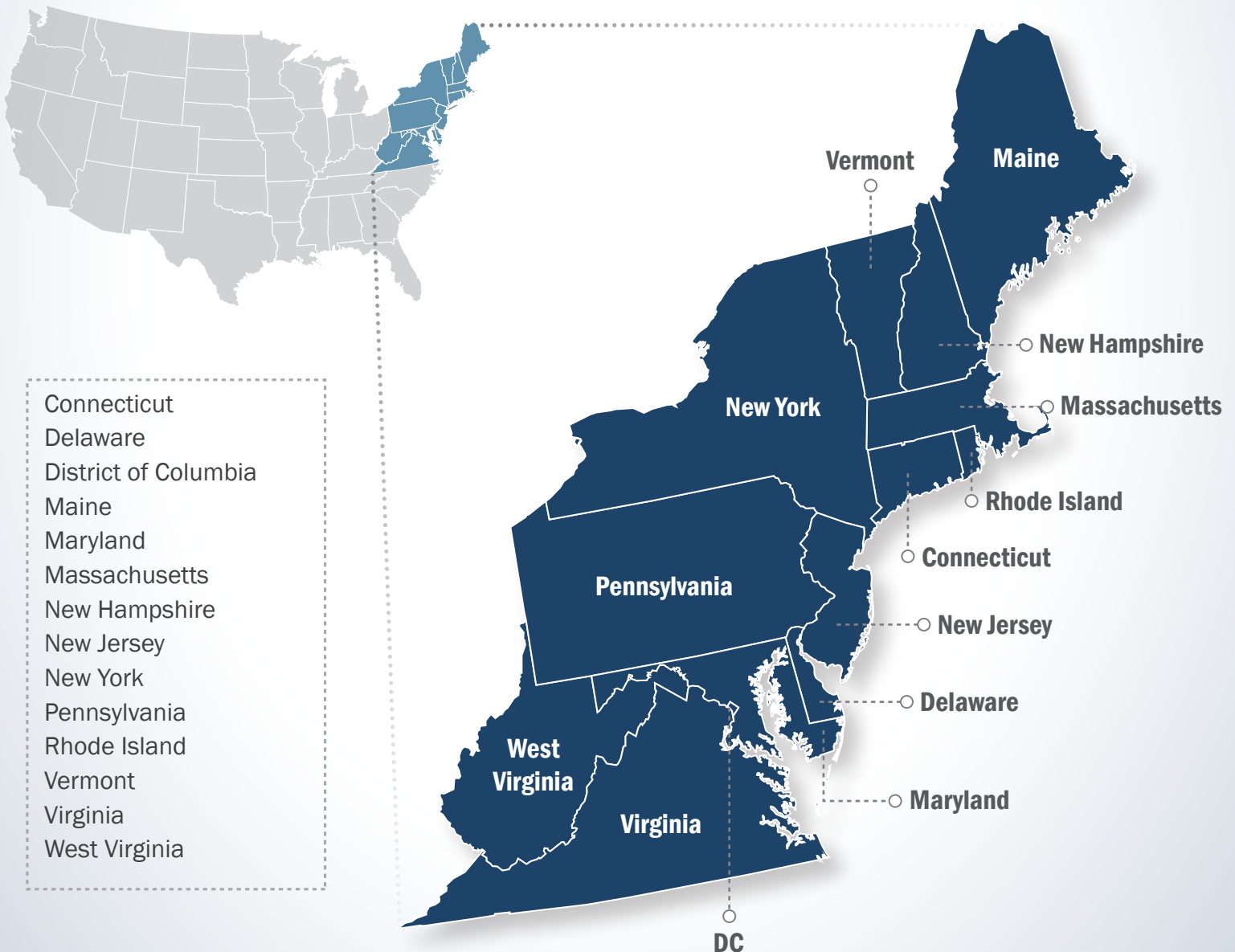




FirstNet[®]

Nationwide Public Safety Broadband Network **Draft Programmatic Environmental Impact Statement for the Eastern United States**

VOLUME 15 - CHAPTER 23



This page intentionally left blank

First Responder Network Authority



Nationwide Public Safety Broadband Network **Draft Programmatic Environmental Impact Statement for the Eastern United States**

VOLUME 15 - CHAPTER 23

Amanda Goebel Pereira, AICP
NEPA Coordinator
First Responder Network Authority
U.S. Department of Commerce
12201 Sunrise Valley Dr. M/S 243
Reston, VA 20192

Cooperating Agencies

Federal Communications Commission
General Services Administration
U.S. Department of Agriculture—Rural Utilities Service
U.S. Department of Agriculture—U.S. Forest Service
U.S. Department of Agriculture—Natural Resource Conservation Service
U.S. Department of Defense—Department of the Air Force
U.S. Department of Energy
U.S. Department of Homeland Security

April 2016

This page intentionally left blank

Contents

23. Glossary	23-3
References	23-16

This page intentionally left blank.

