# U. S. AIR FORCE

# INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

## Alaska Sites Managed by the

## Pacific Air Forces Regional Support Center (PRSC)/

## 611th Civil Engineer Squadron (611 CES)

## *DRAFT EDITION 1*

## *2020 UPDATE*

*(See INRMP signature pages for plan approval date)*

*Prepared for:*
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## ABOUT THIS PLAN

This installation-specific Environmental Management Plan is based on the U.S. Air Force's (USAF) standardized Integrated Natural Resources Management Plan (INRMP) template. This INRMP has been developed in cooperation with applicable stakeholders, which may include Sikes Act cooperating agencies and/or local equivalents, to document how natural resources will be managed. Where applicable, external resources, including Air Force Instructions; USAF Playbooks; federal, state, and local regulations; U.S. Fish and Wildlife Service Biological Opinions; and permit requirements are referenced.

Certain sections of this INRMP begin with standardized, USAF-wide "common text" language that address USAF and Department of Defense (DoD) policy and federal requirements. This common text language is restricted from editing to ensure that it remains standard throughout all plans. Immediately following the USAF-wide common text sections is a general overview of the PRSC installations. Given the number of PRSC installations addressed in this INRMP, a separate appendix (Appendix H) has been prepared that provides installation-specific content. The general and installation-specific sections are unrestricted and are maintained and updated by USAF environmental Installation Support Teams and/or installation personnel.

Only species common names are used throughout this INRMP. Scientific names for all flora and fauna species mentioned in the text can be found in Appendix H.

*NOTE:* The terms Natural Resources Manager (NRM) and 'NRM/Point of Contact (POC) are used throughout this document to refer to the installation person responsible for the natural resources program, regardless of whether this person meets the qualifications within the definition of a natural resources management professional in DoD Instruction 4715.03, *Natural Resources Conservation Program* (August 31, 2018).

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## DOCUMENT CONTROL

**Record of Review** – The Integrated Natural Resources Management Plan (INRMP) is updated not less than annually, or as changes to natural resources management and conservation practices occur, including those driven by changes in applicable regulations. In accordance with the Sikes Act and Air Force Instruction 32-7064, *Integrated Natural Resources Management* (November 22, 2016), the INRMP is required to be reviewed for operation and effect not less than every 5 years. Annual reviews and updates are accomplished by the base Natural Resources Manager (NRM), and/or an Installation Support Team Natural Resources (NR) Media Manager. The installation shall establish and maintain regular communications with the appropriate federal and state agencies. At a minimum, the installation NRM (with assistance as appropriate from the NR Media Manager) conducts an annual review of the INRMP in coordination with internal stakeholders and local representatives of the U.S. Fish and Wildlife Service, state fish and wildlife agency, and National Oceanic and Atmospheric Administration Fisheries, where applicable, and accomplishes pertinent updates. Installations will document the findings of the annual review in an Annual INRMP Review Summary. By signature to the Annual INRMP Review Summary, the collaborating agency representative asserts concurrence with the findings. Any agreed updates are then made to the document, at a minimum updating the work plans.

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## 2020 INRMP APPROVAL/SIGNATURE PAGE

U.S. AIR FORCE

PAUL S. CORNWELL, COLONEL _____ _____
Commander Date
Pacific Air Forces Regional Support Center

U.S. FISH AND WILDLIFE SERVICE

GREGORY SIEKANIC _____ _____
Regional Director, Region 7 Date

ALASKA DEPARTMENT OF FISH AND GAME

DOUG VINCENT-LANG _____ _____
Commissioner Date

BUREAU OF LAND MANAGEMENT

CHAD PADGETT _____ _____
Alaska State Director Date

NOAA FISHERIES

JIM BASLIGER _____ _____
Alaska Regional Administrator Date

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# EXECUTIVE SUMMARY

## *Purpose and Scope*

An Integrated Natural Resources Management Plan (INRMP) is a long-term planning document designed to guide the management of natural resources on military lands, support military missions, and ensure compliance with environmental laws and regulations. An INRMP also supports an installation's mission while conserving and rehabilitating installation resources for multiple use, sustainable yield, and biological integrity. INRMPs are important documents that improve the efficacy of resource management efforts undertaken by Regional Commanders, Installation Commanding Officers, and the environmental and natural resource programs of public works departments.

This INRMP complies with the Sikes Act (16 U.S. Code [USC] 670a et seq.), as amended (2015), which requires the preparation, implementation, and review for operation and effect of an INRMP at all U.S. Department of Defense (DoD) installations in the U.S. and its territories that contain significant natural resources. Section 101(a)(2) of the Sikes Act (as amended) requires the Secretary of the Air Force to prepare INRMPs "in cooperation with" the U.S. Fish and Wildlife Service (USFWS) and appropriate state and territorial fish and wildlife agencies. DoD Instruction (DoDI) 4715.03 instructs military installations to identify, address, and resolve INRMP issues with the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) when matters of essential fish habitat (EFH), listed marine species, and/or marine fisheries are involved.

This INRMP guides the management of natural resources on Pacific Air Forces Regional Support Center (PRSC) installations located throughout Alaska. The 611th Civil Engineer Squadron (611 CES), based at Joint Base Elmendorf-Richardson, is the squadron under the PRSC which provides primary oversight of project implementation. The INRMP applies to organizations internal and external to PRSC that are involved with or interested in the management or use of natural resources and lands on PRSC sites. At time of publication, the PRSC holds land administration rights to 35 sites in Alaska. The U.S. Air Force (USAF or Air Force) has partnered with the USFWS, NMFS, and the Alaska Department of Fish and Game (ADFG) to provide technical assistance, review, and expert guidance regarding terrestrial and marine resources addressed in this INRMP, in particular, species listed under the Endangered Species Act (ESA) (16 USC 1531 et seq.), Migratory Bird Treaty Act (MBTA) (16 USC 703-712), and Marine Mammal Protection Act (MMPA) (16 USC 1361 et seq.). This INRMP furthermore reflects mutual agreement between the USAF and its partnering agencies on the conservation of natural resources at the PRSC sites.

The PRSC also manages sites in Hawaii and other Pacific locations under the auspice of a separate INRMP, officially referred to as the *Final April 2017 Integrated Natural Resources Management Plan for Wake Island Airfield, Wake Atoll, Kokee Air Force Station, Kauai, Hawaii, and Mt Kaala Air Force Station, Oahu Hawaii*.

### *INRMP Support of the Air Force Mission*

Preparation and implementation of this INRMP are required by the Sikes Act (16 USC 670a et seq.) and Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management* (November 22, 2016). Additional INRMP guidance is provided by DoDI 4715.03, *Natural Resources Conservation Program*. This INRMP helps the PRSC comply with other federal and state laws, most notably laws associated with wetlands, endangered species, migratory birds, marine mammals, and wildlife management in general. Compliance requirements at least partially affecting implementation of the INRMP are included in Section 1.3, *Authority*. This plan describes how the PRSC will implement provisions of AFI 32-7064 on its 35 installations in Alaska.

The final INRMP reflects mutual agreement of the USFWS, ADFG, and NMFS representatives concerning the conservation of the natural resources under their respective legal authorities, consistent with the U.S. Department of the Interior's Memorandum of Understanding (MOU). This INRMP reflects concurrence from the USFWS that the INRMP complies with the ESA via informal consultation. Implementation of this INRMP is not likely to adversely affect any threatened or endangered species, or designated or proposed critical habitat.

Implementation of the INRMP directly supports the military mission. Natural resources projects contribute to successful airfield management; controlling birds and hazing large animals near runways are prime examples. Without such control, loss of personnel and aircraft due to a bird strike caused by an unexpected increased bird/wildlife aircraft strike hazard (BASH) would affect transportation of personnel and equipment to PRSC sites. Regardless of the mission component, the loss of air transportation to PRSC sites would impact all missions. The BASH reduction program incorporates recommendations of the PRSC Bird Hazard Working Group.

Each INRMP project is required to support the PRSC's military mission while simultaneously complying with various environmental requirements and minimizing or avoiding impacts to protected species. Example projects which display this unique combination of mission preservation and conservation include: (1) nest surveys for federally threatened Steller's and spectacled eiders and the delineation of high value nesting habitat at sites where eiders are expected to occur; (2) development and implementation of construction shutdown protocols to avoid alterations of Pacific walrus (*Odobenus rosmarus*) behavior near haul out locations at the Cape Lisburne Long Range Radar Site (LRRS); and (3) use of scientific modeling to determine locations where polar bear-human interactions may increase, decrease, or remain constant, as a function of sea ice changes.

Without an INRMP for guidance, incidental or even intentional adverse effects can occur to natural resources, such as wildlife, wetlands, and coastal environments by actions taken to accomplish the mission or by personnel activities and operations, such as construction, demolition and maintenance. This INRMP supports the military mission by protecting and enhancing lands upon which the mission is critically dependent.

### *Summary of the Benefits of INRMP Implementation*

INRMP implementation provides for the management of natural resources, including fish, wildlife, and plants, and provides the landscape necessary for sustainment of military uses. The INRMP ensures that plans to provide for the conservation and rehabilitation of natural resources on the installations are consistent with the use of the installations to ensure the readiness of the Armed Forces. The INRMP helps the PRSC comply with federal and state laws. INRMP implementation will help sustain the military mission by supporting appropriate ecosystem management. And, perhaps most importantly, INRMP implementation will directly support the mission by continuing to reduce BASH risks and other conflicts that might hinder military and other operations.

### *Implementation of the INRMP*

#### *General Natural Resources Management Goals*

Below are PRSC general natural resources goals. Programs related to these general goals and objectives are described in Chapter 7, *Natural Resources Program Management*. Program-specific goals, objectives, and in-house actions and projects to achieve them are summarized in Chapter 8, *Management Goals and Objectives*.

- **Goal 1:** Provide quality natural environments to support the military mission of PRSC sites.
- **Goal 2:** Manage natural resources on PRSC sites to assure good stewardship of public lands entrusted to the Air Force.
- **Goal 3:** Improve the quality of life of local communities near PRSC sites through quality natural resources-based recreational opportunities.
- **Goal 4:** Comply with laws and instructions that pertain to management of PRSC sites' natural resources.

*Effects of Implementation of INRMP Goals on Management Direction*

Although management of certain natural resources (land, plants, and wildlife) may change based upon the goals and objectives of this updated INRMP, the implementation of INRMP goals and objectives will not be a significant change in management direction on PRSC lands since accomplishing the military missions on the installations will remain the same. Such changes will be implemented to (1) support the Air Force mission; (2) respond to requirements agreed to under the MOU for a *Cooperative Integrated Natural Resource Management Program on Military Installations* among the DoD, USFWS, and Association of Fish and Wildlife Agencies; (3) enact actions required in response to regulations by other federal agencies or the State of Alaska; and/ or (4) respond to requirements of USAF regulations (e.g., AFI 91-202, *The U.S. Air force Mishap Prevention Program*).

*Significant Environmental Impacts of INRMP Implementation*

Implementation of this INRMP is not expected to have significant environmental impacts. However, this INRMP is not an environmental document prepared to satisfy the requirements of the National Environmental Policy Act (NEPA). The INRMP will receive review under the USAF Environmental Impact Analysis Process.

This INRMP is an update of the previous INRMPs that met the USAF categorical exclusions of 32 Code of Federal Regulations (CFR) 989, parts A.2.3.6 and A.2.3.7. However, prior to implementation of each action, the Environmental Impact Analysis Process will be performed, per NEPA requirements, as a final check as to whether significant environmental impacts would result. In a non-statistical or non-NEPA sense, there will be changes. They could result in additional base operations support (BOS) contractor responsibilities or projects accomplished by some other source.

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# 1. OVERVIEW AND SCOPE

This Integrated Natural Resources Management Plan (INRMP) was developed to provide for effective management and protection of natural resources. It summarizes the natural resources present on the installations and outlines strategies to adequately manage those resources. Natural resources are valuable assets of the U.S. Department of the Air Force (USAF or Air Force). They provide the natural infrastructure needed for testing weapons and technology, as well as for training military personnel for deployment. Sound management of natural resources increases the effectiveness of Air Force adaptability in all environments. The Air Force has stewardship responsibility over the physical lands on which installations are located to ensure all natural resources are properly conserved, protected, and used in sustainable ways. The primary objective of the Air Force natural resources program is to sustain, restore, and modernize natural infrastructure to ensure operational capability and no net loss in the capability of Air Force lands to support the military mission of the installation. The plan outlines and assigns responsibilities for the management of natural resources, discusses related concerns, and provides program management elements that will help to maintain or improve the natural resources within the context of the installation's mission. The INRMP is intended for use by all installation personnel.

## 1.1 PURPOSE AND SCOPE

### 1.1.1 Purpose

An INRMP is a long-term planning document designed to guide the management of natural resources on military lands, support military missions, and ensure compliance with environmental laws and regulations. An INRMP also supports an installation's mission while conserving and rehabilitating installation resources for multiple use, sustainable yield, and biological integrity. INRMPs are important documents that improve the efficacy of resource management efforts undertaken by Regional Commanders, Installation Commanding Officers, and the environmental and natural resource programs of public works departments.

This INRMP complies with the Sikes Act (16 U.S. Code [USC] 670a et seq.), as amended (2015), which requires the preparation, implementation, and review for operation and effect of an INRMP at all U.S. Department of Defense (DoD) installations in the U.S. and its territories that contain significant natural resources. Section 101(a)(2) of the Sikes Act (as amended) requires the Secretary of the Air Force to prepare INRMPs "in cooperation with" the U.S. Fish and Wildlife Service (USFWS) and appropriate state and territorial fish and wildlife agencies. DoD Instruction (DoDI) 4715.03 instructs military installations to identify, address, and resolve INRMP issues with the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) when matters of essential fish habitat, listed marine species, and/or marine fisheries are involved.

This INRMP guides the management of natural resources on Pacific Air Forces Regional Support Center (PRSC) installations located throughout Alaska. The 611th Civil Engineer Squadron (611 CES), based at Joint Base Elmendorf-Richardson (JBER), is the squadron under the PRSC which provides primary oversight of project implementation. At time of publication, the PRSC holds land administration rights to 35 sites in Alaska. The Air Force has partnered with the USFWS, NMFS, and the Alaska Department of Fish and Game (ADFG) to provide technical assistance, review, and expert guidance regarding terrestrial and marine resources addressed in this INRMP, in particular, species listed under the Endangered Species Act (ESA) (16 USC 1531 et seq.), Migratory Bird Treaty Act (MBTA) (16 USC 703-712), and Marine Mammal Protection Act (MMPA) (16 USC 1361 et seq.). This INRMP furthermore reflects mutual agreement between the USAF and its partnering agencies on the conservation of natural resources.

This plan is part of the PRSC comprehensive planning process and contains management strategies, goals, objectives, and actions/projects for the management of natural resources on PRSC lands. The implementation of projects depicted within this INRMP's work plan will support the PRSC mission and help ensure compliance with environmental laws. The INRMP will provide the basis and criteria for protecting and enhancing natural resources using landscape and ecosystem perspectives, consistent with the military mission. It is supplemented by annual, agency-coordinated updates and other related plans (e.g., Integrated Cultural Resources Management Plan [ICRMP], Land Use Control Management Plan [LUCMP]).

This INRMP update utilizes past information and text from the following previous versions:

- 2007 INRMP, Alaska Radar System, Alaska, Short and Long Range Radar Sites (611 CES 2007a).
- 2007 INRMP, Eareckson Air Station, Shemya Island, Alaska (611 CES 2007b).
- 2008 INRMP, King Salmon Airport, Forward Operating Location, King Salmon, Alaska (611 CES 2008a).
- 2009 INRMP, Inactive Sites, Alaska, 611th Air Support Group (611 ASG) (611 CES 2009).
- 2013 INRMP, 611th Air Support Group, Alaska Installations (611 CES 2013a).

The update also includes pertinent information collected on or adjacent to the INRMP properties.

The primary change in this updated INRMP is that of format to follow guidance provided in Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management* (November 22, 2016). Data specific to each installation and management goals, objectives, and projects have also been updated and included in this revision. Unless referenced otherwise, material within this INRMP is taken from the plans listed above.

The organization of this INRMP is different from single-installation INRMPs. Due to the varying geographies and composition of flora and fauna across 35 installations, each installation has site-specific information depicted within a separate appendix: Appendix H – Installation-Specific Information. This format allows general PRSC natural resources information to be found within Chapters 2-9 of the INRMP proper, and it provides for a means to easily access installation-specific information.

### 1.1.2 Scope

The PRSC is responsible for the operation and management of 35 installations (16 active and 19 inactive) throughout Alaska (Table 1 and Figure 1).

**Table 1. PRSC Alaska Sites**

| **Active*** | | **Inactive*** | |
|---|---|---|---|
| Barter Island LRRS | King Salmon Airport | Anvil Mountain LRRS | Lake Louise Recreation Site |
| Cape Lisburne LRRS | Kotzebue LRRS | Bear Creek RRS | Naknek Recreation Area 1 |
| Cape Newenham LRRS | Murphy Dome AFS | Beaver Creek RRS | Naknek Recreation Area 2 |
| Cape Romanzoff LRRS | Oliktok LRRS | Bethel RRS | Nikolski RRS |
| Cold Bay LRRS | Point Barrow LRRS | Big Mountain RRS | Nome Field POL |
| Eareckson AS | Sparrevohn LRRS | Campion AFS | North River RRS |
| Fort Yukon LRRS | Tatalina LRRS | Driftwood Bay RRS | Point Lay LRRS |
| Indian Mountain LRRS | Tin City LRRS | Bullen Point SRRS | Point Lonely SRRS |
| | | Granite Mountain RRS | Port Heiden RRS |
| | | Kalakakat Creek RRS | |

*Notes*: *AFS = Air Force Station; AS = Air Station; LRRS = Long Range Radar Site; RRS = Radio Relay Station; SRRS = Short Range Radar Site.


**Figure 1. PRSC Installations in Alaska**

The INRMP applies to organizations internal and external to the PRSC that are involved with or interested in the management or use of natural resources or have interests in performing military objectives on PRSC sites in Alaska. The physical scope of the plan is generally the USAF property comprising each site.

### 1.1.3 Function

This INRMP will guide the PRSC's natural resources management program. The INRMP has been developed primarily by PRSC natural resources personnel, but other related functions (e.g., Geographic Information System [GIS], Installation Restoration Program [IRP]) have also contributed to ensure the plan is fully integrated. The INRMP has been reviewed by operations and mission functions to ensure the plan fully supports military and other missions on PRSC lands. Coordination with federal and state agencies involved with the management of natural resources in the region ensures this INRMP complies with and supports federal and state natural resources-related laws and mandates.

This INRMP should be referenced in descriptions of affected environment to reduce verbiage in National Environmental Policy Act (NEPA) documents and IRP-related documentation. This INRMP is an important mechanism in obtaining funding to fulfill natural resources monitoring, surveys, and specific management activities at PRSC sites.

## 1.2 MANAGEMENT PHILOSOPHY

Management Philosophy

> "First and most important, we feel a deep and abiding sense of responsibility for the care of the lands and resources entrusted to our care. We are sworn to preserve and protect the Constitution -- and we understand the need to preserve and protect this land as well. We are stewards of beautiful and irreplaceable resources -- and we will proudly fulfill our obligation to care for them." (Sheila E. Widnall, Secretary of the Air Force, 1993-1997).

Support of Military Mission

> The PRSC is responsible for providing first-line radar, airfield operations, air operations weapons system, communications, engineering, environmental, and logistics support for Eleventh Air Force, Alaskan NORAD Region, and Pacific Air Forces.

Implementation of the INRMP directly supports the military mission in numerous ways. For example, the implementation of installation avian surveys results in the identification of potential aircraft strike risks. This avian data is used to develop species-specific hazing strategies – such actions reduce the likelihood of a catastrophic accident, loss of personnel, and aircraft. Likewise, without hazing of bears at some sites, a mauling of personnel would affect the execution of mission essential actions and has the potential to subsequently alter the manner by which certain mission-essential actions are carried out at other PRSC sites.

Without an INRMP for guidance, incidental or even intentional adverse effects can occur to resources, such as wildlife, wetlands, and coastal environments by actions to accomplish the mission or by personnel activities and operations, such as construction, demolition, and maintenance. Conversely, these mission operations or support activities and indirect actions can be adversely affected by natural resources. This INRMP supports the military mission by protecting and enhancing lands upon which the mission is critically dependent.

Implementation of this INRMP will support the PRSC military mission. The squadron delegated the lead role for the implementation of the INRMP is the 611 CES; however, all members of the PRSC are required

to adhere to its guidance. The PRSC and its three operating squadrons (611th Air Communications Squadron [611 ACOMS], 611th Air Support Squadron [611 ASUS], and 611 CES) and Detachments are committed to supporting the military mission, providing stewardship of resources entrusted to the Air Force, enhancing the quality of life of surrounding communities, and being a valued member of the overall USAF organization. Implementation of this updated 2020 INRMP will demonstrate those commitments. Given the remote nature of many of the sites, the data generated from a subset of PRSC-funded initiatives or projects may have tangential benefit to other agencies which border the PRSC installations. This mutualistic benefit is a unique result of INRMP project implementation.

A simplistic diagram of the current components of the PRSC is provided in Figure 2. All squadrons or detachments within the PRSC fall under the direction of the PRSC commander. Detachment (Det) 1 has no involvement in the authorship or implementation of this INRMP, however they are depicted below in order to display the totality of the current staffing for all of the PRSC sites, inclusive of the remote Pacific Island locales in Hawaii and Wake Island. The PRSC manages natural resources on Wake Island Airfield, as well as Kokee and Kaala Air Force Stations, Hawaii, under the auspices of a separate INRMP, which was revised and approved in 2017.

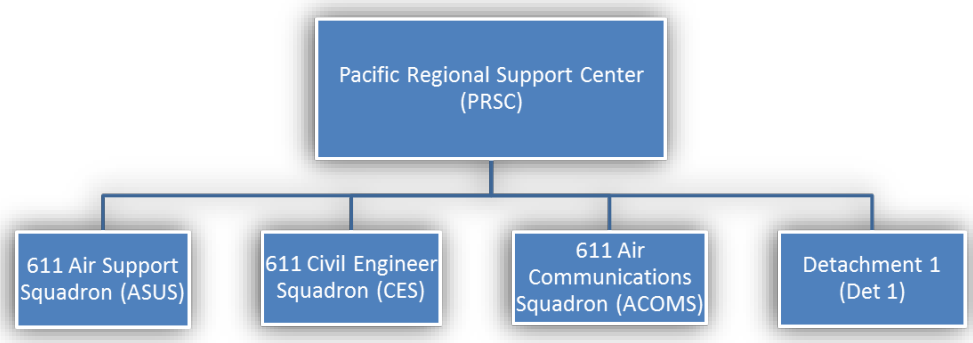


**Figure 2. Organization of PRSC**

### 1.2.1 Interdisciplinary INRMP Development

This INRMP cannot be implemented by the PRSC alone. In accordance with AFI 32-7064 (*Integrated Natural Resources Management*; 22 November 2016); the Sikes Act, as amended (16 USC 670a et seq.); and the USAF ecosystem management philosophy, the PRSC has developed effective cooperative relationships over the years with various agencies for managing natural resources at various sites.

The PRSC is responsible for the management and stewardship of land and habitat resources within the confines of its lands and seeks to minimize any mission-related adverse impacts to natural resources outside the sites. Given the remote nature of the installations and low-tempo mission, the probability for the existence of wildlife within the installation boundaries is high. In order to manage these wildlife populations appropriately and avoid human-wildlife interactions, the PRSC collaborates and utilizes historic partnerships with external federal, state, and local agencies or universities with specific expertise.

Past collaborations with external agencies resulted in the creation of "*The Polar Bear Interaction Management Plan*" (Bridges 2001) and the polar bear pamphlet and video, which were developed cooperatively between the USFWS, Coastal America Foundation, and 611 CES. USFWS again partnered

with 611 CES as a reviewer for the 2008 revision to the *Polar Bear Interaction Management Plan* (Ohms 2008). The subject plan has received regular updates as appropriate (such as a new title in 2013) and was again revised in 2020 to incorporate new guidance during the preparation of this 2020 INRMP update. See Section 14.3 for the 2020 updated *Polar Bear and Pacific Walrus Avoidance Plan*.

An ecosystem monitoring program began in 2004 by surveying sites and preparing wildlife habitat maps for various PRSC sites (see Section 2.3.2, *Vegetation/Habitat*). These maps were a starting point in a program geared towards an ecosystem approach to land management of USAF properties. This approach is being augmented by monitoring efforts for a few select ESA- and MMPA-listed species, such as spectacled and Steller's eiders, polar bear, Pacific walrus, and others. Wildlife habitat maps have several uses in an ecosystem management program, including, but not limited to: (1) determining the extent of habitats that are suitable for monitoring certain species of conservation concern, (2) determining the extent of habitats that are in need of restoration because they have been altered by human activities, and (3) serving as basemap layers for overall land management protocol (Schick et al. 2004). Past and future planned projects extending the above efforts to new regions (or repeated on installations not surveyed in recent years) are discussed further in Section 7.4, *Management of ESA- and MMPA-listed Species and Habitats*.

This INRMP has been updated by the 611 CES in coordination with the USFWS, ADFG, NMFS, and Bureau of Land Management (BLM). Section 13.2 (Appendix B) includes general items of cooperation among the USAF, USFWS, and ADFG for natural resources management at PRSC sites, in accordance with the Sikes Act.

#### 1.2.1.1 Alaska Department of Fish and Game (ADFG)

The ADFG is responsible for the management of all fish and wildlife populations within Alaska. In addition, the North Slope Borough is responsible for management of natural resources on North Slope Borough lands, which neighbor many northern LRRS.

#### 1.2.1.2 U.S. Fish and Wildlife Service (USFWS)

The USFWS (Region 7 – Alaska) has jurisdiction of migratory birds; terrestrial ESA-listed threatened and endangered species, including polar bear, northern sea otter, and Pacific walrus, all of which are listed under the MMPA; as well as natural resources within the National Wildlife Refuge (NWR) system. The mission of the USFWS NWR system is "to administer a national network of lands and waters for the conservation, management, and where applicable, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (USFWS 2019g). The following PRSC installations are specifically affected by their association with NWRs:

- Barter Island LRRS lies within the Arctic NWR.
- Cape Lisburne LRRS and the inactive Driftwood Bay RRS and Nikolski RRS lie within the Alaska Maritime NWR.
- Eareckson AS on Shemya Island is within the Alaska Maritime NWR; however, in 2001 the Defense Appropriations Act (Public Law 106-259, Section 302) transferred primary jurisdiction of Shemya Island to the USAF for military purposes.
- Cape Romanzof LRRS lies within the Yukon Delta NWR.
- Cape Newenham LRRS lies within the Togiak NWR.
- Cold Bay LRRS lies within the Izembek NWR.

The USAF/PRSC and the USFWS agree that certain project goals may on occasion yield tangential benefit to both agencies, but for differing purposes. Such efficiencies are of enough importance to warrant at

minimum an annual meeting to review ongoing programs, new project direction, and more importantly to identify potential projects of mutual interest that may allow for leveraging of federal funding in order accomplish a mutual goal. Both agencies bring appropriate personnel to these meetings to provide technical input into discussions. A unique case study displaying a facet of INRMP implementation simultaneously affording benefit to other agencies is the development and execution of polar bear surveys near PRSC properties. As a result of the USAF financial investment and logistics support (specifically during fiscal year 2016-2018), the USFWS and USAF gained valuable insight into life history and regional habits of the polar bear. As a result of collar deployment, the USAF simultaneously gains an understanding of when and where humans may potentially interact with said species.

#### 1.2.1.3 National Marine Fisheries Service (NMFS)

NMFS has jurisdiction for marine habitats and species (i.e., marine fish, seals, sea lions, and whales). AFI 32-7064 requires coordination, notification, and internal agency review of an INRMP by NMFS if the installation includes or borders marine environments. NMFS was afforded an opportunity to review and comment on this INRMP. In the event a project may affect marine species under the jurisdiction of NMFS, USAF will coordinate with NMFS, in accordance with the ESA and MMPA.

#### 1.2.1.4 Bureau of Land Management (BLM)

BLM is responsible for management of land uses and natural resources on BLM lands and for subsurface resource management on portions of some PRSC sites. The Air Force's land interests at Point Barrow LRRS, Point Lonely SRRS, and King Salmon Airport are through 20-year rights-of-way from the BLM. Bullen Point SRRS, Oliktok LRRS, and Barter Island LRRS are withdrawn from public domain by public land order for military purposes. BLM may co-manage PRSC sites based on the terms and conditions of the site withdrawal.

### 1.2.2 Ecosystem Management Principles

Preparation and implementation of this INRMP are required by AFI 32-7064, *Integrated Natural Resource Management* (November 22, 2016). AFI 32-7064 requires an INRMP to implement ecosystem management on Air Force installations by setting goals for attaining a desired land condition. Per AFI 32-7064, Air Force principles for ecosystem management are as follows:

- Maintain or restore native ecosystem types across their natural range where practical and consistent with the military mission.
- Maintain or restore ecological processes such as fire and other disturbance regimes where practical and consistent with the military mission.
- Maintain or restore the hydrological processes in streams, floodplains, and wetlands when feasible and practical and consistent with military mission.
- Use regional approaches to implement ecosystem management on an installation by collaboration with other DoD components as well as other federal, state, and local agencies, and adjoining property owners.
- Provide for outdoor recreation, agricultural production, harvesting of forest products, and other practical utilization of the land and its resources, provided that such use does not inflict long-term ecosystem damage or negatively impact the Air Force mission.

Air Force policy also recognizes that biodiversity conservation is an integral part of ecosystem management. As such, installations are required to maintain or reestablish viable populations of all native species on Air Force-controlled lands when practical and consistent with the military mission.

Ecosystem management provides a means for the PRSC to conserve biodiversity, comply with environmental laws and regulations, and continue to provide high quality military readiness essential for the defense of the nation. The PRSC will use ecosystem management to guide its program in the next 5 years and beyond for management of its lands.

It is also Air Force policy to implement DoD policies for natural resources management, as stated in DoDI 4715.03, *Natural Resources Conservation Program* (31 August 2018).

## 1.3 AUTHORITY

### 1.3.1 Sikes Act

The Sikes Act is the cornerstone legislative mandate that provides for natural resources management on DoD lands. The Sikes Act, as amended (16 USC 670a et seq.) states, "*The Secretary of Defense shall carry out a program to provide for the conservation and rehabilitation of natural resources on military installations… To facilitate the program, the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes the preparation of such a plan inappropriate.*"

The Sikes Act requires that, consistent with the use of military installations to ensure the preparedness of the Armed Forces, each INRMP shall, where appropriate and applicable, provide for:

- fish and wildlife management, land management, forest management, and fish- and wildlife-oriented recreation;
- fish and wildlife habitat enhancement or modifications;
- wetland protection, enhancement, and restoration where necessary for support of fish or wildlife;
- integration of, and consistency among, the various activities conducted under the plan;
- establishment of specific natural resources management goals and objectives and time frames for proposed action;
- sustainable use by the public of natural resources to the extent the use is not inconsistent with the needs of fish and wildlife resources;
- public access to the military installation that is necessary or appropriate for sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources, subject to requirements necessary to ensure safety and military security;
- enforcement of all federal natural resource laws and regulations;
- no net loss in the capability of installation lands to support the military mission of the installation; and
- such other activities as the Secretary of the military department determines appropriate.

The Sikes Act also requires or provides for:

- regular review of this INRMP and its effects, not less often than every 5 years;
- provisions for spending hunting and fishing permit fees exclusively for the protection, conservation, and management of fish and wildlife, including habitat improvement and related activities in accordance with the INRMP;
- exemption from procurement of services under Office of Management and Budget Circular A-76 and any of its successor circulars; and
- priority for contracts involving implementation of this INRMP to state and federal agencies having responsibility for conservation of fish or wildlife.

**Sikes Act Improvement Act (1997).** The Sikes Act, as amended, provides much of the legal authority for management of wildlife and natural resources on military lands. Key provisions include:

- Required annual review of program effectiveness;
- Migratory bird management to include opportunities for collecting hunting fees;
- Public access for outdoor recreation on military installations to include opportunities for disabled veterans, dependents, and others;
- Enforcement of federal laws for violations occurring on DoD lands;
- Requirement for sufficient numbers of professionally trained civilian resource managers and enforcement personnel who are inherently governmental; and
- Authority to enter into multi-year cooperative agreements with nonfederal agencies, organizations, or individuals for the purpose of management of natural resources.

### 1.3.2 DoD Authorities

**DoDI 4715.03**, *Natural Resources Conservation Program* (August 31, 2018) requires "that installations prepare, maintain, and implement Integrated Natural Resources Management Plans (INRMPs) in coordination with the U.S. Fish and Wildlife Service (USFWS) and the appropriate State fish and wildlife management agency(s), and ensure that those plans are fully coordinated with appropriate installation offices responsible for preparing, maintaining, and implementing other programs and plans that may affect land use or be affected by land use decisions, to include but not be limited to operation and training plans, range sustainment plans, installation master plans, outdoor recreation plans, integrated cultural resources management plans, pest management plans, and other installation plans as appropriate."

In 2006, the DoD, USFWS, and the Association of Fish and Wildlife Agencies signed a Memorandum of Understanding (MOU) for a Cooperative Integrated Natural Resource Management Program on Military Installations (hereafter referred to as the Tripartite MOU). The DoD, among other items, agreed to:

- Take the lead in the development of policies related to INRMP development and implementation and invite USFWS and state fish and wildlife agency offices to participate in developing and updating INRMPs, well in advance of final product date;
- Encourage military installations to take advantage of these agencies' natural resources expertise through the use of Economy Act transfers and Sikes Act cooperative agreements;
- Encourage military installations to identify INRMP projects and give priority to those that ensure conservation of natural resources while sustaining military mission activities, achieve compliance with laws, and provide adequate staffing for development and implementation of INRMPs;
- Provide access (subject to mission, safety, and security requirements) to military installations in order to facilitate the sustainable multipurpose use of its natural resources;
- Identify DoD natural resources research needs and develop research proposals with input from the agencies; and
- Encourage Military Services to establish natural resources management liaisons with the agencies to facilitate INRMP coordination, cooperative regional and local natural resources partnerships, and natural resources conservation technology transfer and training initiatives.

This INRMP was developed and will be implemented in a manner consistent with the Tripartite MOU.

### 1.3.3 U.S. Air Force Authorities

#### 1.3.3.1 AFI 32-7064, Integrated Natural Resources Management (November 22, 2016)

Implements DoDI 4717.03 and Air Force Policy Directives. It identifies requirements to manage natural resources on Air Force installations in accordance with applicable federal, state, and local laws and regulations.

#### 1.3.3.2 Other Air Force Policy

Other policy documents that have some bearing on natural resources management include:

- Air Force Manual (AFMAN) 32-1053, *Integrated Pest Management Program* (August 6, 2019). Provides guidance for pest management programs at Air Force installations.
- AFI 32-2001, *Fire and Emergency Services Program* (September 28, 2018). Covers wildland fire fighting procedures and policy.
- AFI 91-202, *US Air Force Mishap Prevention Program* (April 29, 2019). Establishes mishap prevention program requirements, including the preparation of a BASH plan; assigns responsibilities for program elements; and contains program management information.
- AFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program* (May 31, 2018). Provides policy and guidance for implementing an effective BASH management program for USAF installations, and provides guidance on programs as specified in AFI 91-202.

### 1.3.4 Other Related Authorities

Section 14.1 (Appendix A) lists federal laws, executive orders (EOs), Presidential memoranda, DoD directives/instructions, Air Force regulatory instruments, state laws, and other regulatory instruments that may affect implementation of this INRMP. This INRMP has been prepared to assure compliance with these regulatory authorities.

#### 1.3.4.1 Coastal Zone Management Act (CZMA) (16 USC §1451 et seq.)

Federal lands are excluded from the boundaries of Alaska's coastal zone under 15 CFR 923.3. However, federal agencies must comply with the CZMA when federal actions on excluded lands may have spillover impacts that affect any land or water use or natural resource of the coastal zone.

Per 15 CFR 930, Subpart C, those federal activities affecting the coastal zone of Alaska must be consistent *to the maximum extent practicable* with standards and enforceable policies of the Alaska Coastal Management Program (ACMP). The ACMP was discontinued effective 30 June, 2011. However, the PRSC will continue to perform tasks specified in the Air Force MOU with Coastal America (Coastal America 1992). Section 7.13, *Coastal Zone and Marine Resources Management* provides further detail.

#### 1.3.4.2 Alaska National Interest Lands Conservation Act (ANILCA)

Air Force installations are on public lands and use of public lands for subsistence is discussed in ANILCA (Public Law 96-487).

> Section 802 (1): "It is hereby declared to be policy of Congress that consistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources of such lands..."
>
> Section 810 (a): "In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy or disposition of public lands under any provision of law authorizing such actions, the head

of the Federal agency having primary jurisdiction over such lands or his/her designee shall evaluate the effect of such use, occupancy or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes."

This INRMP does not withdraw, reserve, lease, or permit any use of public land and/or USAF lands. Therefore, a Section 810 evaluation is not included in this document, but Section 810 subsistence clearances would be done for actions on PRSC sites that may affect subsistence.

The *Traditional Land Use Survey Characterization for Remote Air Force Facilities in Alaska* (Braund and Associates 2004) indicated that PRSC INRMPs tend to emphasize wildlife conservation and sport hunting and fishing, though the Air Force sites are also subject to subsistence hunting and gathering.

#### 1.3.4.3 State of Alaska

Alaska Statutes Title 16 (Fish and Game) and Alaska Administrative Code Title 5 (Fish and Game) detail state laws relating to use of fish and wildlife resources and habitat protection. State fish and game laws apply to federal lands within the State of Alaska, and are enforced on PRSC lands.

## 1.4 INTEGRATION WITH OTHER PLANS AND ENVIRONMENTAL FUNCTIONS

PRSC sites could be affected both internally and externally by growth in the region. Internal factors include meeting the needs of existing mission partners, AT/FP standards, and a potential increase in requests from federal agencies for real property assets in terms of facilities and buildable land at PRSC sites. Outside factors expected to drive growth and development immediately adjacent to PRSC sites include a reduction in available land in the region, a continuing increase in population growth, and development in the coming decades. Consequently, the impacts of planning and future development on and within the PRSC sites are inextricably linked.

The recognition of internal and external factors demands that natural resources management on PRSC sites be integrated with other disciplines, programs, and planning beyond the scope of traditional natural resources management. On a day-to-day basis, INRMP goals, objectives, projects, strategies, and actions are integrated with other installation plans to sustain mission-oriented activities while managing the natural resources.

The following PRSC plans were reviewed to highlight key interrelationships, and recommendations contained within these plans were used in the development of this INRMP. Note that the INRMP is not intended to compile detailed information on each plan and its contents.

### 1.4.1 BASH Plan

Avian survey results stemming from INRMP projects fuel BASH working group decisions on where to place emphasis in the BASH plan and support which sites have a pressing need for habitat modification projects or increased hazing/new tactics.

### 1.4.2 Integrated Pest Management Plan (IPMP)

The IPMP assists in addressing wildlife damage management and pest management requirements in aquatic, riparian, and wetland environments; identifying conflicts between native species and pest management actions; integrating pest management considerations with natural resources program responsibilities regarding vegetation management; coordinating approval and use of pesticides for vegetation management and other natural resources programs. Invasive species removal and management carried out under the IPMP may have a benefit on native plant and animal species on PRSC sites.

### 1.4.3 ICRMP

INRMP projects may at time require intrusive work, such as the digging of pits during wetland delineations and soil remediation activities. An ICRMP can help outline and delineate where those types of actions are most likely to cause a conflict with existing or potentially occurring cultural resources.

### 1.4.4 Master Plan

Proposed developments or new training missions are typically forecasted years ahead in a master plan. This document allows the NRM to foresee those actions which may potentially conflict with previously documented sensitive areas on a PRSC site, species home range or historical survey areas used as indices.

## 2. INSTALLATION PROFILE

| | |
|---|---|
| **Office of Primary Responsibility** | 611 CES/CEI has overall responsibility for implementing the Natural Resources Management program and is the lead organization for monitoring compliance with applicable federal, state, and local regulations. |
| **Natural Resources Manager (NRM)/Point of Contact (POC)** | Joel Helm, USAF |
| **State and/or Local Regulatory POCs** | Melissa Burns, Sikes Act Liaison, USFWS<br>Gregory Siekanic, USFWS<br>Sam Cotten, ADFG<br>Jim Baslinger, NMFS<br>Karen Mouritsen, BLM |
| **Total Acreage Managed by Installation** | 40,252 |
| **Total Acreage of Wetlands** | 13,789 |
| **Total Acreage of Forested Land** | Unknown. |
| **Does Installation Have Any Biological Opinions?** | Biological Opinion for USAF Remediation and Restoration Activities at 31 Remote Installations, 2014-2024; filed at 611 CES, JBER, AK. |
| **Natural Resources Program Applicability** | ☑ Threatened and endangered species<br>☑ Invasive species<br>☑ Wetlands Protection Program<br>☑ Grounds Maintenance Contract/SOW<br>☐ Forest Management Program<br>☐ Wildland Fire Management Program<br>☐ Agricultural Outleasing Program<br>☑ Integrated Pest Management Program<br>☑ Bird/Wildlife Aircraft Strike Hazard (BASH) Program<br>☑ Coastal Zones/Marine Resources Management Program<br>☑ Cultural Resources Management Program |

## 2.1 INSTALLATION OVERVIEW

### 2.1.1 Location and Area

The PRSC is a tenant at JBER, which is located within the Municipality of Anchorage in south-central Alaska. This INRMP addresses those PRSC-managed lands at remote sites in Alaska. The PRSC is responsible for the operation and management of 35 installations distributed throughout coastal and interior Alaska, including the Aleutian Islands, totaling approx. 40,250 acres. Sites include Eareckson AS (3,494 acres), King Salmon Airport (783 acres), 14 active LRRS (27,974 acres), and 19 inactive sites (8,002 acres) (Table 2).

**Table 2. Summary of PRSC Installations Addressed in this INRMP and Natural Resources Considerations**

| Installation | Acreage | Mission | Natural Resources Considerations |
|---|---|---|---|
| Barter Island LRRS | 592 | Homeland Defense | Potential polar bear interactions. |
| Cape Lisburne LRRS | 1,123 | Homeland Defense | Potential polar and brown bear interactions; seasonal Pacific walrus presence in close proximity to seawall construction activities. |
| Cape Newenham LRRS | 2,103 | Homeland Defense | Potential avian hazards to aviation; seasonal Pacific walrus presence in close proximity to infrequent remediation and monitoring activities. |
| Cape Romanzof LRRS | 4,878 | Homeland Defense | Potential seasonal avian and mammalian hazards to aviation. |
| Cold Bay LRRS | 174 | Homeland Defense | Potential brown bear interactions. |
| Eareckson AS | 3,494 | Homeland Defense | Seasonal avian hazards to aviation. |
| Fort Yukon LRRS | 197 | Homeland Defense | Potential ground squirrel damage to infrastructure. |
| Indian Mountain LRRS | 9,730 | Homeland Defense | Potential brown and black bear interactions. |
| King Salmon Airport | 783 | Homeland Defense | Potential brown bear interactions. |
| Kotzebue LRRS | 627 | Homeland Defense | None. |
| Murphy Dome LRRS | 862 | Homeland Defense | None. |
| Oliktok LRRS | 750 | Homeland Defense | Potential polar bear interactions. |
| Point Barrow LRRS | 243 | Homeland Defense | Unknown. |
| Sparrevohn LRRS | 1,065 | Homeland Defense | Potential brown bear interactions. |
| Tatalina LRRS | 4,963 | Homeland Defense | Potential brown and black bear interactions. |
| Tin City LRRS | 667 | Homeland Defense | Potential polar bear interactions. |
| Anvil Mountain LRRS | 30 | Inactive | Potential polar bear interactions. |
| Bear Creek RRS | 99 | Inactive | Potential brown and black bear interactions. |
| Beaver Creek RRS | 33 | Inactive | Potential brown and black bear interactions. |
| Bethel RRS | 14 | Inactive | Potential brown and black bear interactions. |
| Big Mountain RRS | 446 | Inactive | Potential brown bear interactions. |
| Bullen Point SRRS | 670 | Inactive | Polar bear interactions. |
| Campion AFS | 1,632 | Inactive | None. |
| Driftwood Bay RRS | 453 | Inactive | None. |
| Granite Mountain RRS | 264 | Inactive | Potential brown bear interactions. |
| Kalakaket Creek RRS | 315 | Inactive | Potential brown bear interactions. |
| Lake Louise Rec Site | 26 | Inactive | None. |
| Naknek Recreation Annex – Rapids Camp | 10 | Inactive | Potential brown bear interactions. |
| Naknek Recreation Annex – Lake Camp | 7 | Inactive | Potential brown bear interactions. |
| Nikolski RRS | 432 | Inactive | None. |
| Nome Field POL | 7 | Inactive | None. |
| North River RRS | 89 | Inactive | Potential brown and black bear interactions. |
| Point Lay LRRS | 1,433 | Inactive | Seasonal Pacific walrus presence; potential for interactions with humans conducting remediation and monitoring. |
| Point Lonely SRRS | 1,873 | Inactive | Potential polar bear interactions. |
| Port Heiden RRS | 169 | Inactive | Potential brown bear interactions. |
| **Total** | **40,253** | | |

### 2.1.2 Installation History

#### 2.1.2.1 Air Stations

In 1950 the Alaska Air Command (AAC) developed plans to use Galena and Naknek as forward operating bases for its fighters. In 1952 deployments began to use Galena and King Salmon as forward operating bases for fighter-interceptors. In 1954 Naknek and Galena Air Force Auxiliary Fields became King Salmon and Galena Airports, respectively (Cloe 2008).

Histories of Eareckson AS and King Salmon Airport can be found in Appendix H, Installation-Specific Information. Detailed histories of PRSC sites are also provided within the associated ICRMPs for these sites (611 CES 2013b, 2013c, 2015a, 2015b).

#### 2.1.2.2 General Radar Sites

SRRSs and some LRRSs (formerly a portion of the Distant Early Warning [DEW]) Line are located in remote and sparsely populated areas at approximately 50-mile intervals across the coast of Alaska.

During the early years of the Cold War the Air Force constructed a series of aircraft control and warning (AC&W) radar sites throughout Alaska and a DEW radar system across northern Alaska, the Aleutians, and Canada. The Air Force then linked them with the White Alice Communications System (WACS) (3rd Wing History Office 2007.)

The following summarizes brief portions of *Military Development in Alaska* (Cloe 2008) that is a compilation of histories from many sources; the version used covers 1867 through 2005. Site-specific histories are provided in Appendix H, *Installation-specific Information.*

As the threat from the Soviet Union grew, the need for a national early warning radar system was recognized, and in 1947 planning began for a large system of radar stations and control centers in the contiguous U.S. as well as 37 radar stations and 4 control centers in Alaska. The plan was scaled back to a modified plan for 10 stations plus 2 control stations in Alaska. A perimeter of coastal early warning with interior ground control intercept stations to provide fighter direction to protect the main bases was planned.

The original AC&W system in Alaska included 10 stations planned as permanent successors to a temporary radar system that began operation in 1949; called the Alaskan Interim Aircraft Control and Warning System. The temporary system consisted of six radar sites: Elmendorf AFB (Anchorage), Clear (near Anderson), Nome (assumed later named Anvil Mountain, Naknek (later renamed King Salmon), Galena, and Gambell (St. Lawrence Island), and two control centers at Elmendorf AFB and Ladd AFB (now Fort Wainwright, Fairbanks). The command's AC&W program became a reality; construction began in 1950.

When the 10 permanent AC&W stations became operational in 1952, temporary Lashup radars at Naknek, Willow, Farewell, Bethel, Clear, and Elmendorf were taken out of operation. Orders were given to decommission the Kotzebue Lashup radar the following year.

During 1952 Opportunity Strike tests were conducted between various AC&W stations to determine the viability of using very high frequency (VHF) and microwave radio communications to connect the radar stations to replace the unreliable high frequency (HF) and low frequency (LF) communications system. However, the VHF and microwave system had major construction and logistical support challenges, and Headquarters, USAF recommended that AAC conduct a study to determine a more reliable and less complex system.

AAC formed a working group to develop an air defense communications system that also supported other government agencies. Group discussions in 1954 and 1955 ultimately led to the project which became

known as the WACS. The Air Force awarded a contract to the American Telephone and Telegraph Company to conduct a communications study and make recommendations.

A study group of American scientists was formed in 1952 to develop an advance warning system for North America's northern boundary. Their immediate requirement was to create radar, radio equipment, and associated electronic systems, which would operate in an environment that included -60 degrees Fahrenheit (°F), vicious electric storms in summer, constantly fluctuating currents of the North Magnetic Pole, and the strange phenomena of the northern lights (Denfeld 1993).

The DEW Line was created in record time. By December 1952 the system was designed, and a DEW Line was planned to extend across the northern regions of Alaska and Canada (Denfeld 1993). Point Lonely and Bullen Point were activated in 1953.

In 1985 the United States and Canada signed an agreement to modernize the aging DEW Line System. The replacement system, known as the North Warning System, would consist of long- and short-range radars. The two countries agreed to refurbish 12 DEW Line sites (including Point Lonely and Bullen Point) and equip them with AN-124 Short Range Radar, which were installed in 1993. Barter Island, Point Lay, Point Barrow, and Oliktok were equipped with FPS-117 Long Range Radar, which were installed in 1987. The installation of an FPS-117 at Barter Island was delayed because the site was being used to test the prototype AN-124 Short Range Radar which would be used at other North Warning System sites. The Barter Island site became operational as part of the North Warning System in 1990 (Denfeld 1993).

The North Warning SRRSs and LRRSs are a USAF contractor-operated radar/communications network, part of the overall North American Aerospace Defense Command (NORAD) mission. A BOS contract is used to provide manning for operation, maintenance, and support of active LRRS facilities.

Detailed site-specific historical information is provided in Appendix H, *Installation-specific Information*.

#### 2.1.2.3 Inactive Sites

To understand the history of each PRSC site, it is helpful to view the facilities as one of or a combination of the following:

1) radar site
2) fuel storage site
3) recreation site
4) communication site linking the radar sites to control centers

Campion and Bethel were former AC&W stations. They were not replaced when others were updated. The former Point Lonely SRRS and former Point Lay LRRS were among the DEW Line stations on the North Slope of Alaska; they were converted Alaska Radar System sites. The former Port Heiden RRS, Driftwood Bay RRS, and Nikolski RRS were part of the Aleutian DEW Line Stretch-Out Project on the Alaska Peninsula and Aleutian Islands. West Nome Tank Farm (now called Nome Field POL Site) was a component of Marks AFB. Lake Louise and Naknek Recreation Camps supported recreational opportunities to Elmendorf AFB, Eielson AFB, and King Salmon Airport. The former Anvil Mountain LRRS, Bear Creek RRS, Beaver Creek RRS, Big Mountain RRS, Granite Mountain RRS, Kalakaket Creek RRS, and North River RRS were part of the WACS. These sites were no longer needed and closed when a network of commercially provided earth-satellite communications system became available. Additional information regarding the history of the inactive sites can be found within Appendix H, *Installation-specific Information*.

The environmental cleanup of hazardous material began at inactive sites and no-longer-needed facilities at some active sites in the early 1980s. In 1985 the Alaska Cleanup Effort began. It included facility demolition and burial and hazardous material cleanup. The 5099th Civil Engineering Operations Squadron (a predecessor squadron of the 611 CES) was the primary agency for site cleanup. In 2014, the Air Force Civil Engineer Center (AFCEC) took over management of all actions pertaining to the IRP on all active and inactive PRSC properties. Information on Operation Clean Sweep and the projects associated with that historical effort, please see Section 2.4.3, *Current Major Impacts.* AFCEC's current IRP program in Alaska utilizes a digital file sharing and storage service in order to illustrate to the public its proposed actions for cleanup and or monitoring. For further information regarding the PRSC sites and historical or current remediation efforts, the following website is very helpful and provides a higher level of detail for each site beyond this INRMP: http://afcec.publicadmin-record.us.af.mil/Search.aspx.

### 2.1.3 Military Missions

The initial mission of the air defense system in Alaska was to detect and report all airborne vehicles operating within the designated detection capabilities of the surveillance radars, regardless of direction and movement. The mission also included the operation and maintenance of a communications system. "Homeland Defense" continues to be the central focus of all PRSC entities.

The mission of the PRSC is to provide communication, engineering, logistics, environmental, financial, and program management support to maintain combat readiness for remote Alaska, Eleventh Air Force, and NORAD. The PRSC provides surveillance radars, arctic infrastructure including airfields, and worldwide ready Expeditionary Air Force warriors for homeland defense, decisive force projection, and aerospace command and control in Alaska (CEMML 2010).

Active installations also gather radar data used for en route civilian air traffic control, shared with the Federal Aviation Administration (FAA). Remote installations (sites) are subordinate to the PRSC, headquartered at JBER. Active installations are directly linked via satellite to the Regional Operations Control Center at JBER. Inactive sites no longer fulfill a specific military mission.

More specific military missions of PRSC installations is provided in Appendix H.

### 2.1.4 Surrounding Communities

Site-specific information regarding surrounding communities on PRSC installations is provided in Appendix H.

### 2.1.5 Local and Regional Natural Areas

Site-specific information regarding local and regional natural areas on PRSC installations is provided in Appendix H.

## 2.2 PHYSICAL ENVIRONMENT

### 2.2.1 Climate

Geographical features of Alaska have a significant effect on Alaska's climate, which falls into five major zones: maritime, maritime continental, transition zone between the maritime and continental, continental, and arctic (https://wrcc.dri.edu/Climate/narrative_ak.php).

PRSC sites located on the Aleutian Islands; those on the Alaska Peninsula; and those near Bristol Bay, Norton Sound, and the Bering Sea have a maritime climate. Sites at interior locations have a continental climate and sites located on the North Slope are in the arctic climate zone.

Precipitation on the southern side of the Alaska Range in the Alaska Peninsula and the Aleutian Islands is generally less than 60 inches. Precipitation amounts decrease rapidly to the north, with an average of 12 inches in the continental zone and less than 6 inches in the Arctic region (https://wrcc.dri.edu/Climate/narrative_ak.php).

Mean annual temperatures in Alaska range from the low 40s ºF under the maritime influence in the south to a chilly 10º F along the Arctic Slope north of the Brooks Mountain Range. The greatest seasonal temperature contrast between seasons is found in the central and eastern portion of the continental interior. In this area summer heating produces average maximum temperatures in the upper 70s ºF with extreme readings in the 90ºs F (https://wrcc.dri.edu/Climate/narrative_ak.php). Appendix H includes site-specific climate information for each PRSC site.

#### 2.2.1.1 Climate Change

**DoD and USAF Guidance to Address Climate Change**

In June 2014, the DoD released its 2014 Climate Change Adaptation Roadmap, which focused on various actions and planning the DoD is taking to increase its resilience to the impacts of climate change (DoD 2014a). The 2014 Roadmap recognized that "(c)limate change will affect the Department of Defense's ability to defend the Nation and poses immediate risks to U.S. national security" and "will have serious implications for the department's ability to maintain both its *built and natural infrastructure*, and to ensure military readiness in the future" (emphasis added).

Climate change is referred to as any significant change in measures of climate (e.g., temperature, precipitation, wind) lasting for an extended period (decades or longer) (Reidmiller et al. 2018). Conducting a climate change vulnerability assessment may guide essential monitoring requirements, as well as the development of appropriate adaptive management projects. However, the abundance and distribution of species and habitats on USAF properties may be too small in scale to address comprehensive climate change vulnerabilities. Therefore, regional partnerships may be the most appropriate means to conduct such assessments and to develop and implement adaptive management projects. In general, natural resources managers (NRMs) should identify and implement natural resource conservation projects that provide benefits to the ecosystem regardless of the spatial or temporal aspects of climate change.

Per DoD Directive 4715.21, *Climate Change Adaptation and Resilience* (January 14, 2016), the DoD must be able to adapt current and future operations to address the impacts of climate change in order to maintain an effective and efficient U.S. military. Mission planning and execution must include:

a. Identification and assessment of the effects of climate change on the DoD mission.
b. Taking those effects into consideration when developing plans and implementing procedures.
c. Anticipating and managing any risks that develop as a result of climate change to build resilience.

DoDI 4715.03, *Natural Resources Conservation Program* (Enclosure 3, Section 1c) (August 31, 2018) states: "All DoD Components shall, in a regionally consistent manner, and to the extent practicable and using the best science available, utilize existing tools to assess the potential impacts of climate change to natural resources on DoD installations, identify significant natural resources that are likely to remain on DoD lands or that may in the future occur on DoD lands and, when not in conflict with mission objectives, take steps to implement adaptive management to ensure the long-term sustainability of those resources."

DoD Manual 4715.03, *Integrated Natural Resources Management Plan (INRMP) Implementation Manual* (Enclosure 5, *INRMP Contents*) (August 31, 2018) states that INRMP contents should contain an assessment of natural resource management that include effects of climate change. Enclosure 8, *Planning*

*for Climate Change Impacts to Natural Resources*, provides data sources and processes for including climate considerations into INRMPs.

As stated in AFI 32-7064 (November 22, 2016), "Changing climate conditions may significantly affect native ecosystems and require the Air Force to adjust natural resources management strategies to support military mission requirements and address the needs of sensitive species. INRMP goals and objectives for ecosystem management and biodiversity conservation must consider projected climate change impacts, and favor an adaptive ecosystem-based management approach that will enhance the resiliency of the ecosystem to adapt to changes in climate. The INRMP will assess climate change risks, vulnerabilities, and adaptation strategies using authoritative region-specific climate science, climate projections, and existing tools. The INRMP should list, or include by reference, installation-specific climate data and region-specific climate projections from the most current quadrennial National Climate Assessment Report, and include other pertinent Federal climate science documents as appropriate."

**Climate Change Assessments at PRSC Sites**

According to a number of scientists, effects of global warming are already taking a toll in Alaska. Damage to forests, loss of wetlands, degradation of salmon habitat, rising ocean levels, and widespread melting of permafrost are being attributed to a permanent and significant climate regime shift. Major changes in temperature, warming of rivers and extensive melting of permafrost have been clearly evidenced in both Alaska and Canada over the last 20 years. In areas with more severe winter temperatures thermokarst (melting of permafrost) is a major problem.

An example of climate change effects on the environment have been identified in recent studies of forest health. Tree growth studies conducted by University of Alaska Professor, Glenn Juday, have found clear indication that normal cycles of forest growth changed dramatically in the early to mid-1970s. The studies also show that the forests have been experiencing stresses since then, often involving complex interactions of different effects of warming that have no precedent in the historical record. Spruce bark beetle (*Dendroctonus rufipennis*) infestations reached epidemic proportions during the 1990s, potentially the result of warmer than average summers and other climatic and forest conditions. Infestation spread and persistence has resulted in catastrophic long-term loss of 60–80% of spruce trees larger than 9 inches in diameter. This infestation as well as those insects that attack other plant species reduce forest diversity and increase fuel loading, which substantially increases forest fire danger in affected areas.

Rising world ocean levels is also identified as a likely source of impact to coastal PRSC sites. Rising sea levels could impact flood plains and wetlands on these sites. The University of Alaska, Fairbanks has been collecting climate change data, and this process includes some PRSC sites. Changes in the extent of polar ice may be the reason that some northern coastal PRSC sites (*e.g.*, Point Lay site, Cape Lisburne LRRS) are apparently being used as haulouts for walruses and seals to a greater degree than in the past. Given a larger percentage of the PRSC sites are located near sea ice, understanding or predicting near term changes is vital for both the mission, as well as human safety. Given polar bears traditionally utilize sea ice for a proportion of the year, there are concerns a loss of sea ice, could increase visitation by this species at certain sites and negatively affect mission integrity and safety of human life.

Climate Change Simulations for PRSC Installations

In 2019, CEMML at Colorado State University (CSU), under a contract through AFCEC and the U.S. Army Corps of Engineers (USACE), provided assistance to USAF installations in meeting DoD and USAF requirements (see Section 2.2.1.1) for inclusion of climate change in their INRMPs (CEMML 2019a). A team comprising CSU climate scientists, ecologists, environmental planners, military land managers, and

engineers reviewed the installation INRMP, generated site-specific downscaled temperature and precipitation climate projections for two future emission scenarios, and used tools and models to assess impacts of future climate on the installation's natural resources. The CSU assessment is based primarily on publicly available data and augmented with spatial data obtained through AFCEC with appropriate permissions. In addition, the CSU team compiled potential adaptation strategies for installation consideration during goal, objective, and work plan development.

Climate data used in the report were generated originally for international climate assessment reports sanctioned and provided by the Intergovernmental Panel on Climate Change (IPCC-CMIP5), and subsequently used by the U.S. Fourth National Climate Assessment Report (Reidmiller et al. 2018). Coordinating with AFCEC, a base historical time period was established and two future time horizons and two future emission scenarios were chosen. Emission scenarios were based on assumptions about future worldwide changes in demographic development, socio-economic development, and technological change that result in different greenhouse gas concentrations in the atmosphere. Site-specific temperature and precipitation climate projections were generated.

In summary, data and analyses were generated for four climate change scenarios representing two global carbon emissions levels for two different target years. The *emissions scenarios* are medium emissions (Representative Concentration Pathway [RCP] 4.5) and high emissions (RCP 8.5). The two *timeframes* are decades around 2030 (2026-2035) and 2050 (2046-2055). Therefore, the four climate change scenarios were: RCP 4.5 2030, RCP 8.5 2030, RCP 4.5 2050, and RCP 8.5 2050. Climate simulations were then conducted to develop site-specific projections for the two potential emission scenarios over each timeframe. Projected climate data were then used to assess potential impacts to the installation's mission and natural resources. Further details regarding the modeling effort and how climate projections were conducted can be found in CEMML (2019a).

Climate change projections were conducted for all 16 of the active PRSC sites and 3 of the inactive sites. Modeled variables for each site included:

- average annual precipitation,
- annual average temperature,
- annual average minimum and maximum temperatures,
- average annual accumulated growing degree days with a base temperature of 50 $^{o}$F,
- average number of hot days exceeding 90 $^{o}$F, and
- annual number of days with precipitation exceeding 2 inches/day.

Table 3 provides a summary of historical annual average precipitation and annual average temperature at these sites and the modeled changes based upon the four climate change scenarios. While all sites showed increases across all scenarios, it should be noted that the six sites along the Arctic Coastal Plain (Barter Island, Oliktok, Point Barrow, and the former Bullen Point, Point Lay, and Point Lonely sites) generally had the greatest increases, with all sites ranking in the top five with the highest percent change over historical levels across all four climate change scenarios. The potential future impacts of these climate change projections on each PRSC site's mission, infrastructure, and natural resources are summarized in Section 2.4.4, *Potential Future Impacts*.

**Table 3. Modeled Average Annual Precipitation and Temperature Changes for All Active PRSC Sites and Three Inactive PRSC Sites, Alaska under Four Climate Change Scenarios**

| Site | Historical* | | RCP 4.5* | | | | RCP 8.5* | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2030† | | 2050† | | 2030† | | 2050† | |
| | Pavg | Tavg | Pavg | Tavg | Pavg | Tavg | Pavg | Tavg | Pavg | Tavg |
| ACTIVE | | | | | | | | | | |
| Barter Island LRRS | 5.0 | 11.7 | 6.0 (20%) | 18.9 (62%) | 7.1 (42%) | 23.7 (103%) | 6.3 (26%) | 18.4 (57%) | 6.8 (36%) | 25.1 (115%) |
| Cape Lisburne LRRS | 10.6 | 17.5 | 12.7 (20%) | 23.7 (35%) | 14.9 (41%) | 28.5 (63%) | 13.3 (25%) | 23.4 (34%) | 13.9 (31%) | 30.2 (73%) |
| Cape Newenham LRRS | 20.0 | 33.7 | 22.4 (12%) | 38.8 (15%) | 22.7 (14%) | 42.4 (26%) | 20.8 (4%) | 39.0 (16%) | 23.1 (16%) | 45.3 (34%) |
| Cape Romanzoff LRRS | 18.6 | 30.1 | 20.8 (12%) | 34.8 (16%) | 21.3 (15%) | 38.9 (29%) | 19.3 (4%) | 35.0 (16%) | 20.8 (12%) | 41.2 (37%) |
| Cold Bay LRRS | 52.0 | 39.0 | 57.9 (11%) | 43.8 (12%) | 56.2 (8%) | 47.3 (21%) | 55.5 (7%) | 44.4 (14%) | 61.4 (18%) | 49.2 (26%) |
| Eareckson AS | 25.8 | 38.6 | 28.6 (11%) | 41.7 (8%) | 27.6 (7%) | 43.7 (13%) | 27.7 (7%) | 42.1 (9%) | 27.8 (8%) | 44.5 (15%) |
| Fort Yukon LRRS | 7.4 | 23.8 | 7.9 (7%) | 28.7 (22%) | 9.0 (22%) | 31.6 (33%) | 8.3 (12%) | 27.6 (16%) | 9.0 (22%) | 33.4 (40%) |
| Indian Mountain LRRS | 15.7 | 21.9 | 18.3 (17%) | 26.8 (22%) | 19.4 (24%) | 29.6 (35%) | 16.7 (6%) | 25.8 (18%) | 18.1 (15%) | 31.4 (43%) |
| King Salmon Airport | 23.9 | 34.9 | 25.9 (8%) | 39.7 (14%) | 26.5 (11%) | 42.8 (23%) | 23.9 (0%) | 39.3 (13%) | 27.3 (14%) | 45.1 (29%) |
| Kotzebue LRRS | 9.9 | 23.3 | 11.2 (13%) | 29.0 (24%) | 13.1 (32%) | 33.0 (42%) | 11.8 (19%) | 28.6 (23%) | 11.9 (20%) | 34.6 (48%) |
| Murphy Dome LRRS | 13.7 | 28.4 | 15.2 (11%) | 32.7 (15%) | 17.2 (26%) | 35.3 (24%) | 15.2 (11%) | 31.9 (12%) | 16.0 (17%) | 37.2 (37%) |
| Oliktok LRRS | 6.6 | 16.4 | 8.1 (23%) | 23.8 (45%) | 9.9 (50%) | 28.4 (73%) | 8.4 (27%) | 23.1 (41%) | 8.6 (30%) | 29.1 (77%) |
| Point Barrow LRRS | 7.8 | 11.7 | 9.8 (26%) | 19.1 (63%) | 12.0 (54%) | 24.7 (111%) | 9.6 (23%) | 18.9 (62%) | 10.6 (36%) | 26.1 (123%) |
| Sparrevohn LRRS | 15.9 | 29.5 | 18.0 (13%) | 33.7 (14%) | 19.5 (23%) | 36.4 (23%) | 16.8 (6%) | 33.1 (12%) | 18.0 (13%) | 38.4 (30%) |
| Tatalina LRRS | 19.0 | 26.7 | 21.6 (14%) | 31.1 (16%) | 23.6 (24%) | 34.1 (28%) | 20.0 (5%) | 30.8 (15%) | 21.6 (14%) | 35.9 (34%) |
| Tin City LRRS | 13.0 | 23.7 | 14.4 (11%) | 29.3 (24%) | 16.5 (27%) | 33.7 (42%) | 14.7 (13%) | 29.0 (22%) | 16.3 (25%) | 35.3 (49%) |
| INACTIVE | | | | | | | | | | |
| Bullen Pt SRRS | 4.1 | 14.0 | 5.2 (27%) | 21.4 (53%) | 6.1 (49%) | 26.4 (89%) | 5.4 (32%) | 21.2 (51%) | 5.8 (41%) | 27.2 (94%) |
| Point Lay LRRS | 9.0 | 16.7 | 11.0 (22%) | 23.9 (43%) | 13.3 (48%) | 28.9 (73%) | 11.8 (31%) | 23.4 (40%) | 11.8 (31%) | 30.5 (83%) |
| Point Lonely SRRS | 6.7 | 14.6 | 8.2 (22%) | 22.1 (51%) | 9.8 (46%) | 27.3 (87%) | 8.0 (19%) | 21.7 (49%) | 8.6 (28%) | 28.2 (93%) |

*Notes*: *Pavg = average annual precipitation (inches); RCP = Representative Concentration Pathway; Tavg = average annual temperature (°F).
†(X%) = percent increase over historical.
*Source*: CEMML 2019a.

