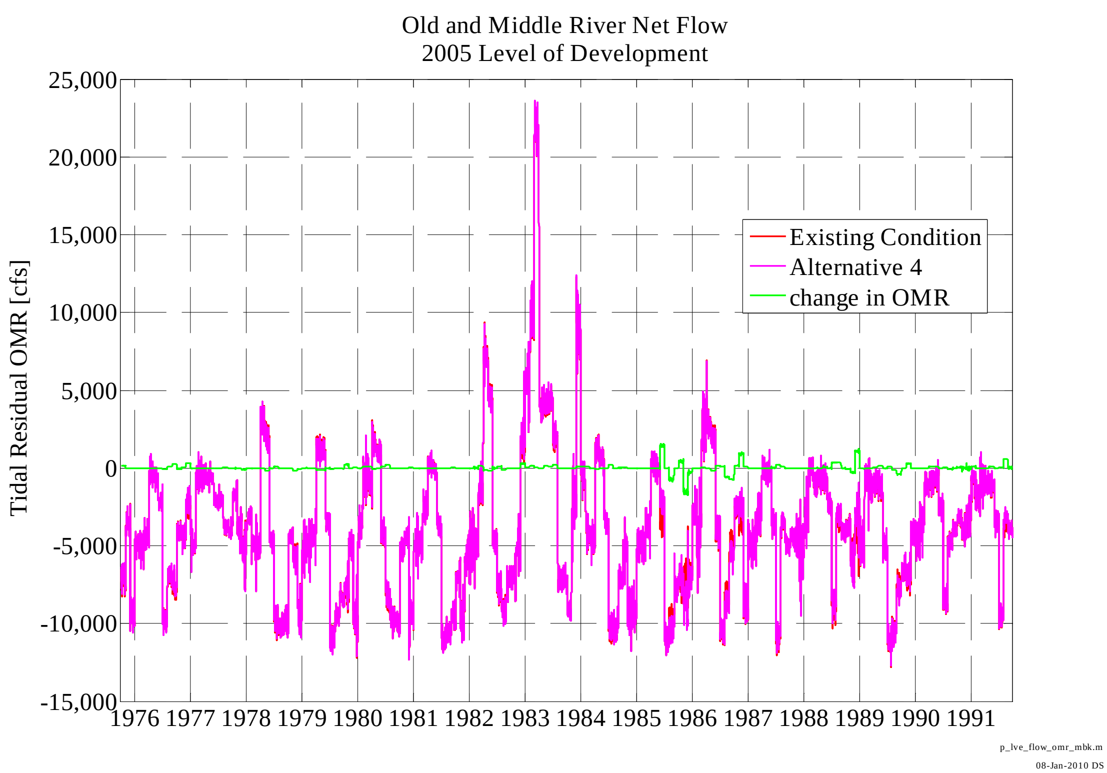
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,918	-3,681	-9,274	-4,953	-4,907	-4,382	-362	-644	-2,136	-9,723	-6,801	-7,562
1977	-4,138	-4,431	-2,075	-4,776	-624	-659	-672	-641	-2,143	-1,973	-3,712	-3,998
1978	-1,826	-3,771	-5,206	-3,236	-5,040	-5,041	2,988	1,890	-4,690	-9,908	-10,259	-9,890
1979	-4,539	-5,764	-9,383	-5,081	-5,072	-4,290	1,057	1,159	-3,437	-10,975	-9,595	-8,389
1980	-7,662	-4,999	-9,475	-3,733	-852	-710	1,503	958	-4,215	-8,180	-9,721	-10,020
1981	-5,256	-4,410	-9,235	-4,908	-4,950	-2,672	281	-69	-3,542	-11,009	-10,563	-9,569
1982	-7,118	-9,684	-5,847	-4,513	-5,121	-1,203	7,120	4,560	-4,545	-7,814	-9,312	-7,223
1983	-7,037	-5,057	1,844	5,708	10,004	21,605	4,528	4,265	4,344	1,956	-6,908	-7,119
1984	-8,858	-2,513	8,181	-431	-3,980	-4,503	1,156	626	-3,469	-10,221	-10,216	-7,120
1985	-5,071	-9,283	-9,170	-4,958	-4,992	-3,673	252	-76	-2,097	-10,924	-10,407	-7,811
1986	-6,817	-8,484	-6,986	-2,816	-3,725	2,733	2,883	1,995	-3,967	-10,346	-8,696	-5,516
1987	-2,556	-2,573	-8,520	-4,867	-4,873	-2,735	-166	-240	-3,525	-10,671	-3,599	-4,896
1988	-4,410	-4,438	-5,490	-3,276	-85	-859	-446	-635	-2,231	-8,628	-2,955	-4,097
1989	-3,694	-5,914	-2,866	-4,923	-772	-1,154	-937	-1,212	-5,066	-11,014	-10,599	-7,797
1990	-6,609	-6,747	-4,138	-4,862	-3,458	-1,222	-886	-576	-2,385	-8,375	-4,884	-4,006
1991	-3,181	-3,990	-2,979	-744	-1,958	-904	-906	-1,080	-3,533	-9,421	-3,204	-3,908
Avg	-5,356	-5,359	-5,039	-3,273	-2,525	-604	1,087	643	-2,915	-8,577	-7,590	-6,808
W/AN/BN	-6,265	-5,753	-3,839	-2,014	-1,969	1,227	3,033	2,208	-2,854	-7,927	-9,244	-7,897
D/C	-4,648	-5,052	-5,972	-4,252	-2,957	-2,029	-427	-575	-2,962	-9,082	-6,303	-5,960

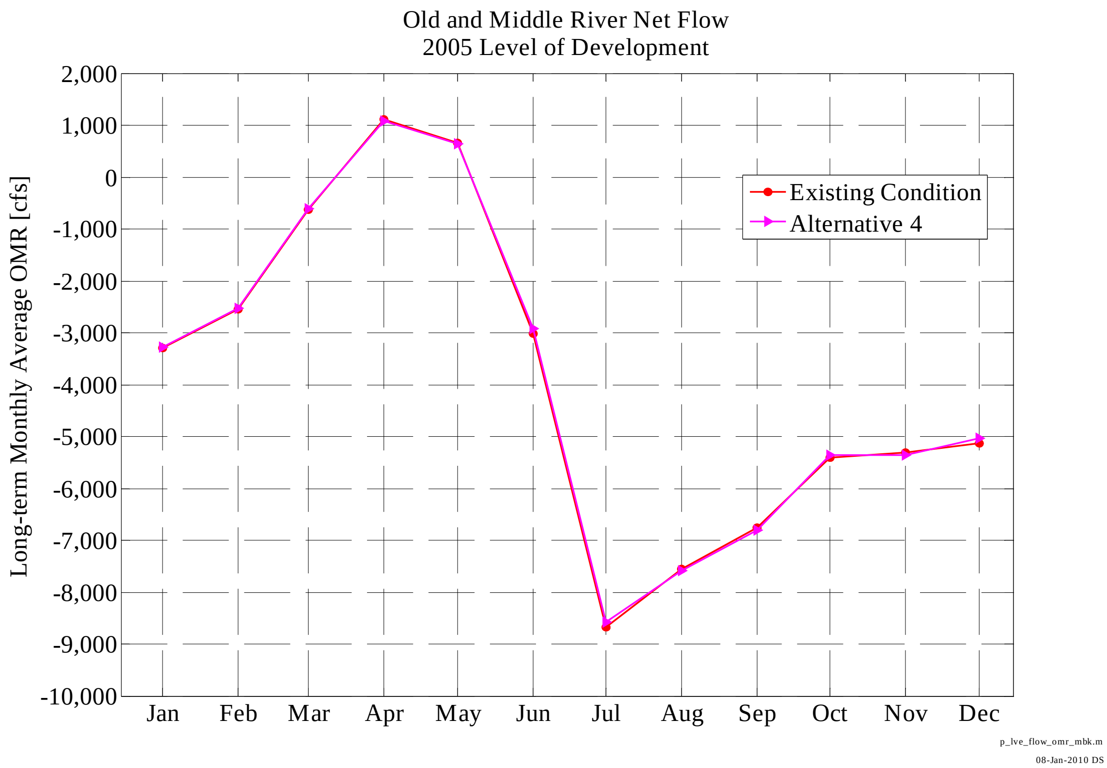
Change in Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

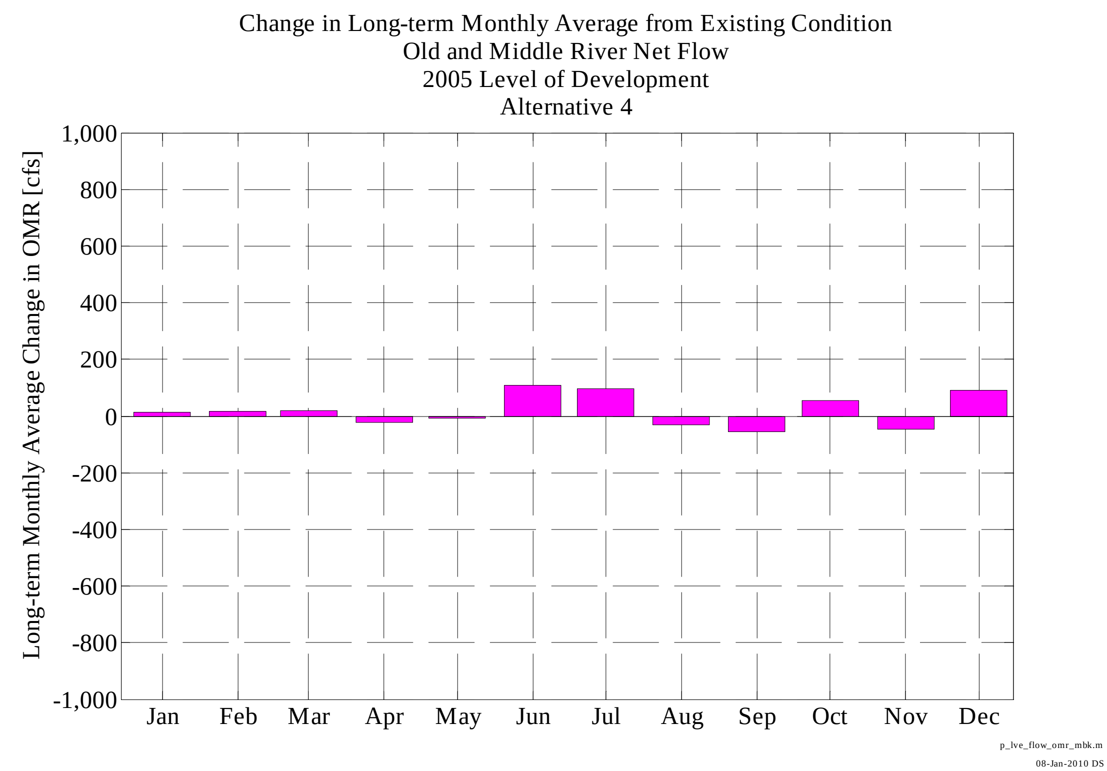
Alternative 4 - Existing Condition
2005 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	127	-9	0	0	0	2	-3	0	0	-43	94	248
1977	-36	38	291	4	4	0	1	-1	0	0	34	1
1978	1	0	-93	-1	0	0	-27	-159	-3	108	0	0
1979	-20	-186	-70	-1	0	1	-138	-141	0	-52	2	-30
1980	212	-5	63	-2	76	99	-87	-16	79	199	-3	-3
1981	2	-1	31	0	0	1	-4	-13	2	-2	-15	19
1982	-3	-13	1	-1	-4	131	-137	-160	-3	105	-130	-3
1983	0	0	284	43	123	30	-2	136	83	197	-3	-2
1984	-1	2	77	75	87	2	-49	-16	1	187	-3	13
1985	19	0	0	-1	-2	1	-4	1	1,429	19	-733	-26
1986	411	-1,486	-296	-4	9	36	-33	-159	132	105	-574	-724
1987	150	916	87	0	0	2	-3	0	3	187	90	1
1988	-1	1	-5	0	1	1	-3	58	4	344	345	1
1989	-53	-278	1,073	14	-22	0	33	135	4	101	-106	-396
1990	-9	270	4	-1	4	0	78	115	2	43	-52	-6
1991	58	-5	-6	108	1	0	1	91	0	36	565	21
Avg	54	-47	90	15	17	19	-23	-8	108	96	-31	-55
W/AN/BN	86	-241	-5	16	42	43	-68	-74	41	121	-102	-107
D/C	29	104	164	14	-2	1	11	43	160	76	25	-15