23.GLOSSARY

aeolian: An environment where wind is the major agent of sediment deposition.

agroecosystems: A land use management system in which trees or shrubs are grown around or among crops or pastureland.

agroforestry: A land use management system in which trees or shrubs are grown around or among crops or pastureland.

alluvial valleys: Valleys formed by rivers.

alluvium: A sediment (clay, silt, sand, and/or gravel) deposited by flowing streams in a river valley.

alvar: Open areas found naturally with a thin soil over limestone or marble bedrock; hosts a distinctive vegetation community that can include a number of rare plants.

ammonia slip: An industry term for ammonia passing through the Selective Catalytic Reduction system un-reacted. This occurs when ammonia is over-injected into gas stream, temperatures are too low for ammonia to react, or catalyst has degraded.

anadromous fish: Fish born in freshwater that migrate to the ocean to grow as adults and then return to freshwater to spawn.

anchialine pools: Enclosed, landlocked waterbodies or ponds with an underground connection to both fresh and salt water.

aquatic: Pertaining to water

aquifer: An underground layer of water-bearing permeable rock, rock fractures, or unconsolidated sediments from which groundwater can be extracted using a water well.

attainment area: Any area that meets the national primary or secondary ambient air quality standard for the pollutant.

avifauna: The birds of a particular region, habitat, or geological period.

backhaul capacity: The ability of a network to transfer data from a radio base station or cell site to a larger core network. These connections are typically made via fiber optic cable and microwave technology.

benthic: Anything associated with or occurring on the bottom of a body of water.

binge drinking: More than five drinks on one occasion for adult men and more than four drinks on one occasion for adult women.

biology: The study of living organisms, divided into many specialized fields that cover their morphology, physiology, anatomy, behavior, origin, and distribution.

biophysical settings: Settings that represent the areas of vegetation that dominate a landscape without human disturbance.

bioretention: A structural storm water control measure that captures and temporarily stores storm water runoff using soils and vegetation in shallow basins or landscaped areas to provide enhanced removal of dissolved storm water pollutants, including nutrients, pesticides, organics, metals, and biological constituents.

biota: The flora and fauna of a region.

bivalve: An aquatic mollusk with a compressed body enclosed within a hinged shell.

bog: Wet, spongy ground with soil composed mainly of decayed vegetable matter.

boreal forest: Forests that consist primarily of spruces, pines, and larches.

breeding areas: Area utilized by a species during the reproductive phase of its life cycle and during the time that young are reared.

bycatch: Unintentional capture/injury/entanglement of unwanted species during commercial fishing (e.g., a shark captured in a seine net targeting salmon).

calcareous: Containing calcium carbonate, calcium, or limestone

candidate species: A species officially nominated for listing as threatened or endangered, according to the Endangered Species Act.

catadromous: “An organism which lives in fresh water and goes to the sea to spawn, such as some eels” (USEPA, 2015).

cays: Small, low-elevation, sandy islands on the surface of a coral reef.

chikungunya: A mosquito-borne disease.

cistern: An artificial reservoir, usually underground used to store water.