Coastal Erosion Study for Barter Island LRRS, Oliktok LRRS, and Cape Lisburne LRRS

In 2015, the USAF conducted a preliminary evaluation of coastal erosion impacts at three PRSC installations located along the Arctic Coast of Alaska: Barter Island LRRS, Oliktok LRRS, and Cape Lisburne LRRS (AFCEC 2015). This Phase I preliminary coastal erosion study, which provided an update to the PRSC LUCMP by evaluating the installation assets that are at risk to erosion, was prepared to support a more detailed vulnerability assessment to be conducted at the installation determined to be most at-risk. The ultimate goal of the vulnerability pilot study was to include the selection of a preferred methodology for evaluating the long-term risks from coastal erosion to USAF assets located along the North Slope of Alaska.

The objective of the initial coastal erosion report was to develop and utilize a prioritization process whereby those USAF assets most at risk to coastal erosion can be identified. The process involved numerically scoring the risk of a given asset based on an assessment of that asset's importance coupled with its determined vulnerability to coastal erosion. Risk was calculated as the product of the two scores (Risk = Importance x Vulnerability). USAF staff expertise and judgment were used in developing this process and utilizing the process on the three subject LRRS. This methodology is consistent with current best practices used by other federal agencies, such as the U.S. Department of Transportation and the USACE. For the preliminary vulnerability assessment, erosion rates were calculated from historic shoreline maps dating back to 1952. Non-linear regression was used to project the erosion (or accretion) rate into the future (AFCEC 2015).

The initial Phase I effort concluded that erosion rates were being underestimated by using traditional (linear) statistical techniques. USAF radar facilities along the arctic coast appeared to be at increased risk from accelerated coastal erosion than previously determined, probably due to changes in climate conditions such as increasing water and air temperatures, declining spatial and temporal extents of shore-fast ice cover, and increasing intensity of summer storms when shorelines are exposed. Therefore, it was proposed that a Phase II effort should review more rigorous numerical models that incorporated climate variables which could provide more actionable information by more accurately projecting future shoreline conditions and confirming the dominant factors contributing to their erosion.

For Phase II, of the models evaluated, it was determined that the semi-empirical and process-based models showed the most potential for accurately modeling erosional conditions on the North Slope (BEM 2018; UAA and BEM 2019). The Phase II study was intended to develop, calibrate and test the viability of these more rigorous numerical models at the Oliktok LRRS and Barter Island LRRS.

An additional evaluation was conducted for the former Point Lonely SRRS with respect to shoreline erosion and vulnerability of coastal IRP sites (BEM 2014).

The potential future impacts of these coastal erosion projections on the mission, infrastructure, and natural resources of the Barter Island, Oliktok, Cape Lisburne, and Point Lonely sites are summarized in Section 2.4.4, *Potential Future Impacts*.

### 2.2.2 Topography

The topography of PRSC sites varies greatly depending on the specific location. Appendix H includes site-specific topography information for each PRSC site.

### 2.2.3 Geology and Soils

The geology and soils of PRSC sites varies greatly depending on the specific location. Appendix H includes site-specific geology and soils information for each PRSC site.

### 2.2.4 Hydrology

The hydrology, including floodplains, of PRSC sites varies greatly depending on the specific location. Appendix H includes site-specific hydrology information for each PRSC site.

## 2.3 BIOTIC ENVIRONMENT

Appendix H includes site-specific information regarding the biotic environment for each PRSC site, including a discussion of vegetation/habitat, wetlands, fish and wildlife, and ESA- and MMPA-listed species, and lists of plants, fish, mammals, and birds that are known to or potentially occur at or in the vicinity of each site.

### 2.3.1 Ecoregion Classification

Ecoregions are defined as: "large areas of land and waters containing vegetation communities that share species and ecological dynamics, environmental conditions, and interactions that are critical for their long-term persistence." (ADFG 2006). Alaska has been divided up into 32 ecoregions based on the Bailey and Omernik approach to ecoregion mapping and in cooperation with the U.S. Forest Service, National Park Service, USGS, The Nature Conservancy, and personnel from other agencies and private organizations. The 35 PRSC sites are located in 18 of the 32 ecoregions (Table 4 and Figure 3).

**Table 4. Ecoregion Classification of PRSC Sites**

| Site* | Ecoregion |
|---|---|
| Cape Newenham LRRS (a) | Ahklun Mountains |
| Cold Bay LRRS (a) | Alaska Peninsula |
| Big Mountain RRS (i) | |
| Port Heiden RRS (i) | |
| Eareckson AS (a) | Aleutian Islands |
| Driftwood Bay RRS (i) | |
| Nikolski RRS (i) | |
| Barter Island LRRS (a) | Beaufort Coastal Plain |
| Oliktok LRRS (a) | |
| Point Barrow LRRS (a) | |
| Bullen Pt SRRS (i) | |
| Point Lay LRRS (i) | |
| Point Lonely SRRS (i) | |
| King Salmon Airport (a) | Bristol Bay Lowlands |
| Naknek Recreation Annex 1 (i) | |
| Naknek Recreation Annex 2 (i) | |
| Cape Lisburne LRRS (a) | Brooks Foothills |
| Lake Louise Recreation Site | Copper River Basin |
| Indian Mountain LRRS (a) | Kobuk Ridges and Valleys |
| Kotzebue LRRS (a) | Kotzebue Sound Lowlands |
| Tatalina LRRS (a) | Kuskokwim Mountains |
| Kalakaket Creek RRS (i) | |
| Sparrevohn LRRS (a) | Lime Hills |
| North River RRS (i) | Nulato Hills |
| Bear Creek RRS (i) | Ray Mountains |
| Tin City LRRS (a) | Seward Peninsula |
| Anvil Mountain LRRS (i) | |
| Nome Field POL (i) | |
| Granite Mountain RRS (i) | |

**Table 4. Ecoregion Classification of PRSC Sites**

| Site* | Ecoregion |
|---|---|
| Campion AFS (i) | Yukon River Lowlands |
| Cape Romanzoff LRRS (a) | Yukon-Kuskokwim Delta |
| Bethel RRS (i) | |
| Fort Yukon LRRS (a) | Yukon-Old Crow Basin |
| Murphy Dome LRRS (a) | Yukon-Tanana Uplands |
| Beaver Creek RRS (i) | |

*Notes*: *(a) = active site; (i) = inactive site.
See Figure 3.
*Source*: ADFG 2006.

The following general descriptions of the Alaska ecoregions are taken from ADFG (2006).

#### 2.3.1.1 Ahklun Mountains

PRSC Site within the Ahklun Mountains Ecoregion: Cape Newenham LRRS (Figure 3).

Located in the southwest part of the state, the Ahklun and Kilbuck mountains define the divide between the drainages into Kuskokwim and Bristol Bays. These mountains are steep and sharp, with elevations reaching 4,950 ft. Past glaciers carved broad U-shaped valleys, and a few small glaciers still persist. Great northeast-trending faults have cut through the underlying sedimentary and volcanic rock, and large "finger" lakes fill valleys on the south side of the mountains. Permafrost is generally absent from soils covered by forests, but exists in most low-lying areas and in high mountains.

The Bering Sea influences the continental climate of this ecoregion by moderating temperatures in the summer and allowing access for cold Siberian air across the ice pack in the winter. Annual average precipitation ranges from 40 inches in lowlands to 80 inches at higher elevations, with average annual temperatures from 33 to 39 °F.

#### 2.3.1.2 Alaska Peninsula

PRSC Sites within the Alaska Peninsula Ecoregion: Cold Bay LRRS and the former Big Mountain RRS and Port Heiden RRS (Figure 3).

The Alaska Peninsula and Unimak Island, the northernmost island of the Aleutian Archipelago, compose this ecoregion, which separates the Gulf of Alaska from the Bering Sea. The dominant feature of the ecoregion is the Aleutian Range, the peninsula's volcanic spine, which reaches elevations of 8,580 ft. Extensive glaciation has carved U-shaped valleys into the mountains. The lowlands contain numerous lakes, estuaries, and large river basins, which terminate in broad estuarine areas on the Bering Sea. On the south side, deeply cut fjords characterize the landscape. Volcanic activity and major ocean storms from the Gulf of Alaska have also shaped the topography and soils. The Alaska Peninsula is largely free of permafrost.

The maritime climate affects the south slope of the Aleutian Range, with average annual precipitation ranging from 24 to 65 inches, and average annual temperature ranging from 34 to 39 °F. Sea ice does not form along this coast, except in a few protected bays and inlets. On the north side, the transitional climate creates a slightly cooler, yet drier, climate.

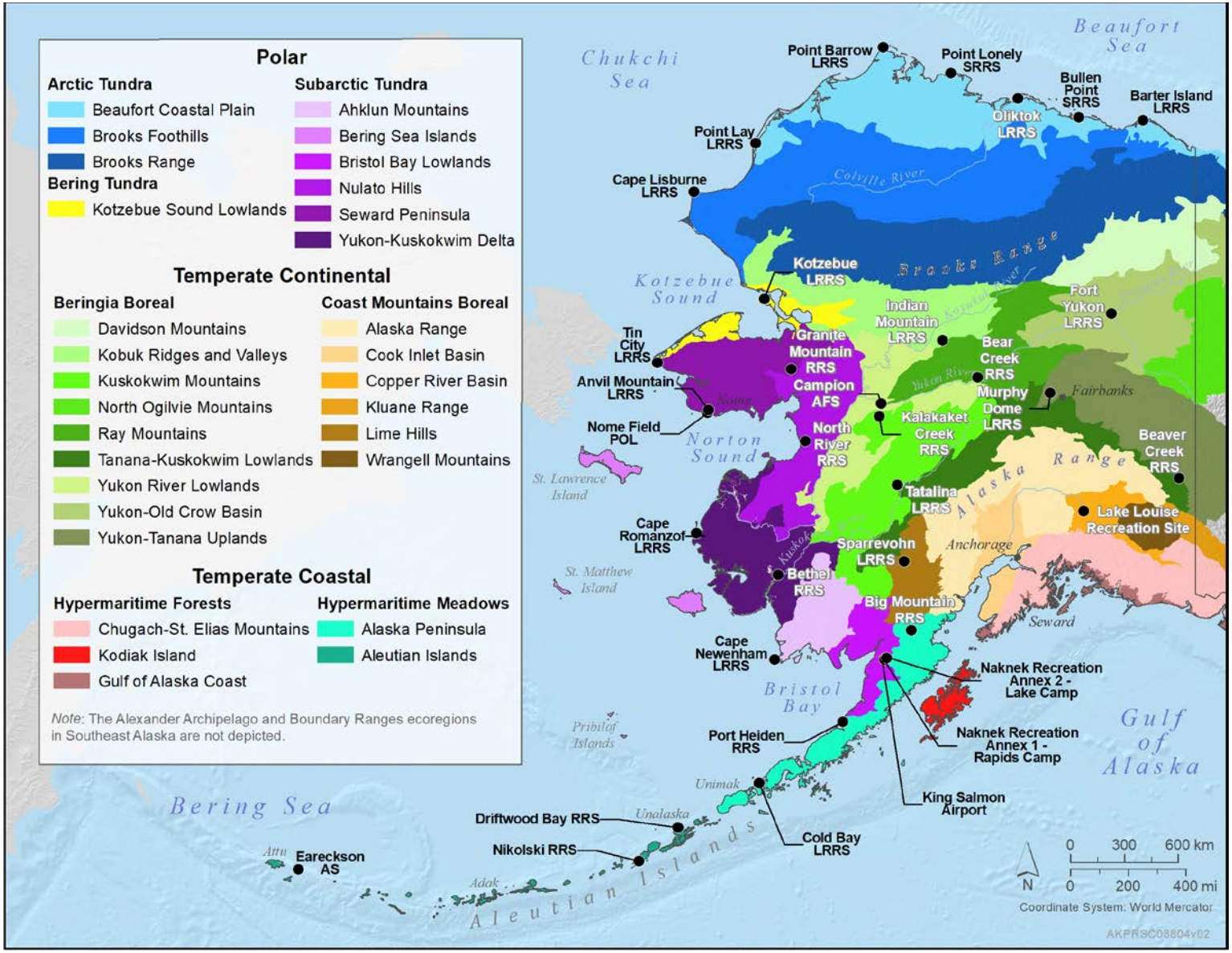


**Figure 3. Occurrence of PRSC Sites within the Ecoregions of Alaska**
(*Source*: ADFG 2006)

#### 2.3.1.3 Aleutian Islands

PRSC Sites within the Aleutian Islands Ecoregion: Eareckson AS and the former Driftwood Bay RRS and Nikolski RRS (Figure 3).

Arcing 1,180 miles westward from the Alaska Peninsula to the island of Attu, the Aleutian Islands are a chain of volcanic islands that were formed by the Pacific plate being forced beneath the Bering Sea plate. Fog often shrouds the steep, rubble-covered peaks, which rise to 6,230 ft. Icecaps or small glaciers occur on many of the volcanoes, and past glaciation is evident. Short, swift streams have carved fjords into the sides of the cones. High cliffs, wave-beaten platforms, boulder beaches, or small dune fields ring the islands.

The archipelago's location over an active seismic fault results in frequent volcanic and seismic activity. Of the 76 volcanoes in the chain, 40 have been active in the past 250 years. Intense ocean storms are also an important disturbance process, bringing strong winds and heavy rains. A cool, maritime climate brings abundant, yet varying, precipitation throughout the chain, from 20 inches in some places to 82 inches in others, with average annual temperatures from 36 to 39 °F. The islands are permafrost free, and the winter sea ice pack does not reach here.

#### 2.3.1.4 Beaufort Coastal Plain

PRSC Sites within the Beaufort Coastal Plain Ecoregion: Point Barrow LRRS, Oliktok LRRS, Barter Island LRRS, and the former Bullen Point SRRS, Point Lonely SRRS, and Point Lay LRRS (Figure 3).

The northern portion of Alaska, which drains into the Arctic Ocean (Chukchi and Beaufort seas), is collectively designated the North Slope. This geographical region is divided into three diverse physiographic provinces: the Brooks Range, which runs east-west; the Arctic Foothills, which lie north of the Brooks Range; and the Arctic Coastal Plain, which encompasses the area between the Arctic Foothills and the Arctic Ocean.

The Beaufort Coastal Plain is a treeless, windswept landscape stretching across the Alaska coast of the Arctic Ocean and into Canada. The ecoregion is characterized by an abundance of lakes, wetlands, and permafrost-related features such as pingos, ice-wedge polygon networks, peat ridges, and frost boils. Permafrost is almost continuous across the region, so soils typically are saturated and have thick organic horizons. The plain gradually ascends from the coast southward to the foothills of the Brooks Range. Numerous large, braided rivers, originating in the Brooks Range, drain northward across the coastal plain. Small streams dry up or freeze completely in the winter. Thousands of shallow rectangular lakes cover the coastal plain in a north-northwest orientation due to winds on the shorelines. These thaw lakes cover up to 50% of the Arctic coastal plain. Small sand dunes irregularly occur along the coast. Due to the abundance of lakes and saturated soils, over 82% of the ecoregion is considered wetland.

A dry, polar climate produces short, cool summers and long, cold winters. Proximity to the Arctic Ocean and abundant sea ice contribute to the cool, frequently foggy, summers. Annual precipitation is low (4 to 6 inches) and mostly falls as snow during the winter. The average annual temperature varies from 8 to 14 °F.

#### 2.3.1.5 Bristol Bay Lowlands

PRSC Sites within the Bristol Bay Lowlands Ecoregion: King Salmon Airport and former Naknek Recreation Annexes (Figure 3).

Past glaciation in the surrounding Ahklun Mountains and Aleutian Range resulted in this flat-to-rolling moraine and outwash-mantled lowland around Bristol Bay in Southwest Alaska, with elevation ranging from sea level to 500 ft. These lowlands contain numerous morainal and thaw lakes and ponds. Streams

originate mostly from headwater lakes in ice-carved basins and empty into large meandering rivers, which terminate in broad estuarine areas around Bristol Bay. Much of the shoreline of Bristol Bay is characterized by mixed sand and gravel beaches and exposed tidal mudflats.

The climate is transitional between maritime and continental. Average winter lows range from 5 to 14 °F, while average winter highs hover around freezing. Average summer lows are just above freezing, while average summer highs are 64 °F. Precipitation ranges from 13 to 32 inches. Ice occasionally spans the Bering Sea in winter, allowing cold Siberian air to flow into this ecoregion. Discontinuous permafrost is present.

#### 2.3.1.6 Brooks Foothills

PRSC Site within the Brooks Foothills Ecoregion: Cape Lisburne LRRS (Figure 3).

Composed of gently rolling hills and broad, exposed ridges, the Brooks Foothills ecoregion stretches from Point Hope at the Chukchi Sea eastward, almost to the Canadian border. Long, linear ridges, buttes, and mesas composed of tightly folded sedimentary rocks divide narrow alluvial valleys and glacial moraines. Above a thick, continuous layer of permafrost are ice-related features, such as gelifluction lobes, pingos, and ice-wedge polygon networks. Because the permafrost impedes drainage, soils are usually saturated and have fairly thick organic horizons. Lakes are infrequent, but many swift streams and rivers originating in the Brooks Range cross through the foothills, occasionally braiding across gravel flats. Some streams freeze solid each winter, creating large aufeis deposits that last well into summer.

A dry polar climate dominates the land, but is somewhat warmer and wetter than the climate of the Beaufort Coastal Plain. The average annual precipitation ranges from 6 to 10 inches, and average annual temperature ranges from 9 to 20 °F.

#### 2.3.1.7 Copper River Basin

PRSC Site within the Copper River Basin Ecoregion: former Lake Louise Recreation Site (Figure 3).

The Copper River Basin ecoregion occupies the former bed of Lake Ahtna. A large lake during glacial times, the lake broke through an ice dam and started the flow of the Copper River. The basin is characterized by rolling to hilly moraines and nearly level alluvial plains where the glacial lake was. Elevation ranges from 1,380 to 2,950 ft. The basin is bounded by the Talkeetna Mountains on the west, the Wrangell Mountains on the east, the Alaska Range on the north, and the Chugach Mountains on the south.

Shallow, discontinuous permafrost results in poorly drained soils and numerous wetlands and thaw lakes. The continental climate has steep seasonal temperature variation. The basin acts as a cold-air sink, and winter temperatures can be bitterly cold. The average annual temperature is 26 to 30 °F, and the average annual precipitation is 10 to 20 inches.

#### 2.3.1.8 Kobuk Ridges and Valleys

PRSC Site within the Kobuk Ridges and Valleys Ecoregion: Indian Mountain LRRS (Figure 3).

The ecoregion consists of several large rivers (Kobuk, Noatak, Huslia, and Selawik), their broad valleys, and numerous small mountain ranges south of the Brooks Range. Past ice sheets from glaciers in the Brooks Range carved out immense U-shaped valleys. The mountain ranges vary from the low, rounded Selawik Hills, which top out at 3,300 ft, to the steeper, taller Baird and Schwatka mountains, with a maximum elevation of 8,570 ft.

Permafrost is almost continuous under this ecoregion, but varies in thickness from thin to moderate. The presence of permafrost and floodplains contributes to poorly drained soils and wet conditions along the rivers.

The valleys conduct cold air from the Brooks Range during the winter, which deepens the cold of the winters. The dry, continental climate is characterized by long, cold winters and short, cool summers.

#### 2.3.1.9 Kotzebue Sound Lowlands

PRSC Site within the Kotzebue Sound Lowlands Ecoregion: Kotzebue LRRS (Figure 3).

This ecoregion consists of the coastal plains surrounding Kotzebue Sound on the Chukchi Sea in northwest Alaska. These lowlands, under 330 ft, tend to be poorly drained, though terraces, low hills, and sand dunes do drain well. Permafrost is deep under some areas and absent from others. Ice-related features dominate the landscape, with pingos around the Selawik River and numerous thaw lakes throughout. Because most soils are wet, or standing water is present, wet tundra communities of sedge mats dominate. The major disturbance is flooding of rivers in the spring, during summer storms, or coastal tidal inundation.

A dry, polar climate produces short, cool summers and long, cold winters, though moister and warmer than in areas along the rest of the Chukchi Sea or the Arctic Ocean. Annual precipitation ranges 4 to 12 inches. The average annual temperature varies from 20 to 23 °F.

#### 2.3.1.10 Kuskokwim Mountains

PRSC Sites within the Kuskokwim Mountains Ecoregion: Tatalina LRRS and former Kalakaket Creek RRS (Figure 3).

The Kuskokwim Mountains are rolling mountains with elevations generally below 4,000 ft. Swift streams and rivers meander through the deep narrow valleys, following fault lines and highly eroded bedrock seams of the southwest-northeast trending ridges. Meandering streams and rivers have resulted in oxbow lakes in the valleys. Thaw lakes occur in the valleys and cirque lakes occur in the mountains. Permafrost is almost continuous under this ecoregion, but varies in thickness from thin to moderate. Most lowlands and high mountains are underlain by permafrost, but forested lands or those covered by grasses and alders do not have permafrost beneath.

The continental climate is relatively dry, with average annual precipitation of 12 to 22 inches. Influence from the Bering Sea can bring more moisture to the southwest portion of the ecoregion in the summer. The average annual temperature ranges from 22 to 29 °F.

#### 2.3.1.11 Lime Hills

PRSC Site within the Lime Hills Ecoregion: Sparrevohn LRRS (Figure 3).

The Lime Hills ecoregion lies at the southwest end of the Alaska Range. The topography reflects the transition from the rugged Alaska Range to a more rolling landscape. Here, peaks over 6~500 ft are found in the east, while lower ridges and broad valleys characterize the rest of the ecoregion. The influence of heavy glaciation is evident in the repeated sharp mountain ridges, thin deep lakes, and broad U-shaped valleys, primarily oriented northeast to southwest. Several large rivers begin in this ecoregion, passing through broad valleys lined with wetlands.

Permafrost exists in isolated areas in the ecoregion. Maritime influences of the Bering Sea and Gulf of Alaska moderate the continental climate of the Lime Hills. The average annual precipitation ranges from 22 to 30 inches, with average annual temperatures from 27 to 32 °F.

#### 2.3.1.12 Nulato Hills

PRSC Site within the Nulato Hills Ecoregion: former North River RRS (Figure 3).

The low, rolling Nulato Hills form a divide between the Bering Sea and the Yukon River, with streams on the east side flowing into the river and those on the west draining into Norton Sound. An ancient mountain range has been eroded down to these southwest-northeast oriented hills with a maximum elevation of 4,040 ft and narrow valleys rising from sea level. Some valleys have thaw lakes, and permafrost underlies most of the ecoregion.

The moist polar climate is somewhat moderated by the Bering Sea, though the presence of sea ice early in the winter allows direct passage of cold air from Siberia. The average annual temperature ranges from 23 to 28 °F, and the average annual precipitation is 12 to 16 inches.

#### 2.3.1.13 Ray Mountains

PRSC Site within the Ray Mountains Ecoregion: former Bear Creek RRS (Figure 3).

The Ray Mountains lie south of the Brooks Range and are bounded by the Yukon River valley on the south and east. These mountains are composed of metamorphic rock that has formed into east-west trending ranges. Few lakes occur in these mountains, but meandering streams originate in numerous small ponds. Because few glaciers existed in this ecoregion during the Pleistocene ice age and none remain today, streams and rivers run clear. A discontinuous permafrost layer varies from thin to moderate thickness.

The relatively warm summers of the continental climate contribute to some forest fires, though summers are relatively moist. Winters are cold and dry.

#### 2.3.1.14 Seward Peninsula

PRSC Sites within the Seward Peninsula Ecoregion: Tin City LRRS and former Granite Mountain RRS, Anvil Mountain RRS, and Nome Field POL Site (Figure 3).

The Seward Peninsula juts out of western Alaska, separating the Bering Sea from the Chukchi Sea. This peninsula was once part of the ice-free migration corridor between North America and Asia. Ice now spans the Bering Strait much of the year, so bitterly cold air from Siberia sweeps across this mostly treeless landscape. The terrain varies from coastal plains to convex hills with broad valleys to isolated groups of glaciated mountains reaching heights of 4,600 ft. Streams occupy the larger valleys, and many small inland and coastal lakes exist. A continuous permafrost layer of varying thickness keeps most soils wet, shallow, and organic. Ice-related features, such as pingos and patterned ground, occur across the landscape.

The moist polar climate is characterized by cold and windy winter conditions and summer fog along the coastline. The average annual precipitation is 10 to 20 inches in the lowlands and more than 40 inches in the mountains. The average annual temperature varies from 21 to 26 °F.

#### 2.3.1.15 Yukon River Lowlands

PRSC Site within the Yukon River Lowlands Ecoregion: former Campion AFS (Figure 3).

The Yukon River Lowlands encompass the lower stretches of the Yukon and Koyukuk rivers in west-central Alaska. Glacial sediments were deposited along these rivers during the last glacial retreat, contributing to the formation of flat bottomlands between the Kuskokwim Mountains and Nulato Hills.

Permafrost under this ecoregion is thin and discontinuous and continuing to retreat due to long-term climate warming. This thawing results in thaw lakes and collapse-scar bogs. Remaining patches of permafrost,

combined with poor soil drainage, the gentle topography, and moist summers, contributes to the prevalence of wet organic soils. Many of these flat organic areas contain a dense concentration of lakes and ponds.

#### 2.3.1.16 Yukon-Kuskokwim Delta

PRSC Sites within the Yukon-Kuskokwim Delta Ecoregion: Cape Romanzoff LRRS and former Bethel RRS (Figure 3).

The Yukon-Kuskokwim Delta in southwest Alaska results from the deposition of heavy sediment loads from the glacial Yukon and Kuskokwim rivers. Abundant thermokarst lakes, meandering streams, and highly productive brackish marshes and wet meadows characterize the flat coastal plain. Isolated basalt hills and volcanic cinder cones <400 ft high punctuate the landscape. Discontinuous permafrost impedes drainage and contributes to shallow organic soils. Large tidal fluctuations near the coast, along with occasional storm tide surges, flood coastal areas with salt water, creating invertebrate-rich coastal marshes.

The Bering Sea somewhat moderates the moist polar climate, though sea ice in winter allows cold Siberian winds into this ecoregion. Average annual precipitation is 15 to 22 inches, and the average annual temperature varies from 25 to 31 °F.

#### 2.3.1.17 Yukon-Old Crow Basin

PRSC Site within the Yukon-Old Crow Basin Ecoregion: Fort Yukon LRRS (Figure 3).

The Yukon-Old Crow Basin is characterized by meandering rivers and sloughs, sandbars, oxbow and thaw lakes, and marshy flats that occur along the Yukon, Porcupine, Chandalar, Christian, Sheenjek, and Old Crow rivers. The rolling uplands surrounding the flats have fewer water bodies. The Alaska portion of the ecoregion, often called the Yukon Flats, ranges in elevation from 300 to 820 ft.

The dry, continental climate is colder in the winter than surrounding ecoregions, due to the influence of Arctic high-pressure systems, and warmer in the summer as surrounding mountains block many cooler weather systems. In the Old Crow Basin, average annual precipitation varies from 7 to 10 inches, and the mean annual temperature ranges from 10 to 16 °F. Temperatures and precipitation levels are slighter higher in the Alaska portion. Due to the dryness of the basin, water levels in lakes and bogs are maintained primarily by spring flooding of the rivers. Flooding and poor drainage due to nearly continuous permafrost keep soils wet. Warm summers create conditions favorable for frequent forest fires.

#### 2.3.1.18 Yukon-Tanana Uplands

PRSC Sites within the Yukon-Tanana Uplands Ecoregion: Murphy Dome LRRS and former Beaver Creek RRS (Figure 3).

The Yukon-Tanana Uplands are rounded mountains and hills located between the Yukon and Tanana rivers and spanning the Alaska-Yukon Territory border. The underlying geology results in exposed bedrock and coarse rubble on ridges and colluvium on lower slopes. Rivers cut deep, narrow V-shaped valleys into the uplands. Elevations range from 1,650 ft in the valleys to more than 4,950 ft on the peaks. Small lakes occur primarily in valleys where drainage has been blocked. Discontinuous permafrost lies beneath north-facing slopes and valley bottoms, so the terrain can be hummocky in these areas. In the valley bottoms, the permafrost is thin, ice-rich, and near its melting point.

The continental climate features long, very cold winters and dry, warm summers. Summer lightning storms are frequent; the region has the highest incidence of lightning strikes in Alaska and the Yukon Territory, so forest fires are very common. In the lower elevations, mean annual precipitation is about 13 inches, but

precipitation increases from east to west and with increasing elevation. Mean January temperatures can drop to -22 °F, and mean July temperatures are near 61 °F.

### 2.3.2 Vegetation/Habitat

The vegetation/habitat of PRSC sites varies greatly depending on the specific location. Appendix H includes site-specific vegetation/habitat information for each PRSC site including lists of plants that are known to or potentially occur at or in the vicinity of each site.

### 2.3.3 Fish and Wildlife

The fish and wildlife found at each PRSC site varies greatly depending on the specific location. Appendix H includes site-specific fish and wildlife information for each PRSC site including lists of fish, mammals, and birds that are known to or potentially occur at or in the vicinity of each site.

#### 2.3.3.1 Important Bird Areas (IBAs)

IBAs are places or habitats that are essential for bird populations. The goal of the IBA program is to conserve birds by identifying, monitoring, and protecting critical bird habitats. Because habitat loss is the most serious threat facing bird species across North America and around the world, Audubon's IBA program is an initiative to address habitat loss through community-supported conservation. IBAs are based on an established program using standardized criteria to identify essential habitats, which are areas that hold a significant proportion of the population of one or more bird species. BirdLife International and the National Audubon Society developed standardized rigorous set of scientific criteria defining IBAs, establishing a global "currency" for bird conservation. For a place to qualify as an IBA, it must either support a large concentration of birds, provide habitat for a threatened, endangered, or rare species, or provide habitat for a bird with a very limited or restricted range. Once nominated and selected as an IBA, a site is then ranked as significant at either the state, continental, or global level (Audubon Alaska 2014).

A total of 18 PRSC sites (11 active sites and 7 inactive sites) occur within or immediately adjacent to 17 coastal, interior, or marine IBAs (Table 5; Figures 4 through 9). See Appendix H for further details.

**Table 5. PRSC Sites within or Adjacent to IBAs**

| Site* | IBA† |
|---|---|
| Barter Island LRRS (a) | Beaufort Sea Nearshore (M); Northeast Arctic Coastal Plain (I) |
| Beaver Creek RRS (i) | Upper Tanana River Valley (I) |
| Cape Lisburne LRRS (a) | Lisburne Peninsula (M) |
| Cape Newenham LRRS (a) | Cape Peirce and Cape Newenham Colonies (C) |
| Cape Romanzoff LRRS (a) | Central Yukon-Kuskokwim (I) |
| Cold Bay LRRS (a) | Izembek Lagoon and Bechevin Bay (C) |
| Eareckson AS (a) | Buldir and Near Islands (M) |
| Bullen Point SRRS (i) | Beaufort Sea Nearshore (M) |
| Fort Yukon LRRS (a) | Yukon Flats West (I) |
| King Salmon Airport (a) | Upper Naknek River (I) |
| Naknek Recreation Annex 1 (i) | Upper Naknek River (I) |
| Nikolski RRS (i) | Kagamil Island (M) |
| Oliktok LRRS (a) | Beaufort Sea Nearshore (M) |
| Point Barrow LRRS (a) | Chukchi Sea Nearshore (M); Barrow Canyon & Smith Bay (M) |
| Point Lay LRRS (i) | Kasegaluk Lagoon (C) |
| Point Lonely SRRS (i) | Barrow Canyon & Smith Bay (M); Teshekpuk Lake Area (I) |
| Port Heiden RRS (i) | Northern Alaska Peninsula (C) |
| Tin City LRRS (a) | Lopp Lagoon (C) |

*Notes*: *(a) = active; (i) = inactive. †(C) = coastal; (I) = interior; (M) = marine.
*Source*: Audubon Alaska 2014.

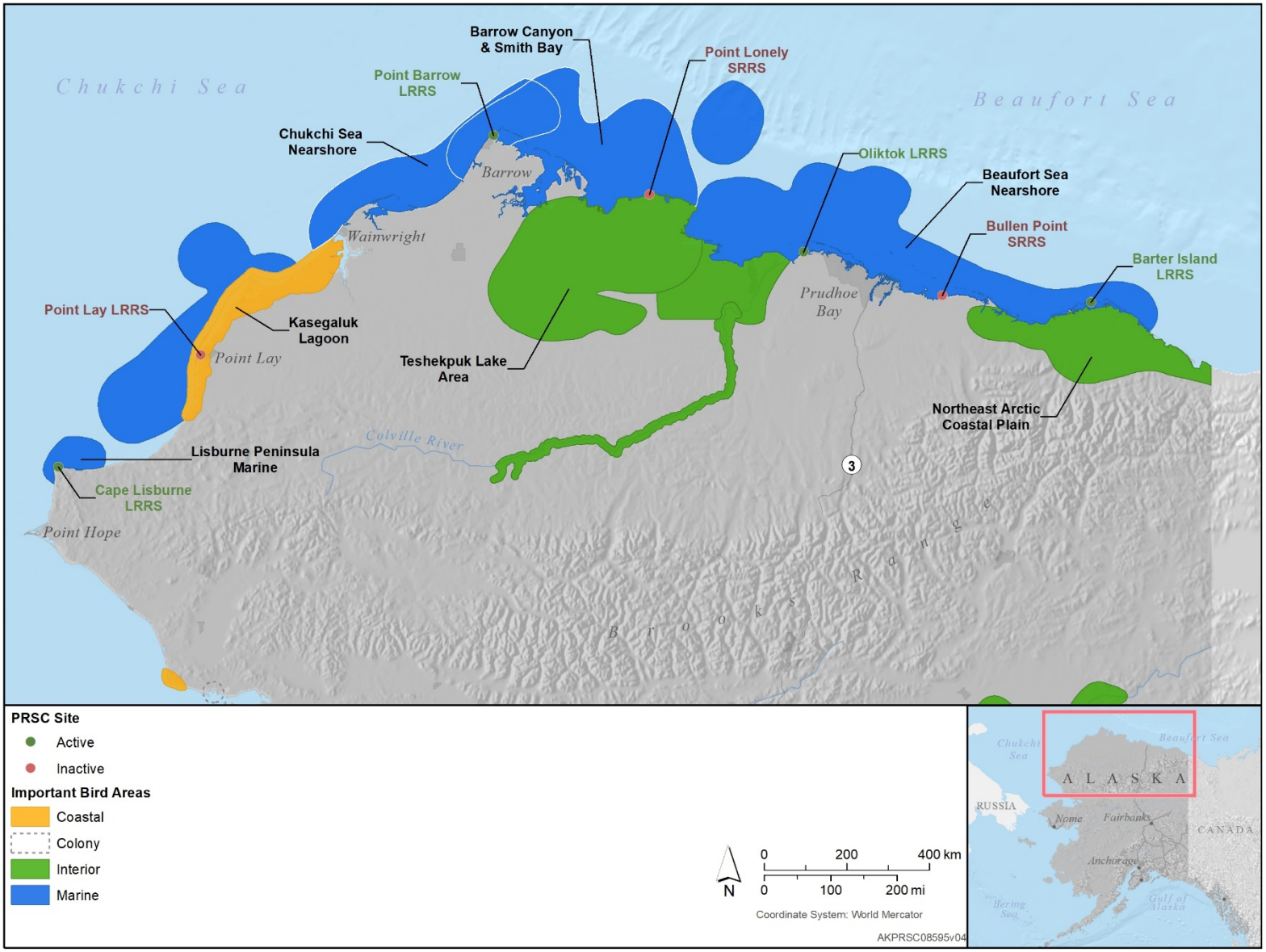


**Figure 4. IBAs within the Vicinity of Northern Coastal Alaska PRSC Sites**
(*Source*: Audubon Alaska 2014)

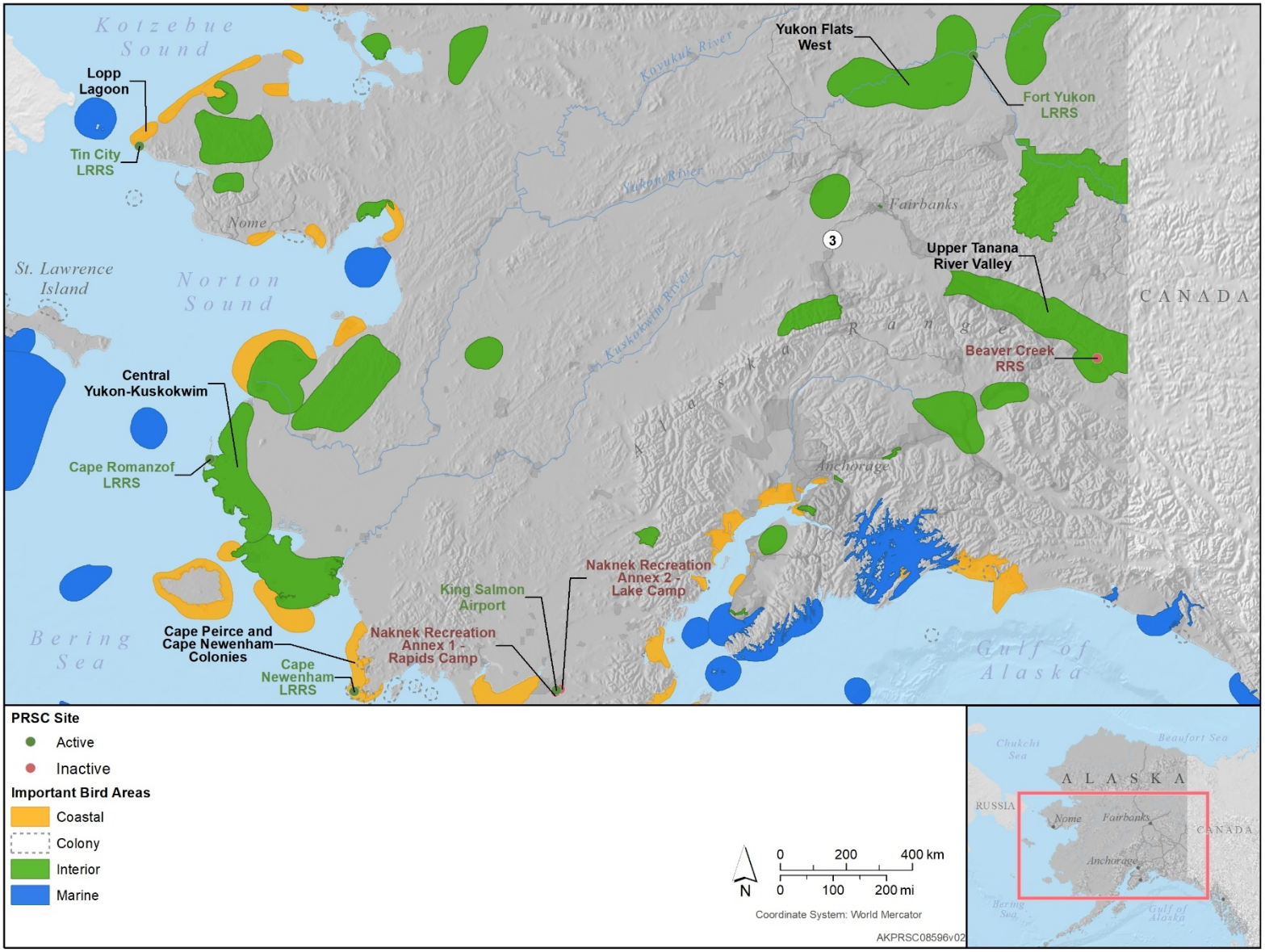


**Figure 5. IBAs within the Vicinity of Central Coastal and Interior Alaska PRSC Sites**
(*Source*: Audubon Alaska 2014)

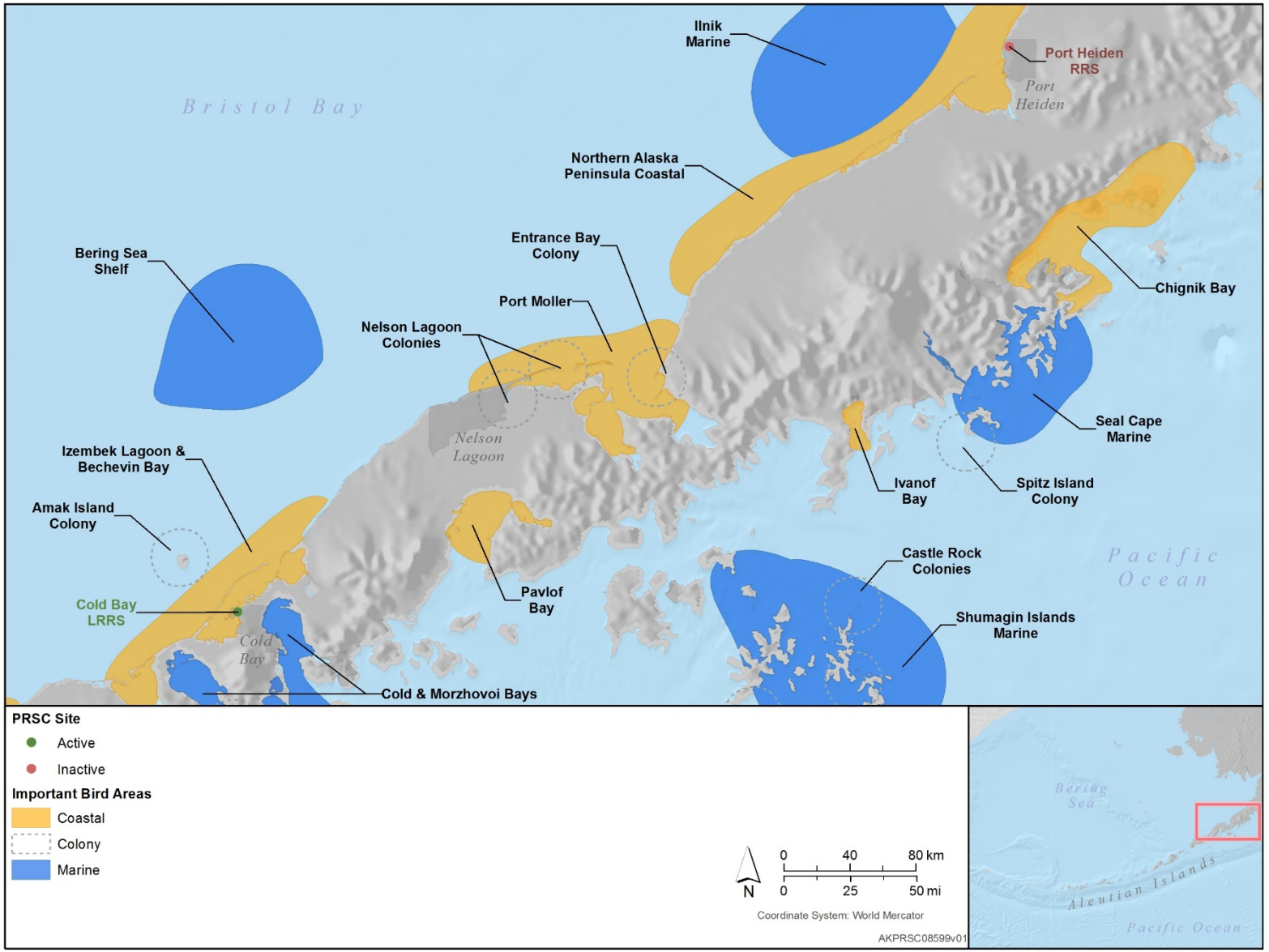


**Figure 6. IBAs within the Vicinity of Cold Bay LRRS and Port Heiden RRS**
(*Source*: Audubon Alaska 2014)

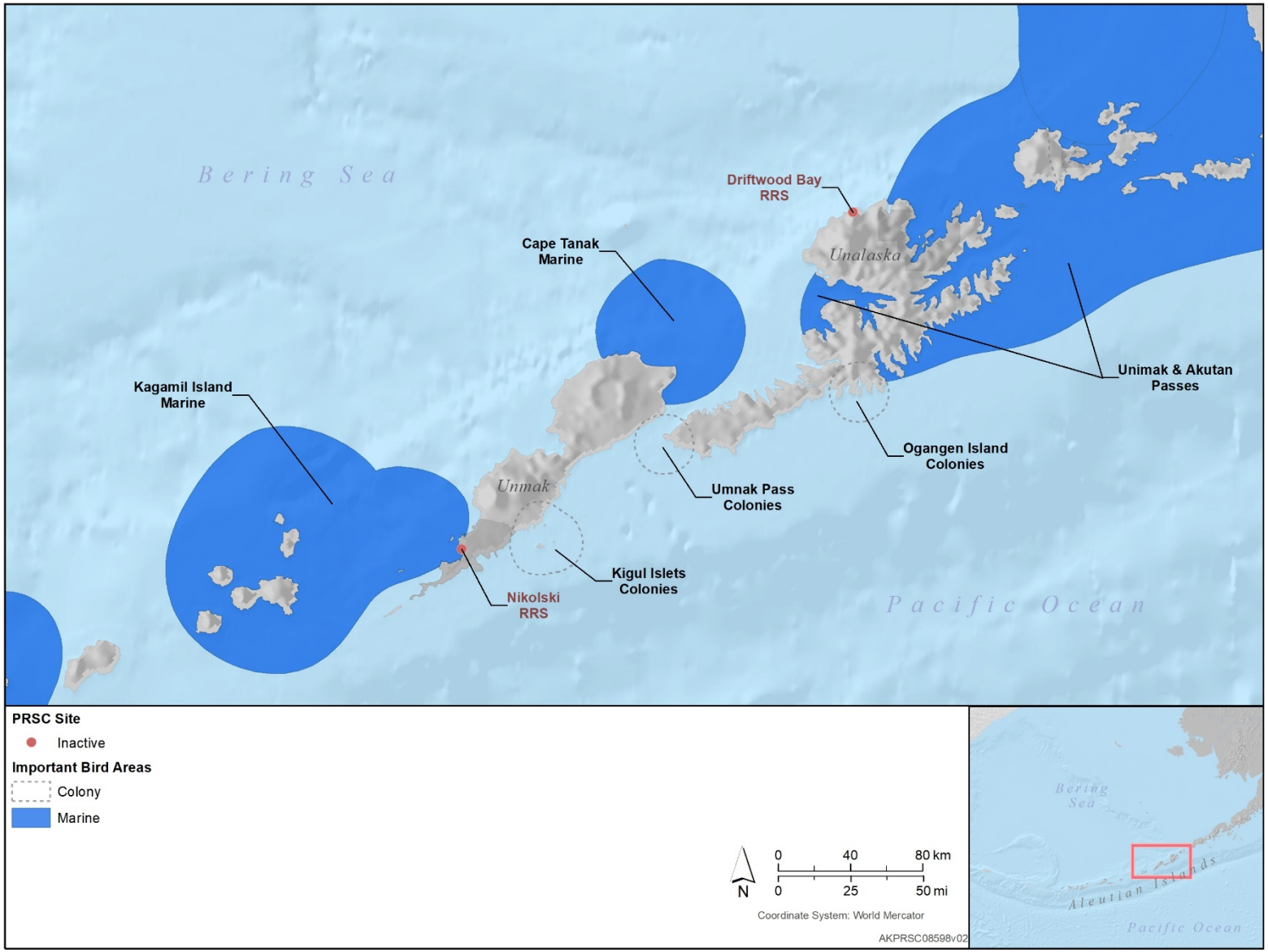


**Figure 7. IBAs within the Vicinity of the Former Nikolski RRS**
(*Source*: Audubon Alaska 2014)

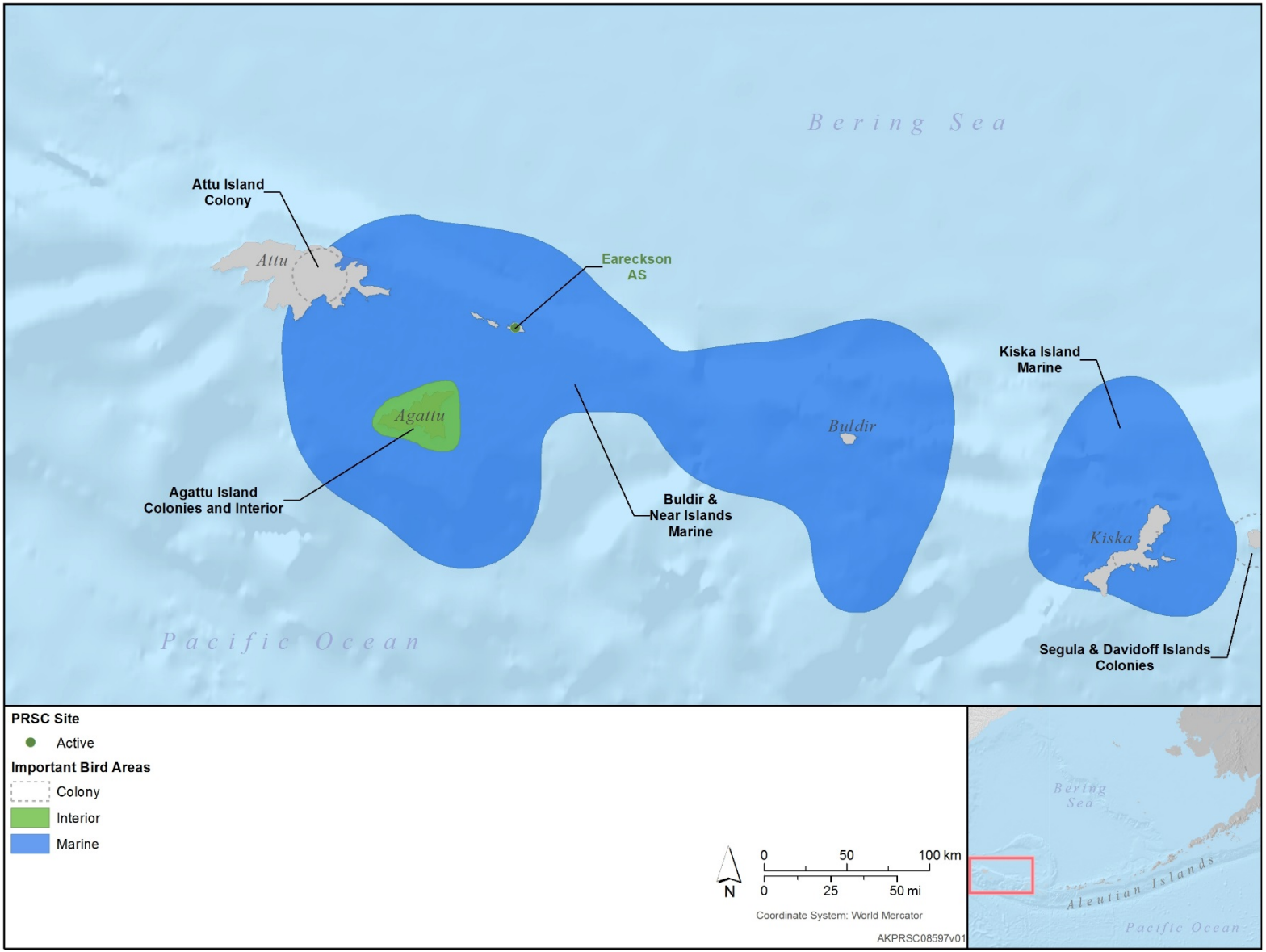


**Figure 8. IBAs within the Vicinity of Eareckson AS, Shemya Island, Alaska**
(*Source*: Audubon Alaska 2014)

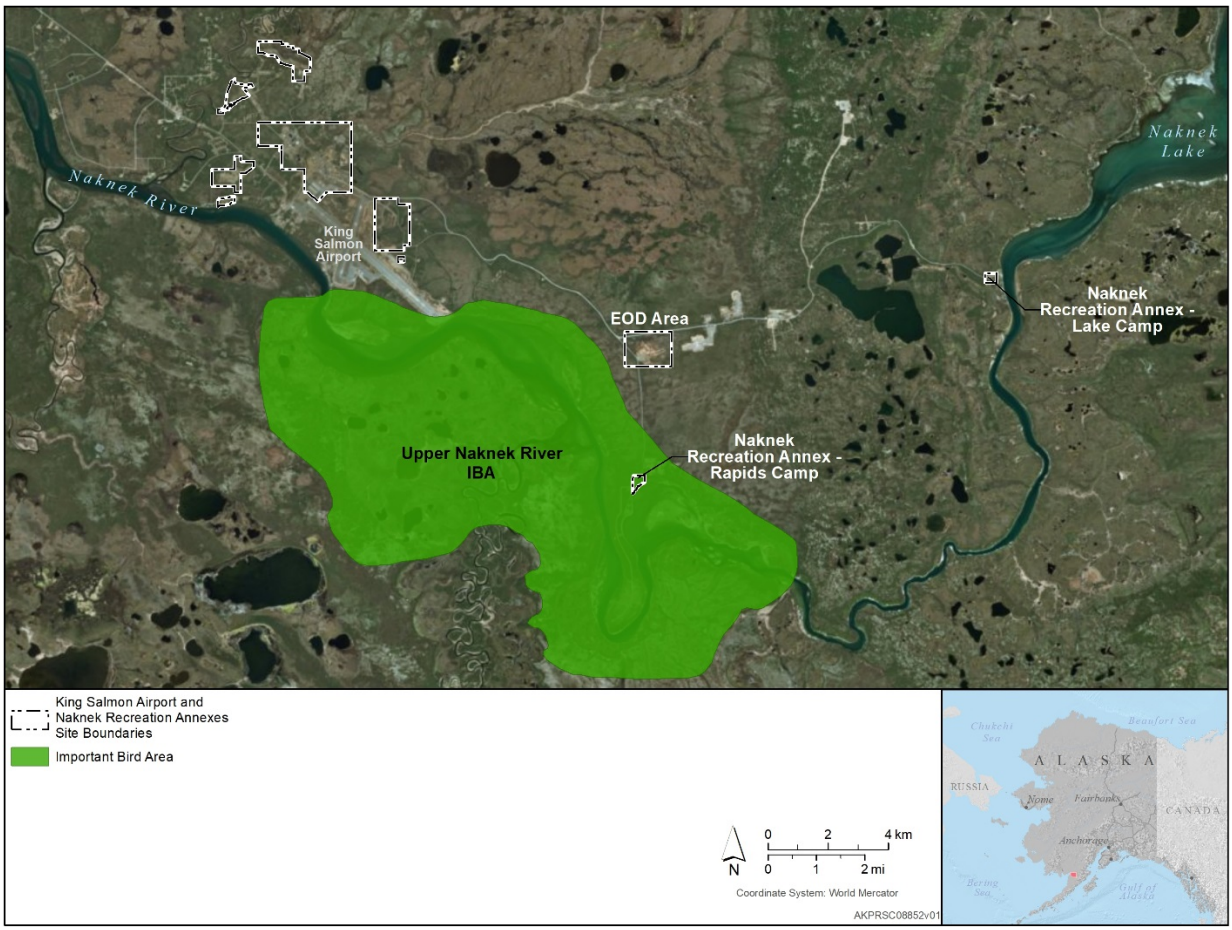


**Figure 9. IBA within the Vicinity of the King Salmon Airport Site and Naknek Recreation Annex (Rapids Camp)**
(*Source*: Audubon Alaska 2014)

### 2.3.4 ESA- and MMPA-listed Species and Other Federally Listed Species

A total of 14 ESA-listed species are known to occur at or in the vicinity of one or more of the 35 active and inactive PRSC sites: 3 bird species and 11 marine mammal species (Table 6). The ESA defines an endangered species as one that is in danger of extinction throughout all or a significant part of its range, and a threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The most current combined USFWS and NMFS lists of endangered, threatened, proposed, and candidate species, and associated critical habitat, in Alaska can be found at the Environmental Conservation Online System (https://ecos.fws.gov/ecp0/reports/ad-hoc-species-report-input).

While all of the ESA-listed marine mammal species are also listed under the MMPA, an additional 15 species may occur on site beaches (e.g., pinnipeds such as Pacific walrus and seals) or in marine waters in the vicinity of PRSC sites (Table 7). While USAF management does not extend to offshore waters, USAF activities (e.g., barge-landing operations, sea wall repairs) occurring in or impacting surrounding near-shore marine waters are of primary conservation and management concern with respect to marine mammals. In addition,

[*Note*: 11x17 format]

**Table 6. ESA-listed Threatened and Endangered Species and Designated or Proposed Critical Habitat Known or Potentially Occurring on or in the Vicinity of PRSC Sites***

| | **Common Name** | Short-tailed Albatross | Spectacled Eider | Steller's Eider | Polar Bear | Northern Sea Otter‡ | Steller Sea Lion** | Humpback Whale† | N. Pacific Right Whale | Sperm Whale | Blue Whale | Fin Whale | Bowhead Whale | Arctic Ringed Seal | Bearded Seal✦ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Scientific Name** | *Phoebastria albatrus* | *Somateria fischeri* | *Polysticta stelleri* | *Ursus maritimus* | *Enhydra lutris kenyoni* | *Eumetopias jubatus* | *Megaptera novaeangliae* | *Eubalaena japonica* | *Physeter catadon* | *Balaenoptera musculus* | *Balaenoptera physalus* | *Balaena mysticetus* | *Phoca hispida hispida* | *Erignathus barbatus nauticus* | *Sources* |
| **Federal Status** | **ESA** | E | T, CH | T, CH | T | T, CH | E, CH | E | E | E | E | E | E | T, PCH | T | |
| | **MMPA** | na | na | na | S | S | D, S | D, S | D, S | D, S | D, S | D, S | D, S | D, S | D, S | |
| **Active Sites** | | | | | | | | | | | | | | | | |
| Eareckson AS | | cV | rV | cV | | cS, CH | cV | cV | cV | cV | cV | cV | | | | 1-7 |
| King Salmon Airport | | | | | | | | | | | | | | | | 8-19 |
| Barter Island LRRS | | | pV | | cS | | | | | | | | pV | cS | cS | 8-19, 26 |
| Cape Lisburne LRRS | | | cS! | pS | cS | | | | | | | cV | cV | cS | cS | 8-20, 26, 27 |
| Cape Newenham LRRS | | | pS | cV! | | | cS | | | | | pV | PV | cV | cV | 8-19, 26 |
| Cape Romanzof LRRS | | | cV! | cV | rV | | cS | | | | | pV | cV | pS | pS | 8-19, 26 |
| Cold Bay LRRS | | rV | rV | cV! | | cV | pSpV | pV | pV | pV | pV | pV | pV | rV | rV | 8-19 |
| Fort Yukon LRRS | | | | | | | | | | | | | | | | 8-19 |
| Indian Mountain LRRS | | | | | | | | | | | | | | | | 8-19 |
| Kotzebue LRRS | | | pV | pV | cS | | | | | | | | cV | cV | cV | 8-19, 26 |
| Murphy Dome LRRS | | | | | | | | | | | | | | | | 8-19 |
| Oliktok LRRS | | | cS! | cS! | cS | | | | | | | | cV | cV | pS | 8-19, 26 |
| Point Barrow LRRS | | | cS! | cS! | cS | | | | | | | | cV | cV | cV | 8-19, 26 |
| Sparrevohn LRRS | | | | | | | | | | | | | | | | 8-19 |
| Tatalina LRRS | | | | | | | | | | | | | | | | 8-19 |
| Tin City LRRS | | | cV | cV | cS | | rV | rV | rV | | | rV | pV | cV | cV | 8-19, 26 |
| **Inactive Sites** | | | | | | | | | | | | | | | | |
| Anvil Mountain LRRS | | | pV | pV | cS | | | | | | | | | | | 9, 11, 12, 15,21-26 |
| Bear Creek RRS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Beaver Creek RRS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Bethel RRS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Big Mountain RRS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Bullen Point SRRS | | | cS | pS | cS | | | | | | | | cV | cV | cV | 9, 11, 12, 15,21-26 |
| Campion AFS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Driftwood Bay RRS | | rV | rV | cV! | | cV! | pV | pV | pV | pV | pV | pV | | | | 9, 11, 12, 15,21-25 |
| Granite Mountain RRS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Kalakaket Creek RRS | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Lake Louise Recreation Site | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Naknek Recreation Areas | | | | | | | | | | | | | | | | 9, 11, 12, 15,21-25 |
| Nikolski RRS | | rV | rV | cV | | cV | pV | pV | pV | pV | pV | pV | | | | 9, 11, 12, 15,21-25 |
| Nome Field POL | | | pV | pV | pS | | | | | | | | | | | 9, 11, 12, 15,21-26 |
| North River RRS | | | | pS | cS | | pV | pV | pV | pV | pV | pV | pV | | | 9, 11, 12, 15,21-25 |
| Point Lay LRRS | | | cS! | cS | cS | | | | | | | | cV | cS | cS | 9, 11, 12, 15,21-26 |
| Point Lonely SRRS | | | cS! | cS! | cS | | | | | | | | cV | cS | pS | 9, 11, 12, 15,21-26 |
| Port Heiden RRS | | rV | rV | cV! | | pV | pV | pV | pV | pV | pV | pV | | | | 9, 11, 12, 15,21-25 |

*Notes*: *Gray-shaded cells indicate there is no potential for the species to occur on or in the vicinity of the site; CH = critical habitat; cS = confirmed presence on the site; cV = confirmed occurrence in the vicinity of the site, but not on site; D = depleted; E = endangered; ESA = Endangered Species Act; MMPA = Marine Mammal Protection Act; na = not applicable; NL = not listed; PCH = proposed critical habitat; pS = potential occurrence on the site; pV = potential occurrence in the vicinity of the site, but not on site; rV = rare in vicinity of the site; S = strategic; T = threatened; ‡Southwest Alaska Population; **Western Distinct Population Segment (DPS); †Mexico DPS; ✦Beringia DPS; ! = Confirmed by USFWS (J. Jacobs, USFWS email to M. Moran, 611 CES, May 5, 2012)

*Sources*: All: NOAA Fisheries 2019. 1. Byrd and Scharf 2003; 2. Frost et al. 2008, Frost et al. 2010; 3. Schwitters 2008, 2010b; 4. Shaw 1993; 5. Shirley and Schwitters 2010; 6. USFWS 2004b, 2010, 2012; 7. www.alaska.fws.gov 2006; 8. Bridges 2001; 9. Day et al. 1995; 10. Day and Rose 2000; 11. Frost et al. 2007; 12. ICF Technology, Inc. 1996a, c, g; 13. Kendal et al. 2001; 14. McCaffery 2000; 15. Oasis Environmental, Inc. 2008; 16. Ritchie et al. 2003; 17. USFWS 1993b, 1997b, 2004b; 18. 611 ASG 1995c, d, e, f; 19. Wynn 1993; 20. MacKay et al. 2016, 2017; 21. Arctic Slope Technical Services 1982; 22. 611 ASG 1999a, b, c, d; 2000a; 23. 611 ASG 1997; 24. USFWS 1993b, 1997a, 1997b, 2000, 2001, 2007a; 25. 611 ASG 1995b; 26. PRSC 2020; 27. DNA Environmental Consultants 2019a, b.

