INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

Naval Station Everett

June 2022

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COMMANDER, NAVY REGION NORTHWEST SIGNATURE

This Integrated Natural Resources Management Plan (INRMP) is a long-term planning document to guide the management of natural resources at the Naval Station Everett waterfront site and Naval Support Complex Smokey Point to support the military mission while protecting and enhancing natural resources for multiple uses, sustainable yield, and biological integrity. The primary purpose of the plan is to ensure natural resources management and military operations are integrated and consistent with legal requirements and stewardship responsibilities. This plan and the management of natural resources comply with the legal mandates and, to the extent practicable, is integrated with public ecosystem goals.

This INRMP meets requirements of the Sikes Act (16 U.S.C. 670a et seq., as amended); Department of Defense Instruction 4715.03, *Natural Resource Conservation Program*; DOD Manual 4715.03, *Integrated Natural Resources Management Plan Implementation Manual*; Chief of Naval Operations Instruction (OPNAVINST) 5090.1E; and OPNAV Manual 5090.1E, *Environmental Readiness Program Manual*.

Approved by:

17 NOV 22

M. B. SUCATO
Rear Admiral, U.S. Navy
Commander, Navy Region Northwest

Date

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NAVAL STATION EVERETT SIGNATURES

This Integrated Natural Resources Management Plan (INRMP) is a long-term planning document to guide the management of natural resources at the Naval Station Everett waterfront site and Naval Support Complex Smokey Point to support the military mission while protecting and enhancing natural resources for multiple uses, sustainable yield, and biological integrity. The primary purpose of the plan is to ensure natural resources management and military operations are integrated and consistent with legal requirements and stewardship responsibilities. This plan and the management of natural resources comply with the legal mandates and, to the extent practicable, is integrated with public ecosystem goals.

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Installation Natural Resources Manager
Naval Station Everett

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NAVY REGION NORTHWEST ENVIRONMENTAL SIGNATURES

This Integrated Natural Resources Management Plan (INRMP) is a long-term planning document to guide the management of natural resources at the Naval Station Everett waterfront site and Naval Support Complex Smokey Point to support the military mission while protecting and enhancing natural resources for multiple uses, sustainable yield, and biological integrity. The primary purpose of the plan is to ensure natural resources management and military operations are integrated and consistent with legal requirements and stewardship responsibilities. This plan and the management of natural resources comply with the legal mandates and, to the extent practicable, is integrated with public ecosystem goals.

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Approved by:

STOCKTON.JULIA.K.1140496290 Digitally signed by STOCKTON.JULIA.K.1140496290 Date: 2022.10.18 14:02:30 -07'00'

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CYNTHIA KUNZ Date
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Navy Region Northwest, Code N45

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U.S. FISH AND WILDLIFE SERVICE SIGNATURE

This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 U.S.C. 670a et seq., as amended); and supports U.S. Fish and Wildlife Service policies, management goals, and objectives. In addition, this document was developed in accordance with the June 2015 USFWS Guidelines for Coordination on Integrated Natural Resources Management Plans and the 2013 Memorandum of Understanding between the Department of Defense and the USFWS and the Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resource Management Program on Military Installations.

Approved by:

CURTIS TANNER Digitally signed by CURTIS TANNER
Date: 2022.11.23 15:09:35 -08'00'

for BRAD THOMPSON Date
State Supervisor
U.S. Fish and Wildlife Service

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WASHINGTON DEPARTMENT OF FISH AND WILDLIFE SIGNATURE

This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 U.S.C. 670a et seq., as amended); and supports Washington Department of Fish and Wildlife policies, management goals, and objectives as described by the 2015 Washington State Wildlife Action Plan. In addition, this document was developed in accordance with the 2013 Memorandum of Understanding between the Department of Defense and the USFWS and the Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resource Management Program on Military Installations.

Approved by:

2/21/2023

KELLY SUSEWIND Date
Director
Washington Department of Fish and Wildlife

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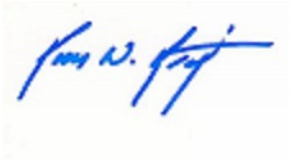
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, NATIONAL MARINE FISHERIES SERVICE SIGNATURE

This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 U.S.C. 670a et seq., as amended); and supports National Oceanic and Atmospheric Administration, National Marine Fisheries Service policies, management goals, and objectives.

Approved by:



12/01/2022

KIM KRATZ Date
Regional Administrator, West Coast Regional Office
NOAA Fisheries

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ANNUAL REVIEW AND UPDATES

This Integrated Natural Resources Management Plan (INRMP) will be reviewed annually by the Navy and updated as needed. The table below will be used to document annual reviews and any updates to this INRMP. It is not intended to replace the Review for Operation and Effect but will be included each year as part of the annual review (see *Section 1.6 Review and Revision Process*).

Date of Annual Review	***Date of Annual Report***	***Name and Title of Reviewer***	***Summary of Updates***

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EXECUTIVE SUMMARY

This Integrated Natural Resources Management Plan (INRMP) was developed to provide for effective management and protection of natural resources at Naval Station (NAVSTA) Everett, which includes the main waterfront site as well as Navy Support Complex (NSC) Smokey Point. NAVSTA Everett's waterfront site is a 117-acre installation within the City of Everett, WA, with a mission to provide superior shore station support to United States (U.S.) Navy and Coast Guard forces. NSC Smokey Point is a 52-acre site located north of Marysville, WA, approximately 11 miles from NAVSTA Everett. The main Exchange and Commissary, as well as the Navy Lodge, Education Center, and financial and support services are located at NSC Smokey Point.

The Navy has prepared this INRMP to identify natural resources at NAVSTA Everett, including NSC Smokey Point, and to develop a management plan for these resources. This INRMP is authorized under the Conservation Programs on Military Installations Act (Sikes Act; 16 U.S.C. 670a et seq., as amended).

This INRMP guides the management of natural resources in support of the Navy's military mission, while protecting and enhancing natural resources for multiple uses, sustainable yield, and biological integrity. All signatories review the plan for operation and effect, ensuring that natural resources conservation measures and military operations on the installation are integrated and compliant with stewardship and legal requirements. The INRMP also serves as a reference for documents prepared during the environmental planning and permitting processes.

The natural resources management priorities at NAVSTA Everett and NSC Smokey Point include promoting healthy fish and wildlife populations, enhancing wildlife habitat, and protecting and enhancing wetlands and waterbodies. Significant management concerns include water pollution, invasive species, pests, wildlife diseases, and climate change-related risks.

Correspondingly, managers for the sites have identified the following natural resources management goals and objectives to best support the Navy's mission at NAVSTA Everett's waterfront site and NSC Smokey Point:

Goal 1: Promote healthy populations of native fish and wildlife species, and protect and enhance their habitats, while minimizing potential impacts to mission.

Objective 1.1. Minimize detrimental effects of projects and operations on fish, wildlife, and their habitats by implementing best management practices (BMPs) and avoidance and minimization measures.

Objective 1.2. Survey and monitor species populations to assess whether avoidance and minimization measures implemented as integral parts of Navy actions are effective, adaptively adjust the measures as needed, and document long-term changes in the populations, potentially including climate-related trends.

Objective 1.3. Protect, restore, and enhance fish and wildlife habitat through targeted policy guidance and focused, site-specific actions.

Objective 1.4. Increase awareness of species conservation efforts amongst military and civilian personnel at NAVSTA Everett.

Goal 2: Avoid or minimize impacts to wetlands and waterbodies to the greatest extent practicable, mitigate any unavoidable impacts in accordance with state and federal regulations, and restore or enhance nearshore marine and freshwater habitats to provide for healthy ecosystem functions, wildlife habitat, and the natural infrastructure needed to support the military mission.

Objective 2.1. Maintain systems and implement management plans to protect and improve water quality.

Objective 2.2. Ensure no net loss of wetlands at NSC Smokey Point, either in extent or in function.

Objective 2.3. Restore and enhance riparian buffer and wetland habitat at NSC Smokey Point through the removal of noxious and invasive plants species and replanting with native species.

Goal 3: Use targeted, sustainable methods including habitat modification; biological, genetic, cultural, mechanical, physical, and regulatory controls; and, when necessary, the judicious use of the least hazardous pesticides to control pests at NAVSTA Everett.

Objective 3.1. Reduce the presence and/or undesirable behaviors of nuisance bird species at the NAVSTA Everett waterfront site to protect infrastructure, and human health and safety.

Objective 3.2. Maintain a current Integrated Pest Management Plan (IPMP) and professionally trained staff to respond on an as-needed basis to other pest management concerns.

Goal 4: Reduce or eradicate (where practical) noxious weed species and invasive plant and animal species to improve the quality of native vegetation and wildlife communities and habitat.

Objective 4.1. Control Class A, B, and C noxious weeds and other invasive plant species on the installation.

Objective 4.2. Maintain situational awareness and monitor for aquatic invasive fauna, and cooperate with county, state, and federal agencies on eradication efforts.

Goal 5: Identify, prepare for, and reduce risks from a changing climate to natural resources and the military mission at NAVSTA Everett.

Objective 5.1. Complete the step-by-step method for INRMP climate adaptation planning prior to each INRMP update and incorporate climate-informed changes into the INRMP.

Objective 5.2. Integrate climate adaptation planning into other relevant planning documents and processes.

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AOR	Area of Responsibility
APHIS	Animal and Plant Health Inspection Service
BASH	Bird/Animal Aircraft Strike Hazard
BCC	Birds of Conservation Concern
BCR	Bird Conservation Regions
Bd	*Batrachochytrium dendrobatidis*
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practices
BOSC	Base Operations Support Contract
BRT	Biological Review Team
CATEX	Categorical Exclusion
CECOS	Civil Engineer Corps Officers School
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNIC	Commander, Navy Installations Command
CNO	Chief of Naval Operations
CNRNW	Commander, Navy Region Northwest
CO	Commanding Officer
CVBG	Aircraft Carrier Battle Group
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DDG	Guided Missile Destroyer
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DODM	Department of Defense Manual
DON	Department of the Navy
DPS	Distinct Population Segment
EA	Environmental Assessment
EAP	Encroachment Action Plan
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
EPR	Environmental Readiness Program Requirements
ERL	Environmental Readiness Level
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
ESRI	Environmental Systems Research Institute
FR	Federal Register
GES	GeoReadiness Enterprise System

Acronym	Meaning
GIS	Geographic Information System
GMA	Growth Management Act
GPS	Global Positioning System
GRC	GeoReadiness Center
GRX	GeoReadiness Explorer
HAPC	Habitat Areas of Particular Concern
HAZMAT	Hazardous Material
IDP	Installation Development Plan
IEPD	Installation Environmental Program Director
IHA	Incidental Harassment Authorization
INRMP	Integrated Natural Resources Management Plan
IPMC	Integrated Pest Management Coordinator
IPMP	Integrated Pest Management Plan
JAG	Judge Advocate General
LOA	Letter of Authorization
MBTA	Migratory Bird Treaty Act
Metrics	INRMP Review and Natural Resources Conservation Metrics
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
MILCON	Military Construction
MOU	Memorandum of Understanding
MSGP	Multi Sector General Permit
MS4	Municipal Separate Storm Sewer System
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAVFAC	Naval Facilities Engineering Systems Command
NAVSTA	Naval Station
Navy	Department of the Navy OR United States Navy
NCA	Naval Compatibility Area
NEPA	National Environmental Policy Act
NEX	Naval Exchange
iNFADS	internet Navy Facilities Asset Database System
NMFS	National Marine Fisheries Service
NMFWA	National Military Fish and Wildlife Association
NOAA	National Oceanic and Atmospheric Administration
NOSC	Navy Operational Support Center
NR	Natural Resources
NRC	Naval Reserve Center
NRM	Natural Resources Manager
NSA	Naval Supervisory Authority
NSC	Navy Support Complex
NW	Northwest
NWP	Nationwide Permit
OGC	Office of the General Counsel

Acronym	Meaning
O&MN	Operations and Maintenance, Navy
OPNAV	Chief of Naval Operations
OPNAVINST	Chief of Naval Operations Instructions
OPNAV-M	Chief of Naval Operations Manual
OSD	Office of the Secretary of Defense
PAH	polycyclic aromatic hydrocarbon
PAO	Public Affairs Officer
PBDEs	polybrominated diphenyl ethers
PBF	physical and biological features
PCBs	polychlorinated biphenyls
PCE	primary constituent element
PFMC	Pacific Fishery Management Council
PHS	Priority Habitats and Species
PIF	Partners in Flight
RCW	Revised Code of Washington
RDT&E	Research, Development, Training, and Evaluation
ROV	Remotely Operated Vehicle
SASSI	Salmon and Steelhead Stock Inventory
SECNAVINST	Secretary of the Navy Instruction
SGCN	Species of Greatest Conservation Need
Sikes Act	Conservation Programs on Military Installations Act
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SOP	Standard Operating Procedure
SPCC	Spill Prevention, Control, and Countermeasures
SRKW	Southern Resident killer whale
SVOC	semivolatile organic compounds
SWAP	State Wildlife Action Plan
T&E	threatened and endangered
U&A	Usual and Accustomed
U.S.	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USCGC	United States Coast Guard Cutter
USFWS	United States Fish and Wildlife Service
USS	United States Ship
WA	Washington
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WDOE	Washington State Department of Ecology
WRIA	Water Resource Inventory Area

1 OVERVIEW

This Integrated Natural Resources Management Plan (INRMP) was developed to provide for effective management and protection of natural resources at Naval Station (NAVSTA) Everett, which includes the main waterfront site, as well as Navy Support Complex (NSC) Smokey Point. Natural resources are valuable assets of the United States (U.S.) Department of the Navy (Navy or DON). They provide the natural infrastructure needed for operations, testing, and training to support military readiness. It is also essential to provide good stewardship of the public lands entrusted to the Navy. This INRMP is a requirement of the Conservation Programs on Military Installations Act (Sikes Act; 16 U.S.C. 670a et seq., as amended), and reflects the mutual approval of the cooperating agencies that are signatories to this document: the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the Washington Department of Fish and Wildlife (WDFW). This current version is an update of the INRMP first approved in 1998, and subsequently updated over the years, with the most recent version approved in 2016.

1.1 Purpose and Scope

This INRMP is a long-term planning document developed to guide the management of natural resources in support of the Navy's military mission, while protecting and enhancing natural resources for multiple uses, sustainable yield, and biological integrity. During the review, all signatories ensure that natural resource conservation measures and military operations on the installation are integrated and compliant with stewardship and legal requirements.

This INRMP covers nearshore marine, freshwater, and terrestrial natural resources at NAVSTA Everett and NSC Smokey Point. NAVSTA Everett's main waterfront site is a 117-acre installation within the City of Everett, Washington (WA), with a mission to provide superior shore station support to Navy and U.S. Coast Guard (Coast Guard) forces (Figure 1-1). Currently five Navy Arleigh Burke-class Aegis guided-missile destroyers and two Coast Guard cutters (a Marine Protector-class patrol boat and a Keeper-class coastal buoy tender) are homeported at NAVSTA Everett. The NSC Smokey Point is a 52-acre site located north of Marysville, WA, approximately 11 miles from NAVSTA Everett (Figure 1-2). The main Exchange and Commissary, as well as the Navy Lodge, Education Center, and financial and support services are located at NSC Smokey Point.

Naval Radio Station (Transmitter) Jim Creek, the Pacific Beach Annex, Acoustic Research Detachment Bayview (Idaho), and Naval Radio Transmission Facility LaMoure (North Dakota) are also within the area of responsibility (AOR) of the NAVSTA Everett Commanding Officer (CO). Separate INRMPS have been developed for each of these properties. Thirteen Navy Operational Support Centers (NOSC), component facilities of the Navy Reserve Component Command, are also under the AOR of the NAVSTA Everett CO. A draft INRMP Needs Assessment (NAVFAC NW, 2015) determined that INRMPs were not warranted for any of these thirteen NOSC sites.

Figure 1-1. Vicinity map for Naval Station Everett waterfront site.

Figure 1-2. Vicinity map for Naval Station Everett, Navy Support Complex Smokey Point.

The INRMP is a dynamic document that integrates all aspects of the NAVSTA Everett mission and natural resources management, addressing each specific resource type and land use individually, as well as the larger ecosystem context. Development of the plan follows these principles:

- A shift from single species to multi-species, ecosystem-based management;
- Formation of partnerships necessary to consider and manage ecosystems that cross installation boundaries; and
- Use of the best available scientific information and scientifically sound strategies for adaptive management.

The document outlines conservation efforts and establishes procedures to ensure compliance with related environmental laws and regulations during INRMP implementation. *Section 4 Program Elements* and *Section 5 INRMP Implementation* of this document describe the specific management goals and objectives that are the focus of the five-year plan. Secondarily, the INRMP serves as a reference for documents prepared during the environmental planning and permitting processes. The INRMP does not replace or affect any federal laws or state responsibility and authority for protecting fish and wildlife resources.

1.2 Authority

This INRMP is authorized under the Sikes Act, which requires the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. The act requires each military installation to develop an INRMP to facilitate this order, in coordination with USFWS and the appropriate state fish and wildlife agency–WDFW for NAVSTA Everett.

This INRMP was also prepared pursuant to the following Department of Defense (DOD) and Navy guidance documents. Further information on these guidance documents is summarized in Appendix A.

1) DOD Instruction (DODI) 4715.03, *Natural Resources Conservation Program*
2) DOD Manual (DODM) 4715.03, *INRMP Implementation Manual*
3) Chief of Naval Operations (OPNAV) Instruction (OPNAVINST) 5090.1E, *Environmental Readiness Program*
4) OPNAV Manual 5090.1E (OPNAV-M 5090.1E), *Environmental Readiness Program Manual*
5) Secretary of the Navy Instruction (SECNAVINST) 5090.8B, *Policy for Environmental Protection, Natural Resources, and Cultural Resources Programs*
6) DOD Memorandum, *Integrated Natural Resource Management Plan (INRMP) Template*
7) Navy Guidance, *Integrated Natural Resources Management Program Guidance*

In Chapter 12 of OPNAV-M 5090.1E, program responsibilities and standards are set for complying with natural resource protection laws, regulations, and Executive Orders (EOs) to conserve and manage natural resources on Navy installations in the U.S. and its territories and possessions. Additional policy, regulation, and legislation regarding military land management are listed and described in Appendix A.