Class I Areas: National parks and wilderness areas in attainment or unclassifiable areas that exceed 5,000 acres in size and were in existence on August 7, 1977.

climate: Chemical changes in parent material occur slowly in low temperatures. However, hot temperatures evaporate moisture, which also facilitates chemical reactions within soils. The highest degree of reaction within soils occurs in temperate, moist climates.

commercial fishery: The whole process of catching and marketing fish and shellfish for sale.

confined aquifers: Layers of groundwater that are generally bound above and below with impermeable layers of rock or sediment. Unconfined aquifers are not bound by such layers.

congregatory: The behavior of gathering in groups.

coniferous: “Cone-bearing trees, mostly evergreens that have needle-shaped or scale-like leaves. They produce wood known commercially as softwood” (USEPA, 2015).

coral bleaching: The stress response of corals releasing the photosynthetic plankton, known as Zooxanthellae.

critical habitat: “A designated area that is essential to the conservation of an endangered or threatened species that may require special management considerations or protection” (USEPA, 2015).

crustaceans: A group of freshwater and saltwater invertebrates with jointed legs and a hard shell of chitin (e.g., shrimps, crabs, lobsters, and crayfish).

decapods: Types of crustaceans. Common crustacean examples include crayfish, crabs, and lobsters.

deciduous: “Plants having structures that are shed at regular intervals or at a given stage in development, such as trees that shed their leaves seasonally” (USEPA, 2015).

degradation: “The reduction of the capacity of the environment to meet social and ecological objectives, and needs” (USEPA, 2015).

demersal: Species that live and/or feed on or near the sea floor.

dengue: A mosquito-borne disease.

depredating bird: A bird that causes resource damage, economic loss, or a threat to health and human safety.

dimension stone: Natural rock material quarried for the purpose of obtaining blocks or slabs that meet specifications as to size and shape.

direct effect: Effects that physically alter a historic property in some way.

ecoregion: “A relatively homogeneous ecological area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables” (USGS 2013).

ecosystem: “An interactive system that includes the organisms of a natural community association together with their abiotic physical, chemical, and geochemical environment” (USEPA, 2015).

endangered species: Species of animals, birds, fish, plants, or other living organisms threatened with extinction by anthropogenic (manmade) or other natural changes in their environment as prescribed in the Endangered Species Act

endemic: Species that are only found in one area or region. Also, (of a disease or condition) regularly found among particular people or in a certain area.

energetic (climate change): Refers to strength and amplification in oscillations.

ephemeral stream: ephemeral streams carry water only as a result of precipitation (any time of year), and perennial streams carry water year round (under normal precipitation conditions).

epiphytic: Plants that live on or are attached to another plant.

erosion control blanket: Erosion control blankets are biodegradable or synthetic sheet-like materials that are rolled out onto disturbed areas to protect soil from wind and water erosion.

estuarine: Coastal areas where salt water from the sea mixes with rivers and streams, and may also be called bays, harbors, inlets, lagoons, or estuaries.

estuarine intertidal: Estuarine intertidal: Coastal areas usually semi-enclosed by land but have open partially-obstructed access to open ocean. Water is partially diluted by freshwater runoff.

ethnographic: The systematic study of people and cultures, generally designed to explore culture from the point of view of the subject of the study.

eutrophication: A process where waterbodies receive excess nutrients that stimulate excessive plant growth.

evapotranspiration: The sum of evaporation and plant transpiration from the Earth's land and ocean surface to the atmosphere.

exotic: "A non-native plant or animal introduced from another geographic area" (USEPA, 2015).

expansive soils: "Characterized by "the presence of swelling clay materials" that absorb water molecules when wet and expand in size or shrink when dry leaving 'voids in the soil'" (Rogers, Olshansky, & Rogers, 2004).

extant: A species still in existence.

extinction: "The disappearance of a species from part or all of its range" (USEPA, 2015).

extirpated: Cease to exist in the geographic area of study.

fern allies: Plants similar to true ferns but have different leaf structures, if they have leaves at all.

forams: Single-celled organisms with shells.

fragmentation: "A process during which larger areas of habitat are broken into a number of smaller patches of smaller total area, isolated from each other by a matrix of habitats unlike the original habitat" (USEPA, 2015).

freshwater-lens systems: Systems where freshwater floats on saltwater, separated by a transition zone of brackish water, and is found in areas where groundwater is not held up by impermeable barriers.

frugivorous: Animals that eat primarily fruit.

furbearers: Mammal species traditionally trapped or hunted for their fur, such as marten, lynx, wolverine, and beaver.

geology: An interdisciplinary science with a focus on the following aspects of Earth sciences: geologic hazards and disasters, climate variability and change, energy and mineral resources, ecosystem and human health, and groundwater availability.

germanium: A mining byproduct associated with zinc production.

gestation: "The period in a female's life from conception to birth" (USEPA, 2015).