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**Table 7. Non-ESA Listed Marine Mammal Species Observed or Potentially Occurring on or in the Vicinity of PRSC Sites**

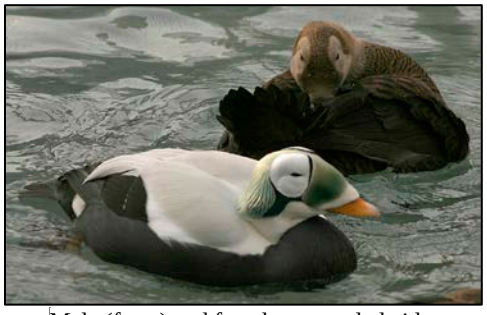
| Common Name | Scientific Name | Site* | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **EAS** | **KS** | **PB** | **Oli** | **BI** | **TC** | **Kot** | **CL** | **CR** | **CN** | **CB** | ***BP*** | ***PLo*** | ***PLa*** | ***NF*** | ***PH*** | ***DB*** | ***Nik*** |
| Baird's beaked whale | *Berardius bairdii* | X | | | | | | | | | | X | | | | | X | X | X |
| Beluga | *Delphinapterus leucas* | | X | X | X | X | X | X | X | X | X | | X | X | X | X | | | |
| Common minke whale | *Balaenoptera acutorostrata* | X | | X | | | X | X | X | X | X | | | X | X | X | X | X | X |
| Dall's porpoise | *Phocoenoides dalli* | X | | | | | | | | X | X | | | | | | | | |
| Gray whale | *Eschrichtius robustus* | | | X | X | X | X | X | X | X | X | | X | X | X | X | X | X | X |
| Harbor porpoise | *Phocoena phocoena* | X | | X | | | X | X | X | X | X | | | X | X | X | X | X | X |
| Harbor seal | *Phoca vitulina* | X | X | | | | | | | | X | | | | | | X | X | X |
| Killer whale | *Orcinus orca* | X | | X | X | X | X | X | X | X | X | | | X | X | X | X | X | X |
| Narwhal | *Monodon monoceros* | | | X | X | | | | | | | | X | X | | | | | |
| Northern fur seal | *Callorhinus ursinus* | X | | | | | | | | | X | X | | | | | | X | X |
| Pacific walrus | *Odobenus rosmarus divergens* | | | X | X | | X | | X | X | X | X | X | X | X | X | | | |
| Pacific white-sided dolphin | *Lagenorhynchus obliquidens* | X | | | | | | | | | | X | | | | | X | X | X |
| Ribbon seal | *Histriophoca fasciata* | | | X | | | X | X | X | X | | | | X | X | X | | | |
| Spotted seal | *Phoca largha* | | | X | X | X | X | X | X | X | X | | X | X | X | X | X | X | X |
| Stejneger's beaked whale | *Mesoplodon stejnegeri* | X | | | | | | | | | | X | | | | | X | X | X |

*Notes*: *Site abbreviation in italics = inactive site; BI = Barter Island; *BP = Bullen Point*; CB = Cold Bay; CL = Cape Lisburne; CN = Cape Newenham; CR = Cape Romanzoff; *DB = Driftwood Bay*; EAS = Eareckson AS; Kot = Kotzebue; KS = King Salmon Airport; *NF = Nome Field*; *Nik = Nikolski*; Oli = Oliktok; PB = Point Barrow; *PH = Port Heiden*; *PLa = Point Lay*; *PLo = Point Lonely*; TC = Tin City.
See Appendix H for site-specific information and sources.

#### 2.3.4.1 Overview of ESA-listed Species and Critical Habitat

The following sections present a brief overview of the ESA-listed species and associated critical habitat that may occur on or within the vicinity of PRSC sites. Appendix H provides site-specific details on species occurrences.

Spectacled Eider



Male (front) and female spectacled eiders (*Photo*: L. Whitehouse, USFWS)

The spectacled eider was listed as threatened in 1993 and critical habitat was designated in 2001 for both molting and nesting (USFWS 2010a). Ledyard Bay is one of the primary molting grounds for spectacled eiders breeding on the North Slope. During molt (late June through mid-October), they congregate in large, dense flocks that may be particularly susceptible to disturbance as the birds are flightless for a few weeks. As Ledyard Bay was identified as an important molting area for spectacled eiders, it was designated as critical habitat in 2001 (USFWS 2001a). Critical habitat within marine waters extends from 1 nm offshore of the mean low tide line to approximately 20 miles offshore from Cape Lisburne to Icy Cape (Figure 10).

Spectacled eiders breed in two areas in Alaska: the North Slope and the Yukon-Kuskokwim Delta, with some limited nesting on St. Lawrence Island and the Seward Peninsula. Spectacled eiders spend most of the year in marine waters, generally in the Bering sea north of the Aleutians, south of St. Lawrence Island, and between St. Lawrence and St. Matthew islands. From November through March or April, they remain in open sea or in polynyas (areas of open water at predictable, recurrent locations in sea ice covered regions), or open leads (more ephemeral breaks in the sea ice, often along coastlines) in the sea ice of the northern Bering Sea at water depths of less than 240 ft (USFWS 1996, 2010a).

Steller's Eider

Male (rear) and female Steller's eiders (*Photo*: L. Whitehouse, USFWS)

The Steller's eider was listed as threatened in 1997 and critical habitat was designated in 2001. Adjacent to the Cold Bay LRRS site, Izembek Lagoon is one of the primary molting areas for Steller's eiders (Kinchloe et al. 1988; ADFG 2019b; USFWS 2019b, e). Given the importance of Izembek Lagoon as a molting area for Steller's eiders, it was designated as critical habitat in 2001 (Figure 10) (USFWS 2001a). The Alaska breeding population nests primarily on the Arctic Coastal Plain, although a very small subpopulation remains on the Yukon-Kuskokwim Delta. They spend most of the year in shallow, near-shore marine waters, and molting and wintering flocks congregate on exposed shoals, in protected lagoons and bays, and along rocky headlands and islets. They typically winter along the north and south sides of the Alaska Peninsula and the Aleutians (USFWS 2002, 2019e).

Table 8 provides a summary of survey efforts for Steller's and spectacled eiders within or in the vicinity of the Point Barrow and Oliktok LRRS, former Point Lay LRRS, and former Point Lonely and Bullen Point SRRS.

**Table 8. Summary of Records of Nesting and Individual Spectacled and Steller's Eiders on or in the Vicinity of PRSC Sites in Northern Alaska (1994-2017)**

| Source | Survey Year | PRSC Site – Species Records* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pt. Lay | | Pt. Barrow | | Pt. Lonely | | Oliktok | | Bullen Pt. | |
| | | STEI | SPEI | STEI | SPEI | STEI | SPEI | STEI | SPEI | STEI | SPEI |
| Day et al. 1995 | 1994 | 0/0 | Possible brood | 0/0 | 0/0 | 0/2† | 1/3 | 0/0 | 1/0 | 0/0 | 0/3 |
| Obritschkewitsch et al. 2001 | 1999-2000 | -- | -- | 0/0 | -- | -- | -- | -- | -- | -- | -- |
| Day and Rose 2000 | 2000 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 |
| Kendall et al. 2001 | 2001 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 |
| Ritchie and King 2002 | 2001 | -- | -- | 0/0 | -- | -- | -- | -- | -- | -- | -- |
| Ritchie et al. 2003 | 2002 | 0/0 | 0/0 | -- | -- | 0/0 | 0/3 | 0/0 | 0/4 | 0/0 | 0/14 |
| Schick et al. 2004 | 2003 | 0/0 | 0/0 | | | | 1/2 | 0/0 | 0/0 | | 0/0 |
| Frost et al. 2007 | 2006 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/2 | 0/0 | 0/0 | 0/0 | 0/0 |
| Rojek 2008 | 2007 | -- | -- | 0/0 | 0/0 | -- | -- | -- | -- | -- | -- |
| Safine 2011 | 2008-2010 | -- | -- | 1/0 | 0/0 | -- | -- | -- | -- | -- | -- |
| Oasis Environmental 2008 | 2007 | 0/0 | 1‡/2 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 | 1‡/1 |
| Safine 2013 | 2012 | -- | -- | 0/0 | 0/0 | -- | -- | -- | -- | -- | -- |
| Burrell et al. 2015 | 2014 | 0/0 | 0/0 | 0/0 | 0/0 | -- | -- | -- | -- | -- | -- |
| Graff 2018 | 2016-2017 | -- | -- | 0/0 | 0/0 | -- | -- | -- | -- | -- | -- |

*Notes*: *-- = surveys were not conducted for the species at those PRSC sites. Records: N/I = Nested on site/# Individuals observed on site. SPEI = spectacled eider, STEI = Steller's eider. † = Molting females. ‡ = failed nest.

Short-tailed Albatross

Short-tailed albatross
(*Photo*: N. Voaden, Macauley Library)

The short-tailed albatross was federally listed as endangered throughout its range in July 2000; critical habitat has not been designated for the species. The range of the short-tailed albatross extends from Siberia south to the China coast, into the Bering Sea and Gulf of Alaska, south to Baja California, Mexico, and throughout the North Pacific. Breeding is primarily restricted to Torishima Island and the Senkaku Islands of Japan. Their at-sea distribution includes the entire North Pacific Ocean north of about 20° N latitude. The waters around the Aleutian Islands are an important area for adults and subadults for feeding while undergoing extensive molt. Current sightings and satellite tagging data show juvenile short-tailed albatross are concentrated along the shores of Southeastern Alaska, British Columbia, Washington, and Oregon, primarily along continental shelf margins. It has been suggested that short-tailed albatross may be relatively common nearshore, but only where upwelling ''hotspots'' occur in proximity to the coast; and that it would be more accurate to label the species as a "continental shelf-edge specialist" than a coastal or nearshore species (USFWS 2008a, 2014a).

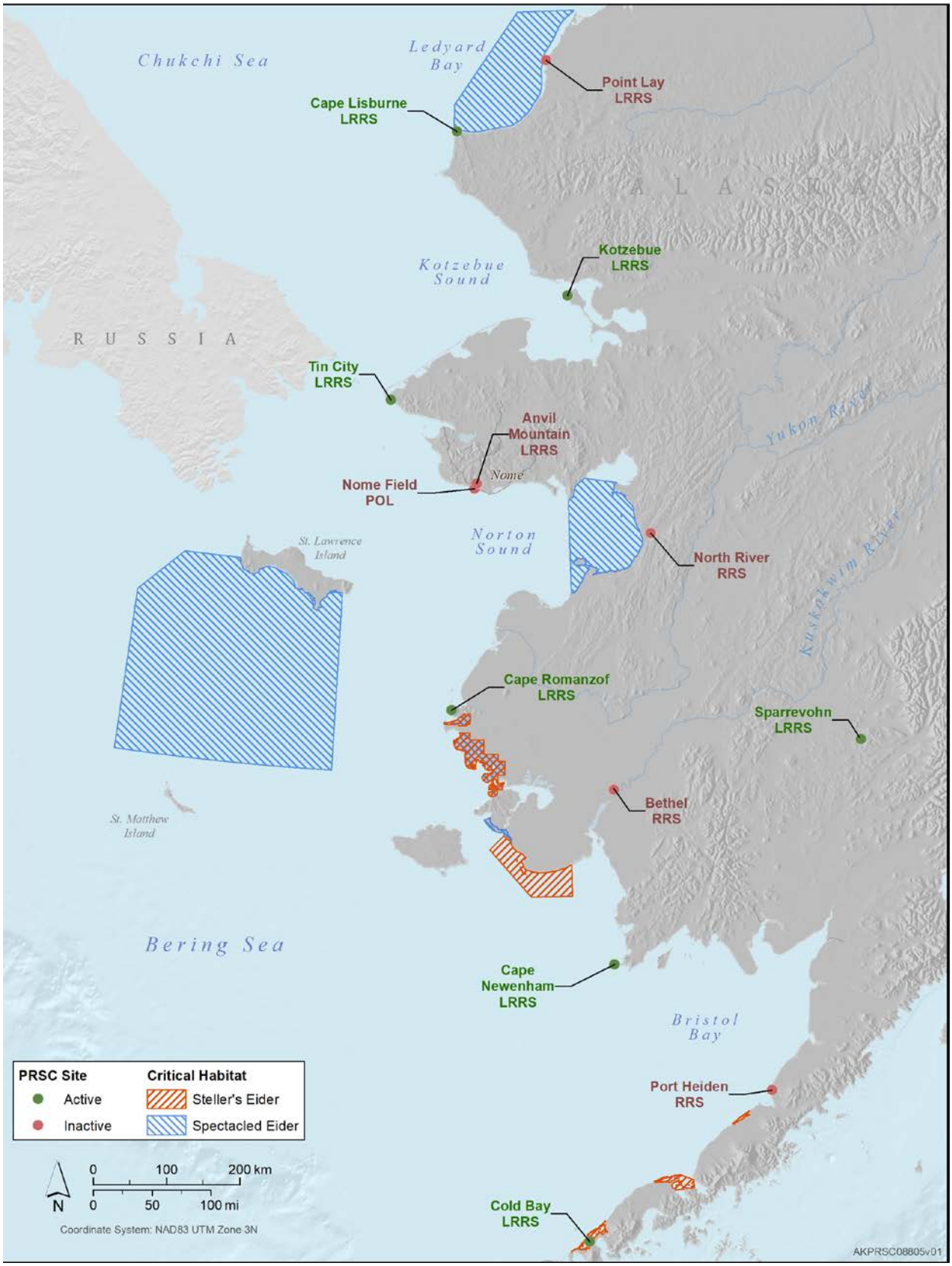



**Figure 10. Steller's and Spectacled Eider Critical Habitat**
(*Source*: USFWS 2001a, b)

Northern Sea Otter


Sea otter (*Photo*: USFWS)

In 2005, the Southwest Alaska Distinct Population Segment (DPS) of the northern sea otter was listed as threatened. The Southwest Alaska DPS ranges from Attu Island to Western Cook Inlet, including Bristol Bay, the Kodiak Archipelago, and the Barren Islands (USFWS 2005). In 2009, critical habitat was designated in near-shore marine waters and associated benthic habitats ranging from the mean high tide line seaward for a distance of 100 m, or to a water depth of 20 m (USFWS 2009). The northern sea otter and designated critical habitat occurs in the nearshore marine waters of Eareckson AS, the former Driftwood Bay RRS, former Nikolski RRS, and the Cold Bay LRRS (Figure 11, Figure 12, and Figure 13). Critical habitat occurs below the mean high tide line, and therefore, is not within the property boundaries of any PRSC sites. USAF activities occurring in or impacting surrounding near-shore marine waters are of primary conservation and management concern.

Sea otters occupy and use all coastal marine habitats within their range, from protected bays and estuaries to exposed outer coasts and offshore islands. Sea otters generally live in clear coastal waters less than 100 m deep. They primarily forage in shallow water areas less than 100 m in depth, and the majority of all foraging dives take place in waters less than 30 m in depth. As water depth is generally correlated with distance to shore, sea otters typically inhabit waters within 0.6–1.2 miles of shore. They may also periodically haul out on intertidal or supratidal shores, particularly during winter months (USFWS 2005).

In 2015, the USAF funded the USFWS to analyze 2000 data to determine the location of significant concentration areas and important habitat features ("hotspots") near PRSC installations. This effort revealed small but significant hotspots near the Cold Bay LRRS and former Port Heiden RRS (Lance et al. 2015). In 2016, the USAF funded the USFWS to conduct aerial surveys of the waters surrounding the Cold Bay LRRS; this effort confirmed the presence of 1,087 individuals within 60 miles of the installation boundary (USFWS 2016a).

Steller Sea Lion


Male and female Steller sea lions (*Photo*: L. Jemison, USFWS)

In 1990, the Steller sea lion was listed as threatened range wide. In 1997, NMFS recognized two DPS (Western DPS [west of 144º longitude] and Eastern DPS [east of 144º longitude]) and listed the Western DPS as endangered; the Eastern DPS was delisted in 2013 (NMFS 1997, 2013). In 1993, NMFS designated all Steller sea lion rookeries and major haulouts as critical habitat (NMFS 1993; 50 CFR 226.202). Critical habitat includes terrestrial, aerial, and aquatic zones associated with rookeries and haulouts. The terrestrial zone extends 3,000 ft landward from each major rookery and haulout. Aquatic zones extend 20 NM seaward from major rookeries and haulouts. Lastly, critical habitat also includes air zones extending 3,000 ft above these terrestrial and aquatic zones.

Steller sea lion critical habitat occurs within the marine waters around Eareckson AS, the former Nikolski and Driftwood Bay RRS, Cold Bay LRRS, and Cape Newenham LRRS (Figure 14, Figure 15, Figure 16, and Figure 17).

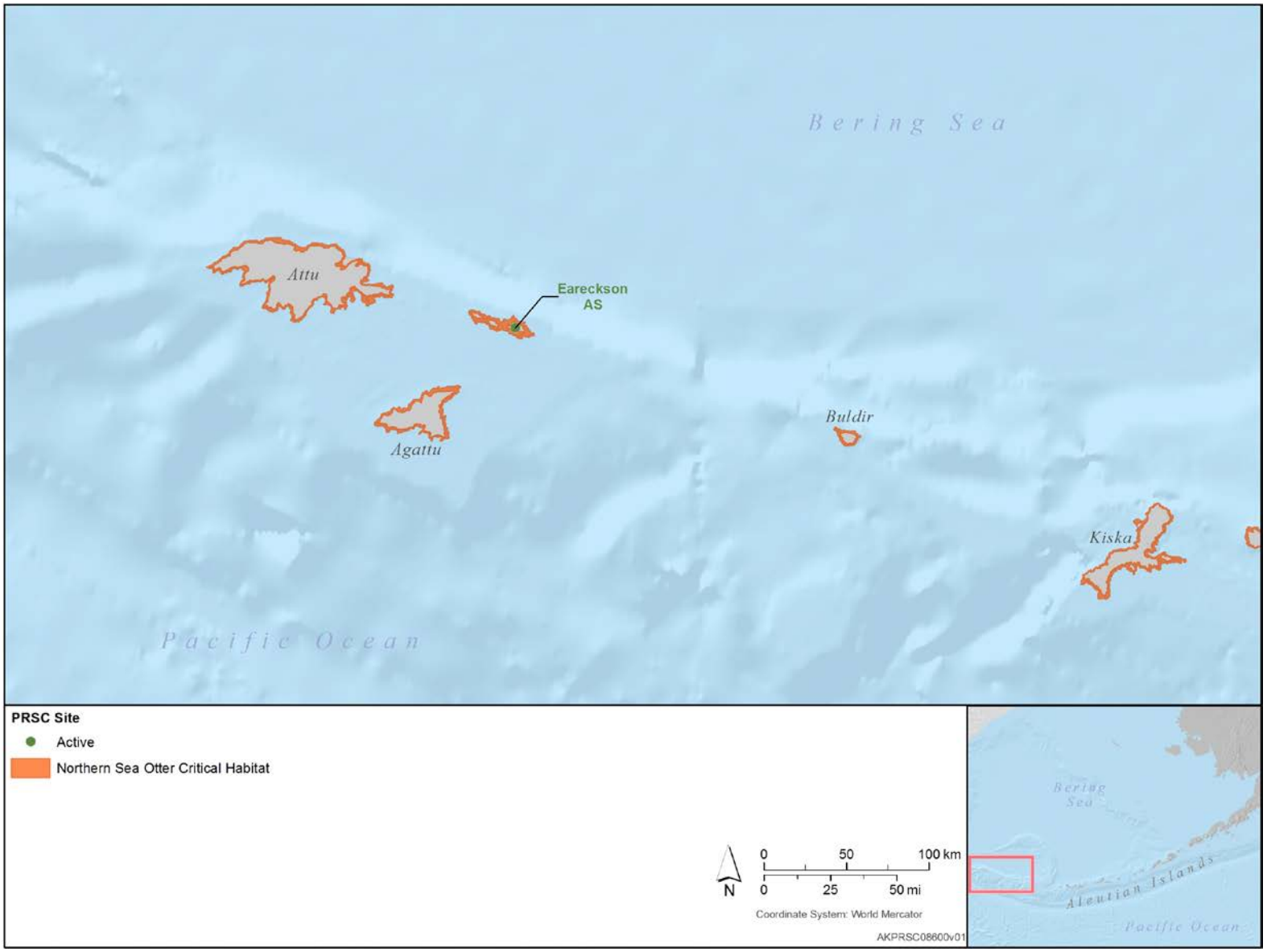



**Figure 11. Northern Sea Otter Critical Habitat – Western Aleutians**
(*Source*: USFWS 2009b)

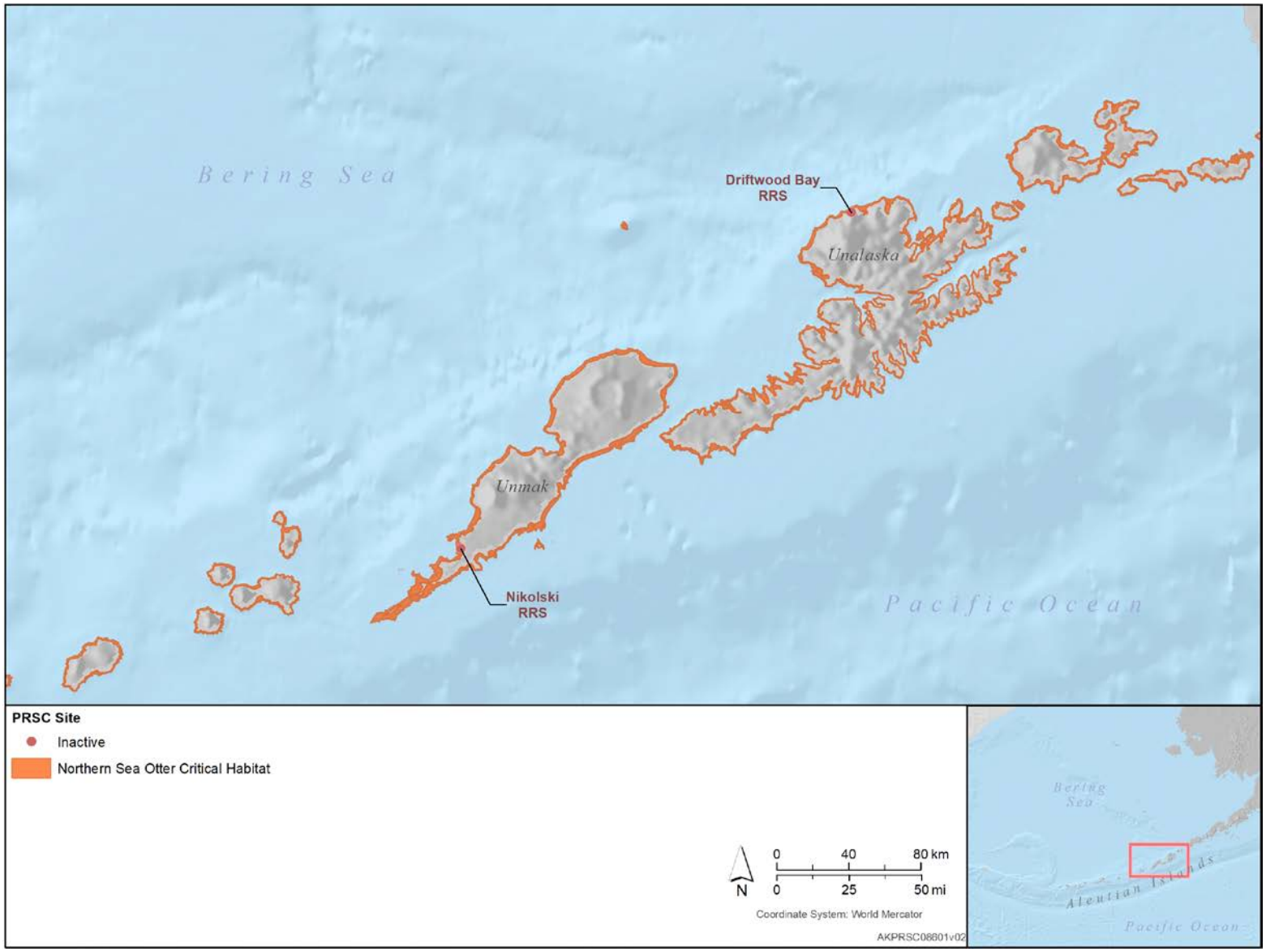



**Figure 12. Northern Sea Otter Critical Habitat – Central Aleutians**
(*Source*: USFWS 2009b)

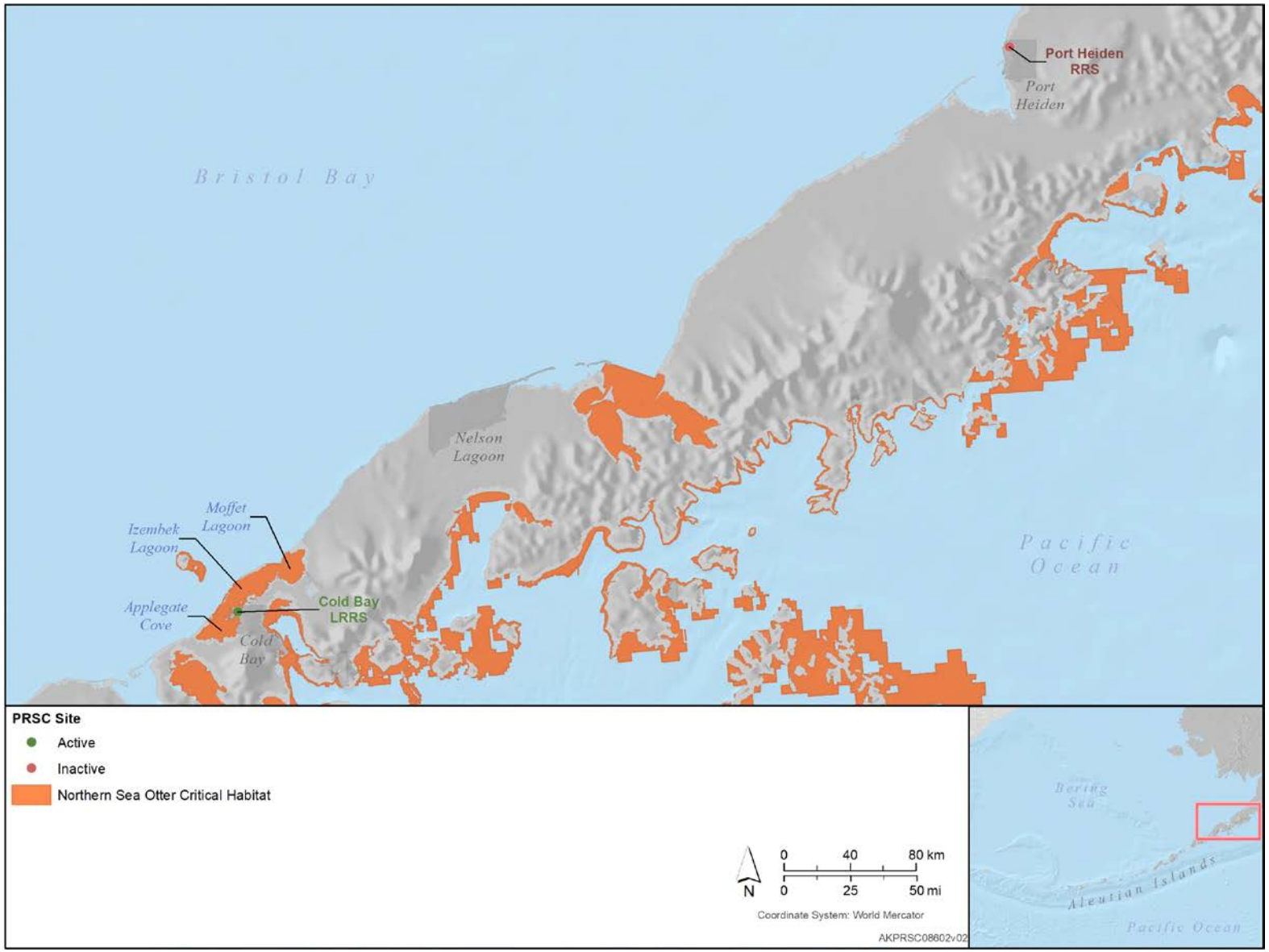



**Figure 13. Northern Sea Otter Critical Habitat – Alaska Peninsula**
(*Source*: USFWS 2009b)

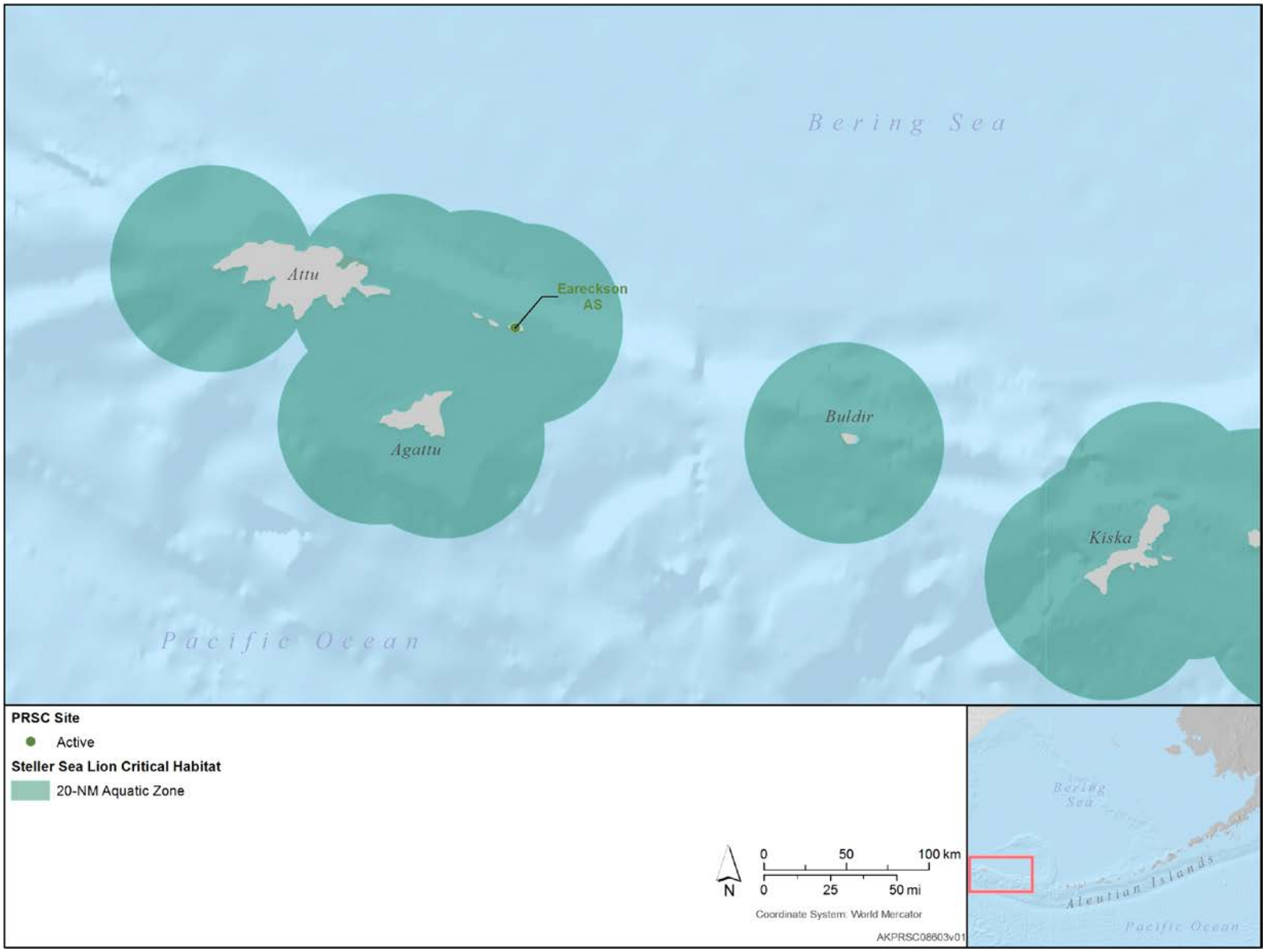



**Figure 14. Steller Sea Lion Critical Habitat – Western Aleutians**
(*Source*: NMFS 1993)

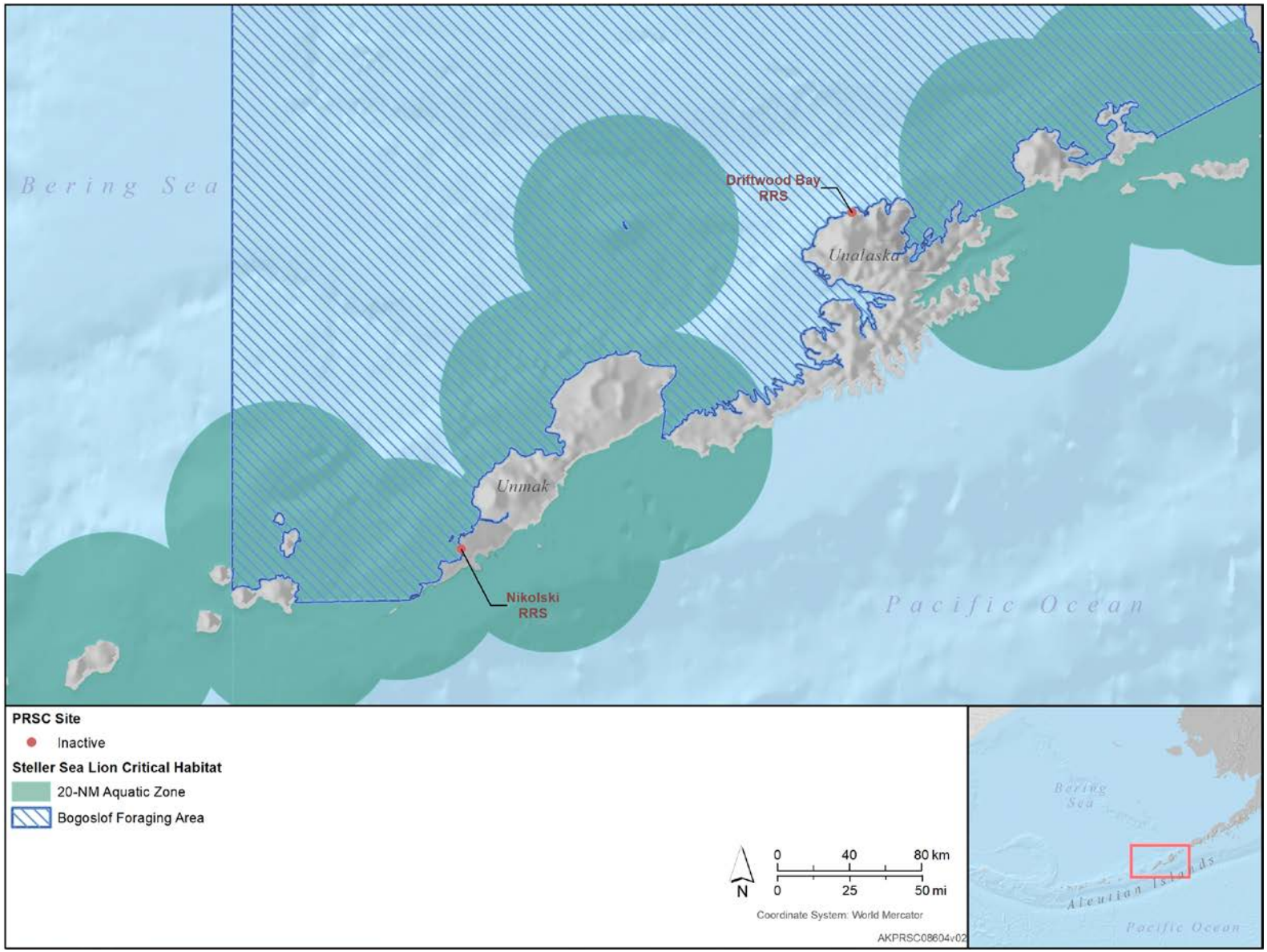



**Figure 15. Steller Sea Lion Critical Habitat – Central Aleutians**
(*Source*: NMFS 1993)


**Figure 16. Steller Sea Lion Critical Habitat – Alaska Peninsula**
(Source: NMFS 1993)

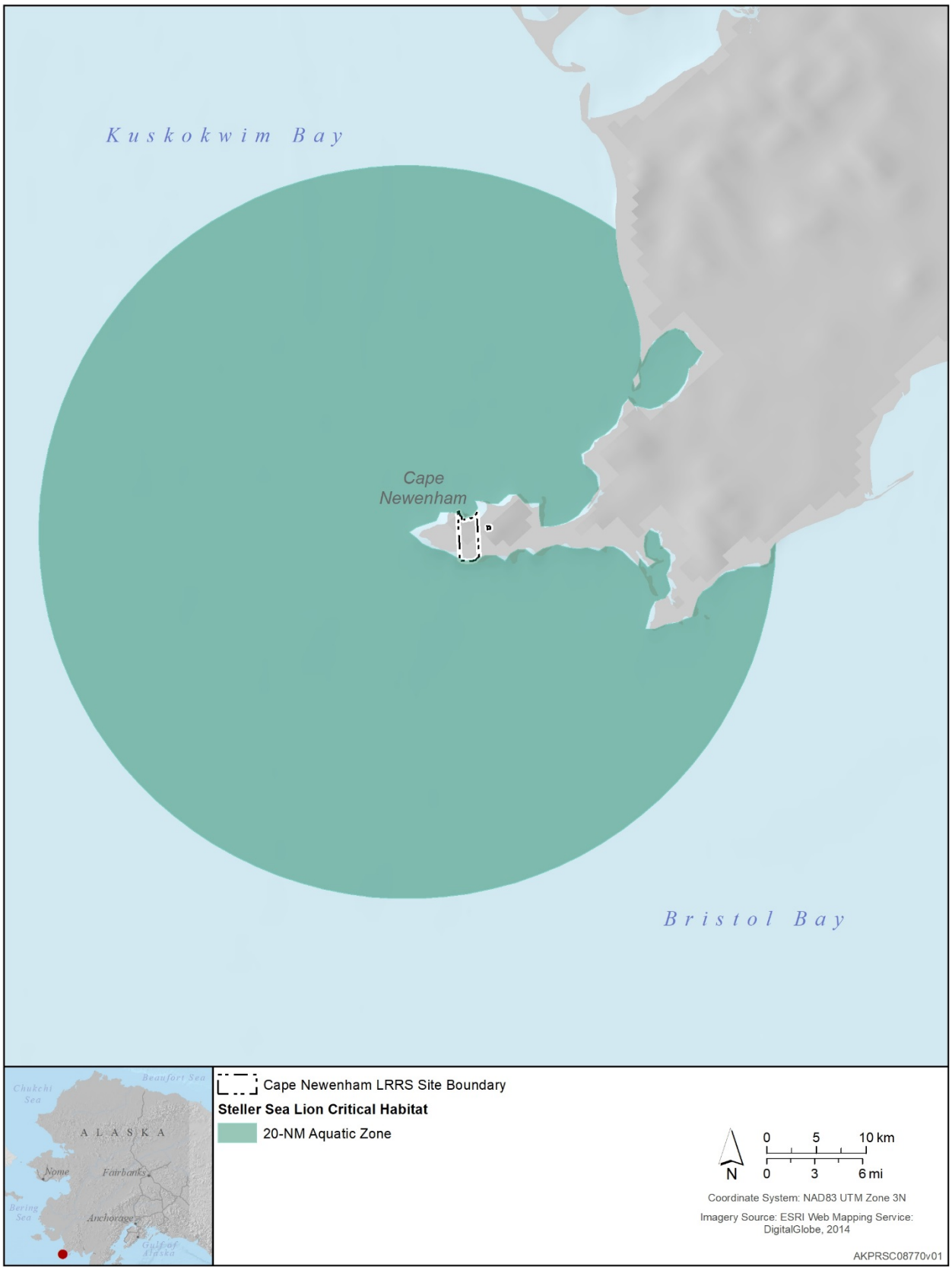



**Figure 17. Steller Sea Lion Critical Habitat within the Vicinity of the Cape Newenham LRRS**
(*Source*: NMFS 1993)

Polar Bear

Polar bears are the largest bear species and are distinguished by their white to yellow fur. Adult females can weigh 400 to 700 pounds, while males can weigh up to 1,440 pounds (USFWS 2008b, 2016b).

The range of polar bears depends on two main factors: the quality of the sea ice and the availability of seal prey. They are generally found along the coasts of the Beaufort and Chukchi seas and south to the central Bering Sea. They make extensive north-south migrations with the seasonal advance and retreat of pack ice (Derocher 2012).

Polar bear near Barrow, AK. (*Photo*: USFWS.)

The primary diet of the polar bear is the ringed seal, although they are also known to consume bearded seal, walrus, beluga whale, bird eggs, vegetation, and carrion. The bears concentrate along the southern-most edge of the sea ice hunting ringed seals, and as the sea ice extent changes seasonally, polar bears must migrate with the ice to continue to have access to their prey. During fall and winter, polar bears are found along the coastline where active ice movement creates openings that are used by seals. In the spring, the ice pack begins to move offshore, and the bears move onto the ice and remain on offshore ice through summer. Except pregnant females, polar bears do not hibernate and are active on land and sea ice at all times of the year (Durner et al. 2004; USFWS 2008b).

In fall, female polar bears seek out suitable habitat for maternity dens where they will give birth to one or two cubs in December and care for the cubs until March or early April. Dens are located on pack ice, landfast ice, and on land where sufficient snow can accumulate for den excavation. Newborn polar bears are extremely susceptible during the first 2 months of life and undisturbed maternal dens are crucial to their survival. Cubs remain with their mother until they are just over 2 years old (USFWS 2016b).

In May 2008, the polar bear was listed as threatened under the ESA (USFWS 2008b). The listing was based on the best available science, which shows that loss of sea ice threatens and will likely continue to threaten polar bear habitat. In 2009, the USFWS proposed critical habitat for the polar bear that overlapped five PRSC sites: Point Barrow, Oliktok, and Barter Island LRRS; Bullen Point SRRS; and the former Point Lonely SRRS (USFWS 2009c). However, ESA section 4(a)(3)(B)(i) states, "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

In their 2010 final rule, the USFWS determined that the USAF lands that overlap the proposed polar bear critical habitat at the five sites are subject to the approved INRMPs at the time (611 CES 2007a, 2009) and that conservation efforts identified in the INRMPs provided a benefit to polar bears occurring in habitats within or adjacent to these facilities. Therefore, lands within these sites were exempted from critical habitat designation under ESA section 4(a)(3)(b)(i) (USFWS 2010c). This updated INRMP continues applicable protections and procedures for polar bears. Although PRSC lands have been excluded from polar bear critical habitat (USFWS 2010), the surrounding terrestrial areas are within denning critical habitat and nearby barrier islands are considered critical habitat that include a 1-mile no disturbance zone (Figure 18 and Figure 19). In addition, the adjacent marine waters are considered sea ice critical habitat (Figure 20).

PRSC has prepared a *Polar Bear and Walrus Avoidance Plan* (see Section 14.3). This plan describes polar bear biology, the PRSC sites where polar bear interactions are possible, polar bear attraction to human activities, how to avoid this attraction, bear deterrence, and recommendations for further education.

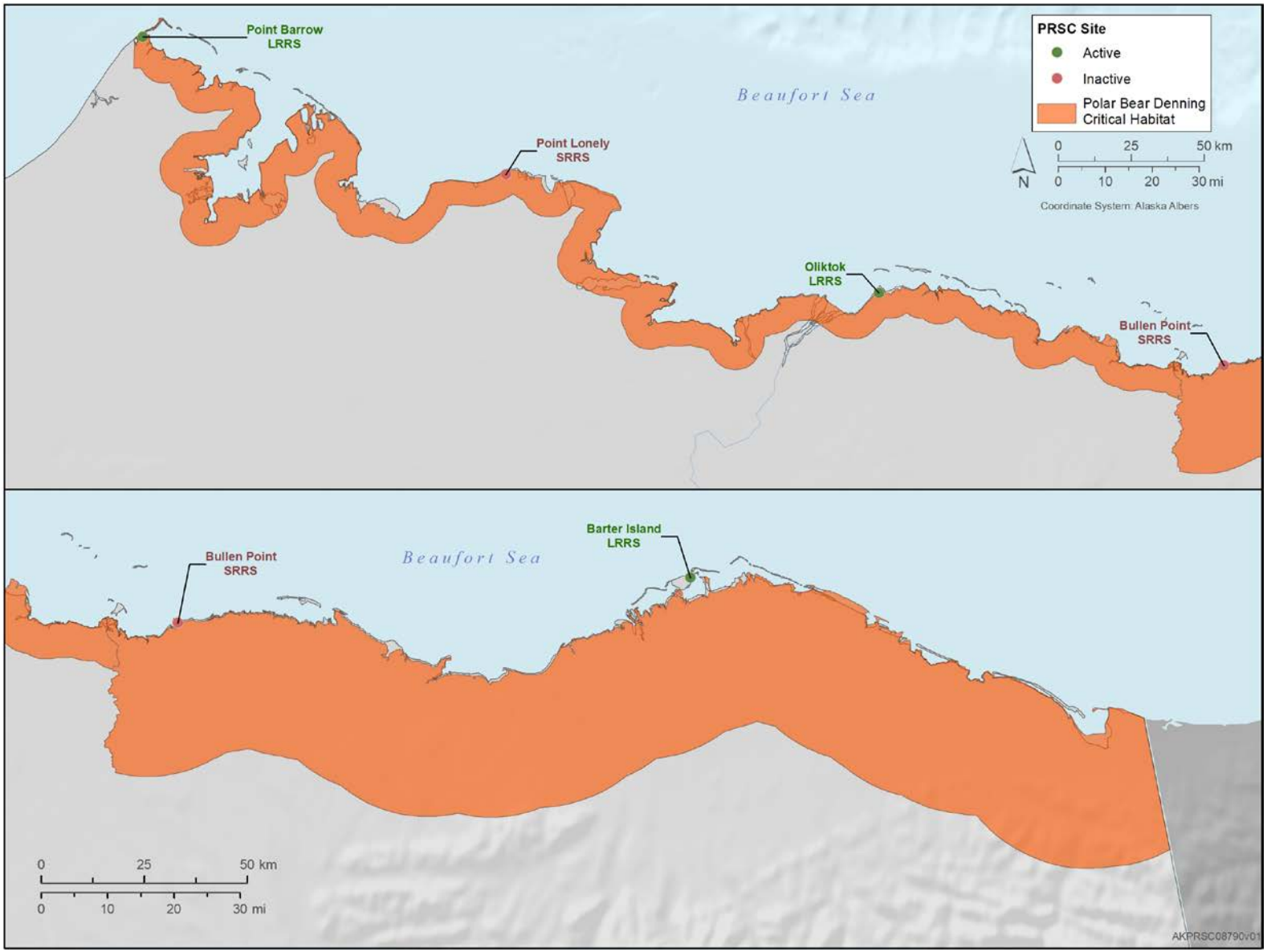



**Figure 18. Polar Bear Critical Habitat – Denning**
(*Source*: USFWS 2010c)

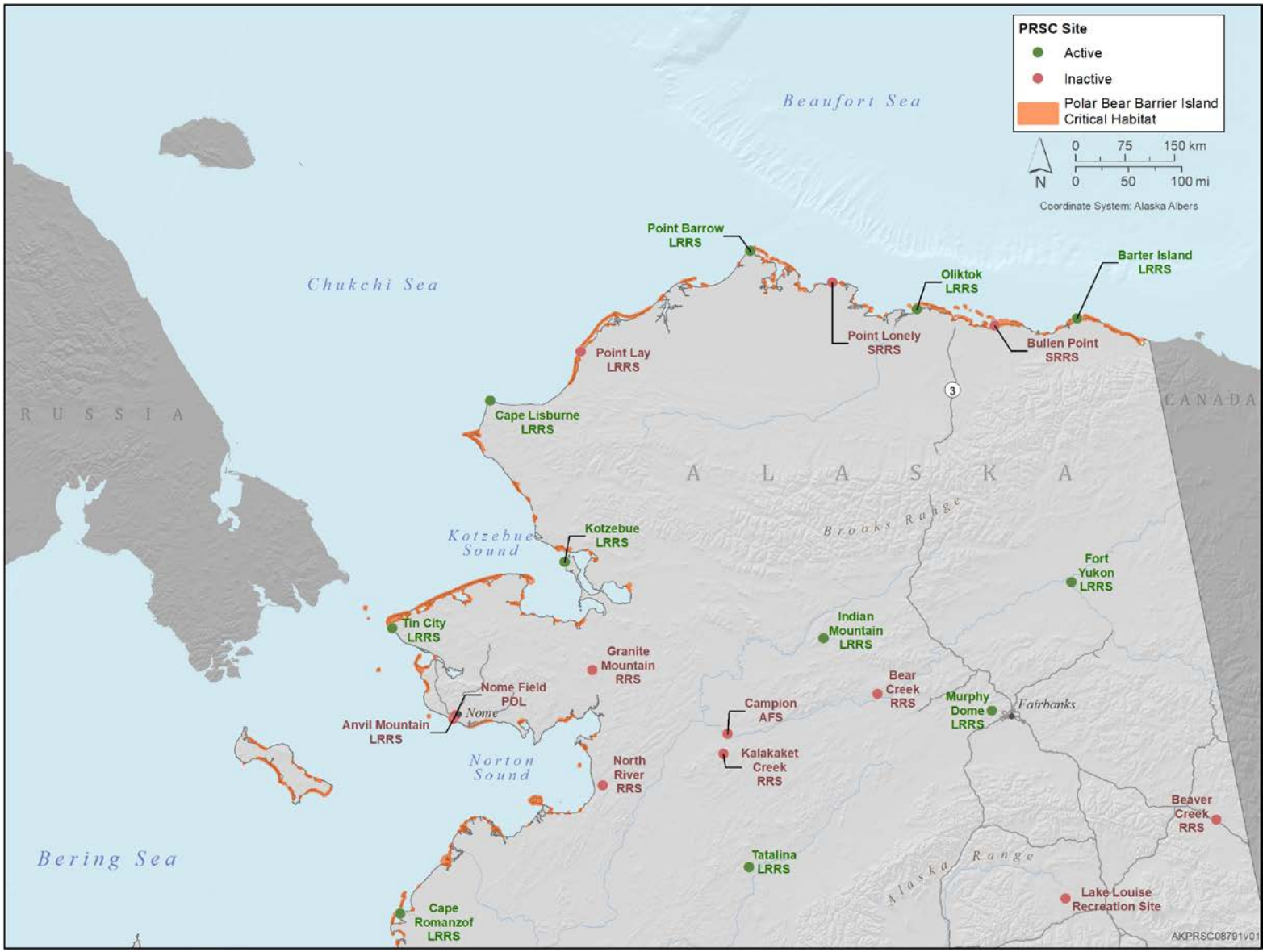



**Figure 19. Polar Bear Critical Habitat – Barrier Islands**
(*Source*: USFWS 2010c)

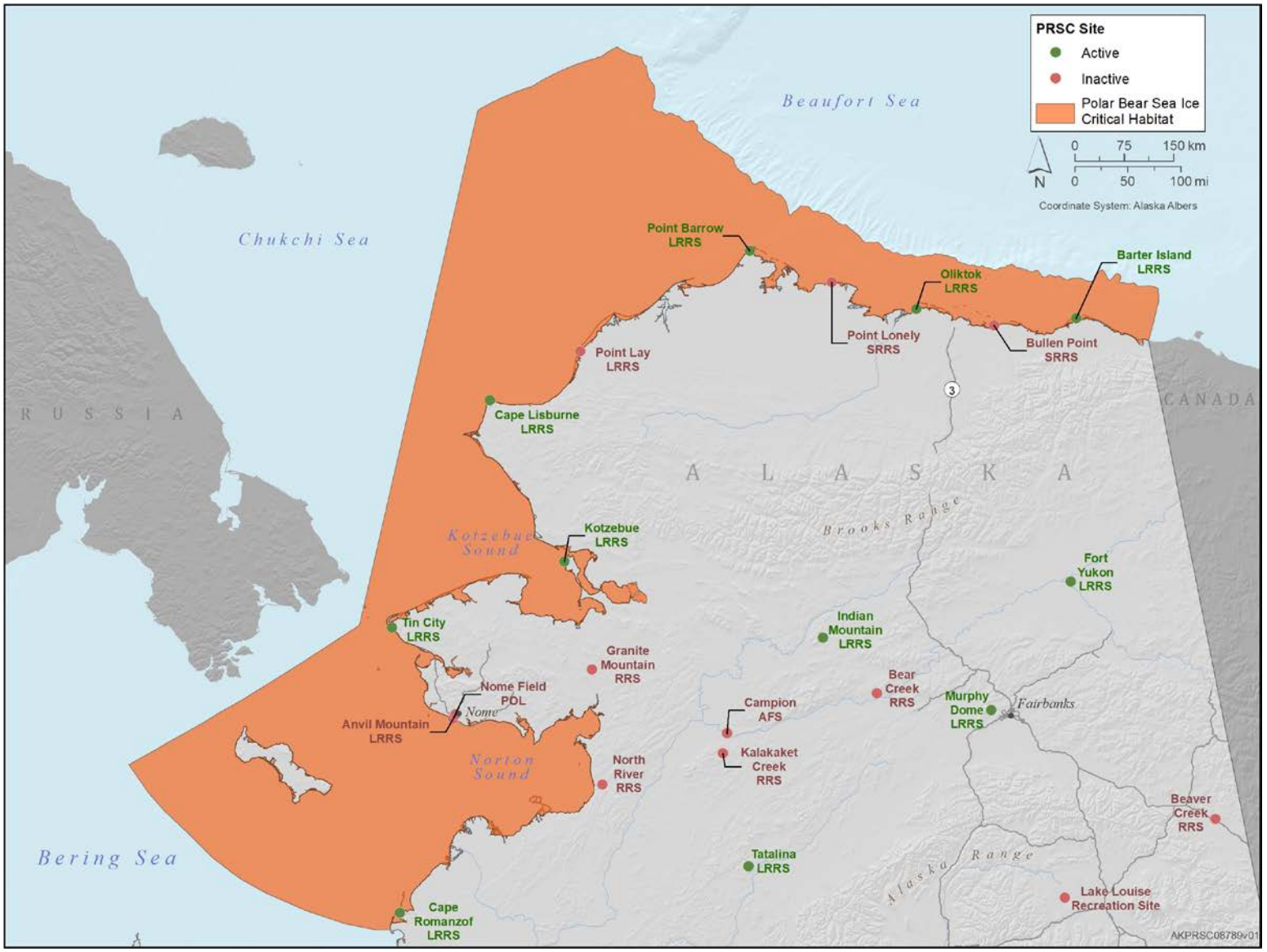



**Figure 20. Polar Bear Critical Habitat – Sea Ice**

(*Source*: USFWS 2010c)

Arctic Ringed Seal

Ringed seal (*Photo*: NOAA Fisheries)

Ringed seals are the smallest and most common Arctic seal. They are circumpolar and are found in all seasonally ice-covered seas of the Northern Hemisphere and in certain freshwater lakes. Ringed seals are well-adapted to occupying heavily ice-covered areas throughout the fall, winter, and spring by using the stout claws on their foreflippers to maintain breathing holes in the ice. During winter and spring in the U.S., ringed seals are found throughout the Beaufort and Chukchi seas; they occur in the Bering Sea as far south as Bristol Bay in years of extensive ice coverage. Most ringed seals that winter in the Bering and Chukchi seas are thought to migrate northward in spring with the receding ice edge and spend summer in the pack ice of the northern Chukchi and Beaufort seas. They remain in contact with the ice most of the year and normally pup and nurse pups on the ice in snow-covered lairs (snow caves) in late winter through early spring. The ice and snow caves provide some protection from predators, though polar bears spend much of their time on sea ice hunting ringed seals, which are their primary prey. Loss of sea ice and snow cover on the ice poses the main threat to this species (NMFS 2014).

Ringed seals eat a wide variety of mostly small prey, with fishes of the cod family dominating the diet in many areas from late autumn through spring. Crustaceans appear to become more important during the open-water season and often dominate the diet of young seals. While foraging, ringed seals dive to depths of ≥150 ft (NMFS 2014).

In 2012, NMFS listed the Arctic ringed seal, one of five subspecies and the only one that occurs in Alaska waters, as threatened. Loss of sea ice due to climate change is considered the primary threat to the subspecies (NMFS 2012a). In 2014, critical habitat was proposed that includes all the contiguous marine waters from the coast line of Alaska to 200 NM offshore (i.e., within the U.S. Exclusive Economic Zone (NMFS 2014). Although PRSC lands are not within the proposed critical habitat, marine waters adjacent to seven active and four inactive PRSC sites are within the area of proposed critical habitat (Figure 21).

Bearded Seal

Bearded seal (*Photo*: NOAA Fisheries)

Bearded seals inhabit circumpolar Arctic and sub-Arctic waters that are relatively shallow (primarily less than about 1,600 feet deep) and seasonally ice-covered. In U.S. waters, they are found off the coast of Alaska over the continental shelf in the Bering, Chukchi, and Beaufort Seas. Because bearded seals are closely associated with sea ice, particularly pack ice, their seasonal distribution and movements are linked to seasonal changes in ice conditions. To remain associated with their preferred ice habitat, bearded seals generally move north in late spring and summer as the ice melts and retreats and then south in the fall as sea ice forms. Bearded seals primarily feed on or near the sea bottom on a variety of invertebrates (e.g., shrimps, crabs, clams, and welks) and some fish (e.g., cod and sculpin). While foraging, they typically dive to depths of less than 325 ft (NMFS 2012b).

In 2012, the Beringia DPS of the bearded seal was listed as threatened. As with the ringed seal, habitat alteration (i.e., loss of sea ice) due to climate change is considered the primary threat to the species (NMFS 2012b).

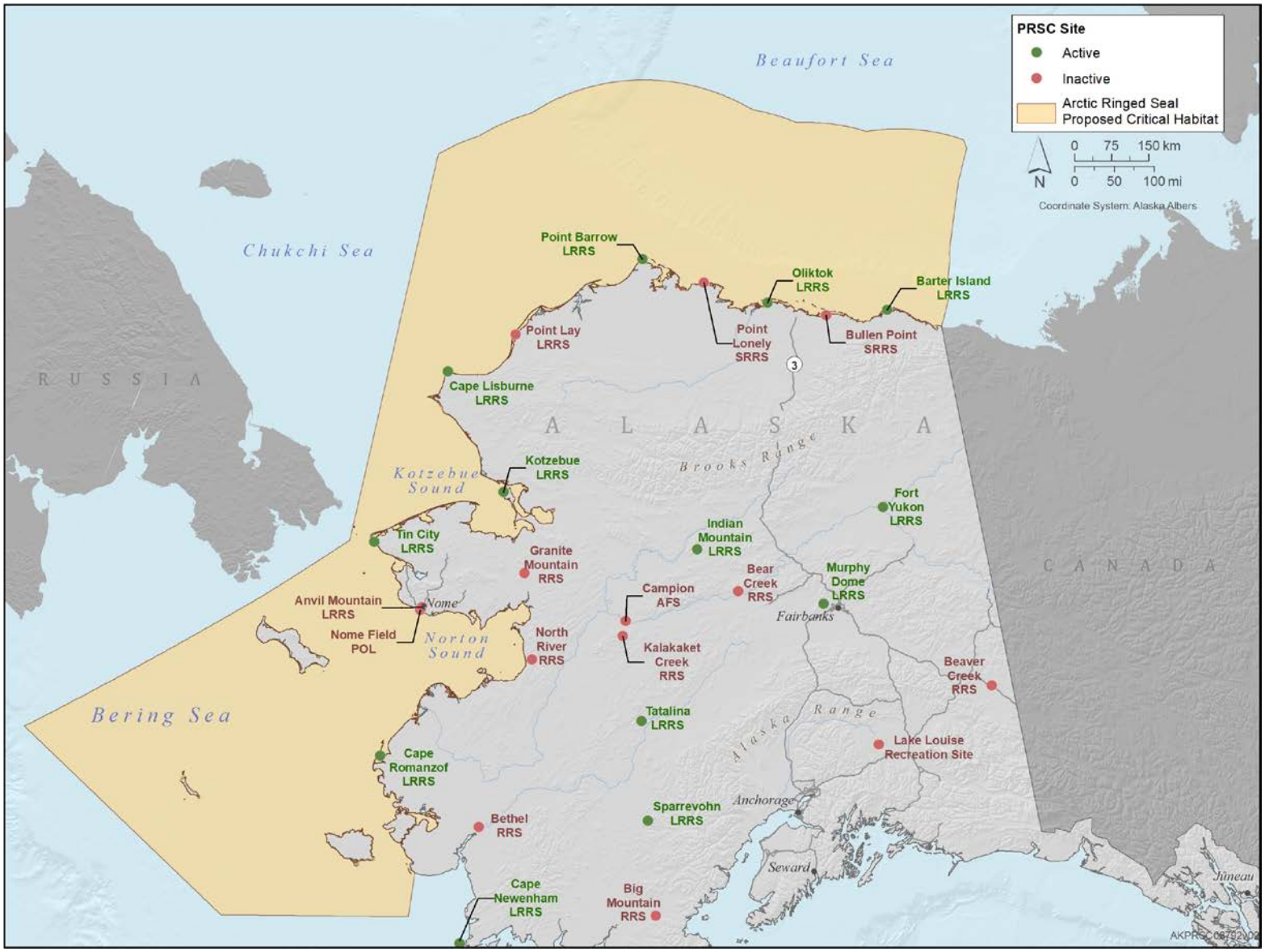



**Figure 21. Arctic Ringed Seal Proposed Critical Habitat**
(Source: NMFS 2014)

Whales

Six species of ESA-listed endangered whales may occur in the offshore marine waters of coastal PRSC sites: humpback, North Pacific right, sperm, blue, and fin whales. However, PRSC in-water activities are minimal and are primarily focused on annual cargo transport, barge fuel operations, and seawall repairs. The range of the humpback, North Pacific right, sperm, and blue whales in Alaska includes the Bering Sea, Gulf of Alaska, and the North Pacific. The range of the bowhead whale includes the Chukchi and Beaufort seas. The fin whale range in Alaska includes the Chukchi Sea, Bering Sea, Gulf of Alaska, and the North Pacific (NOAA Fisheries 2019).

#### 2.3.4.2 Overview of MMPA-listed Species

As shown in Table 7, 15 marine mammal species not listed under the ESA may occur on PRSC site beaches (e.g., pinnipeds such as Pacific walrus and seals) or in marine waters in the vicinity of PRSC sites. Due to the potential for some terrestrial activities at PRSC sites to impact hauled out Pacific walrus, a brief overview of the species is provided below. Appendix H provides site-specific details on the occurrence of walrus and other marine mammal species at or in the vicinity of PRSC sites.

Pacific Walrus

The Pacific walrus mainly inhabits the shallow continental shelf waters of the Bering and Chukchi seas. The distribution of Pacific walruses varies markedly with the seasons. Almost the entire population occupies the pack ice in the Bering Sea in the winter months. Through the winter they generally congregate in two areas in Alaska waters: immediately southwest of St. Lawrence Island and south of Nunivak Island. As the Bering Sea pack ice begins to break up and melt in spring walruses begin to move north and their distribution becomes less clumped. By late April walrus can be found from Bristol Bay north to the Bering Strait. During the summer, as pack ice continues to recede north, most of the population migrates into the Chukchi Sea.

Pacific walrus hauled out.
(*Photo*: USFWS.)

Walrus are generally found in waters ≤300 ft deep, possibly because of higher productivity of their benthic foods in the shallower water. Clams are their most common food, however other invertebrates such snails, sea cucumbers, crabs, and segmented worms are frequently found in their stomachs.

Coastal haulout sites include islands, points, spits, and headlands. A wide variety of substrates make up suitable sites, but protection from strong winds and surf seems to be important. Social factors, learned behavior, and proximity to prey probably influence the location of haulout sites. Large onshore aggregations of walrus were unknown on the Alaskan side of the Chukchi Sea until 2007 but have become a nearly regular occurrence since then. In recent years walrus have been observed hauling out in large numbers (hundreds to thousands) along the Chukchi Sea coast in late August-October when there was no offshore sea ice in the vicinity. In September 2010, 10,000-20,000 walrus congregated on a Kasegaluk Lagoon barrier island northwest of Point Lay (see Figure 22: Haulout 56) (USFWS 2011, 2016b, 2019i).

Walrus have been documented, or have the potential to occur, on or in the vicinity of 11 PRSC sites (Table 7). Known haulouts are within the vicinity of PRSC sites (see Figure 22: haulouts 35, 55, 56). To help avoid and minimize potential disturbance to hauled out walruses, PRSC has prepared a *Polar Bear and Walrus Avoidance Plan* (see Section 14.3). This plan describes walrus biology, the PRSC sites where walrus disturbance is possible, how to avoid this disturbance, and recommendations for further education.

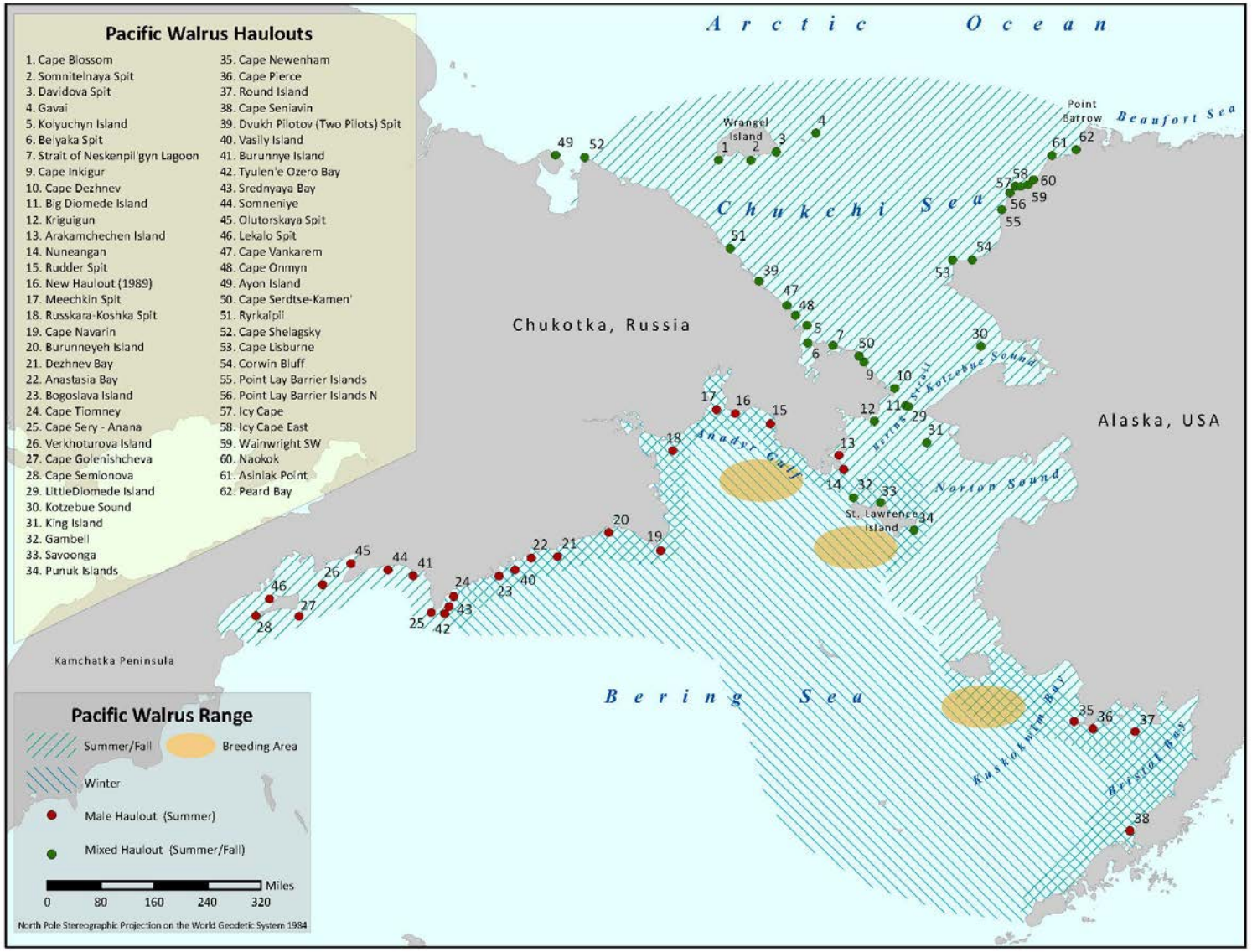



**Figure 22. Pacific Walrus Winter and Summer/Fall Range, Breeding Areas, and Haulout Areas**
(*Source*: USFWS 2019i)

Recent walrus monitoring at Cape Lisburne LRRS indicate there is continued utilization of the installation beaches and surrounding waters (McKay et al. 2016, 2017; DNA Environmental Consultants 2019a, b). The seawall construction project at Cape Lisburne is a major focus of the 611 CES given the poor condition of the installation's seawall and runway. The construction plan included a biological shutdown component in order to afford this species legal protections under the MMPA. Prior to the start of the seawall project, the USFWS and USAF agreed to a suite of best management practices to afford protections to the Pacific walrus, inclusive of construction shutdown clauses, which were memorialized in the Consolidated and 2nd Amendment to Right-of-Way Permit M-312-AM (USFWS 2015).