Old and Middle River Net Flow
2005 Level of Development
January - June
Tidal Residual OMR [cfs], Alt 4
Tidal Residual OMR [cfs], Existing Condition
1:1 line
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2005 Level of Development
Tidal Residual OMR [cfs]
Existing Condition
Alternative 4
change in OMR
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2005 Level of Development
Long-term Monthly Average OMR [cfs]
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
Existing Condition
Alternative 4
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Change in Long-term Monthly Average from Existing Condition
Old and Middle River Net Flow
2005 Level of Development
Alternative 4
Long-term Monthly Average Change in OMR [cfs]
1,000
800
600
400
200
0
-200
-400
-600
-800
-1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS

2030 Level of Development

Existing Condition

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,378	-3,660	-8,471	-4,956	-4,919	-4,405	-356	-629	-2,278	-9,045	-6,868	-6,808
1977	-5,056	-3,271	-7,184	-1,366	-699	-826	-673	-438	-2,563	-4,983	-2,118	-3,863
1978	-2,538	-3,748	-4,972	-3,229	-5,051	-5,056	3,047	1,888	-4,680	-9,901	-10,309	-9,994
1979	-4,075	-5,830	-9,255	-5,086	-5,081	-4,287	1,453	1,457	-3,433	-11,075	-9,706	-8,493
1980	-7,719	-5,129	-9,840	-3,758	1,593	450	1,604	1,283	-3,864	-8,156	-9,762	-9,947
1981	-3,993	-3,030	-9,573	-4,918	-4,958	-2,728	863	-199	-3,547	-11,150	-10,752	-9,724
1982	-8,039	-10,028	-5,855	-4,513	-5,124	-2,432	7,860	4,705	-4,519	-7,585	-9,196	-7,348
1983	-7,226	-5,280	3,364	3,888	10,428	21,676	5,414	4,328	4,403	1,745	-6,929	-7,229
1984	-9,007	-2,329	8,298	-178	-3,718	-4,421	1,481	599	-3,471	-10,280	-10,364	-9,999
1985	-5,164	-9,552	-4,963	-4,908	-5,001	-3,739	524	-452	-3,535	-11,025	-10,550	-7,941
1986	-6,238	-7,394	-7,232	-2,817	-3,909	5,395	3,271	1,845	-3,622	-10,377	-8,162	-4,455
1987	-2,094	-1,358	-8,551	-4,871	-4,870	-2,793	-155	-227	-3,535	-9,675	-3,315	-4,827
1988	-4,644	-4,529	-5,664	-3,280	-221	-881	-183	-444	-2,337	-8,052	-2,520	-3,994
1989	-2,924	-6,673	-2,825	-4,924	-752	-1,164	-536	-1,231	-5,072	-11,113	-10,728	-8,285
1990	-5,604	-4,775	-4,569	-4,870	-3,644	-1,222	-835	-594	-2,507	-8,919	-7,264	-4,045
1991	-1,999	-4,003	-3,476	-483	-1,954	-950	-345	-1,061	-3,356	-8,699	-2,244	-3,821
Avg	-5,169	-5,037	-5,048	-3,142	-2,367	-461	1,402	677	-2,995	-8,643	-7,549	-6,923
W/AN/BN	-6,406	-5,677	-3,642	-2,242	-1,552	1,618	3,447	2,301	-2,741	-7,947	-9,204	-8,209
D/C	-4,206	-4,539	-6,142	-3,842	-3,002	-2,079	-188	-586	-3,192	-9,185	-6,262	-5,923

Alternative 1

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

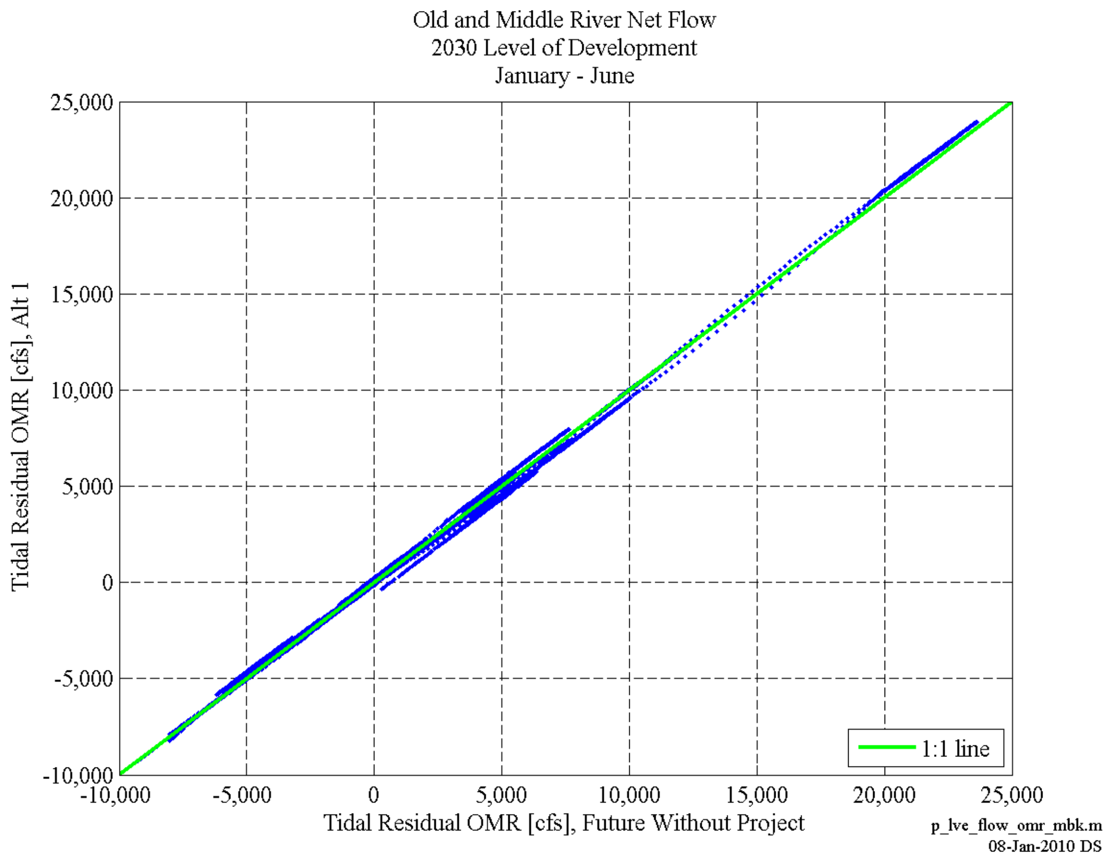
Alternative 1
2030 Level of Development

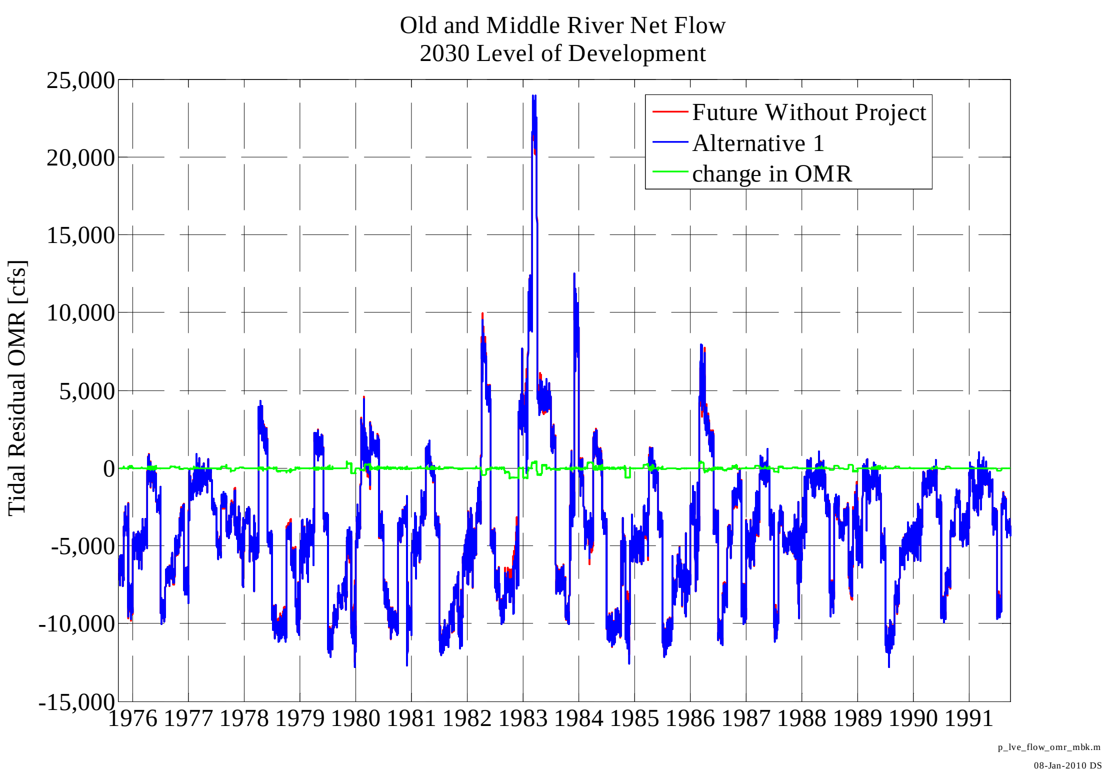
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,375	-3,667	-8,377	-4,955	-4,920	-4,405	-368	-644	-2,271	-9,054	-6,875	-6,721
1977	-4,997	-3,336	-7,199	-1,410	-688	-829	-673	-438	-2,563	-5,022	-2,028	-3,859
1978	-2,698	-3,750	-4,945	-3,229	-5,051	-5,056	3,044	1,812	-4,676	-9,904	-10,504	-10,155
1979	-4,270	-5,958	-9,267	-5,087	-5,081	-4,286	1,442	1,454	-3,434	-11,110	-9,704	-8,490
1980	-7,717	-4,846	-10,156	-3,761	1,483	670	1,599	1,285	-3,859	-8,159	-9,764	-9,949
1981	-3,990	-3,034	-9,608	-4,921	-4,960	-2,726	857	-213	-3,551	-11,199	-10,743	-9,697
1982	-8,040	-10,069	-5,859	-4,515	-5,121	-2,432	7,417	4,644	-4,517	-7,586	-9,197	-7,620
1983	-7,852	-5,907	3,365	3,263	10,421	22,015	4,995	4,499	4,394	1,683	-7,017	-7,247
1984	-9,030	-2,377	8,296	-240	-3,723	-4,078	1,485	590	-3,466	-10,282	-10,388	-9,996
1985	-5,155	-10,142	-4,968	-4,908	-5,001	-3,520	467	-448	-3,544	-11,073	-10,573	-7,961
1986	-6,296	-7,395	-7,246	-2,818	-3,908	5,749	3,102	1,768	-3,619	-10,381	-8,297	-4,496
1987	-1,977	-1,411	-8,558	-4,872	-4,871	-2,661	-158	-234	-3,534	-9,906	-3,242	-4,830
1988	-4,645	-4,498	-5,666	-3,281	-224	-877	-186	-448	-2,340	-8,163	-2,375	-4,023
1989	-2,995	-6,483	-3,018	-4,928	-755	-1,163	-547	-1,245	-5,075	-11,141	-10,727	-8,216
1990	-5,610	-4,776	-4,562	-4,871	-3,644	-1,222	-835	-601	-2,505	-8,964	-7,191	-4,044
1991	-1,993	-4,004	-3,477	-483	-1,956	-950	-349	-1,067	-3,375	-8,878	-2,277	-3,822
Avg	-5,227	-5,103	-5,078	-3,189	-2,375	-361	1,331	670	-2,996	-8,696	-7,556	-6,945
W/AN/BN	-6,557	-5,757	-3,687	-2,341	-1,569	1,797	3,298	2,293	-2,740	-7,963	-9,267	-8,279
D/C	-4,193	-4,595	-6,159	-3,848	-3,002	-2,039	-199	-593	-3,195	-9,267	-6,226	-5,908

