

Appendix D3 – USFWS Best Management Practices

US Fish and Wildlife Service, Alaska

Technical Assistance for Broadband Projects¹

In anticipation of substantial expansion of broadband capability in Alaska, the Alaska Region of the US Fish and Wildlife Service (Service) has compiled Best Management Practices (BMPs) for project proponents to consider early in the planning and project development process to avoid and minimize impacts to wildlife populations and habitats.

Although these BMPs are designed to be broadly applicable across projects, each individual project will likely have unique environmental and wildlife considerations, and we encourage project proponents to reach out directly to either the Northern Alaska Fish and Wildlife Field Office or Southern Alaska Fish and Wildlife Field Office, depending on the location of the project.

To determine if your proposed project is on land managed by the Service (i.e., National Wildlife Refuges) or has Service trust resources (e.g., Threatened and Endangered species, eagles, migratory birds, marine mammals, wetlands, etc.) in the vicinity of or within the project footprint, see the Service's Information Planning and Consultation (IPaC) tool (ipac.ecosphere.fws.gov/). To use IPaC, click on 'Get Started', and select the project area by manually drawing project boundaries or uploading a shapefile.

In addition to universal BMPs that will be broadly applicable across all activity types, activity specific BMPs are organized based on the type of broadband deployment method being used (i.e., terrestrial, riverine, and marine cable lay as well as broadband towers). Additional sections on species-specific BMPs and regulatory BMPs are provided and should be considered when additional species or resources are identified within or adjacent to the project area in IPaC. Contact the relevant Field Office (listed on the IPaC Resource List printout) with any questions and for additional guidance on avoiding and minimizing impacts to resources.

Overview:

1. [Universal Best Management Practices](#)
2. [Method-specific Best Management Practices](#) - including terrestrial, riverine, marine, and broadband towers
3. [Species-specific Best Management Practices](#)
4. [Regulatory Best Management Practices](#)

¹ <https://www.fws.gov/service/technical-assistance-broadband-projects>

Universal Best Management Practices

Migratory birds

- The Service has developed a timing guidelines table for migratory birds in Alaska to help avoid the take of nesting birds based on location, habitat, and bird species. Visit fws.gov/alaska-bird-nesting-season to view the table online and download a PDF version.
- Prevent increase in lighting of native habitats during the bird breeding season.
- To the maximum extent practicable, limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.
- If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low intensity energy saving lighting (e.g., low pressure sodium lamps) should be used.
- Minimize use of high-intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, fluorescent, or other bright spotlights.
- Minimize illumination of lighting on associated construction or operation structures by using motion sensors or heat sensors. Use switches to keep lights off when not required.
- Avoid installing lights offshore or within 0.5 miles of the coast.
- Cap pipes and cover and seal all small dark spaces where birds may enter and become trapped.
- Install anti-perching devices on facilities and equipment where birds may commonly nest or perch.
- Cover or enclose all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material should have no opening or mesh size greater than 19 millimeters and should be maintained until the structure is removed.

Oil spills

- To fulfill Federal and State reporting requirements, all spills of oil, petroleum, or other hazardous substances, of any size, should be reported to the National

Response Center (1-800-424-8802) and the Alaska Department of Environmental Conservation Spill Reporting Hotline (1-800-478-9300).

Method-specific Best Management Practices

Terrestrial broadband

- Reduce the project footprint to the maximum extent practicable, and locate proposed projects and their associated activities in already disturbed areas or lower functioning or lower quality habitat.
- Collocate infrastructure whenever possible in permanently disturbed areas such as rights-of-way (e.g., place utilities in existing road corridors, use existing pipeline or transportation corridors for new infrastructure construction, place new antenna on existing towers or place new structures near existing structures whenever possible).
- Avoid placement of infrastructure and fill materials in wetlands whenever possible. Effects to wetlands are usually proportional to the size of the impact. Therefore, if avoidance is not possible, minimization should be employed by choosing broadband options with smaller footprints (i.e., single tower vs. miles of overhead cable poles with cleared right-of-way) that do not obstruct hydrologic flow across the landscape.
- If impacts to wetlands are unavoidable, make them temporary impacts by restoring the site to pre-existing conditions (e.g., hydrology, grade, vegetation). Permanent impacts (e.g., placement of fill, alteration of hydrology) should be offset with the purchase of compensatory mitigation within the same or a nearby watershed. This will reduce subsidence, scarring, and habitat alteration.
- Avoid sensitive soils such as highly erosive soils, thaw-stable, and thaw-unstable permafrost.
- Avoid ground-disturbing activities during the bird nesting season when possible.
- Preserve stream and riparian buffers to protect water quality, maintain stream channel and bank stability, maintain fish and wildlife habitat, and provide flood water protection. See <https://www.fws.gov/Riparian-Management-Interior-Alaska> for more information on riparian buffers.
- Trenching should be avoided in terrestrial areas of thaw-sensitive soils (i.e., continuous and discontinuous permafrost). The activity of trenching, even during freezing temperatures where a stable, frozen platform is available for digging and backfill, creates linear density differences within the trench, allowing groundwater