glacial: "Of or pertaining to distinctive processes and features produced by or derived from glaciers and ice sheets" (USEPA, 2015).

guts: Narrow coastal water channels usually subject to strong tidal currents flowing back and forth.

habitat: "The place where a population lives, including its living and non-living surroundings" (USEPA, 2015).

hard ground conditions: A hard site exists where noise travels away from the source over a generally flat, hard surface, such as: water, concrete, hard-packed soil, or other ground surfaces having a low porosity. These are examples of reflective ground, where the ground does not provide any attenuation. The standard attenuation rate for hard site conditions is 6 A-weighted decibels (dBA) per doubling of distance for point source noise (e.g., power generators, most construction activities, etc.) and 3 dBA per doubling of distance for line sources (e.g., highway traffic, conveyor belt, etc.).¹

haulouts: Areas of land or ice where seals and walrus come ashore to rest, molt, or breed.

heavy drinking: More than two drinks per day for adult men and more than one drink per day for adult women.

herbaceous: Plants that do not have woody stems.

herbivorous: An animal that predominantly eats plants.

herpetofauna: Reptiles and amphibians of a particular region, habitat, or geological period.

hibernacula: Habitats within which animals hibernate or otherwise seek refuge for extended periods.

highly migratory: Pelagic, or open-water, species that have a wide geographic distribution, both inside and outside countries' 200-mile zones, and undertake migrations of significant but variable distances across oceans for feeding or reproduction.

historic property: A historic property is defined as any “prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register [of Historic Places], including artifacts, records, and material remains related to such a property or resource” (16 U.S.C. 470(w)(5)).

hookah: A basic form of surface-supplied diving in which the air supply is via a single hose.

hotspot: A location where plumes of hot rock rise from within the earth toward the surface. Lower pressures toward the surface allow rock to melt, which can result in molten rock, volcanism, and lava flows.

human environment: The natural and the physical (e.g., structures) environment, and the association of people to those environments.

human health and safety: The existing environment for health and safety is defined by occupational and environmental hazards likely to be encountered during the construction, operation, and maintenance of towers, antennas, cables, utilities, and other equipment and infrastructure at existing and potential FirstNet telecommunication sites.

hydrology: “The way water moves and is distributed via precipitation, runoff, storage and evaporation” (USEPA, 2015).

ice floes: A sheet of floating ice where walrus calves are typically born.

¹ Washington State Department of Transportation. 2015. *Biological Assessment Preparation for Transportation Projects - Advanced Training Manual*. Version 02-2015. February 2015. Accessed: June 2015. Retrieved from: <<http://www.wsdot.wa.gov/Environment/Biology/BA/BAguidance.htm#manual>>

Indian tribe: The National Historic Preservation Act of 1966 defines “an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation or Village Corporation, as those terms are defined in section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians” (16 USC 470(w)).

indirect effect: Effects that are further removed in time or space and diminish some aspect of the historic property, but may not physically alter it.

inferred properties: “Soil properties inferred from the combined data of soil science and other disciplines (i.e., soil temperature and moisture regimes inferred from soil science and meteorology)” (NRCS, 2015e).

infiltration basins: (also known as recharge basins) are considered a treatment BMP because they can remove pollutants from surface discharges by capturing the storm water runoff volume (typically, larger volumes than an infiltration trench) and infiltrating it directly to the soil rather than discharging it to an aboveground drainage system.

informed siting of Proposed Action features: Refers to the act of locating activities or features in areas that do not support listed species or their known habitats.

infrastructure: Consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure includes a broad array of facilities such as utility systems, streets and highways, railroads, airports, buildings and structures, ports, harbors, and other manmade facilities.

injurious: Any species or subspecies of animal, except game birds and game mammals, that is known to be harmful to agriculture, aquaculture, indigenous wildlife or plants, or constitute a nuisance or health hazard.

insectivorous: Animals that feed predominantly on insects.

intermittent stream: streams that carry water for part of the year (generally winter and spring)

invasive species: Introduced species that out-compete native species for space and resources.

island arc: A type of archipelago, typically of volcanic origin, with an arc-shaped alignment.

invasive species: Introduced species that out-compete native species for space and resources.

jurisdictional wetlands: wetlands that are found to be “waters of the U.S.” per definitions presented in the Clean Water Act, and are thus under the jurisdiction of the U.S. Army Corps of Engineers.

