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# Appendix C

to

## Comprehensive Renewable Energy Feasibility Study for Sealaska Corporation

# Southeast Alaska Native Villages Renewable Energy Feasibility Study Wildlife Field Review

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# Renewable Energy Feasibility Study
# Wildlife Field Review

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## INTRODUCTION

Sealaska Corporation is currently considering if options exist for Southeast Alaska Native villages to supplement or replace their diesel fuel energy source with renewable energy sources such as wind or hydropower. Utilizing grant funding obtained from the U.S. Department of Energy, a team was assembled to investigate the options.

Northwest Wildlife Consultants, Inc., based in Oregon and Washington, was selected to provide input for potential biological concerns/conflicts during the review process, among other tasks. NWC is a firm with extensive expertise in reviewing biological resources at potential sites for wind power development and also has participated in permitting small and large wind power projects through federal, state and county processes. Wildlife Biologist Karen Kronner was assigned to the Sealaska project as the biological resources group leader.

This report summarizes tasks conducted through early September 2003, including a summary of the July 2003 field trip to Southeast Alaska villages. Team member and meteorologist, John Wade, has summarized his findings in a report submitted August 10, 2003. Team leader Bob Lynette submitted an interim progress report to Sealaska Corporation on August 1 and is currently working on site access for the Hoonah ridge. Detailed background information and site-specific descriptions previously provided in the two reports are not included in this NWC report. This biological resources report will be completed when more is known about locating wind data collection equipment on the ridge above Hoonah. Wind turbine(s) may or may not be placed there, depending on the wind resources.

## METHODS and RESULTS

### *Pre-Field Review*

A pre-field review can involve brief or in-depth reviews, depending on how far along the project design is and how much site-specific information is available. Because this project focused primarily on conducting a renewable energy feasibility study, it was determined that a general review was sufficient at this time. Sealaska Corporation requested a brief report from NWC for the preliminary site assessment.

Several sources were used to obtain existing information on the avian use or other wildlife of the villages and nearby surrounding area. Agency biologists, wildlife professionals with experience in the area, and local bird enthusiasts typically have the local knowledge and experience with birds inhabiting and migrating through the local environment. In addition, NWC has added wildlife biologists and other professionals with the appropriate experience to the NWC biological team as Associates to assist where needed. They include:

- Dr. Bob Day - ABR, Inc. (wildlife research in Alaska)
- Dr. Wallace Erickson – WEST, Inc. (statistician/biometrician)
- Dr Bob Ellis – Ellis Ecological Services, Inc. (fish biologist)

In addition to wind power specialist and biologist Karen Kronner, a NWC employee who was previously a wildlife biologist on the Tongass National Forest will be assisting with the Sealaska feasibility study.

The appropriate U.S. Fish and Wildlife (USFWS) staff members in Anchorage (Karen Laing, Ellen Lance, and Greg Balough) were contacted and briefed about the renewable energy feasibility assignment and to solicit initial comments and/or obtain local wildlife information. They recommended the Sealaska team involve their regional expert based in Juneau, wildlife biologist Mike Jacobson. NWC contacted Mike and he provided general comments about the wildlife for each village and shared insight on the local winds and potential for wind power. These comments were entered into a table (Table 1) along with comments fromNWC's sub-consultant Bob Day.

Based on these pre-field reviews, it became apparent that bald eagles (nesting or foraging concentrations), migrating birds (all groups), wintering waterfowl, nesting goshawks, and bats could be the biological resources to consider when selecting sites for wind turbine siting. In addition, guy wires on meteorological towers in some areas may be problematic if large concentrations of birds are nearby (potential avian collision with the wires in flight paths).

Based on agency comment and a review of the USFWS Threatened and Endangered System database, there are no known federal or state threatened or endangered wildlife species commonly found in the areas being investigated for Sealaska Corporation. Bald eagles are protected under the Bald Eagle Protection Act. Alaska Species of Special Concern potentially occurring as breeders or migrants in Southeast Alaska are American peregrine falcon and the northern (Queen Charlotte) goshawk. In Southeast Alaska the peregrine falcon nests on cliffs along rivers or near lakes and the goshawk nests in old growth and mature forests. Large concentrations of shorebirds migrate along the coast.