to collect and pass more easily than the surrounding non-disturbed soils. The higher permeability of backfilled trenches usually causes a French-drain effect, aggregating surface flows and groundwater, which then melts surrounding permafrost and causes water flow, further exacerbating the permafrost degradation. Subsequent water quality and habitat degradation causes numerous negative effects. Alternatives for trenching include direct cable lay, overhead cable with poles, or use of non-cable broadband such as 4G and 5G networks via network towers.

Invasive species

- Equipment must arrive and leave the project clean without visible soil clumps, plant, or animal material. Use a pressure washer, paying special attention to wheel wells, areas behind the bumper, trailers, and other areas that are likely to catch vegetation or seeds. Equipment washing should occur at the same location during project operations; this site should then be surveyed regularly and treated as necessary. Do not clean equipment in or near waterways as it may promote the spread of invasive plant species downstream. Conduct project operations in uninfested areas first to ensure that invasive species do not contaminate equipment and get moved to new areas.
- Prevent invasive plant contamination of project materials when stockpiling materials. Ensure the area is free of invasive species, and cover gravel and construction materials to prevent accidental introduction of plant parts such as seeds, roots, and propagules (i.e., reproductive vegetative parts). Remove any plant parts from materials before deploying them into the field.
- Use certified weed free gravel (plants.alaska.gov/invasives/weed-free-gravel.htm)
- Use certified weed free hay in straw wattles (plants.alaska.gov/invasives/weed-free-forage.htm)
- Soil disturbance includes contouring, grubbing, logging, moving, removing, excavating, and cutting. Soil disturbance destabilizes and exposes soil, which can impact water and air movement, biological activity, root growth, and seedling emergence. Disturbed soil provides an opportunity for invasive plants to establish and spread, to compete with native species, and to colonize new areas. Disturbed soil should be stabilized and covered as soon as possible to prevent the germination and growth of invasive plants. If a worksite is infested with invasive plants, schedule treatment of these plants prior to ground disturbance to minimize spread of invasive plants into other uninfested areas. Project materials such as fill, aggregate, and

erosion control materials can also carry invasive plant seeds, which further increase the risk for infestation after soil disturbance. Refer to the weed free hay and gravel above.

- When possible, wear clothing, boots, and gear that do not retain soil and plant material. Clean clothing, boots, and gear before entering and leaving worksite. Remove soil, mud, seeds, and any plant material from clothing, boots, and gear with appropriate equipment. This may include wire brushes, small screwdrivers, boot brushes, extra rinse water, and bags for plant material. Inform coworkers about possible seeds or other propagules carried on their clothing, footwear, and gear.
- Vertebrate invasive species can be transported in cargo planes and ships where they stowaway in grain, straw, and hay. Eradicate free-roaming rats and mice whenever they are detected on or in equipment to ensure they are not inadvertently relocated elsewhere. Eliminate rat attractants including shelter, edible refuse, and food. Keep trash and foodstuffs in metal or other rodent-proof containers.
- Never release live rats or mice into the wild, and never throw captured rats overboard; they are excellent swimmers and may reach land. Other tips for rat prevention and control are available in the Alaska Department of Fish and Game's State Invasive Rodent Plan (adfg.alaska.gov/static/species/nonnative/invasive/pdfs/invasive_rodent_plan.pdf).

Direct cable lay on tundra

- Depending on the type of tundra, some sections of the cable may never subside when directly laid on the ground. Ensure above ground cable sections remain in a line and do not curl up to avoid entanglement by wildlife (e.g., birds, caribou, etc.).
- When necessary, cable slack on the ground to prevent impacts of temperature expansion, contraction, and cable settling may be necessary. However, the cable slack should be laid on the ground in a waving line instead of twisted in circles to prevent entanglement of birds, caribou, and other wildlife.
- The extra effort to place the cable on the ground, regardless of the thickness or height of shrubs, will prevent potential entanglement of birds.
- Be aware that wildlife (e.g., grizzly bears, polar bears, foxes, rodents, etc.) may attempt to chew on cables. This could also occur for cables that are trenched shallowly.