1.3 Goals and Objectives

This INRMP is developed according to the following primary goals and objectives for managing the natural resources of NAVSTA Everett:

Goal 1: Promote healthy populations of native fish and wildlife species, and protect and enhance their habitats, while minimizing potential impacts to mission.

Objective 1.1. Minimize detrimental effects of projects and operations on fish, wildlife, and their habitats by implementing best management practices (BMPs) and avoidance and minimization measures.

Objective 1.2. Survey and monitor species populations to assess whether avoidance and minimization measures implemented as integral parts of Navy actions are effective, adaptively adjust the measures as needed, and document long-term changes in the populations, potentially including climate-related trends.

Objective 1.3. Protect, restore, and enhance fish and wildlife habitat through targeted policy guidance and focused, site-specific actions.

Objective 1.4. Increase awareness of species conservation efforts amongst military and civilian personnel at NAVSTA Everett.

Goal 2: Avoid or minimize impacts to wetlands and waterbodies to the greatest extent practicable, mitigate any unavoidable impacts in accordance with state and federal regulations, and restore or enhance nearshore marine and freshwater habitats to provide for healthy ecosystem functions, wildlife habitat, and the natural infrastructure needed to support the military mission.

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Objective 2.2. Ensure no net loss of wetlands at NSC Smokey Point, either in extent or in function.

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Goal 3: Use targeted, sustainable methods including habitat modification; biological, genetic, cultural, mechanical, physical, and regulatory controls; and, when necessary, the judicious use of the least hazardous pesticides to control pests at NAVSTA Everett.

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Objective 3.2. Maintain a current Integrated Pest Management Plan (IPMP) and professionally trained staff to respond on an as-needed basis to other pest management concerns.

Goal 4: Reduce or eradicate (where practical) noxious weed species and invasive plant and animal species to improve the quality of native vegetation and wildlife communities and habitat.

Objective 4.1. Control Class A, B, and C noxious weeds and other invasive plant species on the installation.

Objective 4.2. Maintain situational awareness and monitor for aquatic invasive fauna, and cooperate with county, state, and federal agencies on eradication efforts.

Goal 5: Identify, prepare for, and reduce risks from a changing climate to natural resources and the military mission at NAVSTA Everett.

Objective 5.1. Complete the step-by-step method for INRMP climate adaptation planning prior to each INRMP update and incorporate climate-informed changes into the INRMP.

Objective 5.2. Integrate climate adaptation planning into other relevant planning documents and processes.

The goals, objectives, and associated management strategies detailed in this document are directly aligned with the Navy's overarching goals for its Natural Resources (NR) programs (OPNAV-M 5090.1E):

Military Readiness. Ensure no net loss of the capability of installation lands to support the DOD mission.

Stewardship. Manage natural resources to assure good stewardship of public lands entrusted to the Navy.

Compliance. Comply with laws and instructions that pertain to the management of the Navy's properties and associated natural resources.

1.4 Roles and Responsibilities

SECNAVINST 5090.8B assigns responsibilities within the DON for the preparation and implementation of INRMPs, among other programs. OPNAV-M 5090.1E delineates responsibilities within the Navy regarding management of natural resources. The section below highlights INRMP-related responsibilities pursuant to the most recent Navy guidance.

1.4.1 Chief of Naval Operations, Environmental Readiness Division

Chief of Naval Operations (CNO) serves as the principal leader and overall Navy program manager for the development, revision, and implementation of INRMPs and:

1) Provides policy, guidance, and resources for the development, revision, and implementation of INRMPs and associated National Environmental Policy Act (NEPA) documents.
2) Represents the Navy on issues regarding development and implementation of INRMPs and delegates responsibility in writing.
3) Resolves high-level conflicts associated with development and implementation of INRMPs.
4) Approves all INRMP projects before INRMPs are submitted to regulatory agencies for signature.

1.4.2 Commander, Navy Installations Command

The Commander, Navy Installations Command (CNIC):

1) Ensures that installations under its command develop, revise, and implement INRMPs, if required, and:
    a) Reevaluates the need for an INRMP at all installations that currently do not have an INRMP.

   b) Following the initial evaluation, reevaluates all remaining installations that do not have an INRMP every five years.
2) Ensures that installations comply with DOD, DON, and CNO policy on INRMPs and associated NEPA document preparation, revision, and implementation.
3) Ensures the programming of resources necessary to maintain and implement INRMPs, which involves:
   a) The review and endorsement of projects recommended for INRMP implementation prior to submittal for signature. These projects are identified in Table 5.1.
   b) The evaluation and validation of Environmental Readiness Program Requirements (EPR) Web project proposals.
4) Participates in the development and revision of INRMPs, which involves the maintenance of a close liaison with N45, Naval Facilities Engineering Systems Command (NAVFAC) and other budget submitting offices.
5) Provides overall program management oversight for all natural resources program elements.

1.4.3 Regional Commander

NAVSTA Everett is under CNRNW, whose office is located at Naval Base Kitsap, Silverdale, WA. The Regional Commander ensures that the INRMPs are developed, implemented, and fully supported and ensures coordination, consistency, and direct support for INRMP implementation.

The Regional Commander has the following responsibilities:

1) Ensures that installations comply with DOD, DON, and CNO policy on INRMP and associated NEPA document preparation, revision, and implementation.
2) Ensures INRMPs undergo annual informal reviews as well as formal five-year evaluations. Ensures installations complete the annual INRMP metrics review and endorses the results prior to submittal to CNIC via the chain of command.
3) Ensures the programming of resources necessary to maintain and implement INRMPs, which involves the evaluation and validation of Environmental Program Requirement Website (EPRWeb) project proposals.
4) Establishes positive, productive relationships with local and regional authorities responsible for natural resource conservation for the benefit of subordinate command functions and INRMP development and implementation.

1.4.4 Installation Commanding Officer

The NAVSTA Everett CO oversees the operations occurring at the installation and is ultimately responsible for facility, security, and land management aspects of NAVSTA Everett. The CO is responsible to the Regional Commander for the preparation, completion, and implementation of the INRMP and associated NEPA documentation for NAVSTA Everett. The CO should systematically apply the conservation practices set forth in the plan.

The CO's role includes:

1) Acts as steward of the natural resources under their jurisdiction and integrates natural resources requirements into the day-to-day decision-making process.

2) Ensures natural resources management and the INRMP comply with all natural resources-related legislation; EOs and Executive Memoranda; as well as DOD and DON directives, instructions, and policies.
3) Involves appropriate tenant, operational, training, or Research, Development, Training, and Evaluation (RDT&E) commands in the INRMP review process to ensure no net loss of military mission.
4) Designates by letter, one or more Natural Resource Managers (NRMs) responsible for the management efforts related to the preparation, revision, implementation, and funding for the INRMP (Appendix B).
5) Involves appropriate Navy Judge Advocate General (JAG) or Office of the General Counsel (OGC) legal counsel to provide advice and counsel with respect to legal matters related to natural resources management and INRMPs.
6) Endorses INRMPs via signature.
7) Participates in annual natural resources metrics process:
    a) Completes Focus Area #7: Mission Support, which is included in the Navy's Annual Report to Congress
    b) Sends a written report to USFWS and WDFW in January of each year, summarizing INRMP implementation over the past fiscal year and the status of any prior mutually agreed upon goals and updates.
8) Facilitates implementation of the INRMP:
    a) Provides top-down support of the Natural Resources program.
    b) Ensures that a process is established for early coordination between the NRMs and key installation staff.
    c) Ensures that natural resources management is integrated with other installation management functions, military operations, security, and RDT&E activities.
9) Ensures funding for the implementation of the INRMP.

1.4.5 Installation Environmental Program Director

The Installation Environmental Program Director (IEPD) at NAVSTA Everett works for the installation CO to ensure that the installation is in compliance with all natural resources related legislation; EOs and Executive Memoranda; and DOD and CNO directives, instructions, and policies. The NRM is a member of the IEPD's staff who is recommended by the IEPD to the installation CO to be designated the NRM. The IEPD assists in project design, implementation, and in identifying personnel, internal or external to the installation, with expertise to accomplish INRMP projects. The IEPD is one of many signatories to the INRMP and works at a high level to ensure its success.

1.4.6 Natural Resources Manager

The NRM is responsible for natural resources management at NAVSTA Everett and its area of responsibility. The NRM is designated in writing by the CO and a copy of the designation letter is in Appendix B. The NRM is a member of the NAVSTA Everett Public Works Department Environmental Division in Everett and is, administratively, a NAVFAC employee.

The NRM's primary responsibilities are as follows:

1) Coordinates preparation, revision, and implementation of the INRMP with other personnel on the installation, as necessary, to meet the program goals and objectives.
2) Ensures the INRMP is reviewed, current, and compliant in coordination with the USFWS and WDFW.
3) Completes the INRMP metrics annually on the Navy Conservation website.
4) Ensures the NAVSTA Everett CO is informed of natural resource conditions and issues, goals, and objectives of the INRMP, and potential or actual conflicts between mission requirements and natural resource mandates.

1.4.7 Region Program Director for Environmental (N45)

N45 provides a Senior Regional Natural Resources Specialist. The specialist has the following responsibilities:

1) Ensures execution of natural resources conservation responsibilities in support of the Regional Commander.
2) Reviews and signs INRMPs for technical sufficiency, consistency within the region, and compliance with Navy and DOD policy.

1.4.8 Naval Facilities Engineering Systems Command Northwest

NAVFAC Northwest (NW) provides oversight and support for the development, maintenance, and implementation of CNRNW installation INRMPs and the Natural Resources program. NAVFAC NW's Natural Resources staff are an assemblage of professionally qualified foresters, botanists, fisheries specialists, marine mammal experts, avian specialists, and biologists trained in invasive species management. These subject matter experts are available to support and assist the NAVSTA Everett Natural Resources program and associated consultations pertaining to natural resources legislation.

NAVFAC NW responsibilities are as follows:

1) Provides technical and contractual support for the preparation, development, and implementation of INRMPs and associated NEPA documents.
2) Facilitates and coordinates the issuance of INRMP-related NEPA documents.
3) Assists in obtaining the Commander, Navy Region NW signature on this INRMP.
4) Evaluates and disseminates information to installations concerning new technology, methods, policies, and procedures for use in the development and implementation of INRMPs or that may impact naval readiness and sustainability at the installation (e.g., proposed listings of threatened and endangered species, proposed critical habitat restrictions, biological opinions, NEPA mitigation measures).
5) Assists with the development of the INRMP Project Implementation Table, EPRWeb, and Legacy project proposals.
6) Provides technical and administrative guidance for the development and execution of contracts and cooperative agreements to develop and implement INRMPs.
7) Facilitates the acquisition of INRMP mutual agreement between the Navy, USFWS, and state fish and wildlife agency, as necessary.
8) Facilitates conflict resolution between the Navy, USFWS, state fish and wildlife agency, and other stakeholders, as necessary.

9) Coordinates an ecosystems-based approach between the installation and geographically proximate landholders to include other federal agencies, state agencies, or private entities.
10) Provides technical oversight and resources for forest management and assists in implementing forest habitat management actions.
11) Provides support and resources to the installation fish and wildlife program and assists with hunting and fishing fee and permit collections and distributions.
12) Assists with compiling, tracking, and maintaining INRMP metrics on the Navy's Conservation website.

1.4.9 Public Affairs Officer

The Public Affairs Officer (PAO) for NAVSTA Everett provides a significant link between the INRMP and the on- and off-installation communities. The PAO facilitates communication between offices across the installation, tenant commands, and nearby communities regarding environmental management. Any proposed communications outside the installation should be discussed with the NAVSTA Everett PAO.

1.5 External Stakeholder Responsibilities

External stakeholders of NAVSTA Everett and NSC Smokey Point natural resources include federal and state natural resources agencies and tribal governments, which are discussed further in the subsections below, as well as local governments, landowners, and civic and conservation groups, which have been engaged through the NEPA process as described in *Section 3.3 NEPA Compliance*.

Commitment of the U.S. Fish and Wildlife Service and the State - As signatories to the INRMP, the Navy, USFWS, and WDFW provide concurrence that the INRMP is compliant with the requirements of the Sikes Act and is aligned with each agency's management policies, goals, and objectives. Although not required by the Sikes Act, Navy Region Northwest has invited National Oceanic and Atmospheric Administration's (NOAA) NMFS office (also called NOAA Fisheries) to review this INRMP. Cooperative management occurs through the annual INRMP review process, which includes the incorporation of shared technical information, review of natural resources management objectives, and input and updating of proposed INRMP projects. Feedback from the partner agencies is included in the annual INRMP Metrics Data Call. Per the Memorandum of Understanding (MOU) between the DOD, USFWS, and the Association of Fish and Wildlife Agencies (July 29, 2013) a comprehensive, joint review by all parties as to operation and effect will be conducted no less often than every five years, at which point any updates to the INRMP are incorporated.

1.5.1 U.S. Fish and Wildlife Service and National Marine Fisheries Service

The Sikes Act directs the DOD to seek mutual agreement with the USFWS in the management of natural resources on DOD installations. NMFS shares responsibility for implementing the Endangered Species Act (ESA; 16 U.S.C. 1531 et seq.) with USFWS. In general, USFWS manages land and freshwater species, and NMFS manages marine and anadromous species, and regulates marine mammals included under the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1361 et seq.). The Navy may request the expertise of USFWS and NMFS biologists in the agencies' respective program areas. As stipulated in the Sikes Act, the Navy may also work with other federal agencies to implement the INRMP through interagency

agreements. No element of the Sikes Act is intended to either enlarge or diminish the existing responsibility and authority of USFWS or NMFS, concerning fish and wildlife responsibilities on military lands.

In addition, cooperative management is facilitated through consultation on a project-by-project basis and through mitigation and monitoring agreements, as described further in *Section 3.2 Natural Resources Consultation Requirements.*

1.5.2 Washington Department of Fish and Wildlife

The Sikes Act also directs the DOD to coordinate and seek mutual agreement with appropriate state fish and wildlife agencies in the management of natural resources on DOD installations. The Navy may request the expertise of WDFW biologists in the development and implementation of this INRMP. As stated above, no element of the Sikes Act is intended to either enlarge or diminish the existing responsibility and authority of WDFW.

WDFW manages wildlife and habitat under its State Wildlife Action Plan (SWAP), which was updated in 2015 and is a comprehensive plan for conserving Washington's fish and wildlife and the natural habitats on which they depend. Some of the primary goals of the SWAP include informing conservation priorities and actions statewide, and facilitating collaborative conservation, including cross-state and regional approaches. WDFW's participation in the development of this INRMP and ongoing coordination with the NRM ensure that natural resource management at NAVSTA Everett is aligned with the priorities of the SWAP in conserving, protecting, and managing fish and wildlife resources, and that opportunities for collaboration are pursued. Further discussion of the SWAP is provided in *Section 1.8.3 State Wildlife Action Plan*.

1.5.3 Tribal Governments

EO 13175, *Consultation and Coordination with Indian Tribal Governments*, reaffirms the Federal government's commitment to tribal sovereignty, self-determination, and self-government. The EO ensures that all Executive departments and agencies consult with Indian tribes and respect tribal sovereignty as they develop policy on issues that impact Indian communities. Pursuant to SECNAVINST 11010.14B, OPNAV-M 5090.1E, and Commander, Navy Region NW Instruction (COMNAVREGNWINST) 11010.14A, the Navy consults with federally-recognized tribes on a Government-to-Government basis as provided by law on all Navy proposed actions that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands within the CNRNW AOR. The Navy consults on the development of INRMPs where treaty rights, sacred sites, burial sites, or other rights to natural resources may be affected by the INRMP.

Derived from the Federal Treaty period, tribes retained any rights that were not expressly ceded, such as tribal sovereignty, the use of their ancestral lands for fishing in Usual and Accustomed (U&A) grounds and stations and the right to hunt and gather roots and berries on open and unclaimed lands. U&A areas vary by tribe. NAVSTA Everett staff regularly coordinate and consult with five tribes: the Tulalip Tribes, the Suquamish Tribe, the Lummi Nation, and the Swinomish Indian Tribal Community have U&A areas within the waters of the NAVSTA Everett waterfront site. The Stillaguamish Tribe's U&A area overlaps the NSC Smokey Point property.

These five tribes were provided a draft of this INRMP revision for review and comment between March and October, 2021. Input received from tribes included:

- Additional species and habitat information, particularly for fish species and water quality issues
- Suggested edits to the text for clarity or requesting further information
- Requests for additional coordination with tribes regarding upcoming MILCON projects and natural resources projects
- Questions regarding the presence of essential fish habitat (EFH) at NSC Smokey point
- Concerns about the effectiveness of Standard Operating Procedure (SOP) developed for notification to tribal fisherman regarding ship movements
- Recommendations to bolster the INRMPs focus on fish habitat restoration and climate change.

In accordance with COMNAVREGNWINST 11010.14A, these tribes will also be consulted for proposed individual projects that may significantly affect protected tribal resources, tribal rights, or Indian lands. The CO, IEPD, and NRM meet with the tribes annually to coordinate on current activities and planning.

1.6 Review and Revision Process

Pursuant to Section 101(b)(2) of the Sikes Act, the Navy, USFWS, and WDFW will review this plan as to operation and effect "on a regular basis, but not less often than every five years." To meet the terms agreed upon by the cooperating parties in the 2013 MOU, the Navy shall provide a means of easily identifying all changes to each update or revision of this INRMP via the review table at the beginning of this plan. The Navy will comply with the requirement for both five-year and annual reviews of the NAVSTA Everett INRMP.