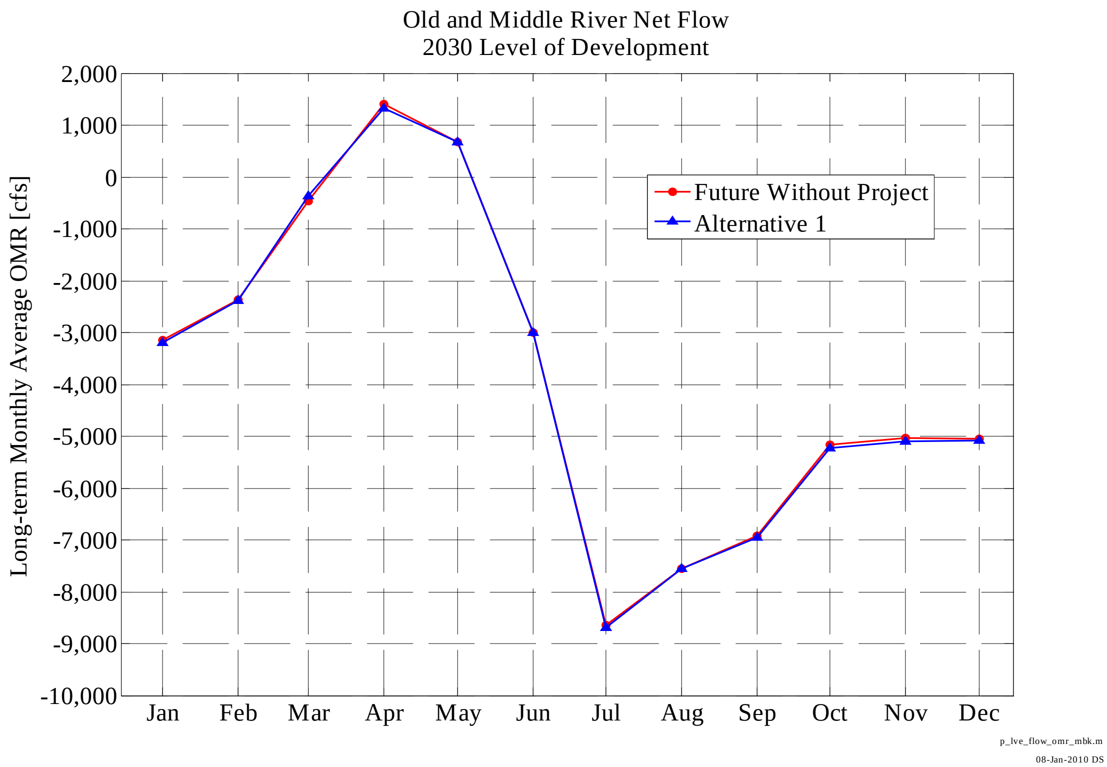
Change in Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

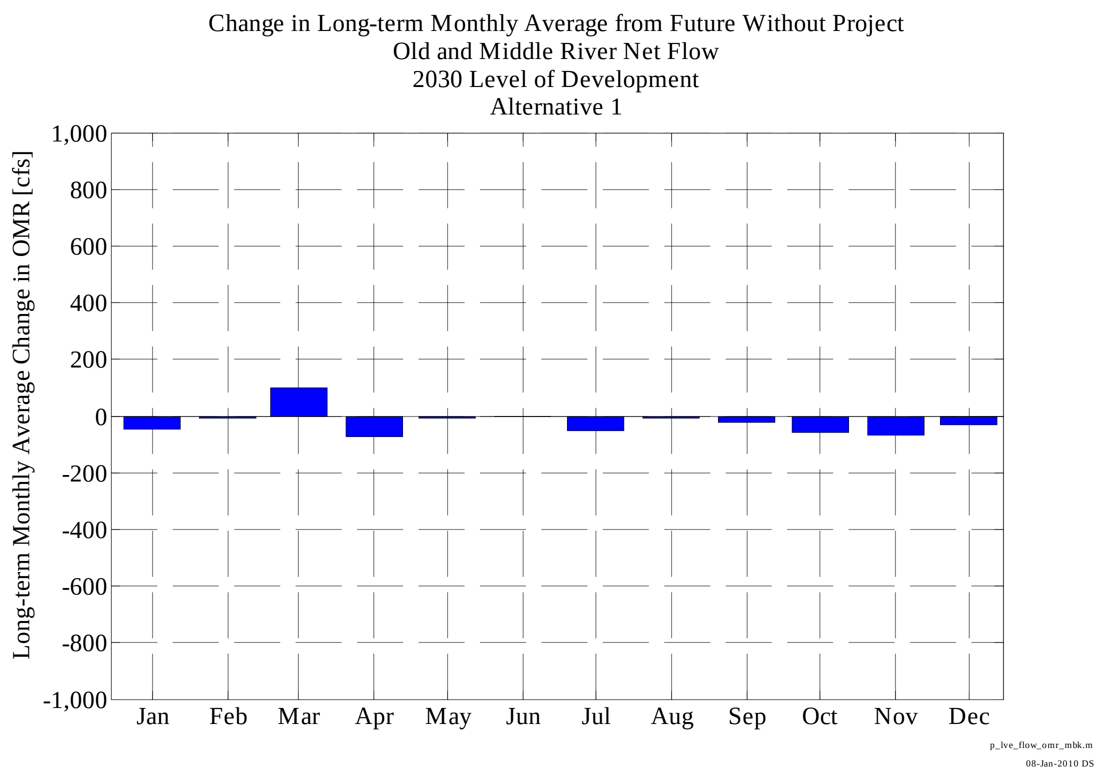
Alternative 1 - Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3	-8	94	0	-2	0	-12	-15	7	-10	-8	86
1977	59	-65	-15	-45	11	-2	0	0	0	-40	90	4
1978	-161	-2	28	0	0	0	-3	-76	4	-3	-195	-162
1979	-195	-128	-12	-2	0	0	-11	-3	-1	-35	2	3
1980	2	283	-316	-2	-111	220	-5	2	5	-3	-2	-1
1981	3	-5	-35	-3	-2	2	-6	-15	-5	-48	10	27
1982	-1	-41	-3	-2	2	0	-444	-60	2	-1	-1	-272
1983	-626	-626	1	-625	-7	340	-420	170	-9	-62	-88	-18
1984	-23	-49	-2	-61	-5	343	4	-9	6	-2	-24	3
1985	9	-591	-5	0	0	219	-57	4	-9	-48	-23	-20
1986	-57	-1	-14	-1	1	354	-169	-77	3	-5	-136	-42
1987	118	-53	-7	-1	-1	133	-4	-7	0	-232	72	-3
1988	-2	31	-3	-1	-3	4	-2	-4	-3	-111	145	-29
1989	-71	190	-193	-4	-3	1	-11	-14	-3	-28	1	69
1990	-6	-1	7	-1	0	0	0	-7	2	-45	73	1
1991	6	-1	-1	0	-1	0	-4	-5	-19	-179	-33	0
Avg	-59	-67	-30	-47	-7	101	-71	-7	-1	-53	-7	-22
W/AN/BN	-152	-80	-46	-99	-17	180	-150	-8	1	-16	-63	-70
D/C	13	-56	-18	-6	0	40	-11	-7	-3	-82	36	15


Old and Middle River Net Flow
2030 Level of Development
January - June
Tidal Residual OMR [cfs], Alt 1
Tidal Residual OMR [cfs], Future Without Project
1:1 line
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2030 Level of Development
Tidal Residual OMR [cfs]
Future Without Project
Alternative 1
change in OMR
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2030 Level of Development
Long-term Monthly Average OMR [cfs]
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 1
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Change in Long-term Monthly Average from Future Without Project
Old and Middle River Net Flow
2030 Level of Development
Alternative 1
Long-term Monthly Average Change in OMR [cfs]
1,000
800
600
400
200
0
-200
-400
-600
-800
-1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS

Alternative 2

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

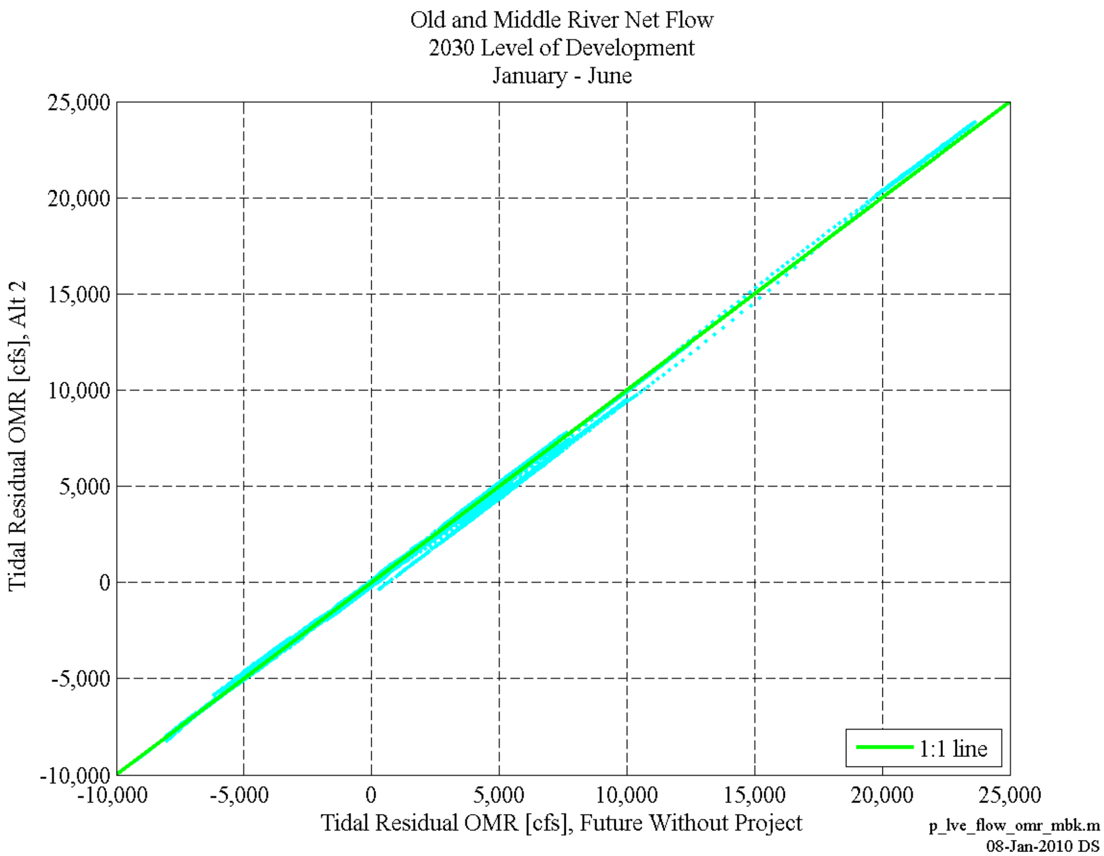
Alternative 2
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,375	-3,662	-8,417	-4,956	-4,920	-4,405	-368	-644	-2,271	-9,050	-6,872	-6,719
1977	-4,997	-3,334	-7,199	-1,392	-687	-829	-673	-438	-2,563	-5,016	-2,026	-3,859
1978	-2,709	-3,750	-4,934	-3,229	-5,051	-5,056	3,044	1,812	-4,676	-9,904	-10,504	-10,155
1979	-4,267	-5,957	-9,266	-5,087	-5,081	-4,286	1,441	1,454	-3,434	-11,110	-9,704	-8,487
1980	-7,716	-4,845	-10,156	-3,761	1,436	548	1,595	1,284	-3,859	-8,159	-9,764	-9,949
1981	-3,991	-3,034	-9,608	-4,921	-4,960	-2,726	857	-213	-3,551	-11,199	-10,743	-9,698
1982	-8,040	-10,155	-5,859	-4,515	-5,121	-2,432	7,374	4,647	-4,516	-7,588	-9,198	-7,614
1983	-7,853	-5,907	3,365	3,262	10,368	21,993	4,808	3,904	4,239	1,421	-7,013	-7,488
1984	-9,307	-2,555	8,293	-365	-3,768	-4,101	1,485	590	-3,465	-10,282	-10,388	-9,996
1985	-5,155	-10,174	-4,968	-4,908	-5,001	-3,520	466	-448	-3,542	-11,077	-10,577	-7,964
1986	-6,323	-7,396	-7,248	-2,818	-3,908	5,570	3,100	1,768	-3,619	-10,381	-8,296	-4,486
1987	-2,006	-1,412	-8,558	-4,871	-4,871	-2,793	-160	-234	-3,534	-9,906	-3,243	-4,830
1988	-4,645	-4,498	-5,666	-3,281	-224	-877	-186	-448	-2,340	-8,164	-2,376	-4,023
1989	-2,987	-6,484	-3,030	-4,928	-754	-1,163	-547	-1,245	-5,075	-11,143	-10,723	-8,211
1990	-5,611	-4,776	-4,560	-4,871	-3,644	-1,222	-835	-601	-2,505	-8,963	-7,207	-4,044
1991	-1,994	-4,004	-3,477	-483	-1,956	-950	-349	-1,067	-3,373	-8,866	-2,273	-3,821
Avg	-5,249	-5,121	-5,081	-3,195	-2,384	-391	1,316	633	-3,005	-8,712	-7,557	-6,959
W/AN/BN	-6,602	-5,795	-3,687	-2,359	-1,589	1,748	3,264	2,209	-2,762	-8,000	-9,267	-8,311
D/C	-4,196	-4,598	-6,165	-3,846	-3,002	-2,054	-199	-593	-3,195	-9,265	-6,227	-5,908