Overhead between poles

- To reduce bird collisions, place transmission lines associated with the development underground to the extent possible unless burial of the lines is prohibitively expensive (i.e., where shallow bedrock exists) or where greater impacts to biological resources would result.
- Overhead lines may be acceptable if they are sited away from areas used by high numbers of birds crossing between roosting and feeding areas or between lakes, rivers, and nesting areas.
- Use bird flight diverters (i.e., flappers) or related deterrent devices that are durable and visible to reduce collision risk. Studies suggest that most bird collisions occur with the shield wire – the smallest diameter and highest wire on a transmission line. The observed reduction in collision rates can range from about 10 percent to as much as 80 percent (Barrientos et al. 2011^[1]) and appears to vary with location, habitat, wire, pole configurations, and other factors. The type and spacing of diverters will also affect the degree to which collision risk is reduced.
- Above water crossings of the cables may still impact birds, regardless of the bird diverters. This primarily may happen with thick fog during fall migration or during breeding when birds are flying in circles, etc. to impress a potential mate. Placing the cable under water, and perhaps under the bottom of streams or rivers, likely will be the best solution to avoid avian impacts.
- On the North Slope of Alaska, where ravens depend on manmade structures for perching and nesting, install deterrent features on poles to reduce their availability as artificial perching and nesting platforms.

^[1] Barrientos, R., J.C. Alonso, C. Ponce, and C. Palacín. 2011. Meta-analysis of the effectiveness of marked wire in reducing avian collisions with power lines. *Conservation Biology* 25:893-903.

Riverine broadband

- Adhere to permit construction timing windows to avoid sensitive fish life stages such as spawning, incubation, and migration.
- Preserve stream and riparian buffers to protect water quality, maintain stream channel and bank stability, maintain fish and wildlife habitat, and provide flood water protection. See [fws.gov/node/378411](https://www.fws.gov/node/378411) for more information on riparian buffers.

- Use screened intake for water withdrawals. The Alaska Department of Fish and Game Habitat Division Technical Report No. 97-8 (adfg.alaska.gov/static/license/uselicense/pdfs/97_08.pdf) contains additional information on screening criteria for various species and life stages of fish as well as methods for design and fabrication of cylindrical water intakes. Appropriate screening prevents suction entrapment and entrainment injury to small and juvenile fish present in the area of the withdrawal.
- For riverine fiber-optic and traditional cable overhead wire crossing, horizontal directional drilling (HDD) is highly recommended as a crossing method. This is especially true for Navigable Waters regulated under Section 10 of the Rivers and Harbors Act and rivers that are navigable in fact. HDD should be used over the 100-year floodplain extent to maintain lateral movement of the river without obstructions from protective broadband infrastructure. This ensures protection of wildlife from the infrastructure obstructions and entanglements, decreases regulatory oversight from potential obstructions to navigation, and increases infrastructure lifespan by avoidance of damage from flooding.
- The use of plastic fiber erosion control fabrics is not acceptable to mitigate streambank erosion or maintain erosion control on steep slopes in or near flowing waterbodies. Instead, use bioengineering techniques and materials that will not pose hazards to wildlife if escapement occurs. For examples, see the Alaska Department of Fish and Game Streambank Revegetation and Protection: A Guide for Alaska (adfg.alaska.gov/index.cfm?adfg=streambankprotection.main).

Spill mitigation

- Maintain a minimum 200-foot setback from waterways when storing hazardous or toxic material.
- Ensure that secondary containment is provided for the storage of fuel or hazardous substances and sized as appropriate to container type and according to governing regulatory requirements in 18 AAC 75 and 40 CFR 112.
- Containers with an aggregate storage capacity of greater than 55 gallons that contain fuel or hazardous substances should not be stored within 100 feet of a waterbody or within 1,500 feet of a current surface drinking water source.
- During equipment storage or maintenance, ensure that the site is protected from leaking or dripping fuel and hazardous substances by the placement of drip pans or other surface liners designed to catch and hold fluids under the equipment or by

creating an area for storage or maintenance by using an impermeable liner or other suitable containment mechanism.

- During fuel or hazardous substance transfer, ensure that a secondary containment or a surface liner is placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends. Appropriate spill response equipment, sufficient to respond to a spill of up to five gallons, should be on hand during any transfer or handling of fuel or hazardous substances.

Sedimentation and pollutants

- Isolate wetlands and waterbodies from project-generated sediment and pollutants (i.e., soil sediments, fuels, grease, and oil) with project specific measures to avoid and minimize water quality degradation to protect respiratory gill function of fish. Measures may include maintaining riparian zone setbacks and bank stabilization or restoration practices. During the construction phase, properly installed silt fencing, silt curtains, etc. should be used interim to proper bank stabilization with vegetation. Long-term use of silt fencing must be avoided due to level of maintenance necessary to maintain and the likelihood of plastics escapement to the environment.