1.6.1 Annual INRMP Review and Conservation/INRMP Metrics

In compliance with DODI 4715.03 and OPNAV-M 5090.1E, INRMP Review and Natural Resources Conservation Metrics (Metrics) must be completed annually by each Navy installation with significant natural resources. The Metrics provide a basis for validating that Navy installations are in compliance with the Sikes Act and that each installation or reporting unit is preparing, maintaining, and implementing its INRMP. The Metrics also support ESA expenditure reporting to Congress by USFWS. Furthermore, the Metrics contribute to information collected for the Defense Environmental Program Annual Report to Congress and the Office of the Secretary of Defense's (OSD) Environmental Management Review.

The annual INRMP review and Metrics for NAVSTA Everett will be performed cooperatively with the USFWS, NMFS, and WDFW each fall. This evaluation assesses the effectiveness of the INRMP, measures successes, and identifies issues resulting from INRMP implementation, as well as ensuring regular interagency coordination. Data collected during the Metrics exercise also informs briefings up the DOD and Navy chains of command regarding the status of the Navy's NR Programs.

The annual Metrics process considers seven focus areas:

1. Natural Resources Management (Ecosystem Integrity)
2. Listed Species and Critical Habitat
3. Recreational Use and Access

4. Sikes Act Cooperation (Partnership Effectiveness)
5. Team Adequacy
6. INRMP Implementation
7. INRMP (Natural Resources Program) Support of the Installation Mission

Updates will be compiled each year from this review, and the annual Metrics report will be appended to the INRMP as Appendix C. The NRM at NAVSTA Everett will maintain the controlled version of this INRMP and associated data within the installation's electronic and hardcopy file system, so that an INRMP update or the Review for Operation and Effect can be completed, when appropriate.

1.6.2 Review for Operation and Effect

Consistent with the mandate of the Sikes Act, the NRM will review this INRMP for operation and effect cooperatively with USFWS, NMFS, and WDFW at least once every five years. This review is the statutory responsibility of these agencies and Navy funds may not be used to pay for their participation in this requirement. The focus of the review is to update the INRMP based on additions or revisions compiled during the annual INRMP review, to update the goals and objectives for the program elements (*Section 4 Program Elements*), and update the implementation plan (*Section 5 Implementation Summary*). Mutual agreement on operation and effect will be documented in writing in the form of a new signature page for the INRMP. The new signature page will be updated in the INRMP and uploaded to the Navy's internal Environmental Conservation web site.

1.7 Stewardship, Compliance, and Management Strategy

The Navy is responsible for complying with all appropriate environmental laws and regulations. OPNAV-M 5090.1E identifies these and provides guidance on compliance. NAVSTA Everett has an environmental compliance program, which is administered through the NAVFAC Public Works Department, Environmental Division. This program is described further in *Section 3. 1 Supporting Sustainability of the Military Mission and the Natural Environment.*

Further, the Navy has a mandate to implement programs for the conservation of natural resources and enhancement of ecological resiliency of its installations. As a steward of military land, the Navy recognizes that installation lands are part of a diverse, functioning ecosystem. Sustainability ensures the integrity of natural ecosystems over time while meeting the needs of the military mission. Stewardship goes beyond regulatory compliance. Natural resource stewardship considerations are integrated into the planning phase of projects by requiring environmental review of projects proposed at NAVSTA Everett. The CO, operational personnel, and other installation personnel have an influence on environmental conditions. By working with the NRM, their perspectives can be integrated into management processes at the installation, and into implementation of this INRMP.

Natural Resources at NAVSTA Everett will be managed using ecosystem-based management principles and guidelines to ensure that the natural ecosystems are sustained. This ecosystem focus is best accomplished by using adaptive management techniques.

Ecosystem-based Management - DOD has had an official policy on ecosystem management since 1994, when the Deputy Under Secretary of Defense for Environmental Security issued a memorandum promoting ecosystem management on military installations. DODI and DODM 4715.03 further state that

natural resources under the stewardship and control of DOD should be managed using ecosystem-based management principles and guidelines that maintain and improve the sustainability and biological diversity of terrestrial and aquatic ecosystems, while supporting sustainable economies, human use, and the environments required for realistic military training operations. DOD ecosystem-based management principles and guidelines are incorporated by the following:

- Maintaining and improving the sustainability and native biodiversity of ecosystems,
- Considering ecological units and timeframes,
- Supporting sustainable human activities,
- Developing a vision of ecosystem health,
- Developing priorities and reconciling conflicts,
- Developing coordinated approaches to work toward ecosystem health,
- Relying on the best science and data available,
- Using goals and objectives to monitor and evaluate outcomes,
- Using adaptive management, and
- Implementing activities through existing installation plans and programs (DOD, 2018).

In addition, with the profound repercussions to ecosystems resulting from global climate change, each of the principles listed above for ecosystem-based management will incorporate identifying climate change risks and vulnerabilities, and proactively integrating mitigation, restoration, or adaptation to climate change into management strategies.

Adaptive management - An iterative cycle of planning, monitoring, evaluation, and adjusting management. Unknown factors and changing conditions require management goals and prescriptions to be adaptable. Periodic reviews of management goals and practices provide the opportunity to incorporate new science and information as well as assess the performance of management actions. Prescribed actions should be considered experimental and subject to change if the expected or desired results are not achieved.

At the installation level, adaptive management includes development of flexible management practices to accommodate the evolving scientific understanding of ecosystems and adjusting management practices as necessary, based on annual INRMP review and Metrics. Installations also accommodate military activities, and coordinate resultant impacts on existing ecosystem management to preserve both the mission and conservation processes and objectives. DOD components of adaptive management include:

- Identification and assessment of military mission operations and facility requirements,
- Analysis and assessment of risks to natural resources,
- Completion of needs assessment surveys,
- Monitoring and preparation of the needs assessment results,
- Updating natural resources inventories to ensure information is current,
- Reanalysis and reassessment of risks to natural resources, and
- Incorporation of adjustments into the overall natural resources program, as necessary (DOD, 2018).

Adaptive management is increasingly important within the context of climate change, as the effectiveness of management strategies or the practicality of goals and objectives may shift over time. The natural resources program will be reviewed on an annual and five-year basis as described in *Section 1.6 Review and Revision Process*, and these reviews provide an opportunity for the adaptive management process. The reviews also provide an opportunity to ensure that the program is achieving its goals of stewardship and ecosystem-based management.

1.8 Integration with Other Plans

The preparation and development of an INRMP must be coordinated with the development of other existing plans and programs, both at the DOD and installation levels, as well as natural resources management plans for surrounding lands. The recovery plans for threatened and endangered species listed under the ESA are discussed in *Section 4.1.1 Federally Threatened and Endangered Species Management*.

1.8.1 Strategic Plan for Amphibian and Reptile Conservation and Management on Department of Defense Lands

The Strategic Plan for Amphibian and Reptile Conservation and Management on DOD Lands (Lovich et al., 2015) summarizes current reptile- and amphibian-related challenges and concerns on DOD lands. This plan provides a framework for accomplishing DOD-wide conservation objectives related to the protection of amphibians, reptiles, and their habitats as part of a comprehensive effort to manage natural resources in ways that preclude mission conflicts and loss of training capabilities that can result from conservation-based regulatory restrictions. To the extent applicable, natural resources management at NAVSTA Everett will be conducted consistent with this strategic plan. Presently there are no constraints on mission activities at the installation related to amphibian or reptile regulatory restrictions.

1.8.2 Partners in Flight Strategic Plan for Bird Conservation and Management on Department of Defense Lands

The DOD Partners in Flight (PIF) strategic plan (DOD PIF, 2014) identifies actions that support and enhance military missions while working to secure bird populations. It also provides a scientific basis for maximizing the effectiveness of resource management, enhancing the biological integrity of DOD lands, and ensuring continued use of these lands to fulfill military training requirements. The plan is centered on the three concepts that make up PIF's mission:

- Helping Species at Risk – protecting species before they become imperiled;
- Keeping Common Birds Common – ensuring that common native birds, both resident and migratory, remain common throughout their natural ranges; and
- Voluntary Partnerships for Birds, Habitats and People – collaborating with partners to conserve birds and their habitats.

The DOD PIF strategic plan presents a compilation of current BMPs and suggested focus areas to assist in compliance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 et seq.), the Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668 et seq.), EO 13186 (*Responsibilities of Federal Agencies to Protect*

Migratory Birds) and its associated MOU, and the Final Rule on Take of Migratory Birds by the Armed Forces. The PIF strategic plan recognizes that one of the best ways to comply with the above legal requirements is to continue ongoing conservation efforts at the installation level. This helps protect and conserve birds and their habitats via implementation of INRMPs, as well as to build and maintain partnerships with other agencies and conservation entities.

In the strategic plan, DOD established goals to identify key bird conservation priorities and guide the actions of its natural resource management activities, including:

- Bird/Animal Aircraft Strike Hazard (BASH)
- Encroachment Minimization
- Stewardship
- Habitat and Species Management
- Monitoring
- Research
- Partnership/Cooperation
- Communication and Education
- Enhancing the Quality of Life

These goals will be pursued to the extent they are applicable for conservation of birds at NAVSTA Everett and NSC Smokey Point.

1.8.3 State Wildlife Action Plan

In 2000, Congress began to provide annual funding in the form of State and Tribal Wildlife Grants to supplement existing state fish and wildlife conservation programs. In order to be eligible for funding, each state is required to develop a SWAP and updated it every ten years. In 2015, WDFW published a revision to its 2005 Comprehensive Wildlife Conservation Strategy (WDFW, 2015). This updated version is now referred to as Washington's SWAP.

The purpose of the SWAP is to:

- Assess the status of the state's wildlife and habitats, including identifying Species of Greatest Conservation Need (SGCN)
- Identify key problems facing the state's wildlife and habitats
- Outline the actions needed to conserve wildlife and their habitats over the long term, and in particular, identify conservation actions needed before species become too rare and restoration efforts too costly
- Inform conservation priorities and actions statewide
- Facilitate collaborative conservation, including cross-state and regional approaches.

The primary audience for the SWAP is WDFW staff, as it lays out the agency's roadmap for conservation priorities and actions. The NRM will coordinate with WDFW to ensure natural resource management at NAVSTA Everett and NSC Smokey Point meets the intent of the SWAP in conserving, protecting, and managing fish and wildlife resources and habitats. Actions on the installation should take into account and support the conservation and management goals and strategies of the SWAP (WDFW, 2015).

This INRMP includes management strategies for species and habitats known to occur on NAVSTA Everett or NSC Smokey Point that are identified as priorities in the SWAP. The SGCN list in the SWAP differs from WDFW's State Listed Species list and Priority Habitats and Species (PHS) list in that it includes not just species that are already known to be imperiled, but also more common species that are in rapid decline or have other identified conservation concerns. The INRMP highlights WDFW's State Listed Species in *Section 2.3.1 Threatened and Endangered Species* (since most state listed species likely present at NAVSTA Everett are also federally listed). PHS species are listed in *Section 2.3.3.2 WDFW Priority Species*, and covered more generally under fauna in *Section 2.3.4*. To classify ecosystem types and prioritize ecological systems (habitats) of concern, the SWAP utilizes NatureServe's Ecological Systems of the United States, which is also the classification used in the Navy's Metrics reporting. Habitats of concern are covered in the INRMP under *Section 2.2.4 Water Resources*.

1.8.4 Puget Sound Salmon Recovery Plan

The Puget Sound Salmon Recovery Plan (NMFS, 2007) was developed by a coalition of organizations in the Puget Sound area, including NMFS and USFWS, for the recovery of Puget Sound Chinook (*Oncorhynchus tshawytscha*) and Coastal-Puget Sound bull trout (*Salvelinus confluentus*). Volume II of the plan includes a chapter for each of the 16 salmon recovery watersheds identified in the plan, including the Snohomish River Basin Salmon Conservation Plan (Snohomish Basin Salmon Recovery Forum, 2005). The plan for the Snohomish River Basin details the hatchery and harvest needs, reviews the use of the basin by ESA-listed salmonids, considers their needs for population sustainability and recovery, and recommends management actions to accomplish this recovery.

The management strategies developed in this INRMP are directly guided by the management actions outlined in the Snohomish River Basin Salmon Conservation Plan. These management strategies and their relation to the plan are discussed in detail in *Section 4.1.1.1 Puget Sound Chinook Salmon, Puget Sound Steelhead, and Coastal-Puget Sound Bull Trout Management*.

1.8.5 Stormwater Management Plan

The stormwater program at NAVSTA Everett's waterfront site operates under a Multi Sector General Permit (MSGP) in the industrial areas of the base and a new Municipal Separate Storm Sewer System (MS4) permit to cover non-industrial areas. The MS4 permit requires additional sampling, inspections, and public outreach and education on how stormwater affects the sustainability of Possession Sound. The MSGP and MS4 permits are both managed by the Stormwater Media Manager in the NAVSTA Everett Environmental Division.

As operators of stormwater discharges associated with industrial activity under the MSGP, NAVSTA Everett is authorized to discharge to waters of the U.S. in accordance with the eligibility and Notice of Intent requirements, effluent limitations, inspections requirements and other conditions specified in the MSGP. NAVSTA Everett's stormwater drains flow into one of four outfalls which then discharge to the Snohomish River just upstream of where it empties into Possession Sound (Figure 1-3). Three of the four outfalls fall under the MSGP and are sampled monthly for copper and zinc, and quarterly for iron, lead, and aluminum until the permit conditions are met. Since Outfall B receives stormwater runoff from recycling operations, chemical oxygen demand and total suspended solids are also tested quarterly at Outfall B.

In addition to analytical sampling, the MSGP requires quarterly facility and outfall inspections and reports made to the U.S. Environmental Protection Agency (EPA) for findings of significant deficiencies that cannot be corrected within 45 days. In areas of high industrial activity such as Pier A and B, the Naval Supervisory Authority (NSA), which is Puget Sound Naval Shipyard and Intermediate Maintenance Facility, conducts additional weekly stormwater inspections during contracted ship maintenance periods. The NSA and other tenant commands receive training on stormwater quality management, and the Stormwater Media Manager liaisons with the tenant commands to ensure compliance with stormwater runoff concerns.

Each outfall is equipped with an oil-water separator and a tide gate that closes during high tides. These gates are simple flapper valve gates that will open during heavy rainstorms. In addition to these gates, Outfall A, which drains stormwater from Piers A, B, and the South Wharf, has an emergency gate closure system, operated from various control switches on the piers. The emergency gate closure system can be activated to prevent discharges if a spill of oil or other material occurs on the piers or the South Wharf, which is where the majority of industrial activity takes place. Although the oil-water separators are not absolute in their ability to prevent oil from being discharged into the Snohomish River, they do provide a measure of assurance during normal conditions, such as a small spill in a parking lot or along a road. The outfalls are cleaned annually and the emergency gate on Outfall A is tested annually.

The Public Works Department has a planned maintenance schedule to clean out trench drains on Piers A and B annually. The sediments that build up in the trench drains accumulate metals, which during high flow events can travel to outfall A. Annual cleanout of sediments reduces the amount metals entering the outfall, and therefore the Snohomish River and Possession Sound. Other measures to reduce metal loading in the trench drains include placement of bags of oyster shells in the trench drains to absorb metals, and a filter with metal absorbent sock located between the trench drains on Pier A and outfall A.

NAVSTA Everett also receives stormwater from off base, including from the Port of Everett. NAVSTA Everett has worked in conjunction with the Port to ensure stormwater concerns were addressed, such as the handling of grease disposal from all the restaurants. The occurrence of grease found in Outfall D has greatly declined due to the Port's efforts to educate the restaurants and change the locations where grease may be stored.

NSC Smokey Point is covered under the MS4 and requires sampling, inspections, and public outreach and education. Currently, stormwater runoff from the site enters storm drains and flows into stormwater ponds that impound, then slowly release the water to percolate into groundwater. Only the storm drains near the Naval Exchange (NEX) gas station at NSC Smokey Point flow into an oil-water separator; these then flow into the large stormwater pond on the east side of the property. The separators are inspected and cleaned at least annually.

The Stormwater Media Manager and NRM coordinate on issues overlapping both programs on a monthly basis, at minimum. Examples of coordination include project environmental reviews, monthly visits to monitor water levels in stormwater ponds and wetlands at Smokey Point, and the new Environmental Newsletter that is produced by the Stormwater Media Manager in compliance with the MS4 permit requirements. The NRM contributes articles related to natural resources to the newsletter on a quarterly basis.

Figure 1-3. NAVSTA Everett stormwater system.

1.8.6 Spill Prevention, Control, and Countermeasures Plan

The current Oil Spill Prevention, Control, and Countermeasures (SPCC) plan was signed in 2016 and covers NAVSTA Everett, NSC Smokey Point, and Naval Radio Station (Transmitting) Jim Creek. The plan complies with Title 40 of the Code of Federal Regulations (CFR) Part 112 (40 CFR 112), which is titled "Oil Pollution Prevention." The SPCC plan applies to oil storage and management from sources of oil with a storage capacity of 55 gallons or more, including above ground storage tanks, underground storage tanks that are not fully covered and regulated by the State, drums with a capacity of 55 gallons or greater, operational equipment such as transformers, and recycled oil. The SPCC plan does not apply to underground storage tanks, which are regulated by the state, the transfer of oil such as to vessels, or facilities that are used exclusively for wastewater treatment.

The SPCC plan is broken down into several sections including general facility information, general oil storage procedures and standards, information and requirements for each oil storage site, testing and evaluation, and recommended or required corrective actions if applicable. The NAVSTA Everett Environmental Division manages the plan; coordinates training and spill drills for staff; carries out inspections of storage tanks, equipment, and procedures that have a potential to release oil to the environment; and participates as spill response team members in the event of an actual release. The NRM is included in training, spill drills, and the spill response team.

