



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
December 22, 2011



Bruce Greenwood
Environmental Protection Specialist
Federal Aviation Administration
Alaskan Region Airports Division, AAL-600
222 W. 7th Ave, M/S #14
Anchorage, AK 99513

Re: Biological Opinion for the proposed Relocation of the Kaktovik Airport

Dear Mr. Greenwood:

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) on the proposed relocation of the Kaktovik Airport and concludes section 7 consultation on the proposed action.

The Service has concluded that the proposed action is likely to adversely affect but not likely to destroy or adversely modify polar bear critical habitat. The Service has also determined that the proposed action may affect but is not likely to adversely affect Steller's eiders (*Polysticta stelleri*), spectacled eiders (*Somateria fischeri*), or polar bears (*Ursus maritimus*).

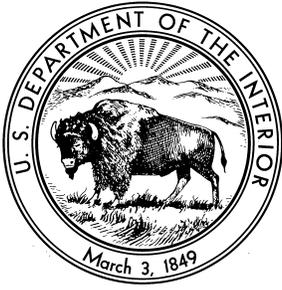
Note there are no terms and conditions resulting from this consultation. However, we recommend that the NSB continue to coordinate with the USFWS Alaska Region Marine Mammals Management office (contact Craig Perham at 907-786-3810 or craig_perham@fws.gov) to make any recommended updates to the project's polar bear interaction plan prior to construction and to ensure compliance with the Marine Mammals Protection Act (MMPA). Note that some polar bear deterrence (hazing) activities would require coverage under a new or existing Letter of Authorization pursuant to the MMPA.

If you have comments or concerns regarding this BO, please contact Sarah C. Conn, Field Supervisor, Fairbanks Fish and Wildlife Field Office at (907) 456-0499.

Sincerely,

Sarah C. Conn
Field Supervisor

cc: Robert W. Jobson, U.S. Army Corps of Engineers



BIOLOGICAL OPINION

for the

Relocation of the Kaktovik Airport

Consultation with the
Federal Aviation Administration
Anchorage, Alaska and the
U.S. Army Corps of Engineers
Anchorage, Alaska

Prepared by:
Fairbanks Fish and Wildlife Field Office
U. S. Fish and Wildlife Service
101 12th Ave, Room 110
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December 22, 2011

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1. INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the Kaktovik Airport Relocation project. The airport is sponsored by the North Slope Borough (NSB) and the Federal Aviation Administration (FAA) will be funding the project. Because the project will impact waters of the United States, the NSB has requested a section 404 permit from the U.S. Army Corps of Engineers (USACE) permit under of the Clean Water Act. This BO also meets the USACE's obligation to complete section 7 consultation under the ESA.

Two previous consultations have been completed for the project. On August 7, 2003 the Service concluded that three project alternatives for improving the Kaktovik Airport were not likely to adversely impact spectacled eiders (*Somateria fischeri*) based on low breeding densities in the project area. On April 8, 2011 the Service concluded that a geotechnical investigation at the material source for the project was not likely to adversely affect Alaska-breeding Steller's eiders (*Polysticta stelleri*), spectacled eiders, polar bears (*Ursus maritimus*), or polar bear critical habitat. In September 2011, the FAA reinitiated consultation for the entire project, which will relocate the Kaktovik Airport from an exposed gravel spit located northeast of Barter Island on the Beaufort Sea to a new location near the center of Barter Island, approximately one mile southwest of the community of Kaktovik.

The NSB submitted a Biological Assessment for the Relocation of the Kaktovik Airport (BA; NSB 2011) on behalf of the FAA on September 8, 2011. This Biological Opinion (BO) describes the effects of the proposed action on Alaska-breeding Steller's eiders, spectacled eiders, polar bears, and polar bear critical habitat in accordance with section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). We used information provided in the project BA; the USACE permit application (POA-2011-1092); project-specific communications with the USFWS Alaska Region Marine Mammal Management (USFWS MMM) office; other Service documents; and published and unpublished literature to develop this BO.

The Service has determined that the proposed action may affect but is not likely to adversely affect Steller's eiders, spectacled eiders, or polar bears, and may adversely affect polar bear critical habitat. Following review of the information provided, the status of polar bear critical habitat, the environmental baseline, and cumulative effects, the Service has concluded that the proposed action is likely to adversely affect but not likely to destroy or adversely modify polar bear critical habitat.