#### 2.3.4.2.1 Candidate and Proposed for Listing Species

The USFWS defines candidate species as "species for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities" (USFWS 2017b). NMFS defines a candidate species as any species that is undergoing a status review that NMFS has announced in the Federal Register. In addition, NMFS also has a list of species of concern. Species of concern are species about which NMFS have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA (NMFS 2006).

The focus of the Candidate Conservation program is to evaluate potential candidate species and encourage cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA (USFWS 2017b).

Species proposed for listing under the ESA are those candidate species that were found to warrant listing as either threatened or endangered, after completion of a status review and consideration of other protective conservation measures.

As of February 4, 2020, there are no proposed or candidate species for the Alaska Region of the USFWS and NMFS (NOAA Fisheries 2020a, b; USFWS 2020).

#### 2.3.4.3 Other Federally Listed Species

<u>MBTA-listed Species</u>

The MBTA of 1918 implements four bilateral treaties between the U.S. and Canada, Japan, Mexico, and the former Soviet Union (now Russia) for the protection of migratory birds. Under the Act, pursuing, hunting, taking, capturing, killing, and/or possessing (or attempting to do so) migratory birds, their eggs, parts, and nests, are prohibited unless permitted by regulations (e.g., salvage permit, depredation permit, issued by the USFWS). MBTA-listed species known to occur on PRSC installations are listed in Appendix H.

DoD installations must ensure that INRMPs and NEPA analyses adequately address migratory bird management and the potential impacts of proposed military activities—readiness and non-readiness related alike—on migratory birds. An exemption to the MBTA that allows incidental take of migratory birds by DoD during military readiness activities, known as the DoD Military Readiness Rule, was finalized in February 2007 (USFWS 2007). Section 315 of the 2003 National Defense Authorization Act and the Military Readiness Rule (50 CFR Part 21) authorizes, with certain limitations, the incidental take of migratory birds during military readiness activities. A military readiness activity, as defined at 50 CFR 21.3, includes all training and operations that relate to combat. It does not include routine operation of

support functions, operation of industrial activities, or construction or demolition of support or industrial facilities.

Nonetheless, the Armed Forces must give appropriate consideration to protecting migratory birds when planning and executing military readiness activities; however, implementing protections must not diminish the effectiveness of those activities. This requirement pertains to all military readiness activities, not just those that may result in a significant adverse effect on a population of a migratory bird species (USFWS 2007). AFI 32-7064 (2014) states that the Military Readiness Rule Part 21.15 authorizes incidental take of migratory birds for military readiness activities provided the U.S. Air Force action proponent confers with USFWS to develop and implement appropriate conservation measures to minimize or mitigate negative effects of the proposed action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species. Potential impacts to migratory bird populations and MBTA compliance shall be addressed in NEPA analysis using information from the appropriate INRMP where applicable, and the best scientific data available.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, outlines responsibilities of federal agencies to protect migratory birds. The 2014 MOU between the DoD and USFWS to Promote the Conservation of Migratory Birds includes specific measures to promote the conservation of migratory bird populations while sustaining the use of military managed lands and airspace for testing, training, and operations (DoD and USFWS 2014). These measures include, but are not limited to, developing policies and procedures for facilities designs that integrate bird safe building glass, strategic siting to avoid important habitats, maximizing the use of native landscaping to promote migratory bird habitat (except in areas subject to BASH), turning off interior building lighting at night, and follow best practices in coordination with USFWS when planning construction of new utility and energy systems and associated infrastructure.

Bald and Golden Eagles

The bald and golden eagles are sighted periodically on or near many PRSC sites (see Appendix H for site-specific occurrences). Eagles receive protection under the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668-668c), the MBTA, and state law. BGEPA prohibits harm or harassment to bald and golden eagles. This includes removal of inactive nests as well as active nests. In accordance with 50 CFR 22, installations must obtain a permit from the USFWS if an activity may result in "take" of a bald or golden eagle as defined in the regulations. Eagle permits authorize take only in circumstances where the take cannot be practicably avoided in the course of an otherwise lawful activity. Conditions of the permit may include mitigative actions to minimize impacts.

### 2.3.5 Wetlands and Floodplains

#### 2.3.5.1 Wetlands

Wetland delineation is used to identify and map areas under the jurisdiction of the Clean Water Act. Most current definitions, including the USACE *Wetland Delineation Manual* (USACE 1987), generally characterize wetlands by the presence of wet (or hydric) soils, wetland hydrology, and the presence of plants specifically adapted to habitats that are inundated or saturated (hydrophytic vegetation).

NWI mapping and field work were completed for PRSC sites during 2000-2005. Detailed explanations of their methodologies are explained in 611 CES (2007a, 2007b, 2008a, 2009) (based on original publications by Schick et. al. [2004] and Frost et al. [2005a, b]). The USAF provided funding to the USFWS to intensively ground-truth satellite imagery for these sites. Final reports and maps were completed at scales appropriate for each site. Maps are located in the 611 CES/CEAN office, the USACE Alaska District

Regulatory office, and the USFWS Alaska Regional NWI office. These maps provide the primary means to identify threats to wetlands on PRSC sites, but individual delineations may be required for specific demolition or construction activities. NWI mapping was updated by the USFWS in 2011. During the 2020 INRMP update, the installation wetlands maps in Appendix H were developed using 2019 NWI data (USFWS 2019d) and 2018 data from the Alaska Natural Heritage Program (ANHP), Alaska Center for Conservation Science, University of Alaska – Anchorage (Flagstad et al. 2018). Table 9 lists the acres of wetlands PRSC Sites.

**Table 9. Wetlands Acreages on Active and Inactive PRSC Sites**

| Active Sites | Area | Inactive Sites | Area |
|---|---|---|---|
| Barter Island LRRS | 456.2* | Anvil Mountain LRRS | 2.2* |
| Cape Lisburne LRRS | 497.7* | Bear Creek RRS | 24.5* |
| Cape Newenham LRRS | 388.8* | Beaver Creek RRS | 0.4† |
| Cape Romanzof LRRS | 1,962.4* | Bethel RRS | 1.1† |
| Cold Bay LRRS | 56.2† | Big Mountain RRS | 14.0* |
| Eareckson AS | 124.7† | Bullen Point | 631.4* |
| Fort Yukon LRRS | 17.6* | Campion AFS | 655.7* |
| Indian Mountain LRRS | 1975.9* | Driftwood Bay RRS | 15.1† |
| King Salmon Airport | 293.7* | Granite Mountain RRS | 50.9† |
| Kotzebue LRRS | 521.7* | Kalakaket RRS | 2.1† |
| Murphy Dome LRRS | 157.0* | Lake Louise Recreation Site | 3.4† |
| Oliktok LRRS | 718.1* | Naknek – Rapids Camp | 0.8* |
| Point Barrow LRRS | 225.0* | Naknek – Lake Camp | 0.7* |
| Sparrevohn LRRS | 151.5* | Nikolski RRS | 49.5† |
| Tatalina LRRS | 1,463.1* | Nome Field POL | 0.5* |
| Tin City LRRS | 74.1* | North River RRS | 14.8† |
| | | Point Lay LRRS | 1,419.3* |
| | | Point Lonely SRRS | 1,808.6* |
| | | Port Heiden RRS | 10.0† |
| Subtotal | 9,083.7 | | 4,705.0 |
| | **Total** | **13,788.7** | |

*Notes*: *Based on 2019 NWI data (USFWS 2019d.
†Based on 2018 ANHP data (Flagstad et al. 2018).

Considering the relatively small size, remote locations, and number of PRSC sites, the only cost-effective means to survey and monitor wetlands is via remote imagery. It is important to recognize limitations with use of aerial photography and satellite imagery. Imagery is rapidly changing in methodology and quality. Thus, for example, wetland calculations made using 2000-2005 NWI data cannot be precisely compared with 2019 NWI imagery data. By the very nature of better technology, 2018 and 2019 data are likely more accurate. Scale is also an important consideration. Maps and data that include wetland data created by Schick et al. (2004), Frost et al. (2005a and 2005b), Roth and Macander (2009), and Wells et al. (2010) are on a more detailed scale than NWI data and in some cases were ground-truthed. Thus, wetland data from these efforts cannot be directly compared to NWI and ANHP data from either 2000-2005 or 2018 and 2019.

#### 2.3.5.2 Floodplains

Floodplain management by the 611 CES/CEAN is based primarily on EO 11988, *Flood Plain Management*, and AFI 32-7064, *Integrated Natural Resources Management*. Proper flood plain management is designed to ensure the safety of USAF facilities and operations from flooding, provide for human safety, and protect the environment, particularly regarding the use and storage of POL and hazardous materials relative to flood plains.

A Finding of No Practicable Alternative (FONPA) must be prepared before any action within a floodplain may proceed. The USAF must consider the full range of practicable alternatives which will: 1) meet justified program requirements, 2) be within legal authority of the USAF, 3) meet technology standards, 4) be cost effective, 5) not result in unreasonable adverse environmental impacts, and 6) meet other pertinent factors. After completion of the FONPA, it should be inserted into an associated Finding of No Significant Impact or Record of Decision. The Chairperson of Headquarters, Pacific Air Forces environmental protection committee is the approval authority for Findings of No Significant Impact documents containing FONPAs for flood plains.

AFI 32-7064 requires the PRSC to design or modify actions within floodplains to minimize the potential for harm to or within floodplains. If a proposed action alters flood hazards on a National Flood Insurance Program map, the installation must submit an analysis of those changes to the Federal Emergency Management Agency.

The USACE completed floodplain identification and mapping in 1998 for Eareckson AS and King Salmon Airport (USACE 1998), and Legare (1998) did the same for LRRSs and some former SRRSs. The objective of the investigations was to determine whether flood hazards existed at each of the sites, and if a hazard existed, to determine the 100-year floodplain. Most radar sites are at remote locations where local watercourses are not gauged nor levels recorded, and most have no long-term residents who can recall a history of flood events. Detailed determinations of the floodplains of the ungauged streams and lakes would be costly. Narratives discussing site-specific floodplains and elevations of PRSC sites are in Appendix H.

### 2.3.6 Other Natural Resource Information

Appendices H provides other site-specific information pertinent to natural resources management on PRSC sites. Most of this information involves subsistence use and outdoor recreation.

## 2.4 MISSION IMPACTS ON NATURAL RESOURCES

### 2.4.1 Natural Resource Constraints to Mission and Mission Planning

There are inherent physical and biotic components of the widely dispersed and ecologically varied landscape of PRSC sites that may present constraints to military mission support. Most limitations involve wetlands protected by EO, federal and state laws, and Air Force policies, but also include limitations resulting from ESA- and MMPA-listed species, special interest areas, outdoor recreation, and site remediation. The PRSC has been successful in de-conflicting potential constraints by ensuring advanced planning and maintaining an open dialogue between mission planners, natural resources staff, and outside regulatory agencies.

#### 2.4.1.1 Eareckson AS

The primary natural resources constraint to missions and mission planning on Eareckson AS is associated with BASH reduction. The natural resources management program contributes to reducing this constraint by controlling birds near the runway. Without such control, catastrophic loss of personnel and aircraft due to a bird strike would affect transportation of personnel and equipment to Eareckson AS. The loss of air transportation to Eareckson AS would impact all missions.

Eareckson AS's location in the North Pacific and proximity to Russia and Far East air routes afford it substantial strategic importance. It is one of the most suitable locations for an airfield in the western part of the Aleutian Islands. At the same time, development on the island is confronted by a host of constraints. While these limitations do not mean Shemya Island cannot be developed, they do suggest development and operation of facilities must incorporate design measures to mitigate constraints and many activities at

Eareckson AS are likely to be significantly more expensive than in a typical mainland environment. Development constraints include:

***Wetlands.*** Wetland determinations are used to facilitate decisions regarding facility siting. The Fish and Wildlife Coordination Act (P.L. 85-264) requires federal agencies that propose, or are authorized, to undertake the impoundment, diversion, deepening, or other control or modification of any stream or body of water (including wetlands), or which are asked to approve such activities, to provide equal consideration to wildlife conservation throughout the planning and decision-making process. The Act requires such agencies to first consult with state and federal wildlife agencies.

***Soils.*** Soil limitations are widespread on Shemya Island, and most areas where soil exploration and analysis efforts have been undertaken have one or more potentially significant constraints. Shemya Island's relatively small size and limited alternatives may require that less than ideal sites be selected in some cases. Careful verification of subsurface conditions and specially tailored design efforts to overcome constraints are frequently necessary. Institutional controls (no digging) are in place on Eareckson AS, thus protecting soils (AFCEC and PACAF 2019).

***Slopes Exceeding 10%.*** Steep slopes rim the island, especially where bluffs rise above the Bering Sea coast to the northeast. Less severe slopes that present more moderate constraints are found at a number of island locations.

***Flood Hazards.*** The Tsunami Line is at the 100-ft elevation contour, less than 1 mile inland. Rocky headlands and sandy, gravelly beaches are found along the island's perimeter. These areas are generally unsuitable for construction because of coastal flooding hazards associated with storm surges.

***Cultural Resources.*** Of the 11 prehistoric sites recorded on Shemya Island, 5 have been determined eligible for inclusion in the National Register of Historic Places (611 CES 2015a). These sites must be protected under the National Historic Preservation Act (NHPA).

The military role of Eareckson AS during World War II, the Korean Conflict, and the Cold War has affected nearly every acre of the island. The entire surface of the island is pock-marked with remains of old bunkers, Quonset huts, and buried command posts. Artifacts of this period are found throughout the island, including old soda bottles and occasional unexploded ordnance. Two Russian graves, which are marked and fenced, are along West Beach Road. There are some sites discovered by the USFWS, and these are off-limits to all personnel. Many historic sites were destroyed during the 1980s as part of a larger effort to clean up the Aleutian Islands where facilities had become safety hazards. The 2015 ICRMP includes provisions for the protection and evaluation of prehistoric and historic sites on Shemya Island (611 CES 2015a).

***Safety Areas.*** Safety areas include explosive safety clearance distances, potential radio frequency hazards immediately in front of the Cobra Dane array face, airfield clear zones, approach/departure zones, and other applicable imaginary surfaces. An air installation compatible use zone study has not been conducted for Eareckson AS. Consequently, noise exposure forecasts and potential accident zones have not been identified. Eareckson's isolation from civilian communities minimizes off-installation noise impacts.

***Seismic Activity.*** Virtually the entire Aleutian Island Chain is in a seismically active area, warranting special attention in design and construction.

***Materials Extraction.*** Materials extraction areas (quarries) provide a critical element for construction projects, while at the same time imposing a constraint to facilities development in the immediate vicinity. Extraction areas can, however, be reclaimed for other uses once materials are exhausted or no longer usable.

In spite of these constraints, there are other areas that would require only limited restrictions to their development. Previously disturbed areas, such as the abandoned airfield on the western edge of the island and other formerly developed sites, offer potential because site preparation has already occurred. Eareckson AS is unusual because it was previously much more intensively developed than at present.

#### 2.4.1.2 King Salmon Airport

Natural resource management options at King Salmon Airport are limited. The land pattern and location of land uses at King Salmon Airport and climatic and other natural factors limit the installation's potential for management of natural resources (611 ASG 1995b). The following natural resource-related constraints were identified:

- BASH reduction,
- landfill areas,
- severe climate,
- short growing season, and
- soil limitations associated with tundra soils.

#### 2.4.1.3 Active LRRS

Military mission support is expected to be the primary concern at LRRSs. The foremost constraint to the mission is maintaining personnel safety from wildlife threats (e.g., polar and brown bears). This involves reducing BASH risks as well as conducting routine site operations in a manner that ensures personnel safety.

The most common natural resource concern is from interactions with wildlife. Through quality assurance inspections, there must be vigilance by all site personnel and a focus on treating refuse carefully. Site operations are to prevent domestic refuse from being accessible to wildlife. Refuse is to be incinerated at sites with a functioning incinerator then disposed of properly. At sites with an operating landfill, refuse must be buried in the landfill with adequate cover material to prevent domestic refuse from being accessible to wildlife. Prior to refuse burial or being hauled offsite, food refuse must be stored in a bear-proof dumpster or kept in the building until being hauled off if there is a chance bears could be in the vicinity. The updated *Polar Bear and Pacific Walrus Avoidance Plan* (PRSC 2020) (Section 14.3) is particularly appropriate to minimizing this constraint.

In addition, birds may find the man-made infrastructure at PRSC sites attractive as nesting platforms. These nests may potentially interfere with facility operations and construction and maintenance activities. The MBTA prohibits the taking, killing, or possessing of migratory birds or their parts (e.g., nests, eggs, feathers) unless permitted by regulation. In accordance with the 2014 MOU between the DoD and USFWS that was developed in accordance with EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*), military services should avoid and minimize, to the extent practicable, the incidental take of migratory birds (see Section 7.1.2 for further details). For example, in spring 2015 peregrine falcons set up a nest on an AFCEC remediation project construction wattle at the former Point Lonely SRRS and caused interruptions to remediation activities. Although the USFWS moved the nest, the nest was not successful. In 2016, radome maintenance was delayed at King Salmon to allow for raven nestlings to fledge. The occurrence of nesting birds on or in the vicinity of LRRS sites that may impact operations are addressed on a case-by-case basis.

Other issues that could be considered constraints to missions and/or planning at LRRSs include revegetation of disturbed sites, including future demolition sites; monitoring surface water quality related to IRP sites (see Section 2.4.3.1 for further discussion of IRP sites); minimization of erosion; the occurrence of ESA-

and MMPA-listed species on or near the sites; effects of ATV use; avoidance of wetlands and waters of the U.S.; general installation cleanup; and careful consideration of placement of stockpiled materials. The completion of Clean Sweep at LRRSs has reduced or eliminated many of these concerns.

Habitat changes were instituted at Indian Mountain, Tatalina, and Sparrevohn LRRS following the establishment of the Bird Hazard Working Group for the PRSC in 1997 and review of caribou-Aero Club aircraft accidents at LRRSs along with reports of other near wildlife/aircraft incidents. These habitat changes comply with safety requirements where shrubs and trees were predominant in the areas around three airfields prior to 1998. The strategy is to have naturally occurring grasses replace alders and willows, providing less moose and caribou food as well as less cover to hide large mammals from pilots and ground personnel.

At the Sparrevohn and Tatalina LRRS the site contractor maintains ground cover to the current treeline approximately 350 ft to each side of the runway centerline. Vegetation in this zone is cut to a height of 6 inches. At all other PRSC-managed airfields in Alaska, ground cover is removed from areas 500 ft from each side of the runway centerline and not allowed to exceed 24 inches in height (611 ASUS 2018**)**.

The pattern and location of land uses at LRRSs, as well as climatic factors, limit the potential for expansion of natural resources at these sites. Constraints on the potential for expansion of natural resources at LRRSs include IRP sites, severe climate, short growing season, and soil limitations.

#### 2.4.1.4 Inactive Sites

Since inactive sites no longer fulfill a military mission, there are no significant natural resources constraints to missions and mission planning. The occurrence of wildlife on or in the vicinity of runways, creating a BASH issue for personnel visiting these sites, requires consideration during mission planning. Likewise, the possible occurrence of bears at some sites requires mission planning to include hazing of these animals. The updated *Polar Bear and Pacific Walrus Avoidance Plan* (Section 14.3) is particularly appropriate to minimizing this constraint.

### 2.4.2 Land Use

Maps and photographs showing PRSC facilities (now or past) as well as natural areas, habitat maps, and land use are in Appendix H.

In most cases there have not been analyses of land use in terms of improved, semi-improved, and unimproved lands. With exception of Eareckson AS, King Salmon Airport, and the former Lake Louise Recreation Site and Naknek Recreation Camps, all if the sites have similar features. Typically each site contains, or contained, a landing strip or road for access, living quarters and support facilities, and radar and/or radio structures, often on a high point, separate from the airstrip, living quarters, and other support facilities.

Many of these sites, especially the LRRS and SRRS, originally supported a small military contingent (100 or so personnel), which required complex living and support facilities, including recreation facilities. As communications and radar improved, the sites' radar information was transmitted directly to Elmendorf AFB, and the need for the RRSs became obsolete as did the need for operational personnel at the sites. More recently, the SRRSs were also closed and became inactive.

Today, BOS contracts are used to provide manning for maintenance of real property facilities at remaining PRSC active sites. Support facilities for the few BOS contractor personnel needed to maintain LRRS sites have been greatly reduced and compacted, often including a single living, dining, and operations, dome-shaped facility. See Appendix H for site-specific details regarding site support personnel.

The major land use at most inactive sites involves remnants of military support facilities, including roads, runways, and waste disposal areas and associated remediation activities. At some sites some buildings and other structures may remain even after Clean Sweep activities have been completed. For example, at the former Point Lay LRRS, building demolition and debris removal occurred in 2005, but an aircraft hangar and a small storage building were not removed; remedial actions are ongoing. Another example is the former Anvil Mountain LRRS where tropospheric antennas were left standing as a landmark after all hazardous materials had been removed. The Clean Sweep program is nearly complete with remediation work remaining at a number of sites See Section 2.4.3.1, *IRP, Demolition Program, and Related Concerns*.

The current PRSC LUCMP (AFCEC and PACAF 2019) summarizes the current status of land use controls associated with Environmental Restoration Program sites at PRSC installations in Alaska with land use controls in effect, and provides a comprehensive strategy for implementation, maintenance, monitoring, enforcement, and modification or termination of land use controls. The Plan is a dynamic planning document and represents the current, and reasonably forecasted, status of land use controls at Environmental Restoration Program sites as of its publication date.

### 2.4.3 Current Major Impacts

Current mission impacts are primarily associated with facilities and other features of development on what otherwise would likely be undeveloped land. Obviously, these impacts will continue as long as human-related activities and facilities occur on PRSC sites.

#### 2.4.3.1 Impacts from IRP, Demolition Program, and Related Concerns

In many ways the PRSC IRP, Clean Sweep, and related programs affect natural resources more than any other environmental programs, including direct natural resources management. There are obvious positive effects of preventing and removing hazardous wastes and materials from these sites, and the removal of unused facilities significantly promotes the return of naturally functioning ecosystems to previously disturbed lands. On the other hand, there are some concerns about effects of these programs' implementation on natural resources.

The DoD has developed the IRP program to identify and evaluate past hazardous material disposal sites on DoD property to control the migration of hazardous contaminants and control hazards to health or welfare that may result from past disposal operations. Procedures for handling, storing, and disposing of hazardous waste prior to the mid-1970s resulted in contamination of the environment, although the procedures were standard at the time. The PRSC Environmental Compliance Program evaluates past disposal sites, controls migration of contaminants, controls potential hazards to human health and the environment, and conducts environmental restoration activities. Preliminary assessments of groundwater, surface water, and soils are followed by site inspections, remedial investigations, and feasibility studies. Operation Clean Sweep was part of the IRP used by the PRSC to remove structures and remediate lands at inactivated/closed sites. Results of these remedial investigations are in the Administrative Record at the following website accessible to the public: http://afcec.publicadmin-record.us.af.mil/.

Ongoing implementation of the IRP could affect natural resources at PRSC sites. However, effects would likely be minimal due to all sites having been identified, remediated, and in long-term management and natural attenuation status. Potential natural resource issues relating to IRP projects include:

- Need for revegetation of disturbed areas,
- Surface water quality associated with contaminated vegetation and soil from IRP sites,
- Effects (positive and negative) on native vegetation and wildlife habitats, and
- Reduced risk to the environment through the IRP.

There is a need to continue the IRP at many active and inactive PRSC sites, which may affect fish and wildlife resources in the vicinity of these sites. Monitoring and cleanup activities of the IRP should continue to improve surface water quality within or adjacent to the sites. Contamination of surface water and vegetation on the sites must be minimized to ensure the continued suitability of these habitats.

Structures on sites, including tropospheric antennas remaining on some Inactive and Excess sites as navigational landmarks, may be used for nesting by wildlife species, such as the common raven. Ravens may use inactive structures for nesting. If ravens or other migratory birds are found to be nesting in inactive structures, and Clean Sweep is planned and includes these structures, it is important to schedule removal for times when nests are not used. Proper permits from ADFG or USFWS are required for nest removal and must be obtained prior to activities at the site. The USAF will, to the extent possible, minimize the overall availability of nesting sites for ravens by avoiding the construction of facilities attractive to Ravens.

In addition to hazardous material disposal sites, there are deactivated facilities that were left "as is" when the USAF had no further need for buildings and other structures at remote sites in Alaska. Some of these are associated with hazardous materials, but many are safety hazards and unsightly blemishes on the environment.

Clean Sweep is a program that simultaneously demolishes facilities and performs environmental cleanup (IRP) at remote sites throughout Alaska. Clean Sweep's approach to cleanup is a one-time mobilization to a single remote site to remove deactivated facilities and remediate environmental contamination. This process is more efficient and reduces shipping and logistic costs compared to working solely on a "worst-first" individual facility prioritization scheme that might require many smaller projects over a number of years on a given remote site (611 ASG 1998b).

The Clean Sweep program uses the following factors to score and prioritize affected sites (including former SRRSs and LRRSs):

- Human health and ecological risks,
- 611 CES Commander's priority,
- Community safety and attractive nuisances, and
- Public interest.

**Eareckson AS**

Active mining operations (e.g., extraction of precious minerals or coal) do not exist at Eareckson AS. Prior to the drawdown completion on 1 April 1995 and the start of BOS contractor operations, gravel was stockpiled for use. The rock crusher was removed from the island, and the stockpile has since been depleted. Historically, the following locations once produced sand and gravel for concrete and other mixtures for construction and road surface preparation:

| Quarry Description | Location |
|---|---|
| East Quarry, South | West of Current Landfill |
| East Quarry, North | West of Current Landfill |
| North Beach Quarry | Behind Building 3050 |
| Grand Canyon Lagoon | North of Cross Island Road |
| Quarry | Southwest End of Runway (last used in 1987) |
| Seal Point Quarry | North of Landfill at Road Intersection |

The old landfill (9425-BA009) and active landfill (SW2A013-20) were closed and opened, respectively, in August 2005. Material removed during development of the current landfill was used to cover the old landfill

during closure of that area. The active landfill was originally 5.1 acres (including a separate 1-acre area for asbestos) but expansion was approved July 2009 increasing the size to 10.6 acres (including the asbestos cell) (Alaska Department of Environmental Conservation [ADEC] 2009; Chugach Federal Solutions 2020).

Sand blown onto Eareckson AS roads near beach areas is cleared and stockpiled in convenient locations along the road for future use. Some soil cells along the old runway have also been cleared for use as backfill material in non-sensitive areas (e-mail to Matt Moran from Pam Mealer 2012).

The wastewater system has been upgraded, including replacement of old sewage lines and manhole repairs to bring the system up to modern environmental standards. The project did not significantly impact natural resources as it was within the existing wastewater system footprint (e-mail to Matt Moran from Pam Mealer 2012).

The 381st Air Intelligence Squadron removed its antenna array on Eareckson AS during 2007. This array had about 20 antennas (height varies between 70-90 ft depending on terrain) and the supporting infrastructure. A currently unknown amount of guy wire and interconnecting wire between the main clusters of antennas were also removed. Antennas at the GATR site were consolidated down to two antennas on a new support structure (e-mail to Matt Moran from Pam Mealer 2012). The removal of antennas had a positive effect for birds at Shemya Island since antennas and supporting infrastructure are hazards to birds.

The USAF conducted a basewide investigation in 1993 to determine the physical and chemical characterization and condition of the island. In 1993 and 1994 all major surface water bodies and drainages, including intertidal areas, were sampled for chemistry characterization. Results indicated no off-island discharges of contaminants and inland lakes, drainages, and most major seeps were free of contamination (Jacobs Engineering Group, Inc. 1998).

In 1993 and 1994, 102 groundwater monitoring wells were installed. Results indicated no widespread groundwater contamination and that isolated occurrences of contamination were restricted to identified source areas or areas of known contamination. Ecological surveys were conducted in 1993 and 1994 to assess the extent and magnitude of potential ecological risks from exposure of biota to contaminants associated with Shemya Island. Background, or ambient, conditions were evaluated on a media-specific basis. Data are available for surface soils, subsurface soils, marine surface water, fresh surface water, marine sediments, freshwater sediments, and groundwater. In 1993 the U.S. Environmental Protection Agency (USEPA) made a formal decision to exclude Eareckson AS from the National Priorities List (Jacobs Engineering Group, Inc. 1998).

Future activities at Eareckson AS from an environmental restoration standpoint include continuation of sampling and institutional controls at various sites. PCB-contaminated soil at Sites SS005 and SS012 is scheduled for excavation and disposal off island in 2021. Military munitions investigation field work was completed in 2012, and a report was completed in 2016. The Air Force is currently performing a feasibility study of these sites and further remedial action may be required. Further investigation of compliance cleanup sites is scheduled in 2019. The Compliance Restoration Program has approximately 11 sites and 16 tank sites that are currently being environmentally characterized. No significant remediation work is planned for these sites. Most likely, long-term management of fuel-contaminated groundwater and soil will be the outcome.

**King Salmon Airport**

The King Salmon installation has been divided into five zones. Final Records of Decision have been signed for three zones. One zone is operating under an interim Record of Decision, and the remaining zone should have a completed Record of Decision by 2020. Much remaining work at the installation will be Remedial

Action-Operations and then Long-Term Monitoring. Minor removal actions may also be required. Land use controls will be required indefinitely due to remaining landfills and contaminated soil.

The main contaminants of concern at King Salmon are POL and trichloroethylene (TCE). A well inventory was performed in 2011. TCE contamination has been confirmed in the A and B aquifer and further investigation is ongoing. PCB contamination at the former WACS site is completely remediated to the point that the site is available for Unrestricted Use/Unlimited Exposure. Military Munitions Response Program investigations are in the Record of Decision stage. Long-term monitoring is summarized in the current PRSC LUCMP (AFCEC and PACAF 2019).

**Active LRRS**

Table 10 summarizes the current status of each active LRRS and the on-going and future IRP activities. The greatest issue regarding natural resources by the North Slope Borough is the potential effects of contamination of wildlife used for subsistence. This public health issue is being addressed through the IRP for PRSC sites affected by this concern.

**Table 10. Summary of Status and On-going and Future IRP Activities at Active LRRS**

| LRRS | Current Status |
|---|---|
| Barter Island | • Clean Sweep activities of inactive buildings and infrastructure were completed in 2007.<br>• Demolition of the hangar occurred in 2018 with additional cleanup planned for 2019.<br>• Long-term management is planned for the next 30 years. |
| Cape Lisburne | • All non-active buildings and infrastructure were demolished by 2002; all remedial actions are complete; one compliance cleanup site is currently in the Record of Decision phase.<br>• Long-term monitoring and land use controls will be managed to verify protectiveness of remedial work. |
| Cape Newenham | • Clean Sweep activities of inactive buildings and infrastructure were completed in 2012.<br>• Ongoing monitoring and maintenance of the cap at SS007 has been the focus of all recent and future work. A Proposed Plan for additional restoration work at Site SS007 was finalized in Dec 2019. A Record of Decision is being prepared and is expected to be finalized by the end of 2019.<br>• Two compliance restoration sites are currently in the Record of Decision phase.<br>• The USAF will be particularly cognizant of the need to protect the large concentration of Chukchi primrose, a previous plant species of concern, during IRP and cleanup operations.<br>• Long-term monitoring and land use controls will be managed to verify remedial protectiveness. |
| Cape Romanzof | • A remedial action occurred at Landfill No. 2 (LF003), Upper Tram Terminal (SS016), and Lower Tram Terminal (SS017) in 2015; additional work is necessary at these sites and is planned for 2023.<br>• Long-term monitoring activities are conducted annually to verify the protectiveness of previous restoration actions and confirm land use controls compliance. |
| Cold Bay | • Two sites require remedial action: ST005 (POL storage area) and OT001 (fuel-contaminated groundwater).<br>o Groundwater at ST005 continues to exceed ADEC clean-up standards. The current remedy for the site is monitored natural attenuation, which will be ongoing for a number of years.<br>o OT001 has met cleanup standards but requires one groundwater monitoring well to be decommissioned.<br>• One additional site, LF002, does not require any remedial action but does require 5-year reviews to ensure the landfill cap integrity is maintained. |
| Fort Yukon | • All non-active buildings and infrastructure were demolished by 2011; all remedial actions are complete and all sites have been closed. |
| Indian Mountain | • Remedial action cleanup of four sites is proposed for award in 2019.<br>• All Record of Decisions have been signed.<br>• Long-term management of eight sites is ongoing and will continue for many years. |
| Kotzebue | • Clean Sweep activities were completed in 1998.<br>• Long-term management of three sites is ongoing and will continue for 30 years. |

**Table 10. Summary of Status and On-going and Future IRP Activities at Active LRRS**

| LRRS | Current Status |
|---|---|
| Murphy Dome | • Additional contaminated soil remains at one site, which is currently in the Record of Decision phase.<br>• Site LF003 (Landfill No. 1) is currently in the long-term management phase.<br>• Additional characterization of Site SS002 (Waste Accumulation Area No. 3) will occur in 2019 with a planned removal of lead-contaminated soil in the future. |
| Oliktok | • Landfill site LF001 was originally developed in 1956 to dispose of daily debris generated from the LRRS. In 1995, BLM transferred this dumpsite to private ownership as part of a native allotment. The USAF is legally responsible for any releases of hazardous substance from the dumpsite. To facilitate the environmental cleanup of site LF001, the USAF purchased the property in 2006.<br>• Landfill site LF002 was removed in 2018 due to erosion concerns and obtained a Site Closure determination.<br>• Demolition of the hangar is proposed for 2024.<br>• Long-term management began in 2010 and will continue through 2030. |
| Point Barrow | • Clean Sweep activities occurred in 2011 and 2018 (hangar).<br>• Long-term management began in 2012 and will continue through 2030. |
| Sparrevohn | • A 5-year review of five sites and groundwater monitoring at one site is currently ongoing.<br>• Long-term management began in 2013 and will continue through 2030. |
| Tatalina | • Projects to remove POL- and PCB-contaminated soil was completed in 2015.<br>• Additional land-farming of the POL-contaminated soil at site SS011 is planned for 2022 until clean-up levels are achieved.<br>• Removal of PCB-contaminated soil at site SS008 is planned for 2022.<br>• Long-term monitoring, remedial operations, and land use control management are conducted annually to verify protectiveness of previous restoration activities. |
| Tin City | • There have been no IRP-related projects at Tin City during the past 5 years, nor are any scheduled. |

*Source*: AFCEC//CZOP 2019.

*Alternative Energy*. In 2008, the USAF installed a small, single wind turbine at the Tin City LRRS to augment the energy requirements of the facility and to reduce dependence on fossil fuels (i.e., diesel fuel) for daily operations. Based on significant issues regarding turbine maintenance at Tin City, earlier plans to install wind turbines at other PRSC sites have been cancelled.

However, in 2018 a 50-kW ground-mounted solar photo-voltaic (PV) array was installed at Murphy Dome LRRS and is intended to supplement power purchased from the local utility grid. The electric rate cost is approximately twice the national average and with a high availability of solar potential during the summer months, the Murphy Dome site made it an excellent candidate for a solar PV system. The installation of the solar PV system will reduce electrical costs as well as both improve energy resilience and aid in meeting the Air Force's renewable energy goals. The PV array is connected through a disconnect and utility meter to the main electrical panel in the MAR Tower. The Air Force is considering the use of solar arrays at other PRSC sites.

In 2016, a wind turbine test project was implemented at the Kotzebue LRRS (see photo to right). The test was part of the Energy Assurance at Remote Radar Sites project, a 1-year effort managed by the Air Force Research Laboratory Advanced Power Technology Office to demonstrate rapidly deployable, off-grid energy technologies for increased mission energy resiliency in remote locations. The unique aspect of these wind turbines is their transportability, ruggedness, and easy installation that make them

Rapidly Deployable Wind Turbine Project at Kotzebue LRRS (*Photo*: Capt. J. Goins, USAF)

ideal for austere environments. The towers were palletized to make them easily transportable and able to be quickly set up by a minimal crew. The AFRL team assembled and installed the turbines and associated infrastructure in under 4 days with 5 people (Jordan 2017). 611 CES took over ownership of the equipment post-test and continues to utilize the 12 kW of power to supplement energy on site. This was a one-time test and currently there are no future plans for these types of wind turbines to be installed at other PRSC sites.

**Inactive Sites**

At most inactive sites structures and debris have been removed, and revegetation of disturbed areas has occurred. The Clean Sweep program is nearly complete with work remaining at Point Lay LRRS (three structures) and Oliktok (hangar) and remediation monitoring at the others (Table 11). The term "long-term management" of IRP and related actions means that the site has achieved its cleanup goals. Long-term management includes inspection-type actions to ensure the site's remedy remains protective. Often, these involve an on-site inspection every year for a set number of years or perhaps every 5 years to ensure continuing compliance. There is no military use of the current inactive sites.

**Table 11. Summary of Status and On-going and Future IRP Activities at Inactive PRSC Sites**

| Installation | Date Deactivated | Current Status | Site Visits |
|---|---|---|---|
| Anvil Mountain LRRS | 1981 | • In 1989, the fuel tanks and the vehicle maintenance building were transferred to the Nome Public School District.<br>• Demolition of remaining facilities, except the four WACS tropospheric antennas and a concrete slab occurred in 1999-2000.<br>• In 2010-2011, PCB contamination was remediated and all additional structures were demolished and removed. | |
| Bear Creek RRS | 1979 | • All facilities were demolished and disposed of during Clean Sweep activities in 1996 (611 ASG 1998b).<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit. |
| Beaver Creek RRS | 1984 | • Two sites have undergone remedial investigations and feasibility studies for fuel and heavy metals contamination.<br>• No further remedial actions are planned. | |
| Bethel RRS | 1987 | • All facilities demolished in 1989 and 1990.<br>• One tropospheric antenna was left in place at the request of the City of Bethel for use as a long-range visual reference point for pilots and snow-machine operators.<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit. |
| Big Mountain RRS | 1979 | • Demolition and remediation of the site under the Clean Sweep program occurred during 2004 and 2005; further remediation of the site occurred in 2011-2012 (ADEC 2014).<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2022: scheduled site visit. |

**Table 11. Summary of Status and On-going and Future IRP Activities at Inactive PRSC Sites**

| Installation | Date Deactivated | Current Status | Site Visits |
|---|---|---|---|
| Bullen Point SRRS | 2007 | • In 2007, the Clean Sweep demolition program removed all pre-1994 structures; in 2014, all aboveground portions of the remaining structures were demolished and removed for offsite disposal/recycling (AFCEC and PACAF 2018).<br>• Future remedial actions are currently being considered including additional monitoring and analysis of the site and the development of site-specific cleanup standards for maintaining the long-term remedial objective(s) (AFCEC and PACAF 2018). | • 2019: further characterization of the site.<br>• 2022: remedial actions planned. |
| Campion AFS | 1985 | • In 1986 all facilities were demolished and building materials were removed and buried (Argonne National Laboratory and CEMML 2013).<br>• POL remedial action was conducted in 2012 and land-farming of the excavated soil occurred from 2013 through 2018.<br>• Military Munitions Response Program (MMRP) investigations are complete and a Record of Decision is ongoing (S. Mattson, AFCEC PACAF/CZ 2019). | • 2020: additional excavation and land-farming treatment of POL-contaminated soils |
| Driftwood Bay RRS | 1977 | • All buildings and structures, with the exception of concrete building foundations and portions of the fuel pipeline, were demolished or removed in 1991. A 3,500-ft dirt runway is still present at the Lower Camp portion of the facility.<br>• As part of the demolition in 1991, a permitted landfill was developed to contain building debris and asbestos (611 CES 2011a).<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit. |
| Granite Mountain RRS | 1973 | • Demolition of all structures and remediation of the site under the Clean Sweep program occurred in 2009 (611 CES 2011b). | |
| Kalakaket Creek RRS | 1973 | • Demolition and remediation of the site under the Clean Sweep program occurred in 2009.<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit. |
| Lake Louise Recreation Site | 1965 | • Facilities were demolished in 1971, and debris was either removed or buried (Cansler 1993).<br>• Clean Sweep occurred in 2010-2012. | |
| Naknek Recreation Annex – Rapids Camp | 1977 | • Remediation was completed in 2008.<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | |
| Naknek Recreation Annex – Lake Camp | 1976 | • Remediation was completed in 2012.<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit. |

**Table 11. Summary of Status and On-going and Future IRP Activities at Inactive PRSC Sites**

| Installation | Date Deactivated | Current Status | Site Visits |
|---|---|---|---|
| Nikolski RRS | 1977 | • Buildings and structures were demolished in 1980 and 1998.<br>• Conveyance of the uncontaminated landing strip property to the village was completed in 2005 (611 CES 2011c).<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit. |
| Nome Field POL | 1991 | • The site was partially dismantled, primarily the tanks, and demolished in 1992. Some underground piping and the pumphouse were not removed. The POL pipeline over the Snake River was removed in 1994. | • |
| North River RRS | 1978 | • All structures at the site were demolished and removed by 1996 (ADEC 2006).<br>• Remedial actions are ongoing at some sites.<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit.<br>• 2023: scheduled site visit.<br>• 2025: scheduled site visit. |
| Point Lay LRRS | 1998 | • The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: characterization of remaining structures.<br>• 2021: scheduled site visit.<br>• 2022: demolition of 3 structures.<br>• 2022: cleanup of IRP sites. |
| Point Lonely SRRS | 2005 | • Clean Sweep activities were conducted in 2006-2009 and remedial activities were completed in 2017 (611 CES 2008b; ADEC 2017).<br>• Final remedial activities and land exchange discussions with BLM are ongoing. | |
| Port Heiden RRS | 1978 | • Demolition of facilities occurred in 1990.<br>• Remediation activities are ongoing (AFCEC 2014).<br>• The site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. | • 2020: scheduled site visit.<br>• 2021: scheduled site visit. |

### 2.4.4 Potential Future Impacts

#### 2.4.4.1 Impacts from IRP, Demolition Program, and Related Concerns

The previous section briefly summarized IRP and related ongoing activities and future activities at PRSC sites after 2019. Some of these may directly or indirectly impact natural resources. Others involve building demolition and debris removal, which will also affect natural resources, generally by creating improved wildlife habitat.

**Eareckson AS**

The mission and staffing at Eareckson AS are expected to remain at current levels during the next 5 years.

Due to the present maintenance program and future developments, the need for rock and borrow material, primarily for road maintenance, is expected to continue on Eareckson AS, which may involve new sites.

**King Salmon Airport**

Few or no natural resources exist within the main cantonment area. The military presence at King Salmon Airport has been significantly reduced from historical levels, and demand on natural resources both within the cantonment and surrounding area correspondingly low.

**Active LRRS**

Staffing at LRRSs has been reduced to low levels in response to the reduced military threat from the former Soviet Union and reductions in DoD budgets. Therefore, the mission and staffing of these sites are likely to remain at current levels during the foreseeable future.

**Inactive Sites**

The future plan for some sites (e.g., North River, Naknek Recreation Camps, and Lake Louise) is to transfer these properties to the appropriate adjudicating agencies.

#### 2.4.4.2 Impacts from Climate Change

**Modeled Climate Change Scenarios**

As summarized in Section 2.2.1.1, *Climate Change*, climate simulations were conducted to develop site-specific projections for four potential climate change emission scenarios over time (CEMML 2019a). Table 12 provides a summary of the potential impacts to the mission, infrastructure, and natural resources at all 16 of the active PRSC sites and 3 of the inactive sites due to climate change. The most prevalent natural resource issue across all of the installations will be the shift in the elevational and latitudinal ranges of species, including invasive species, as the climate warms.

**Table 12. Potential Future Impacts to Military Mission, Infrastructure, and Natural Resources at PRSC Sites Based on Climate Change Projections**

| Site | Potential Impacts | |
|---|---|---|
| | **Mission and Infrastructure** | **Natural Resources** |
| **ACTIVE** | | |
| Eareckson AS | No future impacts expected. | • Sea level rise and flooding are projected to inundate a small portion of the island by 2065. |
| King Salmon Airport | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| Barter Island LRRS | The runway and all associated infrastructure located on the peninsula at Barter Island will be inundated due to projected sea level rise under all climate change scenarios. | • Wetlands have low vulnerability through 2065. |
| Cape Lisburne LRRS | Little to no future impacts expected. | • Wetlands moderately vulnerable to climate change, mostly due to sea level rise. |
| Cape Newenham LRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| Cape Romanzoff LRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| Cold Bay LRRS | Any increase in wildfire probability will have an associated increase in the potential for impacts to the military mission and infrastructure. | • A marginal increase in wildfire occurrence may be possible due to warmer summer weather.<br>• Wetlands have low vulnerability through 2065. |
| Fort Yukon LRRS | Any increase in wildfire probability will have an associated increase in the potential for impacts to the military mission and infrastructure. | • An increase in wildfire occurrence may be possible due to warmer winter and summer weather.<br>• Wetlands have low vulnerability through 2065. |

**Table 12. Potential Future Impacts to Military Mission, Infrastructure, and Natural Resources at PRSC Sites Based on Climate Change Projections**

| Site | Potential Impacts | |
|---|---|---|
| | **Mission and Infrastructure** | **Natural Resources** |
| Indian Mountain LRRS | Any increase in wildfire probability will have an associated increase in the potential for impacts to the military mission and infrastructure. | • An increase in wildfire occurrence may be possible due to warmer summer weather.<br>• Wetlands have low vulnerability through 2065. |
| Kotzebue LRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| Murphy Dome LRRS | Any increase in wildfire probability will have an associated increase in the potential for impacts to the military mission and infrastructure. | • An increase in wildfire occurrence may be possible due to warmer summer weather.<br>• Wetlands have low vulnerability through 2065. |
| Oliktok LRRS | Virtually all installation infrastructure with the exception of the radome will be highly vulnerable during at least one sea level rise climate scenario, with most being highly vulnerable under all conditions. Due to these vulnerabilities, a near total and complete failure of all military operations is possible due to sea level rise in the future. | • Sea level rise is projected to inundate most of the property by 2065, including nearly all of the property's marsh wetlands. |
| Point Barrow LRRS | By 2065, most of the property may be inaccessible due to the sea level rise inundation of Dewline Rd. which leads from the main access road (Stevenson St.) to the airfield, and administrative and maintenance buildings to the southeast. Although the runway itself will not be affected, access to the runway via the on-installation hangar may not be possible. | • Sea level rise is projected to inundate much of the property by 2065, including some of the property's wetlands. |
| Sparrevohn LRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| Tatalina LRRS | Any increase in wildfire probability will have an associated increase in the potential for impacts to the military mission and infrastructure. | • An increase in wildfire occurrence may be possible due to warmer summer weather.<br>• Wetlands have low vulnerability through 2065. |
| Tin City LRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| **INACTIVE** | | |
| Bullen Pt SRRS | Although the site is closed and all structures have been removed, the site is visited periodically as part of long-term management under the USAF Environmental Restoration Program. Parts of the runway and associated infrastructure will be inundated due to projected sea level rise under all climate change scenarios. Therefore, loss of access to the site will impact remediation activities. | • Wetlands highly vulnerable due to climate change induced sea level rise. |
| Point Lay LRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |
| Point Lonely SRRS | No future impacts expected. | • Wetlands have low vulnerability through 2065. |

*Source*: CEMML 2019a.

### Projected Coastal Erosion Impacts

In addition, preliminary evaluations of coastal erosion impacts were conducted at Barter Island LRRS, Oliktok LRRS, Cape Lisburne LRRS, and the former Point Lonely SRRS (BEM 2014; AFCEC 2015; AFCEC and USACE 2019). These projected coastal erosion assessments were then used to assess the potential future impacts on the mission, infrastructure, and natural resources of the three sites.

It was determined that the regression methods using historical shorelines of Barter Island, Oliktok, and Cape Lisburne in Phase I (AFCEC 2015) were inaccurate and inadequate because the climate is changing at a non-linear rate. The rates of erosion at each site were much greater than previously estimated and

Oliktok LRRS was the facility at greatest risk. Therefore for Phase II, it was determined that the semi-empirical and process-based models showed the most potential for accurately modeling erosional conditions unique to the arctic environment (AFCEC and USACE 2019). This Phase II study was intended to develop, calibrate and test the viability of these more rigorous numerical models at the Oliktok LRRS and Barter Island LRRS. Figure 23 and Figure 24 depict the projected shorelines at Oliktok LRRS and Barter Island LRRS, respectively, from 2020 to 2070.

The results of the Phase II effort could be used in Phase III to design and implement resiliency measures to protect the installation assets from damage as well as to help the USAF plan for siting new facilities. Phase III would evaluate erosion mechanisms and evaluate methods to reduce erosion and impacts to critical assets, mitigation costs, and lifecycle performance (BEM 2018).

In 2014, a separate coastal erosion assessment was conducted at the former Point Lonely SRRS (BEM 2014). Based on digitized high-resolution imagery and GIS files of historical shorelines (1947, 1979, 2002, and 2011) and direct measurements during 2014, historical erosion maps were prepared and predicted future erosion extent was extrapolated. Figure 25 depicts the measured shoreline positions at Point Lonely in 2014 and the predicted 2020, 2030, 2040, and 2050 shoreline positions. The erosion maps showed that shoreline erosion is increasing at an accelerated rate, critical Air Force assets will become increasingly vulnerable due to shoreline erosion, and ADEC and USEPA may impose more stringent cleanup standards or maintenance requirements based on future erosion threats.

Overall, these coastal erosion assessments show that coastal erosion is affecting USAF infrastructure and assets on the North Slope, and the erosion trend is accelerating. These projections, along with site-specific data, can be used to evaluate erosion mechanisms and rates for incorporation into the design and evaluation process of potential asset protection measures/structures. Potential shoreline protection measures include offshore structural alternatives (e.g., foreshore rock dike, sheetpile wall, gabions, sheetpile/rock hybrid) and onshore structural alternatives (e.g., rock revetment, articulated concrete mat, geotextile bags); asset relocation is also considered an alternative (BEM 2014, 2018).


**Figure 23. Predicted Shorelines at Oliktok LRRS from 2020 to 2070**
(*Source*: UAA and BEM 2019)


**Figure 24. Predicted Shorelines at Barter Island LRRS from 2020 to 2070**
(*Source*: UAA and BEM 2019)

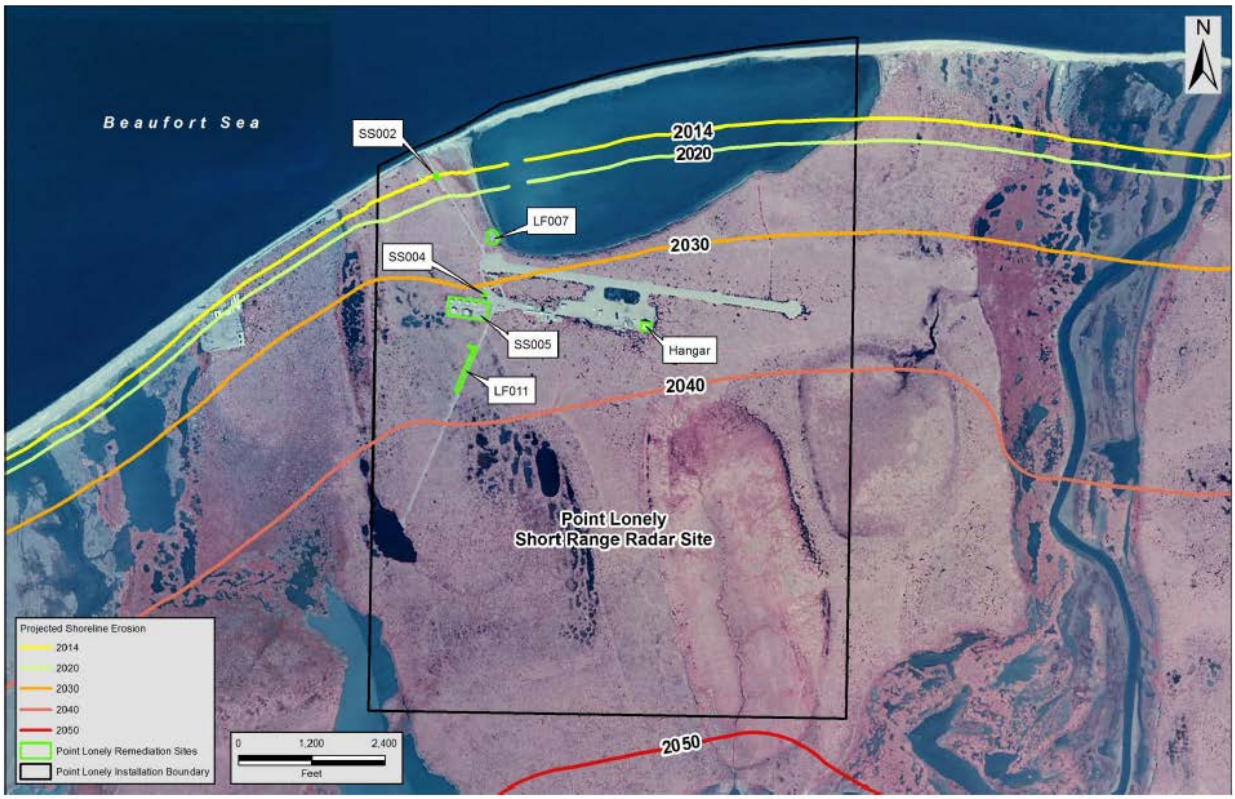



**Figure 25. Past and Predicted Shoreline Locations at the Former Point Lonely SRRS**
(*Source*: BEM 2014)

### 2.4.5 Natural Resources Needed to Support the Military Mission

The PRSC's military mission depends upon the availability of natural resources to perform the mission. A land base is perhaps the most basic aspect of natural resources support for the mission.

Proper management of soils, vegetation, water resources, etc. plays a vital role in the sustainment of the military mission. Natural resources are managed to minimize aircraft-wildlife conflicts and human conflicts with dangerous animals. In addition, the military mission relies on natural resources to provide relaxation and recreation opportunities for those training or working on PRSC sites. Implementation of an ecosystem-based management plan ensures that natural resources will provide the proper arena for supporting the military mission and personnel. Maintaining the health of the natural ecosystem ensures that the PRSC complies with USFWS and NMFS regulations to conserve federally listed or otherwise protected species. The extent of subsistence use of remote PRSC facilities has been investigated and is documented in the *Traditional Land Use Survey Characterizations for Remote Air Force Facilities in Alaska* (Braund and Associates 2004).

#### Eareckson AS

Since Eareckson AS's land base is Shemya Island, this aspect is all the more important. There is a finite amount of area and resources on an island. On Shemya Island the management of natural resources, particularly to reduce the BASH risk not only around the airfield but over the entire island, is of primary importance to maintaining all missions at Eareckson AS. All persons and most supplies depend upon safe air transportation to and from Shemya Island, and the loss of air transportation to Eareckson AS would impact all missions.

All IRP sites have been located and mapped, and no significant remediation is occurring at this time. There are several sources of aggregate on the island, although some sources have been partially depleted by past construction activity. The sand found in dunes, which are located on the eastern, western, and southern parts of Shemya Island, is suitable for some construction purposes and is poorly graded.

There have been several aggregate sources used for construction. The main quarry is just north of the center of the island. Drilling and blasting would likely be required for removal of suitable rock material, even though the rock is highly fractured. The rock would require processing (*i.e.*, crushing) to enable its use as construction aggregate.

Eareckson AS has little potential for increased demand on wildlife other than for protection and enhancement of threatened and endangered species as long as the military installation maintains active status.

**King Salmon Airport**

There is a finite amount of area and resources available to the Air Force at King Salmon. At the King Salmon Airport the management of natural resources particularly to reduce the BASH risk, not only around the airfield but over the surrounding area, is of primary importance to maintaining all the missions at King Salmon Airport. All persons and most supplies depend upon safe air transportation to and from King Salmon Airport, and the loss of air transportation to King Salmon Airport would impact all missions.

Management issues were identified during site visits conducted in 1993 (611 ASG 1995b); these issues were reexamined, including discussions with USAF and contract personnel and representatives from the ADFG and the USFWS (Anchorage offices), in 1998 (611 ASG 1999b) and 2005 (611 CES 2008a). General issues consist of the following:

- Coordinated land use to improve the environment,
- Maintenance of land resources,
- Revegetation of disturbed areas,
- Fishery and wildlife management,
- Threatened and endangered species,
- Community relations, and
- Consumptive and nonconsumptive natural resources uses.

Some of these issues are also demands on natural resources and may directly or indirectly affect those resources.

**Active LRRS**

Future demands on land use that may directly or indirectly affect natural resources at LRRSs include restoration of IRP sites, development of aggregate for maintenance, building demolition and debris removal, and construction of new facilities. Natural resources are needed to support these demands of the military mission, and some are of a finite quantity (*e.g.*, rock for aggregate, material to cover landfills, and area for new facilities).

The IRP continues to locate, map, and remediate sites. Sources of aggregate at some sites are more readily available than at other sites. Care must be taken when developing/ using these sources to minimize disturbance to vegetation and natural resources.

Military mission support is expected to be the primary concern at LRRSs. These sites have little potential for increased demand on wildlife, other than for protection and enhancement of threatened and endangered species, as long as the sites maintain in active status.

**Inactive Sites**

The primary future demand on land use that may directly or indirectly affect natural resources at inactive sites will be remedial actions at IRP sites. Most other mission-related activities at these sites in the future will be related to long-term management of IRP sites.

## 3. ENVIRONMENTAL MANAGEMENT SYSTEM

The USAF environmental program adheres to the Environmental Management System (EMS) framework and its "Plan, Do, Check, Act" cycle for ensuring mission success. DoDI 4715.17, *Environmental Management Systems*; AFI 32-7001, *Environmental Management*; EO 13834, *Efficient Federal Operations*; and International Standard ISO 14001:2015, *Environmental Management Systems*, provide guidance on how environmental programs should be established, implemented, and maintained to operate under the EMS framework.

The natural resources program employs EMS-based processes to achieve compliance with all legal obligations and current policy drivers, effectively managing associated risks, and instilling a culture of continuous improvement. The INRMP serves as an administrative operational control that defines compliance-related activities and processes.

## 4. GENERAL ROLES AND RESPONSIBILITIES

General roles and responsibilities that are necessary to implement and support the natural resources program are listed in Table 13. Specific natural resources management-related roles and responsibilities are described in appropriate sections of this plan.

**Table 13. Natural Resource Program Roles and Responsibilities**

| Office/Organization/Job Title* | Installation Role/Responsibility Description |
|---|---|
| Installation Commander | **The PRSC commander is positioned at JBER, Anchorage, AK**. The PRSC Commander leads three separate squadrons (Air Communications Squadron, Civil Engineer Squadron, Air Support Squadron) which are responsible for providing communications, engineering, and logistical, environmental, financial, and program management to maintain combat readiness for remote Alaska, Eleventh Air Force, and the Alaska NORAD Region. The PRSC Commander is the final approval authority for the INRMP and has management authority of all installation under PRSC purview. It is the responsibility of all PRSC squadron members, and other military users, to coordinate their proposed activities with this INRMP to ensure they comply with it. |
| AFCEC Natural Resources Media Manager/Subject Matter Expert (SME)/ Subject Matter Specialist (SMS) | The AFCEC NR Installation support team member and the regional support team member provides annual funding to base NRMs in order to assist with procurement. In addition, the two AFCEC positions identify and create training opportunities to assist installation staff with the usage of ACES, E-Dash Tools, and new interactive programs used for funding requests, project execution, and data archive. |
| Installation NRM/POC | Natural resource program management is within the Natural Resource Management Element (611 CES/CEAN). The Natural Resource Program Manager is responsible for ensuring the INRMP is prepared and updated/revised. The 611 CES/CEAN has primary responsibility for INRMP implementation and is also responsible for ensuring all elements of the Squadron comply with the INRMP. |

**Table 13. Natural Resource Program Roles and Responsibilities**

| Office/Organization/Job Title* | Installation Role/Responsibility Description |
|---|---|
| Installation Security Forces | No Security Forces division exists within PRSC. |
| Installation Unit Environmental Coordinators (UECs); see AFI 32-7001 § 2.30 for role and responsibilities. | The 611 CES has a Primary and Alternate UEC. |
| Installation Wildland Fire Program Manager | The PRSC has no active Installation Wildland Fire Program and relies on BOS contract fire teams for response to fires on installation property or other supporting agencies. |
| Pest Manager | One certified active duty member exists for this role. |
| Range Operating Agency | The PRSC has no active ranges. |
| Conservation Law Enforcement Officer (CLEO) | The PRSC has no CLEOs. |
| NEPA/Environmental Impact Analysis Process (EIAP) Manager | The PRSC has one civilian full time NEPA Manager. Their role is to execute the EIAP process and coordinate proposed actions with SMEs with experience in such disciplines as biology, water quality, archeology, hazardous waste, real estate, etc. |
| NMFS | Reviewer of the INRMP and collaborator for surveys near coastal sites. |
| U.S. Forest Service | Potential reviewer of the INRMP and collaborator for surveys, forest management actions, and potential fire-related actions. |
| USFWS | Member of the Sikes Act Tripartite and INRMP signatory. Reviewer of the INRMP and collaborator for surveys. |
| ADFG | Member of the Sikes Act Tripartite and INRMP signatory. Reviewer of the INRMP and collaborator for surveys. |
| 611 CES | The Squadron Commander is the Base Civil Engineer for the PRSC. The 611 CES provides engineering maintenance support and environmental services at remote PRSC sites. The squadron includes the Asset Management Flight, the Programs Flight, and the Operations Flight. |
| 611 ASUS | The group provides communications, engineering, and logistical, environmental, financial, and program management to maintain combat readiness for remote Alaska, Eleventh Air Force and the Alaska NORAD Region. |
| AFCEC IRP | The Environmental Restoration Element (611 CES/CEAR) is no longer in existence and the new group stood up to take over responsibility for the IRP is AFCEC. This internal transition occurred in 2014; the transition did not impact or alter the installation commander's responsibilities under various statutes, but did transition implementation to an entity outside the PRSC. |

*Note*: *Listing is not in order of hierarchical responsibility.

## 5. TRAINING

Air Force installation NRMs/POCs and other natural resources support personnel require specific education, training and work experience to adequately perform their jobs. Section 107 of the Sikes Act requires that professionally trained personnel perform the tasks necessary to update and carry out certain actions required within this INRMP. Specific training and certification may be necessary to maintain a level of competence in relevant areas as installation needs change, or to fulfill a permitting requirement.

Installation Supplement – Training

- The PRSC Alaska NRM shall take the course, *Natural Resources Management and Compliance*, endorsed by the DoD Interservice Environmental Education Review Board and offered for all DoD Components by the Naval Civil Engineer Corps Officers School (CECOS). See

https://www.public.navy.mil/netc/centers/csfe/cecos/Default.aspx for CECOS course schedules and registration information.

- The PRSC Alaska NRM shall obtain ESA section 7 Training from the National Conservation Training Center managed by the USFWS (http://www.training.fws.gov), as well as MBTA training from this source or a conspecific surrogate entity.
- Natural resources management personnel shall be encouraged to attain professional registration, certification, or licensing for their related fields, and may be allowed to attend appropriate national, regional, and state conferences and training courses.
- All individuals who will be enforcing fish, wildlife, and natural resources laws on USAF lands must receive specialized, professional training on the enforcement of fish, wildlife and natural resources in compliance with the Sikes Act. This training may be obtained by successfully completing the Land Management Police Training course at the Federal Law Enforcement Training Center (http://www.fletc.gov/).
- Individuals participating in the capture and handling of sick, injured, or nuisance wildlife should receive appropriate training and to include training that is mandatory to attain any required permits.
- Personnel supporting the BASH program should receive flight line drivers training, training in identification of bird species occurring on airfields, and specialized training in the use of firearms and pyrotechnics as appropriate for their expected level of involvement.

Natural resources management training is provided to ensure that base personnel, contractors, and visitors are aware of their role in the program and the importance of their participation to its success. Training records are maintained in accordance with the Recordkeeping and Reporting section of this Plan. Below are key NR management-related training requirements and programs:

- Annual attendance and participation at the National Military Fish and Wildlife Association (NMFWA) annual meeting and training workshop.
- Annual attendance and successful completion of USAF Shotgun Training Weapon Course (Shotgun AFQC).

# 6. RECORD KEEPING AND REPORTING

## 6.1 RECORD KEEPING

The installation maintains required records in accordance with Air Force Manual 33-363, *Management of Records*, and disposes of records in accordance with the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Numerous types of records must be maintained to support implementation of the natural resources program. Natural resource records are stored on AFCEC's database (currently referred to as E-Dash), the NRM's hard drive, an external hard drive, and an installation share drive, commonly referred to as "P-Drive".