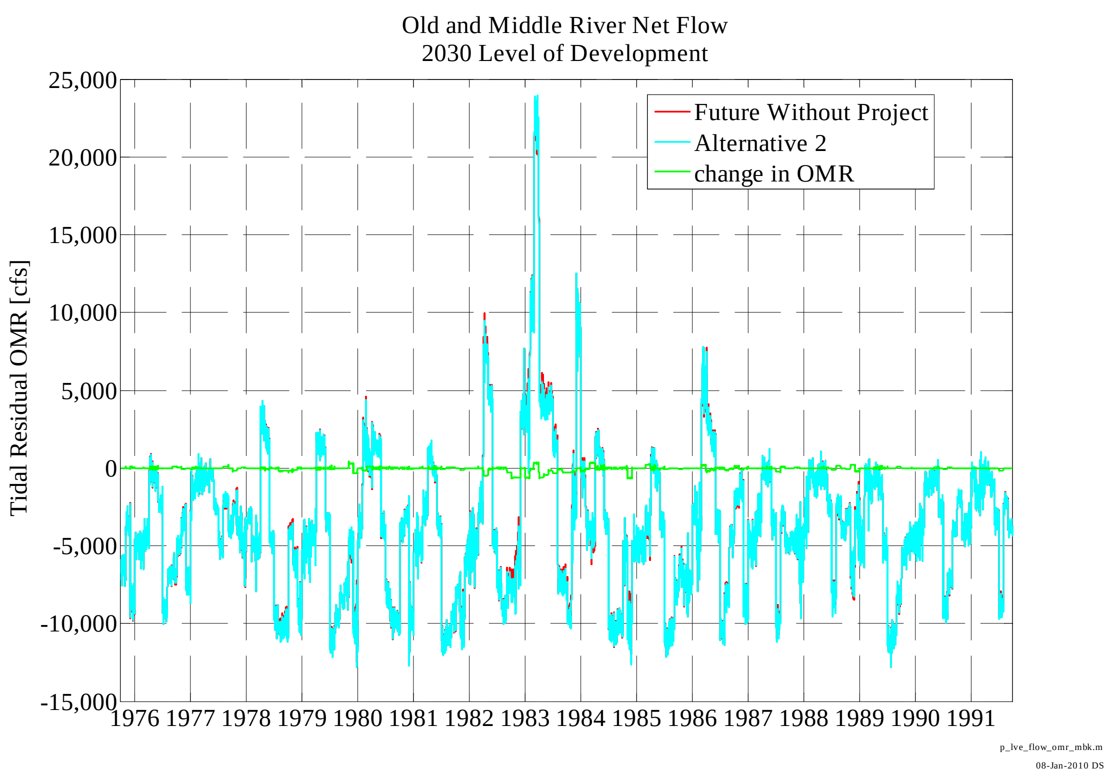
Change in Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

Alternative 2 - Future Without Project
2030 Level of Development

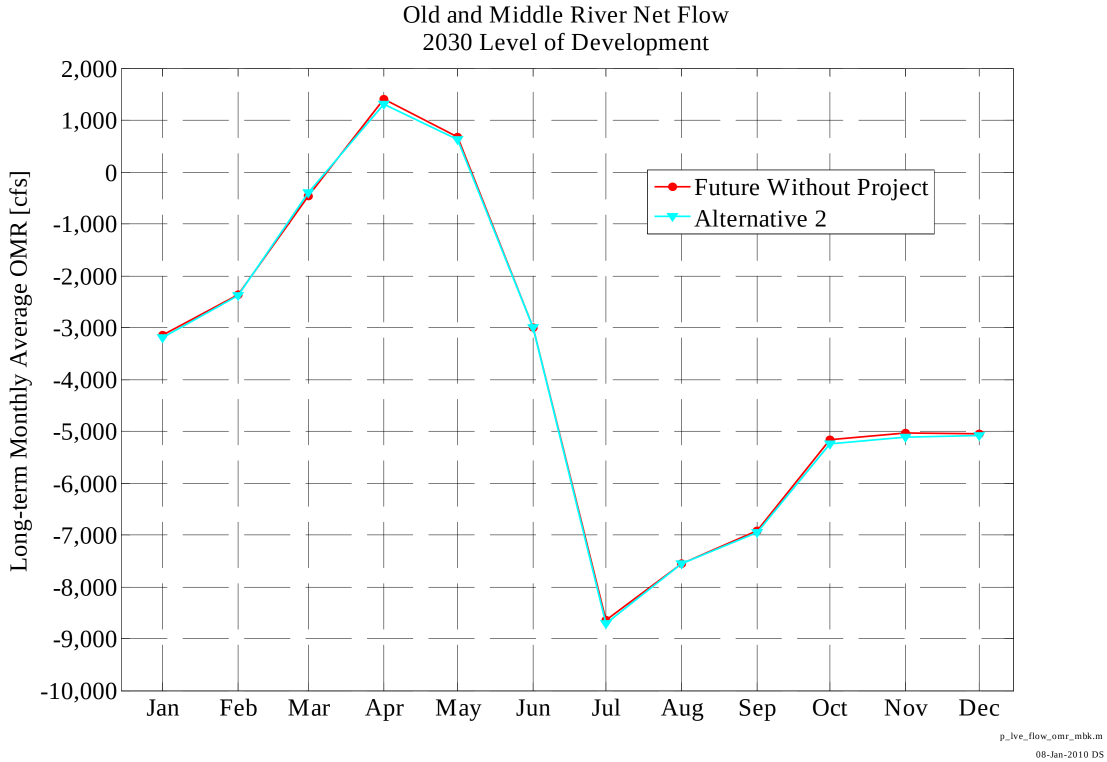
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	3	-2	54	0	-2	0	-12	-15	7	-6	-5	89
1977	59	-63	-15	-26	12	-2	0	0	0	-33	92	4
1978	-171	-2	39	0	0	0	-3	-76	4	-3	-195	-162
1979	-192	-127	-11	-2	0	0	-12	-3	-1	-35	2	6
1980	3	284	-316	-2	-157	98	-10	2	5	-3	-2	-1
1981	2	-5	-35	-3	-2	2	-6	-14	-5	-48	9	26
1982	-1	-127	-4	-2	2	-1	-486	-58	3	-2	-1	-267
1983	-628	-626	1	-626	-60	317	-607	-424	-164	-323	-84	-259
1984	-300	-227	-5	-187	-50	320	4	-9	6	-2	-24	2
1985	9	-622	-5	0	0	219	-58	4	-7	-52	-27	-23
1986	-85	-1	-16	-1	1	175	-171	-77	3	-5	-135	-31
1987	88	-54	-7	-1	-1	0	-5	-7	0	-231	72	-3
1988	-2	31	-3	-1	-3	4	-2	-4	-3	-112	144	-29
1989	-64	189	-205	-4	-3	1	-11	-14	-3	-30	4	74
1990	-6	-1	9	-1	0	0	0	-7	2	-43	58	1
1991	5	-1	-1	0	-1	0	-4	-5	-17	-167	-29	0
Avg	-80	-85	-33	-53	-16	71	-86	-44	-11	-68	-8	-36
W/AN/BN	-196	-118	-45	-117	-38	130	-183	-92	-21	-53	-63	-102
D/C	10	-59	-23	-4	0	25	-11	-7	-3	-80	35	15

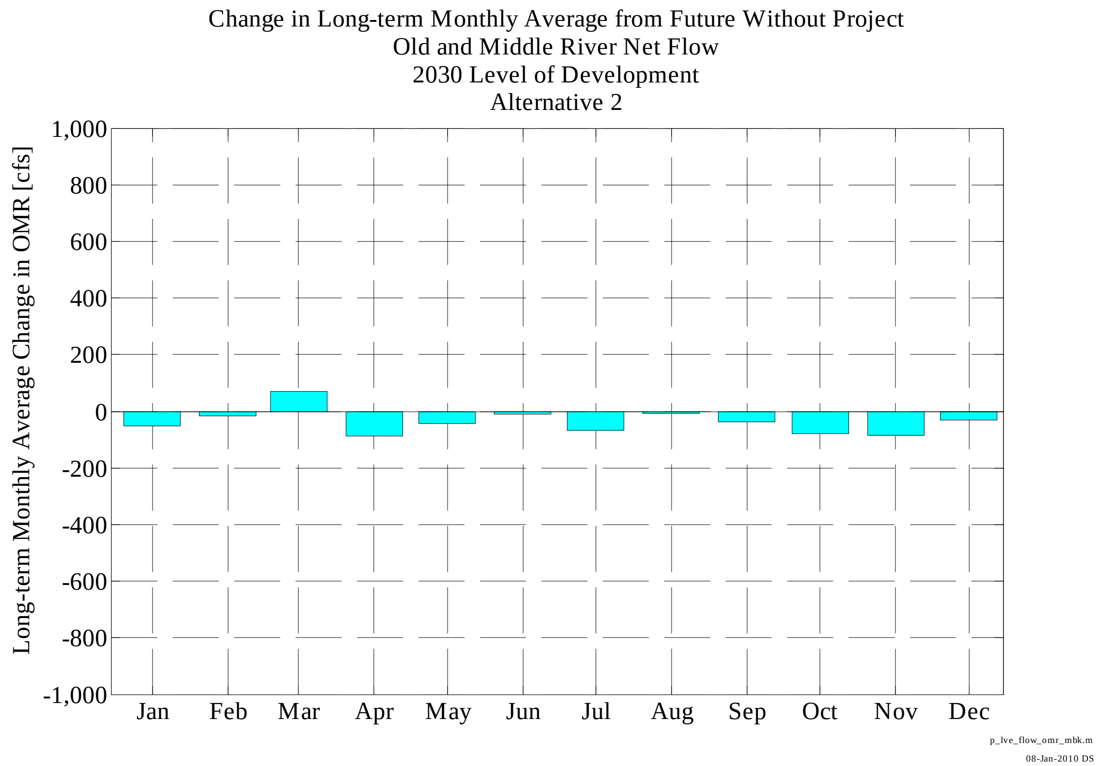


Old and Middle River Net Flow
2030 Level of Development
January - June
Tidal Residual OMR [cfs], Alt 2
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-10,000
-5,000
0
5,000
10,000
15,000
20,000
25,000
Tidal Residual OMR [cfs], Future Without Project
1:1 line
p_lve_flow_omr_mbk.m
08-Jan-2010 DS