In addition to listed eiders and polar bears, the area affected by the Kaktovik Airport relocation project may now or hereafter contain plants, animals, or their habitats determined to be threatened or endangered. The Service, through future consultation may recommend alternatives to future developments within the project area to prevent activity that will contribute to a need to list such a species or their habitat. The Service may require alternatives to proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in

the destruction or adverse modification of designated or proposed critical habitat. The Federal action agencies should not authorize any activity that may affect such species or critical habitat until it completes its obligations under applicable requirements of the ESA as amended (16 U.S.C. 1531 et seq.), including completion of any required procedure for conference or consultation.

If you have comments or concerns regarding this BO, please contact Sarah C. Conn, Field Supervisor, Fairbanks Fish and Wildlife Field Office at (907) 456-0499.

2. DESCRIPTION OF THE PROPOSED ACTION

Proposed Action

The purpose of this project is to provide a flood-resistant airport consistent with the FAA's mission and design standards that safely meets the aviation needs of the Kaktovik community for the next 20 years while minimizing operational and maintenance costs for the airport sponsor, the NSB. This project will relocate the Kaktovik Airport from an exposed gravel spit located northeast of Barter Island, Alaska to a new location near the center of Barter Island, 0.95 miles (1.53 km) southwest of the community. The NSB proposes to construct a new 4,500-foot by 100-foot runway, taxiway, apron, access road, and airport lighting system. Because the existing landfill and sewage lagoon will be closed and the land used for the new airport, a new landfill, sewage lagoon, and access road to these facilities is also included in the project.

The project area elevation ranges from 0–60 feet above sea level. The terrain is considered relatively flat with small rolling hills, poorly drained uplands and shallow lagoons. Tundra vegetation includes mosses, lichens, cotton grass, and sedges.

The project includes the following components:

- Gravel runway (100 ft × 4,500 ft) located on a long gravel runway safety area embankment (150 ft × 5,100 ft with 3:1 side slopes)
- Gravel pads for navigation aids, equipment and structures, and an elephant ear turn-around on the west runway end
- Gravel taxiway (35 ft × 500 ft) located on a taxiway safety area embankment (width 79 ft with 3:1 side slopes)
- Gravel aircraft apron (400 ft × 600 ft with 3:1 side slopes) surrounded by 1,650 linear feet of 8-foot security fencing (constructed above the closed Kaktovik landfill and sewage lagoon)
- Gravel access roads (width 24 ft with 3:1 side slopes) connecting the new apron to Hula Hula Drive (0.4 mi) and connecting Hula Hula Drive to the new landfill and sewage lagoon
- Medium intensity runway and taxiway lighting system and controls, precision approach path indicators (PAPIs), and runway end identifier lights (REILs), automated weather observation system (AWOS), segmented circle, primary lighted wind cone, and rotating airport beacon

- Approximately 1 mile of new power line (overhead and buried) along the Hula Hula Drive right-of-way to the new airport apron
- Closing the existing landfill and sewage lagoon prior to constructing the airport apron over their current location
- Construction of the new 4.7-acre landfill and 3.1-acre, lined sewage lagoon constructed with 7-foot high gravel dikes and 3:1 side slopes and 2,801 linear feet of 8-foot high perimeter fencing
- Extraction of gravel at a new material source located on the mainland approximately 3.5 miles (5.6 km) south of Barter Island
- Ice roads in support of construction
- Activities related to abandonment of the existing airport.

Construction

Construction is anticipated to span at least three calendar years. Equipment will be transported by barge in the fall, and staged until winter construction begins. Construction will begin in winter 2012–2013, when there is adequate ice thickness on the Kaktovik Lagoon for ice road construction and gravel haul operations. Gravel will be extracted from a new material source located on the mainland, approximately 3.5 miles (5.6 km) south of Barter Island, and transported via ice road. Mining operations will occur in January–April, while conditions allow for ice road travel.

Frozen gravel will be hauled and placed on a geotechnical fabric over the tundra to construct the runway, taxiway, and apron to a depth of about 4 feet above the existing grade. Gravel will be placed on. Additional material, including material for the crushed aggregate surface course (CASC), will be stockpiled on the dredge pad to the south of the existing landfill. The gravel will thaw and consolidate during the summer. The contractor may start crushing stockpiled gravel to manufacture CASC during summer 2013. If there is an insufficient quantity of material to finish construction and the stockpile, mining and hauling operations will resume in winter 2013–2014. During the late summer of 2014 the contractor will grade and compact the gravel and place the CASC. Lighting systems and navigational aids will be installed during summer 2014. The NSB anticipates the new runway will be open in the spring of 2015.