juvenile: “Any member of a species that is not yet sexually mature” (USEPA, 2015).

karst: “Karst is a terrain with distinctive landforms and hydrology created from the dissolution of soluble rocks, principally limestone and dolomite. Karst terrain is characterized by springs, caves, sinkholes, and a unique hydrogeology.” (USGS, 2015a)

Kona winds: Stormy, rain-bearing winds that blow over the Hawaiian Islands from the southwest or south-southwest in the opposite direction of trade winds. Kona winds occur when a low-pressure center is within 500 miles northwest of the islands. Although strong, Kona winds usually do not last for more than a day or so.

lagomorphs: Gnawing mammals that feed on plants and have fully furred feet and two pairs of incisors in the upper jaw.

landslide: Refers to processes that lead to the downhill movement of earth materials due to gravity and other forces.

land subsidence: The downward settling or sudden sinking of the Earth's surface.

land use/land cover: Refers to the use of land, as visible from the air (or satellites).

latte: Large limestone or basalt pillars topped with a capstone.

lava tubes: "Lava tubes are natural conduits through which lava travels beneath the surface of a lava flow." (USGS, 2015b)

leeward: On the side sheltered from the wind (downwind).

life cycle: The continuous sequence of development of an organism.

listed wildlife: Any animal listed as threatened or endangered by federal or state agencies.

littoral: Refers to shore or near-shore areas.

maintenance area: An area that was previously in nonattainment, but has met the national primary or secondary ambient air quality standards for the pollutant, and has been designated as in attainment.

mammal: "Warm-blooded vertebrates that give birth to and nurse live young; have highly evolved skeletal structures; are covered with hair, either at maturity or at some stage of their embryonic development; and generally have two pairs of limbs, although some aquatic mammals have evolved without hind limbs" (USEPA, 2015).

manganese nodules: Nodular concretions of manganese and iron oxides that occur on the ocean floor as a result of direct precipitation of minerals from seawater.

manholes: Access points in infrastructure (e.g., roads, rights-of-way) to underground water, sewer, and other utilities that may be used for telecommunications activities, especially in cities and urban areas, depending on the location of other utilities. In cities, power, water, and telecommunication lines are often co-located; if access is through a manhole in the street, that access will be used.

marine: "Any environment, from pond to ocean, in which plants and animals interact with the chemical and physical features of the environment" (USEPA, 2015).

marine debris: Any man-made object discarded, disposed of, or abandoned that enters the marine environment.

marine intertidal: Areas of open ocean associated with high energy coastline where the substrate is exposed and flooded by tides (Cowardin, Carter, Golet, & LaRoe, 1979).

masonry cement: Mix, typically of Portland cement, hydrated lime, and other materials, used to improve the water retention and workability of the cement in masonry work.

maternity roosts: Locations where bats congregate to birth and rear young. Maternity roosts are often located in trees, under manmade structures (e.g., bridges, rooftops, etc.), or in caves.

mesic: "Soil condition that is medium wet" (USEPA, 2015)

metamorphic processes: A process that involves profound physical and or chemical change in rocks due to heat and pressure.

montane: Mountainous areas.

moraine: "A hill-like pile of rock rubble located on or deposited by a glacier. An end moraine forms at the terminus of a glacier. A terminal moraine is an end moraine at the farthest advance of the glacier. A lateral moraine forms along the sides of a glacier" (NPS, 2000).

muskeg: North American swamp or bog consisting of a mixture of water and partly dead vegetation, frequently covered by a layer of sphagnum or other mosses.

Native Hawaiian: "Any individual who is a descendant of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the State of Hawaii" (16 U.S.C. 470(w)(17)).