Old and Middle River Net Flow
2030 Level of Development
Tidal Residual OMR [cfs]
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Future Without Project
Alternative 2
change in OMR
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2030 Level of Development
Long-term Monthly Average OMR [cfs]
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Future Without Project
Alternative 2
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Change in Long-term Monthly Average from Future Without Project
Old and Middle River Net Flow
2030 Level of Development
Alternative 2
Long-term Monthly Average Change in OMR [cfs]
1,000
800
600
400
200
0
-200
-400
-600
-800
-1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS

Alternative 4

Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

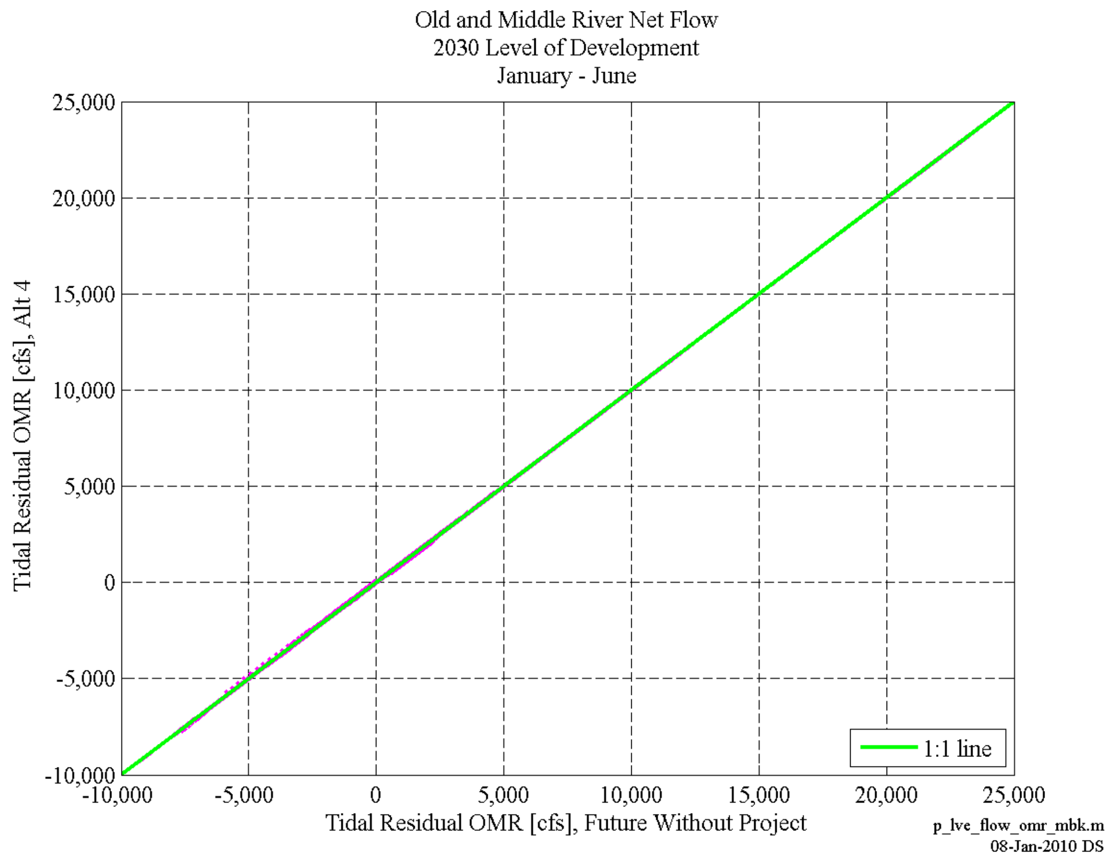
Alternative 4
2030 Level of Development

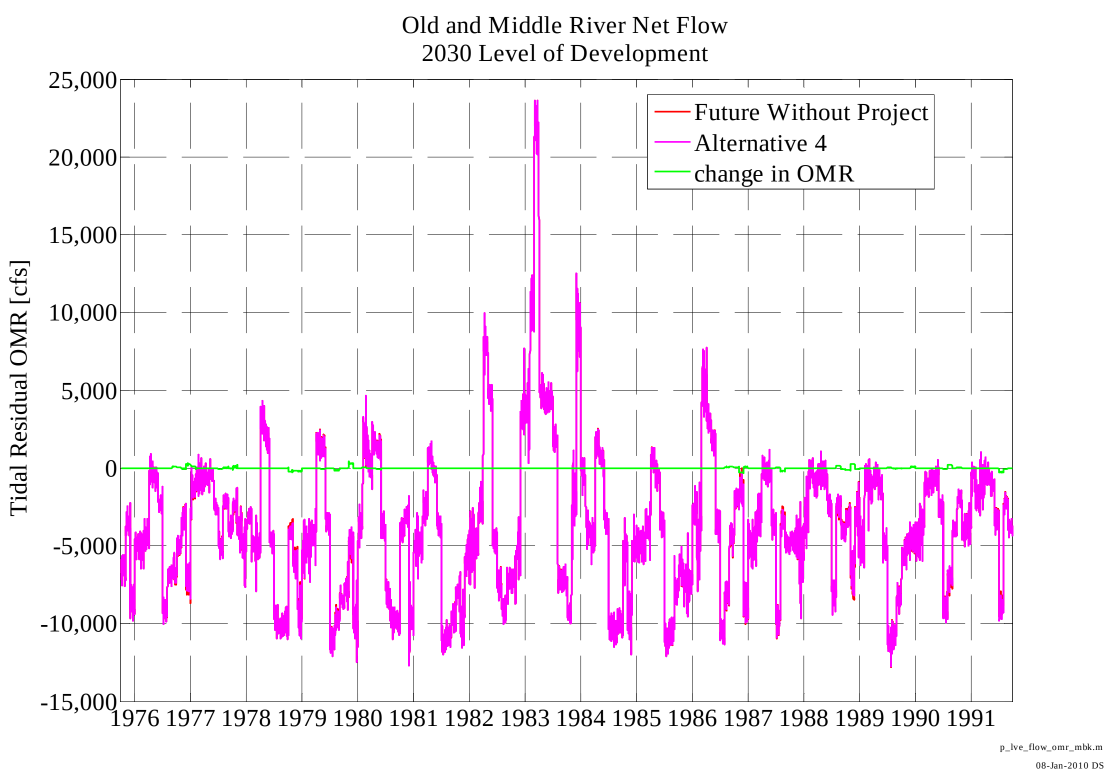
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	-6,378	-3,661	-8,476	-4,956	-4,918	-4,405	-356	-629	-2,278	-9,040	-6,865	-6,713
1977	-4,998	-3,308	-6,950	-1,273	-701	-826	-673	-437	-2,562	-5,039	-2,106	-3,863
1978	-2,460	-3,776	-4,967	-3,229	-5,051	-5,056	3,047	1,888	-4,680	-9,901	-10,309	-9,994
1979	-4,287	-6,022	-9,456	-5,086	-5,078	-4,286	1,429	1,379	-3,433	-11,079	-9,857	-8,507
1980	-7,726	-4,847	-9,836	-3,758	1,645	450	1,604	1,193	-3,865	-8,163	-9,765	-9,950
1981	-3,987	-3,030	-9,572	-4,918	-4,958	-2,728	863	-201	-3,547	-11,150	-10,760	-9,739
1982	-8,039	-10,034	-5,855	-4,513	-5,124	-2,429	7,860	4,703	-4,519	-7,593	-9,200	-7,350
1983	-7,226	-5,280	3,363	3,889	10,428	21,676	5,415	4,325	4,403	1,744	-6,933	-7,232
1984	-9,009	-2,327	8,298	-178	-3,718	-4,421	1,477	596	-3,471	-10,281	-10,364	-10,002
1985	-5,166	-9,552	-4,963	-4,908	-5,001	-3,739	524	-452	-3,535	-11,025	-10,547	-7,938
1986	-6,227	-7,394	-7,231	-2,816	-3,909	5,395	3,271	1,845	-3,622	-10,376	-8,097	-4,379
1987	-2,043	-1,659	-8,492	-4,870	-4,870	-2,793	-155	-227	-3,535	-9,636	-3,509	-4,825
1988	-4,644	-4,521	-5,663	-3,280	-221	-878	-182	-443	-2,337	-8,048	-2,365	-4,083
1989	-3,060	-6,430	-2,870	-4,925	-754	-1,164	-536	-1,231	-5,072	-11,092	-10,762	-8,324
1990	-5,632	-4,776	-4,498	-4,869	-3,645	-1,222	-835	-594	-2,507	-8,966	-7,063	-4,043
1991	-1,983	-4,004	-3,473	-483	-1,954	-950	-345	-1,062	-3,385	-8,955	-2,307	-3,822
Avg	-5,179	-5,039	-5,040	-3,136	-2,364	-461	1,401	666	-2,997	-8,663	-7,551	-6,923
W/AN/BN	-6,425	-5,669	-3,669	-2,242	-1,544	1,618	3,443	2,276	-2,741	-7,950	-9,218	-8,202
D/C	-4,210	-4,549	-6,106	-3,831	-3,003	-2,078	-188	-586	-3,195	-9,217	-6,254	-5,928

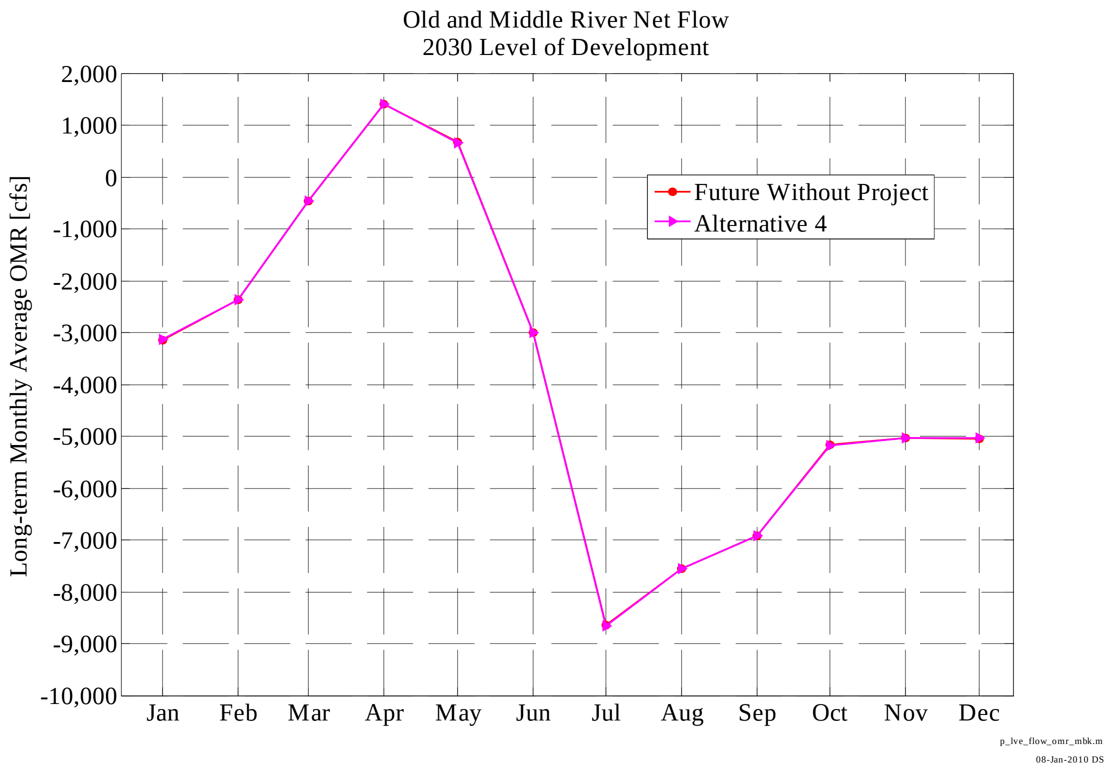
Change in Old and Middle River Net Flow
Monthly Average of Tidally Filtered Simulated Values (cfs)