Details of mining operations are provided in the NSB’s General Mining and Reclamation Plan (Appendix A of the project BA). Overburden will be placed into the excavated site and the perimeter graded on a 4:1 slope at the conclusion of each winter construction season. The USACE public notice of application for permit indicates the material source site would have a long-term independent utility after the airport relocation project is complete.

Abandonment of existing airport facilities

The U.S. Air Force currently owns the land on Bernard Spit where the existing airport is located. The existing airport will be abandoned when the new airport is completed. After the existing airport is permanently closed, the NSB will remove lighting, signage,

and other items related to operation of the airport, allowing the spit to return to a more natural condition. The aircraft hangar will remain at the site.

Minimizing effects to polar bears

The following measures have been incorporated into the proposed action to reduce potential effects to polar bears:

- Project design avoids areas likely to support denning bears
- NSB will use Forward Looking Infra-Red (FLIR) or other methods to search for dens in a one-mile radius around the project prior to beginning ice road construction. If any occupied dens are identified, no activities will be permitted within one mile of the dens and specific guidance will be sought from the Marine Mammals Management office of the USFWS.
- Construction crews will be required to attend a polar bear safety training program prior to the start of each winter construction season.
- Construction operations will follow the project-specific Katktovik Airport Relocation Polar Bear/Human Interaction Plan (Appendix C in the BA) to minimize potential effects to polar bears.

Action Area

The action area is that area in which the direct and indirect effects of the proposed action may occur. For the Kaktovik airport relocation project, the action area includes the area of direct fill (~51 acres), the material site (~105 acres), the fresh water source, and ice roads. It also includes the surrounding area where the effects of disturbance related to the project may affect polar bears or diminish the conservation function of polar bear critical habitat. Effects from disturbance are assumed to occur within 1 mile (1.6 km) of proposed activities.

3. EFFECT DETERMINATIONS FOR LISTED EIDERS

Both Steller's and spectacled migrate to Alaska's Arctic Coastal Plain (ACP) to breed in late spring and some individuals may remain in the region as late as mid-October. However, both species are considered rare east of the Canning River. USFWS aerial surveys for breeding eiders conducted on the ACP from 1992–2010 detected no Steller's eiders east of the Sagavanirktok River and no spectacled eiders east of the Canning River (USFWS Alaska Region Migratory Bird Management, unpublished data). Because available data indicate breeding Steller's and spectacled eiders are unlikely to nest near or migrate through the project area, we conclude that adverse effects to listed eiders will be discountable and that the proposed action is *not likely to adversely affect* Steller's eiders or spectacled eiders.

4. EFFECT DETERMINATION FOR THE POLAR BEAR

Polar bears are often encountered onshore near Kaktovik during the open water period in late summer through fall. In a recent analysis of the fall distribution of polar bears in terrestrial habitats of the Southern Beaufort Sea, Schliebe et al. (2008) found that 69% of bears located onshore were at Barter Island. Encounters with polar bears are most likely to occur from late July/early August through freeze-up in the 2nd or 3rd week in October (S. Miller, USFWS MMM, pers. comm.). Polar bears forage on bowhead whale carcasses placed east of the existing airport runway and rest on nearby barrier island habitat. Although polar bears are attracted to bowhead whale carcasses on the island during the fall, the shorter distance to the pack ice edge and higher ring seal densities in the area are also thought to influence the concentration of bears at Barter Island. Schliebe et al. (2008) concluded that, “bears at Barter Island not only avoid fasting by foraging on whale carcasses during the open-water period, they also maximize future hunting opportunities and earlier access to high densities of ringed seals once land-fast ice forms”. Following freeze-up, non-denning polar bears disperse onto the ice to hunt over the winter.