NAVSTA Everett waterfront site's Port Operations Division is trained and has the necessary equipment to respond to a spill in the water and begin clean-up procedures. The Station's firefighters are trained in hazardous materials response and both organizations are staffed and available for spill response 24 hours a day. NAVSTA Everett can also call upon the CNRNW for help in staffing and equipping a response to a spill. As a preventive measure, Piers A and B have floating spill booms that are kept closed around all ships when they are moored to the piers including when refueling or defueling occurs. Should a spill of petroleum-based products occur, these booms will help prevent the spread of the spilled product while Port Operations immediately begins spill response and cleanup.

1.8.7 NAVSTA Everett Master Plan

Development on the installation is guided through the compilation of several documents: the NAVSTA Everett Master Plan (U.S. Navy, 1994a); the Base Exterior Architecture Plan (NAVFAC NW, 1994); the NAVSTA Everett and Navy Support Complex Installation Appearance Plan (U.S. Navy, 2007); the Naval Station Activity Overview Plan (U.S. Navy, 2009); and the NAVSTA Everett Installation Development Plan (IDP; U.S. Navy, 2016). The IDP effectively replaces the preceding plans, except when referencing those documents. Master planning documents are normally updated on a seven-year cycle, dependent on funding.

Priorities developed in the master planning documents provide general rationale for siting and co-location of compatible uses, as well as criteria for consistent design and structural features that guide renovations and new construction on base. Master planning should be coordinated with the INRMP where areas of overlap occur, such as landscaping, bird deterrent systems, siting near sensitive resources, and climate change.

1.8.8 Integrated Pest Management Plan

An IPMP was completed for NAVSTA Everett in 2014. This plan provides guidelines for pest management operations and pesticide-related activities conducted on NAVSTA Everett with a focus on providing safe, environmentally sound, and cost-effective control of pests through integrated pest management. Techniques may include education, habitat modification, biological control, genetic control, cultural control, mechanical control, physical control, regulatory control, and where necessary, the judicious use of least-hazardous pesticides. The IPMP was developed in accordance with DODI 4150.07 and OPNAVINST 6250.4C, as well as applicable local, state, and federal regulations.

The main goal of the various pest control functions is to support the mission of NAVSTA Everett and tenant commands by:

- Providing services that will prolong the life of the structures through nuisance pest control
- Maintaining the safety and security of industrial and storage areas through weed control
- Providing nuisance pest control to all buildings and outdoor areas to ensure a good working and living environment
- Controlling weed and insect pests in all recreational and lawn areas to maintain aesthetics and provide recreational facilities to personnel
- Providing control of mosquitoes, flies, and other potential disease vectors to ensure the comfort and well-being of all personnel
- Providing vertebrate pest control, including rodent control, to all areas of NAVSTA Everett and tenant commands

Civilian contractors operating under NAVSTA Everett's Base Operations Support Contract (BOSC) provide general pest control and grounds maintenance services for NAVSTA Everett. This contract is managed by the NAVSTA Everett Integrated Pest Management Coordinator (IPMC), who is a Public Works employee. BOSC personnel applying pesticides must meet state certification requirements specified by the contract. The IPMC provides monthly review of all pesticide applications.

The IPMP is managed and updated by the NAVSTA Everett Public Works Department. The IPMC updates the plan annually via the IPMP module in the NAVFAC Online Reporting System, and the updates are reviewed and approved by the NAVFAC NW Pest Management Consultant. The Pest Management Consultant is also required to conduct an on-site review every three years. The IPMP must be revised every five years per OPNAVINST 6250.4C. NAVSTA Everett's IPMP is due for revision, and this may be completed by the NAVFAC NW Pest Management Consultant, subject to funding availability. The revised plan will be reviewed by the NAVSTA Everett Public Works Officer and the Medical Officer from Navy Environmental and Preventive Medicine Unit FIVE, San Diego, as well as the NRM and IEPD, which ensures awareness and coordination between the natural resources and pest management programs.

2 CURRENT CONDITIONS AND USE

2.1 Installation Information

NAVSTA Everett consists of two installations: the main waterfront site, located on the Port Gardner Bay waterfront within the City of Everett, and the NSC Smokey Point, located 11 miles north of the waterfront site in Snohomish County within the Marysville Urban Growth Area.

2.1.1 Military Mission

NAVSTA Everett is the most modern shore installation in the U.S., and one of only two Navy-owned deep-water ports on the continental west coast. NAVSTA Everett supports a multiplatform mission to ensure fleet readiness, and fosters regional and community partnerships. The installation's primary mission is to provide superior shore station support to U.S. Navy and Coast Guard forces, while ensuring readiness and quality of life for sailors, civilians, and their families. NAVSTA Everett supports mission critical and mission support tenant commands. Major supported commands include surface combatants as well as tenants who provide training, logistical, and industrial support.

The Waterfront site, located along Possession Sound in Everett, Washington, is home to surface ships and the command staffs of Commander, Carrier Strike Group 11 and Commander, Destroyer Squadron 9, Coast Guard vessels, and Military Sealift Command supply vessels. Thousands of active and reserve military, as well as civil service personnel, are assigned to NAVSTA Everett and its tenant commands.

NSC Smokey Point is located in Snohomish County within the Marysville Urban Growth Area, approximately 11 miles north of the NAVSTA Everett main waterfront site. NSC Smokey point serves military personnel, retirees, and families who live in the region. It contains a Navy Exchange, Commissary, Fleet and Family Services, transient quarters, and lodging. There are no mission critical functions at this location.

NAVSTA Everett and the NSC Smokey Point host the following Tenant Commands and Supported Activities:

<u>Tenant Commands</u>

- Afloat Training Group Pacific Northwest
- Army Veterinary
- Center for Information Dominance
- Center for Surface Combat Systems Detachment Pacific Northwest
- Carrier Strike Group ELEVEN
- Destroyer Squadron NINE
- Defense Commissary Agency
- Defense Logistics Agency Distribution Puget Sound
- Defense Service Office West Branch Office Everett
- Fleet Logistics Center Detachment Everett
- Fleet Readiness Center Northwest, Detachment Everett
- Naval Computer Telecommunication Area Master Station Pacific

- Military Sealift Command Representative
- Naval Branch Health Clinic, Everett
- Naval Criminal Investigative Service, Everett
- Naval Facilities Engineering Systems Command
- Navy Exchange Command
- Navy Operational Support Center, Everett
- Navy Public Affairs Support Element West, Detachment Everett
- Navy Region Northwest Reserve Component Command
- Personnel Support Detachment Everett
- Port Security Unit 313
- Puget Sound Naval Shipyard and Intermediate Maintenance Facility, Everett
- Region Legal Service Office Northwest Detachment, Everett
- Regional Support Organization Pacific Northwest, Everett
- Transient Personnel Unit Puget Sound, Detachment Everett

Supported Activities

- USS Kidd (DDG 100)
- USS Gridley (DDG 101)
- USS Sampson (DDG 102)
- USS Ralph Johnson (DDG 114)
- USS Momsen (DDG 92)
- USCGC Henry Blake (WLM 563)
- USCGC Blue Shark (WBP 87360)

Supported Non-DOD Activities

- American Red Cross Snohomish County
- Navy Federal Credit Union
- Navy-Marine Corps Relief Society
- Retired Activities Office

Supported Activities are subject to the requirements of this INRMP while in port. Once any of the listed Supported Activities puts to sea, they operate under Fleet or Afloat guidance.

The Navy continues to plan strategically for the long-term, including the future growth of the Navy fleet and the Navy shore bases that support the fleet. As a homeport, NAVSTA Everett is focused on enhancing infrastructure, personnel, and equipment to be more capable of supporting homeported ships in the future. A potential ship increase would also require further investment in workforce and infrastructure, such as housing, childcare services, transportation, and civilian employment.

The Navy's long-range ship building plan over the next 30 years includes procurement of new vessels to reach a fleet of 355 ships by fiscal year 2050 (an increase from 299 deployable ships). To meet this goal, The Navy expects to gain a number of newly constructed ships, as well as lengthen the service life of existing ships. This will include prolonging the service life of Arleigh Burke-class destroyers, such as those currently homeported at Everett. In June 2021, the Navy announced that NAVSTA Everett was the

preferred future homeport for the initial Constellation Class Frigates. The NEPA process has been initiated for this Navy action and is ongoing. NAVSTA Everett would receive as many as 12 of the new ships, which would be delivered after they are built and following the completion of the NEPA process, with the earliest deliveries beginning in 2026.

Additional ships headed to the Pacific Northwest for extended maintenance within the next few years, include USS Cape St. George, USS John Paul Jones, USS John S. McCain, and USS McCampbell. Industrial maintenance may increase their service life from an intended 40 years, to 45 or even 50 years of service.

Upon completion of ship maintenance, USS John Paul Jones, USS John S. McCain, and USS McCampbell will move to their new homeport at NAVSTA Everett (USS Cape St. George will move to San Diego).

The Navy continually monitors fleet capabilities and may make changes or rebalance assets to provide the best maritime force possible. This INRMP will be updated during the annual reviews and five-year Reviews for Operation and Effect as more information about future changes to the number and type of homeported vessels becomes available.

2.1.2 Location and General Description

NAVSTA Everett is one of the four installations in Washington State falling under CNRNW, which also includes Naval Air Station Whidbey Island, Naval Base Kitsap (CNRNW Headquarters), and Naval Magazine Indian Island (Figure 2-1).

The waterfront site is located along Possession Sound within the City of Everett, (the county seat of Snohomish County, WA) approximately 25 miles north of Seattle (Figure 2-2). Much of the 117-acre waterfront site was built atop an artificially modified coastline constructed of fill material in 1978, by the Port of Everett, to accommodate industrial uses and a marina. The site includes approximately 1.9 miles of shoreline entirely armored with riprap. The Navy controls a total of 299 acres of water/submerged lands comprising 210 acres of fee simple ownership, and over 89 acres for safety and security purposes.

NAVSTA Everett provides services for the ships and assists Navy forces operating throughout the world. Operations at the waterfront site consist of administration, maintenance, light to moderate industry, housing, and the overall integration of port operations. Activities include vessel traffic movement and management, personnel clearance and tracking, and ingress/egress within the restricted areas.

According to the 2016 IDP, most facilities at the waterfront site are between 16 and 23 years old (built between 1992 and 1999) and are generally in good or excellent condition. Older facilities include the NEX (1982), several bus shelters (1986), and the sewage pumping station (1986). Piers D and E (Figure 1-1), which were constructed in 1941 and pre-date the installation, are showing significant deterioration of pilings and pier surfaces, and they can no longer fully support mission functions. The North Wharf, built in 1978 has concrete pilings and a deck that are deteriorating significantly, forcing strict load restrictions. The newest over-water structures, Pier A (1992), Pier B (1998), and the South Wharf (1992; Figure 1-1), are in sound condition and capable of supporting the mission.

Figure 2-1. Location of Navy installations under CNRNW in Washington State.

Figure 2-2. NAVSTA Everett waterfront site boundary and restricted area.

Movable assets on the water include the port security barrier system, compensating-water storage barges, floating boathouse structures, and a number of security, tug, and utility boats. The Navy's official asset record keeping system (known as iNFADS) indicates there are 72 buildings, 99 other structures, and 75 linear structures (such as roads and piers) at the NAVSTA Everett waterfront site.

NSC Smokey Point is a 52-acre site located approximately 11 miles north in Marysville, a suburban area in Snohomish County, WA. NSC Smokey Point houses community support functions such as the NEX, commissary, Fleet and Family Services, and transient quarters and lodging. The complex was developed separately from the waterfront site to serve families living in the community. It now serves not only those families, but also a population of Sailors stationed at the waterfront site. At the time the land was developed, no suitable site closer to NAVSTA Everett waterfront site was available to the Navy to develop these support facilities.

All facilities at NSC Smokey Point are between 11 and 21 years old (built between 1994 and 2004) and generally are in good or excellent condition (Figure 2-3). No existing facilities were located at the site prior to Navy ownership.

Figure 2-3. NSC Smokey Point, October 2005.

NAVSTA Everett was planned from the outset for shore support of Navy ships, the installation's primary mission. The land use and layout of the installation's waterfront site reflects this focus, with large piers extending into Possession Sound, ship maintenance and other ship support functions located adjacent to the piers, and base support functions located farther inland.

2.1.3 Regional Land Use

Land use surrounding NAVSTA Everett is planned and regulated according to several state and local laws and planning documents.

2.1.3.1 Growth Management

Land use and planning in Washington is guided by the Growth Management Act (GMA; Chapter 36.70A Revised Code of Washington [RCW]), adopted in response to development pressures in the state. The GMA requires local governments in fast growing and densely populated areas, such as those

surrounding NAVSTA Everett, to develop and adopt comprehensive plans. These allocate growth and address land use, transportation and infrastructure, among other elements.

Per Washington State law (RCW 36.70A.530) – Land use development incompatible with military installations is not allowed. Jurisdictions must notify the Installation CO of updates to their comprehensive plan or development regulations.

When a county or city intends to amend its comprehensive plan or development regulations to be consistent with the comprehensive elements . . . notice shall be provided to the commander of the military installation . . . The notice shall request from the commander of the military installation a written recommendation and supporting facts relating to the use of land being considered in the amendment to the development regulations. The notice shall provide sixty days for a response from the commander to the requesting government. If the commander does not submit a response to such request within sixty days, the local government may presume that implementation of the proposed development regulation or amendment will not have any adverse effect on the operation of the installation.

2.1.3.2 Comprehensive Plans and Zoning

Comprehensive plans identify community goals, explore alternative futures for the jurisdiction, and establish the policy framework to support the preferable future. Per Washington GMA, comprehensive plans must include:

- Elements addressing land use, housing, capital facilities, utilities, transportation, economic development, etc.
- Sufficient developable area within the urban growth area to accommodate 20 years of growth.
- Designations and regulations for natural resource lands (forest lands, mineral areas, etc.) and critical areas (wetlands, steep slopes, habitats, etc.)
- Critical Areas Ordinance
- Policies to address the Shoreline Management Act (SMA; Chapter 90.58 RCW): a detailed shoreline inventory and a Shoreline Master Program (SMP) to manage shoreline resources.

After the Comprehensive Plan is approved, the jurisdiction updates its development regulations (zoning, design guidelines sign ordinance, etc.) internal plans, capital facilities plans etc., which directly control land use.

2.1.3.3 Coastal Zone Management Act/Shoreline Management Act

Congress passed the federal Coastal Zone Management Act (CZMA; 16 U.S.C. 1451 et seq.) in 1972 to encourage the appropriate development and protection of the nation's coastal and shoreline resources. The CZMA gives states the lead role in managing the coastal zone. In Washington, the SMA (Chapter 90.58 RCW) provides a statewide framework for managing, accessing and protecting the significant shorelines including rivers, lakes, and coastal waters. The SMA is administered by the Washington State Department of Ecology (WDOE). Cities and counties are required to develop and implement SMPs.

The coastal zone includes all lands and waters from the coastline seaward for three nautical miles. The coastline along the inland marine waters is located at the seaward limit of rivers, bays, estuaries, or Sound. In accordance with Washington's Coastal Zone Management Program (WDOE, 2001):

The [CZMA] specifically excludes from the coastal zone, those lands that are, by law, subject solely to the discretion of, or held in trust by, the federal government. The CZMA's regulations provide that states must exclude from their coastal zone designations the lands that the federal government owns, leases, holds in trust, or otherwise has sole discretion to determine their use. These "excluded federal lands" within the boundaries of Washington's coastal zone [include]… [m]ilitary reservations and other defense installations…

NAVSTA Everett is not part of the coastal zone as defined in the CZMA, and it is not included in any local SMPs. However, the CZMA federal consistency provisions requires that Federal agencies whose actions or activities affect any land or water use, or natural or cultural resources of the coastal zone, carry out those actions or activities in a manner consistent to the maximum extent practicable with the enforceable policies of Federally-approved State Coastal Management Plans. Chapter 14 of the OPNAV-M 5090.1 prescribes Navy policy and guidance for CZMA federal consistency.

Although the area within NAVSTA Everett is not within the coastal zone, the Navy's actions could affect coastal resources outside of the installation boundary. The CZMA requires states to identify enforceable policies, which are state policies that are legally binding through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, by which a state exerts control over private and public land and water uses and natural resources in the coastal zone. Generally, the enforceable policies outline the permissible land uses and water uses within the coastal zone, which have a direct and significant impact on the coastal waters. These policies must be approved by NOAA's Office of Coastal Management (OCM) in order to be considered enforceable policies. Washington's Coastal Zone Management Program (WDOE, 2001), which contains its enforceable policies, is comprised of certain Washington laws (RCW) and their implementing regulations (Washington Administrative Code), i.e., the SMA, the Clean Water Act (CWA; 33 U.S.C. 1251 et seq.), the Clean Air Act (42 U.S.C. 7401 et seq.), the State Environmental Policy Act (Chapter 43.21C RCW), the Energy Facility Site Evaluation Council law, and the Ocean Resources Management Act (Chapter 43.143 RCW). Pursuant to the CZMA, the Navy is required to comply with the enforceable policies of the State's approved coastal zone management program to the maximum extent practicable when the action may affect the state's coastal uses or resources.

The City of Everett (2019) SMP identifies the shoreline environment adjacent to NAVSTA Everett as "Urban Deep Water Port". The designated purpose of the urban deep water port environment is to provide areas for large scale water-dependent industries, port facilities, and supporting services that require proximity to navigable waters that can accommodate deep draft, ocean going vessels, and to ensure optimum use of shorelines that are presently industrial in nature while protecting and restoring ecological functions (City of Everett, 2019). Nearby, the shoreline adjacent to Jetty Island and certain shoreline areas of the Snohomish estuary are designated "Aquatic Conservancy" environments, which are managed to prioritize preservation and restoration of natural resources, navigation, recreation, and commerce. The Navy will consider policies and management objectives in the City of Everett SMP during the project planning and development process.

Neither the City of Marysville, nor Snohomish County, designate areas adjacent to NSC Smokey Point as shoreline management areas in their respective SMPs.