## 6.2 REPORTING

The installation NRM is responsible for responding to natural resources-related data calls and reporting requirements. The NRM and supporting AFCEC Media Manager and Subject Matter Specialists should refer to the Environmental Reporting Playbook for guidance on execution of data gathering, quality control/quality assurance, and report development.

# 7. NATURAL RESOURCES PROGRAM MANAGEMENT

This section describes the current status of the installation's natural resources management program and program areas of interest. Current management practices, including common day-to-day management practices and ongoing special initiatives, are described for each applicable program area used to manage existing resources. Program elements in this outline that do not exist on the installation are identified as not applicable and include a justification, as necessary.

**Installation Supplement –Natural Resources Program Management**

U.S. Air Force

The USAF is responsible for management and stewardship of natural resources within the confines of the PRSC Alaska sites and minimization of adverse impacts to natural resources outside the installations. The 611 CES is the primary squadron responsible for development, implementation, and oversight of the INRMP, however all land users who are given access to PRSC properties hold a responsibility to ensure their federal actions are in alignment with provisions of the INRMP or applicable federal or state permits.

The following other Air Force organizations or persons provide oversight and guidance for the preparation and implementation of the INRMP:

- The Assistant Secretary of the Air Force for Installations, Environment, and Logistics;
- The Civil Engineer, Headquarters USAF;
- AFCEC; and
- Pacific Air Forces.

Other Agencies and Organizations

Section 1.2, *Management Philosophy*, discusses cooperative management relationships between the USAF and other agencies and groups. Accredited conservation representatives of these organizations furnishing professional advice and technical assistance under this plan will be allowed access to PRSC sites, in accordance with appropriate arrangements.

Tribal Governments

The United States has a unique legal relationship with Indian and Alaska Native governments as set forth in the U.S. Constitution, treaties, statutes, EOs, and court decisions. The United States recognizes Indian and Alaska Native tribes as domestic dependent nations under its protection. EO 13175, *Consultation and Coordination with Indian Tribal Governments*, and the American Indian and Alaska Native Policy (Department of Defense 1998) establish regular and meaningful consultation and collaboration with Indian tribal governments and Alaska Native Corporations. The PRSC provides a process that permits elected officials and other representatives of Native Alaskan tribal governments to provide meaningful and timely input on actions or policies that might be of tribal interest, such as those that affect sacred sites or traditional cultural properties.

Universities

The PRSC develops partnerships with universities for natural resources management expertise. Experts from universities have provided specialized knowledge needed to effectively manage natural resources on PRSC lands. The University of Alaska, Fairbanks; University of Washington; University of Hawaii; and CSU have supported past research and management on PRSC sites.

CEMML at CSU assisted with the updates for preparation of this 2020 INRMP Update via a cooperative agreement administered by the USACE, Alaska District.

Contractors

Private contractors are important to all facets of military installation management. PRSC sites, some of which have no onsite military personnel, are maintained and operated by BOS contractors. The PRSC uses contractors for many programs associated with natural resources, such as NEPA documentation, surveys, support of the BASH program, and INRMP preparation.

## 7.1 FISH AND WILDLIFE MANAGEMENT

### Applicability Statement

This section applies to all USAF installations that maintain an INRMP. PRSC **is required** to implement this element at all PRSC sites.

### Program Overview/Current Management Practices

Policy and Background

The fish and wildlife management program provides for the regulation and conservation of fish and wildlife populations and their habitats. These management practices are consistent with accepted scientific principles and comply with the ESA and all other applicable laws and regulations. Management goals are consistent with the total natural resources program. Fish and wildlife management on PRSC sites supports and is supported by most programs detailed in all section of Natural Resources Program Management

Emphasis is placed on maintenance and restoration of habitat favorable to the production of indigenous fish and wildlife. Non-game (species not hunted) as well as game species are considered when planning activities. Maintaining functional ecosystems is now the primary goal of the PRSC natural resources management program. However, supporting the military mission has always been and continues to be the primary land use.

Fish and wildlife actions fall into two categories: population management and habitat management. Fish and wildlife population management is accomplished through actions directly affecting fish and wildlife species. Setting population goals and managing harvests are the primary actions used in population management. Habitat management, on the other hand, affects wildlife populations indirectly by manipulating their habitats.

Population management includes working with ADFG, which establishes hunting, trapping, and fishing regulations and harvest objectives; conducts habitat enhancement; and coordinates other projects to conserve and enhance game and non-game populations. Wildlife populations on PRSC sites will be managed in accordance with the objectives set forth in this INRMP.

AFI 32-7064 specifically requires descriptions of the following topics. In parenthesis after each topic, is an example location where that topic is discussed specific to the PRSC:

- Enforcement of Fish and Wildlife Laws (Appendix B, *General Items of Cooperation among the USFWS, ADFG, and PRSC, 611 CES*)
- Hunting and Fishing Program Organization and Management (There is no formal fishing or hunting program on PRSC sites)
- Hunting and Fishing Policy, Regulations and Fee Structure (Section 7.2, *Outdoor Recreation and Public Access to Natural Resources*; and Appendix B)

- Permitted Access for Hunting, Fishing and Wildlife Related Outdoor Recreation (Section 7.2 and Section 13.2, Appendix B)
- Demand for Hunting, Fishing and Non-Consumptive Resource Uses (Section 2.1, *Installation Overview*, and Appendix H, *Installation-specific Information*)
- Fish and Wildlife Monitoring (this section).
- Migratory Bird Management (this section)
- Watchable Wildlife Areas (not applicable)
- Wildlife Education and Interpretive Programs (Section 7.15, *Public Outreach*)
- Wildlife Pest Problems and Techniques Used for Wildlife Control (this section – subsections: *Eareckson AS Rat Eradication; Ground Squirrel Conflicts; Brown/Black Bear Conflicts; Bird/Wildlife Aircraft Strike Hazard Management (BASH); Polar Bear and Pacific Walrus Avoidance Plan*)
- Policies, Programs, and Methods Used to Control Feral Animals (this section – subsection: *Brown/Black Bear Conflicts*)

The PRSC, through the development of this and previous natural resources management plans and special projects, has conducted a variety of baseline inventories of natural resources at active and inactive sites. The ADFG and North Slope Borough conduct inventories of fish and wildlife resources within the general area of active LRRS and former SRRS and LRRS, the USFWS monitors migratory birds, and USFWS and NMFS monitor ESA- and MMPA-listed species and are members of the "Federal Subsistence Board, which regulates federally administered subsistence hunting in these areas. Additionally, the USFWS monitors and inventories fish and wildlife within the NWR system.

### 7.1.1 Vegetation/Habitat Monitoring

Vegetation and wildlife surveys were performed at inactive sites in 1999 in association with development of previous INRMPs covering Inactive Sites (611 ASG 2001b-e). An ecosystem monitoring program began in the early 2000s at all PRSC sites, based upon wildlife habitat mapping and regular comparisons with available remote sensing images. Vegetation/habitat mapping at most inactive sites has not occurred, nor is there a need for such intensive mapping at these sites given they are closed and typically the only remaining activities at the sites are associated with long-term monitoring of remediation sites. Wetland monitoring is discussed in Section 7.6, *Wetlands Protection*. Appendix H has site-specific vegetation/habitat information for all PRSC sites.

### 7.1.2 Migratory Bird Monitoring and Management

#### 7.1.2.1 Migratory Bird Treaty Act (MBTA)

The MBTA is an international agreement initially among the U.S., Canada, and Mexico, and later amended as treaties were made with other countries (i.e., Japan and Russia) to conserve birds. The Act protects designated families and species of birds. Birds classified as migratory include species that occupy PRSC sites throughout the year. The current list of MBTA-protected birds can be found in 50 CFR 10.13 or the USFWS Migratory Bird Program webpage: https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php.

The MBTA controls the taking of migratory birds, their nests, eggs, parts, or products. The Act states that it is unlawful "at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, attempt to capture, or attempt to kill, purchase, offer to purchase, deliver for shipment, ship, export, import, cause to be shipped, deliver for transport, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, possess, offer for sale, sell, offer to sell,

barter, offer to barter, any migratory bird, any part, nest, or egg of any such bird, or any part, nest, or egg thereof;" unless and except as permitted by regulations in the MBTA.

All persons, organizations, and agencies, are liable for prosecution for violations and must follow permitting requirements for taking migratory birds. Special purpose permits may be requested and issued that allow for the relocation or transport of migratory birds for management purposes. The MBTA is the basis for requirements for permits associated with the "take" of birds for BASH reduction purposes on PRSC sites (see Section 7.1.2).

Federal agencies are required to support the intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory birds when conducting agency actions.

#### 7.1.2.2 EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*

EO 13186 required the DoD and the USFWS to establish an MOU that promotes the conservation of migratory bird populations (DoD and USFWS 2014). This MOU specifically pertains to natural resource management activities, installation support functions, operation of industrial activities, construction or demolition of facilities, and hazardous waste cleanup. Both DoD and the USFWS agree to emphasize an interdisciplinary, collaborative approach to migratory bird conservation within the geographic framework of the North American Bird Conservation Initiative, Bird Conservation Regions; protect, restore, enhance, and manage habitat of migratory birds, and prevent or minimize the loss or degradation of habitats on DoD-managed lands; work with landowners to minimize the loss or degradation of migratory bird habitats on lands near military installations; provide training opportunities to DoD natural resources personnel on migratory bird issues; and promote and undertake ecologically sound actions to curb the introduction in the wild of exotic or invasive species harmful to migratory birds (DoD and USFWS 2014).

DoD agrees to follow all migratory bird permitting requirements for non-military readiness activities; encourage incorporation of comprehensive migratory bird management objectives in the preparation of DoD planning documents; incorporate conservation measures addressed in Regional or State Bird Conservation Plans in INRMPs; allow the USFWS and other partners reasonable access to military lands for conducting sampling or survey programs; prior to starting any activity that is likely to affect populations of migratory birds, assess and document the effect of the proposed action on species of concern and engage in early planning and scoping with the USFWS to proactively address migratory bird conservation and to initiate appropriate actions to avoid or minimize the take of migratory birds; manage military lands and non-military readiness activities to support migratory bird conservation; develop and implement new and/or existing inventory and monitoring programs to evaluate the effectiveness of conservation measures to minimize or mitigate take of migratory birds; and promote timely and effective review of INRMPs with respect to migratory bird issues with the USFWS and respective state agencies (DoD and USFWS 2014).

The USFWS agrees to provide recommendations to minimize adverse effects upon migratory birds from DoD actions, maintain a Web page that provides links to all offices responsible for issuing permits for take of migratory birds, provide essential background information to the DoD to ensure sound management decisions, identify special migratory bird habitats to aid in collaborative planning, provide technical assistance on migratory bird species and their habitats, work with DoD in the development, review and revision of INRMPs, and review NEPA documents and other planning documents forwarded by military installations.

Both DoD and the USFWS understand the following.

- This MOU will not change or alter requirements associated with the MBTA, ESA, NEPA, Sikes Act, or other statutes or legal authority.
- Responsibilities established by the MOU may be incorporated into existing DoD actions; however, DoD may not be able to implement some responsibilities identified in the MOU until DoD has successfully included them in formal planning processes. The MOU is intended to be implemented when new actions are initiated as well as during the initiation of new, or revisions to, INRMPs, Pest Management Plans, and non-military readiness elements of BASH plans. It does not apply to ongoing DoD actions for which a NEPA decision document was finalized prior to, or within 180 days of the date the MOU is signed.
- The MOU in no way restricts either Party from participating in similar activities with other public or private agencies, governments, organizations, or individuals.
- An elevation process to resolve any dispute between the Parties regarding a particular practice or activity is in place and consists of first attempting to resolve the dispute with the DoD military installation and the responsible Ecological Services Field Office. If there is no resolution at this level, either Party may elevate the issue to the appropriate officials at the applicable Military Service's Chain of Command and USFWS Regional Offices. In the event that there is no resolution by these offices, the dispute may be elevated by either Party to the headquarters office of each agency.
- The MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement, contribution of funds, or transfer of anything of value between the Parties will be handled in accordance with applicable laws, regulations, and procedures, including those for government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the Parties and shall be independently authorized by appropriate statutory authority.
- The Parties shall schedule periodic meetings to review progress and identify opportunities for advancing the principles of the MOU.
- The MOU is intended to improve the internal management of the executive branch and does not create any right or benefit, substantive or procedural, separately enforceable at law or equity by a party against the U.S., its agencies or instrumentalities, its officers or employees, or any other person.
- Modifications to the scope of the MOU shall be made by mutual consent of the Parties, through issuance of a written modification, signed and dated by both Parties, prior to any changes.
- Either Party may terminate the MOU, in whole or in part, at any time before the date of expiration by providing the other Party with a written statement to that effect.

#### 7.1.2.3 Final Rule – Migratory Bird Permits; Take of Migratory Birds by DoD

Section 315 of the 2003 National Defense Authorization Act provides that, not later than 1 year after its enactment, the Secretary of the Interior (Secretary) shall exercise authority under Section 704(a) of the MBTA to prescribe regulations to exempt the Armed Forces for the incidental taking of migratory birds during military readiness activities authorized by the Secretary of Defense or the Secretary of the military department concerned. The Authorization Act further requires the Secretary to promulgate such regulations with the concurrence of the Secretary of Defense.

The USFWS published a final rule (50 CFR Part 21; USFWS 2007a) that exempts the Armed Forces for the incidental taking of migratory birds during military readiness activities. This rule, known as the

'Military Readiness Rule', "… authorizes such take, with limitations, that result from military readiness activities of the Armed Forces. If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of a migratory bird species, then they must confer and cooperate with the Service (USFWS) to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects."

This rule only includes military readiness activities. It specifically does not include routine operation of installation operating support functions (e.g., administrative offices, military exchanges or commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, laundries, recreation activities, shops, mess halls), operation of industrial activities, construction or demolition of facilities relating to these routine operations, or site cleanup activities under CERCLA.

Vegetation clearing, site preparation, or other construction activities not conducted during military readiness activities that may result in the destruction of active bird nests or nestlings would violate the MBTA. Whenever possible, the PRSC schedules these activities during periods when nesting does not occur to help comply with the MBTA. Some species and their nests have additional protections under other federal laws, including those listed under the ESA and bald and golden eagles (protected under BGEPA).

The rule does not authorize take under the ESA. If a military readiness activity may affect a listed species, the Armed Forces retains responsibility for consulting with the Service under section 7(a)(2) of the ESA. Similarly, if a military readiness activity is likely to jeopardize the continued existence of a species proposed for listing, the Armed Forces retain responsibility for conferring with the Service in accordance with section 7(a)(4) of the ESA.

Withdrawal of authorization may be proposed if the Secretary determines that failure to do so is likely to result in a significant adverse effect on a population of a migratory bird species and one or more of the following circumstances apply: (A) The Armed Forces have not implemented conservation measures that (i) are directly related to protecting the migratory bird species affected by the proposed military readiness activity; (ii) would significantly reduce take of migratory birds species affected by the military readiness activity, (iii) are economically feasible, and (iv) do not limit the effectiveness of military readiness activities. (B) The Armed Forces fail to conduct mutually agreed upon monitoring to determine the effects of a military readiness activity on migratory bird species and/or the efficacy of the conservation measures implemented by the Armed Forces. (C) The Armed Forces have not provided reasonably available information that the Secretary has determined is necessary to evaluate whether withdrawal of take authorization for the specific military readiness activity is appropriate.

The rule assumes that installations will use the NEPA process to determine whether an ongoing or proposed military readiness activity is *likely to result in a significant adverse effect on the population of a migratory bird species of concern.* If such significant adverse effects are likely, an installation would be required to confer with the USFWS to develop appropriate conservations measures to minimize or mitigate such significant adverse effects.

In summary the rule requires the PRSC to:

- Engage in close coordination with USFWS for migratory bird conservation;
- Maintain current information on migratory bird populations and trends;
- Document migratory bird conservation in the INRMP;
- Incorporate migratory bird population goals and habitat objectives into INRMPs; and
- Conduct annual INRMP reviews with USFWS and ADFG to:
    - Solicit their input concerning INRMP effectiveness of bird conservations and

- Analyze effectiveness of INRMP measures to avoid, minimize, or mitigate take;
- Analyze project effects, especially any new military readiness activity, via NEPA documentation; and
- If impacts may significantly affect a population of migratory bird species, confer early with USFWS.

#### 7.1.2.4 Bird Monitoring and Conservation Plans

Conservation planning for landbirds and shorebirds in Alaska occurs within five Bird Conservation Regions (BCRs). Developed by the North American Bird Conservation Initiative Committee, BCRs are ecologically distinct regions in North America with similar bird communities, habitats, and resource management issues. PRSC sites occur within four of these BCRs (Figure 26). Within the BCRs, landbird and shorebird species of highest conservation concern were identified by PIF and denoted as Watch List species and by the Alaska Shorebird Group as Priority Species, respectively (Rosenberg et al. 2016; Alaska Shorebird Group 2019). Some of these species are already recognized as federally threatened or endangered in the U.S. The landbird Watch List and shorebird Priority Species List foster proactive conservation that will help recover populations of the most at-risk species and keep the remaining species from becoming endangered. All species listed in Table 14 have been recorded from one or more PRSC sites (see site-specific species tables in Appendix H).

**Table 14. Watch List Landbird and Priority Shorebird Species within BCRs Encompassing PRSC Sites**

| Common Name | BCR | | | |
|---|---|---|---|---|
| | **Aleutian/Bering Sea Islands** | **Western Alaska** | **Arctic Plains and Mountains** | **NW Interior Forest** |
| WATCH LIST – LANDBIRDS | | | | |
| McKay's Bunting | x | x | | x |
| Olive-sided Flycatcher | | x | x | x |
| Rufous Hummingbird | | | | x |
| PRIORITY SHOREBIRD SPECIES* | | | | |
| American Golden-plover | | b | b/m | b/m |
| Bar-tailed Godwit | | b/m | b | |
| Black-bellied Plover | m | | b/m | m |
| Black Oystercatcher | b/w | b/w | | |
| Black Turnstone | | b/m | b | |
| Bristle-thighed Curlew | | b/m | | b |
| Buff-breasted Sandpiper | | | b | |
| Dunlin | b | b/m | b/m | m |
| Hudsonian Godwit | | b/m | | b/m |
| Lesser Yellowlegs | | | b | b/m |
| Long-billed Dowitcher | b | m | b/m | m |
| Marbled Godwit | | b/m | | |
| Pacific Golden-plover | m | b | | |
| Pectoral Sandpiper | | m | b/m | m |
| Red-necked Phalarope | | b | b/m | b |
| Red Knot | | b/m | b/m | |
| Rock Sandpiper | b/m/w | b/m | | w |
| Ruddy Turnstone | m | | b/m | |
| Semipalmated Sandpiper | | b/m | b/m | |
| Sharp-tailed Sandpiper | m | m | | |
| Short-billed Dowitcher | | | | b/m |
| Solitary Sandpiper | | | | b |

**Table 14. Watch List Landbird and Priority Shorebird Species within BCRs Encompassing PRSC Sites**

| Common Name | BCR | | | |
|---|---|---|---|---|
| | Aleutian/Bering Sea Islands | Western Alaska | Arctic Plains and Mountains | NW Interior Forest |
| Surfbird | | | b | b |
| Wandering Tattler | b/m | | b | b |
| Western Sandpiper | b/m | b/m | b/m | m |
| Whimbrel | | b/m | b | b/m |

*Notes*: *Occurrence is based on species that commonly breed (b), stage during migration (m), or winter (w) within each BCR.
*Sources*: Rosenberg et al. 2016; Alaska Shorebird Group 2019.

PIF Landbird Conservation Plan for Canada and Continental United States

The 2016 PIF Landbird Conservation Plan for Canada and Continental United States, refines and updates the 2004 conservation plan with the relative vulnerability assessment of 448 species of North American landbirds; presents new scientific assessments and tools to integrate into range-wide and full life-cycle conservation implementation; and provides recommendations to advance high priority landbird conservation actions over the next 10 years (Rosenberg et al. 2016).

*Arctic Plains and Mountains BCR*. The Cape Lisburne, Point Barrow, Oliktok, Barter Island, Bullen Point, Point Lay, and Point Lonely PRSC sites lie within the Arctic Plains and Mountains BCR. This region includes low-lying, coastal tundra and drier uplands of the Arctic Foothills of the Brooks Range. Because of thick, continuous permafrost, surface water dominates the landscape. Because of the wetness, waterfowl and shorebirds dominate the breeding avian community and passerines are scarce. The most abundant breeding birds on the coastal plain include northern pintail, king eider, long-tailed duck, American golden-plover, semipalmated sandpiper, pectoral sandpiper, red-necked phalarope, and Lapland longspur. Few bird species winter in the region. Several Old World species penetrate the region from the west (e.g., arctic warbler, bluethroat), and species regularly breeding in the Canadian arctic penetrate from the east (e.g., white-rumped sandpiper, black guillemot). Taiga passerines (e.g., gray-cheeked thrush, yellow warbler) reach the region along drainage systems from the Brooks Range and raptors nest commonly along major rivers (e.g., gyrfalcon, rough-legged hawk) (USGS 2019).

The only Watch List species in the Arctic Plains and Foothills BCR is the olive-sided flycatcher (Table 14). However, a number of common species are in steep decline: varied thrush, Wilson's warbler, American tree sparrow, blackpoll warbler, and rusty blackbird (Rosenberg et al. 2016). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

*Western Alaska BCR*. The King Salmon Airport, Cold Bay, Tin City, Kotzebue, Cape Romanzof, Cape Newenham, Granite Mountain, Nome Field POL, Anvil Mountain, North River, Bethel, Naknek Recreation Camps, Big Mountain, and Port Heiden PRSC sites lie within the Western Alaska BCR. This region consists of the coastal plain and mountains of western and southwestern mainland Alaska. Permafrost is continuous except in southern parts of the region. Sea cliffs are present as are mountains that exceed 3,300 ft in elevation. Volcanic peaks up to 8,500 ft are found along the Alaska Peninsula.


**Figure 26. PRSC Alaska Sites and Bird Conservation Regions**

High densities of breeding waterfowl and shorebirds are found on the coastal plain of the Yukon and Kuskokwim rivers. Intertidal areas here and lagoons of the north side of the Alaska Peninsula supports millions of shorebirds during migration (e.g., dunlins, western sandpipers, red knots, bar-tailed godwits). The coast of the Alaska Peninsula supports high concentrations of wintering sea ducks that include Steller's eider, harlequin, long-tailed duck, and surf and black scoters. Western Alaska includes a unique Beringian breeding avifaunal element (e.g., black turnstone, bristle-thighed curlew) and several Old World species are regular breeders or migrants in this region (e.g., sharp-tailed sandpiper, red-throated pipit, white wagtail). Passerine diversity is greatest in tall, riparian shrub habitats (e.g., Arctic warbler, gray-cheeked thrush, blackpoll warbler) and raptors (e.g., gyrfalcon, rough-legged hawk) nest along the riverine cliffs. Mainland sea cliffs contain nesting colonies of, largely, black-legged kittiwakes, common murres, and pelagic cormorants (USGS 2019).

Watch List species in the Western Alaska BCR are olive-sided flycatcher and McKay's bunting (Table 14). A number of common species are in steep decline: varied thrush, Wilson's warbler, American tree sparrow, blackpoll warbler, rusty blackbird, pine siskin, and bank swallow (Rosenberg et al. 2016). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

*Northwestern Interior Forest BCR*. Indian Mountain, Murphy Dome, Fort Yukon, Tatalina, and Sparrevohn LRRSs and Kalakaket Creek, Campion, Bear Creek, Lake Louise, Beaver Creek, sites lie within the Northwestern Interior Forest BCR. A mosaic of vegetation communities arise from the interplay of elevation, permafrost, surface water, fire, and aspect. Lowlands, bottomlands and flats harbor many species of migrating and breeding waterfowl (e.g., northern pintail, northern shoveler, green-winged teal) and swans. These areas, combined with forested lowlands and uplands support breeding shorebirds such as greater and lesser yellowlegs, solitary and spotted sandpipers, and common snipe. American golden-plovers and surfbirds are found in alpine habitats in Interior Highland and mountainous regions. Black-capped and Boreal chickadees, ruby-crowned kinglet, Swainson's thrush, yellow-rumped warbler, and dark-eyed junco are common forest species. Tall shrub communities host white-crowned, American tree, and fox sparrows, Wilson's and yellow warblers, gray-cheeked thrush, and common redpoll, among others. At high elevations, horned lark and Lapland longspur are common breeders (USGS 2019).

Watch List species in the Northwestern Interior Forest BCR are rufous hummingbird, olive-sided flycatcher and McKay's bunting (Table 14). A number of common species are in steep decline: varied thrush, Wilson's warbler, American tree sparrow, blackpoll warbler, rusty blackbird, pine siskin, and bank swallow (Rosenberg et al. 2016). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

*Aleutian/Bering Sea Islands BCR*. Eareckson AS, Driftwood Bay, and Nikolski PRSC sites lie within the Aleutian/Bering Sea Islands BCR. Seabirds are a dominant component of this region's avifauna and several species breed only in this region (e.g., red-legged kittiwake, least auklet, whiskered anklet). Southern Hemisphere procellariiforms occur regularly in the offshore waters of the southern Bering Sea and northern Gulf of Alaska during Alaskan summers. Although breeding diversity of passerines (mainly Lapland longspur, snow bunting, and gray-crowned rosy-finch), and shorebirds (e.g., black oystercatcher, dunlin, ruddy turnstone, rock sandpiper) is low, numerous Old World species are regular migrants and visitants. Some of these species regularly breed in the region (e.g., common ringed plover, wood sandpiper, Eurasian skylark). Rock sandpipers have differentiated into three races among islands within the region and the only endemic Alaskan passerine (McKay's bunting) is found here (USGS 2019).

The only Watch List species in the Aleutian/Bering Sea Islands BCR is McKay's bunting (Table 14). The bank swallow is a common species in steep decline (Rosenberg et al. 2016). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

Alaska Shorebird Conservation Plan

The Alaska Shorebird Conservation Plan presents an overview of shorebirds occurring within Alaska, describes the priority species, discusses real and potential conservation issues facing shorebirds throughout Alaska, and presents a conservation strategy focused on six major themes (Alaska Shorebird Group 2019). As previously discussed under the landbird conservation plan, conservation planning for shorebirds occurs within BCRs. Refer to the previous discussion and Figure 26 for an overview of the BCRs.

*Arctic Plains and Mountains BCR*. The Cape Lisburne, Point Barrow, Oliktok, Barter Island, Bullen Point, Point Lay, and Point Lonely PRSC sites lie within the Arctic Plains and Mountains BCR. A total of 17 priority shorebird species occur within the Arctic Plains and Mountains BCR (Table 14). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

*Western Alaska BCR*. The King Salmon Airport, Cold Bay, Tin City, Kotzebue, Cape Romanzof, Cape Newenham, Granite Mountain, Nome Field POL, Anvil Mountain, North River, Bethel, Naknek Recreation Camps, Big Mountain, and Port Heiden PRSC sites lie within the Western Alaska BCR. A total of 18 priority shorebird species occur within the Western Alaska BCR (Table 14). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

*Northwestern Interior Forest BCR*. Indian Mountain, Murphy Dome, Fort Yukon, Tatalina, and Sparrevohn LRRSs and Kalakaket Creek, Campion, Bear Creek, Lake Louise, Beaver Creek, sites lie within the Northwestern Interior Forest BCR. A total of 16 priority shorebird species occur within the Northwestern Interior Forest BCR (Table 14). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

*Aleutian/Bering Sea Islands BCR*. Eareckson AS, Driftwood Bay, and Nikolski PRSC sites lie within the Aleutian/Bering Sea Islands BCR. A total of 10 priority shorebird species occur within the Aleutian/Bering Sea Islands BCR (Table 14). See the site-specific bird species tables in Appendix H for the occurrence of species at each PRSC site.

Alaska Landbird Monitoring System (ALMS)

A Draft MOU between 11 government and non-government agencies has been developed to establish a framework for collaboration among the cooperators to fully implement the ALMS. Cooperators recognize the importance of tracking landbird populations breeding in Alaska and that a partnership will be required to implement the ALMS across vast roadless areas of the state, which are under the administration of an array of agencies and private land owners. The USAF would be interested in being a cooperator in this effort should an ALMS monitoring location include or be near a PRSC site.

DoD Partners in Flight (PIF) Mission-sensitive Priority Bird Species

The DoD PIF has developed a Strategic Plan to accomplish its mission: *To conserve migratory and resident birds and their habitats on Department of Defense lands* (DoD PIF 2015). As part of DoD's Natural Resources Program, DoD has established an ad hoc network of subject matter experts who provide technical information in support of migratory bird management on DoD lands. The National Technical Representative, who is funded by DoD to provide technical support and expertise regarding migratory bird issues, coordinates inputs from this group, and is charged by the DoD Natural Resources Program to:

- collect/compile relevant technical information;
- monitor trends;
- distribute DoD-approved information to all interested and appropriate stakeholders; and
- serve as a resource center for relevant technical information and materials.

DoD PIF representatives provide assistance to installation NRMs for monitoring and inventory, research and management, and education programs involving birds and their habitats. DoD PIF offers a wide variety of resources to help NRMs better comply with relevant laws and policies, and incorporate migratory bird information into installation INRMPs (DoD PIF 2015).

In 2019, the DoD PIF Program began revising the list of Mission-sensitive Priority Bird Species that occur on DoD lands and are at risk of becoming listed as threatened or endangered under the federal ESA if current populations trends continue (DoD PIF 2019). The purpose of the list is to help DoD resource managers better prioritize monitoring and management efforts on those species (and their habitats) having the highest potential to impact the military mission should they become Federally listed. A secondary focus was on those species with significant conservation concern on DoD lands (DoD PIF 2015). The preliminary 2019 list includes 15 species, only 1 of which (rusty blackbird) is known to occur on PRSC sites in Alaska (DoD PIF 2019).

The DoD PIF program sustains and enhances the military testing, training, and safety mission through proactive, habitat-based management strategies that maintain healthy landscapes and training lands. The DoD PIF Strategic Plan identifies actions that support and enhance the military mission while also working to secure bird populations (DoD 2014b). The DoD has established goals and objectives to identify key bird conservation priorities and guide the actions of its natural resource management activities on DoD lands. Bird conservation goals as outlined in detail in the Strategic Plan are summarized below and are incorporated, as applicable, as migratory bird management priorities at PRSC sites.

- Use national standardized protocols and assess the status and trends of bird populations and habitats, including migrating, breeding, and wintering birds.
- Monitoring data will be maintained in secure and accessible systems.
- Identify habitat conditions needed by applicable species of special concern and understand interrelationships of co-existing species.
- Evaluate the effects of management activities on habitats and populations of migratory birds through National Environmental Protection Act processes and Air Force Forms 813 and 332.
- Identify bird movement/migration patterns and habitat selection within PRSC sites.
- Manage habitat within bird and wildlife exclusion zones around airfields to reduce the bird-aircraft strike hazard and minimize unnecessary destruction of birds and nests, which will include:
    - Managing vegetation, as outlined in AFAPM 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*;
    - Coordinating with facility managers and building designers to minimize bird nesting sites on structures, and coordinate pre-egg laying nest destruction but establish alternative nesting sites outside the wildlife exclusion zone;
    - Minimizing standing water and open water ponds that attract waterbirds; and
    - Restricting bird feeding and emphasizing proper garbage management.
- Collaborate with other federal and state agencies to develop reasonable and effective conservation measures for actions that affect migratory birds and their natural habitats, and share inventory, monitoring, research, and study data.

- Allow the USFWS and other partners reasonable access to military lands to conduct sampling or survey programs.
- Encourage the use of qualified volunteers from local bird clubs to assist in survey and monitoring programs.
- Use existing partnerships and explore opportunities for expanding and creating new partnerships to facilitate combined funding for inventory, monitoring, management studies, and research.
- Provide outdoor recreation and wildlife viewing opportunities, where appropriate.
- Update and reprint, as needed, the bird checklist for Eareckson Air Station.
- Obtain state and federal permits for depredation activities, scientific collection, and live/dead eagle exhibit.
- Follow DoD Migratory Bird Guidance to ensure compliance with the MBTA and the Final Rule on Take of Migratory Birds by the Armed Forces (50 CFR Part 21).

#### 7.1.2.5 Site-specific Management Actions Addressing Migratory Birds

Below are some site-specific PRSC actions and issues addressing migratory birds. Activities involving ESA-listed bird species are described in Section 7.4, *Management of ESA- and MMPA-listed Species and Habitats*. Activities involving BASH-related actions are in Section 7.12, *Bird/Wildlife Aircraft Strike Hazard (BASH)*.

Initiated and supported by PRSC, the Avifaunal Database for Alaska Military Lands (ADAML; https://usfws-mbm-landbirds.shinyapps.io/ADAML/) was recently updated to provide a database of bird records and reports for active and inactive PRSC sites. Searching by site, the list of recorded bird species can be provided as well as associated reports, site boundaries, conservation status, and (eventually) GIS files for occurrence records.

**Eareckson AS**

Most bird surveys have grown out of the work of Gibson (1981), which was the first paper that documented diversity of migratory and resident birds using Shemya Island. At the request of the PRSC, the USFWS conducted winter wildlife surveys from 1988 through 2002 (e.g., Lipinkski and Thomson 1993, 1994; Meehan 1997a; Meehan et al. 1996; Meehan and Krom 1997; Howard 2000, 2001; Byrd and Scharf 2003). Spring and fall bird and wildlife surveys were also conducted by USFWS with the cooperation of the USAF during 1999-2008, 2010, 2014, and 2015 (e.g., Schwitters 1999, 2000; Schwitters and Schwitters 2000; Shirley 2015). Schwitters (2008) summarized bird survey data for 1999-2007. The primary purpose of these surveys was to inventory and document birds and wildlife using the island and relate these findings to real and potential strike hazards to aircraft (Shirley 2015). More recently, wildlife surveys were conducted during spring and fall 2016 and 2017 to document seasonal avian and marine mammal use on and near the island to assist with the Eareckson AS BASH plan and NEPA project reviews (Fischer and Neipert 2019a, b). Refer to Appendix H for further information.

The earlier surveys provided a valuable baseline from which to measure long-term population trends in biodiversity at Eareckson AS. The earlier and recent surveys defined preferred wildlife use areas of Shemya Island, which helps with decisions regarding siting future facilities and operations. For example, nearshore marine environments are far more important during winter for most species of wildlife in the area than are freshwater or open marine waters.

**Active and Inactive Sites**

Numerous avifaunal inventories and studies were conducted in the mid- to late 1990s and 2000s for the PRSC sites (e.g., McCaffery and Harwood 1997; McCaffery et al. 1997a, b; Moore 1998; Skinner 2000; McCaffery 2001; Ritchie et al. 2003; Oasis Environmental 2007, 2008). In 2019, the USAF funded avian surveys of Fort Yukon, Indian Mountain, Murphy Dome, and Sparrevohn LRRS (Pohlen et al. 2019).

An issue at Cape Lisburne is the potential disturbance of nesting seabirds by blasting at rock quarries located on site. Blasting will continue to be done in accordance with the USFWS permit for quarry operations and seawall repair.

The PRSC educates pilots who use the Cape Newenham airfield about the sensitive nature of breeding seabird colonies in the area. Pilots are discouraged from approaching too closely to these nesting areas. The Air Force will continue to work to minimize disturbance, consistent with aircraft safety requirements.

Federal regulations require various permits for the removal or disturbance of migratory birds. Nests are not to be disturbed during the nesting periods when eggs or nestlings are in nests (typically May 1-July 15). Nest materials may be removed prior to egg-laying if nests are in a location that impacts the mission.

**General Measures for PRSC Projects to Avoid and Minimize Impacts to Migratory Birds**

The following measures are typically implemented for construction, cleanup, and demolition projects on PRSC sites.

- If a nest is encountered, the 611 CES NRM will be immediately notified.
- To avoid destruction of nesting birds, any vegetation clearing activities should be conducted outside of the nesting period.
- Care should be taken not to provide nesting habitat for birds during or as a result of cleanup actions.
- Garbage and human refuse should be routinely cleaned-up and maintained so it does not attract birds and other wildlife.
- Encourage seeding or revegetation at the end of spring migration, which provides seeds with the entire growing season to mature.
- Best Management Practices (BMPs) will be implemented so that no new noxious or invasive species are introduced to areas where they are not already found. Monitoring of the revegetated area will be for at least one growing season to ensure invasive species have not been established.
- BMPs will include restrictions for dewatering basins in and around site runways as to not attract birds.

During a review of this INRMP, the USFWS recommended that lighting should be designed as to not attract birds. Since radiant lights at facilities could be an attractant to birds, especially during periods of inclement weather and/or increasing darkness, shielded lighting will be required at project facilities to lessen the potential for episodic collision events. Low radiant lighting should be used, and lighting should be directed downward or inward wherever possible to prevent "star" effects when viewed offsite. Only lighting necessary for safety should be directed offsite. The PRSC will implement this recommendation to the best of its ability, considering safety and operational needs.

### 7.1.3 Non-avian Wildlife

#### 7.1.3.1 Polar Bear Interaction Reduction

The MMPA gave the USFWS responsibility for managing polar bears in Alaska. The USFWS issues a Letter of Authorization (LOA) to take polar bears, a federally-threatened species, to the BOS contractor on

an annual basis following submittal of a request by the contractor. The authorization allows the take, by harassment (deterrent activities), of polar bears during the operation and maintenance of some northern Alaska PRSC sites. The authorization is restricted to harassment activities. Authorized individuals are responsible for documenting and reporting to the USFWS instances involving harassment activities as soon as possible and not later than 24 hours from the occurrence. A final report of all encounters and hazing events is required no later than 60 days after the expiration of the authorization. Additionally, an LOA for the intentional take of polar bears on the North Slope of Alaska is appropriate for specific sites with planned Clean Sweep and other IRP activities.

Personnel operating in polar bear habitat must avoid any activity that could threaten or kill a bear without just cause. The MMPA allows a polar bear to be killed if the action is necessary in self-defense or to save the life of a person in imminent danger. Such actions must be reported to the USFWS within 48 hours.

Point Barrow, Cape Lisburne, Oliktok, Barter Island, Kotzebue, and Tin City LRRSs and Bullen Point, Point Lay, and Point Lonely sites, as well as Anvil Mountain and Nome Field POL, and perhaps Cape Romanzof LRRS, are within the range of the polar bear, a species with proven potential for harm to humans. Personnel working at or visiting these sites should:

- Document all human-polar bear interactions, including maulings, threats, and damage to facilities and runways, particularly as required by the USFWS authorization to take;
- Evaluate site facilities and operations for compatibility with polar bears;
- Enforce rules prohibiting the feeding of wildlife, as established in the PRSC policy prohibiting wildlife feeding and poisoning on PRSC installations;
- Reduce or eliminate activities and operations that attract polar bears; and
- Establish a site-specific procedure for dealing with polar bear encounters, considering requirements of the USFWS authorization to take polar bears and recommendations of the *Polar Bear and Walrus Avoidance Plan*.

The polar bear avoidance plan was developed by the USAF in cooperation with the USFWS (see Section 14.3, *Polar Bear and Walrus Avoidance Plan*). The plan included procedures to minimize polar bear encounters and bear-proof facilities and education and training programs for site personnel and visitors. Refer to Section 14.3 for further details. In FY18 the USFWS received USAF funding to perform bear awareness training for PRSC installation and BOS contract staff. The Avoidance Plan is updated as necessary.

#### 7.1.3.2 Brown/Black Bear Conflicts

Brown bears and/or black bears are commonly found in and around most PRSC sites. Below are a few specific issues caused by these potentially dangerous bears. The potential for brown bear-human encounters/conflicts increases due to (1) improper disposal or storage of fish and wildlife carcasses, (2) improper refuse storage and disposal, and (3) casual, chance encounters, not necessarily food related. Many of these causes were greatly reduced with the reduction in number of personnel. While no formal bear management program is in place, measures are taken to minimize human-bear encounters. Site personnel and visitors are warned of potential bear encounters.

It is beyond the scope of this INRMP to provide extensive information regarding the prevention of brown/black bear encounters and minimization of risks associated with such encounters. Information in the Polar Bear Avoidance Plan (see Section 14.3) is useful for personnel working, visiting, or stationed at any PRSC site where bears may be encountered, especially means to avoiding attracting bears to the sites, such

as food and garbage management. The following may be useful when working or visiting such sites (further details are found at http://www.adfg.alaska.gov/?adfg=livingwithbears.bearcountry). In general:

- Make noise so you don't surprise a bear. Stay alert and look for signs of bears.
- Never approach or crowd bears; respect their "personal space."
- Keep food, garbage and other attractants out of reach of bears.
- Stay calm during a bear encounter. Ready your deterrent. Stand your ground, group up with others and alert the bear by talking calmly. Don't run.

#### 7.1.3.3 Arctic Foxes at Eareckson AS

Arctic foxes on Shemya Island are descendants of foxes that were introduced roughly 100 years ago. Shemya Island foxes now play an important role in the Eareckson Air Station BASH program as their presence discourages gulls and geese from nesting or roosting on the airfield. It is therefore desirable that the fox population persists on Shemya Island. When concerns were raised regarding the health of Shemya's foxes, it prompted an investigation by arctic fox specialists, Dr. Paula White and Dr. Terry Spraker, to evaluate the status and viability of Shemya Island's arctic fox population (White and Spraker 2012). The health assessment and population monitoring of foxes on Shemya Island continued in March 2017 and March 2019 (Spraker and White 2017; CEMML 2019b). Refer to Appendix H, Eareckson AS, for further details on the Arctic fox status and population estimates).

## 7.2 OUTDOOR RECREATION AND PUBLIC ACCESS TO NATURAL RESOURCES

*Applicability Statement*

This section applies to all USAF installations that maintain an INRMP. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

Outdoor recreation contributes to the quality of life and is essential for maintaining productivity, particularly at remote installations with personnel living in isolated living conditions. Consumptive uses of natural resources (commercial, subsistence, and sport use of fish and animal resources) and non-consumptive uses (bird watching, hiking, photography, etc.) are available, and these activities are pursued in areas surrounding PRSC sites.

Access to each PRSC site by authorized personnel (site personnel; contractor personnel working at the site; DoD military, DoD civilians, their dependents, and immediate family members; and retired military and their dependents) is managed by the 611 ASUS. Each visitor must fill out a Site Arrival Notice (SAN) and submit the document to the 611 ASUS for consideration. Policies include provisions for aircraft use of USAF runways and facilities, refuse carry-out, personal weapons, and use of facilities. Use of runways by commercial guides/outfitters to access surrounding areas likely occurs at some remote sites. The SAN process is what is used by the USAF to investigate the purpose of a person's visit and potentially the background or history of the traveler as well.

### 7.2.1 Subsistence

Subsistence use of fish and wildlife has been an important facet of life in Alaska for thousands of years. Since 1980 native and non-native subsistence uses on federal public lands in Alaska have been regulated by Title VIII of the ANILCA. It is USAF policy to adhere to requirements of the Act with regard to subsistence use of resources on lands used by the PRSC. Subsistence activities occurring on areas adjacent to Air Force managed land has been evaluated by Braund and Associates (2004). Gathering natural

resources for subsistence uses is a year-round activity and is important to each village or city near remote PRSC sites. Refer to Appendix H for site-specific discussion of subsistence use.

All PRSC sites are federal lands, often public domain land withdrawn for military purposes. Federal regulations do not provide for subsistence priority on lands withdrawn for military use. 50 CFR 100.3(d), published 27 December 2005, in the Federal Register states: (d) *The regulations contained in this part apply on all other public lands, other than to the military, U.S. Coast Guard, and Federal Aviation Administration lands that are closed to access by the general public, including all non-navigable waters located on these lands*.

### 7.2.2 General Outdoor Recreation

#### 7.2.2.1 Hunting and Fishing

Consumptive outdoor recreation, primarily sport hunting and fishing, opportunities are limited by long winters, lack of infrastructure, cost for transportation, minimal manning requiring multi-tasked personnel with very little free time, as well as transient or ephemeral fish and wildlife populations. The use of natural resources is expected to remain relatively constant at PRSC sites. Refer to Appendix H for site-specific discussion of outdoor recreation.

There is no hunting allowed on PRSC installations, however limited hunting outside installation boundaries does occur at some sites. All visitors, installation staff or BOS contractors who partake in off-installation hunting are advised to follow regulations dispersed annually by the ADFG. All visitors are advised to utilize the ADFG regulations when engaging in any fishing activity.

Active PRSC sites have security and personal safety issues, thus weapon usage is reviewed on a case by case basis under the auspice of the SAN processing. SAN forms have a location for the serial numbers of each weapon and each traveler is required to provide such information before being permitted to land. Sites no longer in active use are in the process of being cleaned up (i.e., Air Force property removed and remediating contaminants). Clean sites then will be returned to agencies from which they were originally withdrawn, or other entities that can put place them into nonmilitary use, including hunting, if that is determined a viable option through future land planning efforts.

Implementation of EO 12962, *Recreational Fisheries*, includes five initiatives supported by the USAF:

- increase access to recreational fisheries,
- provide fish passage,
- restore recreationally valuable native fisheries,
- promote education and outreach opportunities, and
- protect human health by reducing fish contamination.

The 611 CES/CEI will manage fisheries resources and their associated recreation at PRSC sites, fully cognizant of its responsibilities to these five initiatives. Implementation of the IRP is the primary action taken in support of these initiatives.

#### 7.2.2.2 Wildlife Viewing and Other Recreation

Wildlife viewing opportunities are available at each PRSC site to varying degrees. A great variety of flora and fauna species can be observed at or near many sites. Some sites are within or adjacent to NWRs, and wildlife viewing, photography, and environmental education are priority public uses on these lands. Refer to Appendix H for site-specific discussion of outdoor recreation.

The PRSC has developed a policy regarding the prohibition of wildlife feeding and poisoning on PRSC installations (Memorandum, 18 Jan 06, from Commander, 611 ASG/CC, Subject: Prohibition of Wildlife Feeding and Poisoning Policy). Intentionally feeding moose, bear, wolf, coyote, fox, or wolverine, or negligently leaving human food, pet food, or garbage in a manner that attracts these animals is a violation of state law (5 AAC 92.230). Poisons or other substances that temporarily incapacitate wildlife are prohibited under ADFG general regulations. Persons engaged in unlawful activities will be liable for enforcement actions. Activities such as these are taken seriously as barment from PRSC sites may result. However, poisons can be used inside facilities as necessary.

Other outdoor recreational opportunities on PRSC sites include walking, hiking, jogging, and ATV riding on the road systems.

## 7.3 CONSERVATION LAW ENFORCEMENT

*Applicability Statement*

This section applies to all USAF installations that maintain an INRMP. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

There are virtually no natural resources law enforcement issues on PRSC sites. Sites are very small in comparison to most military installations; hunting is not permitted on PRSC sites; and sites, if manned, with exception of Eareckson AS, have few on-site personnel. Appendix B (General Items of Cooperation among the USFWS, ADFG, and PRSC 611 CES) provides a means for the PRSC to request enforcement assistance from the USFWS.

## 7.4 MANAGEMENT OF ESA- AND MMPA-LISTED SPECIES, OTHER FEDERALLY LISTED SPECIES, AND THEIR HABITATS

*Applicability Statement*

This section applies to USAF installations that have ESA-listed species on USAF property. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

### Policy and Background

The ESA requires protection and conservation of federally listed threatened and endangered plants and animals and their habitats. Conservation includes the use of all methods and procedures that are necessary to bring any threatened and endangered species to the point where the measures pursuant to the ESA are no longer necessary.

The goal of the PRSC actions specific to threatened and endangered species management is twofold: (1) conserve and maintain self-sustaining populations of threatened and endangered species, consistent with military policy, mission sustainability, and carrying capacity of the ecosystem; and (2) avoid jeopardizing the continued existence of threatened and endangered species within PRSC sites. The goals are similar for MMPA-listed species.

Maintaining the environmental health of the landscape is essential for realistic and sustainable military training. A healthy ecosystem (including healthy populations of rare plant and animal species) is better able to withstand both natural and man-made disturbances. The focus is to maintain mission flexibility through the conservation and management of federal and state-listed species.

### 7.4.1 ESA-listed Species and Critical Habitat

Appendix H provides site-specific discussions of ESA-listed species and critical habitat. In addition, refer to Section 2.3.4, *ESA- and MMPA-listed Species and Other Federally Listed Species*, (including Table 6) for further details on species occurrence on or in the vicinity of PRSC sites.

Consultation with USFWS or NMFS regarding the potential for a USAF action at a PRSC site to impact an ESA- or MMPA-listed species or designated critical habitat will only be conducted by a qualified USAF biologist or surrogate government agent with both academic and field experience pertinent to the region of Alaska.

In 2014, in accordance with ESA section 7, the USAF conducted formal consultation with the USFWS regarding the USAF's proposal to conduct remediation and restoration activities at 31 active and inactive LRRS and SRRS and the potential effects on ESA-listed species: spectacled eider, Steller's eider, polar bear, and northern sea otter (USFWS 2014b). Proposed remedial activities would occur year-round between 2014 and 2024, with most activities occurring during May-October. The USFWS determined that the proposed action may affect, but is not likely to adversely affect, Steller's eider or polar bear, and is not likely to jeopardize the continued existence of the Pacific walrus (a candidate species for ESA listing at the time of the consultation). The USFWS also determined the proposed action may adversely affect the threatened spectacled eider. Following review of the status and environmental baseline of listed eiders, and analysis of potential effects of the proposed action to this species, the USFWS concluded the proposed action is not likely to jeopardize the continued existence of spectacled eiders. Although northern sea otters may occur in nearshore marine waters adjacent to some USAF work sites (i.e., Eareckson AS; former Nikolski, Driftwood Bay, and Port Heiden RRS; and Cold Bay LRRS), specific measures to be implemented to reduce or avoid impacts to sea otters at these sites were not identified. The USAF will initiate site-specific consultation with the USFWS' Anchorage Field Office regarding effects of remediation activities on sea otters at these locations as proposed actions at these sites are developed.

Critical Habitat Considerations

The ESA was revised (ESA section 4(a)(3)(b)(i)) via the National Defense Authorization Act of 2004, which states that, "The Secretary [of the Interior] shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under Section 101 of the Sikes Act (16 USC 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation." The USFWS has determined that, where applicable, federal critical habitat designation is not warranted if the INRMP includes the following three criteria:

1. ***The plan provides a benefit to the species.*** Cumulative benefits of the management activities identified in a management plan, for the length of the plan, must maintain or provide for an increase in a species' population or the enhancement or restoration of its habitat within the area covered by the plan [*i.e.*, those areas deemed essential to the protection of the species]. A benefit may result from reducing fragmentation of habitat, maintaining or increasing populations, ensuring against catastrophic events, enhancing and restoring habitats, buffering protected areas, or testing and implementing new strategies.
2. ***The plan provides certainty that the management plan will be implemented.*** Persons charged with plan implementation are capable of accomplishing objectives of the management plan and have adequate funding for the management plan. They have the authority to implement the plan and have obtained all necessary authorizations or approvals. An implementation schedule (including completion dates) for the management effort is provided in the plan.

3. ***The plan provides certainty that the management effort will be effective.*** The following criteria will be considered when determining the effectiveness of the management effort. The plan includes (1) biological goals (broad guiding principles for the program) and objectives (measurable targets for achieving the goals); (2) quantifiable, scientifically valid parameters that will demonstrate achievement of objectives and standards for these parameters by which progress will be measured are identified; (3) provisions for monitoring and, where appropriate, adaptive management; (4) provisions for reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the management effort are provided; and (5) a duration sufficient to implement the plan and achieve benefits of its goals and objectives.

### 7.4.2 MMPA-listed Species

Appendix H provides site-specific discussions of MMPA-listed species. In addition, refer to Section 2.3.4, *ESA- and MMPA-listed Species and Other Federally Listed Species*, for further details on species occurrence on or in the vicinity of PRSC sites. These marine mammals, with exception of polar bear and walrus, and ringed and bearded seals (haulouts), do not occur on PRSC sites proper; rather they may occur in the marine waters near the sites.

### 7.4.3 Bald and Golden Eagles

Enacted in 1940 and amended several times since then, BGEPA prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Federal agencies are required to support the intent of the BGEPA by integrating conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on eagles when conducting agency actions.

In 2007, the USFWS developed *National Bald Eagle Guidelines* (USFWS 2007b). In developing these guidelines, USFWS relied on existing state and regional bald eagle guidelines, scientific literature on bald eagle disturbance, and recommendations of state and federal biologists who monitor impacts of human activity on eagles. Despite these resources, uncertainties still remain regarding effects of many activities on eagles and how eagles in different situations may or may not respond to certain human activities.

To avoid disturbing nesting bald eagles, USFWS makes the following general recommendations: (1) keeping a distance between the activity and the nest (distance buffers), (2) maintaining preferably forested (or natural) areas between the activity and around nest trees (landscape buffers), and (3) avoiding certain activities during the breeding season. Buffer areas minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect nest trees and provide for alternative or replacement nest trees. The PRSC will consider the use of these Guidelines in any actions that might affect eagle nests on or near its sites.

The USFWS announced a final rule on two new permit regulations to allow for the take of eagles and eagle nests under BGEPA. The final rule (50 CFR Parts 13 and 22 Eagle Permits: Take Necessary to Protect Interests in Particular Localities) was published in the Federal Register on September 11, 2009. The permits authorize limited, non-purposeful take of bald and golden eagles, authorizing individuals, companies, government agencies (including tribal governments), and other organizations to disturb or otherwise take

eagles in the course of conducting lawful activities, such as operating utilities and airports. Most permits issued under the new regulations would authorize *disturbance*. In limited cases, a permit may authorize the physical take of eagles, but only if every precaution is taken to avoid physical take. Removal of eagle nests would usually be allowed only when it is necessary to protect human safety or the eagles. In the unlikely event that take of eagles or removal of eagle nests become necessary, the PRSC would apply for a take/removal permit by coordinating with USFWS for technical assistance in assembling the permit application.

## 7.5 WATER RESOURCES PROTECTION

*Applicability Statement*

This section applies to USAF installations that have water resources. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

Water quality monitoring and management are required to comply with the Clean Water Act and other environmental laws and regulations. Also AFI 32-7064 specifies that land management activities use applicable best management practices to minimize non-point sources of water pollution. Water quality reflects environmental pollution, including erosion. Maintaining clean water is a critical part of ecosystem management.

Appendix H provides site-specific information regarding surface water and hydrology at PRSC sites.

Surface water management at PRSC sites consists of maintaining and improving water quality. This requires the continued remediation of hazardous waste sites, particularly fuel seeps, through the IRP, discussed in Section 2.4.3.1. Some sites are scheduled for or have completed Clean Sweep activities; other sites may experience construction of new facilities (*e.g.*, potential wind turbines, new buildings); and most have experienced disturbance to one degree or another, all of which may have resulted in erosion and disturbance to vegetation. Decreasing erosion through revegetation of disturbed areas and restricting ATV use to established roads will enhance efforts to maintain and improve water quality at these sites. Maintaining and improving surface water quality will protect fisheries habitat within and near PRSC sites.

## 7.6 WETLANDS PROTECTION

*Applicability Statement*

This section applies to USAF installations that have existing wetlands. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

Wetland delineation is used to identify and map areas under the jurisdiction of the Clean Water Act. Most current definitions, including the USACE *Wetland Delineation Manual* (USACE 1987), generally characterize wetlands by the presence of wet (or hydric) soils, wetland hydrology, and the presence of plants specifically adapted to habitats that are inundated or saturated (hydrophytic vegetation).

Any federal facility potentially affecting wetlands and any federal agency or department granting licenses or permits relating to wetlands must comply with EO 11990 and Section 404 of the Clean Water Act. Section 1 of EO 11990 states, “Each agency shall provide leadership and shall take action to minimize destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities....”.

The Fish and Wildlife Coordination Act (P.L. 85-264) requires federal agencies that propose, or are authorized, to undertake the impoundment, diversion, deepening, or other control or modification of any stream or body of water (including wetlands), or which are asked to approve such activities, to provide equal consideration to wildlife conservation throughout the planning and decision-making process. The Act requires such agencies to first consult with state and federal wildlife agencies.

Wetlands are recognized as critical resource areas, providing the following benefits:

- Breeding grounds for fish and shellfish,
- Critical habitat for waterfowl and mammals,
- Reduced pollution via natural filtering mechanisms, and
- Lessened potential for flooding.

Under AFI 32-7064, the Air Force is instructed to comply with all federal and state regulatory requirements, as well as to inventory and monitor wetlands. The following guidelines are recommended for the management of wetlands at PRSC sites.

***Step 1*** - Survey all USAF installation land to determine if jurisdictional wetlands are present and establish their status and condition. The USFWS can provide assistance in wetlands delineation, particularly as site-specific development projects are considered.

***Step 2*** - Develop management plans, such as the Base Comprehensive Plan, to guarantee that current and future development will protect and enhance existing wetlands.

***Step 3*** - Consult with the USACE for a Section 404 permit whenever proposed activities potentially affect a wetland. In such cases, the USEPA and appropriate federal, state, and local agencies should also be consulted.

State regulations include 18 AAC 70 Alaska Water Quality Standards permits issued by the State of Alaska Department of Environmental Conservation. The Alaska Department of Natural Resources (ADNR), Division of Land requires a land use permit when any activity occurs near or on state lands or stream beds under AS 38.05.850.

Any projects planned (expansion or demolition) should minimize impacts to wetlands. USAF policy requests pre-application meetings prior to applying for USACE Section 404 permits. When wetlands are impacted, AFI 32-7064 requires a Finding of No Significant Impact (FONSI) at the conclusion of an Environmental Assessment or a Record of Decision (ROD) at the conclusion of an Environmental Impact Statement, either of which must include a Finding of No Practical Alternative (FONPA).

Appendix H summarizes wetlands present at each PRSC site.

## 7.7 GROUNDS MAINTENANCE

*Applicability Statement*

This section applies to USAF installations that perform ground maintenance activities that could impact natural resources. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

Grounds Maintenance in this section includes traditional functions (*e.g.*, mowing, weed and other vegetation control), and it also includes erosion control and revegetation.

**General**

In accordance with AFI 32-7064, Air Force land management activities must consider the protection and enhancement of desirable natural and man-made features in the landscape. Grounds maintenance and landscaping includes water conserving landscape design, use of native or regionally adapted plants in developed areas, reduction of fertilizer and pesticide use, and weed control. It is Air Force policy that environmentally and economically beneficial landscaping practices be used, per EO 13148, *Greening the Government through Leadership in Environmental Management* and as outlined in a Presidential Memorandum (26 April 1994). The Presidential Memorandum directs federal agencies to:

- Use regionally native plants for landscaping;
- Design, use, or promote construction practices to minimize adverse effects on the natural habitat;
- Prevent pollution by reducing fertilizer and pesticide use, using integrated pest management, recycling green waste, minimizing runoff, and similar practices;
- Implement water efficient practices; and
- Create outdoor demonstrations incorporating native plants and other similar practices.

Revegetation

The Eleventh Air Force and the ADNR have a Cooperative Agreement for the Protection, Development, and Management of Vegetation Resources of Air Force Installations, Alaska (Nov. 5, 1996). This Agreement is a mechanism for the ADNR to provide advice to the Air Force in matters pertaining to revegetation, reclamation, and erosion control. The Agreement reiterates the requirement for USAF, USFWS, and ADFG approval prior to the introduction of exotic plants and animals on installations. The Air Force agreed to minimize impacts to vegetation resources on installations according to installation natural resources management plans (this INRMP).

Guidance for reseeding projects is provided in *A Revegetative Guide for Conservation Use in Alaska* (University of Alaska, Fairbanks 1991). Wright (2008) prepared *A Revegetation Manual for Alaska*, which includes site planning, site preparation, methods, cultivars and species, region-specific recommendations, fertilization, equipment, mulching and matting, and natural revegetation. These guides are used by the 611 CES to determine seed mixtures, seeding rates, and site preparation on a project-by-project basis to ensure optimal results. Additional technical support is available from the Alaska Plant Materials Center, U.S. Department of Agriculture Natural Resources Conservation Service, and the University of Alaska Cooperative Extension Service.

The BLM has found that natural revegetation is easily accomplished when water and wind erosion are controlled on small or narrow disturbed areas. Larger areas may require the surface to be roughened or may require the installation of deflector dikes and staked organic materials, such as straw or excelsior pads, to provide suitable revegetative habitats for native species (Buckle 1993).

Natural revegetation of disturbed areas is recommended for areas not subject to water or wind erosion or heavy human use. Taking no action is disturbed areas can result in seeds from willow and balsam poplar germinating and sprouting, given the right conditions (Sousa 1994).

General revegetation recommendations for Interior areas, provided by the Alaska Plant and Materials Center and the BLM include:

- Revegetation materials for areas subject to water or wind erosion, such as housing/industrial areas, should use only vegetative species endemic to the area.
- Seeding rates for revegetation projects will be determined on a site-specific basis.

- Fertilizer concentrations and application rates will depend upon local conditions.
- Watering is not needed if planting can be timed with the rainy season, or the site can be planted and left without watering until there is enough moisture to promote germination. If watering is started during the dry season, it should be continued until the seed germinates and becomes well established or until it begins to rain.
- White spruce and willows may be used for revegetation and can be planted as seedlings or sprigs.

Erosion Control

Erosion control is required to comply with the Clean Water Act and the Sikes Act, which requires "no net loss" in the capability to support the military mission. Conducting erosion control and stream bank stabilization is required by Public Law 106-65 (Military Land Withdrawal Act) as mitigation for the Land Withdrawal Legislative Environmental Impact Statement and Public Law 86-797 (Sikes Act Improvement Act) to implement the INRMP. Also AFI 32-7064 requires that land management programs include soil erosion control.

**Invasive Species**

The Committee for Noxious and Invasive Plant Management in Alaska defines an invasive species as: (1) non-native to the ecosystem under consideration, and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (EO 13112). Laws, orders, directives, policies, and regulations that affect grounds maintenance and landscaping on PRSC lands include:

- EO 13112, *Invasive Species*, requires all federal agencies to prevent the introduction of invasive species, to provide for their control, and to minimize economic, ecological, and human health impacts that invasive species may cause. Invasive species can be a threat to natural resources, impact local economies, and adversely affect the military mission.
- National Invasive Species Management Plan (2001), which includes DoD goals to prevent and control invasive species as well as restore lands with native species; and
- DoD directives 4715.1 and 4715.03, which require military services to protect, preserve, and restore the natural environment using regionally native plants for landscaping.
- AFI 7064, which requires installations, to the extent practicable and permitted by law, to not authorize, fund, or carry out management actions that are likely to cause the introduction or spread of invasive species and detect, respond rapidly to, and control populations of invasive species in a cost-effective and environmentally sound manner whenever and wherever practical, per EO 13112.

Regulation and control of plant pests by the Division of Agriculture is authorized under Title 3 of the Alaska Statutes. The Division of Agriculture is charged with protection of the agricultural industry and public interests through preventing the importation and spread of these pests. The Animal and Plant Health Inspection Service has authority to prohibit or restrict the importation, exportation, and interstate movement of plants through the Plant Protection Act. In accordance with Alaska Statutes 11AAC 34.020, 03.05.010, 03.05.030, and 44.37.030, the ADNR, Division of Agriculture maintains a statewide list of prohibited and restricted noxious weeds: http://dnr.alaska.gov/ag/akpmc/invasives/pdf/noxious-weeds.pdf.

The PRSC strives to prevent the introduction and spread of noxious and invasive species through equipment cleaning practices and requirements. Biosecurity from foreign pests and/or invasive species is an aspect of noxious and invasive species prevention that the PRSC must address, especially with aircraft arriving from foreign countries.

Invasive weed species are often spread through purchase, transportation, and utilization of contaminated seed, forages, topsoil, gravel, and plant materials. Vehicles and water are the most common agents for spreading invasive plant species. Main options available to land managers for control of invasive species are prevention, no action, and mechanical, biological, and chemical control. Control methods for invasive species are species-specific and based on the degree and extent of infestation. No one control method or solution usually exists for invasive plant species. Methods available include biological control (using organisms to reduce populations), manually pulling, mowing, and herbicides. The PRSC does not use herbicides for the control of invasive plants, but the option to do so remains open, based on effectiveness of other control techniques and ecological need for individual species control.

Invasive species know no boundaries. Management should include collaborative efforts with area agencies and entities. Much work on invasive species is being conducted by the ADFG; NPS; BLM; University of Alaska Fairbanks; and the Alaska Committee for Noxious and Invasive Plants Management in Alaska. Recommendations from these efforts and agencies will be considered for incorporation into the development of the PRSC invasive species program.

Below procedures are typically conditions added for construction, demolition, and cleanup projects at PRSC sites.

- BMPs will be taken so that no new noxious or invasive species are introduced to areas where they are not already found.
- Incorporate a strategy of integrated weed management into construction layout, design, and project alternative evaluation.
- Remove or treat seed sources and other viable reproducing plant parts that could be spread by construction disturbances or by passing vehicles or foot traffic.
- Avoid moving weed-infested gravel, rock and other fill materials to relatively weed-free locations. Gravel and fill should come from weed free sources.
- Identify existing noxious weeds along access roads and control them before construction equipment moves into the area.
- Clean off-road equipment (power or high-pressure cleaning) of all mud, dirt, and plant parts before moving.
- Use only weed-free straw and mulch.
- Follow the Cooperative Extension Service “DON’T plant in Alaska” list (University of Alaska, Fairbanks 2019). These plants escape cultivation and threaten wild areas by displacing native vegetation and destroying wildlife habitat.
- Use only certified weed-free seed for revegetation. A list of appropriate seeds for revegetation in Alaska can be found in the Alaska Revegetation Manual (Wright 2008).
- Plant only locally grown seedlings, trees and shrubs to avoid importation of forest diseases, invasive insects and plants, or noxious weeds.

## 7.8 FOREST MANAGEMENT

*Applicability Statement*

This section applies to USAF installations that maintain forested land on AF property. This section **IS NOT** applicable to PRSC sites.

*Program Overview/Current Management Practices*

The current command does not wish to harvest timber from forests on PRSC lands, nor does it wish to elicit bids from private entities for such harvest at this time. The extreme remote nature of the properties coupled with the poor value of the current timber on the properties are two specific reasons why the installation is not engaged in any type of timber sale program.