Although polar bears occupy barrier islands and spits near the existing airport during the open water season, the proposed new airport is located further south on Barter Island where polar bears are less likely to occur. While there is a possibility polar bears would enter the area to investigate activities at the new airport (they often move or damage navigational lights at night at the existing airport), they are not known to regularly use the proposed location. The Action Area does not include any whale bone or carcass piles or other known food sources for polar bears. Relocating the airport away from the traditional whale bone and carcass area at the existing airport is likely to reduce the potential for polar bear–human conflicts during airport construction and operations. Marine Mammals Management staff have not observed polar bears at the existing landfill site (S. Miller, USFWS MMM, pers. comm.), which comprises the eastern portion of the proposed airport. We anticipate that disturbance to polar bears from airport and aircraft operations near Kaktovik will be reduced by the relocation of the airport from an area frequently used by polar bears to a location where polar bears are less likely to occur.

The likelihood of a human–polar bear interaction in the Action Area during winter construction activities is very low because non-denning bears would have dispersed onto the ice to hunt seals by the time ice road construction begins. Because construction activities will occur when polar bears are least likely to be encountered in the area and overall use of the Action Area by polar bears appears to be low, we anticipate that encounters with polar bears resulting from the proposed Action will be rare. Encounters that may occur will be managed by implementing the project’s polar bear–human interaction plan, which includes safety training, using bear guards during construction activities, and reducing potential attractants. Therefore, we expect that adverse effects to polar bears will be minimized to the extent that take will not occur.

Denning females are not known to use the project area; however, some potentially suitable denning habitat does occur within the Action Area (see Figure 3 of the BA).

Although unlikely, it is possible a female may choose to den near the project site; however, the NSB will conduct surveys for maternal dens prior to commencing construction activities, maintain a 1-mile distance from known dens, and coordinate with USFWS to avoid impacts to dens identified within the Action Area. We believe that measures to detect dens in the vicinity of construction activities and avoid known dens would reduce potential adverse effects to denning polar bears to the extent that these effects would be insignificant. We also anticipate that routine human activity during future airport operations would deter female polar bears from excavating dens nearby so that maternal dens are unlikely to occur in the area potentially affected by airport activities.

In summary, given that polar bears are unlikely to be encountered in the project area during winter construction and subsequent airport operations and conservation measures will be implemented to reduce potential effects to non-denning and denning polar bears should an encounter occur or if a maternal den is detected in the Action Area, we conclude that potential effects of the proposed action are *not likely to adversely affect* polar bears. The Service also acknowledges the beneficial effects to polar bears of relocating the airport away from Bernard Spit, which is preferred habitat for polar bears in the vicinity of Kaktovik during the open water period each year.

We recommend that the NSB continue to coordinate with the USFWS Alaska Region Marine Mammals Management office¹ to make any recommended updates to the project's polar bear interaction plan prior to construction and to ensure compliance with the Marine Mammals Protection Act (MMPA). Note that some polar bear deterrence (hazing) activities would require coverage under a new or existing Letter of Authorization pursuant to the MMPA.

5. STATUS OF POLAR BEAR CRITICAL HABITAT

Barter Island is designated as barrier island habitat for polar bears. The Action Area also includes terrestrial denning habitat, and sea ice habitat.

The Service designated polar bear critical habitat on December 7, 2010 (USFWS 2010). The Primary Constituent Elements (PCEs) of critical habitat for the polar bear are:

- 1) Sea ice habitat used for feeding, breeding, denning, and movement, which is further defined as sea ice over waters 300 m (984.2 ft) or less in depth that occurs over the continental shelf with adequate prey resources (primarily ringed and bearded seals) to support polar bears.
- 2) Terrestrial denning habitat, which includes topographic features, such as coastal bluffs and river banks, with suitable macrohabitat characteristics. Suitable macrohabitat characteristics are:

¹ Contact Craig Perham at 907-786-3810 or craig_perham@fws.gov.

- a) Steep, stable slopes (range 15.5–50.0°), with heights ranging from 1.3 to 34 m (4.3 to 111.6 ft), and with water or relatively level ground below the slope and relatively flat terrain above the slope;
 - b) Unobstructed, undisturbed access between den sites and the coast;
 - c) Sea ice in proximity to terrestrial denning habitat prior to the onset of denning during the fall to provide access to terrestrial den sites; and
 - d) The absence of disturbance from humans and human activities that might attract other polar bears.
- 3) Barrier island habitat used for denning, refuge from human disturbance, and movements along the coast to access maternal den and optimal feeding habitat, including all barrier islands along the Alaska coast and their associated spits, within the range of the polar bear in the United States, and the water, ice, and terrestrial habitat within 1.6 km (1 mi) of these islands (no-disturbance zone).