2.1.3.4 City of Everett Land Use and Zoning

NAVSTA Everett is zoned as Heavy Industrial, with a comprehensive plan designation as Industrial. The City adopted Navy Compatibility standards in 2015 (Everett Municipal Code 19.26). In 2020, the City of Everett adopted a Unified Development Code and amended comprehensive plan text, land use designation map and implementing zoning at the end of a multi-year initiative to update and simplify the City's zoning code and bring consistency with the Comprehensive Plan Land Use designations. The standards for compatibility with NAVSTA Everett did not change. However, the compatibility provisions were consolidated in a new Compatibility Chapter establishing the Naval Compatibility Area (NCA) overlay zone (Figure 2-4). The NCA provisions include requirements for early notification, coordination and review, and the ability to apply conditions of approval to mitigate potential impacts to Navy operations or to provide measures to mitigate impacts created by Port operations and other activities within the NCA. Applicants for development within the NCA are required to work cooperatively with NAVSTA Everett in the design of proposed buildings or land development proposals in order to address use and design elements that will promote compatibility with Navy operations and mutual benefits to both parties.

2.1.3.5 Surrounding uses – City of Everett/Port of Everett

The Port of Everett operates three lines of business: international shipping terminals, marina facilities, and real estate development. The Port of Everett Seaport is a natural deep-water, self-operating container port, handling cargoes in support of the aerospace, construction, manufacturing, agriculture, energy, and forest products industries. The Port of Everett Marina is the largest public marina on the West Coast, consisting of 2,300 permanent boat slips, 5,000 lineal feet of guest moorage, a full-service boat yard, a fuel dock, upland boat services and storage, and a 13-lane boat launch. In addition, the Port property includes mixed-use, commercial, and recreational development (e.g. restaurants, hotels, and condominiums) under its real estate business line. Figure 2-5 shows many of the Port of Everett's developments and uses adjacent to NAVSTA Everett.

The former Kimberly-Clark Waste Water Treatment Facility, located adjacent to NAVSTA Everett, was purchased by the City of Everett in 2019 for use as a stormwater overflow facility. Also in 2019, the Port of Everett acquired the 66-acre former Kimberly-Clark mill site (Figure 2-5) located directly south of the wastewater treatment facility, and added it to the Port's Terminals Master Plan in November 2020. The site is currently planned for development as the Norton Terminal. The Norton Terminal site has been cleared of most above-grade structures except for a large warehouse to the south and a wastewater treatment facility.

The Port's 2019 purchase agreement of the former Kimberly-Clark property included a requirement for the former property owner to complete an already planned second Interim Action Cleanup under an Agreed Order with the WDOE. This project included cleaning and decommissioning of exposed shoreline pipes, removal and proper disposal of approximately 12,000 tons of contaminated soil, and removal and proper disposal of approximately 180,000 to 200,000 tons of crushed material (Port of Everett, 2021).

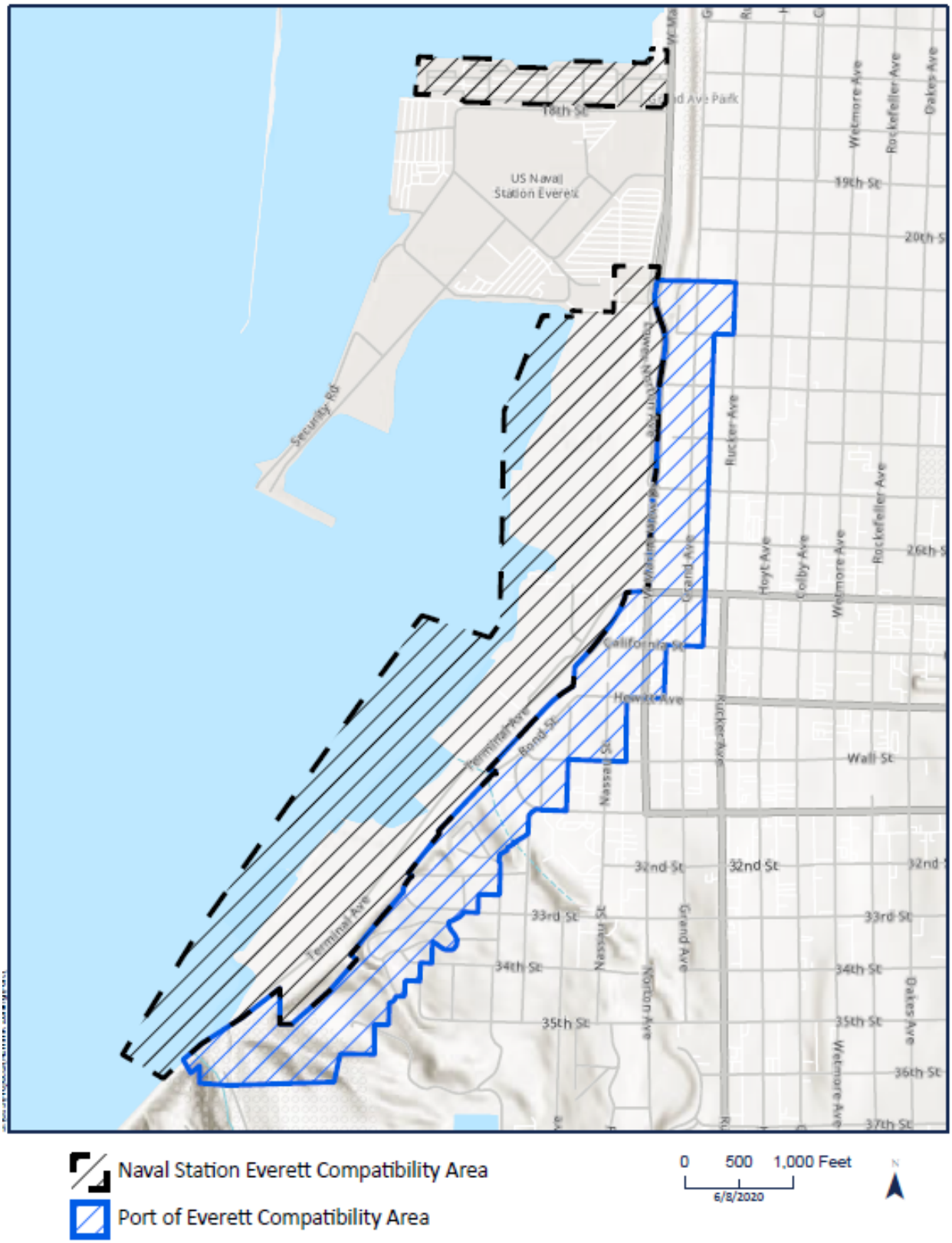

Figure 2-4. Naval Station Everett Compatibility Area & Port of Everett Compatibility Area.

Figure 2-5. Surrounding land use at NAVSTA Everett waterfront site.

2.1.3.6 City of Marysville Land Use and Zoning

The Navy-owned federal property utilized for NSC Smokey Point is located within "Planning Area 10: Smokey Point Neighborhood" in Marysville, but does not have official city zoning or comprehensive plan designations. This planning area was annexed into the City in 2007; except for the NSC Smokey Point property, which remains unincorporated NAVSTA Everett. This planning area abuts the northernmost limits of the city where the City of Marysville meets the City of Arlington, at the rural edge of Snohomish County, and includes portions of the Hayho Creek Drainage Basin and the Edgecomb Creek Drainage Basin.

Lands surrounding NSC Smokey Point are zoned light industrial and medium-density residential. Neither of these zoning categories poses a severe threat to the mission at the NSC Smokey Point. In June 2008, the Smokey Point Master Plan Design and Development Guidelines was adopted envisioning the development of a light commercial/industrial park to the north of NSC Smokey Point. The master plan includes restoration/enhancement alternatives for Edgecomb Creek; a street network plan; and a conceptual stormwater system. This area is master planned with the potential to create 10,000 jobs in high-tech, other light industry, aerospace and other manufacturing. Development of the proposed light commercial/industrial park could affect traffic volumes and patterns at NSC Smokey Point.

2.1.4 Abbreviated History and Pre-Military Land Use

The Native Americans who occupied the Snohomish County area are considered by anthropologists to be part of the Puget Sound Salish culture. Characteristics of the Salish culture included an economy based on salmon as a staple, a seasonal settlement pattern that utilized permanent winter villages composed of large plank houses and short-term campsites located at prominent resource sites. At the time of European contact, the *s'dohobc* band of the Snohomish Tribe occupied the areas where the NAVSTA Everett waterfront site and NSC Smokey Point are located. The core area of the *s'dohobc* was the mouth of the Snohomish River, where many villages were located (Ruby and Brown, 1992; Twedell, 1974). *Hibolub*, considered the most important of *s'dohobc* winter villages, was located approximately 2 miles north of the NAVSTA Everett waterfront site (Baenen, 1981).

Over the 19th century, the Snohomish, along with other Native groups in the region experienced major population decline and culture change as they were forced to assimilate to the Euro-American way of life. In 1855, the territorial governor of Washington negotiated the Point Elliot treaty with the Snohomish and nine other tribes from northern Puget Sound (Ruby and Brown, 1992). The treaty promised payment to the tribes; retention of hunting, fishing, and shellfish gathering rights; and services in exchange for aboriginal lands (Lane, 1973). The Snohomish, Snoqualmie, Stillaguamish, and Skykomish groups were assigned to the Tulalip Reservation in southern Snohomish County (Lane, 1973).

Homesteaders and loggers started arriving to the area in the 1860's followed by the Great Northern Railway which brought many more settlers and the development of sawmills, smokestacks, and a commercial fishing industry. Everett's dockside use dates from the 1890's when it received steamers and shipped lumber (Figure 2-6).

In the early 1890's, Henry Hewitt, a Tacoma industrialist often called the "Father of Everett," saw the potential of the Port Gardner peninsula to become a significant link in international trade for a booming

Figure 2-6. Everett waterfront, 1890.
(Source: Everett Public Library)

lumber industry. Hewett, along with east coast investors including Charles Colby and John D. Rockefeller, formed the Everett Land Company and began developing plans for an industrial city. Soon the City of Everett was incorporated in 1893, and was named for Colby's son (O'Donnell, 2010).

In 1895, the Everett Land Company built a training dike to divert the Snohomish River south along the Everett waterfront, creating a freshwater harbor (Riddle, 2010). Construction of the federal navigation channel in the Everett harbor resulted in large volumes of sediment requiring disposal. Creation of Jetty Island began in 1903 when a rock jetty was constructed, behind which dredged materials were placed over a period of decades (Witzgall, 2006).

Frederick Weyerhaeuser founded the Weyerhaeuser Timber Company in 1900, building the world's largest lumber mill in Everett. By 1903, there were 10 sawmills, 12 shingle mills, a paper mill, and other businesses along the northern shoreline of Everett, which became dominated by the wood products industry (Cameron et al, 2005). The Clough-Hartley Mill (Figure 2-7) and Robinson Manufacturing (Figure 2-8) were located in the area that is now the NAVSTA Everett waterfront site.

A citizen's vote in 1918 created the Port of Everett. The growing silt deposits in the Everett harbor shipping channel compelled the Everett Port Commission and U.S. Army Corps of Engineers (USACE) to build a mole (a large structure or mass) extending from 21st Street into the Snohomish River channel (Hart Crowser, 1986). The mole consisted of material dredged from the area that would become the East Waterway, and the fill was contained within timber bulkheads protected by riprap (Pinnacle, 2013). The new mole, completed in 1932, added 10 acres of land for industrial development. The resulting dredged area produced a well-protected, deep draft harbor. In 1940, an L-shaped extension was added to form a basin for mooring small boats, increasing the Port Commission property by another 13 acres (Wheeler, 1943).

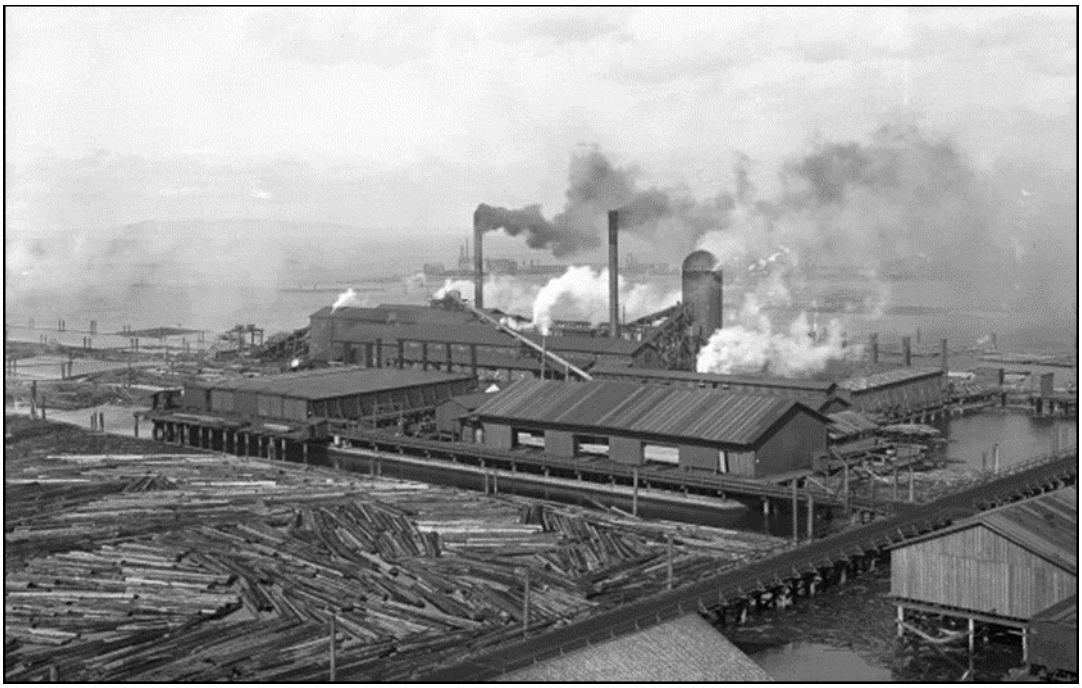

Figure 2-7. Clough-Hartley Mill, 18th Street, ca. 1915, now the location of the NAVSTA Everett North Gate.
(Source: Everett Public Library)

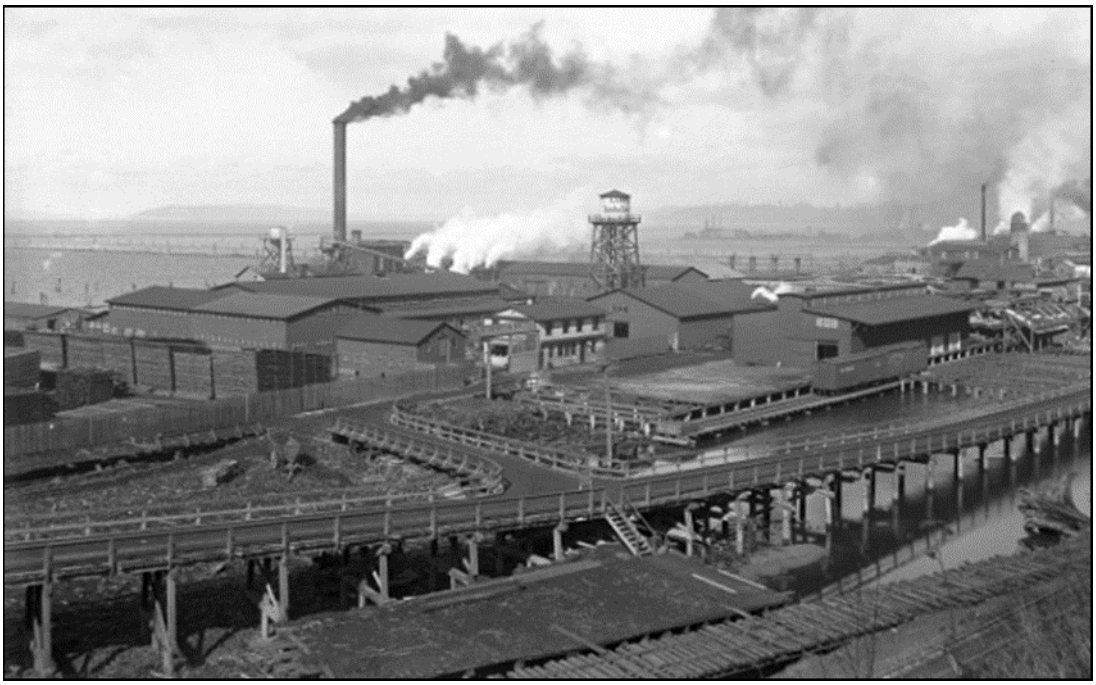

Figure 2-8. Robinson Manufacturing, 21st Street, ca. 1915, now the location of the NAVSTA Everett Reserve Center.
(Source: Everett Public Library)

In 1942, the U.S. Navy contracted with the Piggott Family to build ships for the Navy's war effort (O'Donnell, 1993; Sackett, 2014). The new company became the Everett Pacific Shipbuilding and Dry Dock Company (also Everett Pacific Company). The Navy began by leasing the mole from the Port of Everett and private owners. Later, it began purchasing parcels through a condemnation order dated October 27, 1942 in the U.S. Western District Court of Washington. Purchases were finalized in 1943. The Everett Pacific Shipbuilding and Dry Dock Company leased the parcels as they became available (Sackett, 2014). Sixty-two acres of tideland were reclaimed to expand the mole. Piers D and E were constructed at this time, as pile and plank piers (Figure 2-10). Following WWII, portions of the shipyard were transferred or sold to other companies, such as Pacific Car and Foundry (Pinnacle, 2013).

Figure 2-10. NAVSTA Everett, 1946.