Native Hawaiian organization: The National Historic Preservation Act of 1966 defines a Native Hawaiian organization as "any organization which serves and represents the interests of Native Hawaiians; has as a primary and stated purpose the provision of services to Native Hawaiians; and has demonstrated expertise in aspects of historic preservation that are significant to Native Hawaiians. The term includes, but is not limited to, the Office of Hawaiian Affairs of the State of Hawaii and Hui Malama I Na Kupuna O Hawai'i Nei, an organization incorporated under the laws of the State of Hawaii" (16 U.S.C. 470 (w)(18)).

noise: A form of sound caused by pressure variations that the human ear can detect; often defined as unwanted sound.

nonattainment area: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

noxious: "Any living stage (e.g., seeds and reproductive parts) of any parasitic or other plant of a kind, or subdivision of a kind, which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation or the fish and wildlife resources of the United States or the public health" (Federal Noxious Weed Act of 1974).

obligate: Means "by necessity". The dictionary definition is: 1. Restricted to one particularly characteristic mode of life.

ocean convergence zone: "The quasi-horizontal flow of a fluid toward a common destination from different directions. When waters of different origins come together at a point or along a line (convergence line), the denser water from one side sinks under the lighter water from other side. The ocean convergence lines are the polar, subtropical, tropical, and equatorial" (*EPA 2015a*).

orographic effect: A change in atmospheric conditions caused by a change in elevation, primarily due to mountains.

outwash: "Glacial outwash is the deposit of sand, silt, and gravel formed below a glacier by meltwater streams and rivers. An outwash plain is an extensive, relatively flat area of such deposits" (USEPA, 2015).

Pacific Plate: A tectonic plate located within portions of the Pacific Ocean.

paleontological resources: Fossils or the physical remains of plants and animals that have mineralized into or left impressions in solid rock or sediment.

palustrine wetlands: Wetlands that include all nontidal wetlands dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 parts per thousand.

parent material: The original geologic source material from the soil formed affects soil aspects, including color, texture, and ability to hold water.

passerines: An order of “perching” birds that have four toes, three facing forward and one backward, which allows the bird to easily cling to both horizontal and nearly vertical perches.

pelagic: Inhabiting the water column as opposed to being associated with the sea floor; generally occurring anywhere from the surface to 1,000 meters.

Peneaeid shrimp: A family of marine crustacean that includes some of the most commercially valuable species (e.g. tiger prawn).

perched groundwater: An aquifer that occurs above the regional water table, separated by an impermeable or relatively impermeable layer of rock or sediment.

perennial streams: Streams that normally have surface flow year-round in all or part of their course. Non-perennial streams are normally dry during part of the year.

permeability: A property of a material that allows liquids or gasses to pass through it.

phenology: The seasonal changes in plant and animal life cycles, such as emergence of insects or migration of birds.

photic zone: Zone within which light penetrates below the ocean surface.

physiography: Refers to the description of the Earth’s landforms and surface features.

piggery: Pig farms.

plant associations: Plant communities of a specific type (or types) and geography (or geographies).

plateau: “An elevated plain, tableland or flat-topped region of considerable extent” (USEPA, 2015).

plutonic rocks: Rocks formed from cooling magma below the Earth’s surface.

points of presence: Connections or access points between two different networks, or different components of one network.

population: “A group of interbreeding organisms occupying a particular space; the number of humans or other living creatures in a designated area” (USEPA, 2015).

portland cement: Cement that is made from limestone and clay that turns to a paste and hardens with water.

predation: The relationship between two organisms of different species in which one of them acts as predator that captures and feeds on the other organism that serves as the prey.

prehistoric sites: The physical evidence of human activity that occurred prior to European contact.

Prevention of Significant Deterioration increment: The maximum allowable increase in pollutant concentration that is allowed to occur above a baseline concentration for a pollutant.

prime farmland: Land that possesses the required characteristics for producing food, feed, fiber, and oilseed crops.

procellariiforms: An order of seabirds that includes albatrosses and petrels.

proposed species: Species that have been proposed in a *Federal Register* after the completion of a status review and consideration of other protective conservation measures.

public safety entity: An entity that provides public safety services.

public safety infrastructure: any infrastructure utilized by a public safety entity as defined in the Middle Class Tax Relief and Job Creation Act of 2012, including infrastructure associated with police, EMS, and fire services.

Pupping grounds: Sites where marine mammals birth and rear their young.

radiative forcing index: Radiative forcing is the difference between the radiation absorbed by Earth and the energy reflected back to space.

recovery: “The partial or full return of a population or community to a condition that existed before the introduction of the stressor” (USEPA, 2015).

recreational fishery: Fishing when the catch is for personal use, pleasure, or competition.

rhus: A specific genus of vines, shrubs, or small trees native to temperate and warm regions.

riparian zone: Areas near wetlands, rivers, or streams.

rock ripping: The breakup and removal of rock material with heavy equipment, such as an excavator.

runup: The height the wave reaches above sea level before washing to shore.

rutting: “Indentations in soil from operating equipment in moist conditions or soils with lower bearing strength” (USFS, 2009).

sedimentary rocks: Rocks formed by the deposition of material at the Earth’s surface and within bodies of water.