The Service designated three polar bear critical habitat units, which correspond to each of the three PCEs described above. The Sea Ice Unit covers approximately 179,508 mi² of primarily marine habitat extending from the mean high tide line of the Alaska coast seaward to the 300 m depth contour, and spans west to the international date line, north to the Exclusive Economic Zone, east to the US–Canada border, and south to the known distribution of the Chukchi/Bering Seas polar bear population. Sea ice is used by polar bears for the majority of their life cycle for activities such as hunting seals, breeding, denning, and traveling (USFWS 2010).

The Terrestrial Denning Unit covers approximately 5,657 mi² of land along the northern coast of Alaska from near Point Barrow east to the Canadian border. It encompasses approximately 95% of the known historical terrestrial den sites from the Southern Beaufort Sea (SBS) population (Durner et al. 2009). The inland extent of denning distinctly varies between two longitudinal zones, with 95% of the dens between the Kavik River and the Canadian border occurring within 20 miles of the mainland coast, and 95% of the dens between the Kavik River and Barrow occurring within 5 miles of the mainland coast. The terrestrial denning PCE is characterized by steep, stable slopes that accumulate snow. Certain areas such as barrier island, river banks, and coastal bluffs that occur at the interface of mainland and marine habitat receive proportionally greater use for denning (Durner et al. 2004, 2006), with coastal bluffs providing the most preferred topographic relief. For example, of 35 terrestrial dens found on the ACP in 2001, >80% were along coastal bluffs (Durner et al. 2003).

The Barrier Island Unit covers approximately 4,083 mi² of barrier islands and the associated complex of spits, water, ice, and terrestrial habitats within one mile of barrier islands. There is significant overlap between this unit and both the terrestrial denning and sea ice units. The Barrier Island Unit follows a similar coastal extent as the Sea Ice Unit, from near Hooper’s Bay in southwestern Alaska to near the Canadian Border.

Critical habitat does not include manmade structures (e.g., houses, gravel roads, generator plants, sewage treatment plants, hotels, docks, seawalls, pipelines) and the land on which

they are located existing within the boundaries of designated critical habitat on the effective date of this rule.

Sea ice, including ice designated as critical habitat, is rapidly diminishing. Terrestrial denning locations in Alaska do not appear to be a limiting factor. However, rain-on-snow events may decrease den quality, and later onset of freeze-up in the fall may limit sea ice in proximity and therefore access to terrestrial denning habitat (USFWS 2007). Erosion of barrier islands and the Arctic shoreline, presumably caused by climate change (Mars and Houseknecht 2007), may be changing terrestrial denning habitat by creating or destroying bluffs.

Human activities such as ground-based vehicular traffic and low-flying aircraft occur in polar bear critical habitat. These activities may temporarily create disturbance between den sites and the coast (e.g., disturbance from ice roads), and may temporarily degrade the ability of barrier island habitat from being a refuge from human disturbance. For example, vessels may need to use barrier islands to weather out a storm, and this may interfere with a polar bear's ability to use barrier islands for the same purpose. However, these activities are usually infrequent and have short-term effects.

6. ENVIRONMENTAL BASELINE FOR POLAR BEAR CRITICAL HABITAT

Regulations implementing the ESA (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in an Action area, the anticipated impacts of all proposed Federal projects in an Action Area that have already undergone formal or early section 7 consultation, and the impact of State or private Actions that are contemporaneous with the consultation in process. This section provides an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or critical habitat within the Action Area.

Barter Island is designated as barrier island habitat for polar bears. The Action Area also includes terrestrial denning habitat, and sea ice habitat (Figure 1). The Kaktovik townsite and Barter Island radar site, both located on Barter Island, were excluded from the critical habitat designation (USFWS 2010). Additionally, manmade structures existing on the effective date of the final critical habitat rule, January 6, 2011, and the land on which they are located are not part of polar bear critical habitat.

Polar bear critical habitat in the Action Area is largely undisturbed and impacts to its conservation role for polar bears have been minimal. Although development in areas excluded from critical habitat could affect the features of the critical habitat PCEs related to human disturbance, residential development is not thought to be a significant threat to critical habitat (USFWS 2009); accordingly, the community of Kaktovik has probably had a limited, localized effect on the environmental baseline of polar bear critical habitat.