**Table 1. Pre-field Notes Provided to NWC from Area Specialists**

| Location | Notes from USFWS Mike Jacobson | Bird notes from R. Day, ABR |
|---|---|---|
| Angoon | Area has bald eagle nests. Mitchell Bay is premier spot in SE AK for waterfowl, gulls, and shorebirds because there is dense schooling of fish to feed on. | Complex shorelines and protected waters suggest that this area may be important to wintering seabirds and waterfowl. |
| Hoonah | Bald eagles abundant. Good roads, active logging. | Nearby Icy Strait is important foraging area for seabirds in summer, substantial number of wintering waterfowl (and probably seabirds) in Port Frederick. |
| Tenakee Springs | Waterbirds in bays, good eagle population. Good wind potential. | Simple shoreline by town suggests that the area may not be important for wintering seabirds or waterfowl. |
| Yakutat | Major bird migration of all birds (they move along the coast). Wind probably good. | Major bird migration zone for along-coast movements. Kittlitz's Murrelets are in the bay, but unknown whether they fly in airspace where the windfarm will be. |

## *Field Review*

General notes on the team's effort to address potential avian or habitat concerns while locating met tower and/or turbine locations were addressed in the reports previously submitted by B. Lynette and J. Wade. The following provides site-specific documentation of the potential biological (avian or other) concerns noted during the July 2003 field trip for the locations selected for studying the wind resources with met towers.

### Hoonah

*Landfill Met Tower*

The habitat at this location has previously been disturbed through the application of fill material. The site is flat and vegetation consists of grasses, forbs and a few scattered small deciduous trees. It is adjacent to a bay that supports large numbers of wintering water fowl so the met tower location was set back 150 feet from the water's edge without impacting the required wind data collection process. In addition, the site appears to be suitable for wind turbine placement because it has been previously disturbed, does not have any unique biological habitat or features, is close to moderate human activity (generally lower wildlife use or lower diversity of wildlife), and does not appear to be near bald eagle or other large native bird nesting structure. Bald eagles are frequently observed day roosting along the periphery of the bay and marina but no unique perching structures are present at the proposed site. Passerines (small birds) nesting in the immediate area could include common birds such as song sparrow (documented during field trip). There does not appear to be any obvious landform feature that would funnel large groups of night migrating birds, small or large. The USFS biologist noted that birds concentrate in the pass between the mountains. To reduce the potential for birds or humans to collide with the supporting met tower guy wires, NWC and J. Wade are exploring attaching flashy strips of material or commercially available bird deterrent devices to some sections of the wires.

*White Alice Met Tower*

The habitat is coniferous forest (hemlock) with periodic openings created by timber harvest and other human disturbances. Some openings are approximately six to seven acres and are currently shrubby habitat consisting of alder and young hemlock. Existing communication towers in the openings could provide supporting structure to place anemometry equipment, eliminating the need to do additional habitat clearing and eliminating the guy wire concern (see above). If the site has potential for wind turbine(s), it is possible they could be placed in areas that are already disturbed. Passerine breeding activity and migration and bat activity could be higher than at the landfill site. Low flying water birds may be at risk for collision with the turbines. If the site has sufficient wind for turbine(s), more site-specific data will be gathered from local expertise or by conducting focused studies.

**Yakutat**

*Met Tower A (Point)*

This location will need minimal vegetation clearing for placement of the met tower. Wind turbine(s) will require removal and control of low shrubs. Habitat alteration does not appear to be a concern at this site because the vegetation type is extensive and no unique features were noted. In general, the elevation of the point combined with the proximity of the land to the opening of the bay, suggests birds of all groups may fly closer to the ground here compared to the beach met tower site where they are expected to be more dispersed. Birds orienting with the shoreline during local and long distance movements will be traveling over this point and along the beach. See other comments below from other individuals.

*Met Tower B (Beach)*

This wide, flat sandy beach is sparsely vegetated. It may serve as a resting spot for migrating shorebirds depending on the water levels (percent of exposed foraging flats) and weather extremes. However, shorebirds typically concentrate at other locations. There did not appear to be any unique landform except the beach itself that would indicate higher use by birds. Gulls of various species are known to rest on the beach. Approximately 2,000 gulls have been observed resting on the flat beach on one day. Bald eagles nest nearby but no nest locations were available from the resources contacted. See other notes below from other individuals.