Invasive species

- Aquatic Best Management Practices follow the principles of Clean, Drain, Dry:
 - Clean – Inspect and clean off plants, animals, and mud from clothing, vehicles (i.e., float planes and boats), and equipment including waders, footwear, ropes, anchors, and field gear before leaving water access. Use the local water source initially to help remove heavy deposits. Remove plant fragments, and scrub off any visible material with a stiff brush.
 - Drain – all water from watercraft, motor, bilge, bladder tanks, live well, and portable bait containers before leaving water access.
 - Dry – equipment, vehicles, and gear before moving between waterbodies. Dispose of unwanted materials in the trash; do not dump them in the water or on land.
- Refer to the Alaska Region’s Guidelines for Preventing the Spread of Aquatic Invasive Species ([fws.gov/media/aquatic-invasive-species-prevention-guidelines-pdf](https://www.fws.gov/media/aquatic-invasive-species-prevention-guidelines-pdf)) for more information.

Marine broadband

- Select cable routing to avoid listed eider and short-tailed albatross concentration areas to reduce potential behavioral and disturbance effects.
- Depending on the project area, Protected Species Observers may be necessary to avoid potential take of Endangered Species Act-listed species and marine mammals protected by the Marine Mammal Protection Act.
- Keep cable lines tight to decrease entanglement risk.
- Take all precautions necessary to minimize the risk of spilling fuels or other materials in the marine environment.
- Avoid project activities, particularly those that disturb subsurface vegetation, in areas of eelgrass and kelp growth. Eelgrass and kelp provide rearing and refugia habitat for a wide variety of small and juvenile marine fish and invertebrate species that provide food for listed eiders. Northern sea otters are also associated with kelp forests, which they use to escape from marine predators.
- Minimize the use of external lighting at night, and angle lights downward toward the surface of the water to reduce potential for collisions with vessels and gear. The use of bright lights at night, especially during inclement weather, increases risk of collision and mortality events. Bright lights on vessels at night can serve as an attractant or can cause temporary visual impairment, which increases the risk of birds colliding with vessel gear or rigging that is difficult to see at night. Weather patterns can further reduce visibility and the lower cloud ceiling enhances light where birds tend to fly at lower altitudes. Further information on vessel strikes in the marine environment is available at [fws.gov/service/technical-assistance-prevent-bird-vessel-strike-alaska-marine-environment](https://www.fws.gov/service/technical-assistance-prevent-bird-vessel-strike-alaska-marine-environment)
- Vessels should not discharge materials (i.e., trash or other debris) into the ocean that may attract seabirds, including short-tailed albatross.
- Vessels will not allow tow lines to remain in the water, thereby reducing the potential for entanglement.

Invasive species

- Alaska relies on the US Coast Guard to enforce national standards for ballast water and biofouling.
- Commercial ships use ballast water, typically loading ballast when offloading cargo and discharging ballast when unloading cargo. However, when loading ballast, small organisms are often also brought onboard with the water. If unmanaged, water can

then be transferred to areas and discharged with viable organisms in the effluent. Organisms that are then deposited can cause harm to native flora and fauna in the new area they inhabit.

- Empty/Refill Exchange: pump the ballast tank or tanks and refill the tank with mid-ocean waters at least 200 nautical miles from any coast.
 - Flow through exchange: pump in mid-ocean water, at least 200 nautical miles from any coast, at the bottom of the tank and continuously overflow the tank from the top until three full volumes of the ballast water tank capacity have been changed.
 - Onboard Treatment: Use a properly functioning treatment system approved by the US Coast Guard that is designed to kill all living organisms in the ballast water.
 - Freshwater: Use ballast water from a municipal water supply from the US or Canada.
 - Sealed tanks: Use ballast water in sealed tanks incapable of discharging ballast water.
- Biofouling accumulation on a submerged vessel can begin within minutes. The process begins with bacteria and algae recruiting onto the vessel, progressing into a slime layer (biofilm) within days. Then further advancing into a macrofouling community in weeks. Macrofouling happens especially in the niche areas (i.e., propeller shafts, rudder, sea chest intake, bow thruster gratings, etc.), which act as protective spaces for biofouling organisms. Applying the proper antifouling hull paint and maintaining the coating to the manufacturer's specifications may substantially reduce vessel operating costs and minimize environmental impacts. Following best management practices for managing biofouling "early and often" at the slime layer level will cut biofouling management and fuel costs, thereby reducing vessel carbon emissions in addition to reducing biosecurity risks ports.
 - Vertebrate invasive species can be transported in cargo planes and ships where they stowaway in grain, straw, and hay. Eradicate free-roaming rats and mice whenever they are detected on or in equipment to ensure they are not inadvertently relocated elsewhere. Eliminate rat attractants including shelter, edible refuse, and food. Keep trash and foodstuffs in metal or other rodent-proof containers.
 - Never release live rats or mice into the wild, and never throw captured rats overboard; they are excellent swimmers and may reach land. Other tips for rat