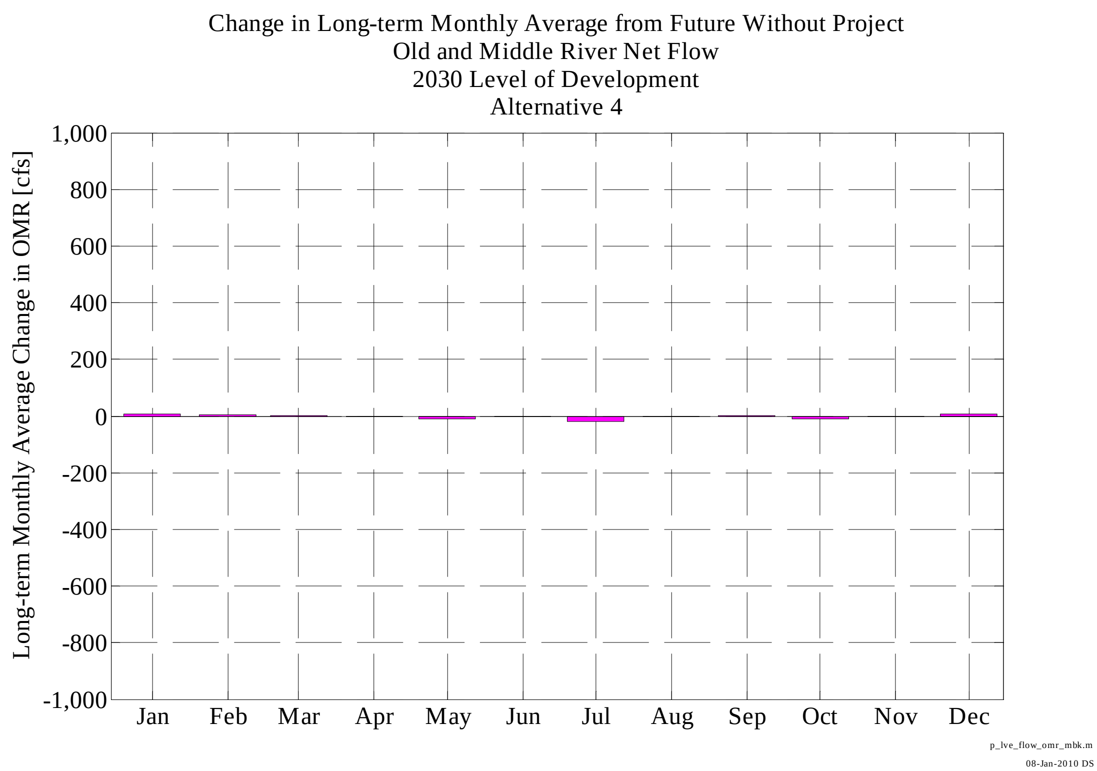
Alternative 4 - Future Without Project
2030 Level of Development

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1976	0	-1	-5	0	0	0	0	0	0	5	2	95
1977	58	-37	233	93	-2	1	0	1	0	-57	12	1
1978	78	-28	5	0	0	0	0	0	0	0	0	0
1979	-212	-192	-201	-1	3	0	-24	-78	0	-4	-151	-14
1980	-7	282	4	0	51	0	0	-89	-1	-8	-4	-3
1981	6	0	1	0	0	0	0	-3	0	0	-8	-15
1982	0	-6	0	0	0	3	0	-1	0	-8	-4	-2
1983	0	0	0	0	0	0	1	-3	0	0	-4	-2
1984	-1	2	0	0	0	0	-4	-3	0	0	0	-3
1985	-2	0	0	0	0	0	0	0	0	0	4	3
1986	11	0	1	1	0	0	0	0	0	0	65	76
1987	51	-300	58	1	0	0	0	0	0	39	-195	2
1988	0	7	1	0	0	4	1	1	0	3	155	-89
1989	-136	243	-45	-1	-3	0	0	0	0	21	-34	-38
1990	-28	-1	70	1	-1	0	0	0	0	-46	202	2
1991	16	0	2	0	0	0	0	0	-29	-256	-64	0
Avg	-10	-2	8	6	3	0	-2	-11	-2	-19	-1	1
W/AN/BN	-19	8	-27	0	8	1	-4	-25	0	-3	-14	7
D/C	-4	-10	35	10	-1	0	0	0	-3	-32	8	-4


Old and Middle River Net Flow
2030 Level of Development
January - June
Tidal Residual OMR [cfs], Alt 4
Tidal Residual OMR [cfs], Future Without Project
1:1 line
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-10,000 -5,000 0 5,000 10,000 15,000 20,000 25,000
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2030 Level of Development
Tidal Residual OMR [cfs]
Future Without Project
Alternative 4
change in OMR
25,000
20,000
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Old and Middle River Net Flow
2030 Level of Development
Long-term Monthly Average OMR [cfs]
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
Future Without Project
Alternative 4
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS


Change in Long-term Monthly Average from Future Without Project
Old and Middle River Net Flow
2030 Level of Development
Alternative 4
Long-term Monthly Average Change in OMR [cfs]
1,000
800
600
400
200
0
-200
-400
-600
-800
-1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
p_lve_flow_omr_mbk.m
08-Jan-2010 DS

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D. Public Meeting Transcripts

APPENDIX D
Public Meeting Transcripts

Appendix D provides the transcripts from the five public meetings held for the Los Vaqueros Reservoir Expansion Project Draft EIS/EIR.

LOS VAQUEROS RESERVOIR EXPANSION

PUBLIC HEARING ON DRAFT EIS/EIR

Bonderson Building

901 P Street, Hearing Room 102A/B

Sacramento, California

Monday, March 23, 2009

REPORTED BY: DEBORAH FUQUA, CSR #12948

A P P E A R A N C E S

Richard J. Woodley - Regional Resources Manager
Bureau of Reclamation Mid-Pacific Region

Sharon McHale - Project Manager
Bureau of Reclamation

Marguerite Naillon - Project Manager
Contra Costa Water District

PUBLIC OUTREACH:

Charles Gardiner - CirclePoint Project Manager

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Monday, March 23, 2009 2:22 o'clock p.m.

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P R O C E E D I N G S

CHARLES GARDINER: We'll convene the formal comment hearing.

If there is anybody who would like to submit comments -- we have not received any speaker cards so far. Is there anybody who plans to submit oral comments today?

(No response)

CHARLES GARDINER: Okay. This will be really quick then. So the open house is intended to help people understand the project, inform people about the project, and help them help you make comments on the environmental document. We do have a formal comment period at each one of these meetings.

Rick Woodley is here from the Bureau of Reclamation as the hearing officer. He's going to provide some context for the formal hearing part. But if you do want to submit comments on the record, you do need to do it in the formal comment period or provide them in writing. So any conversations you've had with the team members here are not part of the formal record if you don't submit them.

So I think with that -- I don't think we have

anybody who has officially requested to speak -- I will pass it over to Rick to formally open the comment period.

RICK WOODLEY: Thanks, Charles.

I guess we can go on record.

Welcome to the public hearing on the Los Vaqueros Reservoir Expansion Project Draft Environmental Impact Statement/Environmental Impact Report or Draft EIS/EIR. This is one of five hearings being held in accordance with the requirements of the National Environmental Policy Act.

My name is Rick Woodley. I'm the regional resources manager for the Bureau of Reclamation's Mid-Pacific Region. I'll be serving as the hearing officer, and a court reporter is recording these proceedings.

At the table with me is Ms. Sharon McHale, the project manager from the Bureau of Reclamation, and Ms. Marguerite Naillon, project manager with the Contra Costa Water District.

Today we're accepting verbal and written comments on the Draft EIS/EIR. To provide verbal comments, you should have completed a speaker's card, one of these (indicating).

Since no one has submitted one, we can move on

from there. If you have not completed a speaker's card, you can go to the registrations table at any time. If you completed a speaker card and didn't turn it in at the registration table, you can take it there right away.

You may also provide written comments today on one of the yellow sheets. And they're available at the registration table. If somebody was going to be speaking from the written comments and would like to submit them, you can tear off the top portion of the card and attach it to your comments and provide them before you leave.

Written comments can be submitted at this hearing or to the address, fax, or e-mail indicated on the comment card. You need to submit your comments by the close of business, 5:00 p.m., on Tuesday, April 21st, 2009.

Please understand that written and verbal comments receive equal consideration.

Now just a moment as to what happens next in the process. All of the comments will be reviewed and responses to comments will be prepared. Assuming all major issues can be addressed, a final EIS/EIR will be prepared which will include the responses to the comments. The Final EIS/EIR will be circulated for a

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30-day review, after which Reclamation will make a decision on the project.

A record of decision will then be prepared to document that decision. The CCWD board of directors will consider certifying the final EIS/EIR under the CEQA and approving the project following this review period.

Today, if we were to go through the speakers -- and since we don't have any speakers, I'll forgo that process. If we do happen to get people to show up within the next hour who are interested in speaking, we'll go ahead and allow them to do so. Beyond that point, I think at this point we can go off the record unless there's anybody that was interested in speaking at this stage.

We're available for the next hour. Anybody who shows up and decides that they would like to speak, we'll go back on the record and record their comments and go from there.

So absent that, we can go back off the record.

(Recess taken)

RICK WOODLEY: We'll go back on the record at this point.

And since we're now out of time -- it's 3:30 Pacific time, and we've had no requests to speak, so

we'll go ahead and close the proceedings.

See everybody in Dublin.

(The proceedings concluded at 3:30 p.m.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, duly authorized to administer oaths pursuant to Section 8211 of the California Code of Civil Procedure, do hereby certify that the foregoing proceedings were reported by me, a disinterested person, and thereafter transcribed under my direction into typewriting and is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 1st day of April, 2009.

DEBORAH FUQUA
CSR NO. 12948

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LOS VAQUEROS RESERVOIR EXPANSION

PUBLIC HEARING ON DRAFT EIS/EIR

Zone 7 Water Agency

100 North Canyon Parkway, Board Room

Livermore, California

Tuesday, March 24, 2009

REPORTED BY: DEBORAH FUQUA, CSR #12948

A P P E A R A N C E S

Richard J. Woodley - Regional Resources Manager
Bureau of Reclamation Mid-Pacific Region

Sharon McHale - Project Manager
Bureau of Reclamation

Marguerite Naillon - Project Manager
Contra Costa Water District

PUBLIC OUTREACH:

Charles Gardiner - CirclePoint Project Manager

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Tuesday, March 24, 2009 7:28 o'clock p.m.

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P R O C E E D I N G S

CHARLES GARDINER: Thank you very much for coming. We're happy you're here. I hope you had a chance to see all the boards and talk to the team, learn about the project.

We've done the informal part to help you understand the project so you can provide informed comments. We can answer questions that way. But we also have the formal comment period to get your comments on the record. So if you're thinking that talking to the team members would get comments onto the record, that's not the case. We need to hear your comments if you have oral comments today. We need to formally get them on the record.

You can also provide written comments with a comment sheet or submit your own written comments. So we're going to convene the formal hearing part of this.

So far, we don't have anybody who's submitted a speaker card. So is there anybody who is interested in making comments at this point?

(No response)

CHARLES GARDINER: This is going to be really easy then. But we do have to go kind of through these

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formalities. And then we can close the formal hearing and go back and talk more, if you want to talk more to the team, and submit comments later.

So I'll turn it over to Rick Woodley, who will do the formal part of the hearing.

RICK WOODLEY: Thanks, Charles.

We can go on the record now.

Hello. Welcome to the public hearing on the Los Vaqueros Reservoir Expansion Project Draft Environmental Impact Statement, Environmental Impact Report, otherwise known as the Draft EIS/EIR. This is one of five hearings being held in accordance with the requirements of the National Environmental Policy Act.