Figure 2-9. NAVSTA Everett, Piers D and E, June 1957.
(Source: U.S. Navy, Military Sealift Command collection)

In 1946, funding was secured for a large peacetime Naval Reserve force along with a building program to provide the new units and required new training facilities, one of which was the Everett Naval Reserve Center (NRC; Moore et al, 1998). The Everett NRC was constructed over the period 1946 to 1951 on land along the east bank of Port Gardner Bay. When completed, the NRC consisted of a Hut Armory, a pier, and five support buildings on approximately 3.8 acres (Moore et al., 1998). In the 1950s, the Marine Corps Reserve was combined with the NRC and the facility was redesignated as a Naval and Marine Corps Reserve Center.

In 1954, the Navy's Military Sea Transportation Service (MSTS) Command leased Piers D and E from Pacific Car and Foundry and used them for docking and shipbuilding (Figure 2-9). Portions of the shipyard became the MSTS Reserve Fleet Nest, and Pacific Car and Foundry continued providing shore support to the MSTS into the 1950s. In 1958, the reserve fleet was moved to the Maritime Administration reserve fleets at Olympia and Astoria, Washington. The Naval and Marine Corps Reserve Center remained, but the government sold the shipyard property in 1960, and three companies

acquired the land and established their operations at the site: Scott Paper, Pacific Tow Boat Company, and Western Gear (Sackett, 2014).

In the early 1970s, the Port of Everett purchased the waterfront properties owned by the Everett Plywood Company, Robinson Plywood and Timber, and Scott Paper Company north of the mole, and the Pacific Tow Boat Company property on the inner mole (Hart Crowser, 1984). In 1978, the Port of Everett conducted a large hydraulic fill operation using riprap diking to contain the fill (Hart Crowser, 1983). The project reclaimed over 100 acres of tideland, resulting in the present day, irregularly-shaped shoreline of NAVSTA Everett.

Figure 2-11. NAVSTA Everett, May 1993.

Everett was selected in 1984 by the Navy as the location for a strategic homeport to support an Aircraft Carrier Battle Group (CVBG). Construction on the new naval facility began in November 1987, and Initial Operating Capability was achieved in 1994 (Figure 2-11). The first ships to be home ported at NAVSTA Everett arrived September 3, 1994 (O'Donnell, 2010). The CVBG is no longer homeported at Everett. Today, NAVSTA Everett is homeport to five U.S. Navy Ships, and two U.S. Coast Guard Ships.

Due to the lack of available land at the NAVSTA Everett waterfront site, the Navy constructed the NSC Smokey Point near Marysville. Historically, the property occupied by the NSC Smokey Point was used for agricultural purposes. The NSC is located in "Planning Area 10", which was annexed into the City in 2007; except for the NSC Smokey Point property, which remains unincorporated NAVSTA Everett, in Snohomish County. This planning area abuts the northernmost limits of the City where the City of Maysville meets the City of Arlington, at the rural edge of Snohomish County (NAVFAC NW, 1995).

2.1.5 Operations and Activities – Potential Mission Impacts to Natural Resources

As a small, relatively new installation constructed largely on fill, NAVSTA Everett does not face the environmental and cultural challenges typical of larger installations with extensive natural areas and cultural resources potential. The general effects of the missions at NAVSTA Everett, and actions necessary to support them, involve mostly pier-side operations to maintain, refit, and supply the ships, process compensating water discharge and hazardous material, as well as administrative personnel activities to support, train, house, and sustain health and welfare of sailors assigned to the ships and installation. Also, there are no large-scale training or research activities that involve live fire or ordnance

detonation that can damage habitat, impact wildlife, or require large safety zones or risk or contamination areas.

NAVSTA Everett does not produce emissions necessitating a Title V operating permit under the Clean Air Act for air quality. The installation has reduced its carbon footprint and achieved the goal of reducing the use of vehicle petroleum by 50 percent. NAVSTA Everett maintains a fleet of electric utility and transport vehicles on site. Other Navy-owned vehicles use biodiesel or E-85 fuel, or are flex-fuel capable.

All waterfront activities, while they have inherent potential risks for impacts to shoreline and marine resources, are highly scrutinized internally and externally. The CWA regulates the amount and type of pollutants and contaminant discharge from a site. The Stormwater Management Plan and the SPCC plan both provide measures and assurances that NAVSTA Everett complies with the CWA and relevant permits, such as oil/water separators at each outfall and emergency gate closure systems for spills on Piers A and B (see *Sections 1.8.5 Stormwater Management Plan* and *1.8.6 Spill Prevention, Control, and Countermeasures Plan* for further detail). Hazardous material (HAZMAT) spill, Port Operations, and the fire department provide 24-hour response.

Hazardous waste is stored at the installation, and NAVSTA Everett maintains an extensive hazardous waste management plan and database tracking system. The Environmental Division and Safety Director oversee all hazardous waste storage, transfer, and disposal operations. Base protocols enforce all EPA and Washington State hazardous waste handling regulations.

2.1.6 Natural Resources Constraints and Opportunities

The purpose of the INRMP is to ensure that military lands support present and future mission requirements while preserving, improving, and enhancing ecosystem integrity. Regulations requiring the protection of the natural resources discussed below have the potential to impact or limit new development or activities proposed at NAVSTA Everett.

Significant natural resources at the NAVSTA Everett waterfront site include the marine/estuarine waters of the East Waterway, the Snohomish River, and the fish and wildlife species inhabiting the area. NAVSTA Everett must identify and mitigate any impacts to water resources, which are protected under the CWA Sections 401 and 404 (33 U.S.C. 1251 et seq.). Several of the fish and wildlife species are protected under the ESA, the MMPA, the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.), the BGEPA, or the MBTA. NAVSTA Everett must identify potential impacts of proposed actions to threatened and endangered (T&E) species or habitat in compliance with the ESA. This includes disturbances associated with any new construction or redevelopment project. Any potential disturbance to EFH requires consultation with NMFS in compliance with the MSA. Waterfront testing and training activities must operate according to the MMPA. Any redevelopment project will need to consider ways to minimize impacts to water resources, fish and wildlife, and habitats.

Significant natural resources at NSC Smokey Point include the riparian buffer of Hayho Creek, the wetland, and habitat within the artificially-created stormwater ponds. There are no documented threatened or endangered species at NSC Smokey Point. Off-site, salmonids occur in Quilceda Creek and Hayho Creek during spawning season, but the low flow conditions and artificial berms in Hayho Creek limit year-round fish access (see *Section 2.2.4.2 Hayho Creek*). Birds afforded protection under the BGEPA and the MBTA also occur at NSC Smokey Point.

There is a wetland located at NSC Smokey Point between the NEX and the RV parking area, and it is protected by a 25-foot wide buffer area fenced on either side. Hayho Creek runs along the western property boundary and is protected by a 50-foot wide Native Growth Protection Area that serves as a riparian buffer zone. The wetland, its associated buffer, and the Native Vegetation Protection Area are the only natural features on the site. The remainder of the site was graded during construction.

Finally, there are four sizable stormwater ponds also located along the eastern property boundary, as well as a drainage and landscaping easement (Figure 2-16). While these areas are considered stormwater facilities and not natural resources, they do provide an opportunity for native habitat growth, in addition to treating stormwater runoff prior to entering the wetlands and Hayho Creek so that damage to natural resources is avoided or minimized.

Other laws and guidance relevant to managing the natural resources at NAVSTA Everett and the NSC Smokey Point include:

- NEPA (42 U.S.C. 4321 et seq.); CEQ NEPA implementing regulations (40 CFR 1500-1508; 32 CFR Part 775; OPNAV-M 5090.1E, Chapter 10; and Navy procedures for Implementing NEPA).
- Clean Air Act.
- National Historic Preservation Act (Section 106, 54 U.S.C. 306108 et seq.).
- Native American Graves Protection and Repatriation Act (25 U.S.C. 3001-3013).
- EO 11990, Protection of Wetlands.
- EO 13175, Consultation and Coordination with Indian Tribal Governments.

Opportunities for management, conservation, and restoration of natural resources that contribute positively to the military mission include water resources restoration, integrated pest management, noxious weed and invasive species control, and climate change adaptation. These programs are discussed in detail in *Section 4 Natural Resources Program Elements*.

2.2 General Physical Environment

The NAVSTA Everett waterfront site and NSC Smokey Point are located in the Willamette Valley-Puget Trough-Georgia Basin ecoregion, a long ribbon of broad valley lowlands and inland sea flanked by the Cascade and coastal mountain ranges of British Columbia, Washington, and Oregon (Floberg et al., 2004). The Puget Lowlands form the Washington portion of this ecoregion, and are primarily underlain by quaternary glacial deposits (Washington Department of Natural Resources [WDNR], 2021). The Puget Lowland landscape is dominated by coniferous forests, with abundant freshwater wetland systems, formed atop the glacial soils (Floberg et al., 2004). Further detail on the climate, topography, geology, soils, and water resources in this ecoregion are provided in the sections below.

2.2.1 Climate

Climate and weather patterns of the Puget Sound Lowlands region are influenced by the area's proximity to the Puget Sound and its location between the Olympic and Cascade mountain ranges. Low-lying Puget Sound areas such as NAVSTA Everett typically experience "…abundant winter rains, infrequent snow, dry summers, and mild temperatures year-round (usually above freezing in the winter [and relatively temperate summer highs])" (Ruckelshaus and McClure, 2007). Temperatures are highest in July and August, reaching average maximum temperatures of approximately 75 °F (Table 2-1). Average minimum temperatures in Everett are at their lowest (approximately 34 °F) December through February. Annual precipitation averaged 38.44 inches between 1981 and 2010, with the largest amount of precipitation falling between November and January (Table 2-1; Arguez et al., 2019). The driest months are typically July and August, which aligns with high summer temperatures (Table 2-1).

Five major sub-basins are delineated in the Salish Sea (Figure 2-12); NAVSTA Everett is located in the southeastern Whidbey Basin. The rivers with the highest total nitrogen loads in the Puget Sound enter the Whidbey Basin (e.g., Skagit, Stillaguamish, Snohomish rivers); the main nitrogen source in these systems is alder forests (McCarthy, 2019). Approximately 31 percent of the shorelines in the Whidbey Basin have been modified or armored (Tulalip Tribes, 2016). Seasonal winds in the region are generally predictable and mild, averaging 10 miles per hour (WRCC, 2020). Prevailing direction during the wet season is typically south or southwest, whereas during the drier summers, winds are typically northwest in direction (Figure 2-13; WRCC, 2020).

Figure 2-12. Major sub-basins of the Puget Sound. (Source: Ruckelhaus and McClure, 2007)

Table 2-1. Climate Normals for Everett, WA (1981-2010).

Month	*JAN*	*FEB*	*MAR*	*APR*	*MAY*	*JUN*	*JUL*	*AUG*	*SEP*	*OCT*	*NOV*	*DEC*
Min Temp (°f)	34.4	34.1	37.2	41	46.1	51.1	54.4	54	48.6	42.4	37.6	33.2
Avg Temp (°f)	41.2	42.4	46	50.3	55.7	60.5	64.5	64.7	59.3	51.6	44.8	39.6
Max Temp (°f)	48	50.7	54.9	59.7	65.2	69.9	74.6	75.5	70	60.7	52.1	46
Precipitation (inches)	5.11	3.08	3.69	3	2.67	2.3	1.17	1.15	1.95	3.58	5.57	5.17

Data from Arguez et al., 2019

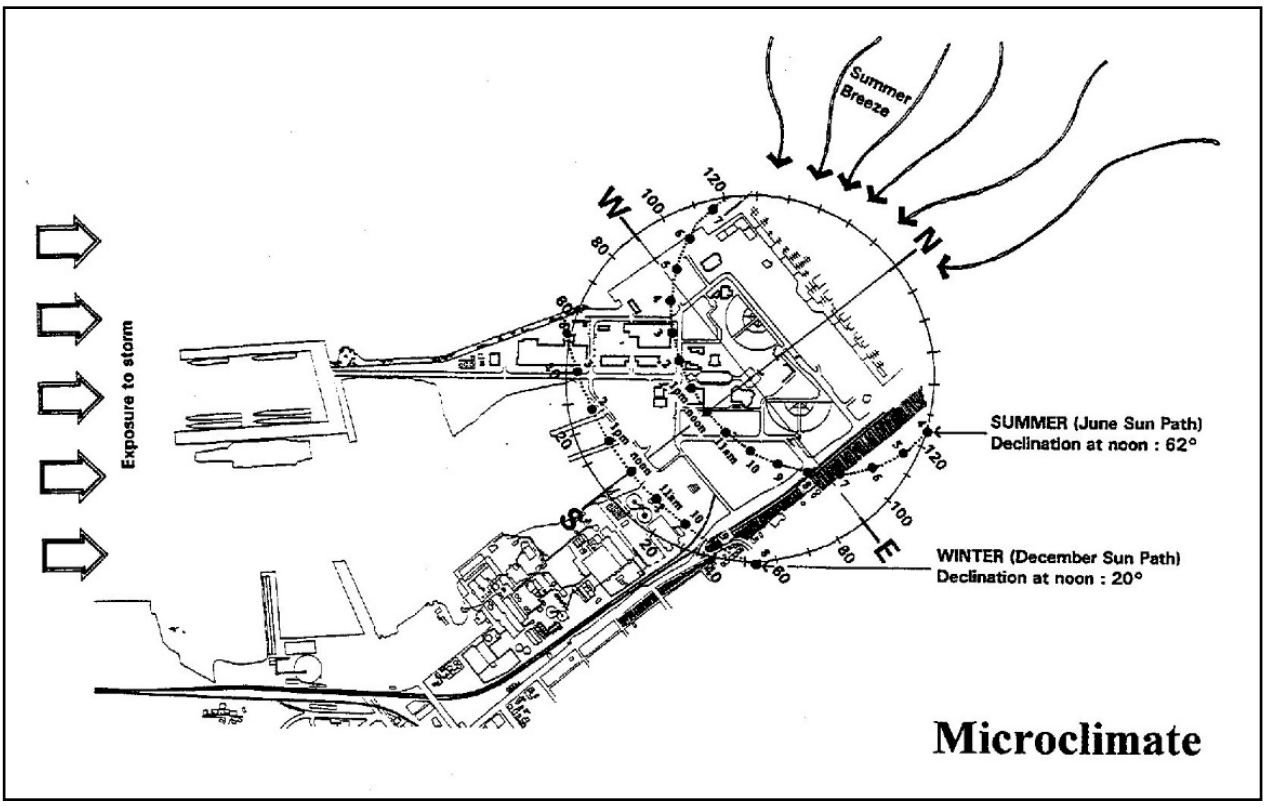

Figure 2-13. Microclimate of NAVSTA Everett.
(Source: 1994 NAVSTA Everett Master Plan)

2.2.2 Climate Change

DODI 4715.03 requires all DOD Components "…to the extent practicable and using the best science available, [to] 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." For DOD purposes, climate adaptation is defined as "adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects" (DODD 4715.21). OPNAV-M 5090.1E, 12-3.3(b), also requires that climate resilience be integrated into the Navy's natural resource conservation program "in practical ways that support informed decisions about climate-related threats."

The University of Washington's Climate Impacts Group published a report synthesizing existing published literature of documented and projected future climate-related changes in the Puget Sound region (Mauger et al., 2015). Mauger et al. (2015) described that climate change will affect key climate-related factors in the Puget Sound region, including the following.

Temperature: The Puget Sound region warmed in the 20th century; all but six of the years from 1980-2014 were above the 20th century average. Additional warming for the 21st century is

projected to be at least double that experienced in the 20th century, and could be nearly ten times as large.

The average daily air temperature in the Snohomish and Stillaguamish Basins between 1971 and 2000 was 46.6 degrees Fahrenheit (˚F). Under a high greenhouse gas scenario, the average daily temperature is projected to increase by 2.6 ˚F between 2010 and 2039 and by 8.8 ˚F between 2070 and 2099 (Krosby et al., 2018). These same models predict the Snohomish and Stillaguamish Basins could see between 10 and 30 more days per year that reach above 86 ˚F (under low and high scenarios, respectively) by the end of the century compared to the historical average of 1.6 days per year (Krosby et al., 2018).

Sea surface temperatures in the northeast Pacific Ocean increased by 0.9 to 1.8 ˚F between 1900 and 2012; they are projected to increase by 2.2 ˚F by the 2040s, relative to 1970 to 1999 temperatures (Mauger et al., 2015).

Precipitation: Climate data indicate there were no statistically significant trends towards wetter or drier conditions over the 20th century. However, climate models indicate the region will experience drier summers through the 21st century, though fall, winter, and spring precipitation will remain relatively the same (Mauger et al., 2015). Additionally, warmer temperatures will cause a larger proportion of precipitation to fall as rain rather than snow. As a result of the reduced snowpack, this is projected to lead to higher winter streamflows in most watersheds, lower summer streamflows, and earlier peak streamflows. Spring flows are projected to be 29 to 49 days earlier for the Snohomish River watershed and 23 percent greater by volume by the 2080s under a moderate emissions scenario, while 10-year minimum flows are projected to decrease by 26 percent in the same timeframe (Mauger et al., 2015). Correspondingly, streams are projected to experience a rise of 2.6 ˚F in mean August water temperature by the 2040s.

Heavy rainfall: Future occurrences of heavy rainfall are projected to be more frequent and more intense. The western Cascades are projected to have a 22 percent increase in intensity of 24-hour rain events and five additional days per year with heavy rainfall by the 2080s under a high emissions scenario (Mauger et al., 2015). This will exacerbate flood risk across the Snohomish watershed.

Sediment Loads: Sediment loads in the North Cascade watersheds are expected to increase dramatically during the cool season and decrease during the summer months (Lee et. al, 2021). Scientists modelled that the Skagit watershed, which is relatively geographically close to the Snohomish, could see an increase in sediment loads in December between 140 and 730 percent by 2080 (Lee et al., 2021). This in large part is a result of the phenomena discussed above: increase in frequency of large flood events, increased precipitation falling as rain rather than snow, and increased temperatures leading to glacier melt. Increases in sediment load affect water quality, nutrient levels, and aquatic habitat structure.