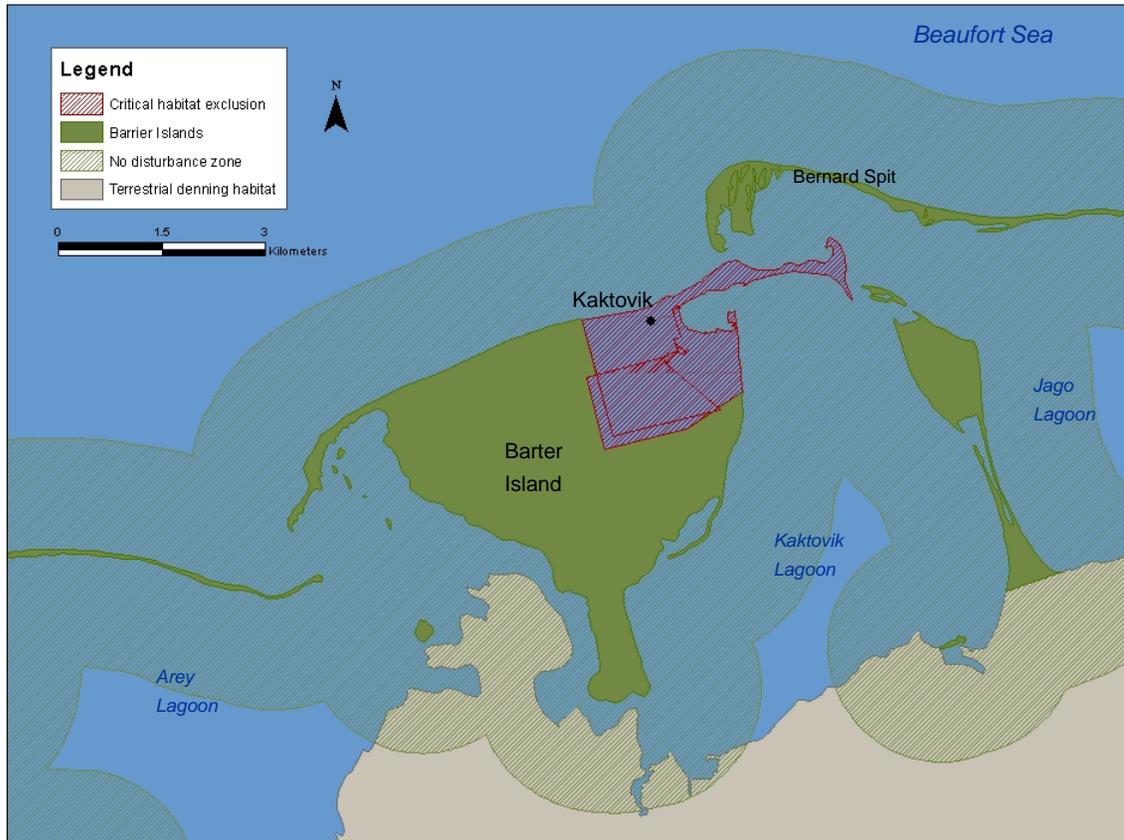


Figure 1. Designated polar bear critical habitat in the vicinity of Barter Island and the community of Kaktovik, Alaska.

The presence of environmental contaminants within polar bear critical habitat may diminish the capacity of the habitat to support polar bears because contaminants could reduce polar bear survival or reproduction. Three main types of contaminants in the Arctic are thought to pose the greatest potential threat to polar bears: petroleum hydrocarbons, persistent organic pollutants (POPs), and heavy metals.

To date, no major oil spills have occurred in the Beaufort Sea; therefore, petroleum hydrocarbon contamination from oil and gas development is unlikely to have affected the environmental baseline of polar bear critical habitat in the Action Area.

Contamination of the Arctic and sub-Arctic regions through long-range transport of pollutants has been recognized for over 30 years (Bowes and Jonkel 1975, Proshutinsky and Johnson 2001, Lie et al. 2003). Arctic ecosystems are particularly sensitive to environmental contamination due to the slower rate of breakdown of POPs, including organochlorine compounds (OCs), relatively simple food chains, and the presence of long-lived organisms with low rates of reproduction and high lipid levels that favor bioaccumulation and biomagnification. Consistent patterns between OC and mercury contamination and trophic status have been documented in Arctic marine food webs

(Braune et al. 2005). Presumably, these characteristics have affected the capacity of polar bear critical habitat to support polar bears, although it is difficult to estimate the extent of impairment within the Action Area.