prevention and control are available in the Alaska Department of Fish and Game's State Invasive Rodent Plan

(adfg.alaska.gov/static/species/nonnative/invasive/pdfs/invasive_rodent_plan.pdf).

Broadband towers

- Guy wires and tower lighting should be avoided when possible. Use self-supporting towers when applicable. If guy wires are necessary, bird flight diverters or high visibility marking devices should be used. When guy wires are necessary, each wire should be marked for its full-length using markers colored to contrast with the wire and surrounding environment during daylight hours. The Service can provide information as needed on types that have proven durable as not all markers have withstood use in Alaska. Markers should be checked and maintained periodically to ensure continued functionality for the life of the project.
- Use visual contrasting colors on towers to improve visibility.
- Use motion detectors and down-shield lights to reduce collisions and light loss when lighting facilities.
- Towers and associated facilities should be designed, sited, and constructed to avoid or minimize habitat loss within and adjacent to the tower "footprint" (including guy wire circumference). Several shorter, un-guyed towers may be preferable to a single, tall, guyed and lit tower.
- If a tower is in the path of a potential bird migration corridor, the Service recommends mortality monitoring. Representatives from the Service or other experienced biological monitors (i.e., from other agencies, biological consulting companies, etc.) should be allowed access to the site to evaluate bird use; conduct dead-bird searches; place above ground net catchments below the towers; and to perform studies using radar, infrared, thermal imagery, and acoustical monitoring, as necessary.
- Use monopole structures when possible, rather than lattice structures to discourage perching and nesting by ravens, raptors, and other birds of prey unless a monopole structure would require additional guywires on an otherwise un-guyed tower. Nesting by ravens and raptors can result in increased rates of predation. In these cases, the applicant should work with the Service to incorporate anti-perching and anti-nesting devices into project design.
- Powerlines should be buried in roadbeds or placed in electrical trays strung on Voltage Sensing Modules when possible.

- Locate towers to avoid placement of fill in or disturbance to wetlands, which are prime breeding and forage areas for migratory birds and other trust species.
- Towers should not be sited on ridgelines or other known bird concentration areas (e.g., State or Federal refuges, staging areas, rookeries, and Important Bird Areas) or in known migratory bird movement routes, daily movement flyways, areas of breeding concentration, or in habitat of Threatened or endangered species.
- Avoid installing towers offshore or within 0.5 miles of the coast.
- It is recommended that new towers should not be more than 199 feet above ground level. This height increases the mean free airspace between the top of the tower and the height at which birds generally migrate, reducing collision risk.
- Lights are a primary source of bird aggregation around towers, thus minimizing all light is recommended. Eliminating tower lighting is the preferred option if allowed by FAA regulations and lighting standards (Patterson 2012^[1]). See (faa.gov/documentlibrary/media/advisory_circular/ac_70_7460-1L_.pdf) for more detailed information about FAA guidelines. To meet FAA requirements for visibility lighting of towers the Service recommends (in order of least to most likely to affect birds): red strobe, dual red and white strobe, strobe-like, or flashing and not steady state lights. Pilot warning lights should fire synchronously.
- Security lighting for on-ground facilities, equipment, and infrastructure should be motion or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination while still allowing safe nighttime access to the site.
- On the North Slope of Alaska, where ravens depend on manmade structures for perching and nesting, design towers to reduce their suitability as artificial perching and nesting platforms.

^[1] Patterson, J.W. 2012. Evaluation of new obstruction lighting techniques to reduce avian fatalities. Technical Note: DOT/FAA/TC-TN12/9.

Species-specific Best Management Practices

Additional best management practices are provided for species protected under the Endangered Species Act and/or Marine Mammal Protection Act.

Northern sea otter

- For all vessel-based activities within the sea otter range, take precaution to avoid harassment or harm of sea otters. Vessel strikes are a cause of injury and death for

sea otters and the probability of death or serious injury to a marine mammal increases as vessel speed increases. Use established navigation channels or commonly recognized vessel traffic corridors and avoid alongshore travel in shallow water (less than 20 m) whenever practicable. Follow the Service's sea otter vessel guidelines for Alaska ([fws.gov/sea-otters-boater-guidance](https://www.fws.gov/sea-otters-boater-guidance)).