Sea level: Over the last century, sea level rose at many locations along the shorelines of Puget Sound. Rates vary, however, as local land motion, weather patterns, and ocean currents can amplify or mask regional trends in sea level. Between 1900 and 2008, Seattle's sea level rose 0.8 inches per decade, resulting in an 8.6-inch increase in total over the course of the monitoring period (NRC, 2012). By the 2080s, under a high emissions scenario, the NAVSTA Everett waterfront site could experience a 1.5 foot increase in average sea level, relative to the 1991-2009 average (Lavin et al., 2019). Increases in sea level will amplify the risk of coastal flooding.

Ocean Acidification: As a result of accumulating carbon dioxide in the atmosphere, the waters of the North Pacific Ocean and Puget Sound are experiencing a reduction in pH, a process known as acidification. This acidification is projected to continue.

Natural Variability: Seasonal, year-to-year, and decade-to-decade variations will remain an important feature of local climate, at times amplifying or counteracting the long-term trends caused by rising greenhouse gas emissions (Mauger et al., 2015).

Projected impacts of climate change in the Puget Sound region are specifically relevant to the infrastructure and natural resources at NAVSTA Everett. Infrastructure essential to the military mission that is most likely to be affected by climate change includes the following:

Overwater and shoreline structures: The NAVSTA Everett waterfront site has 11.5 acres of overwater structures. Piers and docks on NAVSTA Everett were designed based upon criteria (elevations) established more than 20 years ago. Sea level rise, in combination with higher winter streamflows and increased frequency and intensity of storm events, could have a dramatic impact on the installation's mission, increasing the potential for flooding or damage to the docks and piers. In addition, the amount of debris transported by the floodwaters may increase, which could damage pile-supported structures and rip-rap armored shoreline structures.

Stormwater System: Sea level rise, increased frequency and severity of storm events, and changes in the timing and flow of water in the Snohomish River have the potential to impede the stormwater system's capacity to convey stormwater from the installation adequately, which could lead to flooding or accidental discharge of contaminants into nearshore marine waters or freshwater systems. At the waterfront site, the stormwater discharge outfalls are equipped with tide gates to prevent backflow of river and seawater into NAVSTA Everett stormwater system. However, potential effects of climate change could result in decreased discharge frequency, leading to impoundment of water and retention of higher volumes of water in the stormwater management system. This would increase the likelihood of system bypass, in which case stormwater does not undergo processing in the oil-water separators and increases the possibility of an accidental discharge of contaminants into the nearshore marine waters utilized by ESA-listed species and other marine organisms. Another result of decreased discharge frequency could be that the stormwater management system is not able to function as designed and may not convey stormwater from NAVSTA Everett adequately. This could cause backups onto internal roadways and walkways, constituting a safety and health concern.

Drinking Water System: The City of Everett estimates that climate change could lead to a decrease in available potable water by 10 percent by 2100 (City of Everett, 2014). NAVSTA Everett may be impacted by this decrease in available water resources. This could be exacerbated should an expansion of the mission at NAVSTA Everett necessitate supporting a larger population of active duty and civilian personnel. NAVSTA Everett may need to pursue supplemental water resources for the installations or support the City of Everett in doing so.

The natural resources at NAVSTA Everett that are most likely to be affected by climate change include the following:

Salmon: Salmonids in NAVSTA Everett's nearshore marine environment are likely to be negatively affected by the impacts of climate change such as ocean acidification, warmer stream temperatures, decreasing summer low flows, and increasing winter flows (Mauger et al., 2015).

Declining salmon populations could lead to an increase in regulatory pressure for the Navy, either due to existing ESA-listed species being 'up-listed' from threatened to endangered or due to additional species being listed. Additionally, salmon play a critical role in Puget Sound's marine ecosystem; without healthy salmon populations, the top-of-the-food-chain species, such as the Southern Resident killer whale (*Orcinus orca*), will likely continue to decline.

Forage fish: Similarly, climate change phenomena are likely to negatively impact forage fish by way of increasing sea surface temperatures, decreased dissolved oxygen, and increased frequency and severity of harmful algal blooms, ocean acidification, and sea level rise (Port Gamble S'Klallam Tribe, 2017). Of these threats, sea level rise is likely the biggest threat to intertidal beach spawners (Pacific sand lance [*Ammodytes personatus]* and surf smelt [*Hypomesus pretiosus*]) because they are projected to lose available spawning habitat in Puget Sound, especially where hard shorelines are present and beaches cannot migrate. Compounding the issue, humans are more likely to install hard shorelines as flooding becomes more regular and more severe. Forage fish play a critical role in the marine food web, transferring energy between primary producers and higher level consumers such as larger salmonids and seabirds. Declines in forage fish populations would likely have serious downstream effects on salmon populations, marine fishes, seabirds, and marine mammals.

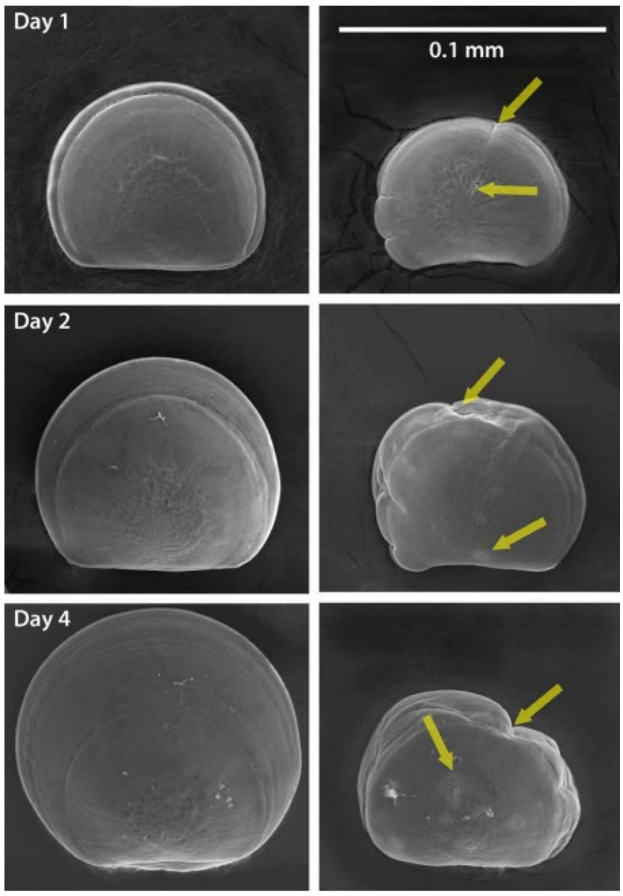

Figure 2-14. Pacific oyster larvae from the same spawn in Hood Canal, raised by the Taylor Shellfish Hatchery.
The larval oysters on the left represent individuals in more favorable water conditions (i.e., less acidic: pH=8.00), while the oyster larvae on the right were raised in less favorable conditions (i.e., more acidic; pH=7.49). Arrows highlight defects (creases) and features (light patches on shells) which suggest the larvae experienced dissolution.
(Source: Barton et al., 2015)

Wetlands: Drier, warmer summers will likely lead to a decline in area of freshwater wetlands, such as those observed at NSC Smokey Point. Accordingly, those species that depend on wetlands, such as amphibians, will likely decline. "Reductions in water permanence, alterations in seasonal water levels, and decreases in water availability are projected to negatively affect wetland amphibians due to habitat loss and increased desiccation stress" (Mauger et al., 2015).

Marine invertebrates: Ocean acidification stresses marine invertebrates and makes it more difficult for those with hard shells such as crab, shrimp, oysters, clams, copepods, amphipods, and pteropods to produce and maintain their shells and skeletons, leading to a possible decrease in survival

(Figure 2-14; Fitzer et al., 2018; Bush et al., 2014; Kroeker et al., 2013; Barton et al., 2012). Additionally, as discussed above, increased sediment loads and changing hydrologic flows will likely result in increased nutrient loads at times, which have significant effects on invertebrate communities, and cascading effects on higher tropic levels (McCarthy, 2019). Marine fishes, including salmonids and forage fish, shorebirds, and other organisms that depend upon these marine invertebrates for a food source may experience population declines if these species cannot find alternate food sources.

Further climate-related effects on particular resources are discussed in subsequent sections of this plan.

2.2.3 Topography, Geology, and Soils

NAVSTA Everett and NSC Smokey Point are located in the Puget Lowland Physiographic Province of Puget Sound. This geographic region is bounded on the east by the Cascade Range, on the west by the Olympic Mountains, on the north by the U.S.-Canadian border (although the physiography continues into British Columbia), and on the south by the low Willapa Hills of the Coast Range south and west of Olympia. Landforms in this area developed as a result of glaciations that occurred during the last 15,000 years (Kruckeberg, 1991). Topography associated with this portion of the Puget Lowland varies from flat to moderately steep.

NAVSTA Everett is built up entirely on fill material imported to the site. The upland areas of NAVSTA Everett are a highly developed industrial center focused upon services and structures necessary to maintain ships. The landscape is generally flat, includes large impervious parking lots and lay-down and maintenance areas, and vegetation is principally ornamental trees and grassy areas with minimal habitat value.

The NSC Smokey Point is within the Marysville trough valley, where sediments include thick glacial sands and silts that were deposited as the glaciers retreated. The Marysville trough is also comprised of wetlands over a significant percent of the area due to the high groundwater table (Quil Ceda Village Engineering Department, 2009). The location of NSC Smokey Point was formerly agricultural land that was subsequently purchased and developed by the Navy. The 52 acres constituting the NSC Smokey Point were built up through the placement of fill or graded material, with the exception of the wetland areas and the riparian buffer of Hayho Creek. Currently, the developed site contains several commercial and administrative buildings, parking, and stormwater drainage and retention ponds, with a very high percentage of impermeable surface. There are some vegetated islands and landscape features in the parking areas.

2.2.4 Water Resources

Water resources at the NAVSTA Everett waterfront site include the marine nearshore at the mouth of the Snohomish River estuary. At NSC Smokey Point, water resources include freshwater wetlands, and the creek adjacent to the property, Hayho Creek.

2.2.4.1 Marine Nearshore and Snohomish River Estuary

The shoreline along the waterfront site at NAVSTA Everett is within the marine nearshore environment. The land/water interface of the shoreline was created when the upland area of the installation was

originally filled, and is highly developed with armoring and structures including piers, docks, seawalls, debris deflectors, and boomed areas, as are the adjacent areas of the Everett shoreline. The nearshore area of NAVSTA Everett provides very little natural habitat value, reflecting its industrial origins and character.

The area surrounding and including the base has been extensively dredged and filled, both historically and currently. The lower Snohomish River channel is maintained by USACE through sponsorship of the Port of Everett, as part of the Port's active deep-water facility. An average of 150,000 cubic yards of dredged materials are removed from the navigation channel annually (City of Everett, 2019). The East Waterway was dredged and filled in the early part of the last century to provide shipping and processing facilities for timber, pulp, and alumina. USACE maintains the East Waterway to a depth of approximately 30 feet mean lower low water (MLLW). Along the marine terminal shipping berths in the East Waterway, the Port of Everett maintains water depths to approximately 40 feet MLLW (City of Everett, 2019). The Navy maintains its berths and turning basins at Piers A and B at approximately 55 feet MLLW (U.S. Navy, 2017). The depths base-wide are verified every five years via a sounding study by USACE, which is used to determine if dredging is required. Sounding was last completed in 2017 and will be conducted again in 2022. For decades, dredging has not been needed to maintain the depths at the Navy base, due mainly to the strong current from the Snohomish River, which carries most sediments away from the base and prevents new deposition. Beyond the ends of Piers A and B and the mouth of the East Waterway, the water depths drop off dramatically (U.S. Navy, 2017). In summary, the waterfront area of NAVSTA Everett consists primarily of highly modified channels and limited shallow sub-tidal and intertidal habitat. Littoral habitats largely are associated with fill, and bordered by riprap or bulkheads.

Prior to the construction of Jetty Island, the nearshore area at the waterfront site likely resembled the extensive mud and sand flats and emergent marshes that persist north of NAVSTA Everett near the mouth of the Snohomish River and Ebey, Steamboat, and Union Sloughs. The mainstem Snohomish River was likely shallower and wider than it is currently, with a course that meandered over the delta (City of Everett, 2019). The shoreline area along the base of the bluffs likely consisted of beaches with cobbles and mixed sands and silts, similar to those to the south on the Mukilteo shoreline (City of Everett, 2019).

Currently, habitat features such as eelgrass, kelp beds, and natural, unmodified shorelines associated with robust fish communities are absent from the area within the NAVSTA Everett's waterfront site (Figure 2-15; WDOE, 2014). Overwater cover from the numerous piers and docks reduces light levels and limits plant establishment or growth. WDFW surveys conducted in 2015 and 2016 characterized bottom conditions within the Navy installation as featureless mud-sand substrate complexes with occasional shell hash (Frierson et al., 2016, 2017). Approximately 0.5 mile south of the installation, the Port of Everett mapped small individual patches of eelgrass near the Pigeon Creek delta, and a large continuous eelgrass bed running parallel to the shoreline south of the delta (Figure 2-15). A few sparse patches of rockweed (*Fucus distichus*) and sea lettuce (*Ulva* spp.) were also documented in shallow waters around the same areas (GeoEngineers, 2018). The Washington ShoreZone Inventory does not show any kelp beds, macroalgae, or invasive sargassum in the vicinity of Port Gardner Bay or NAVSTA Everett (Nearshore Habitat Program, 2001).

In 2020, the Navy contracted NMFS to conduct fish surveys at eight sampling sites in the East Waterway. The study includes measuring several water quality parameters (water temperature, conductivity,

salinity, and dissolved oxygen) at each site for the purpose of habitat characterization within the waterway as a whole. The results based on data collected as of December 2020 are shown in Table 2-2. Water quality data collected to date are comparable with reported Puget Sound averages. Monthly temperatures matched those reported by the National Centers for Environmental Information (NCEI, 2021).

Table 2-2. Average water quality parameters for all sites and sampling events in the East Waterway by month. (Standard error in parentheses.)

Month	*Water Temp (°C)*	*Conductivity (µs)*	*Salinity (ppt)*	*Dissolved oxygen (mg/L)*
February	8.4 (0.2)	22292 (971)	20.2 (1.0)	10.22 (0.49)
March	7.8 (0.5)	22496 (2247)	20.9 (2.0)	11.24 (0.19)
October	12.7 (0.8)	26522 (4987)	21.6 (4.3)	6.62 (1.35)
November	10.3 (0.3)	28801 (1367)	25.8 (0.9)	7.22 (0.63)
December	8.9 (0.6)	24861 (1514)	22.4 (1.3)	8.08 (0.86)

The East Waterway has been degraded by multiple sources of sediment contamination, as well as log rafting, which contributes to high levels of wood waste on the sea floor (WDOE, 2017). Log rafting first began in the early 1900s and is on-going. Various sediment sampling investigations conducted in the East Waterway from the 1980s to 2013 found marine sediments contaminated with the following chemicals: metals (arsenic, mercury, zinc, copper, lead), polycyclic aromatic hydrocarbons (PAHs), semivolatile organic compounds (SVOCs), total polychlorinated biphenyls (PCBs), and dioxins/furans (WDOE, 2017). The East Waterway is classified as an impaired, impacted waterway due to the presence of contaminated sediments (SAIC, 2010). WDOE is leading a Remedial Investigation/Feasibility Study for the East Waterway and has entered into an Agreed Order with Potentially Liable Persons and is developing a second Agreed Order with the Navy as part of the Puget Sound Initiative's cleanup program (WDOE, 2017). Interim Action Cleanup work on the upland contaminated area of the former Kimberly-Clark property was conducted in March through December 2020, and included removal and disposal of contaminated soil (Port of Everett, 2021). Future projects or expansion of the installation within the contaminated areas of the East Waterway may require specific construction techniques, project timing, monitoring and management regimes, contaminant cleanup, or use restrictions. Ongoing engagement in this area will be important to understanding the issues and how the Navy may continue to maintain mission effectiveness, while addressing potential constraints.

Figure 2-15. Eelgrass, sargassum, kelp, and macroalgae in the vicinity of NAVSTA Everett.

2.2.4.2 Hayho Creek

Hayho Creek runs along the western property boundary of NSC Smokey Point, with a 50-foot native vegetation buffer on Navy property. The creek channel itself is not on Navy property, but the riparian buffer on the east side of the stream is within Navy property. Hayho Creek is a seasonal tributary of the Middle Fork Quilceda Creek, which flows into Quilceda Creek and then discharges into Ebey Slough, a distributary channel (side channel) of the Snohomish River. It is in Water Resource Inventory Area (WRIA) 7, Hydrologic Unit Code 171100110204. Hayho Creek runs in a series of ditches, originally channelized to drain the surrounding wetlands for agriculture.

There are no water quality issues listed for Hayho Creek on the Washington State Water Quality Assessment 303(d) List; however, there is a category 2 (waters of concern) listing for bacteria. Just downstream of Hayho Creek, the Middle Fork Quilceda Creek also has water quality listings, including a category 2 for dissolved oxygen and a category 4a (impaired waters with a water quality improvement project in place) for bacteria (WDOE, 2016).

In the early 2000s, ponds were created by beaver dams in Hayho Creek adjacent to the south edge of the NSC Smokey Point property. In 2003, unknown persons removed the beaver dam and the water level in the ponds was lowered considerably. The beavers subsequently rebuilt the dam; however, the City of Marysville, in conjunction with Snohomish County, installed a beaver-proof water-level by-pass pipe, or “beaver deceiver,” to maintain the level of the pond at a height lower than in the past.

Field investigations by Navy biologists in August and September 2020 at NSC Smokey Point found that the summer water levels in Hayho Creek were very low (only a few inches), that the creek had little or no flow, and that the water was impounded in certain locations due to berms constructed across the creek channel, such as the one created for the beaver deceiver adjacent to the southern boundary of the property. Water appeared stagnant, of poor quality, and insufficient to support salmonids. While road crossings did not present barriers to fish passage, the berms constructed in the creek channel are likely barriers except during high flow conditions. In January 2022, Navy biologists conducted a site visit following a seasonal high flow event and found that water levels were sufficiently elevated to a point where water flowed around the berm near the beaver deciver. The discovery of an adult coho salmon carcass on the upstream side of the beaver deceiver indicates salmon can access upstream habitats during higher flows. Hayho Creek, including the berms and beaver deceiver, is not on Navy property.