My name is Rick Woodley, and I am the Regional Resources Manager for the Bureau of Reclamation's Mid-Pacific Region. I am serving as the hearing officer, and a court reporter is recording the proceedings.

At the table with me is Ms. Sharon McHale, Project Manager for the Bureau of Reclamation, and Ms. Marguerite Naillon, Project Manager with the Contra Costa Water District.

Today we are accepting verbal and written comments on the Draft EIS/EIR. To provide verbal comments, you should have completed a speaker's card.

If you've not completed one, as Charles has indicated, you can go ahead and pick one up. You just need to indicate that you would like to speak.

You may also provide written comments today on one of these yellow sheets by filling out the comment card which is available at the registration desk if you haven't already picked up one. If you're speaking from -- anybody who is speaking, they can submit them to us, but you can submit them with a comment card and attach your comments and provide them before you leave.

Written comments can be submitted at this hearing or to the address, fax, or e-mail indicated on the comment card. You need to submit your comments by the close of business 5:00 p.m. on Tuesday, April 21st, 2009. Please understand that written and verbal comments receive equal consideration.

Let me take a moment to explain the process. All the comments will be reviewed, and responses to comments will be prepared. Assuming all major issues can be addressed, a Final EIS/EIR will be prepared which will include responses to the comments. The Final EIS/EIR will be circulated for a 30-day review, after which Reclamation will make a decision on the project. A record of the decision will then be prepared to document that decision. The CCWD board of

directors will consider certifying the Final EIS/EIR under CEQA and approving the project following this review period.

Again, if you wish to provide comments but have not submitted a speaker card, please go to the registration table immediately. Since we have no comments or anybody that indicated they wanted to make verbal comments, we can go off record now. Just indicate that any time or anybody else that shows up that would like to make comments or if you've reconsidered, we'll go back on the record and take your comments at that time.

So we can go off the record now. We'll be here until 8:30.

(Recess taken)

RICK WOODLEY: I guess we can go back on the record now.

So since we've received no further requests for comment or any request for comment for that matter, the clock showing 8:30, we'll bring this meeting to -- or hearing to a close and call it a night. We can go off record.

(The proceedings concluded at 8:30 p.m.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, duly authorized to administer oaths pursuant to Section 8211 of the California Code of Civil Procedure, do hereby certify that the foregoing proceedings were reported by me, a disinterested person, and thereafter transcribed under my direction into typewriting and is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 1st day of April, 2007.

DEBORAH FUQUA
CSR NO. 12948

7

LOS VAQUEROS RESERVOIR EXPANSION

PUBLIC HEARING ON DRAFT EIS/EIR

DUBLIN-SAN RAMON SERVICES DISTRICT

7051 Dublin Boulevard, Boardroom

Dublin, California 94568

Thursday, March 26, 2009

REPORTED BY: LESLIE CASTRO, CSR NO. 8876

A P P E A R A N C E S

Richard J. Woodley - Regional Resources Manager
Bureau of Reclamation Mid-Pacific Region

Sharon McHale - Project Manager
Bureau of Reclamation

Marguerite Naillon, P.E. - Project Manager
Contra Costa Water District

PUBLIC OUTREACH

Charles Gardiner - CirclePoint Project Manager

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I N D E X

---oOo---

Thursday, March 26, 2009 7:29 p.m.

P R O C E E D I N G S

MR. WOODLEY: Thank-you. On the record.

Hello. Welcome to the public hearing on the Los Vaqueros Reservoir Expansion Project, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR).

This is one of five hearings being held in accordance with the requirements of the National Environmental Policy Act.

My name is Rick Woodley. And I am the regional resources manager with the Bureau of Reclamation's mid-pacific region. I will be serving as the hearing officer, and a court reporter is recording these proceedings.

At the table with me is Ms. Sharon McHale, project manager with the Bureau of Reclamation. And then to her right is Ms. Marguerite Naillon, project manager for Contra Costa Water District.

Today we're accepting verbal and written comments on the draft EIS/EIR. To provide verbal comment you should have completed a speaker's card, one just like this.

If you've not completed a speaker's card, please go to the registration table. If you've completed a speaker's card but didn't turn it in at the registration table, take it there right away and we'll add you to list.

You may provide written comments today on the yellow comment card by filling out the comment card, which is also available at the registration table.

If you're speaking from your written comments and would like to submit them to us, please fill out the top portion of the comment card, attach your comments and provide them before you leave.

Written comments can be submitted at this hearing or to the address, FAX or E-mail indicated on the comment card. You need to submit your comments by close of business at 5:00 p.m. on Tuesday, April 21st, 2009. Please understand that written and verbal comments receive equal consideration.

Now, let me take a moment to explain the process: All of the comments will be reviewed, and responses to comments will be prepared. Assuming all major issues can be addressed, a final EIS/EIR will be prepared, which will include the responses to the comments.

The final EIS/EIR will be circulated for a 30-day review after which Reclamation will make a decision upon the project. A record of decision will then be prepared to document that decision.

The CCWD board of directors will consider certifying the final EIS/EIR under CEQA and approving a project following this review period.

Now, today, we only have one speaker. So what I will do is call our speaker to the front. And we normally put a time limit on our speakers, we have one hour for comments, so I'll forego any time limits such as that unless we end up with other speakers who decide they want to come up.

When you're called, please clearly state your name and affiliation into the microphone and spell your first and last name for the court reporter.

Please remember this is a formal hearing and the court reporter is recording your comments. Please speak clearly so your comments can be captured accurately. And if necessary, I can indicate if time is up.

So we don't have any elected officials who have indicated they want to speak. So, again, anybody who wants to provide comments and have not submitted a speaker card, please go to the registration table immediately and we can get you on the list.

With that, I call Mr. Steven Eng, and let you make your comments.

MR. ENG: Thank-you. It won't be an hour. Thanks for hearing me out.

My name IS Steven Eng. It's spelled S-T-E-V-E-N, last name is spelled E-N-G.

I represent myself, but I'm also a member of the Bicycle Trails Council of the East Bay and East Bay Area Trails Council.

And I am here to ask you guys to consider expanding your trails for multi-use, mainly so we bikers, equestrians and hikers can use the area around the reservoir.

I know after you complete the expansion, you will restore the trail network and not so we don't lose any recreational opportunities, but you also have an opportunity to consider maybe doing some more trails that more people can use, specifically, you know, that are assessable to bikes.

Lots of trails are there right now, but a lot of them are actually not available to bikes, and you guys have an opportunity to change that. I know you guys support biking because I just got a mailer from an organization saying that you sponsor a time trial road race at the reservoir. So maybe you guys can do a little more trails for mountain biking, also.

Thank-you.

MR. WOODLEY: Thank-you.

Unless there's somebody who's reconsidered and decided that they want to speak at this point, we'll be here until 8:30 this evening to take comments.

At this point in time, I suggest we can go off the record and allow people to continue to review the project and such.

And so we can go off the record. And if we end up with additional speakers, or somebody shows up and then wants to speak or somebody has reconsidered, then we'll go back on the record and take your comments and then finish up.

We'll go off the record.

(Recess taken.) (7:35-8:30)

MR. WOODLEY: We can go back on the record for just a moment.

We've had no more requests for speakers and such and it looks like by the clock that we can go ahead and close out this proceeding, and call it to a close.

(Whereupon, the hearing adjourned
At 8:31 p.m.)

R E P O R T E R ' S C E R T I F I C A T E

I hereby certify that the foregoing proceedings took place before me at said time and place, were taken down in shorthand by me, a Certified Shorthand Reporter of the State of California, and thereafter transcribed into typewriting;

That the foregoing transcript is a true record of said proceedings which took place. I witness whereof, I have hereunto set my hand this 1st day of April, 2009.

LESLIE CASTRO
CERTIFIED SHORTHAND REPORTER
STATE OF CALIFORNIA
NUMBER 8876

LOS VAQUEROS RESERVOIR EXPANSION

PUBLIC HEARING ON DRAFT EIS/EIR

Heald College Conference Center

5130 Commercial Circle, Main Conference Room

Concord, California

Tuesday, March 31, 2009

REPORTED BY: DEBORAH FUQUA, CSR #12948

A P P E A R A N C E S

Pete Lucero - Public Affairs Officer
Bureau of Reclamation Mid-Pacific Region

Sharon McHale - Project Manager
Bureau of Reclamation

Marguerite Naillon - Project Manager
Contra Costa Water District

PUBLIC OUTREACH:

Charles Gardiner - CirclePoint Project Manager

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I N D E X

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Tuesday, March 31, 2009 7:29 o'clock p.m.

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P R O C E E D I N G S

CHARLES GARDINER: Folks, we're going to convene the formal hearing part of this meeting.

Okay. Thank you very much for coming, everyone. We're glad you're here. This is the fourth of five meetings that we've had -- we're having on the Draft Environmental Impact Statement, Environmental Impact Report for the Los Vaqueros Reservoir Expansion.

We've divided the meeting into two parts. You've just been enjoying the first part, which is informal time to meet the project team and learn about the project. We thought that was the best way for you to get questions answered and understand what this project is all about and ideally help inform comments that you may provide on that document.

So far we've received two cards from people who would like to speak and provide comments tonight.

So in a moment, we will convene the formal portion to get those comments on the record.

Before I do that, I should mention that, if you've been making comments to the project team, they have not been recording them. So those are not officially on the record. So if you'd like to be

officially on the record as formally submitting a comment, you need to fill out a blue speaker card. If you don't have one, stick your hand up and we'll get you one so you can speak.

So I think with two people, we probably won't take too long to finish the formal comments, and then we'll break, and we can go back to talk at the stations if you want to learn more.

There are lots of other ways to provide comments in writing, which Pete Lucero will go through in a minute.

So with that, I'm going to turn it over to Pete, who is the hearing officer.

PETE LUCERO: Good afternoon, good evening. My name is Pete Lucero. I'd like to welcome you to the public hearing on the Los Vaqueros Reservoir Expansion

Project Draft Environmental Impact Statement Environmental Impact Report which we call the Draft EIR/EIS. This is one of five hearings being held in accordance with requirements of the National Environmental Policy Act.

Can everyone hear me fine?

Thank you.

Again, my name is Pete Lucero, and I'm the public affairs officer for the Bureau of Reclamation's

Mid-Pacific region. I'll be serving as the hearing officer, and a court reporter is recording the proceedings.

At the table with me is Ms. Sharon McHale, Project Manager from Bureau of Reclamation, and Ms. Marguerite Naillon, Project Manager with the Contra Costa Water District.

Today we're accepting written and verbal comments on the Draft EIS/EIR. To provide verbal comments, you should have completed a speaker's card, which looks like this (indicating). And if you have not completed one, please go to the registration table and complete one now. If you have completed a speaker's card but didn't turn it in at the registration table, please take it there at this time.

You may also provide written comments today, and that is this yellow paper -- looks like this (indicating). Fill out this comment card, and that's available also at the registration table. If you're speaking from your written comments tonight and would like to submit them to us, please fill out the top portion of the comment card, attach your comments, and provide them before you leave.

Written comments may be submitted at this hearing or to the address, fax, or e-mail indicated on

the comment card. You need to submit your comments by close of business at 5:00 p.m. on Tuesday, April 21st, 2009. Please understand that written and verbal comments will receive equal consideration.

Now I want to take a moment to explain what happens next with this process. All of the comments will be reviewed, and responses to comments will be prepared. Assuming all major issues can be addressed, a Final EIS/EIR will be prepared which will include responses to the comments. The Final EIS/EIR will be circulated for a 30-day review, after which Reclamation will make a decision on the project. A record of decision will then be prepared to document that decision.

The CCWD board of directors will consider certifying the final EIS/EIR under the CEQA and approving the project following this review period.

Today we'll proceed in this manner. I will call speakers to the front in the order you signed up. If I call your name and you are not present, you will be moved to the end of the speakers list, all two of you. Since we have only two people signed up and about an hour to comment, I'll give you as much time as you need up to a half hour per person.