- Vessels should avoid approaching within 100 meters (328 feet) of areas with kelp at the surface when operationally possible. If vessels must approach kelp canopy areas more closely, apply extra vigilance to look for sea otters (e.g., assign an additional spotter), and maintain an appropriate distance from sea otter individuals or groups.
- Sea otters may be disturbed or harmed by loud in-water noise, and the Service considers sea otter to be harassed when exposed to in-water sound levels exceeding 160 dB re 1 μ Pa SPL_{RMS}. If activities involve in-water noise production in sea otter habitat above this level, contact the Service's Marine Mammals Management office (FW7_AK_Marine_Mammals@fws.gov; 800-362-5148).
- Coordinate with Tribal organizations to ensure activities do not disrupt sea otter subsistence harvest. The Service's Marine Mammals Management office may be able to assist with coordination.
- Depending on the project area, Protected Species Observers may be necessary to avoid potential take of sea otters.
- Areas have been designated as critical habitat for northern sea otters. These areas represent locations that are of particular importance to the species. The Service asks that project proponents are cognizant of the importance of these locations to sea otters and limit actions within these areas when possible.

Pacific walrus

- Walruses are sensitive to disturbance from noise, sights, and smells associated with human activities. Take caution to avoid disturbing walruses that are in the water or are hauled out on ice or land. Follow the Service's guidelines for avoiding disturbance, including from marine vessels and aircraft: [fws.gov/walrus-approach-viewing-guidelines](https://www.fws.gov/walrus-approach-viewing-guidelines)
- When planning work in the Bering or Chukchi Seas, consult the Pacific Walrus Coastal Haulout Database 1852-2016 (alaska.usgs.gov/products/data.php?dataid=74) for information regarding location and use patterns of known terrestrial walrus haulouts in Alaska. Note there are five

regularly used walrus haulouts in Bristol Bay, located at Round Island and Hagemeister Islands and Capes Peirce, Newenham, and Seniavin. During the months of May through December, walruses may be encountered in the water and resting on land in these areas. In the Chukchi Sea, there are especially large, sensitive haulouts at Point Lay and Cape Lisburne. The sea ice edge is also a sensitive congregation and migration area. When walruses are present, haulouts should be avoided by the stand-off distances from the Service's marine vessel guidelines, reiterated here:

- Vessels less than 50 feet in length should remain at least 0.5 nautical miles away from a walrus haulout.
 - Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.
 - Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.
 - All vessels should refrain from anchoring or conducting tendering operations within 3 nautical miles of a walrus haulout.
- If aircraft are being used, it is very important to follow the aircraft measures included in the guidelines linked above.
- For more information on a specific haulout, reach out to the contact noted in the Pacific Walrus Coastal Haulout Database or the Service's Marine Mammals Management office (FW7_AK_Marine_Mammals@fws.gov; 800-362-5148). If activities must occur within 3 nautical miles of a haulout, near the sea ice edge, or are within the Bering Strait, reach out to the Service.
- Walruses may be disturbed or harmed by loud in-water noise, and the Service considers walruses to be harassed when exposed to in-water sound levels exceeding 160 dB re 1 μ Pa SPL_{RMS}. If activities involve in-water noise production in walrus habitat above this level, contact the Service.
- Coordinate with Tribal organizations to ensure activities do not disrupt walrus subsistence harvest. The Service's Marine Mammals Management office may be able to assist with coordination. Specifically, activities near communities in the Bering Strait and near Saint Lawrence Island between April and June would likely overlap with subsistence walrus hunting activities.
- Depending on the project area, Protected Species Observers may be necessary to avoid potential take of walruses.