Selective Catalytic Reduction: Add-on nitrogen dioxides control placed in the exhaust stream following the engine and involves injecting ammonia into the flue gas. The ammonia reacts with the nitrogen dioxides in the presence of a catalyst to form water and nitrogen.

sessile: Unable to move; attached to the substrate.

shield volcano: A volcano that is above the ocean surface, has broad and gentle slopes, and is composed of fluid basalt.

short ton: One short ton is equal to 2,000 pounds.

silt curtains: Floating barriers used in marine construction, dredging, and remediation to control silt and sediment to reach a body of water.

silt fences: Designed to trap sediment in the area where construction or soil disturbance is taking place to minimize or avoid soil erosion and sedimentation. They are often 2-to-3 feet tall and are buried 8-to-12 inches into the soil with stakes.

sink: Carbon sinks occur when natural processes absorb more carbon dioxide than they release. Examples of natural processes that serve as carbon sinks include forests, soils, oceans, and vegetation.

site fidelity: The tendency of an animal to return to a previously occupied location.

sky glow: The overall diffusion of artificial light into the sky.

soarers: Birds that fly to a considerable altitude and maintain elevation without moving their wings by using ascending air currents.

smolt: A young fish undergoing its first migration from freshwater to the ocean.

soft ground conditions: A soft site exists where noise travels away from the source over porous ground or normal unpacked earth capable of absorbing noise energy such as grass, trees, or other ground surfaces suitable for the growth of vegetation, such as farmland.

soil rut: A sunken track or groove made by vehicle or equipment activity.

sole source aquifer: An aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer.

species diversity: “An ecological measure of the variety of organisms present in a habitat” (USEPA, 2015).

storm water filtration: Storm water filtration structures use a filtering media (sand, soil, gravel, peat, or compost) to remove pollutants from storm water runoff.

stratovolcanoes: Also called “composite volcanoes” and consist of alternate layers of lava and other volcanic material such as ash.

stream reach: Any specified length of a stream.

submarine volcano: Volcanoes that occur beneath the ocean surface.

subsistence fishery: Fishing when the catch is shared and consumed directly by the families and kin of the fishermen, rather than being sold.

substrate: Material such as sand and cobble that is associated with or occurs on the bottom of a body of water.

subwatershed: USGS subwatershed refers to the USGS 12 digit hydrologic unit code (HUC12), which averages approximately 40 square miles, depending on the region.

succession: “The process by which a plant or animal community successively gives way to another until a stable state is reached” (USEPA, 2015).

suicide contagion: Direct or indirect exposure to suicide or suicidal behaviors within one’s family, peer group, or media reports that can result in an increase in suicide or suicidal behaviors, especially in adolescents and young adults.

symbiont: Two organisms that live in symbiosis (mutually beneficial relationship) with one another. Algae species are symbionts with corals.

take: Defined differently by various federal and state regulations, but the most commonly accepted definition is that of the U.S. Endangered Species Act, which defines it as: “to harass, harm, pursue, hunt, shoot, wound, trap, capture, collect or attempt to engage in any such conduct.”

taxonomic group: A group of biological organisms that have shared characteristics.

taxonomy: Science of naming and classifying organisms or specimens.

tectonic plate: The solid pieces of rock (or earth) that collide, move apart, or slide past each other over geologic time.

tectonism: “Structure forces affecting the deformation, uplift, and movement of the earth’s crust” (USGS, 2015c).

temperate forest: Forests that are found in regions with mild climates and receive heavy rainfall.

terrestrial: “Pertaining to the land” (USEPA, 2015).

threatened species: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, as defined in the Endangered Species Act.

time: Soil properties are dependent on the period over which other processes act on them.

tonne: One tonne is a unit of measure in the International System of Units that is equivalent to 1 metric ton and equivalent to 1.1023 U.S. tons, which are also known as short tons.

topography: The unique features and shapes of the land (e.g., valleys and mountains).