## *Agency Comments*

### U.S. Fish and Wildlife Service

Mike Jacobson, *USFWS*, was contacted on August 7 after the July field trip. He was briefed on the results of the field trip. It was explained that if a wind site is located, there may be 1-5 turbines, but we would need to test the wind for a year. He did not have any special concerns for each location although he was pleased that we would mark the guy wires so they would be more visible to birds.

*Angoon*

He was familiar with the area and did not have much to say concerning avian issues. He offered to see if anyone with the USFWS in the Juneau office had any comments or had been working on the proposed hydro project. He thought the wind along the Admiralty Island coast north of Angoon was good but understood the transmission line challenges. He noted the Angoon area is very rich in marine life, salmon and birds compared to other parts of Southeast Alaska.

*Hoonah*

Based on the species of wintering waterfowl near the selected Hoonah met tower location at the fill site, he did not expect waterfowl to be a concern for the met tower. He would like to see the turbine specifications when available but noted that waterfowl may not be a concern but would need to look at it closer if we

decide to go forward. He was pleased that we had selected a disturbed site (photo provided) so other issues such as habitat impacts, etc., would be eliminated. He noted that the wintering ducks are mostly open water diving ducks and not shallow water ducks that may rest and forage on the grassy shoreline. He encouraged NWC to check with the local birders for additional local avian use information.

*Yakutat*

He was pleased that the team attempted to locate sites away from prominent points that migrating birds may concentrate near while moving into the bay or along the coastline. Bald eagle nesting and flight paths during nesting or concentrated roosting would be issues that need to be considered for micro-siting wind turbines. When asked about gulls, he noted that they are protected under the Migratory Bird Treaty Act but some species have been increasing in Southeast Alaska and may not be too much of a concern. Others are somewhat unique regionally so their nest sites and concentrated use patterns may need to be reviewed.

He mentioned two other biologists in the Juneau USFWS office that may be able to provide information on bats and passerines for all sites when the turbine project moves forward with micro-siting and environmental permitting. He clarified that he is not a wind power specialist but was asked to assist the team because of his local knowledge and his past participation in the wind power guidelines meetings. He mentioned that other biologists with his agency might want to comment when turbine sites have been selected.

### *Other Comments*

NWC briefed the ***U.S. Forest Service*** Recreation and Lands Manager in Hoonah and the USFS District Wildlife Biologist in Yakutat about the team's tasks and goals. They appreciated being contacted and they requested to be notified if the wind project moves forward. NWC left messages for the Hoonah USFS District Wildlife Biologist; there has been no response as of August 30.

NWC contacted ***Alaska Fish and Game*** biologist, Bob Johnson located in Yakutat. He did not see any avian or habitat concerns for the beach met tower (B) whereas the met tower A at Ocean Cape (and subsequent wind turbines) may have more migrating birds flying lower as the follow the land. He said sandhill cranes fly over Yakutat and Monti Bay but they are usually higher over the lowlands of met B than the met A location. He suggested a glacial moraine site as an alternative site that may have some wind (information reviewed by J. Wade).

Non-government individuals in Yakutat were contacted to gather more site-specific avian use information. Bill Lucy, a ***City of Yakutat*** fish biologist, has been studying birds within the Yakutat area for several years. He provided the following avian use information. Yakutat has very large numbers of migrating shorebirds. They stop over or migrate through

(depending on the weather) in very large numbers. The Yakutat area is internationally recognized by shorebird scientists as the "Yakutat Foreland". Shorebird stop-over sites in the Pacific-Asiatic Flyway for this part of Alaska are Stikine River Delta, Yakutat and Cordova. In the Yakutat area they concentrate on the Situk and Arhnklin Flats. Approximately 100,000 to 500,000 shorebirds are known to migrate each year in this area, traveling more inland during fall and more coastal in spring. Two species, golden plover and (? need to fill in), migrate through Yakutat in such large numbers that the area has been submitted to Manomet as a proposed Western Hemisphere Shorebird Reserve Network (WHSRN). The WHSRN is a voluntary consortium of over 240 organizations and agencies across the Americas, working together to protect and manage wetlands, grasslands and coastal areas to benefit shorebirds (www.WHSRN@Manomet.org). Over half of all shorebird species show evidence of serious declines over the past 30 years. As the WHSRN directorate, Manomet provides technical, educational and support services to the 54 sites in 7 countries to stimulate local leadership and provide an international framework for conservation.