Polar bear

- Polar bears use sea ice, marine waters, and terrestrial areas in northern and northwestern Alaska for resting, feeding, denning, and seasonal movements. They are most likely to be encountered within 25 miles of the coastline, especially along barrier islands during July–October. Polar bears may also be encountered farther inland, especially females during the denning period (November–April). Be aware that polar bears also occur within human settlements such as villages, camps, and work areas. If any work in polar bear habitat may occur, see the Service’s Best Management Practices to Minimize Impacts to Polar Bears document (<https://www.fws.gov/media/polar-bear-bmps>), which also includes polar bear encounter guidelines and reporting procedures. Following as many relevant measures as possible through the development and implementation of a polar bear avoidance and encounter plan will help protect both human and bear safety.
- Denning is a critical, sensitive period in polar bear life history. Human disturbance of maternal dens at any stage, including after emergence, could result in the taking (harassment or harm) of polar bears. This may include the possibility of lethally taking cubs. Projects with operations between November and April and within 25 miles of the Bering, Chukchi, or Beaufort coasts (outside of communities) may impact denning, and planners should contact the Service’s Marine Mammals Management office (FW7_AK_Marine_Mammals@fws.gov; 800-362-5148) as early as possible to discuss activities.
- For any project with operations on sea ice or within five miles of the Alaska Arctic coast from the Canadian border to Point Hope, within one mile of the western coast from Point Hope to Nome, or along the coast of St. Lawrence Island, contact the Service Marine Mammals Management office to discuss activities.

Short-tailed albatross

- Short-tailed albatross spend most of their lives in marine environments and are known to forage primarily on continental shelf breaks in Alaskan waters but may also be found near shore when upwelling creates prey-rich concentrations. They can be attracted to vessel debris, such as bait used in the hook-and-line commercial fishery in Alaska, and therefore can be vulnerable to entrapment, entanglement, or bycatch. Specifics for preventing bird-vessel strike can be found at: [fws.gov/service/technical-assistance-prevent-bird-vessel-strike-alaska-marine-environment](https://www.fws.gov/service/technical-assistance-prevent-bird-vessel-strike-alaska-marine-environment). Also refer to the ‘Marine Broadband’ section above for more guidance.

Spectacled eider / Steller's eider

- Listed eiders are at risk of colliding with moving or stationary marine vessels around Alaska. Impaired visibility and vessel lighting may increase the likelihood of bird strikes. Generally, the Service recommends keeping deck lighting to a minimum and shielding lights to direct illumination inboard and downward to the extent possible while still maintaining compliance with navigation rules. Concern for eider-vessel collision risk is particularly high between August and November, during which time Steller's and spectacled eiders frequently fly in large groups between nesting, molting, and wintering areas. This timing coincides with decreasing hours of daylight and a high potential for inclement weather, both of which may impair eider visibility to human observers and increase the likelihood that birds may become disoriented by ship lighting, in turn, reducing their ability to avoid colliding with structures. More specifics for preventing bird-vessel strike can be found at: fws.gov/service/technical-assistance-prevent-bird-vessel-strike-alaska-marine-environment. Also refer to the 'Marine Broadband' section above for more guidance.
- Steller's eiders and spectacled eiders are migratory birds. Refer to the 'Migratory Bird' section for more BMPs.
- Listed eiders are at risk of injury or death due to collision with communication towers and wires. Refer to the 'Broadband Towers' section above for appropriate mitigation measures to reduce eider collisions.
- Areas have been designated as critical habitat for both spectacled and Steller's eiders (review if your project occurs within critical habitat at ipac.ecosphere.fws.gov/). These areas represent locations that are of particular importance to each species or locations at which birds are particularly vulnerable to disturbance. We ask that project proponents are cognizant of the importance of these locations to each species and limit actions within these areas. For projects with marine components, we ask that vessels limit their transit and actions within these areas and be extra cautious about vessel lighting. Furthermore, we ask that mariners do not disturb congregations of eiders within these areas as they may be flightless and unable to move away from vessels.
- Depending on the project area, Protected Species Observers may be necessary to avoid potential take of listed eiders.

Regulatory Best Management Practices

Bald and Golden Eagle Protection Act

- For any project that may result in take or disturbance of eagles or their nests, the USFWS recommends a survey by a qualified raptor biologist prior to conducting

activities to document locations of nests and help inform avoidance and minimization measures and the need for a permit. Surveys should be conducted within the project footprint and extending 0.5 miles beyond the project footprint, including cliffs of tributary streams, to determine if and where eagles may be nesting.

- The Alaska Bald Eagle Nest Atlas (eagle.abrinc.com/) is a useful first step to identify potential bald eagle nest locations in and around project areas. However, the Atlas should not be used as a replacement for recommended, location-specific surveys to verify the presence of nests identified in the Atlas and document additional nests.
- The Service's National Bald Eagle Management Guidelines (fws.gov/media/national-bald-eagle-management-guidelines) provide activity-specific buffers to help avoid disturbance to nesting bald eagles.
- The Service in Alaska has provided additional information and guidance on bald eagle nesting windows and sensitivity to disturbance (fws.gov/Alaska-eagle-nesting).
- In general, golden eagles are more sensitive than bald eagles, and, in Alaska, the Service recommends a 0.5-mile buffer for most, but not all activities. For more information on historical golden eagle nests in the project area or for additional questions or guidance on eagles, please contact the local Field Office.
- The Service's National Eagle Management webpage (fws.gov/program/eagle-management) provides an overview of the types of eagle take permits.
- If needed, permit applications are submitted through the Service's ePermits portal (fwsepermits.servicenowservices.com/fws/). Please note that permits can take up to 90 days to process once a completed application is submitted.