Total Maximum Daily Load: Maximum pollutant amounts a waterbody can receive while still meeting water quality standards.

total radiative forcing: The difference between the visible light absorbed by Earth and the energy reflected back to space.

Trachyte: A type of fine-grained volcanic rock.

traditional cultural property: A place “eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community” (NPS, 1995)

translocation: The capture, transport, and release or introduction from one location to another.

trophic structure: The way organisms utilize food resources leading to energy transfer within an ecosystem.

tsunami: Large ocean waves that form as a result of water displacement.

tundra: A vast, flat, treeless Arctic region of Europe, Asia, and North America in which the subsoil is permanently frozen.

turbidity: A measure of the clarity of a liquid. When many fine particles are suspended in water, the turbidity is high.

Ultra High Frequency: UHF band covers frequencies ranging from 300 MHz to 3000 MHz.

unclassified area: Any area that cannot be classified on the basis of available information as meeting the national primary or secondary air quality standard for a pollutant.

understory: “The layer of forest located underneath the canopy. Here, smaller trees and shrubs grow, replacing older trees as they die” (USEPA, 2015).

ungulates: Classification of mammals having hooves.

U.S. Exclusive Economic Zone: A 200-mile ocean boundary around the coastline of U.S. states and territories in which the U.S. asserts exclusive commercial fishing rights.

urban: Densely developed residential, commercial, and other non-residential areas.

vascular plants: Plants that possess conducting tissues to transport nutrients and water throughout the plant.

vector: An organism that carries and transmits an infectious pathogen to another living organism.

vernal pools: seasonal depressional wetlands that are ponded only during the wetter part of the year, also known as “ephemeral pools.”

Very High Frequency: VHF band covers frequencies ranging from 30 MHz to 300 MHz.

visual landscape: What observers can readily see from a given vantage point.

water resources: Surface waterbodies and groundwater systems, including streams, rivers, lakes, canals, ditches, estuarine waters, floodplains, aquifers, wetlands, and other aquatic habitats.

watershed: USGS watershed refers to the USGS 10 digit hydrologic unit code (HUC10), which averages approximately 230 square miles, depending on the region.

wetland alternation: Any changes where the area remains a wetland and is not lost or converted, but the impacts cause a change in the type of wetland or a decrease in wetland function.

wetland loss or conversion: The actual loss of wetland habitat due to fill or conversion to a non-wetland habitat.

wetlands: “Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas” (USEPA, 2015).

REFERENCES

- Cowardin, L. M., Carter, V., Golet, F. C., & LaRoe, E. T. (1979). *Classification of wetlands and deepwater habitats of the United States, FWS/OBS-79/31*. Retrieved April 4, 2015, from <http://www.fws.gov/wetlands/Documents/classwet/index.html>
- NPS. (1995). *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Retrieved April 2016, from <http://www.nps.gov/nr/publications/bulletins/pdfs/nrb15.pdf>
- NPS. (2000). *Geologic Glossary*. Retrieved August 2015, from <https://www.nature.nps.gov/geology/usgsnps/misc/glossaryDtoI.html#G>
- NRCS. (2015e). *Using Soil Taxonomy to Identify Hydric Soils*. Retrieved July 2015, from http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_010785.pdf
- Rogers, D. J., Olshansky, R., & Rogers, B. R. (2004). *Damage to Foundations From Expansive Soils*. Missouri University of Science and Technology. Retrieved March 23, 2015, from http://web.mst.edu/~rogersda/expansive_soils/DAMAGE%20TO%20FOUNDATIONS%20FROM%20EXPANSIVE%20SOILS.pdf
- USEPA. (2015). *Terms & Acronyms Search Page*. Retrieved from https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do
- USFS. (2009). *Soil-Disturbance Field Guide*. Retrieved September 2015, from <http://www.fs.fed.us/t-d/pubs/pdf/08191815.pdf>
- USGS. (2015a, August 28). *USGS Groundwater Information – What is Karst?* Retrieved from <http://water.usgs.gov/ogw/karst/pages/whatiskarst>
- USGS. (2015b, August 28). *Volcano Hazards Program. Glossary - Lava Tube*. Retrieved from http://volcanoes.usgs.gov/vsc/glossary/lava_tube.html
- USGS. (2015c). *Tectonic Processes*. Retrieved February 2016, from <http://www.usgs.gov/science/science.php?thcode=2&term=1145>