Bill said bald eagles catch the westerly winds and "float" above the tree line that runs parallel along the coast to conserve energy while they travel along the Gulf of Alaska. He has some suggestions for simple bald eagle mitigation projects that could offset concerns about potential bald eagle impacts. Yakutat is at the northern end of the goshawk and peregrine breeding range so he did not expect them to be an issue during the nesting season. However, many raptors migrate through Yakutat.

He suggested that the team consider the Dangerous River to test the wind because he is certain we will find the winds are very strong and consistent, perhaps good enough to support wind turbines, although there would be a long transmission line. The area is 25-30 miles from Yakutat and has less shorebird and other bird use than the two sites the team is currently exploring. He suggested that there are numerous fish habitat improvement projects along the way to Dangerous River that could be integrated into construction of the underground transmission line for a wind power project. There are fish passage blockage problems at several highway culverts and there could be some joint funding to integrate both objectives.

Of particular note is the recent discovery of two new moonwort grape-fern species (*Botrychium spp.*), a small plant found in parts of the sandy beach (Met B). They occur at three locations in the Yakutat area. They are associated with wild strawberry cover that is found on the edge of the alder/willow zone but could be found scattered throughout the open sandy beach. He offered to assist the met tower crew in placement of the guy wire anchors to avoid the ferns, assuming the vegetative structure is still visible this fall. It is possible the met tower is sited in an area that has low or no potential for the plants to occur. Bill was very supportive of wind power, having an interest in placing a small turbine on his property some day.

Chuck Parsley, ***USFS Tongass National Forest*** District Biologist in Hoonah was contacted. He expressed support for an alternative energy source. He did not feel that turbines on the ridge or the flat would pose a significant bird risk issue. He wanted to check with his bird specialists on the forest for more information. He said goshawks are infrequently observed in the area and he was not aware of any nests near our sites. He said the peregrine falcons nest 40 miles away but may migrate through the area. He commented that the winds are

south/southeast when fronts move through but are northerly when there is high pressure and clear skies.

Mary Stensvold, botanist with the ***USFS Tongass National Forest*** in Sitka was contacted about the grape-ferns. She would be glad to assist the met tower crew in avoiding grape-fern plants and could be available September 23 or 24 when she will be closer to Yakutat.

Sealaska's previous land manager was also contacted. Ernie Hillman managed lands for twenty years and now serves as a consultant for ***Sealaska Corporation***. He was interviewed for his knowledge of the sites being considered for wind turbines. According to Ernie, the summer winds in Southeast Alaska are predominantly southeast with an occasional southwest breeze in August. Strong north winds occur in fall and winter. He has observed numerous robins and jays on the "White Alice" ridge above Hoonah and commented that bald eagles don't fly much in the fog.

The ***Yak-Tat Kwaan Tribe*** in Yakutat does not have a biologist. Sherrie Jensen of the tribe has been a liaison for the Forest Service. Other agency and non-government individuals that were contacted before, during and after the field investigation are included on the master contact list maintained by team leader B. Lynette. Some individuals were not reached yet and NWC will continue to make contact to gather further information from those individuals.

## RECOMMENDATIONS

Continue to collect site-specific wildlife use information from knowledgeable individuals. Review existing data on raptors, shorebirds and seabirds from other sources such as breeding bird atlas reports, USFS and National Park Service bird migration and bird banding studies, bat research, and the Pacific Seabird database.

If the wind data indicates a high probability of a wind turbine or a few turbines, consider forming a community wind power group (Native members) at each village location for the local residents to participate and to take ownership in their potential new energy source. At Yakutat, Sealaska Corporation should consider some public outreach by putting an article in the paper about the project and requesting that people do not shoot the test towers. There has been vandalism in the past at the existing met tower. The article should explain that the data will be used to analyze options for reducing their power bills.