Climate change is contributing to the rapid decline of sea ice throughout the arctic, and some of the largest declines are predicted to occur in the Chukchi and southern Beaufort Seas (Durner et al. 2009 *in* USFWS 2009). This directly affects the sea ice PCE, which provides feeding, breeding, denning, and traveling habitat for polar bears. The decrease in the quality and quantity of sea ice may be driving an apparent increase in the importance of barrier island and terrestrial habitat for foraging, denning, and resting. For example, Schliebe et al. (2006) demonstrated an increasing trend in the number of observed polar bears using terrestrial habitats in the fall. Additionally, Fischbach et al. (2007) hypothesized that reduced availability of older, more stable sea ice is contributing to the observed decrease in the proportion of female polar bears denning on sea ice in northern Alaska.

Climate change may also affect the availability and quality of denning habitat on land. Durner et al. (2006) found that 65% of terrestrial dens found in Alaska between 1981 and 2005 were on coastal or island bluffs. These areas have experienced rapid erosion and slope failure as permafrost melts and wave action increases in duration and magnitude. Furthermore, changes in precipitation or wind patterns (Hinzman et al. 2005) could significantly alter the availability and quality of autumn snow drifts for denning.

In summary, localized factors, such as disturbance from human activities in and near the community of Kaktovik, have had a minimal impact on the integrity polar bear critical habitat in the Action Area. At a larger spatial scale, globally distributed pollutants and climate change have diminished the quality of polar bear critical habitat; however, estimating the magnitude of these effects within the very small Action Area is difficult.

7. EFFECTS OF THE ACTION ON POLAR BEAR CRITICAL HABITAT

Effects to Sea Ice Habitat

The only anticipated effect to the sea ice habitat will be the construction and operation of the temporary ice road across Kaktovik Lagoon during each of two winter construction periods. The ice road will extend ~3.5 mi from the new airport location to the material source site on the mainland. We do not expect the proposed Action to impact the conservation role of the sea ice habitat PCE within the Action Area because annual sea ice melt and formation of new sea ice near shore precludes long-term effects to the physical features of sea ice habitat in Kaktovik lagoon. Accordingly, we also conclude that the proposed action is not likely to adversely affect the Sea Ice Unit.

Effects to Terrestrial Denning Habitat

The proposed Action will permanently alter the physical features of ~105 acres of the Terrestrial Denning Unit through placement of overburden and excavation of gravel at the material source site. However, the material source site lacks the topographic features

that characterize the terrestrial denning PCE (steep, stable slopes that accumulate snow); therefore, we do not anticipate that development of the material source site will adversely affect the conservation role of terrestrial denning habitat within the action area.

A disturbance may affect critical habitat if it persists and affects the critical habitat's conservation role. Features of the terrestrial denning habitat PCE that relate to disturbance include 1) unobstructed, undisturbed access between den sites and the coast, and 2) the absence of disturbance from humans and human activities that might attract other polar bears (i.e., non-denning polar bears which may kill females and cubs in dens). Disturbance associated with the operation of the material source site would result in temporary impacts to terrestrial denning habitat. Mining operations and construction and use of the mainland section of the ice road may interfere with access to potential den sites in the fall and access to the coast in early spring, and could also create disturbances that could be considered attractive to curious polar bears if any were to occur in the area. However, these disturbances will not persist nor affect the intended conservation role of terrestrial denning habitat within the Action Area after completion of the project. Additionally, those activities that may temporarily affect the ability of terrestrial denning habitat to support polar bears would be curtailed if a den were actually detected during pre-construction surveys.

Summary of effects to the terrestrial denning habitat

The proposed Action will permanently affect ~105 acres of the Terrestrial Denning Unit through activities at the material source site and may temporarily reduce the capacity of surrounding habitat to support denning polar bears. However, adverse effects of the proposed Action are not expected to substantially diminish the conservation function of terrestrial denning habitat PCE within the Action Area because the mainland material source site lacks the topographic relief characteristic of optimal denning habitat and effects related to potential disturbance within terrestrial denning habitat would not persist. We conclude that the proposed action would not substantially diminish the conservation role of the Terrestrial Denning Unit because potential effects to the terrestrial denning habitat PCE are likely to be minor and the scale of the potentially affected area would be small relative to the spatial extent of the Terrestrial Denning Unit such that the function of the unit as a whole would not be compromised.