## 7.9 WILDLAND FIRE MANAGEMENT

*Applicability Statement*

This section applies to USAF installations with unimproved lands that present a wildfire hazard and/or installations that utilize prescribed burns as a land management tool. This section **IS NOT** applicable to PRSC sites.

*Program Overview/Current Management Practices*

Wildland fire has not been a significant issue on PRSC sites, however alterations in climate may change this fate (see Section 2.4.4.2, *Impacts from Climate Change*). Coastal sites, by their vegetative and climatic nature, are not at risk from wildland fires. There is a potential for wildland fire to be a significant issue on sites within interior Alaska, but PRSC missions are not, by their nature, prone to causing wildland fires. The Air Force Civil Engineer has considered creating a wildland fire response unit to support Alaska based commands, however as of December 2018, no functioning unit exists, thus fire response support at each remote site is limited.

Wildland fire management in Alaska requires multi-agency cooperation. Fire management programs are the programs of the land-managing agencies. Wildfire suppression is primarily a joint effort by BLM, Alaska Fire Service and the Alaska Division of Forestry with assistance from other agencies. Assistance to the USAF by the agencies listed in this section can be provided only if there is an agreement in place. Currently, none of the agencies have an agreement with the Air Force for PRSC site protection. Some PRSC sites are withdrawn from BLM. BLM would directly manage fire suppression on these sites, using procedures developed for other lands in Alaska. On PRSC sites authorized from the BLM to the Air Force by Federal Land Policy and Management Act rights-of-way BLM would have primary fire management responsibility.

The Joint Task Force-Alaska Wildland Firefighting Concept of Operations (Joint Task Force, Alaska Command 2010) provides means by which the Department of Defense can support cooperative wildland fire suppression efforts in Alaska. This plan is not specifically targeted toward, but would include, PRSC sites. There are no USAF military units specifically trained to provide such wildland fire support within Alaska

## 7.10 AGRICULTURAL OUTLEASING

*Applicability Statement*

This section applies to USAF installations that lease eligible land for agricultural purposes. This section **IS NOT** applicable to PRSC sites.

*Program Overview/Current Management Practices*

The PRSC is not actively conducting agricultural outleasing and is not anticipated to engage in such practices in the future.

## 7.11 INTEGRATED PEST MANAGEMENT PROGRAM

*Applicability Statement*

This section applies to USAF installations that perform pest management activities in support of natural resources management (e.g. invasive species, forest pests, etc.). PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

Herbicides and pesticides are not generally used at PRSC sites. Due to the sensitive nature of surrounding areas, risks of secondary poisoning, and requirements of AFI 91-21, all pesticide applications are subject to prior approval by HQ PACAF and the state and coordination with USFWS. Over the counter general use products, such as to control pests in mess facilities and maintain dikes about storage tanks can be used on PRSC installations with proper approval (personal communication, MSgt B. Echtinaw 2006). Any proposed future use of pesticides at PRSC sites must consider the cost of required storage facilities, use of certified applicators, potential effects on non-target organisms, and required approvals. No pesticides or related equipment are kept on sites. However, small quantities of over the counter general use pesticides (Off®, Raid®, Uncle Ben's® musk oil, etc.) are kept on sites as needed (personal communication, P. Cooley 2007).

## 7.12 BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH)

*Applicability Statement*

This section applies to USAF installations that maintain a BASH program to prevent and reduce wildlife-related hazards to aircraft operations. This section is applicable to Eareckson AS and King Salmon Airport.

*Program Overview/Current Management Practices*

**Policy and Background**

The most serious wildlife-human conflict issue on PRSC sites is bird-aircraft strikes. To indicate the seriousness of this issue, in 1995 an E-3 Airborne Warning aircraft with 24 persons on board crashed and burned on take-off from Elmendorf AFB. There were no survivors. Post-crash investigation revealed that ingestion of four geese forced two engines to shut down, causing the crash.

**Eareckson AS**

Eareckson AS has the greatest potential for BASH incidents due to its absolute dependence on regular air traffic to continue its mission. Although Shemya Island has a history of bird collisions with aircraft, few collisions have been reported (Schwitters et al. 2002). In June 1997 three gulls were struck and killed by a C-130 aircraft at Eareckson AS. In response, permits were received to use lethal control on common ravens and glaucous-winged gulls.

Larger birds, such as gulls and geese, can create a substantial BASH concern. Large concentrations of migrant waterfowl, gulls, and shorebirds traditionally rest on Shemya Island. Gulls may represent the most significant hazard to aircraft worldwide, partially because runways provide preferred flat open resting areas. During 1999-2011 only gulls have been recorded as involved in strikes. They cross the airfield and approaches as singles or pairs and have caused minimal or negligible damage to aircraft.

A 10,000-ft runway on the southern half of the island is at an elevation of 97 ft MSL. Bird strikes associated with gulls soaring along the island's southern shore and then crossing the airfield have been minimal, probably because flight elevations of the birds generally keep them below that of aircraft using the runway.

During this same period the numbers of Aleutian cackling geese have generally increased; in much higher numbers they prefer to return to the airfield and approaches to forage. The geese pose a heightened concern; their body is more dense than gulls; and the frequency of hourly runway crossings by geese averages more than double the average for gulls (Schwitters et al. 2002). The risk of a catastrophic bird strike is of higher concern with geese than with gulls (Schwitters et al. 2005; Schwitters and Rossi 2002; Schwitters et al. 2001, 2002). Avian studies conducted in recent years have documented the continued usage of the approach and departure zones by this large bodied species (Fischer and Neipert 2019a, b).

In 1999 the Alaska Maritime NWR staff, Wildlife Services, and the 611 CES began an avian study in the area surrounding the Eareckson AS beginning in spring and extending through fall. This study extended through 2003 and provided data for the Bird Avoidance Model (BAM). The BASH model and BAM are sensitive to the temporal and spatial birdstrike threat from migrating waterfowl and raptors. The BAM accounts for flight routes, flight altitude, aircraft design, and seasonal and daily fluctuations in bird activity to provide maximum safety from birdstrikes. As BAM data continues to be populated, it will become more useful to the USAF in Alaska.

An evaluation of potential wildlife strike hazards at Eareckson AS began in 1999. The *Wildlife Hazard Assessment of Eareckson Air Station, Shemya Island, Alaska* (Schwitters et al. 2001) was conducted over three field seasons (1999, 2000, and 2001). Recommendations provided by Schwitters et al. (2001) were reviewed by the 611 ASG Bird Hazard Working Group; subsequently, many have been required in the BOS contract. Changes in bird use of the airfield area and consideration of various strategies continue to require refinement in an effort to reduce risks and improve the BASH Reduction Program. The 3-year study also revealed substantial differences in use of the airfield environment by Aleutian Cackling geese, which would not have been noted in a single year of study. The assessment revealed that significant wildlife hazards are present at Eareckson AS.

During spring and fall 2002 Wildlife Services evaluated deterrent/control techniques that may help reduce hazards identified by Schwitters et al. (2002). The spring and fall Experimental Wildlife Control reports (Schwitters and Schwitters 2002a, and Schwitters and Rossi 2002, respectively) include numerous recommendations to reduce hazardous wildlife-related situations, many of which are being implemented at Eareckson AS.

Fox removal from the adjacent islands is credited with helping restore the Aleutian cackling goose (as well as other ground nesting species such as the common eider). As a result, this formerly listed endangered and then threatened species was delisted in 2001; a successful effort by the USFWS. Though geese have not been involved in a BASH incident, there has been an increase in BASH risk associated with the geese visiting the Eareckson AS airfield, overshadowing the threat from gulls (personal communication, G. Augustine 2006).

The obvious lack of nesting geese and gulls is directly attributed to Arctic foxes' presence; thus, fledging geese and gulls learning to fly are not an added BASH risk during summer (personal communication, G. Augustine 2006). The Arctic fox provides population control of ground-burrowing nesting birds by preying on their eggs, young, and in some cases, adults.

The presence of crowberries is a large part of the attraction to Shemya Island and contributes to the heightened risk of BASH at the airfield. Although crowberries do not grow in areas surrounding the airfield, once they are mostly eaten by the geese, the geese start to forage more on vegetation around the airfield. In fall 2002 crowberries were very successful on the northern side of the island; thus, very few geese foraged around the airfield, but after the crowberries were exhausted as a food source (by the end of August), flocks of geese were noted with increasing frequency in the vicinity of the runway (Schwitters and Rossi 2002).

Managing crowberries away from the airfield may reduce BASH potential on Shemya Island (personal communication, G. Augustine 2006). Depending on results of the crowberry project, the USAF will consider managing crowberries on Shemya Island to reduce BASH potential. Management would include various options from enhancement to removal.

Another important aspect of Aleutian cackling goose attraction to Shemya Island is the question of whether sufficient feeding habitat is available on other islands. In 2005 the USAF funded a pilot study of habitat distribution and habitat use in the Near Islands (Shemya, Nizki, Alaid, Agattu, and Attu) concurrent with the spring and fall BASH seasons at Eareckson AS (Frost et al. 2008). This study produced a habitat classification system, habitat maps, seasonal assessments of habitat availability, and preliminary conclusions about the relative importance of habitats to geese in the Near Islands in spring and fall.

In spring, geese primarily use habitats in which preferred forage species, such as *Festuca rubra*, experience early green-up. On Shemya there is also high use in spring of some partially vegetated habitats associated with human disturbance. These latter habitats do not exist on other islands in the study. Some patterns of habitat use in fall were inconsistent between Attu and Shemya, which may be related to a much wider variety of habitats available to geese on Attu. Among the Near Islands combined, Shemya holds less than 2% of those habitats identified as moderate or high value. It appeared that habitat availability during fall probably is less limiting to geese than during other seasons. Habitats used for nesting are most extensive on Attu, and there appeared to be high potential for continued growth of the Attu breeding population. There were indications that Shemya is used primarily by nesting and non-breeding geese that reside mainly on nearby Nizki and Alaid islands during summer; these small islands have limited nesting habitat. The most potential for population growth is on the larger Agattu and Attu islands (Frost et al. 2008).

Frost et al. (2010) included the following conclusions.

- Primary determinants of habitat selection by geese in spring are lack of snow cover and presence of forage plants, especially grasses, that green-up early.
- In fall geese regularly use a wide range of habitats but rarely tall meadows. The berry crop affects low elevation tundra habitat use. Late greening habitats become increasingly important late in fall.
- The relative importance of habitats at Shemya is highest in early spring when snow cover and lack of green vegetation limits use of other islands.
- BASH hazing on Eareckson AS should be limited to primary and secondary bird-exclusion zones for 10 days after the geese's arrival in mid-April. Island-wide BASH mitigation activities could begin sporadically after May 1 and could be intensified after May 15 until geese are gone, generally by mid-June.
- Intensive BASH mitigation activities could be conducted on Shemya throughout late summer and fall without significant impact on the regional Cackling Goose population.

Frost et al. (2008, 2010) included specific recommendations regarding BASH management on Eareckson AS. Additionally, bird, mammal, and vascular plants observed during these surveys were noted, and these were used during development of this INRMP to update species lists for Eareckson AS (see Appendix H).

After a listing change from endangered to threatened, approximately 200 geese were seen on Shemya Island in September 1995 by biologists Joe Meehan (USFWS) and Gene Augustine (USAF). Peak numbers using the island in spring and fall 1999 through 2001 doubled those seen in 1995 and gradually tripled, exceeding 600, as observed by Wildlife Services (Schwitters et al. 2002). Aleutian cackling goose use of Shemya Island continued to increase to over 1,000 in 2003 and 2004 (personal communication, G. Augustine 2006) and in spring 2005 (Schwitters et al. 2006). Frost et al. (2008) recorded 117 flocks with 1,586 geese in 11

habitat types during 2006 spring surveys and 104 flocks with 1,086 geese within 14 habitat types during 2006 fall surveys. In spring 2010 Wildlife Services' personnel observed record numbers of geese during evening surveys, with >800 often counted; 2010 fall counts were low, probably due to the use of a full-time hazer during 2008-2010 fall seasons. Low fall counts may have also been due to unmowed areas along the runway during 2010 (Frost et al. 2010). In spring of 2016 (specifically 18 May), a high count reached 1,233 detections, whereas the fall high (2 September) reached a high count of 575 detections.

Surveys to track bird species utilizing the approach and departure zones at Eareckson AS continue. In 2016, the USAF and the USACE Engineer Research and Development Center (ERDC) teamed to continue building data streams based on historic avian collection methods. In 2016, 2017, and 2018 biologists from USACE ERDC completed fall and spring visits in order to continue to build upon the avian knowledge and indices in existence for the island (Fischer and Neipert 2019a, b).

**Active LRRS and Inactive Sites**

The potential for BASH exists at PRSC sites with runways. Large mammals and birds are a concern but only if and when USAF personnel and aircraft are performing a site visit or other management related activities at these sites. Site visits are infrequent.

## 7.13 COASTAL ZONE AND MARINE RESOURCES MANAGEMENT

*Applicability Statement*

This section applies to USAF installations that are located along coasts and/or within coastal management zones. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

DoD Instruction 4715.03 (Feb. 14 2011) requires installations to manage its operations, activities, and natural resources to avoid or minimize adverse effects to natural resources on, adjacent to, or in close proximity to DoD lands or near-shore areas, and also to complete planning-level surveys to characterize significant installation and near-shore natural resources.

The Air Force has an MOU with Coastal America (Coastal America 1992) to perform the following:

- Protect, preserve, and restore the nation's coastal ecosystems through existing federal capabilities and authorities;
- Collaborate and cooperate in the stewardship of coastal living resources by working together and in partnership with other federal programs; and
- Provide a framework for action that effectively focuses expertise and resources on jointly identified problems to produce demonstrable environmental and programmatic results that may serve as models for effective management of coastal living resources.

As stated in AFI 32-7064, par. 5.2.1, all Air Force activities, operations, projects, and programs that affect any lands, water use or natural resources of a state's coastal zone must be consistent, to the maximum extent practicable, with the state Coastal Zone Management Plan. Although federal lands are excluded from Alaska's coastal zone boundaries as *those lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal Government, its officers or agents…* (15 CFR 923.3), activities on these lands are subject to consistency provisions of Section 307 of the CZMA, as amended.

Consistency with this standard has been accomplished during the NEPA/EIAP. Equally important, the PRSC protects, preserves, and restores coastal ecosystems through environmentally coordinated daily operations and through the IRP program for clean-up and restoration of contaminated sites.

The Alaska coastal management program was discontinued effective 30 June, 2011 as the Alaska House defeated a measure that would have extended the state's program.

## 7.14 CULTURAL RESOURCES PROTECTION

*Applicability Statement*

This section applies to USAF installations that have cultural resources that may be impacted by natural resource management activities. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

Cultural resources management at PRSC sites is provided in accordance with Section 106 and Section 110 of the NHPA (16 USC 470, as amended), the Archeological Resources Protection Act (16 USC 470aa-47011), the American Indian Religious Freedom Act (42 USC), the Native American Graves Protection and Repatriation Act (25 USC 3001 et seq.), EO 11593 (*Protection and Enhancement of Cultural Environment*), DoD Directive 4710.1 (*Archeological and Historic Resources Management*, 1984), and AFI 32-7065.

The *Integrated Cultural Resources Management Plan, Eareckson Air Station, Alaska* (611 CES 2015a) includes provisions for the protection and evaluation of prehistoric and historic sites on Shemya Island. A number of the archaeological sites on Shemya have been claimed by the Aleut Corporation under the Alaska Native Claims Settlement Act's 14(h)(1). Shemya Island also contains historic properties and artifacts associated with World War II and the Cold War. Disturbance of World War II and Cold War historic properties, including buildings, structures and artifacts are subject to review under the NHPA.

The *Cultural Resources Management Plan, King Salmon Airport, Alaska, 2008* (611 CES 2013b) includes provisions for the protection and evaluation of prehistoric and historic sites on King Salmon Airport. No archaeological properties are known to exist on King Salmon Airport. The entire AC&W system, which includes the King Salmon Airport, has been determined eligible for inclusion in the National Register of Historic Places (611 CES 2013b).

The *Integrated Cultural Resources Management Plan: Aircraft Control and Warning (AC&W) System, Alaska (2015)* (611 CES 2015b) includes provisions for the protection and evaluation of prehistoric and historic sites on Cape Lisburne, Kotzebue, Tin City, Indian Mountain, Murphy Dome, Fort Yukon, Tatalina, Sparrevohn, Cape Romanzof, and Cape Newenham LRRSs.

The *Cultural Resources Management Plan, Distant Early Warning (DEW) System* (611 CES 2013c) includes provisions for the protection and evaluation of prehistoric and historic sites on Bullen Point, and Point Lay former SRRSs; Point Lay former LRRS; and Point Barrow, Oliktok, Barter Island, and Cold Bay LRRSs. Most other inactive sites are also covered in 611 CES (2013c).

Ground-disturbing projects on PRSC sites need to be reviewed to make sure that they do not disturb archaeological resources. All undertakings (as defined by Section 106, NHPA) need to be reviewed for their potential to affect historic properties, and a qualified archaeologist needs to review, and determine if there is a need for a survey, of proposed areas of potential effect. If archaeological resources are discovered, excavation must stop; the area must be protected; and the 611 CES Commander or the Cultural Resources Manager must be notified immediately. It may be necessary to consult with the State Historic Protection Officer regarding potential effects.

It is illegal to disturb archaeological sites, collect Native American artifacts, or collect artifacts from historic sites. A policy letter on Archaeological Resources Protection was signed by the 611 ASG Commander on 15 December 2006.

Some PRSC sites may contain historic properties and artifacts associated with World War II and the Cold War. Any undertakings that have the potential for direct or indirect effects of World War II and Cold War historic properties, including buildings, structures and artifacts, are subject to review under the NHPA.

## 7.15 PUBLIC OUTREACH

*Applicability Statement*

This section applies to all USAF installations that maintain an INRMP. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

**Public Outreach**

Community relations are a continuing concern to the USAF at some PRSC sites because of their close proximity and other relationships with these communities. Issues regarding effects of contaminants on fish and wildlife and water quality have been an IRP concern. Community concerns with regard to Air Force management of fish and wildlife and vegetation at the sites are considered in Air Force actions as they may impact subsistence activities, which may occur on the sites.

Restoration Advisory Boards (RAB), created by the USAF, provide local input into the IRP program. A RAB is a stakeholder group that meets on a regular basis to discuss environmental restoration at a specific PRSC property. RABs provide opportunities for local communities to become involved in the IRP process. It is an opportunity to share concerns with agencies involved in these activities (Office of the Secretary of Defense 2007). The number of RABs and their degree of involvement changes as USAF IRP activities change.

The AFCEC uses RABs to provide information relative to natural resources in the area. Since IRP activities may impact natural resources, it is important to make sure that any potential natural resources issues are identified and minimized in a public manner.

## 7.16 GEOGRAPHIC INFORMATION SYSTEMS (GIS)

*Applicability Statement*

This section applies to all USAF installations that maintain an INRMP, since all geospatial information must be maintained within the USAF GeoBase system. PRSC **is required** to implement this element.

*Program Overview/Current Management Practices*

**Policy and Background**

Too often, due to inefficient data storage, retrieval, and analysis systems, biological data are collected and stored without being used. A data management system is critical to ecosystem management since it relies heavily on data to make and evaluate ecosystem-based management decisions. GIS is a vital tool for assisting land managers with decision-making and monitoring results of management and mission activities. GIS also plays a critical role in planning actions for current and future years and maps out useful information for everyday work plans.

GIS is a powerful tool to assist NRMs in conflict resolution and mission enhancement and sustainment. A GIS is capable of assembling, storing, manipulating, and displaying geographically referenced information, (i.e., data identified according to their locations). GIS can analyze and model (manipulate, overlay, measure, compute, and retrieve) digital spatial data and display maps and tabular resources, showing results of spatial analyses. GIS technology integrates common database operations, such as query and statistical analysis, with the unique visualization and geographic analysis benefits offered by maps, which distinguishes GIS from other information management systems.

Implementation of GIS throughout the Air Force is through the GeoBase program, the accepted Air Force GIS. The 611 CES/CEN, and to some degree AFCEC (AFEC currently employs a full time GIS cartographer in Alaska to assist with various GIS exercises and map making endeavours), is responsible for maintaining the PRSC's GeoBase system. Data gathered through inventory and monitoring on PRSC sites are stored as digital data within a computer database and on paper as hard copy of the digital data. Housing and managing the GeoBase program in two divisions outside of the PRSC environmental division, has been noted as a deficiency. Often environmental map requests often are placed in lower priority in comparison to engineering map requests. Due to reduced staffing levels within the Geobase Offices in the PRSC and AFCEC's GIS service limitations (e.g. inability to post process wetland imagery), the NRM typically utilizes the services of an outside contractor or government entity such as USFWS for GIS services. GIS files obtained in this manner are saved to disc, share drive, and laptop hard drives for later integration into the Geobase until such layers are identified as a priority for inclusion amongst other environmental data awaiting inclusion.

**Natural Resources Spatial Database**

GIS data management is critical to successful implementation of this INRMP. Spatial data for various elements of the natural resource program are used to create maps that help facilitate planning activities that have the potential to impact management programs. GIS is a powerful tool for studying natural resources and aids in location of topographic features, aerial extent of coverage of a certain resource or problem area, monitoring those resources or problems, and modeling probable scenarios, all of which assist in optimizing resource utilization.

GIS takes into consideration many of natural resources elements: land use/cover, soil, hydro-morphology, terrain slope, drainage, wildlife habitats and population parameters, etc. It combines these with human-created features (structures, recreation facilities, transportation features, etc.) and mission aspirations to provide various choices of action plans for sustainable development or use of land and water after scientific analysis of spatial and non-spatial data.

PRSC Squadrons use GeoBase data and information to support numerous mission objectives including improvement of land and resource management decisions. GIS incorporates field locations and data for various inventory and monitoring activities to make data more accessible to NRMs. GeoBase is providing and will continue to provide a variety of maps for managing and monitoring impacts of military and other land uses and natural resources projects. GeoBase will be used to produce maps that include such features as military facilities, transportation networks, drainage, vegetation, wetlands, elevation, soils, etc.

GeoBase supports natural resources management to evaluate development and use impacts on natural resources and to document and track resource management actions. This type of analysis will help prioritize projects for natural resources management. Maps available through the GeoBase program provide a readily available resource for field activities that provide relevant ecological, geomorphic and development details to field crews.

### GIS Maintenance and Use

611 CES/CEI will continue to coordinate and exchange data with 611 CES/CEN and AFCEC through the GeoBase program. New contracts that go to outside agencies or contractors include a clause that requires any spatial data developed from the study to be incorporated into a compatible GIS format declared by AFCEC's GIS SME's. At this time, data is saved to disc and hard drive and then issued to 611 CES/CEN for incorporation into the actual database at a later date. Partnering agencies have been solicited for additional relevant data layers of natural resources, such as otter hot spots, GPS tracklines of aerial surveys, and polar bear locations.

The GeoBase program is an Air Force program created to centralize mapping for a given installation. The Geobase program is run by the Geo Integration office, a fused environment of enlisted personnel, civilians, and contractors working together to best meet the requirements in accordance with AFI 32-10112, *Installation Geospatial Information and* Services (October 2007). GIS coverage supports presentation of natural resources in E-Plan INRMP.

The 611 CES Geo Integration Office and AFCEC GIS SME utilizes a diverse collection of hardware for information collection and analysis. This office currently maintains one file server for data, one server for the Oracle 10g enterprise geodatabase, and one server for the GeoBase website. File and base section servers reside on JBER Network and are administered directly by the Geo Integration office staff in coordination with 673 CES GeoBase administrator. The database and application web servers are in the storage area network and are administered by the Geo Integration office staff with assistance from 673 Communications Squadron personnel. Update of software, patches, and time compliance network order directives are maintained by the GeoBase administrator. A service level agreement between the 673 Communications Squadron Network Control Center and 673 CES defines the roles each organization plays in the administration and support for the servers.

The GeoBase program has multiple software holdings. Mapping software, raster enhancement, and remote sensing software are held and maintained by the GeoBase administrator. ESRI is the core software vendor used by the Geo Integration office. ESRI GIS products provide advanced spatial analysis, displays, and storage of geographically referenced information. The 611 Geo Integration office also shares a license for a ERDAS Imagine software package across the network for advanced raster processing.

## 8. MANAGEMENT GOALS AND OBJECTIVES

611 CES establishes long term, expansive goals and supporting objectives to manage and protect natural resources while supporting the military mission. Goals express a vision for a desired condition for 611 CES natural resources and are the primary focal points for INRMP implementation. Objectives indicate a management initiative or strategy for specific long or medium range outcomes and are supported by projects. Projects are specific actions that can be accomplished within a single year. Also, in cases where off-installation land uses may jeopardize AF missions, this section may list specific goals and objectives aimed at eliminating, reducing or mitigating the effects of encroachment on military missions. These natural resources management goals for the future have been formulated by the preparers of the INRMP from an assessment of the natural resources, current condition of those resources, mission requirements, and management issues previously identified. Below are the integrated goals for the entire natural resources program.

611 CES goals and objectives are displayed in the 'Installation Supplement' section below in a format that facilitates an integrated approach to natural resource management. By using this approach, measurable objectives can be used to assess the attainment of goals. Individual work tasks support INRMP objectives.

The projects are key elements of the annual work plans and are programmed into the conservation budget, as applicable.

*Installation Supplement – Management Goals and Objectives*

INRMP project-specific implementation goals, objectives, actions, and projects are listed in accordance with the natural resources management topics discussed in Chapter 7, *Natural Resources Program Management*. Within each of these management topics are specific goals and objectives followed by individual actions and projects in four categories (if needed): In-house Management Actions and Projects that require additional support. Projects are discussed in Chapter 10, *Annual Work Plans*.

In addition to projects to be managed by the 611 CES/CEAN Manager through in-house or contracted means, there are other projects to be accomplished through BOS contractor operations and other PRSC units at the PRSC sites. These are all termed "In-house Actions." General, non-site-specific, environmental protection measures within this INRMP are applicable to other current or future PRSC sites in Alaska. In recent years, surveys for species such as northern sea otter and polar bear near PRSC sites have been conducted by the USFWS under the auspice of a nationwide Interagency Agreement held between the USAF and USFWS (see appendix F).

A tabular summary of goals, objectives, in-house actions, and projects are in this section, including planned implementation years.

## 8.1 ECOSYSTEM MANAGEMENT

**GOAL 1: Implement Ecosystem Management as the Overall Management System to Ensure Sustained Ecosystem Functionality on PRSC Sites**

- OBJECTIVE 1.1: Manage land use to sustain PRSC sites' natural resources in concert with military mission requirements.

  **In-house Management Actions:**

  - Use adaptive management principles to manage PRSC natural resources, using ecosystem monitoring to guide management actions (ongoing).
  - Promote biodiversity via the use of native species, protection of sensitive areas, and restrictions on activities that negatively affect biodiversity (ongoing).
- OBJECTIVE 1.2: Use coordinated planning to fully integrate the PRSC sites natural resources program.

  **In-house Management Action:**

  - Improve or develop partnerships to ensure program development is coordinated with regional management programs to the best degree possible considering needs of military missions (as needed).
  - **Project: Plan Update INRMP, Alaska Remote Sites.** VNMHOS170313 (FY19); VNMHOS200313 (FY20); VNMHOS210313 (FY21); VNMHOS220313 (FY22); VNMHOS230313 (FY23). Conduct annual updates and revisions (as necessary) to the PRSC INRMP using goals, objectives, in-house actions, and projects to guide reviews; revise projects and budgets as required; coordinate updates and changes with USFWS, ADFG, and if necessary NMFS; and update/revise appendices as necessary and appropriate (e.g., Polar Bear and Walrus Avoidance Plan).

## 8.2 GEOGRAPHIC INFORMATION SYSTEM (GIS)

Background for these planned management actions is in Section 7.16, *Geographic Information Systems (GIS)*.

**GOAL 2: Provide Spatial Products and Analyses to Support PRSC Natural Resources Program Implementation**

- OBJECTIVE 2.1: Implement GIS through use of the 611 CES GeoBase program.
  **In-house Management Actions:**
  - Use GeoBase analyses and products to support natural resources management (ongoing).
  - Establish priorities for collecting and entering GIS data into the 611 CES GeoBase geodatabase and conduct data development (ongoing).
  - Ensure contracts to outside agencies or contractors require that any spatial data developed be incorporated into a compatible GIS format (ongoing).
  - Solicit partnering agencies for additional relevant natural resources data layers (ongoing).
  - Use GeoBase databases to respond to USAF data calls (as needed).
  - Provide change analyses maps and data to monitor ecosystem changes (as needed).

## 8.3 FISH AND WILDLIFE MANAGEMENT

Background for these planned management actions is in Section 7.1, *Fish and Wildlife Management*.

**GOAL 3: Maintain Fish and Wildlife Populations and Habitats as A Part of Naturally Functioning Ecosystems to Support the Military Mission and Enhance Readiness by Providing Natural Environments for Training and Minimizing Conflicts between Mission Requirements and Natural Resources and Their Uses**

- OBJECTIVE 3.1: Protect, conserve, and manage fish and wildlife populations and their habitats as vital elements of an integrated natural resources program and perform studies to enhance and maintain healthy sustainable populations.
  **In-house Management Actions:**
  - Cooperate with the ALMS (as needed). Conserve migratory bird populations through implementation of DoD PIF strategies (ongoing).
  - Implement requirements of EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, as established in the MOU between DoD and the USFWS (ongoing).
  - Implement requirements of the *Final Rule – Migratory Bird Permits; Take of Migratory Birds by Department of Defense* (ongoing).
  - Minimize disturbance to seabird colonies from quarry blasting, minimize the spread of debris from facilities, and reduce or eliminate the disturbance of seabird colonies by approaching and departing aircraft at Cape Lisburne LRRS (ongoing).
  - Educate pilots about the sensitive nature of breeding seabird colonies and haulout sites in the Cape Newenham area and discourage them from approaching too closely to haulout and nesting areas (ongoing).
  - Maintain and update species lists as studies provide new information (as needed).
  - Implement Christmas Bird Counts on Eareckson AS, if volunteers are available (as needed).
  - Limit use of dock lights at Eareckson AS to only those times when necessary for barge loading/off-loading operations that must be performed after dark to protect Leach's storm-petrels. Evaluate if directional lighting could be used to modify or restrict the area of illumination as necessary to minimize bird attraction.

- Integrate wildlife/habitat issues into land-use planning and decision-making processes (ongoing).
- Minimize fragmentation by promoting natural landscapes and connectivity of habitats (ongoing).
- Pursue all actions available to increase visibility, decrease perching suitability, and potentially reduce avian species collisions with wind turbines by addressing issues such as turbine height, tower design, and color patterns of the rotors.
- Coordinate with ADFG-Habitat on all projects impacting the bed or banks of an anadromous waterbody under the authority of Alaska Statute 16.05.871 and on projects potentially blocking fish passage on resident waterbodies under the authority of Alaska Statute 16.05.841.
    - **Projects: Management, Species, Arctic Fox.** VNMH189000 (FY18); VNMH199000 (FY19); VNMH209000 (FY20); VNMH219000 (FY21); VNMH229000 (FY22); and VNMH239000 (FY23). Continue a study from 2008 on the condition of foxes on Shemya Island and investigate their generally poor health. The work will include additional analysis of samples already obtained, histology of teeth and jaw tissues, assessment of genetic diversity, and screening of tissues for possible environmental contaminants that were identified in 2008 project. Additional field study is also necessary to determine causes of these pathologic conditions and to identify measures that will improve fox health.
    - **Projects: Management, Species, Migratory Bird Protection.** VNMHOS180412 (FY18); VNMHOS190412 (FY19); VNMHOS20412 (FY20); VNMHOS210412 (FY21); VNMHOS220412 (FY22); and VNMHOS230412 (FY23). Conduct surveys of wildlife at Shemya Island including emperor goose, threatened Steller's eider, and other winter waterfowl and seabirds, as well as Arctic fox, threatened northern sea otter, and endangered Steller sea lion to compare populations with historic counts funded by the Legacy Program and more recent surveys.

- OBJECTIVE 3.2*:* Minimize human-wildlife conflicts at PRSC sites.

  **In-house Management Actions:**
    - Reduce human-wildlife conflicts with large, potentially dangerous animals, particularly polar bears, through an aggressive program of public education, garbage management, and enforcement (annually).
    - Implement (ongoing) and update (as needed) Section 14.3, *Polar Bear and Pacific Walrus Avoidance Plan* (see Objective 1.2, Project: Plan Update INRMP, Alaska Remote Sites).
    - Conduct aversive conditioning of nuisance or dangerous wildlife and monitor results (as needed).

## 8.4 MANAGEMENT OF ESA- AND MMPA-LISTED SPECIES AND THEIR HABITATS

Background for these planned management actions is in Section 7.4, *Management of ESA- and MMPA-listed Species and Their Habitats.*

**GOAL 4: Conserve and Maintain Self-Sustaining Populations of Threatened and Endangered Species and Species of Special Concern, Consistent with Military Policy, Mission Sustainability, and Carrying Capacity of the Ecosystem; and Avoid Jeopardizing the Continued Existence of Threatened and Endangered Species within PRSC Sites**

- OBJECTIVE 4.1: Maintain mission flexibility through the conservation and management of federal and state-listed species and species of special concern.

**In-house Management Actions:**

- Protect and conserve endangered and threatened species and their critical habitat (ongoing).
- Coordinate with the USFWS and implement recommendations for spectacled and Steller's eiders (USFWS 1996, 2002, 2010b, 2019e) to the best of its capability (as needed).
- As lighting is upgraded at PRSC sites, there will be considerations to install green lights and/or to either shield lights or orient them downward to minimize bird hazard risks.
- Coordinate with NMFS in the event a project may affect a marine threatened and endangered species under its jurisdiction (as needed).
- Consider the use of *National Bald Eagle Guidelines* (USFWS 2007e) in any actions that might affect eagle nests on or near PRSC sites (as needed).
- In the unlikely event that take of eagles or removal of eagle nests become necessary, apply for a take/removal permit by coordinating with USFWS for technical assistance in assembling the permit application (as needed).
- Review available surveys and documents on the presence or absence of federal- and state-protected species (annually).
- Protect and monitor species of special concern to the best extent possible considering budget and military mission requirements (ongoing).
    - **Project: Management, Species, Threatened Eiders**. VNMH190595 (FY19) and VNMH230595 (FY23). Conduct threatened Steller's and spectacled eider inventory and monitoring at former Bullen Point and Point Lonely SRRSs; former Point Lay LRRS; Point Barrow and Oliktok LRRSs, and other sites where these birds potentially occur. This project surveys for the presence, habitats, seasonal use, and nesting locations of these birds.
    - **Project**: **Management, Species, Steller Sea Lion**. VNMH1199001 (FY19) and VNMH239001 (FY23). Conduct surveys of PRSC sites that have endangered Steller sea lions as well as threatened ringed and bearded seals and sea otter, and Pacific walrus. These species need to be surveyed for ongoing operations and cleanup of coastal PRSC sites. Project will also determine haulout sites for sea lions, walruses, and seals on PRSC sites. Besides determining potential sensitive sites that need to be managed for ESA- and MMPA-listed species, changes in haulout sites may be used as a baseline for monitoring effects of loss of sea ice.
    - **Project: Management, Species, Threatened and Endangered Species.** VNMH1907777 (FY19); VNMH200777 (FY20); VNMH210777 (FY21); VNMH220777 (FY22); and VNMH220777 (FY23). Project will survey specific PRSC sites and nearby areas for Pacific walrus, threatened northern sea otter and polar bear. Project will also collect data on Kittlitz's murrelet, yellow-billed loon, threatened Steller's and spectacles eider, and any newly listed species in Alaska. These species were identified in INRMP update for the need to be surveyed for ongoing operations and cleanup of coastal PRSC sites.

## 8.5 WATER RESOURCES PROTECTION

Background for these planned management actions is in Section 7.5, *Water Resource Protection.*

**GOAL 5: Comply with the Clean Water Act and other Environmental Laws and Regulations by Protecting Water Resources on PRSC Sites**

- OBJECTIVE 5.1: Maintain clean water as a critical part of ecosystem management.

**In-house Management Actions:**

- Provide support for IRP and related projects to minimize erosion and related water quality degradation (ongoing).
- Provide guidance to limit activities that may affect site watersheds (ongoing).
- Control ATV use to protect surface water resources (ongoing).

## 8.6 WETLANDS AND FLOODPLAIN PROTECTION

Background for these planned management actions is in Section 7.6, *Wetlands Protection.*

**GOAL 6: Protect and Conserve Wetland and Riparian Resources on PRSC Sites.**

- OBJECTIVE 6.1: Ensure PRSC is in compliance with all applicable federal and state laws and regulations regarding wetlands.

  **In-house Management Actions:**

  - Ensure all projects that may affect wetlands are coordinated with the NRM (as needed).
  - Minimize impacts to wetlands through application of the EIAP (as needed).
  - Ensure on-the-ground wetland verification occurs during the planning process to ensure protection of small wetlands is not overlooked (as needed).
  - Follow the permitting process of Section 404 of the Clean Water Act to allow the PRSC to mitigate unavoidable damage to wetlands during military or operations activities (as needed).
  - Comply with Alaska water quality standards and land use permit requirements regarding wetlands (as needed).
  - Update wetland mapping and change analyses as new NWI data become available (as needed).
- OBJECTIVE 6.2: Evaluate flood hazard potential for PRSC sites, and if such hazards exist, determine 100-year flood plains for such sites.

  **In-house Management Actions:**

  - Use flood plain maps and analyses (Legare 1998; USACE 1998) in planning activities and construction in site flood plains (as needed).
  - Prepare FONPAs before actions within flood plains (as needed).

## 8.7 GROUNDS MAINTENANCE, INCLUDING REVEGETATION AND EROSION CONTROL

Background for these planned management actions is in Section 7.7, *Grounds Maintenance.*

**GOAL 7: Conserve Soil and Vegetative Resources on PRSC Sites to Comply with the Clean Water Act and Sikes Act**

- OBJECTIVE 7.1: Manage soil and vegetative resources on PRSC sites with a focus on soils conservation as the foundation of other natural resources.

  **In-house Management Actions:**

  - Control or eliminate runoff and erosion through sound vegetative and land management practices (ongoing).
  - Correct drainage problems that may lead to erosion along roads, particularly during routine maintenance activities (as needed).
  - Ensure vegetation management is consistent with and supports BASH Reduction goals (ongoing).
  - Use updated guidance, professional advice from other agencies, and native species for revegetation of sites.
  - Whenever possible, do not disturb tundra vegetation (ongoing).

- Utilize site-specific reseeding recommendations, when available (ongoing).
- Implement the biosecurity plan (when completed) to minimize threats from exotic plant species (ongoing).
- Obtain USAF, USFWS, and ADFG approval prior to the introduction of exotic plants on installations (as needed).

- OBJECTIVE 7.2: Perform grounds maintenance and landscaping operations consistent with natural resource goals and objectives.

  **In-house Management Actions:**
  - Ensure grounds maintenance activities protect soils from wind and water erosion (ongoing).
  - Ensure grounds maintenance activities preserve and protect wetlands, flood plains, wildlife habitat, and minimize pollution (ongoing).
  - Restrict mowing to areas where tall vegetation causes safety concerns or impacts the primary mission, such as along roadways, airport facilities, and buildings (ongoing).
  - Maintain habitat as grassland at Indian Mountain, Tatalina, and Sparrevohn LRRSs to limit shrubs and trees that could obscure sighting moose, caribou or bear (as needed).

## 8.8 INTEGRATED PEST MANAGEMENT

Background for these planned management actions is in Section 7.11, *Integrated Pest Management Program.*

**GOAL 8: Provide a Well-Planned and Executed Pest Management Program to Ensure That Pests Do Not Hinder Completion of the PRSC Mission.**

- OBJECTIVE 8.1: Comply with the federal Insecticide, Fungicide, and Rodenticide Act and DoD and Air Force policies minimizing the use of pesticides.

  **In-house Management Actions:**
  - Provide natural resource-based technical support for general pest management on PRSC sites (ongoing).
  - Whenever possible, conduct nest-removal activities during non-nesting periods. If required during nesting periods, obtain necessary permits (as needed).
    - **Project: Biosecurity Plan Update.** VNMHOSS22XXXX (FY22). Update the existing PRSC Biosecurity Plan to incorporate the active remote Alaskan sites and highlight the invasive species risks with the greatest potential to impact the mission and natural resources. The updated Plan shall reference known deterrents, inspection measures, and other efficacious actions documented to stop potential incursions.

## 8.9 BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH)

Background for these planned management actions is in Section 7.12, *Bird/Wildlife Aircraft Strike Hazard (BASH).*

**GOAL 9: Manage Natural Resources in Cooperation with the USFWS, ADFG, and PRSC Bird Hazard Working Group to Reduce the Potential for Bird and Animal Strikes during Airfield Operations on PRSC Sites**

- OBJECTIVE 9.1: Obtain and provide natural resources scientific information to reduce the potential for bird and animal strikes.

**In-house Management Actions:**

- Provide natural resources representation to the BASH Hazard Working Group to monitor and advise the group of environmental modification and conditions that affect BASH potential (ongoing).
- Provide support in obtaining federal and state permits required for the minimization of wildlife threats to aircraft safety (ongoing).
- Provide guidance and support for biological monitoring of wildlife populations, bird migration activity, and habitat management to improve technical advice for wildlife and vegetation management programs (ongoing).
- Identify aircraft strike hazards and evaluate deterrent/control techniques that may help reduce hazards (ongoing).
- Provide guidance and support for operations conducted regarding habitat modifications to make airfield habitats less attractive to birds and wildlife (ongoing).
- Manage arctic fox populations on Eareckson AS to provide population control of ground-burrowing nesting birds by preying on their eggs, young, and in some cases, adults (ongoing).
- Annually review the Alaska Department of Transportation wildlife hazard management plan for King Salmon Airport and recommend modifications to the plan, if needed (ongoing).
- Use airfield habitat modifications, garbage management, and large animal hazing, as needed, to minimize BASH risks at remote radar sites (ongoing).
    - **Project: Update Wildlife Hazard Management Plan, Eareckson AS.** VNMHOS20412 (FY20). Update the Eareckson AS Wildlife Hazard Management Plan and present it to the Bird Hazard Working Group for review and approval.

## 8.10 OUTDOOR RECREATION AND RELATED LAND USE

Background for these planned management actions is in Section 7.2, *Outdoor Recreation and Public Access to Natural Resources.*

**GOAL 10: Manage Natural Resources to Provide Subsistence and Outdoor Recreational Opportunities, as Appropriate**

- OBJECTIVE 10.1: Provide a diversity of quality outdoor recreation opportunities for military personnel and the public consistent with supporting the military mission while also maintaining ecosystem health and sustainability.

**In-house Management Actions:**

- Implement EO 13443, *Facilitation of Hunting Heritage and Wildlife Conservation* and EO 12962, *Recreational Fisheries* to facilitate the expansion and enhancement of hunting and fishing opportunities, consistent with military mission requirements (ongoing).
- Provide human-valued products of renewable natural resources when such products can be produced in a sustainable fashion without significant negative impacts on the military mission (ongoing).
- Implement PRSC polices for recreational access and weapons control to sites (ongoing).
- Conduct on-the-ground monitoring to assess impacts from recreational use on the environment and recreational facilities adequacy (ongoing).
- Implement off-road vehicle use restrictions on PRSC sites (ongoing).
- Provide appropriate wildlife safety information to recreational users, including provisions within the *Polar Bear and Pacific Walrus Avoidance Plan* (ongoing).

- OBJECTIVE 10.2: Support subsistence activities on or in the vicinity of PRSC sites, consistent with supporting the military mission.

  **In-house Management Actions:**

  - Provide opportunities for subsistence activities to the best degree possible, considering military mission requirements (ongoing).

## 8.11 CULTURAL RESOURCES PROTECTION

Background for these planned management actions is in Section 7.14, *Cultural Resources Protection*.

**GOAL 11: Protect Cultural Resources on PRSC Lands**

- OBJECTIVE 11.1: Implement this INRMP in a manner consistent with the protection of cultural resources on 611 ASG sites.

  **In-house Management Actions:**

  - Ensure appropriate review of natural resource management projects by the Cultural Resources Manager to ensure that adverse effects to archeological sites are avoided (ongoing).
  - Implement natural resources management aspects of PRSC Integrated Cultural Resources Management Plans (ongoing).

## 8.12 PUBLIC OUTREACH AND NATURAL RESOURCES EDUCATION

Background for these planned management actions is in Section 7.15, *Public Outreach*.

**GOAL 12: Implement a Public Outreach and Environmental Education Program Appropriate for Remote PRSC Sites**

- OBJECTIVE 12.1: Provide natural resources outreach, awareness, and education to PRSC inhouse and contract personnel and the general public.

  **In-house Management Actions:**

  - Use Restoration Advisory Boards to provide information relative to natural resources in the area (ongoing).
  - Provide educational materials to site personnel and site visitors, as appropriate for each site (ongoing).
  - Ensure site personnel and visitors in polar bear regions are aware of polar bear dangers and means to minimize these risks (ongoing).
  - If opportunities present, provide natural resources informal briefings to site personnel (ongoing).
    - **Project: Outreach**. VNMHOS191368 (2019), VNMHOS201368 (2020), VNMHOS211368 (2021), VNMHOS221368 (2022), and VNMHOS231368 (2023). Provide educational materials to the general public and other interested parties external to the PRSC. This project also includes support for cultural resources public outreach.

## 8.13 IRP, DEMOLITION PROGRAM, AND RELATED CONCERNS

Background for these planned management actions is in Section 2.4.3.1 and 2.4.4.1.

**GOAL 13: Minimize Effects of IRP and Related Projects on Natural Resources on PRSC Sites.**

- OBJECTIVE 13.1: Provide natural resources management support for the IRP and related projects.

**In-house Management Actions:**

- Review construction, demolition, and remediation plans and Air Force Certificates of Compliance for new facilities or relocation of facilities to understand potential impacts to natural resources and compatibility with this INRMP (as needed).
    - Provide natural resources support for IRP and related projects, to include wildlife-related permits, mitigation requirements, minimization of natural resources impacts, personnel safety minimization, and monitoring of effects of projects on natural resources (ongoing).

## 8.14 COASTAL ZONE AND MARINE RESOURCES MANAGEMENT

Background for these planned management actions is in Section 7.13, *Coastal Zone and Marine Resource Management*.

**GOAL 14: Protect and Restore Coastal Zone Natural Resources on or near PRSC Sites**

- OBJECTIVE 14.1: Ensure all PRSC activities, operations, projects, and programs that affect any lands, water use or natural resources of a state's coastal zone must be consistent, to the maximum extent practicable, with the state Coastal Zone Management Plan.

  **In-house Management Actions:**
    - Implement the Air Force MOU with Coastal America on applicable PRSC sites.
    - Use the Alaska Coastal Management Program Consistency Determination for Federal Activities questionnaire to evaluate effects of PRSC activities on coastal zone resources (as needed).
        - **Project: Eareckson AS Sand Dune Restoration**.VNMHOSS22XXXX (FY22). Implement erosion control and sand dune restoration actions at Eareckson AS. Actions shall include but not be limited to: out-planting, hydroseeding, grading, deployment of biodegradable matting, and terracing.

## 8.15 NATURAL RESOURCES LAW ENFORCEMENT

Background for these planned management actions is in Section 7.3, *Conservation Law Enforcement*.

**GOAL 15: Protect Natural Resources on PRSC Sites**

- OBJECTIVE 15.1: Ensure federal and state laws and PRSC natural resources protection policies are enforced on PRSC sites.

  **In-house Management Actions:**
    - Request enforcement assistance from the USFWS, if required (as needed).
    - Develop an agreement with JBER to provide natural resources law enforcement on PRSC sites, as needed.

## 8.16 WILDLAND FIRE MANAGEMENT

Background for these planned management actions is in Section 7.9, *Wildland Fire Management*.

**GOAL 16: Protect PRSC Site Natural Resources from Wildfires**

- OBJECTIVE 16.1: Use external agencies' wildland fire management resources to protect PRSC sites from wildfire damage.

**In-house Management Actions:**

- Mitigate and minimize risk from a wildland fire to PRSC property and structures using Firewise landscaping principles (https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA) (as needed).
- Recommend the development of written agreements with the BLM, Alaska Fire Service and the Alaska Division of Forestry to provide fire suppression services for PRSC sites with significant fire risks.
- Develop a project to prepare a Wildland Fire Management Plan for PRSC sites.
- If wildfires threatened PRSC sites, use BLM, Alaska Fire Service, and the Alaska Division of Forestry resources to manage these fires (as needed).
- Provide support, as available, to manage wildfires, as stated in the Joint Task Force, Alaska Command Wildland Firefighting Concept of Operations (as-needed).

## 8.17 General INRMP Implementation Projects

The PRSC requires additional contract support to implement this INRMP, particularly contract personnel support, often personnel stationed at larger PRSC sites. These contract support projects often support implementation of this INRMP in locations other than where the personnel are stationed. Due to the large number of sites, often in very remote locations, travel to sites is difficult and often expensive. Thus, effective implementation of this INRMP also requires funding for temporary duty (TDY)/travel to sites. In addition, implementation of this INRMP requires supplies and equipment. These requirements are generally described in Section 9.1, *Natural Resources Management Staffing*.

**GOAL 17: Implement This INRMP Using Professionally Trained Natural Resources Personnel, Who Are Properly Equipped and Funded to Work on Remote PRSC Sites.**

- OBJECTIVE 17.1: Ensure that sufficient numbers of professionally trained natural resources management personnel are available to implement this INRMP.
  - **Projects: Contractor Support, CN, Natural Resources**. **Contracted/A76 CN, Eareckson AS/King Salmon Airport/WIA**. VNMHOS191914 (FY19), VNMHOS201914 (FY20), VNMHOS211914 (FY21), VNMHOS221914 (FY22), VNMHOS231914 (FY23). Provide environmental professionals for PRSC sites to support installations' environmental programs. Contractor assistance provides normal day-to-day management functions and operations of the King Salmon Airport and Eareckson AS conservation programs while 611 CES provides oversight of these programs. Contract support will provide professional technical services for natural resources to support military readiness, training, and operations.
- OBJECTIVE 17.2: Ensure that PRSC natural resources personnel have funding to travel to remote sites to implement this INRMP.
- OBJECTIVE 17.3: Provide necessary equipment and supplies to implement this INRMP.
- OBJECTIVE 17.4: Provide for necessary supplemental training for natural resources personnel to ensure the proper and efficient management of PRSC natural resources per DoDI 4715.03, Enclosure 3, 1.l.
  - **Project: Training, Environmental Function**. Provide for the maintenance of staff knowledge of management strategies at the current state of the art through training and participation in workshops, research presentations, and other activities of regional and national professional natural resources research and conservation programs; and by sharing information with natural resources experts to ensure maximum benefits of adaptive management and research efforts.

Table 15 provides a summary of those management area and associated goals and objectives that have an identified INRMP project(s). The full discussion of all management areas, goals and objectives, and associated in-house actions is presented above.

**Table 15. Summary of Identified INRMP Projects by Management Area and Associated Goals and Objectives**

| Goals, Objectives, and Projects | FY Implementation | | | | |
|---|---|---|---|---|---|
| | 19 | 20 | 21 | 22 | 23 |
| **ECOSYSTEM MANAGEMENT** | | | | | |
| Goal 1: Implement Ecosystem Management as the overall management system to ensure sustained ecosystem functionality on PRSC sites. | | | | | |
| *Objective 1.1:* Manage land use to sustain PRSC sites' natural resources in concert with military mission requirements. | | | | | |
| *Objective 1.2:* Use coordinated planning to fully integrate the PRSC sites natural resources program. | | | | | |
| **Project: Plan Update/Revision INRMP, Alaska Remote Sites.** Conduct annual updates and revisions (as necessary) to the PRSC INRMP using goals, objectives, in-house actions, and projects to guide reviews; revise projects and budgets as required; coordinate updates and changes with USFWS, ADFG, and, if necessary, NMFS; and update/revise appendices as necessary and appropriate (e.g., Polar Bear and Walrus Avoidance Plan). | X | X | X | X | X |
| **FISH AND WILDLIFE MANAGEMENT** | | | | | |
| Goal 3: Maintain fish and wildlife populations and habitats as a part of naturally functioning ecosystems to support the military mission and enhance readiness by providing natural environments for training and minimizing conflicts between mission requirements and natural resources and their uses. | | | | | |
| *Objective 3.1: Protect, conserve, and manage fish and wildlife populations and their habitats as vital elements of an integrated natural resources program and perform studies to enhance and maintain healthy sustainable populations.* | | | | | |
| **Project: Management, Species, Arctic Fox.** Continue a study from 2008 on the condition of foxes on Shemya Island and investigate their generally poor health. The work will include additional analysis of samples already obtained, histology of teeth and jaw tissues, assessment of genetic diversity, and screening of tissues for possible environmental contaminants that were identified in 2008 project. Additional field study is also necessary to determine causes of these pathologic conditions and to identify measures that will improve fox health. | X | X | X | X | X |
| **Project: Management, Species, Migratory Bird Protection.** Conduct surveys of wildlife at Shemya including emperor goose, threatened Steller's eider, and other winter waterfowl and seabirds, as well as Arctic fox, threatened northern sea otter and endangered Steller sea lions to compare populations with historic counts funded by the Legacy Program and more recent surveys. | X | X | X | X | X |
| *Objective 3.2:* Minimize human-wildlife conflicts at PRSC sites. | | | | | |
| **Project: Plan Update/Revision INRMP, Alaska Remote Sites.** As part of annual updates and revisions (as necessary) to the PRSC INRMP, update/revise the *Polar Bear and Walrus Avoidance Plan*. (see Objective 1.2). | X | X | X | X | X |
| **MANAGEMENT OF THREATENED AND ENDANGERED SPECIES** | | | | | |
| Goal 4: Conserve and maintain self-sustaining populations of threatened and endangered species and species of special concern, consistent with military policy, mission sustainability, and carrying capacity of the ecosystem; and avoid jeopardizing the continued existence of threatened and endangered species within PRSC sites. | | | | | |
| *Objective 4.1:* Maintain mission flexibility through the conservation and management of federal and state-listed species. | | | | | |
| **Project: Management, Species, Threatened Eiders**. Conduct inventory and monitoring of threatened Steller's and spectacled eiders at former Bullen Point and Point Lonely SRRSs; former Point Lay LRRS; Point Barrow and Oliktok LRRSs, and | X | | | | X |

**Table 15. Summary of Identified INRMP Projects by Management Area and Associated Goals and Objectives**

| Goals, Objectives, and Projects | FY Implementation | | | | |
|---|---|---|---|---|---|
| | 19 | 20 | 21 | 22 | 23 |
| other sites where these birds potentially occur. This project surveys for the presence, habitats, seasonal use, and nesting locations of these birds. | | | | | |
| **Project: Management, Species, Steller Sea Lion**. Conduct surveys of PRSC sites that have endangered Steller sea lions as well as threatened ringed and bearded seals and sea otter, and Pacific walrus. These species need to be surveyed for ongoing operations and cleanup of coastal PRSC sites. Project will also determine haulout sites for sea lions, walruses, and seals on PRSC sites. Besides determining potential sensitive sites that need to be managed for ESA- and MMPA-listed species, changes in haulout sites may be used as a baseline for monitoring effects of loss of sea ice. | X | | | | X |
| **Project: Management, Species, Threatened and Endangered Species.** Project will survey specific PRSC sites and nearby areas for Pacific walrus, and threatened northern sea otter and polar bear. Project will also collect data on Kittlitz's murrelet, yellow-billed loon, threatened Steller's and spectacled eider, and any newly listed species in Alaska. These species were identified in INRMP update for the need to be surveyed for ongoing operations and cleanup of coastal PRSC sites. | X | X | X | X | X |
| **BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH)** | | | | | |
| Goal 9: Manage natural resources in cooperation with the USFWS, ADFG, and the Flight Safety Bird Hazard Working Group to reduce the potential for bird and animal strikes during airfield operations on PRSC sites. | | | | | |
| *Objective 9.1:* Obtain and provide natural resources scientific information to reduce the potential for bird and animal strikes. | | | | | |
| **Project: Update Wildlife Hazard Management Plan.** Update the Eareckson AS Wildlife Hazard Management Plan and present it to the Bird Hazard Working Group for review and approval. | | X | | | |
| **PUBLIC OUTREACH** | | | | | |
| Goal 12: Implement a public outreach and environmental education program appropriate for remote PRSC sites. | | | | | |
| *Objective 12.1:* Provide natural resources outreach, awareness, and education to PRSC in-house and contract personnel and the general public. | | | | | |
| **Project: Outreach**. Provide educational materials to the general public and other interested parties external to the PRSC. This project also includes support for cultural resources public outreach. | X | X | X | X | X |
| **COASTAL ZONE AND MARINE RESOURCES MANAGEMENT** | | | | | |
| Goal 14: Protect and Restore Coastal Zone Natural Resources on or near PRSC Sites | | | | | |
| *Objective 14.1*: Ensure all PRSC activities, operations, projects, and programs that affect any lands, water use or natural resources of a state's coastal zone must be consistent, to the maximum extent practicable, with the state Coastal Zone Management Plan. | | | | | |
| **Project: Eareckson AS Sand Dune Restoration**. Implement erosion control and sand dune restoration actions at Eareckson AS. Actions shall include but not be limited to: out-planting, hydroseeding, grading, deployment of biodegradable matting, and terracing. | | | | X | |
| **GENERAL INRMP IMPLEMENTATION PROJECTS** | | | | | |
| **Goal 17: Implement this INRMP using professionally trained natural resources personnel, who are properly equipped and funded to work on remote PRSC sites.** | | | | | |
| *Objective 17.1:* Ensure that sufficient numbers of professionally trained natural resources management personnel are available to implement this INRMP. | | | | | |

**Table 15. Summary of Identified INRMP Projects by Management Area and Associated Goals and Objectives**

| Goals, Objectives, and Projects | FY Implementation | | | | |
|---|---|---|---|---|---|
| | 19 | 20 | 21 | 22 | 23 |
| **Project: Contractor Support, CN, Natural Resources; Contractor Support, Contracted/A76 CN, Eareckson AS/King Salmon Airport; Contracted/A76 CN, Eareckson AS;** and **Contracted/ A76 CN, King Salmon.** Provide NRMs for PRSC sites to support installations' environmental programs. Contractor assistance provides normal day-to-day management functions and operations of King Salmon Airport, and Eareckson AS installation conservation programs while 611 CES provides oversight of these programs. Contract support will provide professional technical services for natural resources to support military readiness, training, and operations. | X | X | X | X | X |
| *Objective 17.4:* Provide for necessary supplemental training for natural resources personnel to ensure the proper and efficient management of PRSC natural resources per DoDI 4715.03, Enclosure 3, Section 1.l. | | | | | |
| **Project: Training, Environmental Function**. Provide for the maintenance of staff knowledge of management strategies at the current state of the art through training and participation in workshops, research presentations, and other activities of regional and national professional natural resources research and conservation programs; and by sharing information with natural resources experts to ensure maximum benefits of adaptive management and research efforts. | X | X | X | X | X |

# 9. INRMP IMPLEMENTATION, UPDATE, AND REVISION PROCESS

## 9.1 NATURAL RESOURCES MANAGEMENT STAFFING AND IMPLEMENTATION

The Sikes Act Improvement Act (Sec. 2905(c) of the National Defense Authorization Act for Fiscal Year 1998) required the preparation and implementation of an INRMP on appropriate military installations by November 2001. INRMPs have been in place for PRSC sites since 1995. This latest plan is an update of the 2013 INRMP, which was a first attempt at combining all sites into one single INRMP for all PRSC sites; it will be implemented by actions and projects to achieve goals and objectives stated in Chapter 8. Each goal will be accomplished to the maximum extent possible when and if funding is available. Projects may be accomplished by in-house staff, contractors, volunteers, or through cooperative agreements with state and federal agencies, universities, or other private organizations.

The INRMP is considered fully implemented if all high priority projects are funded and executed, there are sufficient numbers of trained natural resources personnel, and those personnel have sufficient supplies and equipment to carry out these projects. Air Force programming procedures will be followed by the PRSC to request funding for these projects.

### 9.1.1 Work Plans

Most PRSC natural resources projects are performed under contract, and a specific scope of work is developed for each project. Priorities are set as needed based on available funding, funding avenue, and current requirements (e.g., changes in the status of federal-listed species may dictate an adjustment to project priority, timing, funding, etc.).

Work plans and projects are integral to successful implementation of this INRMP. Annual requirements for funding through the Environmental Compliance Program have been identified through FY23. Work plans (Chapter 10, *Annual Work Plans*) may change with time, as work requirements change and projects are completed, either on time, ahead of schedule, or behind schedule, or significantly change due to mission changes. All work plans and subsequent projects will revolve around best management practices to support

the mission and ensure ecosystem management. Work plans will be updated annually. Annual work plans will be reviewed and approved, per AFI 32-7064.

### 9.1.2 Natural Resources Management Staffing

Natural resources management staffing within PRSC is limited to a civilian PRSC Alaska Sites Natural Resources Program Manager. Additional contract support is provided for larger PRSC sites via on-site contract environmental personnel. The Natural Resources Program Manager provides oversight of the natural resources management program and implementation of the INRMP. Most projects included in this INRMP will be performed under individual contracts, cooperative agreements and interdepartmental purchase requests with external federal agencies such as the USFWS, USGS, and NMFS.

To comply with conservation requirements and ensure PRSC mission is not compromised, training for the Natural Resources Program Manager is essential to maintain knowledge of management strategies at the current state of the art and to ensure maximum benefits of adaptive management and research efforts. This training includes annual workshops or professional conferences listed below, if schedules and budgets allow. The last three training courses also apply to other personnel conducting PRSC field work or planned activities authorized by state and federal wildlife agencies on PRSC sites.

- National Military Fish and Wildlife Association (NMFWA) annual workshop (concurrent with the Wildlife Management Institute's North American Wildlife and Natural Resources Conference).
- Partners in Flight workshops.
- Wild Animal Behavior and Firearm Safety.
- Bird/Wildlife Dispersal for Airfield Management.
- Oil Spill Contingency Planning.

These workshops and professional conferences have some of the best scientific publications in their professions, and literature review is a commitment needed to maintain standards. Meetings of these societies provide excellent ways to communicate with fellow professionals as well as maintain professional standards. Other conferences/workshops will be evaluated for their usefulness, and decisions will be made based on appropriateness to ongoing projects and funding availability.

The Natural Resources Program Manager will be encouraged to join professional societies and their state chapters, as well as be active in them. The Natural Resources Program Manager will be sent to as many meetings as feasible to meet with other professionals, exchange ideas, and work on matters of common interest.

The PRSC receives funding based upon the projects and requirements it has entered and validated in the Automated Civil Engineering System, Project Management system. The Automated Civil Engineering System, Project Management is used for programming compliance, pollution prevention, and conservation requirements. If a requirement is not entered into and validated in the Automated Civil Engineering System, Project Management by the Major Command, the installation will not receive any funding to carry out that requirement.

Natural resources management relies on a variety of funding mechanisms, some of which are self-generating and all of which have different application rules. AFI 32-7064 outlines funding sources, funding priorities, and level of effort for Air Force conservation programs. Funding sources include the operations and maintenance appropriation, reimbursable conservation program accounts, the DoD Legacy Resource Management Program, the Strategic Environmental Research and Development Program, and other sources, such as those that may be obtained through cooperative agreement under authority of the Sikes

Act. Annual requirements for funding through the Environmental Compliance Program and project work plans are in Chapter 10, *Annual Work Plans*.

## 9.2 MONITORING INRMP IMPLEMENTATION

The INRMP is a critical component of the PRSC comprehensive planning process. The INRMP provides the background information and data on PRSC lands' natural resources; the framework, methodology, and specific actions necessary for management of those resources; and the guidance and requirements that must be complied with to allow the military mission and natural resources management to continue unimpeded. Issues discussed and analyzed in the INRMP directly support base comprehensive planning, and the INRMP should be referenced for this information to ensure these issues are considered during the planning process.

Organizations responsible for implementation of this INRMP are listed in Chapter 4, *General Roles and Responsibilities*. Correspondence and records of annual reviews regarding the INRMP between the PRSC Natural Resource Program Manager, the USFWS Alaska Region Sikes Act Representative, and the ADFG Deputy Commissioner of the Department will be maintained at the 611 CES office.

Air Force policy states, "The annual natural resources self-assessments shall address the Natural Resources Conservation Metrics in DoDI 4715-03, Enclosure 5. The United States Fish and Wildlife Service (USFWS) and the state fish and wildlife management agency shall be invited to participate in the internal natural resources self-assessment. Also invite the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service to participate if the installation includes or borders marine environments."

Chapter 8, *Management Goals and Objectives*, is particularly important to monitoring INRMP implementation. Objectives and specific projects serve as a checklist to monitor effectiveness of natural resources management on PRSC sites and success of the plan. The annual review and coordination between the PRSC Natural Resources Program Manager; USFWS, Alaska Region Sikes Act Representative; and ADFG, Conservation Division Sikes Act Representative is the primary procedure used for monitoring INRMP implementation. Annual review and coordination should include analysis of results and foster formulation of any adaptive management strategies that may be necessary.

Because of the dynamic nature of natural resources and the mission, there are expected variations in needs during the course of a normal year. Some projects may be moved to a higher priority status than originally planned; some have to be dropped totally as systems change or work priorities change. The INRMP implementation and monitoring effort will include these and other changes, ensure they are reviewed and documented, and alter INRMP planning, if necessary, to fit current ecosystem and military mission needs.

## 9.3 ANNUAL INRMP REVIEW AND UPDATE REQUIREMENTS

This INRMP will be reviewed annually by the PRSC Natural Resources Program Manager in coordination with the USFWS, Alaska Region Sikes Act Representative; ADFG, Conservation Division Sikes Act Representative; and NMFS. Through annual review of this INRMP, changes to management programs and projects will be addressed and updated as necessary to accommodate and enable adaptive management.

Annual reviews facilitate adaptive management by providing an opportunity for parties to review goals and objectives in the INRMP and establish realistic schedules for completing proposed actions. The PRSC and its statutory partners conduct an annual INRMP review to verify that:

- Current information on all conservation metrics is available;
- All "must fund" projects and activities have been budgeted for and implementation is on schedule;
- All required trained natural resources positions are filled or are in the process of being filled;
- Projects and activities for the upcoming year have been identified and included in the INRMP;

- All required coordination with the USFWS and ADFG has occurred;
- All significant changes to the PRSC mission requirements or its natural resources have been identified; and
- The 611 CES is effectively ensuring that there is no "net loss" in the capability of its lands to support the military mission.