Clean Water Act

- Wetlands and waters of the US are regulated by the US Army Corps of Engineers under the Clean Water Act and the US Environmental Protection Agency.
- These habitats are often considered important habitat for aquatic life, migration and movement, migratory bird staging, forage and reproduction, and resident wildlife populations. Therefore, the Service regulates activities within the same footprint under different statutory authorities. However, consultation with the Service is often necessary pursuant to project permitting under the Clean Water Act due to the nexus of high-value habitat provided by wetlands and waters.

Endangered Species Act

- The purpose of the Endangered Species Act (ESA) is to provide a means to conserve the ecosystems upon which Endangered and Threatened species depend and provide a program for the conservation of such species. The ESA directs all federal agencies to participate in conserving these species. Specifically, section 7(a)(1) of the ESA charges federal agencies to aid in the conservation of listed species, and section 7(a)(2) requires the agencies to ensure their activities are not likely to jeopardize the continued existence of federally listed species or destroy or adversely modify designated critical habitat.
- Additionally, the ESA prohibits, with certain exceptions, the take of listed species. Take means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”
- IPaC (ipac.ecosphere.fws.gov/) will generate a letter including a list of Threatened and Endangered species, designated critical habitat, and other sensitive resources in your project area. If consultation or further assistance is needed, contact the appropriate Service Field Office named in the letter.

Executive Orders

- Executive Order (EO) 13751, Safeguarding the Nation from the Impacts of Invasive Species ([federalregister.gov/documents/2016/12/08/2016-29519/safeguarding-the-nation-from-the-impacts-of-invasive-species](https://www.federalregister.gov/documents/2016/12/08/2016-29519/safeguarding-the-nation-from-the-impacts-of-invasive-species)) was issued December 5, 2016, and Amends EO 13112. This EO aims to prevent the introduction of invasive species and provide for their control, and to minimize the economic, plant, animal, ecological, and human health impacts that invasive species cause.

Fish and Wildlife Coordination Act

- Under the Fish and Wildlife Conservation Act, the Service is directed and authorized to evaluate Federal actions that affect any stream or other body of water and provide recommendations to minimize impacts on fish and wildlife resources.
- Proponents with projects involving rivers or other water bodies should reach out to the Service during project planning to coordinate on minimizing impacts.

Marine Mammal Protection Act

- The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the take of all marine mammal species in US waters. Take is defined as "to harass, hunt,

capture, or kill, or attempt to harass, hunt, capture, or kill". Harassment includes behavioral disturbance.

- In Alaska, the Service implements the MMPA for walruses, sea otters, and polar bears. The National Marine Fisheries Service has jurisdiction over pinnipeds and cetaceans.
- When certain requirements are met, the Service may authorize incidental take of small numbers of Pacific walruses, polar bears, or northern sea otters through an incidental take authorization under Section 101(a)(5) of the MMPA (see [fws.gov/ITA-general-info](https://www.fws.gov/ITA-general-info) and [fws.gov/ITA-applicant-instructions](https://www.fws.gov/ITA-applicant-instructions)). Note that issuance of an incidental take authorization can take over a year, and early coordination with the Service's Marine Mammals Management (MMM) Regulatory Program is very important. Contact the MMM Regulatory program with any questions on incidental take authorizations (R7mmmregulatory@fws.gov).

Migratory Bird Treaty Act

- Intentional take of migratory birds may be permitted in limited situations ([fws.gov/program/migratory-bird-permit](https://www.fws.gov/program/migratory-bird-permit)).
- Incidental take (i.e., unintentional take from an otherwise lawful activity) of migratory birds cannot be permitted. The best way to avoid incidental take and comply with the Migratory Bird Treaty Act is to avoid vegetation clearing, ground disturbance, and other site construction activities during the nesting season. Visit [fws.gov/alaska-bird-nesting-season](https://www.fws.gov/alaska-bird-nesting-season) to view nesting season dates for migratory birds based on location, habitat, and bird species.

Rivers and Harbors Act

- For rivers listed as Navigable Waters of the US, overhead structures or structures or cables laid in-stream on the riverbed are often considered potential impediments to navigation and to aquatic life migration and movement. Therefore, the Service may engage in consultation under this statute.