Effects on barrier island habitat

The proposed Action will result in the loss of ~51 acres of barrier island habitat, including the footprint of the new airport, access road, landfill, and sewage lagoon southwest of the community of Kaktovik on Barter Island. This habitat will be rendered permanently unavailable for denning, refuge from human disturbance, and movements along the coast to access maternal den and optimal feeding habitat.

As discussed above, disturbance may affect critical habitat if it persists and affects the critical habitat's conservation role. The Service has identified refuge from human disturbance as a feature of the barrier island habitat PCE essential to the conservation of polar bears. Because human activities are expected to routinely occur within the footprint of the project during and after construction, we anticipate that the proposed action would

result in persistent human disturbance that is likely to adversely affect the intended conservation role of the Barrier Island Unit. However, we anticipate that adverse effects related to disturbance would be minor because the affected area does not include optimal denning habitat and the spatial scale of the project is not large enough to substantially interfere with polar bear movements along the coast to access maternal den and optimal feeding habitat in the vicinity of Barter Island.

Additionally, the NSB estimates that ~17 acres of barrier island habitat on Bernard Spit, northeast of the community, will be restored when the existing gravel runway is abandoned. Human disturbance related to airport operations will be reduced and the gravel spit will be allowed to revert back to a more natural form. Consequently, we expect the conservation function of this area to improve.

Summary of effects to the Barrier Island Unit

The proposed Action will permanently affect ~51 acres of the Barrier Island Unit through long-term habitat loss on Barter Island and persistent human disturbance associated with construction and operation of the new airport, landfill, and sewage lagoon. The proposed action may also improve the conservation function of 17 acres of barrier island habitat at the site of the existing airport because human activity levels on Bernard Spit will be reduced. Adverse effects of the Action are not expected to substantially impact the conservation role of the Barrier Island Unit because the scale of the potentially affected area would be small relative to the extent of the Barrier Island Unit such that the function of the unit as a whole would not be compromised.

8. CUMULATIVE EFFECTS

Under the ESA, cumulative effects are the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they will require separate consultation under the ESA.

Future development by the NSB may occur in the area through developments like improved roads, transportation facilities, utilities or other infrastructure. However, the NSB states there are no current plans for further development within the action area. Additionally, the undeveloped lands in the Action Area are wetlands, and are therefore future development would be subject to Section 404 permitting requirements by the USACE. This permitting process would serve as a Federal nexus, and hence trigger a review of any major construction project in the area.

9. CONCLUSION

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 C.F.R. 402.02. Instead, we have relied upon the statutory provisions of the ESA to complete our analysis with respect to critical

habitat. After considering the status of polar bear critical habitat, the environmental baseline, cumulative effects, and effects of the proposed Action on each PCE, we conclude the proposed Action may adversely affect but *is not likely to destroy or adversely modify polar bear critical habitat*. This conclusion was based on the following factors:

- 1) We do not expect the proposed Action to impact the conservation role of the sea ice habitat PCE within the Action Area because annual sea ice melt and formation of new sea ice near shore precludes long-term effects to the physical features of sea ice habitat in Kaktovik lagoon. Accordingly, we conclude that the proposed action is not likely to adversely affect the Sea Ice Unit.
- 2) We do not expect the proposed Action to substantially diminish the conservation role of the Terrestrial Denning Unit because potential effects to the terrestrial denning habitat PCE within the Action Area are likely to be minor and the scale of the potentially affected area would be very small relative to the spatial extent of the Terrestrial Denning Unit such that the conservation role of the unit as a whole would not be compromised.
- 3) Although the proposed action would result in the long-term loss of ~51 acres of barrier island habitat and persistent disturbance within the Action Area that may adversely affect the function of the barrier island habitat PCE, the scale of potentially affected barrier island habitat would very small relative to the spatial extent of the Barrier Island Unit such that the conservation role of unit as a whole would not be compromised.

10. REINITIATION NOTICE

This concludes formal consultation for the Relocation of the Kaktovik Airport. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if:

- 1) The amount or extent of incidental take is exceeded;
- 2) New information reveals effects of the action agency that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;
- 3) The agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat not considered in this opinion; or
- 4) A new species is listed or critical habitat is designated that may be affected by the action.

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