In addition to annual reviews, a formal review and revision, if necessary, occurs on a regular basis but no less often than 5 years in cooperation with the USFWS and ADFG. Section 101(b)(2) of the Sikes Act (as amended) specifically directs that INRMPs be reviewed "as to operation and effect" by the primary parties "on a regular basis, but not less often than every five years," emphasizing that the review is intended to determine whether existing INRMPs are being implemented to meet Sikes Act requirements and contribute to the conservation and rehabilitation of natural resources on military lands.

Air Force policy states, "Installations that have an Integrated Natural Resources Management Plan (INRMP) must conduct internal natural resource self-assessments annually. The annual natural Resources self-assessments shall address the Natural Resources Conservation Metrics in DoDI 4715.03, Enclosure 5. The United States Fish and Wildlife Service (USFWS) and the state fish and wildlife management agency shall be invited to participate in the internal natural resources self-assessment. Also invite the National Oceanic and Atmospheric Administration (NOAA) Fisheries to participate if the installation includes or borders marine environments."

Draft INRMP revisions and updates are reviewed by a variety of internal USAF stakeholders prior to finalization. The review and comment periods are the primary methods for other entities to make requests for changes to allow for the integration of the INRMP into other programs outside of the environmental function. The NRM ensures that the INRMP is provided for comment to internal USAF stakeholders simultaneous to providing the draft to the external stakeholders. The internal and external agency comments are reviewed and addressed prior to presenting the final version to the installation commander for signature and approval.

After approval of this updated INRMP, coordination will occur between the PRSC, USFWS, and ADFG representatives (and NMFS representatives as necessary) to annually review this INRMP. Through annual review of this INRMP, changes to management programs and projects will be addressed and updated as necessary.

Section 101(b)(2) of the Sikes Act states that each INRMP must be reviewed as to operation and effect by the parties thereto on a regular basis, but not less than every 5 years. DoD policy (DoDI 4715.03) requires installations to, "Conduct external INRMP reviews for operation and effect no less than every 5 years for all installations with INRMPs using the Natural Resources Conservation metrics. The 5-year period dates from the last review at which external regulatory stakeholders participated." This policy further states, "Update or revise INRMPs as necessary based on results of these reviews."

A significant revision of this INRMP would only be required if PRSC sites would experience a major mission change (e.g., mission realignment) or perhaps a major change to the overall natural resources management philosophy.

## 10. ANNUAL WORK PLANS

The INRMP Annual Work Plans are included in this section. These projects are listed by fiscal year, including the current year and 4 succeeding years. For each project and activity, a specific timeframe for implementation is provided (as applicable), as well as the appropriate funding source, and priority for

implementation. The work plans provide all the necessary information for building a budget within the AF framework. Priorities are defined as follows:

- **High**: The INRMP signatories assert that if the project is not funded, the INRMP is not being implemented, and the Air Force is non-compliant with the Sikes Act; or that it is specifically tied to an INRMP goal and objective and is part of a "Benefit of the Species" determination necessary for ESA section 4(a)(3)(B)(i) critical habitat exemption.
- **Medium**: Project supports a specific INRMP goal and objective, and is deemed by INRMP signatories to be important for preventing non-compliance with a specific requirement within a natural resources law or by EO 13112, *Invasive Species*. However, the INRMP signatories would not contend that the INRMP is not be implemented if not accomplished within programmed year due to other priorities.
- **Low**: Project supports a specific INRMP goal and objective, enhances conservation resources or the integrity of PRSC Alaska installations mission, and/or support long-term compliance with specific requirements within natural resources law; but is not directly tied to specific compliance within the proposed year of execution.

The USAF intends to implement INRMP actions and projects within the framework of regulatory compliance, mission obligations, anti-terrorism and force protection limitations, and funding constraints. However, obligations of funding for projects in this INRMP are subject to the availability of funds appropriated by Congress. None of the proposed management projects shall be interpreted to require obligation or payment of funds in violation of any applicable federal law, including the Anti-Deficiency Act, 31 USC Part 1341 et seq.

Annual FY programming for INRMP projects through the Environmental Compliance Program are provided in Table 16.

**Table 16. Summary of Programmed INRMP Projects (FY19-23)**

| Project Title | OPR | Project Description | Funding Source | Priority |
|---|---|---|---|---|
| **FY19** | | | | |
| VNMHOS190313 Plan Update INRMP, Alaska Remote Sites. | 611 CES/CEI | Conduct annual updates and revisions (as necessary) to the PRSC INRMP using goals, objectives, in-house actions, and projects to guide reviews; revise projects and budgets as required; coordinate updates and changes with USFWS, ADFG, and if necessary NMFS; and update/revise figures, tables, appendices (e.g., Polar Bear and Walrus Avoidance Plan), or other content as necessary and appropriate. | AFCEC EQ | High |
| VNMH199000 Management, Species, Arctic Fox | 611 CES/CEI | Continue a study from 2008 on the condition of foxes on Shemya Island and investigate their health. The work will include additional analysis of samples already obtained, histology of teeth and jaw tissues, assessment of genetic diversity, and screening of tissues for possible environmental contaminants that were identified in the 2008 project. The tagging and tracking of animals is also a component of this project. | AFCEC EQ | Medium |
| VNMHOS190412 | 611 CES/CEI | Conduct surveys of wildlife at Shemya Island including emperor goose, threatened Steller's eider, and other winter waterfowl and seabirds, | AFCEC EQ | Medium |

**Table 16. Summary of Programmed INRMP Projects (FY19-23)**

| Project Title | OPR | Project Description | Funding Source | Priority |
|---|---|---|---|---|
| Management, Species, Migratory Bird Protection | | as well as Arctic fox, threatened sea otter, and endangered Steller sea lion to compare populations with historic counts funded by the Legacy Program and more recent surveys. | | |
| VNMH190595 Management, Species, Threatened Eiders | 611 CES/CEI | Conduct threatened Steller's and spectacled eider inventory and monitoring at former Bullen Point and Point Lonely SRRSs; former Point Lay LRRS; Point Barrow and Oliktok LRRSs, and other sites where these birds potentially occur. This project surveys for the presence, habitat, seasonal use, and nesting locations of these birds. | AFCEC EQ | High |
| VNMH199001 Management, Species, Steller Sea Lion | 611 CES/CEI | Conduct surveys of PRSC sites that have endangered Steller sea lions as well as threatened ringed and bearded seals and sea otter, and Pacific walrus. These species need to be surveyed for ongoing operations and cleanup of coastal PRSC sites. Project will also determine haulout sites for sea lions, walruses, and seals on PRSC sites. Besides determining potential sensitive sites that need to be managed for ESA- and MMPA-listed species, changes in haulout sites may be used as a baseline for monitoring effects of loss of sea ice. | AFCEC EQ | High |
| VNMH1907777 Management, Species, Threatened and Endangered Species | 611 CES/CEI | Project will survey specific PRSC sites and nearby areas for Pacific walrus, threatened northern sea otter and polar bear. Project will also collect data on Kittlitz's murrelet, yellow-billed loon, threatened Steller's and spectacles eider, and any newly listed species in Alaska. These species were identified in INRMP update for the need to be surveyed for ongoing operations and cleanup of coastal PRSC sites. | AFCEC EQ | High |
| VNMHOS191368 Outreach | 611 CES/CEI | Provide educational materials to the general public and other interested parties external to the PRSC. This project also includes support for cultural resources public outreach. | AFCEC EQ | Low |
| VNMHOS191914 Contractor Support, CN, Natural Resources. | 611 CES/CEI | Provide NRMs for PRSC sites to support installations' environmental programs. Contractor assistance provides normal day-to-day management functions and operations of the King Salmon Airport and Eareckson AS installation conservation programs while 611 CES provides oversight of these programs. Contract support will provide professional technical services for natural resources to support military readiness, training, and operations. | AFCEC EQ | High |
| **FY20** | | | | |
| VNMHOS200313 Plan Update INRMP, Alaska Remote Sites. | 611 CES/CEI | See VNMHOS190313 project description. | AFCEC EQ | High |

**Table 16. Summary of Programmed INRMP Projects (FY19-23)**

| Project Title | OPR | Project Description | Funding Source | Priority |
|---|---|---|---|---|
| VNMH209000 Management, Species, Arctic Fox | 611 CES/CEI | See VNMH199000 Project Description. | AFCEC EQ | Medium |
| VNMHOS20412 Management, Species, Migratory Bird Protection | 611 CES/CEI | See VNMHOS190412 Project Description. | AFCEC EQ | Medium |
| VNMHOS20412 Update Wildlife Hazard Management Plan, Eareckson AS | 611 CES/CEI | Update the Eareckson AS Wildlife Hazard Management Plan and present it to the Bird Hazard Working Group for review and approval. | AFCEC EQ | Low |
| VNMH2007777 Management, Species, Threatened and Endangered Species | 611 CES/CEI | See VNMH1907777 Project Description. | AFCEC EQ | High |
| VNMHOS201368 Outreach | 611 CES/CEI | See VNMHOS191368 Project Description. | AFCEC EQ | Low |
| VNMHOS201914 Contractor Support, CN, Natural Resources. | 611 CES/CEI | See VNMHOS191914 Project Description. | AFCEC EQ | High |
| **FY21** | | | | |
| VNMHOS210313 Plan Update INRMP, Alaska Remote Sites. | 611 CES/CEI | See VNMHOS190313 project description. | AFCEC EQ | High |
| VNMH219000 Management, Species, Arctic Fox | 611 CES/CEI | See VNMH199000 Project Description. | AFCEC EQ | Medium |
| VNMHOS21412 Management, Species, Migratory Bird Protection | 611 CES/CEI | See VNMHOS190412 Project Description. | AFCEC EQ | Medium |
| VNMH2107777 Management, Species, Threatened and Endangered Species | 611 CES/CEI | See VNMH1907777 Project Description. | AFCEC EQ | High |
| VNMHOS211368 Outreach | 611 CES/CEI | See VNMHOS191368 Project Description. | AFCEC EQ | Low |
| VNMHOS211914 Contractor Support, CN, Natural Resources. | 611 CES/CEI | See VNMHOS191914 Project Description. | AFCEC EQ | High |
| **FY22** | | | | |
| VNMHOS220313 Plan Update INRMP, Alaska Remote Sites. | 611 CES/CEI | See VNMHOS190313 project description. | AFCEC EQ | High |
| VNMH229000 Management, Species, Arctic Fox | 611 CES/CEI | See VNMH199000 Project Description. | AFCEC EQ | Medium |
| VNMHOS22412 Management, Species, Migratory Bird Protection | 611 CES/CEI | See VNMHOS190412 Project Description. | AFCEC EQ | Medium |

**Table 16. Summary of Programmed INRMP Projects (FY19-23)**

| Project Title | OPR | Project Description | Funding Source | Priority |
|---|---|---|---|---|
| VNMH2207777 Management, Species, Threatened and Endangered Species | 611 CES/CEI | See VNMH1907777 Project Description. | AFCEC EQ | High |
| VNMHOS221368 Outreach | 611 CES/CEI | See VNMHOS191368 Project Description. | AFCEC EQ | Low |
| VNMHOS221914 Contractor Support, CN, Natural Resources. | 611 CES/CEI | See VNMHOS191914 Project Description. | AFCEC EQ | High |
| VNMHOSS22XXXX Biosecurity Plan Update | 611 CES/CEI | Update the existing PRSC Biosecurity Plan to incorporate the active remote Alaskan sites and highlight the invasive species risks with the greatest potential to impact the mission and natural resources. The updated Plan shall reference known deterrents, inspection measures, and other efficacious actions documented to stop potential incursions. | AFCEC EQ | TBD |
| VNMHOSS22XXXX Eareckson AS Sand Dune Restoration | 611 CES/CEI | Implement erosion control and sand dune restoration actions at Eareckson AS. Actions shall include but not be limited to: out-planting, hydroseeding, grading, deployment of biodegradable matting, and terracing. | AFCEC RQ | TBD |
| **FY23** | | | | |
| VNMHOS230313 Plan Update INRMP, Alaska Remote Sites. | 611 CES/CEI | See VNMHOS190313 project description. | AFCEC EQ | High |
| VNMH239000 Management, Species, Arctic Fox | 611 CES/CEI | See VNMH199000 Project Description. | AFCEC EQ | Medium |
| VNMHOS23412 Management, Species, Migratory Bird Protection | 611 CES/CEI | See VNMHOS190412 Project Description. | AFCEC EQ | Medium |
| VNMH230595 Management, Species, Threatened Eiders | 611 CES/CEI | See VNMH190595 Project Description. | AFCEC EQ | High |
| VNMH239001 Management, Species, Steller Sea Lion | 611 CES/CEI | See VNMH1199001 Project Description. | AFCEC EQ | High |
| VNMH2307777 Management, Species, Threatened and Endangered Species | 611 CES/CEI | See VNMH1907777 Project Description. | AFCEC EQ | High |
| VNMHOS231368 Outreach | 611 CES/CEI | See VNMHOS191368 Project Description. | AFCEC EQ | Low |
| VNMHOS231914 Contractor Support, CN, Natural Resources. | 611 CES/CEI | See VNMHOS191914 Project Description. | AFCEC EQ | High |

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## 12. ACRONYMS AND ABBREVIATIONS

**11 CEOS –** 11th Civil Engineer and Operations Squadron
**611 ACOMS** – 611th Air Communications Squadron
**611 ASUS** – 611th Air Support Squadron
**611 CES** – 611th Civil Engineer Squadron
**611 CES/CEAO** – 611th Civil Engineer Squadron, Asset Optimization
**611 CES/CEI** – 611th Civil Engineer Squadron, Installation Management
**611 CES/CEN** – 611th Civil Engineer Squadron, Asset Management Flight
**AAC** – Alaska Air Command
**AC&W** – Aircraft Control and Warning
**ACMP –** Alaska Coastal Management Program
**ADFG** – Alaska Department of Fish and Game
**ADNR** – Alaska Department of Natural Resources
**AFCEC** – Air Force Civil Engineer Center
**AFI** – Air Force Instruction
**AFS** – Air Force Station
**AK** – Alaska
**ALMS** – Alaska Landbird Monitoring System
**ANCSA** – Alaska Native Claims Settlement Act
**ANILCA** – Alaska National Interest Lands Conservation Act
**ARS** – Alaska Radar System
**AS** – Air Station
**AWOS** – Automated Weather Observing System

**BGEPA** – Bald and Golden Eagle Protection Act
**BOS** – Base Operations Support
**CEMML** – Center for Environmental Management of Military Lands
**CFR** – Code of Federal Regulations
**CSU** – Colorado State University
**CZMA** – Coastal Zone Management Act
**DET 1** – Detachment One
**DEW** – Distant Early Warning
**DoD** – Department of Defense
**DoDI** – Department of Defense Instruction
**DPS** – Distinct Population Segment
**EIAP** – Environmental Impact Analysis Process
**EO** – Executive Order
**ESA** – Endangered Species Act
**ºF** – degrees Fahrenheit
**FAA** – Federal Aviation Administration
**ft** – foot/feet
**FY** – Fiscal Year
**GIS** – geographic information system
**GMD** – Ground-based Midcourse Defense
**HQ AAC/DEPV** – Headquarters, Alaska Air Command
**HQ PACAF** – Headquarters, Pacific Air Forces
**IBA** – Important Bird Area
**ICRMP** – Integrated Cultural Resources Management Plan
**INRMP** – Integrated Natural Resources Management Plan
**IRP** – Installation Restoration Program
**JBER** – Joint Base Elmendorf-Richardson
**LRRS** – Long Range Radar Site
**LUCMP** – Land Use Control Management Plan
**m** – meter(s)
**MAR** – Minimally Attended Radar
**MBTA** – Migratory Bird Treaty Act
**MMPA** – Marine Mammal Protection Act
**MOU** – Memorandum of Understanding
**MSL** – above mean sea level
**NEPA** – National Environmental Policy Act
**NMFS** – National Marine Fisheries Service
**NOAA** – National Oceanic and Atmospheric Administration
**NORAD** – North American Air Defense
**NRM** – Natural Resources Manager
**NSB** – North Slope Borough
**NWR** – National Wildlife Refuge
**POC** – Point of Contact
**PRSC** – Pacific Air Forces Regional Support Center
**RRS** – Radio Relay Site
**SRRS** – Short Range Radar Site

**UAR** – Unattended Radar
**USAF** – U.S. Air Force
**USC** – U.S. Code
**USEPA** – U.S. Environmental Protection Agency
**USFWS** – U.S. Fish and Wildlife Service
**WAC**S – White Alice Communication System

# 13. APPENDICES

## 13.1 APPENDIX A. ANNOTATED SUMMARY OF KEY LEGISLATION RELATED TO DESIGN AND IMPLEMENTATION OF THE INRMP

**Table 17. Summary of Key Legislation Related to Design and Implementation of the INRMP**

| Federal Public Laws and EOs | |
|---|---|
| National Defense Authorization Act of 1989, Public Law (PL) 101-189; Volunteer Partnership Cost-Share Program | Amends two Acts and establishes volunteer and partnership programs for natural and cultural resources management on DoD lands. |
| Defense Appropriations Act of 1991, PL 101-511; Legacy Resource Management Program | Establishes the "Legacy Resource Management Program" for natural and cultural resources. Program emphasis is on inventory and stewardship responsibilities of biological, geophysical, cultural, and historic resources on DoD lands, including restoration of degraded or altered habitats. |
| EO 11514, *Protection and Enhancement of Environmental Quality* | Federal agencies shall initiate measures needed to direct their policies, plans, and programs to meet national environmental goals. They shall monitor, evaluate, and control agency activities to protect and enhance the quality of the environment. |
| EO 11593, *Protection and Enhancement of the Cultural Environment* | All Federal agencies are required to locate, identify, and record all cultural resources. Cultural resources include sites of archaeological, historical, or architectural significance. |
| EO 11987, *Exotic Organisms* | Agencies shall restrict the introduction of exotic species into the natural ecosystems on lands and waters which they administer. |
| EO 11988, *Floodplain Management* | Provides direction regarding actions of Federal agencies in floodplains, and requires permits from state, territory and Federal review agencies for any construction within a 100-year floodplain and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for acquiring, managing and disposing of Federal lands and facilities. |
| EO 11989, *Off-Road vehicles on Public Lands* | Installations permitting off-road vehicles to designate and mark specific areas/trails to minimize damage and conflicts, publish information including maps, and monitor the effects of their use. Installations may close areas if adverse effects on natural, cultural, or historic resources are observed. |
| EO 11990, *Protection of Wetlands* | Requires Federal agencies to avoid undertaking or providing assistance for new construction in wetlands unless there is no practicable alternative, and all practicable measures to minimize harm to wetlands have been implemented and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. |

**Table 17. Summary of Key Legislation Related to Design and Implementation of the INRMP**

| | |
|---|---|
| EO 12088, *Federal Compliance with Pollution Control Standards* | This EO delegates responsibility to the head of each executive agency for ensuring all necessary actions are taken for the prevention, control, and abatement of environmental pollution. This order gives the USEPA authority to conduct reviews and inspections to monitor Federal facility compliance with pollution control standards. |
| EO 12898, *Environmental Justice* | This EO requires certain federal agencies, including the DoD, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations. |
| EO 13112, *Exotic and Invasive Species* | To prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. |
| EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* | The U.S. Fish and Wildlife Service (USFWS) has the responsibility to administer, oversee, and enforce the conservation provisions of the Migratory Bird Treaty Act, which includes responsibility for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulations development and enforcement. |
| Animal Damage Control Act (7 USC § 426-426b, 47 Stat. 1468) | Provides authority to the Secretary of Agriculture for investigation and control of mammalian predators, rodents, and birds. DoD installations may enter into cooperative agreements to conduct animal control projects. |
| Bald and Golden Eagle Protection Act (BGEPA), as amended (16 USC 668-668c) | This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act. |
| Clean Air Act, as amended (42 USC §7401– 7671q) | This Act, as amended, is known as the Clean Air Act of 1970. The amendments made in 1970 established the core of the clean air program. The primary objective is to establish Federal standards for air pollutants. It is designed to improve air quality in areas of the country which do not meet Federal standards and to prevent significant deterioration in areas where air quality exceeds those standards. |
| Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Superfund), as amended (26 USC. §4611–4682) | Authorizes and administers a program to assess damage, respond to releases of hazardous substances, fund cleanup, establish clean-up standards, assign liability, and other efforts to address environmental contaminants. Installation Restoration Program guides cleanups at DoD installations. |

**Table 17. Summary of Key Legislation Related to Design and Implementation of the INRMP**

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|---|---|
| Endangered Species Act (ESA) of 1973, as amended (16 USC §1531 et seq.) | Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Under this law, no Federal action is allowed to jeopardize the continued existence of an endangered or threatened species. The ESA requires consultation with the USFWS and the NOAA Fisheries (National Marine Fisheries Service) and the preparation of a biological evaluation or a biological assessment may be required when such species are present in an area affected by government activities. |
| Federal Aid in Wildlife Restoration Act of 1937 (Pittman-Robertson Act) (16 USC §669–669i) | Provides Federal aid to states and territories for management and restoration of wildlife. Fund derives from sports tax on arms and ammunition. Projects include acquisition of wildlife habitat, wildlife research surveys, development of access facilities, and hunter education. |
| Federal Environmental Pesticide Act of 1972 | Requires installations to ensure pesticides are used only in accordance with their label registrations and restricted-use pesticides are applied only by certified applicators. |
| Federal Land Use Policy and Management Act (43 USC §1701–1782) | Requires management of public lands to protect the quality of scientific, scenic, historical, ecological, environmental, and archaeological resources and values; as well as to preserve and protect certain lands in their natural condition for fish and wildlife habitat. This Act also requires consideration of commodity production such as timbering. |
| Federal Noxious Weed Act of 1974, 7 U.S.C. § 2801–2814 | The Act provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. |
| Federal Water Pollution Control Act (Clean Water Act [CWA]) (33 USC §1251–1387) | The CWA is a comprehensive statute aimed at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. Primary authority for the implementation and enforcement rests with the US EPA. |
| Fish and Wildlife Conservation Act (16 USC §2901–2911) | Installations encouraged to use their authority to conserve and promote conservation of nongame fish and wildlife in their habitats. |
| Fish and Wildlife Coordination Act (16 USC §661 et seq.) | Directs installations to consult with the USFWS, or state or territorial agencies to ascertain means to protect fish and wildlife resources related to actions resulting in the control or structural modification of any natural stream or body of water. Includes provisions for mitigation and reporting. |
| Lacey Act of 1900 (16 USC §701, 702) | Prohibits the importation of wild animals or birds or parts thereof, taken, possessed, or exported in violation of the laws of the country or territory of origin. Provides enforcement and penalties for violation of wildlife related Acts or regulations. |
| Leases: Non-excess Property of Military Departments, as amended (10 USC §2667) | Authorizes DoD to lease to commercial enterprises Federal land not currently needed for public use. Covers agricultural outleasing program. |
| Migratory Bird Treaty Act (MBTA) (16 USC §703–712) | The Act implements various treaties for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful without a valid permit. |

**Table 17. Summary of Key Legislation Related to Design and Implementation of the INRMP**

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| National Environmental Policy Act of 1969 (NEPA), as amended; (42 USC §4321 et seq.) | Requires Federal agencies to utilize a systematic approach when assessing environmental impacts of government activities. Establishes the use of environmental impact statements. NEPA proposes an interdisciplinary approach in a decision-making process designed to identify unacceptable or unnecessary impacts on the environment. The Council of Environmental Quality (CEQ) created Regulations for Implementing the National Environmental Policy Act [40 Code of Federal Regulations (CFR) Parts 1500–1508], which provide regulations applicable to and binding on all Federal agencies for implementing the procedural provisions of NEPA, as amended. |
| National Historic Preservation Act (NHPA) (16 USC §470 et seq.) | Requires Federal agencies to take account of the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through listing on the NRHP), and protection of historical and cultural properties of significance. |
| National Trails Systems Act (16 USC §1241–1249) | Provides for the establishment of recreation and scenic trails. |
| National Wildlife Refuge Acts | Provides for establishment of National Wildlife Refuges through purchase, land transfer, donation, cooperative agreements, and other means. |
| National Wildlife Refuge System Administration Act of 1966 (16 USC §668dd–668ee) | Provides guidelines and instructions for the administration of Wildlife Refuges and other conservation areas. |
| Native American Graves Protection and Repatriation Act of 1990, as amended (25 USC §3001–13 | Established requirements for the treatment of Native American human remains and sacred or cultural objects found on Federal lands. Includes requirements on inventory, and notification. |
| Rivers and Harbors Act of 1899 (33 USC §401 et seq.) | Makes it unlawful for the USAF to conduct any work or activity in navigable waters of the United States without a Federal Permit. Installations should coordinate with the U.S. Army Corps of Engineers (USACE) to obtain permits for the discharge of refuse affecting navigable waters under National Pollutant Discharge Elimination System (NPDES) and should coordinate with the USFWS to review effects on fish and wildlife of work and activities to be undertaken as permitted by the USACE. |
| Sale of certain interests in land (10 USC § 2665) | Authorizes sale of forest products and reimbursement of the costs of management of forest resources. |
| Soil and Water Conservation Act (16 USC §2001) | Installations shall coordinate with the Secretary of Agriculture to appraise, on a continual basis, soil/water-related resources. Installations will develop and update a program for furthering the conservation, protection, and enhancement of these resources consistent with other Federal and local programs. |

**Table 17. Summary of Key Legislation Related to Design and Implementation of the INRMP**

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| Sikes Act , as amended (16 USC §670a–670l) | Provides for the cooperation of DoD, the Department of the Interior (USFWS), and the State Fish and Game Department in planning, developing, and maintaining fish and wildlife resources on a military installation. Requires development of an Integrated Natural Resources Management Plan and public access to natural resources, and allows collection of nominal hunting and fishing fees.<br>NOTE: AFI 32-7064 sec 3.9. Staffing. As defined in DoDI 4715.03, use professionally trained natural resources management personnel with a degree in the natural sciences to develop and implement 611 Alaska Installations INRMP. (T-0). 3.9.1. Outsourcing Natural Resources Management. As stipulated in the Sikes Act, 16 U.S.C. § 670 et. seq., the Office of Management and Budget Circular No. A-76, Performance of Commercial Activities, August 4, 1983 (Revised May 29, 2003) does not apply to the development, implementation and enforcement of INRMPs. Activities that require the exercise of discretion in making decisions regarding the management and disposition of government owned natural resources are inherently governmental. When it is not practicable to utilize DoD personnel to perform inherently governmental natural resources management duties, obtain these services from federal agencies having responsibilities for the conservation and management of natural resources. |
| **DoD Policies, Directives, and Instructions** | |
| DoDI 4150.07, *DoD Pest Management Program* (29 May 2008) | Implements policy, assigns responsibilities, and prescribes procedures for the DoD Integrated Pest Management Program. |
| DoDI 4715.1, *Environmental Security* | Establishes policy for protecting, preserving, and (when required) restoring and enhancing the quality of the environment. This instruction also ensures environmental factors are integrated into DoD decision-making processes that could impact the environment, and are given appropriate consideration along with other relevant factors. |
| DoDI 4715.03, *Natural Resources Conservation Program* | Implements policy, assigns responsibility, and prescribes procedures under DoDI 4715.1 for the integrated management of natural and cultural resources on property under DoD control. |
| OSD Policy Memorandum, *Implementation of Sikes Act Improvement Amendments: Supplemental Guidance Concerning Leased Lands* (17 May 2005) | Provides supplemental guidance for implementing the requirements of the Sikes Act in a consistent manner throughout DoD. The guidance covers lands occupied by tenants or lessees or being used by others pursuant to a permit, license, right of way, or any other form of permission. INRMPs must address the resource management on all lands for which the subject installation has real property accountability, including leased lands. Installation commanders may require tenants to accept responsibility for performing appropriate natural resource management actions as a condition of their occupancy or use, but this does not preclude the requirement to address the natural resource management needs of these lands in 611 Alaska Installations INRMP. |

**Table 17. Summary of Key Legislation Related to Design and Implementation of the INRMP**

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| OSD Policy Memorandum, *Implementation of Sikes Act Improvement Act Amendments: Supplemental Guidance Concerning INRMP Reviews* (1 November 2004) | Emphasizes implementing and improving the overall INRMP coordination process. Provides policy on scope of INRMP review, and public comment on INRMP review. |
| OSD Policy Memorandum, *Implementation of Sikes Act Improvement Act: Updated Guidance* (10 October 2002) | Provides guidance for implementing the requirements of the Sikes Act in a consistent manner throughout DoD and replaces the 21 September 1998 guidance Implementation of the Sikes Act Improvement Amendments. Emphasizes implementing and improving the overall INRMP coordination process and focuses on coordinating with stakeholders, reporting requirements and metrics, budgeting for INRMP projects, using the INRMP as a substitute for critical habitat designation, supporting military training and testing needs, and facilitating the INRMP review process. |
| **USAF Instructions and Directives** | |
| 32 CFR Part 989, as amended (https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title32/32cfr989_main_02.tpl) | Provides guidance and responsibilities in the EIAP for implementing INRMPs. Implementation of an INRMP constitutes a major federal action and therefore is subject to evaluation through an Environmental Assessment or an Environmental Impact Statement. |
| AFI 32-7064, *Integrated Natural Resources Management* | Implements Air Force Policy Directive (AFPD) 32-70 and DODI 4715.03. It explains how to manage natural resources on USAF property in compliance with Federal, state, territorial, and local standards. |
| AFI 32-7065, *Cultural Resources Management* | This instruction implements AFPD 32-70 and DoDI 4710.1, Archaeological and Historic Resources Management. It explains how to manage cultural resources on USAF property in compliance with Federal, state, territorial, and local standards. |
| AFPD 32-70, *Environmental Considerations in Air Force Programs and Activities* | Outlines the USAF mission to achieve and maintain environmental management within the USAF. This directive establishes policy to address the environmental considerations in all Air Force programs and activities using a management system framework. It also assigns duties and responsibilities, and establishes long-term goals and objectives, with specific programs in support of those objectives. It aims to create a culture where personnel incorporate environmental considerations into all USAF actions, with environmental compliance, risk reduction, and continuous improvement serving as central tenets for sustainable USAF operations. |
| Policy Memo for Implementation of Sikes Act Improvement Amendments, HQ USAF Environmental Office (USAF/ILEV) (29 January 1999) | Outlines the USAF interpretation and explanation of the Sikes Act and Improvement Act of 1997. |

## 13.2 APPENDIX B: GENERAL ITEMS OF COOPERATION AMONG THE U.S. FISH AND WILDLIFE SERVICE (USFWS); ALASKA DEPARTMENT OF FISH AND GAME (ADFG); AND U.S. AIR FORCE (USAF), PACIFIC AIR FORCES REGIONAL SUPPORT CENTER (PRSC), 611TH CIVIL ENGINEER SQUADRON (611 CES)

**PURPOSE:** The purpose of this document is to specifically list items to be provided by the ADFG, USFWS, and the 611 CES for cooperative implementation of the PRSC/611 CES Integrated Natural Resources Management Plan (INRMP). Items not specifically discussed below will generally be the responsibility of the USAF unless the other agencies agree to assist with their implementation.

**AUTHORITY:** In accordance with the authority contained in 10 U.S. Code (USC) 2668-2671 and 16 USC 670, the Department of Defense (DoD), Department of Interior, and the State of Alaska, through their duly designated representatives whose signatures appear on the PRSC/611 CES INRMP, specifically approve the INRMP and below specific items of cooperation among the three agencies.

**MUTUAL AGREEMENT:**

- The USAF will maintain favorable habitats for featured species of fish and wildlife by coordinating other land uses and accomplishing direct habitat improvement measures according to this INRMP.
- User fees for persons trapping or fishing the waters at PRSC sites will not be charged.
- Persons fishing the waters of PRSC sites must purchase State licenses, tags, and stamps, as required by ADFG, unless exempt by ADFG regulations.
- No hunting will be permitted at PRSC sites.
- All fishing and trapping on PRSC sites will be in accordance with federal and state fish and game laws. Federal law takes precedence only in the event of conflict.
- Representatives of the USFWS and ADFG will be admitted to PRSC sites at reasonable times, subject to requirements of military necessity and security.
- The ADFG and USFWS shall furnish technical assistance for development and implementation of professionally sound natural resources programs and resolving special problems on 611 ASG sites provided funding for such support is available.
- The USAF may furnish assistance and facilities to the ADFG and/or USFWS for mutually agreed upon natural resources research projects. All parties will cooperate in conducting fish and wildlife studies required under the National Environmental Policy Act on 611 CES lands.
- No exotic species of fish or wildlife will be introduced on 611 CES lands without prior written approval of the USAF, ADFG, and the USFWS.
- Fishing access and policies on 611 ASG sites will be authorized and controlled by the 611 CES sites Commander in accordance with a published policy promulgated in compliance with applicable Federal and State laws, Air Force Instructions, military requirements, and the INRMP. Air Force policy is to permit public access for outdoor recreational purposes to the greatest extent possible consistent with installation security and safety requirements and the ability of natural resources to support such activities without degrading or impairing environmental qualities or morale, welfare, and recreation programs. Specific requirements may be implemented for individual sites to meet unusual conditions.
- The USAF agrees to cooperate with the USFWS and ADFG for management of threatened or endangered species residing on 611 CES sites. Such efforts will be in compliance with federal and state laws and applicable Air Force instructions.
- The USAF will survey its lands for threatened and endangered plant and animal species.

- The USAF has the option to directly transfer funds to the ADFG and USFWS for implementation of this INRMP.
- The use of chemical toxicants for controlling nuisance wildlife species on 611 ASG sites will be in accordance with Air Force instructions and state and federal laws.
- The USFWS will make available, upon USAF request, the services of a Federal Game Warden to aid in enforcing federal regulations, if such support is consistent with priorities of the USFWS.
- The USFWS and ADFG, upon USAF request, will provide technical assistance in controlling nuisance wildlife species, depending upon available funding.
- The USFWS and ADFG will assist in fish and wildlife surveys needed to implement this INRMP, providing funding is available.
- All agencies involved will make available to the other parties information collected, studies, and reports that involve natural resources at 611 CES sites.

**LIMITATIONS:** Military missions of 611 CES sites supersede natural resources management and associated recreational activities, and such activities must be compatible with the military mission. However, where there is conflict between the military mission and provisions of the Endangered Species Act, the Sikes Act, or any other law associated with natural resources conservation, such conflicts will be resolved according to statutory requirements.

Activities and actions in this plan related to Eareckson Air Station must be compatible with the purposes of the Alaska Maritime National Wildlife Refuge (NWR). Compatible means that an activity "... will not materially interfere with or detract from the fulfillment of the mission of the National Wildlife Refuge System or the purposes of the refuge" (National Wildlife Refuge Improvement Act of 1997). Compatibility determinations will be made by the manager of the Alaska Maritime NWR.

**REQUIRED REFERENCES:**

- Nothing contained in this agreement shall modify the present cooperative program with other public agencies, conservation groups, or educational institutions, or modify any rights granted by treaty to any Native American tribe or to members thereof.
- This INRMP is a Federal Facilities Compliance Agreement.
- As required by the Sikes Act, the following agreements are made:
  (1) This INRMP is the planning document required by the Sikes Act, as amended. This INRMP contains those items specifically required by law. In the event the Sikes Act is amended after this INRMP is signed/approved, this plan will be amended to conform to the new requirements within the Sikes Act, if needed.
  (2) This plan will be reviewed by the ADFG, USFWS, and the USAF on a regular basis, but not less often than every 5 years.
  (3) *With regard to implementation and enforcement of cooperative plans* (*i.e.* the 611 ASG INRMP)*... neither Office of Management and Budget* (OMB) *Circular A-76 nor any successor circular thereto applies to the procurement of services that are necessary for that implementation and enforcement; and priority shall be given to the entering into of contracts for the procurement of such implementation and enforcement services with Federal and State agencies having responsibility for the conservation or management of fish or wildlife)*[(1)]. This provision prohibits the inclusion of implementation and enforcement of the INRMP into Commercial Activities review associated with OMB Circular A-76, and mandates that other

[(1)]The Sikes Act referenced is as amended, including Public Law 105-85, the Sikes Act Improvement Act of 1997 and as amended by Public Law 108-136, the National Defense Authorization Act of 2004.

contracts for such services be first offered to the USFWS and ADFG, in the case of 611 CES sites.

(4) The 611 CES INRMP is not, nor will be treated as, a cooperative agreement to which 31 U.S. Code Chapter 63 applies.

(5) This INRMP will become effective upon the date subscribed by the last signature and shall continue in full force for a period of 5 years or until terminated by written notice to the other parties by any of the parties signing this agreement. This agreement may be amended or revised by agreement between the parties hereto. Action to amend or revise may originate with any of the other participating agencies.

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## 13.3 APPENDIX C: INRMP CORRESPONDENCE AND COMMENTS RECEIVED

**HELM, JOEL A GS-12 USAF PACAF 611 CES/CEI**

| | |
|---|---|
| **From:** | HELM, JOEL A GS-12 USAF PACAF 611 CES/CEI |
| **Sent:** | Friday, August 24, 2018 5:47 PM |
| **To:** | 'jim.balsiger@noaa.gov'; 'greg.balogh@noaa.gov'; 'greg_siekaniec@fws.gov'; 'dfg.commissioner@alaska.gov'; 'jill.klein@alaska.gov'; Burns, Melissa; 'Lemons, Patrick'; Christopher Putnam; Joel GarlichMiller; 'Miller, Susanne'; 'Michelle StMartin'; 'Johnson, Jim'; 'Snyder, Jonathan'; 'Williams, Jeff'; Don Dragoo; 'Renner, Heather'; 'marc_webber@fws.gov'; 'MacCracken, James'; 'beth_pattinson@fws.gov'; 'ssweet@blm.gov'; 'kmourits@blm.gov'; 'chris.krenz@alaska.gov'; 'Hagelin, Julie C (DFG)'; 'Parr, Brynn L (DFG)' |
| **Cc:** | HEDGES, RAYMON L GS-12 USAF PACAF 611 CES/AFCEC/CZOP; ROY, LORI A GS-13 USAF PACAF 611 CES/CEI; HAWKS, MELISSA A Capt USAF PACAF 611 CES/CEI |
| **Subject:** | Pacific Air Forces Regional Support Center 611 Civil Engineer Squadron Integrated Natural Resources Management Plan Review and Update_30 Day Notice_ Step 1 |
| **Attachments:** | afi32-7064_2016.pdf |
| **Signed By:** | joel.helm.1@us.af.mil |

Dear Madams and Sirs,

The USAF's Pacific Air Forces Regional Support Center (PRSC) and its 611th Civil Engineer Squadron, in compliance with the Sikes Act and Air Force Instruction 32-7064 (specifically Attach 3, Step 1), wishes to announce its intent to update the PRSC's Alaska Sites Integrated Natural Resources Management Plan (INRMP). Each of your respective agencies and a select portion of your agencies employee base has participated in reviews of this document in the past, thus we endeavor to continue that collaborative process in 2018 and politely request any supplemental names (and email addresses) not depicted in the "TO" line, if they wish to review the draft INRMP. If your respective service or employer has no need for additional reviewers, or can complete its reviews using the current panel within the CC line, feel free to respond to this email, with concurrence the appropriate reviewers are listed. If other reviewers are missing, please email me those missing names/emails and I will ensure they are included in the initial draft review panel distribution list. I can also remove reviewers from the TO line, but do please request your removal, if you wish to depart from the review process or your staff will take on the duties of review allowing you to be removed from future review notifications. The PRSC manages radars and remote airfields in Alaska that exist in the Aleutians, interior Alaska, as well as coastal sites spanning the outline of this amazing state. The sites (and radar equipment located on each site) depicted in the INRMP are responsible for Watching America's Back (literally) and play a pivotal role in America's overall surveillance strategy.

In accordance with AFI 32-7064, this 30 day notice has been issued on 24 Aug 2018, in order to not only prepare agency reviewers for the INRMP, but to also give external agencies time to identify other additional reviewers and enable staff the ability to identify and create space in their schedule for the review of the 330+ paged document with appendices. Given my employer is the USAF, I will utilize the schedule in attachment 3 of the Air Force

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Instruction attached to this email. Please feel free to socialize the attached Air Force Instruction and its embedded INRMP schedule amongst staff who lack knowledge of what an INRMP is, as this instruction details not only the INRMP review process (see attachment 3 for the different steps), but also gives a greater understanding of the role the INRMP plays on base, which may be helpful if staff have not reviewed INRMP's in the past.

This 30 day notice is required by Air Force Instruction 32-7064; this email memorializes that notification has been completed on 24 Aug 2018, to both the tripartite as well as other federal agencies in Alaska who have participated in this documents review in the past.

I'd like to thank each of you for your agencies continued interest in the PRSC's INRMP document, and in some cases, your agencies implementation of the very projects displayed in the document, using USAF funds. The current Command views the update process as collaborative and we look forward to engaging with each agency on those elements of the INRMP each agency wishes to comment on or hopes to see changed based on new science, data, or policy change. The comment and edit process will roll out in alignment with the attached instruction and the chronological steps identified in attachment 3 and their respective durations. If you have any questions regarding the USAF's schedule for INRMP reviews or other elements of the Air Force Instruction guiding the process of review, please contact me at your convenience. Thank you again for your interest in the PRSC's Alaska INRMP.

Regards,

Joel Helm
USAF 611 CES
907-552-5230

*AK INRMP ADMIN RECORD*

2

From: HELM, JOEL A GS-12 USAF PACAF 611 CES/CEI
Sent: Friday, December 21, 2018 5:55 PM
To: 'jim.balsiger@noaa.gov' <jim.balsiger@noaa.gov>; 'greg.balogh@noaa.gov'<greg.balogh@noaa.gov>; 'greg_siekaniec@fws.gov' <greg_siekaniec@fws.gov>; 'dfg.commissioner@alaska.gov' <dfg.commissioner@alaska.gov>; 'jill.klein@alaska.gov' <jill.klein@alaska.gov>; 'Burns, Melissa'<melissa_burns@fws.gov>; 'Lemons, Patrick' <patrick_lemons@fws.gov>; 'Joel GarlichMiller' <joel_garlichmiller@fws.gov>; 'Christopher Putnam'<Christopher_Putnam@fws.gov>; 'Miller, Susanne' <susanne_miller@fws.gov>; 'Michelle StMartin' <michelle_stmartin@fws.gov>; 'Johnson, Jim'<jim_a_johnson@fws.gov>; 'Snyder, Jonathan' <jonathan_snyder@fws.gov>; 'Don Dragoo' <don_dragoo@fws.gov>; 'Williams, Jeff' <jeff_williams@fws.gov>; 'marc_webber@fws.gov' <marc_webber@fws.gov>; 'MacCracken, James'<james_maccracken@fws.gov>; 'beth_pattinson@fws.gov'<beth_pattinson@fws.gov>; 'ssweet@blm.gov' <ssweet@blm.gov>; 'kmourits@blm.gov' <kmourits@blm.gov>; 'chris.krenz@alaska.gov'<chris.krenz@alaska.gov>; 'Parr, Brynn L (DFG)' <brynn.parr@alaska.gov>; 'Hagelin, Julie C (DFG)' <julie.hagelin@alaska.gov>; 'Renner, Heather'<heather_renner@fws.gov>
Cc: HEDGES, RAYMON L GS-12 USAF PACAF 611 CES/AFCEC/CZOP<raymon.hedges@us.af.mil>; STEELY, BRUCE L GS-13 USAF PACAF 611 CES/DD<bruce.steely@us.af.mil>; ROY, LORI A GS-13 USAF PACAF 611 CES/CEI<lori.roy@us.af.mil>; CORBIN, REBECCA S Lt Col USAF PACAF 611 CES/CC<rebecca.corbin@us.af.mil>
**Subject: RE: Pacific Air Forces Regional Support Center 611 Civil Engineer Squadron Integrated Natural Resources Management Plan Review and Update_30 Day Notice_ Step 1**

Dear Madams and Sirs,

I apologize for the lengthy delays associated with the release of the 2019 Draft Pacific Air Forces Regional Support Center's Remote Alaskan Sites Integrated Natural Resources Management Plan. We have a series of maps that are still under construction however (you'll see placeholders for a subset of maps in this draft INRMP version), the core base document is at a stage whereby it can now be released for comment and review.

Due to the size of the core document and the separate appendix, I've taken the liberty to issue the core document to everyone on the "TO" and "CC" line. Our FTP service is temporarily down, however next week I will issue the appendices and component plans to the core document using a program called "ARL".

I will supplement the digital issuances with a CD version as well; one copy will be distributed to each of the primary offices (USFWS, BLM, NOAA, ADFG).

Given the size of the document and the large number of sites it covers (as well as the fact it is the holiday season and some may be using annual leave to see family in lower 48) I feel that a 45 day calendar review period should suffice for the preliminary review of the entire suite of documents.

Please use the comment sheet embedded in this email to document your comments. Once you've completed your review, please feel free to issue your comment review sheet to me no later than 4 Feb 2019.

Thanks again for your involvement and for reviewing the documents issued today and next week via FTP.

Regards,

Joel Helm
Ak Sites Natural Resources Program Manager
USAF 611 CES
907-552-5230

*AK INRMP ADMIN RECORD*

**COMMENT RESPONSE MATRIX (CRM)**

Agency Comments and USAF Responses: 2018 Prelim Draft PRSC/611 CES INRMP, Appendix H, and Polar Bear/Walrus Avoidance Plan

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**Documents:** 2018 Prelim Draft PRSC/611 CES INRMP, Appendix H, and Polar Bear/Walrus Avoidance Plan
**Project:** PRSC/611 CES INRMP Update
**Date:** December 2018

| Comment # | Section | Page | Comment By | Comment | Response |
|---|---|---|---|---|---|
| **Main INRMP Document** | | | | | |
| 1 | Gen'l | | N. Wing/ ADFG | In accordance with the Sikes Act, we encourage the PACAF 611 to continue to look for ways to promote the sustainable multipurpose use of natural resources on military installations – including hunting, fishing, trapping, and non- consumptive uses such as wildlife viewing, boating, and camping – in ways that are consistent with DoD's primary military mission and to the extent reasonably practicable. | Comment noted. |
| 2 | Effects of Implementation of INRMP Goals on Mgmt Direction | 9 | A. Ajmi/ USFWS | "Management specific to certain natural resources (land, plant and wildlife) that may not have been directly managed or may be managed differently would change." This sentence is confusing. Can't really determine the management scheme. Please revise for better understanding. | Text revised for clarity. |
| 3 | Throughout doc | | A. Ajmi/ USFWS | Appendix H is referenced - Appendix H is missing from this document. | All cited appendices will be provided during the next full review of the Draft INRMP. |
| 4 | Interdiscip INRMP Development | 15 | A. Ajmi/ USFWS | "This INRMP has been updated by the 611 CES in coordination with the USFWS, ADFG, The National Marine Fisheries Service (NMFS), and BLM. This INRMP (Appendix 2.4.2) includes general items of cooperation among the USAF, USFWS, and ADFG for natural resources management at PRSC sites, in accordance with the Sikes Act." Appendix 2.4.2 is missing. | This was an incorrect reference that has been corrected. All cited appendices will be provided during the next full review of the Draft INRMP. |
| 5 | Interdiscip INRMP Development | 15 | A. Ajmi/ USFWS | "The King Salmon Airport withdrawal expired on October 17, 2011 and is currently authorized under a Federal Land Policy and Management Act right-of-way (AA-93105) which expires December 31, 2014." Is there an updated ROW agreement? This is 4+ years old. | Site Right of Way AA-93928 is the active successor document to AA 93105, which expired on 21 Dec 2014. |
| 6 | Installation/GSU Loc & Area Descriptions | 22 | A. Ajmi/ USFWS | Six of the 14 active LRRs and all 20 of the inactive sites are listed as "unknown" in this table for NR Implications. Are there plans to describe the NR implications, especially for the active LRRs? | The NR Implications table has been updated to better inform the reader about historical and potential future natural resources impacts at inactive and active PRSC installation properties. |

**Documents:** 2018 Prelim Draft PRSC/611 CES INRMP, Appendix H, and Polar Bear/Walrus Avoidance Plan
**Project:** PRSC/611 CES INRMP Update
**Date:** December 2018

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| 7 | Global Climate Change | | A. Ajmi/ USFWS | "Major changes in temperature, warming of rivers and extensive melting of permafrost have been clearly evidenced in both Alaska and Canada over the last 20 years. In areas with more severe winter temperatures thermokarst (melting of permafrost) is a major problem." Do the relevant facilities include updates to current permafrost states? Thermokarst is the result of surface subsidence in areas where ice-rich permafrost *thaws*. Winter temperatures are related to thaw, but areas with ice-poor (i.e., thaw-stable) permafrost may thaw with minimal to no subsidence (thermokarst). | Other than the Cape Lisburne seawall construction project, there have been no major construction projects in the last 5 years, which have required extensive digging or foundation placement. |
| 8 | Global Climate Change | | A. Ajmi/ USFWS | Is there discussion of coastal erosion at each coastal property in appendix H? | Coastal erosion modeling results from 2015 and 2019 efforts have been incorporated into this version of the INRMP. See Sections 2.2.1.1 and 2.4.4.2. See Table 11. |
| 9 | Hydrology | | A. Ajmi/ USFWS | Does this section in appendix H also include a discussion on changes to surface water? | Yes, as appropriate and if data/information is available. |
| 10 | Ecosystem Classification | | A. Ajmi/ USFWS | "Below are general descriptions of areas that encompass PRSC sites. In 2011 Audubon Alaska, in cooperation with Oceana, completed the *Place-based Summary of the Arctic Marine Synthesis: Atlas of the Chukchi and Beaufort Seas* (Smith 2011)." This report has been updated to 2017. Smith, M. A., M. S. Goldman, E. J. Knight, and J. J. Warrenchuk. 2017. Ecological Atlas of the Bering, Chukchi, and Beaufort Seas. 2nd ed. Audubon Alaska, Anchorage, AK. | Thank you for the updated reference. It will be cited accordingly. |
| 11 | North Slope (Arctic Coastal Plain) Sites | | A. Ajmi/ USFWS | Please include discussion of coastal Erosion, and lake waterbody drying. These are occurring now. | Coastal erosion modeling results from 2015 and 2019 efforts have been incorporated into this version of the INRMP. See Sections 2.2.1.1 and 2.4.4.2. We are unable to locate any information re lake waterbody drying for the PRSC sites. |
| 12 | Ecosys Class | 31 | A. Ajmi/ USFWS | We appreciate the extensive and in depth characterization of the North Slope, and encourage describing the same level of detail for the other sections (e.g., Western Alaska, southwestern Alaska, and Aleutian Island Alaska Sites. | Document has been revised using the ecoregion approach. An overview of each ecoregion is provided and which PRSC sites are within each ecoregion. |

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| 13 | Vegetation | 34 | A. Ajmi/ USFWS | "During the 2013 INRMP update process, Colorado State University - Center for Environmental Management on Military Lands, developed wildlife habitat maps for a subset of the active sites. That effort utilized used 2001 National Land Cover Database data (http://www.mrlc.gov/nlcd2001.php) as a baseline for comparison with the most recent imagery found on Google Earth for each site and, if available, 2009-2010 SPOT-5 satellite imagery (http://www.alaskamapped.org/ortho)." These are 10 years old now. Are there any plans to update? | Habitat comparisons were completed in 2016 for Cape Lisburne, Barter Island and Fort Yukon LRRS. Additional text has been added to the INRMP to summarize other major findings from the 2016 BEM report. In 2019, Colorado State University, in cooperation with the Air Force Civil Engineer Center, created updated ecosystem classification maps for the majority of the PRSC installations; these additional habitat map updates have been inserted into the site-specific summaries in Appendix H. |
| 14 | Vegetation | 34 | A. Ajmi/ USFWS | "Imagery is rapidly changing in methodology and quality." Imagery can also be used to assess changes to waterbody size and coastal condition. This imagery could be used to update the hydrology (section) information for facilities. | New imagery was utilized by the private firm BEM during the 2015 habitat comparison analysis which addressed Cape Lisburne, Barter Island and Fort Yukon LRRS. In 2019, Colorado State University, in cooperation with the Air Force Civil Engineer Center, modeled projected future inundation and has depicted the forecasts in visual form using newer satellite imagery. |
| 15 | Vegetation | 34 | A. Ajmi/ USFWS | Please include the North Slope sites in this section. | Document has been revised using the ecoregion approach. An overview of each ecoregion is provided and which PRSC sites are within each ecoregion. |
| 16 | Vegetation | 35 | A. Ajmi/ USFWS | Why are there such abbreviated descriptions for the Western Alaska and Southwestern Alaska sites? | Document has been revised using the ecoregion approach. An overview of each ecoregion is provided and which PRSC sites are within each ecoregion. |
| 17 | Historic Veg Cover | | A. Ajmi/ USFWS | This description seems to focus on the North Slope. What about the other regions? Same comment for next section (2.3.2.2). | Document has been revised using the ecoregion approach. An overview of each ecoregion is provided and which PRSC sites are within each ecoregion. |
| 18 | Turf & Landscaped Areas | 36 | A. Ajmi/ USFWS | This heading appears to be a placeholder for information unavailable for our review at this time. | Text has been revised to reference the site-specific discussion provided in Appendix H. |
| 19 | | 43 | B. Scanlon/ ADFG | All references to Arctic char being found in marine waters or as an anadromous fish are incorrect and should be changed to the closely- related Dolly Varden. Outside of some seasonal movements into several Bristol Bay streams, Arctic char are only found in lakes and are not anadromous in Alaska. | Comment noted, text revised accordingly. |

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| 20 | Mammals | 44 | A. Ajmi/ USFWS | This section would benefit by distinguishing the ESA-listed species from the state managed species, as well as identifying which species are afforded additional protection by the MMPA. Then describe the regional species presence. All listed and non-listed species should be updated throughout the document. | Text and table of ESA-listed species has been thoroughly revised and updated. |
| 21 | Birds | 45 | A. Ajmi/ USFWS | Please include a description for Southeast Alaska, colonial cliff nesting birds and Important Bird and Biodiversity Areas. | Document has been revised using the ecoregion approach. An overview of each ecoregion is provided and which PRSC sites are within each ecoregion. Site-specific discussions are provided in Appendix H and not in the main INRMP. IBAs will be addressed (including figures depicting IBAs within the vicinity of sites). Appendix H will include further detail for each site. |
| 22 | Birds | 45 | A. Ajmi/ USFWS | "Old Squaw" is considered politically incorrect. The proper name is Long-tailed Duck. Species names should be updated throughout document | Common name updated accordingly throughout INRMP and associated Appendix H. |
| 24 | Long Range Radar Sites | 62 | A. Ajmi/ USFWS | "February 2102". Please check dates throughout document. Please update all referenced documents when applicable throughout document. | Comment noted. References have been updated accordingly and citations of personal communications minimized. |
| 25 | IRP, Demo Program, & Related Concerns | 63 | A. Ajmi/ USFWS | Please update scheduled activities at all locations and state if the action is complete. | The AFCEC manages and implements all IRP related actions on the PRSC installations. Pivotal elements of the 2019 Land Use Control Management Plan have been summarized in the INRMP via a table to better describe the status of IRP actions on each site. |
| 26 | | 65 | N. Wing/ ADFG | Add underlined text: "Proper permits, from ADF&G or the USFWS, | Text added. |
| 27 | Inactive and Excess Sites | 71 | A. Ajmi/ USFWS | Please update scheduled activities at all locations and state if the action is complete. | Section 2.4.3 "current major impacts" and section 2.4.4 "Potential Future Impacts" have been heavily revised to better differentiate between a known impact (documented in the past) and an anticipated future impact. We've also added a table to better differentiate between AFCEC's IRP actions and completely separate radar support actions. This separation and distinction has improved the portrayal of past, current and future actions which may have (or had) an impact on a specific resource(s). See Tables 9 and 10. |

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| 28 | | 78 | N. Wing/ ADFG | Please add underlined words: …species and…is a member of the Federal Subsistence Board, which regulates federally administered subsistence hunting… | Text added. |
| 29 | Monitoring | 79 | A. Ajmi/ USFWS | "Section 5.2" There is no such section in this document. Please update this and all other section references in the entire document. | All cross-referencing in the INRMP has been corrected. |
| 30 | Monitoring | 79 | A. Ajmi/ USFWS | "The use of habitat mapping specifically for Spectacled Eider protection is discussed further in Section Threatened and Endangered Species and Species of Concern and Habitat, *Threatened Eiders*. Wetland monitoring is discussed in Section *Wetlands Protection."* Please review this statement and the referenced section. Currently, eiders and mapping for eider protection is not in the referenced location earlier in this document. Please review all such references to this section throughout the document to determine if correct. | All cross-referencing in the INRMP has been corrected. Most of this information is now contained within the site-specific discussions in Appendix H. |
| 31 | Habitat Conservation (protection, restoration, & enhancement) | 85 | A. Ajmi/ USFWS | "Habitat Conservation (protection, restoration, and enhancement)." This section heading does not match the description below The bullets below reference minimizing conflicts with wildlife, and do not include habitat conservation, protection, restoration, or enhancement. | Text has been revised accordingly. |
| 32 | Point Barrow LRRS | 92 | A. Ajmi/ USFWS | "When such nesting structures are removed, it is important to schedule removal for times when the nests are not used (July 15 through April 1)." Nesting Dates should be updated throughout the document. Nesting for many migrant species on the North Slope is June 1 - July 31. https://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/pdf/USFWS%20Timing%20Recommendations%20for%20Land%20Disturbance%20&%20Vegetation%20Clearing.pdf. | Comment noted. Dates updated accordingly. |
| 33 | Eareckson AS Rat Eradication | 96 | A. Ajmi/ USFWS | "This plan, to be completed in 2012, will be the basis of minimizing the risks of introduction of invasive plants, and animals, controlling such species on PRSC sites, and minimizing ecological and other effects of such invasive species on sites where they exist." Please provide the status of this plan, and updated information. | The current USAF PRSC Biosecurity plan is dated June 2015, however it does not take into account actions at Eareckson AS. A new project has been added to Chapter 10 to reflect the need to update the current PRSC biosecurity plan and include locations such as Eareckson and the other active Alaska PRSC sites. |

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| 34 | Eareckson AS Fox Health | 97 | A. Ajmi/ USFWS | "Preliminary results to date report no significant levels of any toxin in Shemya foxes. However, full laboratory analyses are still underway (White and Spraker 2012)." Please provide an update. | This level of detail is not necessary for the purposes of the INRMP and has been removed. It will be summarized in the site-specific discussion in Appendix H. Blood was collected from each of the 60 foxes live-captured in 2019. Nothing remarkable was noted in the blood chemistry or tissue samples analysess. |
| 35 | Eareckson AS Fox Health | 98 | A. Ajmi/ USFWS | "Follow-up site visits to recapture and examine Shemya's tagged foxes be conducted at regular intervals of from two to three years; the next site visit should be conducted either in summer 2013 or winter 2013-2014 (White and Spraker 2012)." Please provide an update. | See response to previous comment. |
| 36 | Brown/Black Bear Conflicts | 100 | A. Ajmi/ USFWS | Recommend reviewing the relevant ADFG material on bear safety. http://www.adfg.alaska.gov/?adfg=livingwithbears.bearcountry. | Comment noted. |
| 37 | Brown/Black Bear Conflicts | 100 | A. Ajmi/ USFWS | "Climb a tree (brown bear only as black bears can climb)" This is not always true and should be removed. | Text revised accordingly. |
| 38 | Steller Eider Critical Habitat | 109 | A. Ajmi/ USFWS | "At this site, as with other PRSC sites, as lighting is upgraded or altered, there will be considerations to install shield lights or orient lights in a downward casting positing in order to reduce fallout and light attraction." Update? Has this been implemented? | A Work Order (35117 Cold Bay) was generated in 2018 to replace deteriorated exterior lights at Cold Bay LRRS utilizing in house labor within the 611th CES. This project was approved on 5 April 2018, but never implemented by the operations division within the squadron. The operations and engineering group within the 611 CES shall implement work order 35117 (due to the age of the infrastructure, additional changes are anticipated at other locations) and ensure designs utilize shielding. |
| 39 | | 115; Last para | J. Kirsch/ ADFG | First sentence: all fish bearing freshwater waterways are protected by Alaska Statute….not just the ones containing anadromous fish. | Comment noted - text reorganized and deleted. |
| 40 | | 115; Last para | J. Kirsch/ ADFG | Second sentence: the current statutes are AS 16.05.841 (resident fish waterbodies) AS 16.05.871 (anadromous fish waterbodies). Also, the permitting authority is now through the ADFGame-Division of Habitat. | Comment noted - text reorganized and deleted. |

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| 41 | Invasive Species | 119 | A. Ajmi/ USFWS | "Best Management Practices will be taken so that no new noxious or invasive species are introduced to areas where they are not already found." We also recommend monitoring for at least one growing season after work is completed. | Comment noted and text revised accordingly. |
| 42 | Eareckson AS Improved Grounds | 121 | A. Ajmi/ USFWS | "The USFWS issued an advisory regarding vegetation clearing, Land Clearing Timing Guidance for Alaska, Plan Ahead to Protect Nesting Birds (USFWS 2009), with current timing guidelines (Table Recommended Time Periods for Avoiding Vegetation Clearing)." These are considered voluntary guidelines, and they have been updated. https://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/pdf/USFWS%20Timing%20Recommendations%20for%20Land%20Disturbance%20&%20Vegetation%20Clearing.pdf. | Text and table have been deleted. |
| 43 | EOD Area | 125 | A. Ajmi/ USFWS | "A site review was completed in late 2011, but the report is not yet available." Is this still the case? | We were unable to find a report from 2011 that focuses on this subject. We will continue to research our archives to obtain the referenced report should it exist. This discussion deleted from INRMP; refer to Appendix H for site-specific discussion. |
| 44 | Long Range Radar Sites | 126 | A. Ajmi/ USFWS | "This plan includes objectives regarding stream morphology and ecology; however, it has not been implemented due to other higher priority requirements." This plan has not be implemented in 25 years. Is there a reasonable expectation this plan will be implemented in the future? | The PRSC encourages the agencies identified in the 1994 subject plan to continue to utilize state and federal funding to implement the plans tasks in alignment with the ADFG-BLM MOU commitments. Even though not a party to the MOU or identified as an implementor (pg 12 of the subject document identifies the ADFG and BLM as the implementing parties), AFCEC's restoration efforts at Indian Mountain have the potential to improve water quality conditions as well as habitat integrity for a suite of species including the salmon species identified in the 1994 document. For more information on the status of AFCEC's restoration of lands at Indian Mtn LRRS, refer to Appendix H. |
| 45 | Swallows | 129 | A. Ajmi/ USFWS | "providing alternative nesting habitat," Has this been implemented? | The PRSC has not executed an "alternative nesting habitat" project for swallows. This text has been deleted. |

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| 46 | Installation Supplement-Mgmt Goals & Objectives | 142 | A. Ajmi/ USFWS | "INRMP project-specific implementation goals, objectives, actions, and projects are listed in the order of natural resources management topics discussed in Chapter 7" Is this Chapter or Section 7? Or is this a chapter in a different document? | Text is referencing the correct Chap 7 of the INRMP. It is merely stating that the topics of discussion in Chap 8 follows the topics as Chap 7. |
| 47 | In-house Mgmt Actions | 143 | A. Ajmi/ USFWS | "Cooperate with the Alaska Landbird Monitoring System" Has this been implemented? | Text has been added to Appendix H to better describe avian survey efforts during the last 5 years and the methods utilized during said survey events inclusive of ALMS protocols. Avian surveys completed in 2015-2019 on Eareckson Air Station utilized methodologies developed by the USFWS (Alaska Maritime NWR) and USDA (Wildlife Services). In FY19, the USFWS implemented breeding bird surveys utilizing protocols in line with ALMS standards The avian database created in 2018 is located on a non-DOD network allowing biologists from all agencies to utilize the information. For more information: https://usfws-mbm-landbirds.shinyapps.io/611thAvifaunalDatabase/. . |
| 48 | OBJECTIVE 3.1 | 143 | J. Kirsch/ ADFG | Please add a task bullet reading:● Coordinate with ADFG-Habitat on all projects impacting the bed or banks of an anadromous waterbody under the authority of Alaska Statute 16.05.871 and on projects potentially blocking fish passage on resident waterbodies under the authority of Alaska Statute 16.05.841. | Comment noted and text revised accordingly. |
| 49 | Fish & Wildlife Mgmt | 144 | A. Ajmi/ USFWS | "MAINTAIN FISH AND WILDLIFE POPULATIONS AND HABITATS AS A PART OF NATURALLY FUNCTIONING ECOSYSTEMS<br>Projects: NOT PROGRAMMED. Management, Invasive Species. Eradicate rats and ensure measures to prevent rat re-introduction are implemented." Are invasive species monitoring and management a goal? (Other than for rats) | The current USAF PRSC Biosecurity plan is dated June 2015, however it does not take into account actions at Eareckson AS. A new project has been added to Chapter 10 to reflect the need to update the current PRSC biosecurity plan and include locations such as Eareckson and the other active Alaska PRSC sites. |
| 50 | In-house Mgmt Actions | 144 | A. Ajmi/ USFWS | "Evaluate if directional lighting could be used to modify or restrict the area of illumination as necessary to minimize bird attraction (Leach's Storm-Petrels)." Has this been implemented? | The retrofitting of dock lights with shielding at Eareckson AS has not been implemented; however, a new project has been inserted into Chapter 10 for funding in FY2022, to evaluate all lights on post to define whether or not shielding has been implemented. |