If you have extensive comments, they should be

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submitted in writing. When it's your turn, please clearly state your name and affiliation into the microphone and spell your first and last names. Please remember this is a formal hearing and a court reporter is recording your comments. Please speak clearly so your comments can be captured accurately.

I will be the time keeper and will indicate when your 30 minutes are up.

And again, if you wish to provide comments but have not submitted a speaker card, please go to the registration table immediately. And with that, I think we're ready to start.

First two speakers we have is Ms. Ann Farrell and Mr. Bruce Ohlson.

Ms. Farrell, would you please step up.

ANN FARRELL: I will be providing a written version.

I am Ann Farrell, Director of Engineering for Central Contra Costa Sanitary District. We treat the wastewater for the Central County portion of the Contra Costa Water District Service Area. Our mission is to protect the public health and the environment by collecting and treating wastewater, promoting pollution prevention and recycling high quality water.

I'm here tonight to speak about the highly

treated recycled water from our treatment facility and the role it could play in increasing the yield of any Los Vaqueros Reservoir Expansion Project. We currently discharge 40 million gallons per day of treated wastewater to the Suisun Bay, a tidal estuary that forms the entrance to the Delta. This is enough water to serve about 250,000 people or 100,000 homes.

In the early 1970s, facilities were constructed to supply recycled water from our treatment facility in Martinez, which is located at the intersection of the 4 and 680 freeways, to the nearby Shell and Tesoro refineries also in Martinez. Those facilities, although unused since the '70s, still exist and could supply the refineries with up to 20 million gallons per day of our effluent with some additional treatment. This would free up 20 million gallons of fresh water, enough to serve the entire city of Concord including the proposed development at the Concord Naval Weapons Station or to provide significant environmental benefits by leaving that water in the Delta. A flyer describing this project will be submitted with my testimony.

For the last 15 years, Central Contra Costa Sanitary District has been actively lobbying the Contra Water District to serve recycled water to the

refineries and free up potable water supplies for other uses such as water supply reliability and environmental water. CCWD has maintained that the financial cost to their rate payers was too great due to the lost revenues from refineries.

So when we at CCCSD first learned of the proposal to expand Los Vaqueros and the concept of inviting other partners in, including the Bureau of Reclamation and some other South Bay water users, such as Santa Clara Valley Water District, we thought this would be the perfect opportunity to incorporate the refinery recycled water project as a component of the Los Vaqueros Reservoir Expansion, as it would have similar benefits. The annual yield of 22,000 acre feet per year of raw water freed up by the refinery project could be used to fill Los Vaqueros Reservoir and reduce the diversion from the Delta; it could be transferred to other project participants; or it could be released upstream for environmental enhancement.

The participation of the outside partners provided the opportunity to obtain outside funding to offset Contra Costa Water District's revenue loss. We submitted a letter to Contra Costa Water District and CALFED in August 2003 requesting that recycled water be included in the Los Vaqueros Expansion studies. I will

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provide copies for your information.

Now, more than five years later, we are greatly disappointed to find that recycled water has been dismissed in the environmental documents. There are few potential recycled water projects in the State of California with the potential for generating yield of 22,000 acre feet per year on a continuous year-in-and-year-out basis.

The Los Vaqueros Expansion Alternatives themselves, in reading the EIR, claim benefits of a maximum of 3,000 acre feet per year during a six-year drought for Contra Costa Water District water supply reliability.

A recycled water component to supply the refineries would increase the yield in the expansion alternatives by 22,000 acre feet per year. If this yield were used to benefit Contra Costa water supply reliability, it would have more than seven times the benefit of the Los Vaqueros Reservoir Expansion. Alternatively, this additional yield could be used to supplement the environmental water management benefits of the Reservoir Expansion.

In summary, water is a valuable resource and we must use it wisely. As a public agency with a mission to protect the public health and the environment, we must respectfully request that the Los Vaqueros Reservoir Expansion environmental documentation incorporates the supply of recycled water to the Shell and Tesoro refineries in Martinez as a component of each and every Expansion alternative.

Thank you.

PETE LUCERO: Thank you, Ms. Farrell.

Mr. Ohlson, please step up. Thank you.

BRUCE OHLSON: Good evening, Hearing Director and Project Managers. My name is Bruce Ohlson. I'm a citizen of Pittsburg. I'm a member of the board of directors of the East Bay Bicycle Coalition, and I'm on the advocacy committee of the Delta Pedalers Bicycle Club. I also want to disclose that I'm on the Planning Commission for the City of Pittsburg, but tonight I'm speaking for the bicyclists.

We respectfully request and suggest that it would be eminently reasonable to be able to bicycle on a trail from the north paved public access to the south paved public access. That would be a very small mitigation to include. It wouldn't cost a whole lot.

I'm here tonight requesting this because the

Water District tends to not like bicyclists. And we have -- our current rules do not allow bicycling in most of the watershed, and we respectfully request the

permission -- the construction of a trail from one end to the other -- not expensive.

And if you allow any vehicles anywhere in the watershed or cattle anywhere in the watershed, it certainly wouldn't hurt to allow a bicyclist or two in there.

Thank you very much.

PETE LUCERO: Thank you, Mr. Ohlson.

Are there any speakers who have not turned in or filled out a blue card who would like to?

(No response)

PETE LUCERO: In that case, we'll go off the record, and we will re-adjourn at the end of the hour in order to make sure we have closed out this hearing officially.

Do you have another speaker? Oh.

Okay. We're off the record. Thank you.

(Recess taken)

PETE LUCERO: On the record. We are at the end of the official hearing time. If there are no more blue cards or no more speakers -- that was a question by the way. No? Didn't sound like one, but it was.

So on behalf of the Bureau of Reclamation and Contra Costa Water District, I'd like to thank you for taking the time to attend this hearing, providing your

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comments. Please remember, if you still plan to provide written comments, they must be received by close of business at 5:00 p.m. on Tuesday, April 21st, 2009.

This closes this hearing on the Los Vaqueros Reservoir Expansion Project Draft EIS/EIR. We are adjourned.

(The proceedings concluded at 8:30 p.m.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, duly authorized to administer oaths pursuant to Section 8211 of the California Code of Civil Procedure, do hereby certify that the foregoing proceedings were reported by me, a disinterested person, and thereafter transcribed under my direction into typewriting and is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 1st day of April, 2009.

DEBORAH FUQUA

CSR NO. 12948

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LOS VAQUEROS RESERVOIR EXPANSION

PUBLIC HEARING ON DRAFT EIS/EIR

Iron House Elementary School

5180 Frank Hagley Drive, Multi-Purpose Room

Oakley, California

Thursday, April 2, 2009

REPORTED BY: DEBORAH A. FUQUA, CSR #12948

A P P E A R A N C E S

Pete Lucero - Public Affairs Officer
Bureau of Reclamation Mid-Pacific Region

Sharon McHale - Project Manager
Bureau of Reclamation

Marguerite Naillon - Project Manager
Contra Costa Water District

PUBLIC OUTREACH:

Charles Gardiner - Project Manager, CirclePoint

I N D E X

ALSO PRESENT: Terri Gillen, Representing Congresswoman

Ellen Tauscher

Paul Adler, representing Contra Costa County Supervisor Federal Glover.

Thursday, April 2, 2009 7:30 o'clock p.m.

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P R O C E E D I N G S

CHARLES GARDINER: Thanks very much for coming. We're happy you're here. This is the last of our five public meetings on the Draft Environmental Document for the Los Vaqueros Reservoir Expansion.

What we're going to do now is convene the formal public hearing portion of the meeting. We've set it up this way with information here so that you can come and learn about the project, ideally inform your comments on the environmental document.

So far we only have one person who's indicated that they want to speak. If anybody who does want to speak could fill out a speaker card, we'd be happy to take it. So we're going to convene the hearing formally, take that comment, and then we can go back to the informal part of our meeting.

So if you've been talking to the project team, hopefully you've been getting some information. But if you have been providing comments to them, ideas or thoughts, those won't be on the record. So if you want to be on the record, we're going to go on the record a second, and you can make some comments.

So with that, I'm going to pass it over to

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Pete, who is going to formally convene us.

PETE LUCERO: Good evening. My name is Pete Lucero. I'd like to welcome you to this public hearing on the Los Vaqueros Reservoir Expansion Project Draft Environmental Impact Statement/Environmental Impact Report, called the Draft EIS/EIR. This is the last of five hearings being held in accordance with requirements of the National Environmental Policy Act.

And again, my name is Pete Lucero. I am the Public Affairs Officer for the Bureau of Reclamation's Mid-Pacific Region. And I'll be serving as a hearing officer tonight. And a court reporter is recording the proceedings.

Here with me on stage is Ms. Sharon McHale, the Project Manager from Bureau of Reclamation, and Ms. Marguerite Naillon, the Project Manager from Contra

Costa Water District.

Today we're accepting verbal and written comments on the Draft EIS/EIR. To provide verbal comments, you should have submitted a speaker's card. That's this blue card. If you've not completed one, please go to the registration table. If you did complete a speaker's card but didn't turn it in at the registration table, please take it there right away.

You may also provide written comments today on

this yellow sheet of paper, which is available also at the registration table.

If you're speaking from your written comments and would like to submit them to us, please fill out the top portion of the comment card, attach your comments and provide them before you leave.

Written comments maybe submitted at this hearing or to the address, fax, or e-mail indicated on the comment card. You need to submit your comments by close of business at 5:00 p.m. on Tuesday, April 21st, 2009. Please understand that written and verbal comments receive equal consideration.

Now I want to take a moment to explain what happens next with this process. All the comments will be reviewed, and responses to comments will be prepared. Assuming all major issues can be addressed, a Final EIS/EIR will be prepared which will include the responses to the comments. The Final EIS/EIR will be circulated for a 30-day review after which Reclamation will make a decision on the project. A record of decision will then be prepared to document that decision. The Contra Costa Water District board of directors will consider certifying the Final EIS/EIR under CEQA and approving the project following this review period.

Today we'll proceed in this manner. I'll call the speakers to the front in the order you signed up, which, thankfully, is one. And if I call your name and you aren't present, you'll be moved to the end of the speaker's list -- which is kind of circular logic.

Since we have one person signed up to comment and we have one hour to make those comments, you'll have as much time as you need to make your comments, sir. If you decide to go past the hour, you can submit your comments in writing. When it is your turn, sir, if you please state your name, your affiliation, spell your name and -- your first and your last names. And please remember this is a formal hearing and a court reporter is recording your comments.

Please speak clearly so your comments can be captured accurately. And I'll be the time keeper, giving you your full hour if you need it, sir.

We do have with us today Mr. Paul Adler, who is representing the Contra Costa County Supervisor Federal Glover.

Welcome. Thank you very much for coming.

And with that, Mr. Veitch, please come up and make your comments.

BILL VEITCH: Bill Veitch, V-E-I-T-C-H, Contra Costa Farm Bureau. My question was, what effect will

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the peripheral canal have on water quantity and quality for the reservoir?

PETE LUCERO: Mr. Veitch, thank you very much for your question. It has been written into the record, and we will consider -- you will see an answer to that question in response to the comments in the final document.

If there are no other questions -- anybody want to make another comment or question? Then what we'll do now is, based on that, we've still got to stay in the room until 8:30. What we'll do is go off the record now, and then we'll re-adjourn at the end of the hour unless someone else wants to speak.

So with that, we're in recess. Thank you.

(Recess taken)

PETE LUCERO: So we're on the record.

Are there any other speakers?

(No response)

PETE LUCERO: No?

On behalf of the Bureau of Reclamation and the Contra Costa Water District, I'd like to thank you for taking the time to attend this hearing to provide your comments. Please remember that, if you still plan to provide written comments, they must be received by, close of business, 5:00 p.m., on Tuesday, April 21st,

2009.

This closes this hearing on the Los Vaqueros Reservoir Expansion Project Draft EIS/EIR. Thank you. We are adjourned.

(The proceedings concluded at 8:30 p.m.)

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) ss.
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I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 6th day of April, 2009.

DEBORAH FUQUA
CSR NO. 12948