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| 51 | Goal 4: In-house Mgmt Actions | 145 | A. Ajmi/ USFWS | "As lighting is upgraded at PRSC sites, there will be considerations to install green lights and/or to either shield lights or orient them downward to minimize bird hazard risks." Has this been implemented? | Green lights were trialed at a PRSC installation on the island of Kauai and were documented as ineffective for deterring fallout, thus will not be used on other PRSC installations. Alternatives to green lights include shielding and low elevation downward directed bollards. Both retrofits were utilized as alternatives to green lights and eliminated fallout at Kokee AFS, thus these strategies will be evaluated elsewhere, inclusive of PRSC installations. |
| 52 | Goal 15: In-house Mgmt Actions | 151 | A. Ajmi/ USFWS | "Develop an agreement with Joint Base Elmendorf-Richardson to provide natural resources law enforcement on PRSC sites, as needed (2014)." Has this been implemented? | The PRSC was unsuccessful with regards to signing an MOU with the 673rd Civil Engineer Squadron. There is no formal fishing or hunting program on PRSC sites, however the potential need for permanent CLEO support will be revisited in the future if needs arise. |
| 53 | Table for section 7, 8, & 9 | 156 | A. Ajmi/ USFWS | "Project: Management, Invasive Species. Eradicate rats and ensure measures to prevent rat re-introduction are implemented." Rats are one type of invasive species, are there plans to manage/control other invasive species? | The new command has no interest in removing rodents from Eareckson AS given the detection of rodents in the diet of foxes on island. Removal of rodents from Eareckson would jeopardize mission, specifically aviation safety. Safety concerns associated with the removal of a diet item have been brought forward to the BASH Working Group. Given the project does not support mission, it has been removed from the INRMP, given the INRMP legal intent is to support mission. A project has been inserted into chapter 10 for FY22 to develop site specific biosecurity measures for each PRSC installation, in order to eliminate future incursions. |
| 54 | Appendix E | 224 | A. Ajmi/ USFWS | "PRSC sites are within DoD Partners in Flight Bird Conservation Region 2, Region 3, and Region 4. Below are DoD Partners in Flight Species of Concern that may occur on 611 ASG sites (www.dodpif.org accessed 8 January 2012)." Is the information on this site current, as well as the table on pages 225-243? | Text and associated table have been updated with most current data. |

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| **Appendix H** | | | | | |
| 55 | Throughout document | | A. Ajmi/ USFWS | Please consider reviewing the text to ensure there are spaces between words, correct characters (such as the degree character for temperature), correct spelling, etc. | Text has been revised accordingly. |
| 56 | Throughout document | | A. Ajmi/ USFWS | Please consider updating species scientific, and common names to their currently accepted usage. For example, the range of the Common Snipe (*Gallinago gallinago*) excludes most of Alaska and the western hemisphere. The range of Wilson's Snipe (*Gallinago delicate*) includes Alaska. Lesser Golden Plover is now regarded as two separate species, either American (*Pluvialis dominica*) or Pacific (*Pluvialis fulva*). Scientific names have also changed, for example: Sandhill Crane is now (*Antigone canadensis*) | All wildlife tables and appropriate text have been updated with current common and scientific names. Also note that some species are listed as they were recorded in earlier reports. A species ID may have been incorrect or scientific and/or common names have changed. |
| 57 | Throughout document | | A. Ajmi/ USFWS | Please consider updating habitat and habitat class changes maps. For example, Cape Newenham LRRS Habitat map was produced in 2004. Habitats can and do change over time. | In 2019, Colorado State University, in cooperation with AFCEC, created updated ecosystem classification maps for the majority of the PRSC installations; these additional habitat map updates have been included in Appendix H. |
| 58 | | | A. Ajmi/ USFWS | Please consider including invasive plant species and means of control or prevention. For some example means of control, see the UAF Cooperative Extension Service BMP guide for controlling the spread of invasive plants: https://www.fs.usda.gov/detail/r10/learning/nature-science/?cid=fsbdev2_038523. Also available is a free self-paced training course on invasive species control that can be found at http://weedcontrol.open.uaf.edu. | A project has been inserted into chapter 10 for FY22 to develop site-specific biosecurity measures for each PRSC installation, in order to eliminate future incursions. The UAF guide and its contents shall be utilized to create site-specific measures and lists for required incursion deterrents for cargo and inspection measures. We concur, the subject document will make an excellent reference to utilize for the update of the PRSC biosecurity plan. |
| 59 | Throughout document | | A. Ajmi/ USFWS | Please consider updating habitat class differences with more current information. | Similar to comment #13 and #57. |
| 60 | Throughout document | | A. Ajmi/ USFWS | Please review status for the Pacific walrus and include Marine Mammal Protection Act MMPA standards for this species. | Text revised accordingly. |

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| 61 | Throughout document | | A. Ajmi/ USFWS | Please review the ADFG Anadromous Stream Catalog and update fish section information as needed. For example: Page 255, Section 5.3.1 Fish, review information and update section for Nilumet Creek. | Text updated accordingly. |
| 62 | Throughout document | | A. Ajmi/ USFWS | Please consider consistency and proper names for wildlife. For example, page 258: Musk oxen, musk-ox. | All wildlife tables and appropriate text have been updated with current common and scientific names. |
| 63 | Throughout document | | A. Ajmi/ USFWS | Please consider evaluating Important Bird Area designations throughout the document and update as appropriate. | Brief descriptions of IBAs and accompanying figures have been included. |
| 64 | Throughout document | | A. Ajmi/ USFWS | Please consider updating candidate species in the Threatened and endangered species sections. For example the Pacific walrus is no longer a candidate species. | T&E species sections updated accordingly, with separate discussion of MMPA species that may not be ESA-listed or candidates (e.g., walrus). |
| 65 | Throughout document | | A. Ajmi/ USFWS | Please consider discussing the shoreline erosion resulting from winter storms along the Beaufort and Chukchi Sea coastlines. | Comment noted and text added based upon best available site information. See response to Comment 8 |
| 66 | Throughout document | | A. Ajmi/ USFWS | Please consider reviewing references to the INRMP for accuracy. For example: Page 126, "INRMP Chapter 5.0, Ecosystems and the Biotic Environment provides general information on biological resources on and near 611 ASG sites, which should be consulted with regard to Barter Island LRRS. Much information included in INRMP Chapter 5.0 that includes Barter Island LRRS is not repeated in this section"<br>Section 5 in the current INRMP is labeled TRAINING. Ecosystems and the Biotic Environment is Section 2.3. | All cross-referencing in the INRMP has been corrected. |
| 67 | Throughout document | | A. Ajmi/ USFWS | Please consider updating dates of project completion. For example: Page 123. "Of note, a new airfield is being constructed on the other side of the island and is anticipated to be completed in 2014." | An update has been placed in that section to summarize the date of completion for the new airfield. The airfield was completed and operational by 2017 (see new citation to right). |
| 68 | Throughout document | | A. Ajmi/ USFWS | The USFWS looks forward to the inclusion of the 2011 NWI data for wetland mapping (For example Lake Louise Recreation Site), as well as incorporating new imagery for facility maps (for example Indian Mountain LRRS) in the finalized version of this document. | Comment noted. |

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| 69 | 5.3.2 Mammals | 19 | A. Ajmi/ USFWS | Fox prey on nests of all bird species, as noted on page 20, "seabirds have been mostly extirpated from the main island by introduced foxes and rats." Overall, the introduction of fox is a negative for nesting birds. | Comment noted. |
| 70 | 5.3.3 Birds | 20 | A. Ajmi/ USFWS | Shemya Island is considered a part of the Buldir & Near Islands Marine IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 71 | 5.4 T&E Spp | 22 | A. Ajmi/ USFWS | The nearshore and marine environment of Shemya Island are within Unit 1 of Critical Habitat for the Southwest Alaska DPS of Northern Sea Otter. Please include this information. | Critical habitat discussion and figures have been included for otter, Steller sea lion, spectacled eider and Steller's eider. |
| 72 | 6.1 Land use Airfield | 28 | A. Ajmi/ USFWS | Please state the mitigation methods the have been and are currently utilized to minimize the erosion and drifting sands. | Erosion control measures have not been implemented. Chapter 10 has been revised and now includes an erosion control and sand dune restoration project for this region of Eareckson, which shall be programmed for FY22. |
| 73 | Figure 3.0 | 77 et al. | A. Ajmi/ USFWS | Please define the yellow/black borders. | All figures have been revised and legends provide clear definition of symbols and format used in each figure. |
| 74 | 5.3.2 Mammals | 89 | A. Ajmi/ USFWS | Much of the population information is dated. Please consider updating for an accurate assessment. ADFG has updated information on many species: https://www.adfg.alaska.gov/index.cfm?adfg=wildliferesearch.main. | More recent range wide population information for mammalian species (documented utilizing PRSC properties) has been added. Appendix H has site-specific discussions. |
| 75 | 5.3.3 Birds | 90 | A. Ajmi/ USFWS | Much of the bird information is dated. Please consider updating for an accurate assessment. | In 2018, the USFWS and USAF worked together to create a public venue for accessing avian data from PRSC installations; this effort resulted in the creation of an interactive avian database, whereby users can access reports and bird lists for each PRSC installation. The INRMP has been updated with our new online avian database link (which houses our most recent survey reports as well as other neighboring land managers) as well as pivotal updated results from recent avian surveys conducted on active installations. https://usfws-mbm-landbirds.shinyapps.io/ADAML/. |
| 76 | | 123 | A. Ajmi/ USFWS | "Subsistence is highly dependent upon caribou." Please revise language to include whale. See Braund and Associates reference in later section page 132. | Text revised accordingly. |

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| 77 | 5.3.3 Birds | 131 | A. Ajmi/ USFWS | Barter facility is adjacent to the Beaufort Sea Nearshore, Northeast Arctic Coastal Plain IBAs. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 78 | 5.3.3 Birds | 161 | A. Ajmi/ USFWS | Cape Lisburne facility is adjacent to the Lisburne Peninsula Marine IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 79 | 5.6.1 Subsistence | 165 | A. Ajmi/ USFWS | Please review seal species. "Seals (hair and bearded) are also important….." Hair seals are not a species. | Text revised accordingly. |
| 80 | 5.3.3 Birds | 202 | A. Ajmi/ USFWS | Cape Newenham facility is adjacent to the Jacksmith Bay to Cape Pierce IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 81 | 5.3.3 Birds | 258 | A. Ajmi/ USFWS | Cape Romanzof facility is within the Central Yukon-Kuskokwim IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 82 | 5.3.3 Birds | 272 | A. Ajmi/ USFWS | Cold Bay facility is adjacent to the Cold & Morzhovoi Bays IBA. Please include this information. | Discussion of IBAs, including figures, has been included. However, the Cold Bay LRRS is not adjacent to the stated IBA but rather the Izembek Lagoon & Bechevin Bay IBA. |
| 83 | 6.1 Land Use | 278 | A. Ajmi/ USFWS | Have remedial actions at sites ST005, OT001 been concluded? | Text is still accurate but has been removed from Appendix H. According to the Aug 2019 Land Use Control Management Plan, ST005 is not closed and monitoring will continue to occur until groundwater DRO concentrations are less than 1.5mg/L throughout the aquifer. The plan depicts that ERP Site OT001 is slated for closure, as no contaminants above DEC cleanup levels have been detected. This updated status for each restoration site has been provided in Table 9 of the INRMP. |
| 84 | 5.3.3 Birds | 288 | A. Ajmi/ USFWS | Yukon Flats facility is within the Yukon Flats West IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 85 | | 337; **-Tatalina BBS | A. Ajmi/ USFWS | Please explain "Not expected during season ~ Nesting confirmed" All the birds labeled TLI** in the table are expected at this location during the breeding season. | All tables in Appendix H have been completely revised and/or updated. |
| 86 | 5.6.2 Outdoor Recreation | 379 | A. Ajmi/ USFWS | Have these 1995 recommendations proved effective? What are the lessons learned? | There is no evidence in the record that the USAF has re-routed social trails or ATV routes used by the public within the installation property. A project has been programmed for FY2022 to install signage to attempt to persuade the public to utilize selected trails which are not near sensitive areas, and to serve as on-site education |

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| | | | | | tools during peak seasons. The CLEO position programmed for FY22 shall provide an on-site seasonal presence capable of disseminating guidance and education to ATV/UTV riders in the area. |
| 87 | 6.1 Land Use | 381 | A. Ajmi/ USFWS | What is the status of the 2013 or 2014 remediation? | The status of current remediation actions at Murphy Dome are detailed in AFCEC's 2019 Land Use Control Management Plan. The status of other IRP actions have been updated using information extracted from the 2019 LUCMP and documents posted on the Air Force Civil Engineer Center Administrative Record. (see Table 9 of the INRMP). |
| 88 | 5.3.3 Birds | 391 | A. Ajmi/ USFWS | Oliktok facility is adjacent to the Beaufort Sea Nearshore IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 89 | 5.3.3 Birds | 405 | A. Ajmi/ USFWS | Barrow facility is adjacent to the Beaufort Sea Nearshore IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 90 | Land Use | 423 | A. Ajmi/ USFWS | Please update Clean Sweep activities, have the rehabilitation efforts concluded and what are the results? | The status of IRP actions at the Sparrevohn LRRS installation have been updated in the body of the INRMP as well as the appendix. |
| 91 | Land Use | 439 | A. Ajmi/ USFWS | Please update erosion control and rehabilitation efforts conducted since 2012. | Erosion control measures have not been implemented. Chapter 10 has been revised and now includes an erosion control project for Tatalina LRRS, which shall be programmed for execution in FY22. |
| 92 | 5.3.3 Birds | 448 | A. Ajmi/ USFWS | Tin City facility is within the Loop Lagoon IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 93 | Installation History | 456 | A. Ajmi/ USFWS | Please update debris removal since 2013. | Text updated accordingly. Additional information about the historic cleanup efforts at this locale, can be found on the following public admin record site: http://afcec.publicadmin-record.us.af.mil/. |
| 94 | 5.3.3 Birds | 465 | A. Ajmi/ USFWS | Bullen Point facility is adjacent to the Beaufort Sea Nearshore IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 95 | Wetlands | 522 | A. Ajmi/ USFWS | Please state when restoration work is planned for the site. | Text updated accordingly. Additional information about the historic cleanup efforts at this locale, can be found on the following public admin record site: http://afcec.publicadmin-record.us.af.mil/. |

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|---|---|---|---|---|---|
| 96 | Installation History | 523 | A. Ajmi/ USFWS | Please state the results of the 2012 remedial action at the landfill site. | Text updated accordingly. Additional information about the historic cleanup efforts at this locale, can be found on the following public admin record site: http://afcec.publicadmin-record.us.af.mil/. |
| 97 | 5.3.2 | 529 | A. Ajmi/ USFWS | Please include information regarding the walrus haulout along the Point Lay barrier island. | Text revised accordingly. |
| 98 | 5.3.3 Birds | 532 | A. Ajmi/ USFWS | Point Lay facility is adjacent to the Kasegaluk Lagoon IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 99 | 5.3.3 Birds | 560 | A. Ajmi/ USFWS | Point Lonely facility is adjacent to the Barrow Canyon & Smith Bay IBA, and within the Teshekpuk Lake Area IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 100 | Installation History | 565 | A. Ajmi/ USFWS | Please update contaminated soil removal since 2013. | Given the real estate parcel in question is no longer within the control of the USAF, this site has been removed from the INRMP. Additional information about the historic cleanup efforts at this site can be found here: http://afcec.publicadmin-record.us.af.mil/. |
| 101 | | Pg #s end at 602 | A. Ajmi/ USFWS | Please consider numbering the remaining pages. | To better facilitate review and comment, page numbers and line numbers have been included for the entire document. |
| 102 | 5.3.3 Birds | App 3.0 - Beaver Ck RRS | A. Ajmi/ USFWS | Beaver Creek Radio Relay Site facility is within the Upper Tanana Valley IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 103 | 5.3.3 Birds | App 3.0- Naknek Rec Annex 1 & 2 | A. Ajmi/ USFWS | Naknek site facility is within the Upper Naknek River IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 104 | 5.3.3 Birds | App 3.0– Nikolski RRS | A. Ajmi/ USFWS | Naknek site facility is adjacent to the Kagamil Island Marine IBA. Please include this information. | Discussion of IBAs, including figures, has been included. However, the Naknek site is not adjacent to the Kagamil Island Marine IBA - that IBA is located in the Aleutians near the former Nikolski RRS. |
| 105 | 5.4 T&E Spp | App 3.0– Nikolski RRS | A. Ajmi/ USFWS | The near shore and marine environment of Nikolski are within Unit 2 of Critical Habitat for the Southwest Alaska DPS of Northern Sea Otter. Please include this information. | Discussion of sea otter CH as well as a figure have been included. |
| 106 | 3.2 Installation History | App 3.0–N River RRS | A. Ajmi/ USFWS | Please update contamination/debris removal since 2013. | Text updated accordingly. Additional information about the historic cleanup efforts at this locale, can be found here: http://afcec.publicadmin-record.us.af.mil/. |

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|---|---|---|---|---|---|
| 107 | 3.2 Installation History | App 3.0–Port Heiden RRS | A. Ajmi/ USFWS | Please update remediation efforts since 2008. | Text updated accordingly. Additional information about the historic cleanup efforts at this locale, can be found here: http://afcec.publicadmin-record.us.af.mil/. |
| 108 | 5.3.3 Birds | App 3.0–Port Heiden RRS | A. Ajmi/ USFWS | Port Heiden site facility is adjacent to the Northern Alaska Peninsula Coastal IBA. Please include this information. | Discussion of IBAs, including figures, has been included. |
| 109 | 5.4 T&E Spp | App 3.0–Port Heiden RRS | A. Ajmi/ USFWS | The near shore and marine environment of Port Heiden are within Unit 4 of Critical Habitat for the Southwest Alaska DPS of Northern Sea Otter. Please include this information. | Discussion of sea otter CH as well as a figure have been included. |
| 110 | | Entire Doc | A. Ajmi/ USFWS | The Literature cited section is missing. Please thoroughly review and add references. | Lit Cited section is contained within the main INRMP document. A note has been added at the beginning of Appendix H to refer the reader to the main INRMP for all references. |
| 111 | | Entire Doc | A. Ajmi/ USFWS | Many facility bird/fish/vegetation tables are included with others. Please consider revising the tables so that each site has its own table. | Tables have been prepared to allow of efficient use of space and cross referencing. If a table was completed for each installation for each taxa, it would make an already lengthy INRMP even longer. We feel it is efficient and appropriate to have tables that summarize species occurrences across multiple installations. |
| 112 | Chapter 4 | | M. St. Martin/ USFWS | Please see track changes and comments for suggestions in the "2018 Polar Bear and Pacific Walrus Avoidance Plan" | Edits incorporated into Polar Bear/Walrus Avoidance Plan. |
| 113 | Chapter 4 | 27 | M. St. Martin/ USFWS | Please include an updated polar bear sighting report form that needs to be incorporated into the "2018 Polar Bear and Pacific Walrus Avoidance Plan" chapter (see provided attachments). | Updated Polar Bear Sighting Report form incorporated into the revised Polar Bear/Walrus Plan. |
| 114 | Chapter 10 | | M. St. Martin/ USFWS | Recommend including verbiage for VNMH2307777 "Project will survey specific PRSC sites and nearby areas for Pacific walrus, Threatened sea otters and Threatened Polar bear." for all 2019-2023 project descriptions. | The verbiage for this reoccuring INRMP project is depicted within the project description box for VNMH190777. |

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| 115 | Chapter 10 | | FY2020-2023 M. Burns/ USFWS | With one exception, the project descriptions provided lack the overall detail needed to provide meaningful comments or determine the appropriate level of Service involvement desired to coordinate or execute the projects. Please provide more specific information related to the proposed programmed projects when it becomes available and indicate when the Air Force will be interested in coordinating on projects for FY20 projects and beyond. | Comment noted. |
| **Polar Bear/Walrus Avoidance Plan** | | | | | |
| 116 | | | M. St. Martin/ USFWS | Edits in track changes: 39 insertions, 23 deletions, and 24 comments. | Edits incorporated into Polar Bear/Walrus Avoidance Plan. |

**COMMENT SUMMARY**

USFWS = 193 (46 Main Doc, 61 App H, 86 Polar Bear/Walrus Plan)
ADFG = 7 (Main Doc)
**Total = 200** (53 Main Doc, 61 App H, 86 Polar Bear/Walrus Plan)

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## 13.4 APPENDIX D: HABITAT SUMMARIES FOR ACTIVE AND INACTIVE FORMER RADAR PRSC SITES

Wildlife habitat maps were developed for Active 611 ASG sites and Bullen Point, Point Lay, and Point Lonely sites. These maps and detailed explanations of their methodologies are shown and explained in 611 CES (2007a, 2007b, 2008, and 2009) (based on original publications by Schick et. al. [2004] and Frost et al. [2005a, 2005b]). These maps were updated for five sites (Eareckson AS [Roth and Macander 2009]; King Salmon, Oliktok LRRS, and Bullen Point former SRRS [Wells et al. 2010]) using the following data sources.

- Eareckson AS's original 2003 aerial photos were updated using 2008 Worldview-1 imagery.
- King Salmon Airport's original 2001 aerial photos were updated using 2006 aerial photos and 2007 multi-spectral Quick Bird imagery.
- Oliktok LRRS's original 1979 and 2000 aerial photos were updated using 2005 multi-spectral Quick Bird and 2005 panchromatic Quick Bird imagery.
- Bullen Point site's original 2000 aerial photos were updated using 2006 pan-sharpened Quick Bird imagery.

CEMML, Colorado State University developed updated wildlife habitat maps for the remaining active sites using the most recent imagery found on Google Earth for each site and, if available, 2009-2010 SPOT-5 satellite imagery.

The following tables summarize the most current habitat data for each of these sites. Official acreages (section) and mapped acreages (these tables) are not necessarily the same due to different methods of calculation. Additional site-specific discussion is provided in Appendix H.

**Barter Island (2010)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 166.1 | 25.2 |
| Dwarf Shrub | 12.4 | 1.9 |
| Emergent Herbaceous Wetlands | 74.7 | 11.3 |
| Open Water | 150.9 | 22.9 |
| Perennial Ice/Snow | 8.9 | 1.3 |
| Sedge/Herbaceous | 246.3 | 37.4 |
| **Total** | **659.3** | |

**Cape Lisburne LRRS (2009)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 321.9 | 28.7 |
| Developed, Low Intensity | 74.5 | 6.6 |
| Dwarf Shrub | 194.8 | 17.4 |
| Emergent Herbaceous Wetlands | 11.7 | 1.0 |
| Evergreen Forest | 10.6 | 0.9 |
| Open Water | 33.1 | 3.0 |
| Sedge/Herbaceous | 152.7 | 13.6 |
| Shrub/Scrub | 304.5 | 27.2 |
| Woody Wetlands | 16.9 | 1.5 |
| **Total** | **1120.7** | |

**Cape Newenham LRRS (2004)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 350.5 | 16.7 |
| Dwarf Shrub | 581.4 | 27.7 |
| Open Water | 24.2 | 1.1 |
| Shrub/Scrub | 1,144.5 | 54.5 |
| **Total** | **2,100.6** | |

**Cape Romanzof LRRS (2009)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 1,472.4 | 30.4 |
| Deciduous Forest | 7.1 | 0.1 |
| Developed, High Intensity | 1.1 | <0.1 |
| Developed, Low Intensity | 151.3 | 3.1 |
| Developed, Medium Intensity | 34.2 | 0.7 |
| Dwarf Shrub | 1,306.7 | 26.9 |
| Evergreen Forest | 8.1 | 0.2 |
| Mixed Forest | 7.6 | 0.1 |
| Open Water | 13.4 | 0.3 |
| Perennial Ice/Snow | 2.7 | <0.1 |
| Shrub/Scrub | 1,858.3 | 38.2 |
| **Total** | **4,862.9** | |

**Cold Bay LRRS (2005)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 24.9 | 14.2 |
| Dwarf Shrub | 21.8 | 12.5 |
| Emergent Herbaceous Wetlands | 17.6 | 10.1 |
| Grassland | 78.3 | 44.7 |
| Open Water | 32.3 | 18.5 |
| **Total** | **174.9** | |

**Fort Yukon LRRS (2011)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 4.5 | 5.3 |
| Deciduous Forest | 23.1 | 27.4 |
| Developed, Low Intensity | 31.4 | 37.1 |
| Developed, Medium Intensity | 7.1 | 8.4 |
| Emergent Herbaceous Wetlands | 9.0 | 10.6 |
| Evergreen Forest | 0.4 | 0.5 |
| Mixed Forest | 4.1 | 4.9 |
| Shrub/Scrub | 1.6 | 1.9 |
| Woody Wetlands | 3.2 | 3.8 |
| **Total** | **84.4** | |

**Eareckson AS (2008)**

| Habitat Class | Acres | % |
|---|---|---|
| Artificial Barrens | 665 | 17.9 |
| Artificial Partially Vegetated | 66 | 1.8 |
| Coastal Beach | 111 | 3.0 |
| Coastal Brackish Water | 12 | 0.3 |
| Coastal Dry Leymus Meadow | 130 | 3.5 |
| Coastal Dry Seral Herb Meadow | 1 | 0.0 |
| Coastal Moist Grass-Herb Meadow | 81 | 2.2 |
| Coastal Moist Umbel Meadow | 27 | 0.7 |
| Coastal Rock | 197 | 5.3 |
| Coastal Wet Graminoid-Herb Tundra | 8 | 0.2 |
| Disturbed Moist Graminoid-Herb Meadow | 867 | 23.3 |
| Lacustrine Water | 72 | 1.9 |
| Lowland Lacustrine Barrens | 5 | 0.1 |
| Lowland Wet Graminoid-Herb Meadow | 58 | 1.6 |
| Riverine Moist Grass-Herb Meadow | 12 | 0.3 |
| Tidal River | 3 | 0.1 |
| Upland Barren Cliff | 14 | 0.4 |
| Upland Barren Rock & Scree | 2 | 0.1 |
| Upland Dry Grass-Herb Meadow | 18 | 0.5 |
| Upland Dry Leymus Meadow | 284 | 7.6 |
| Upland Dwarf Empetrum-Graminoid Scrub | 622 | 16.7 |
| Upland Dwarf Ericaceous-Lichen Scrub | 67 | 1.8 |
| Upland Moist Grass-Herb Meadow | 268 | 7.2 |
| Upland Moist Umbel Meadow | 119 | 3.2 |
| Upland Partially Vegetated Barrens | 6 | 0.2 |
| **Total** | **3,715** | |

**Indian Mountain LRRS (2005)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 237.6 | 2.4 |
| Deciduous Forest | 823.3 | 8.5 |
| Dwarf Shrub | 4,239.6 | 43.6 |
| Evergreen Forest | 935.7 | 9.6 |
| Mixed Forest | 876.0 | 9.0 |
| Sedge Herbaceous | 3.3 | <0.1 |
| Shrub/Scrub | 2,600.6 | 26.8 |
| **Total** | **9,716.1** | |

**Sparrevohn LRRS (2004)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 34.0 | 3.0 |
| Deciduous Forest | 8.7 | 0.8 |
| Developed, Low Intensity | 30.0 | 2.7 |
| Dwarf Shrub | 508.8 | 45.7 |
| Evergreen Forest | 67.4 | 6.1 |
| Mixed Forest | 5.1 | 0.5 |
| Shrub/Scrub | 458.5 | 41.2 |
| **Total** | **1,112.6** | |

**Tatalina LRRS (2010)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 348.2 | 7.0 |
| Deciduous Forest | 831.3 | 16.7 |
| Developed, Low Intensity | 117.8 | 2.4 |
| Developed, Medium Intensity | 27.8 | 0.6 |
| Developed, Open Space | 3.8 | <0.1 |
| Dwarf Shrub | 551.2 | 11.1 |
| Evergreen Forest | 923.5 | 18.6 |
| Mixed Forest | 1,276.8 | 25.7 |
| Shrub/Scrub | 882.6 | 17.8 |
| **Total** | **4,963.0** | |

**Tin City LRRS (2004)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 395.3 | 50.7 |
| Developed, Low Intensity | 26.2 | 3.4 |
| Dwarf Shrub | 156.1 | 20.0 |
| Emergent Herbaceous Wetlands | 1.8 | 0.2 |
| Open Water | 26.0 | 3.3 |
| Perennial Ice/Snow | 2.6 | 0.3 |
| Perennial Ice/Snow | 0.2 | <0.1 |
| Sedge/Herbaceous | 169.0 | 21.7 |
| Shrub/Scrub | 2.8 | 0.4 |
| **Total** | **780.0** | |

**King Salmon Airport (2006-2007)**

| Habitat Class | Acres | % |
|---|---|---|
| Artificial* | 926.2 | <0.1 |
| Lacustrine Water | 0.7 | 1.3 |
| Lowland Aquatic Marsh | 27.9 | 1.4 |
| Lowland Dwarf Scrub | 30.3 | 2.9 |
| Lowland Low Open Scrub | 60.0 | 1.2 |
| Lowland Paper Birch Forest | 25.7 | 1.2 |
| Lowland Tall Open Shrub Swamp | 25.7 | 0.9 |
| Lowland Wet Sedge Tundra | 18.2 | 0.1 |
| Riverine Aquatic Sedge Marsh | 3.0 | 0.4 |
| Riverine Low Open Willow-Graminoid Scrub | 9.3 | 2.3 |
| Riverine Moist Bluejoint-Herb Tundra | 48.4 | 0.6 |
| Riverine Open Paper Birch-Balsam Poplar Forest | 12.2 | 0.1 |
| Riverine Tall Open Alder-Willow Scrub | 2.1 | 0.2 |
| Rivers | 3.6 | 0.8 |
| Upland Dry Graminoid Tundra | 16.4 | 1.0 |
| Upland Dwarf Mixed Shrub-Tussock Scrub | 20.2 | 2.2 |
| Upland Low Open Scrub | 46.1 | 8.1 |
| Upland Mixed Forest | 169.9 | 0.2 |
| Upland Moist Grass-Herb Tundra | 3.2 | 4.3 |
| Upland Paper Birch Forest | 89.9 | 6.3 |
| Upland Tall Scrub | 131.4 | 20.6 |
| Upland White Spruce Woodland | 430.2 | <0.1 |
| **Total** | **2,092.2** | |

*Note*: *including Artificial Barrens, Artificial Partially Vegetated, and Artificial Vegetated for 2006/2007.

**Kotzebue LRRS (2007)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 3.3 | 0.5 |
| Developed, Low Intensity | 60.3 | 9.1 |
| Developed, Medium Intensity | 9.9 | 1.5 |
| Dwarf Shrub | 90.8 | 13.7 |
| Open Water | 13.3 | 2.0 |
| Sedge/Herbaceous | 57.5 | 8.7 |
| Shrub/Scrub | 294.8 | 44.5 |
| Woody Wetlands | 132.6 | 20.0 |
| **Total** | **662.5** | |

**Murphy Dome LRRS (2010)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 1.3 | 0.1 |
| Deciduous Forest | 57.3 | 6.7 |
| Developed, Low Intensity | 49.0 | 5.7 |
| Developed, Open Space | 10.5 | 1.2 |
| Dwarf Shrub | 20.0 | 2.3 |
| Evergreen Forest | 119.0 | 13.8 |
| Grassland | <0.1 | <0.1 |
| Mixed Forest | 47.7 | 5.5 |
| Shrub/Scrub | 550.2 | 63.9 |
| Woody Wetlands | 5.6 | 0.7 |
| **Total** | **860.2** | |

**Oliktok LRRS (2005)**

| Habitat Class | Acres | % |
|---|---|---|
| Artificial* | 59.7 | 5.1 |
| Coastal Barrens | 20.0 | 1.7 |
| Coastal Brackish Water | 104.0 | 8.8 |
| Coastal Salt Marsh | 60.6 | 5.2 |
| Coastal Salt-killed Tundra | 67.9 | 5.8 |
| Deep Water w/Islands or Polygonized Margins | 25.4 | 2.2 |
| Lowland Aquatic Sedge Marsh | 6.9 | 0.6 |
| Lowland Dwarf Scrub | 27.0 | 2.3 |
| Lowland Lacustrine Barrens | 6.4 | 0.5 |
| Lowland Moist Sedge–Shrub Tundra | 197.1 | 16.8 |
| Lowland Nonpatterned Wet Tundra | 15.8 | 1.3 |
| Lowland Patterned Aquatic Marsh | 0.1 | 0.0 |
| Lowland Patterned Wet Tundra | 180.2 | 15.3 |
| Lowland Wet–Moist Patterned Tundra Complex | 32.8 | 2.8 |
| Marine Water | 178.7 | 15.2 |
| Old Basin Wetland Complex (Ice-rich) | 123.9 | 10.5 |
| Riverine Barrens | 7.0 | 0.6 |
| Rivers and Streams | 7.5 | 0.6 |
| Shallow Water | 37.5 | 3.2 |
| Shallow Water w/Islands or Polygonized Margins | 17.1 | 1.5 |
| **Total** | **1,175.6** | |

*Note*: *including Artificial Barrens and Artificial Partially Revegetated for 2005.

**Point Barrow LRRS (2005)**

| Habitat Type | Acres | % |
|---|---|---|
| Barren Land | 24.2 | 9.2 |
| Developed, Low Intensity | 29.9 | 11.4 |
| Emergent Herbaceous Wetlands | 20.1 | 7.7 |
| Open Water | 11.7 | 4.5 |
| Perennial Ice/Snow | 9.8 | 3.8 |
| Sedge/Herbaceous | 165.8 | 63.4 |
| **Total** | **261.5** | |

**Former Bullen Point SRRS (2006)**

| Habitat Class | Acres | % |
|---|---|---|
| Artificial | 38.4 | 3.5 |
| Coastal Barrens | 35.2 | 3.2 |
| Coastal Brackish Water | 5.2 | 0.5 |
| Coastal Salt Marsh | 22.9 | 2.1 |
| Coastal Salt-killed Tundra | 37.9 | 3.5 |
| Deep Water | 6.5 | 0.6 |
| Deep Water w/ Islands or Polygonized Margins | 2.0 | 0.2 |
| Lowland Aquatic Grass Marsh | 6.6 | 0.6 |
| Lowland Aquatic Sedge Marsh | 2.1 | 0.2 |
| Lowland Dwarf Scrub | 8.7 | 0.8 |
| Lowland Lacustrine Barrens | 3.5 | 0.3 |
| Lowland Moist Sedge–Shrub Tundra | 384.7 | 35.2 |
| Lowland Nonpatterned Wet Tundra | 11.4 | 1.0 |
| Lowland Patterned Wet Tundra | 19.8 | 1.8 |
| Lowland Wet–Moist Patterned Tundra Complex | 74.5 | 6.8 |
| Marine Nearshore Water (Estuarine) | 91.0 | 8.3 |
| Marine Waters | 277.4 | 25.4 |
| Riverine Barrens | 1.1 | 0.1 |
| Rivers and Streams | 3.0 | 0.3 |
| Shallow Water | 8.3 | 0.8 |
| Shallow Water w/Islands or Polygonized Margins | 5.9 | 0.5 |
| Young Basin Wetland Complex (Ice-poor) | 46.0 | 4.2 |
| **Total** | **1,092.1** | |

*Note*: *including Artificial Barrens and Artificial Partially Revegetated for 2006.

**Point Lay Former LRRS (2000)**

| Habitat Class | Acres | % |
|---|---|---|
| Marine Nearshore Water (Estuarine) | 70.6 | 3.7 |
| Coastal Barrens | 50.1 | 2.7 |
| Coastal Brackish Water | 1.4 | <0.1 |
| Deep Water | 130.3 | 6.9 |
| Deep Water w/ Islands or Polygonized Margins | 40.2 | 2.1 |
| Shallow Water | 5.5 | 0.3 |
| Shallow Water w/ Islands or Polygonized Margins | 0.7 | <0.1 |
| Lowland Lacustrine Barrens | 0.5 | <0.1 |
| Lowland Aquatic Grass Marsh | 23.9 | 1.3 |
| Lowland Aquatic Sedge Marsh | 3.5 | 0.2 |
| Lowland Patterned Aquatic Marsh | 4.5 | 0.2 |
| Lowland Nonpatterned Wet Tundra | 12.2 | 0.6 |
| Lowland Patterned Wet Tundra | 465.8 | 24.7 |
| Lowland Wet–Moist Patterned Tundra Complex | 268.9 | 14.3 |
| Lowland Moist Sedge–Shrub Tundra | 259.6 | 13.8 |
| Lowland Moist Tussock Tundra | 85.8 | 4.5 |
| Old Basin Wetland Complex (Ice-rich) | 340.1 | 18.0 |
| Lowland Dwarf Scrub | 3.1 | 0.2 |
| Upland Low Shrub–Tussock Scrub | 55.1 | 2.9 |
| Artificial | 64.0 | 3.4 |
| **Total** | **1,886.0** | |

**Former Point Lonely SRRS (2000)**

| Habitat Class | Acres | % |
|---|---|---|
| Marine Nearshore Water (Estuarine) | 240.9 | 13.0 |
| Coastal Barrens | 75.4 | 4.1 |
| Coastal Brackish Water | 9.4 | 0.5 |
| Coastal Salt Marsh | 9.1 | 0.5 |
| Coastal Salt-killed Tundra | 16.1 | 0.9 |
| Deep Water | 14.3 | 0.8 |
| Deep Water w/ Islands or Polygonized Margins | 18.5 | 1.0 |
| Shallow Water | 4.4 | 0.2 |
| Shallow Water w/ Islands or Polygonized Margins | 5.2 | 0.3 |
| Lowland Lacustrine Barrens | 0.5 | <0.1 |
| Rivers and Streams | 36.6 | 2.0 |
| Lowland Aquatic Grass Marsh | 3.5 | 0.2 |
| Lowland Aquatic Sedge Marsh | 19.8 | 1.1 |
| Lowland Nonpatterned Wet Tundra | 51.4 | 2.8 |
| Lowland Patterned Wet Tundra | 46.5 | 2.5 |
| Lowland Wet–Moist Nonpatterned Tundra Complex | 219.9 | 11.9 |
| Lowland Wet–Moist Patterned Tundra Complex | 411.7 | 22.2 |
| Lowland Moist Sedge–Shrub Tundra | 544.9 | 29.4 |
| Young Basin Wetland Complex (Ice-rich) | 40.8 | 2.2 |
| Lowland Dwarf Scrub | 24.2 | 1.3 |
| Artificial | 60.5 | 3.3 |
| **Total** | **1,853.6** | |

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## 13.5 APPENDIX E: INTERAGENCY AGREEMENT BETWEEN THE USFWS AND USAF FOR THE CONSERVATION OF NATURAL RESOURCES ON AIR FORCE CONTROLLED LANDS (2017)

**INTERAGENCY AGREEMENT**

**between the**

**UNITED STATES FISH AND WILDLIFE SERVICE**

**and the**

**THE UNITED STATES AIR FORCE**

**for the**

**CONSERVATION OF NATURAL RESOURCES ON AIR FORCE CONTROLLED LANDS**

### I. BACKGROUND

The United States Air Force (AF) manages millions of acres of lands used for national defense purposes that include a variety of intact ecosystems and habitats that support United States Fish and Wildlife Service (FWS) trust species. Sikes Act Section 101(a) (16 U.S.C. § 670a(a)) requires that military installations prepare, in cooperation with FWS and the respective states, an Integrated Natural Resources Management Plan (INRMP) that reflects agreement on the conservation, protection, and management of fish and wildlife resources in a manner that ensures the continued availability of the lands to support the military mission. The INRMP must also, subject to safety requirements and military security, provide for the sustainable multipurpose use of natural resources (including hunting, fishing, trapping, and non-consumptive uses) and public access to the installation for such uses.

Shared interests and responsibilities provide opportunities for the FWS and the AF (hereinafter the Parties) to cooperate in ways that will enhance the management of natural resources on Federal lands and promote biodiversity. This cooperation benefits FWS in its ability to enhance and conserve fish, wildlife and plants, as well as the habitats that support them, and helps the AF sustain the use of the land for military purposes while implementing an environmental program that will enhance the ecosystems under its stewardship.

### II. AUTHORITY

Sikes Act Section 103a (16 U.S.C. § 670c-1) authorizes the Secretary of a military department to enter into interagency agreements with the heads of other Federal departments and agencies to provide for the maintenance and improvement of natural resources on Department of Defense (DoD) installations. Sikes Act Section 101(d)(2) requires that Federal and State agencies having responsibility for the conservation or management of fish and wildlife be given priority to provide support services for the planning and implementation of an INRMP for natural resource activities on a DoD installation. DoD, by policy letters dated June 20, 2014, *"Sikes Act Implementing Procedures – Clarifying the Role of the U.S. Fish and Wildlife Service and State Agencies," and* 19 Oct 2016, *"Sikes Act Implementing Procedures - Additional Clarification on the Role of Federal and State Agencies to Implement Sikes Act*

*Activities,"* extended the priority to services acquired by cooperative agreements and interagency agreements.

## III. PURPOSE

This Interagency Agreement (IA) establishes a cooperative conservation relationship between the Parties to support the management of natural resources on AF controlled lands. This IA will help the AF meet Federal stewardship requirements and ensure the continued availability of installation lands to support military readiness by providing a mechanism under which the AF can request reimbursable support from the FWS. Implementation of this IA will be a cooperative effort utilizing the combined expertise of AF natural resources managers and FWS staff located at the Headquarters, Regional and Field offices. As requirements are identified, AF organizations, in collaboration with the FWS, will develop Statements of Work (SOWs) to define the type and scope of reimbursable assistance required.

## IV. RESPONSIBILITIES OF THE PARTIES

### A. Mutual Responsibilities.

1. The Parties will collaborate on matters relating to the conservation and management of natural resources on or affecting the lands administered by the AF, including, but not limited to: cooperative studies, surveys, research activities, law enforcement, educational programs, outreach programs, and engineering. An interdisciplinary, united approach shall be promoted by the Parties to address issues relating to the management of natural resources.

2. The Parties shall cooperate in the preparation, review, update, revision and implementation of INRMPs in accordance with the Sikes Act, and other planning documents that facilitate the implementation and execution of natural resource management activities.

3. The Parties shall cooperate in conducting natural resources conservation studies on lands in support of compliance with the Endangered Species Act, National Environmental Policy Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and other applicable environmental laws. .

4. The Parties shall, when practicable, collaborate on matters relating to wildland fire management. The Parties may collaborate in the preparation and review of Wildland Fire Management Plans and associated Prescribed Burn Plans or other vegetative treatment plans. The Parties may, upon mutual agreement, cooperate on the implementation of Wildland Fire Management Plans, to include wildland fire training activities, prescribed burns or other vegetation modification treatments, and wildfire incident response. Such collaboration will include:

a. Establishing mutual agreement on the goals and objectives, and roles and responsibilities, for FWS employees documented in a statement of work (SOW) approved jointly by the FWS and U.S. Air Force Civil Engineer Center (AFCEC), and amended periodically by mutual agreement of both Parties.

b. Sharing radio frequencies as necessary to facilitate prompt communication and increase safety and efficiency.

c. Sharing equipment and following the National Wildfire Coordinating Group's National Incident Management System Wildland Fire Qualification System Guide, PMS 310-1 (October 2015 or later version) and agency policies and standards in order to accept each other's qualification.

5. The Parties agree that the involvement of each agency in this IA shall not be used in any way by either agency to imply an endorsement of the other agency's actions. All advertising or other publicity regarding activities undertaken as part of this agreement, which mentions the participation of the other agency, shall first be approved for release by both agencies, and approval may be withheld for any reason sufficient to either agency. If either agency should appear to have violated this clause, the aggrieved agency may request the immediate cessation of those actions plus further action to effectively counteract any mistaken public impressions. If the violating agency fails to comply fully with the request, the aggrieved agency may unilaterally take any action it considers necessary to correct the mistaken impression and bill the other agency for the reasonable costs of that action. Failure to promptly pay those reasonable costs shall be treated as a dispute under the terms of this agreement.

6. Nothing in this IA is intended to modify in any manner currently ongoing cooperative programs with other public agencies, conservation groups, or educational institutions, or modify any rights granted by treaty or otherwise to any Indian tribe or member thereof.

7. All data collected or generated as a result of this IA will be shared between the Parties and will remain the property of the United States government.

8. The Parties will conduct a joint annual review of this IA using mutually agreed upon parameters.

**B. United States Fish and Wildlife Service Responsibilities.**

The FWS shall, consistent with FWS policy and, within limitations of available funding provided by the AF:

1. Establish a Point of Contact (POC) for this agreement in the FWS Headquarters Office.

2. Assign one or more FWS employees to the AFCEC as FWS liaison to the AF. Duties

for a FWS liaison position will be as specified in a position description approved by the FWS. Goals and objectives for FWS employees shall be established in an SOW approved jointly by the FWS and AFCEC, and amended periodically by mutual agreement of both Parties. The FWS liaison will coordinate proposals developed by the Parties to provide additional FWS reimbursable staff assistance to AF installations. FWS staff expertise may be provided from the offices of Fish and Aquatic Conservation (FAC), Ecological Services (ES), National Wildlife Refuge System (NWRS), NWRS-Law Enforcement, Migratory Birds, External Affairs, and Science Application programs. FWS support may include, but is not limited to:

a. Supporting AF compliance with the Endangered Species Act, 16 U.S.C. § 1531-1544, by providing technical assistance for the conservation, protection and management of FWS trust species. The FWS national liaison(s) will work with the AF to create a consolidated source of information on FWS trust species on AF controlled properties. The incumbent will help disseminate information to AF installations on upcoming proposed threatened and endangered species listings and critical habitat designations.

b. Supporting AF natural resources management, in accordance with the Sikes Act (16 U.S.C. § 670-670o), and DoD and FWS Sikes Act guidelines. The national FWS liaison(s) shall provide technical and advisory assistance for the development and implementation of INRMPs as required by the Sikes Act and Air Force (AFI) and Department of Defense Instructions (DoDI), and will help ensure the synchronization of INRMPs with existing FWS and State Wildlife Action Plans. The FWS liaison will help facilitate and track the required coordination and review of INRMPs with the appropriate FWS ES Field Office(s) and Regional Office Sikes Act Coordinator(s).

c. Advising AF installations on opportunities for cooperative conservation and natural resources management assistance available from FWS offices. The national FWS liaison(s) shall facilitate cooperative conservation partnerships between AF installations and FWS Regions, FAC Fish and Wildlife Conservation Offices (FWCOs), ES Field Offices, and National Wildlife Refuges and other FWS Programs, as appropriate. The incumbent may assist with the implementation of INRMPs by coordinating the assistance of qualified FWS experts in the fields of endangered species conservation, fish and wildlife management, and other natural resource management disciplines. Upon acceptance of AF funds, the FWS may facilitate reimbursable assistance to AF from FWS offices nationwide.

d. Advising AF installations of opportunities for wildland fire management assistance from FWS personnel, and provide resources as available to assist with wildfire management. FWS personnel responding to hazard incidents or wildfires on AF installations shall meet the training and qualification requirements set forth in the National Wildfire Coordinating Group's National Incident Management System Wildland Fire Qualification System Guide, PMS 310-1

(October 2015 or later version) and agency policies and standards for the positions they will occupy.

**C. United States Air Force Responsibilities.**

The AF will, consistent with DoD policy and within limitations of appropriations:

1. Establish a POC to administer and facilitate FWS assistance for AF natural resource program needs at the AFCEC.

2. Reimburse the appropriate FWS organization for costs incurred by the FWS for support provided to AF for the conservation and management of fish and wildlife resources.

3. Provide workspace, computer support, clerical support, security clearance and appropriate access privileges for FWS employees permanently assigned or detailed to Air Force offices.

4. Recognize FWS personnel operating under this agreement as agents of the Federal government working in the best interest of the AF for decision-making in wildland fire activities and are delegated authority to work under procedures outlined in Air Force Instruction 32-7064. The AF will provide FWS with an approved Prescribed Burn Plan for all controlled burns conducted on AF installations with FWS support.

5. Recognize FWS personnel operating under this agreement as Federal government employees working in the best interest of the AF for decision-making in natural/biological resource planning and management, flight safety, and compliance activities associated with the Endangered Species Act, National Environmental Policy Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act and other applicable environmental laws.

**V. FINANCIAL ADMINISTRATION**

**A. Availability of Funds.**

1. This agreement does not document the obligation of funds between the Parties. Any obligation of funds in support of this agreement will be accomplished using a Military Interdepartmental Purchase Request (MIPR), DD Form 448. The obligation of funds by the AF is subject to the availability of appropriated funds pursuant to the DoD Financial Management Regulation.

2. The AF agrees to seek sufficient funds to reimburse FWS for support activities identified in an agreed upon SOW. The AF will submit an annual request for funds through the AF budgetary process. The Parties will work to create a multi-year plan

with the understanding that funds may not be available during the year of execution.

**B. Requesting Support under this Agreement.**

1. Any AF organization may request FWS assistance under this agreement. The AF organization requesting assistance and the supporting FWS office will develop a SOW describing the assistance to be provided and a project budget prior to any services being rendered. AFCEC will review the SOW and budget and, after approving it, issue, or amend, a national MIPR to the supporting FWS Headquarters Program for the estimated cost of assistance to be provided for a period not to exceed 18 months. [Note: Under 16 U.S.C. 670c-1, such services must be for the maintenance and improvement of natural resources on, or to benefit natural and historical research on an installation.]

   a. The MIPR will reimburse the FWS for the total cost of assistance, including staff salaries, benefits, travel, administrative overhead, and other direct and indirect costs. MIPRs for liaison positions with duty station at AFCEC or AF installations will also reimburse the FWS for costs for transfer of station.

   b. In accordance with 16 U.S.C. § 670c-1(b), funds obligated by the AF and transmitted to the FWS by MIPR, may be obligated to cover the cost of goods and services specified in an agreement during any 18 month period, without regard to whether the agreement crosses fiscal years.

   c. AF will consider funds obligated upon the FWS acceptance of the MIPR as Category I – Reimbursement.

**C. Billing.**

1. The FWS Program or office accepting a MIPR for reimbursable services shall bill the AF by means of an SF 1080 or, if available, via Intra-Governmental Payment and Collection system (IPAC), for any effort completed during the previous 90 days or less. Each billing statement will include the project title, project number and the applicable MIPR number. Payment requests will be submitted through the Defense Finance and Accounting Service (DFAS) office designated on the MIPR (Block 13).

2. Allowable costs under this IA will include all direct and indirect costs incurred by the FWS for work to be completed within the scope of this IA. The FWS will maintain a record of costs incurred.

   a. The FWS Program or office performing reimbursable services for AF shall provide the AF with cost documentation, as requested, which will reflect an annual reconciliation of costs and expenditures incurred by the FWS for each task.

b. The FWS indirect cost rate for this agreement will be the current and applicable FWS overhead cost rate.

c. If there are any discrepancies regarding the reimbursable costs associated with this agreement, the Parties will resolve any issues.

## VI. GENERAL PROVISIONS

**A. Points of Contact.** The following POCs will be used by the Parties to communicate in the implementation of this IA. Each Party may change its POC upon reasonable notice to the other Party.

1. **United States Fish and Wildlife Service.** The FWS Assistant Director for the Fish and Aquatic Conservation Program, in coordination with the Chief for the National Wildlife Refuge System, shall oversee the implementation of this IA for the FWS.

   Assistant Director, Fish and Aquatic Conservation Program, (202) 208-3517
   Alternate POC: Chief, National Wildlife Refuge System, (202) 208-5333

2. **United States Air Force.** The AFCEC, as primary subordinate unit under Air Force Installation Mission Support Command (AFIMSC), shall be the office of primary responsibility for implementation of this IA in the AF.

   Director, Environmental Management, Air Force Civil Engineer Center, (210) 395-8363
   Alternate POC: Natural Resources Subject Matter Expert, Environmental Management, Air Force Civil Engineer Center, (210) 925-4259

**B. Correspondence.** All correspondence to be sent and notices to be given pursuant to this IA will be addressed, if to the **United States Fish and Wildlife Service**, to — Assistant Director, Fish and Aquatic Conservation Program, 5275 Leesburg Pike, Falls Church, VA 22041-3803

And, if to the **United States Air Force**, to — Director, Environmental Management (AFCEC/CZ), Air Force Civil Engineer Center, 2261 Hughes Avenue, Suite 155, San Antonio, TX 78236

**C. Review of Agreement.** This IA will be reviewed annually on or around the anniversary of its effective date for financial impacts and triennially in its entirety.

**D. Modification of Agreement.** This IA may be modified at any time by the written agreement of the Parties, duly signed by their authorized representatives. Correspondence between the Parties may be considered part of this IAA when appropriate and countersigned by the receiver and returned to the sending party.

**E. Disputes.** Any disputes relating to this IA will, subject to any applicable law, Executive Order, Directive, or Instruction, be resolved by consultation between the Parties or in accordance with DoDI 4000.19.

**F. Termination of Agreement.**

1. This IA may be terminated by either Party at the end of any fiscal year (1 October to 30 September) by providing a written Notice of Termination to the non-terminating party. The IA may also be terminated at any time upon the mutual written consent of the Parties.

2. The AF will notify the FWS at least 90 days in advance if funding to support salary and benefits of FWS personnel will be terminated. The FWS will return any unused funds to AF upon termination.

## VI. EFFECTIVE DATE

This IA becomes effective beginning on the day after the last Party signs, and shall be valid until terminated in accordance with Section VI.F.

MARK A CORRELL, P.E. DEC 15 2016
Deputy Assistant Secretary of the Air Force

DANIEL M. ASHE 1/3/17
Director, U.S. Fish and Wildlife Service

## 13.6 APPENDIX F: MOA BETWEEN THE AIR FORCE CIVIL ENGINEER CENTER AND U.S. GEOLOGICAL SURVEY (2016)

**MEMORANDUM OF AGREEMENT**
**BETWEEN**
**THE AIR FORCE CIVIL ENGINEER CENTER**
**AND**
**THE U.S. GEOLOGICAL SURVEY**

1. PURPOSE:

This is a Memorandum of Agreement (MOA) between the Air Force Civil Engineering Center (AFCEC) and the U.S. Geological Survey (USGS). It is for technically-oriented, interagency environmental service support in accordance with authorities listed in Paragraph 3 and establishes respective responsibilities of the Parties in compliance with all applicable environmental laws and regulations. When referred to collectively, the AFCEC and the USGS are referred to as the "Parties."

2. BACKGROUND:

The AFCEC specifically includes environmental stewardship as part of its mission. This includes such goals as ensuring environmental compliance, cleaning up contamination, preventing future pollution, integrating National Environmental Policy Act procedures in all operations, and protecting natural and cultural resources. In addition to general environmental stewardship, the Air Force is specifically named as natural resource trustee for the public for resources inhabiting Air Force lands. The trusteeship responsibility increases the Air Force's obligation to protect the environment and be accountable to the public for its performance.

To more efficiently and effectively attain these goals, as well as increase credibility, AFCEC is looking to other federal agencies that have expertise and responsibility for environmental science to assist the Air Force in addressing its environmental requirements. The USGS has a broad range of capabilities that could support AFCEC's Environmental Restoration Program (ERP), Environmental Compliance programs, Environmental Impact Analysis Process Program, and other environmental programs such as site assessment, hydrogeological studies, geologic studies, mapping and geospatial data and services, and biological resource assessments and monitoring programs.

3. AUTHORITIES:

3.1. 10 U.S.C. 2701(d), *Services of Other Entities*

3.2. Executive Order 12088, *Federal Compliance with Pollution Control Standards*

3.3. Sikes Act, 16 U.S.C. 670c-1, *Cooperative Agreements for Land Management on Department of Defense Installations*

3.4. USGS Organic Act, 43 U.S.C. 31 *et seq.*

3.5. 43 U.S.C. 36c, *Acceptance of contributions from public and private sources; cooperation with other agencies in prosecution of projects*

3.6. The Economy Act, 31 U.S.C. §1535, *Agency Agreements*

3.7. DoD Instruction 4000.19, *Support Agreements* (25 Apr 13)

Page **1** of **9**

AFCEC. The first draft of an Administrative Report will be submitted to AFCEC, who will provide USGS with internal review comments within 45 days after the report is received. USGS internal technical review of the first draft Administrative Report will be completed during the AFCEC review. A second draft Administrative Report will be prepared to incorporate the AFCEC and USGS review comments. The second draft Administrative Report will be submitted to AFCEC for technical, security, and policy review to be completed within 45 days after the report is received. Any differences of opinion about AFCEC technical comments concerning the first or second draft will be resolved by negotiation to the mutual satisfaction of both parties. The second draft Administrative Report will be processed for USGS Director's approval. Upon acceptance of the second draft by AFCEC and upon USGS Director's approval, the USGS will prepare the final Administrative Report.

4.16.1. Public Release of Information. The USGS shall not release an Administrative Report to outside parties without AFCEC consent, except as required under Federal law. AFCEC acceptance of the final Administrative Report will constitute approval for the USGS to use the data from the Administrative Report in a USGS Director-approved publication such as a USGS publication series report or in an article for a scientific journal. USGS publications series reports will reference AFCEC as the sponsoring agency.

4.16.2. Publication of Administrative Reports. The USGS shall supply AFCEC with paper copies of the first and second draft Administrative Reports and paper copies of the final Administrative Report. Paper copies will be provided in 3-ring binders with appropriate front and edge labeling. Digital copies of the draft and final reports will be provided in Adobe portable digital format (pdf). Technical information such as GIS shape files shall be provided in a mutually agreeable format. The USGS will supply AFCEC with up to 20 printed copies of publications based on the final Administrative Report such as those from the USGS publications series or articles published in a scientific journal.

4.16.3. Provide Technical Support for Natural Resources Management. The USGS may provide technical support to the Air Force natural resources program as described in an Integrated Natural Resources Management Plan (INRMP). The USGS may assist with preparing and implementing INRMPs; and with conducting natural resources conservation studies supporting environmental analysis required under the National Environmental Policy Act and Endangered Species Act. USGS technical support may include scientific studies aimed at specific management issues; analyses, publication, or review of data collected by or for the Air Force; and participation by USGS scientists in meetings, committees, or training programs related to management of natural resources. The USGS may be asked to cooperate and coordinate on other pertinent environmental or natural resources issues, such as forest management, prescribed burning, wildfire, wetland permitting, environmental impact analysis, and project review.

4.17. Protect Safety and Health of USGS Personnel. The USGS is responsible for protecting the health and safety of their personnel through established procedures and programs for hazard assessment, training and certification, and medical surveillance.

5. PERSONNEL:

Each Party is responsible for all costs of its personnel, including pay and benefits, support, and travel. Each Party is responsible for supervision and management of its personnel.

6. GENERAL PROVISIONS:

6.1. Points Of Contact: To provide for consistent and effective communication between the AFCEC and the USGS, each party shall appoint a Principal Representative to serve as its central point of contact on matters relating to this MOA. Additional representatives may also be appointed to serve as points of contact on specific Work orders depending on the appropriate environmental program. Each Party may change its point of contact upon reasonable notice to the other Party.

6.2. Correspondence: All correspondence to be sent and notices to be given pursuant to this MOA will be addressed, if to the AFCEC via US Postal Service, to:

6.2.1. AFCEC/CZ
2261 Hughes Ave Ste 155
JBSA Lackland, TX 78236-9853

And, if to the USGS, to:

6.2.2. U.S. Geological Survey
Associate Director, Water Mission Area
Mail Stop 150
12201 Sunrise Valley Drive
Reston, VA 20192

6.3. Review Of Agreement: This MOA will be reviewed annually on or around the anniversary of its effective date for financial impacts and triennially in its entirety.

6.4. Modification Of Agreement: This MOA may only be modified by the written agreement of the Parties, duly signed by their authorized representatives.

6.5. Disputes: Any disputes relating to this MOA will, subject to any applicable law, Executive Order, Directive, or Instruction, be resolved by consultation between the Parties or in accordance with DoDI 4000.19.

6.6 Termination Of Agreement: The MOA may also be terminated at any time upon the mutual written consent of the Parties.

6.7 Transferability: This Agreement is not transferable except with the written consent of the Parties.

6.8. Entire Agreement: It is expressly understood and agreed that this MOA embodies the entire agreement between the Parties regarding the MOA's subject matter.

6.9. Effective Date: This MOA is effective upon date of the last signature.

6.10. Expiration Date: This MOA shall remain in effect for ten (10) years after date of last signature.

6.11. Cancellation Of Previous Agreement: This MOA cancels and supersedes the previously signed Memorandum of Understanding between the same Parties, effective date 25 May 2012.

6.12. Renewal: This MOA may be renewed, amended, or extended by written mutual agreement.

6.13. Performance: Performance by the USGS shall continue until one of the following conditions are met:

6.13.1. Completion of the Work order for mutually agreed upon Scope of Work;

6.13.2. Expenditures/commitments equal the amount authorized in the MIPR for the Work order; or

6.13.3. Work order termination by either party.

If the actual cost to the USGS is forecast to exceed the amount of funds in the MIPR, the USGS shall promptly notify AFCEC of the amount of additional funding necessary. AFCEC shall either provide the additional funds to the MIPR, limit the Scope of Work to that which can be financed by available funds, or terminate the Work order. Should AFCEC not exercise any of the above options, the USGS may terminate the Work order. Nothing herein shall require the USGS to continue performance beyond a level that can be supported by advance funds in the MIPR. This MOA does not convey any type of funds assurance.

6.14. Application Of Laws And Regulations: Nothing in this MOA relieves any applicant, grantee, consultant, contractor, subcontractor, or any other party from obligations imposed upon them by law, regulation, and other applicable requirements.

6.15. Records: The USGS shall establish and maintain records and receipts of expenditures of funds provided by AFCEC. Records shall be maintained in sufficient detail to permit identification of all the expenditures made by the USGS and shall be made available for inspection by officials upon request. The USGS shall provide status reports, briefings, and other necessary information to support the records of expenditures.

6.16. Agreement Claims And Appeals: All claims arising under or relating to this MOA shall be resolved in accordance with Federal law and the terms of this MOA. The USGS shall notify AFCEC of claims or appeals and shall submit requests for funds to cover such claims and appeals.

6.17. Property And Equipment: If equipment is acquired and used as part of a Work order, such equipment will be accounted for and maintained during the term of the Scope of Work in the same manner as USGS property. If the parties agree that USGS is or will be the owner, the property will be tracked with USGS property. If not, it will be tracked separately.

When the project terminates, disposition of the equipment will be as agreed to or as instructed by AFCEC. Such equipment will be delivered to locations requested by AFCEC, transferred to the USGS, or declared as excess. If declared excess, cost of disposition shall be borne by AFCEC subject to availability of funds.

6.18. Non-Obligating And Non-Binding: This MOA is a non-fund obligating and non-binding document. This MOA does not provide an actual or implied intention, or requirement, for the USGS (or AFCEC) to enter into a Work order funded through a MIPR.

6.19. Acceptance Of Work: Prior to final acceptance by AFCEC of the technical support services in a Work order, the USGS shall certify to AFCEC that the work is complete.

6.20. Patents: USGS patent and intellectual property policies shall apply to any work performed, and appropriate patent and intellectual property provisions shall be included in any agreements entered into in order to implement the work tasks accepted under this MOA. Rights to inventions made by United States Government employees shall be determined by the employing agency. Rights in inventions and other intellectual property of a USGS prime operating contractor (or its subcontractors) shall be governed by the provisions of the USGS prime operating contract (or subcontract). To further the mandates of the Technology Transfer Act, the parties agree to the extent consistent with law and with the nature of the work under this MOA to:

6.20.1. Include technology transfer considerations in preliminary planning or work statements;

6.20.2. Identify internal personnel or offices responsible for technology transfer;

6.20.3. Work cooperatively to enhance technology transfer opportunities that may arise.

6.21. Public Information: All Freedom of Information Act (FOIA, 5 USC 552) requests received by the USGS relating to all work undertaken pursuant to this MOA will be promptly referred to AFCEC for official response within seven (7) calendar days. Justification and explanation of AFCEC programs before Congress and the Executive Branch shall be the responsibility of AFCEC. USGS may assist AFCEC in responding to Congressional inquiries and may support AFCEC in budget justifications. No commercial use shall be made of the name of the party or contractor name without the prior or written approval of the parties. Prior to issuing public announcements pertaining to services related to this MOA, AFCEC and USGS shall coordinate and consult with each other. USGS may provide, upon request, information to support contacts with Congress and the Executive Branch. USGS may make public announcements and respond to all inquiries relating to administrative matters.

7. FINANCIAL DETAILS

7.1. Availability Of Funds: This MOA does not document the obligation of funds between the Parties. Any obligation of funds in support of this MOA will be accomplished using a Military Interdepartmental Purchase Request (MIPR), DD Form 448. The obligation of funds by the Parties is subject to the availability of appropriate funds pursuant to the DoD Financial Management Regulation. Subject to the availability of funds, AFCEC shall fund

costs of USGS technical support on a Task-Order basis involving one or more mutually agreed upon Task-Order Scope of Work statements. AFCEC shall provide a funding document in advance of the commencement of work or the issuance of any obligation of the USGS for any task assigned. AFCEC shall provide the USGS the full amount of expenses estimated in each Scope of Work that is mutually agreed upon by delivering a DD Form 448. AFCEC funds shall be accepted on a reimbursable basis through USGS acceptance of said funds (signature on DD Form 448-2, Acceptance of MIPR).

7.2. Billing: USGS will bill AFCEC on a monthly basis for costs recorded during the previous month on a Standard Form (SF) 1080 for reimbursement to the USGS on the basis of actual costs incurred. A record of the transaction will be sent to AFCEC within 30 days after the month in which the transaction occurred.

7.3. Payment Of Bills: The AFCEC paying office will forward payments, along with a copy of billed invoices, to the USGS within 30 days of the date of invoice. Bills rendered will not be subject to audit in advance of payment.

7.4. Economy Act Determination And Findings: This MOA is being entered into under Authority 3.7, 31 USC §1535, as amended (the Economy Act), both Parties agree that the requirements listed in Paragraph (a) of the Economy Act have been met.

8. SIGNATURES OF AUTHORIZED REPRESENTATIVES:

**Air Force Civil Engineer Center (AFCEC)**

Signature: 
Name: Randy E. Brown
Title: Director

Date: 1 APR 2016

**U.S. Geological Survey (USGS)**

Signature: 
Name: Don Cline
Title: Associate Director for Water

Date: 4/22/16

## 13.7 APPENDIX G. RESERVED

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## 13.8 APPENDIX H. INSTALLATION-SPECIFIC INFORMATION

**See attached.

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# 14. ASSOCIATED PLANS

## 14.1 BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PLAN

## 14.2 INTEGRATED PEST MANAGEMENT PLAN (IPMP)

## 14.3 POLAR BEAR AND PACIFIC WALRUS AVOIDANCE PLAN FOR PACIFIC AIR FORCES REGIONAL SUPPORT CENTER (PRSC) COASTAL SITES IN ALASKA