The riparian buffer around Hayho Creek currently includes some mature trees and provides beneficial shading for the creek. Common buffer species include western red cedar (*Thuja plicata*), grand fir (*Abies grandis*), western hemlock (*Tsuga heterophylla*), Douglas fir (*Pseudotsuga menziesii*), red alder (*Alnus rubra*), black cottonwood (*Populus trichocarpa*), Pacific willow (*Salix lucida*), Sitka willow (*Salix sitchensis*), red elderberry (*Sambucus racemosa*), and invasive Himalayan blackberry (*Rubus armeniacus*).

Several projects have been conducted over the years to improve the native vegetation buffer around Hayho Creek. In 2002, a planting project was executed as part of mitigation for an off-site project. In 2009, under a grant from the DOE, the Adopt A Stream Foundation conducted a public outreach effort with streamside landowners. As a result, the Adopt A Stream Foundation and its volunteers planted 43 percent of the Hayho Creek streambank in the neighborhood that needed improvement. NAVSTA Everett was invited and supported the event.

2.2.4.3 Freshwater Wetlands

Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds (EO 11990 - Protection of Wetlands). Wetland classification utilizes a system developed by Cowardin et al. (1979) and the Federal Geographic Data Committee (2013). Indicators of wetlands are hydric soils, hydrophytic vegetation, and hydrologic characteristics (see definitions below). Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic soil conditions (Environmental Laboratory, 1987).

Hydric soils: soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

Hydrophytic vegetation: vegetation that has adapted to living in aquatic environments and that occurs where at least the root zone of plants are seasonally or continually found in saturated or submerged soil.

Hydrologic characteristics: areas that are periodically inundated or have soils saturated to the surface at some time during the growing season, and areas with evident characteristics of wetland hydrology, i.e., where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively.

EO 11990, Protection of Wetlands, requires federal agencies to minimize the 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.

Wetlands serve important environmental functions including filtering water, controlling erosion, storing floodwaters, cycling nutrients, providing habitat for wildlife (including many T&E species), and providing rest stops for migrating birds.

There are no lands at the NAVSTA Everett waterfront site that contain wetland characteristics.

There is one wetland area at NSC Smokey Point, at the northern end of the property, between the NEX gas station and the fleet parking areas, oriented east-west (Figure 2-16). This small 1.6 acre wetland drains toward the west into Hayho Creek. This wetland predates the construction of NSC Smokey Point and was likely a legacy drainage ditch constructed for agricultural purposes.

Two stormwater ponds are located immediately north of the wetland, and two larger stormwater ponds lie along the eastern side of the NSC Smokey Point facility (Figure 2-16). These stormwater ponds are not classified as wetlands and do not have a surface connection to the wetland. Stormwater may enter the wetland via gradual percolation through sediments or groundwater. The stormwater ponds currently support native and invasive species of wetland vegetation.

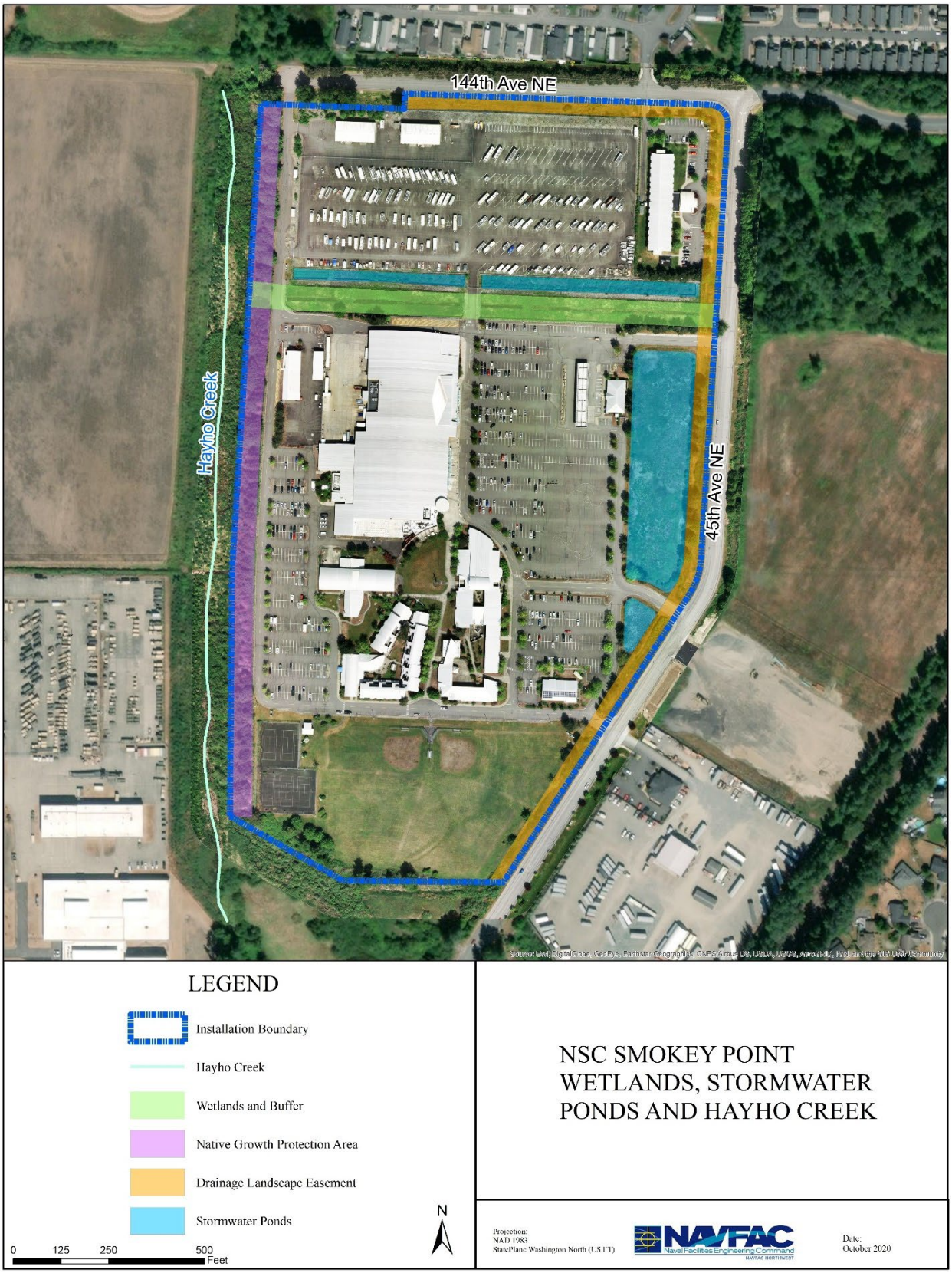

Figure 2-16. NSC Smokey Point wetlands, stormwater ponds, and Hayho Creek.

2.3 General Biotic Environment

The Puget Sound lowlands support a rich diversity of habitats, which in turn support high levels of biodiversity. The NAVSTA Everett natural resources program largely focuses on fish and marine mammals. These taxa function as keystone species, driving the marine food chains, and also present the largest regulatory burden for the Navy. More specific information on flora and fauna observed at the NAVSTA Everett waterfront site and NSC Smokey Point are provided in the sections below.

2.3.1 Threatened and Endangered Species

Twelve species listed under the ESA can potentially be found at or near NAVSTA Everett (Table 2-3). There are no ESA-listed species documented or likely to occur at NSC Smokey Point. The sections below provide species descriptions, a review of the regulatory framework for species protections, and information on population, distribution, and abundance, particularly focusing on the area around NAVSTA Everett. Recovery planning and species management are discussed in Section 4.

Table 2-3. Federally threatened and endangered species potentially present at the NAVSTA Everett waterfront site.

Common Name	*Scientific Name*	*WA State Status*	*ESA Status*	*Final Listing Rule (Publication Date; Effective Date)*	*Final Critical Habitat Rule (Publication Date; Effective Date)*	*Species Presence at Site*
FISH						
Chinook Salmon (Puget Sound ESU)	*Oncorhynchus tshawytscha*	C	T	64 FR 14308 (March 24, 1999; May 24, 1999); 70 FR 37159 (June 28, 2005; August 29, 2005) 79 FR 20802 (April 14, 2014; April 14, 2014)	EXEMPT 70 FR 52630 (September 2, 2005; January 2, 2006)	Documented
Steelhead (Puget Sound DPS)	*Oncorhynchus mykiss*	C	T	72 FR 26722 (May 11, 2007; June 11, 2007) 79 FR 20802 (April 14, 2014; April 14, 2014)	None designated in installation waters 81 FR 9251 (February 24, 2016; March 25, 2016)	Presumed
Bull trout (Coastal Puget Sound DPS)	*Salvelinus confluentus*	C	T	64 FR 58910 (November 1, 1999; December 1, 1999)	EXEMPT 75 FR 63897 (October 18, 2010; November 17, 2010)	Presumed
Yelloweye rockfish (Puget Sound/Georgia Basin DPS)	*Sebastes ruberrimus*	C	T	75 FR 22276 (April 28, 2010; July 27, 2010) 82 FR 7711 (January 23, 2017; March 24, 2017)	EXEMPT and lack of habitat features near installation 79 FR 68041 (November 13, 2014; February 11, 2015)	Unlikely
Bocaccio rockfish (Puget Sound/Georgia Basin DPS)	*Sebastes paucispinis*	C	E	75 FR 22276 (April 28, 2010; July 27, 2010) 82 FR 7711 (January 23, 2017; March 24, 2017)	EXEMPT and lack of habitat features near installation 79 FR 68041 (November 13, 2014; February 11, 2015)	Unlikely
Green sturgeon (Southern DPS)	*Acipenser medirostris*	C	T	71 FR 17757 (April 7, 2006; June 6, 2006)	None designated in installation waters 74 FR 52299 (October 9, 2009; November 9, 2009)	Unlikely
Pacific eulachon (Southern DPS)	*Thaleichthys pacificus*	C	T	75 FR 13012 (March 18, 2010; May 17, 2010)	None designated in installation waters 76 FR 65323 (October 20, 2011; December 19, 2011)	Unlikely
BIRDS						
Marbled murrelet	*Brachyramphus marmoratus*	E	T	57 FR 45328 (October 1, 1992; September 28, 1992)	None designated in marine waters 76 FR 61599 (October 5, 2011; November 4, 2011) 81 FR 51348 (August 4, 2016)	Documented
MARINE MAMMALS						
Killer whale (Southern Resident DPS)	*Orcinus orca*	E	E	70 FR 69903 (November 18, 2005; February 16, 2006)	National Security Exclusion 71 FR 69054 (November 29, 2006; December 29, 2006) 86 FR 41668 (August 2, 2021; September 1, 2021)	Potentially
Humpback whale (Central America DPS/Mexico DPS)	*Megaptera novaeangliae*	E	E/T	81 FR 62259 (September 8, 2016; October 11, 2016)	None designated in Possession Sound 86 FR 21082 (April 21, 2021; May 21, 2021)	Unlikely

ESU: Evolutionarily Significant Unit; DPS: Distinct Population Segment; ESA/State Status: C – Candidate, T – Threatened, E – Endangered

2.3.1.1 Puget Sound Chinook Salmon

General Species Description

Chinook salmon achieve the largest body size of any salmonid species, and their native range spans the northern Pacific Ocean from Japan, through the Sea of Okhotsk, Russia, across the Bering Strait, Alaska, and south to southern California. Chinook salmon are anadromous, meaning they spawn in freshwater but mature in marine waters. Shortly after hatching in freshwater systems, the majority of Chinook in Puget Sound migrate downstream toward estuarine waters feeding on invertebrates, such as gammarid amphipods and terrestrial insects, along their way. After a short time in the estuary, ocean-migrating juvenile Chinook migrate toward North Pacific waters. Instead of migrating to the Pacific, resident Chinook (aka blackmouth) mature entirely within the Salish Sea. As they mature from juveniles to subadult and adult fish, their prey choice changes from invertebrates to forage fish, such as Pacific herring (*Clupea pallasii*), northern anchovy (*Engraulis mordax*), Pacific sand lance, and surf smelt. Following three to seven years maturing in the marine environment, adults return to their natal streams and rivers to spawn (Hard et al., 1985; Healy, 1991). A small proportion of individuals may exhibit alternate life histories and return to spawn having never entered the marine environment (precocious par or minijacks), or after spending only one year in salt water (jacks/jills) (Bourret et al., 2016).

Figure 2-17. Adult Chinook salmon.

Regulatory Framework

In 1999, the Puget Sound Chinook salmon Evolutionarily Significant Unit (ESU) was listed by NMFS as threatened under the ESA (64 FR 14308). In 2005, the species status was reaffirmed as threatened (70 FR 37159). In 2014, the species listing was updated (79 FR 20802)(Table 2-3). This ESU includes naturally spawned Chinook salmon originating from rivers flowing into Puget Sound from the Elwha River (inclusive) eastward, including the Snohomish River, as well as 25 artificial propagation (hatchery) programs (85 FR 81822). Within the Snohomish River drainage, the Wallace River hatchery is the only hatchery program included within this ESU. The Wallace River is a tributary of the Skykomish River, upstream of the Snohomish River main stem. For recovery purposes, the ESU is broken into five geographic regions to which management actions and recovery criteria are applied (see below).

At the State management level, WDFW includes Chinook salmon on their PHS List (WDFW, 2008a) and on their list of SGCN (WDFW, 2015). WDFW has assigned Chinook salmon a “State Candidate” status on the Washington State Threatened and Endangered Species List (WDFW, 2020a). By Washington State

policy, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered, regardless of their federal status (Washington Administrative Code [WAC] 220-311-040; WAC 220-610-110; RCW 77-12-020).

NMFS designated critical habitat for the Puget Sound Chinook salmon ESU (70 FR 52630) (Table 2-3) including documented freshwater habitats utilized by Chinook salmon populations, as well as marine waters proximate to these streams offshore to a depth of 30 meters. Lands owned or controlled by the DOD that are subject to an INRMP, including NAVSTA Everett, were exempt from the Puget Sound Chinook salmon critical habitat designation (Figure 2-18).

The six Puget Sound Chinook salmon critical habitat physical and biological features (PBFs; cited in 2005 FR as primary constituent elements or PCEs) include:

1. Freshwater spawning sites with water quantity and quality conditions, and substrate, supporting spawning, incubation, and larval development.

2. Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

3. Freshwater migration corridors free of obstruction with water quantity and quality conditions, and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks, supporting juvenile and adult mobility and survival.

4. Estuarine areas free of obstruction with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover, such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

5. Nearshore marine areas free of obstruction with water quality and quantity conditions, and forage including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover, such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.

6. Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Population, Distribution, and Abundance

Puget Sound Chinook salmon are at low abundance relative to historical levels. Specific population numbers, based on freshwater returns, can be found on WDFW's online SCoRE application (WDFW, 2018). The majority of both naturally spawned and hatchery-produced Chinook salmon in the Whidbey Basin originate from the three major river basins (Snohomish, Stillaguamish, and Skagit river systems). The Snohomish and Stillaguamish river systems contain summer- and fall-run Chinook salmon, whereas

the Skagit river system contains spring-, summer-, and fall-run Chinook salmon (WDFW and Western Washington Treaty Indian Tribes, 1994).

The 1992 Salmon and Steelhead Stock Inventory (SASSI) and 2002 Salmonid Stock Inventory (SASI) assessed the summer- and fall-run Chinook salmon populations of the Snohomish River system as depressed (WDFW and Western Washington Treaty Indian Tribes, 1994, 2002), and current escapements indicate no change in status is warranted (WDFW, 2018). The average (2009 through2018) annual natural escapements are 900 fall-run and 1,882 summer-run Chinook salmon (WDFW, 2018). In addition, an average of 4,347 adult non-listed hatchery summer-run Chinook salmon returned to the Wallace River Hatchery (WDFW, 2019a).

In the Snohomish River system, the Wallace River Hatchery releases one million sub-yearling summer-run smolts into the lower Wallace River in June and 250 thousand yearling summer-run smolts into the lower Wallace River in April. In addition, 1.7 million sub-yearling summer-run smolts from the Bernie Kai-Kai Gobin Hatchery are released in May into Tulalip Bay by the Tulalip Tribe, approximately 5.5 miles northwest of NAVSTA Everett (NMFS, 2014).

From 1981-2018, the run size, based on the combined Puget Sound commercial net fishery catches and spawning escapements of hatchery and natural-origin Stillaguamish-Snohomish Chinook, have averaged from 10,000 to 26,000 Chinook annually (PFMC, 2020). It is possible that the increase in Chinook numbers is related to the decline in pink salmon (*Oncorhynchus gorbuscha*) over that same period. A review of salmonid abundance data has indicated that years in which pink salmon are abundant may adversely affect other co-occurring salmonid populations (Ruggerone and Goetz, 2004; Ruggerone and Nielsen, 2004; Ruggerone and Irvine, 2018).

The Snohomish River system is one of the main Chinook salmon producers in Puget Sound and is the most likely origin for Chinook salmon that use the waters around NAVSTA Everett. Adult and juvenile spring-, summer-, and fall-run Chinook salmon are expected to utilize this estuary. Both adults and juveniles can inhabit waters near NAVSTA Everett, but the extent of Chinook presence around the station's piers and along the shoreline is unknown. Historically, Chinook salmon utilized the waters of the current East Waterway. However, the best habitat for juvenile salmon lies north and west of the mouth of the Snohomish River, along Jetty Island and in the shallow areas west of the island. Juvenile salmonids are typically found over sand, mud, and gravel substrates, with preferences for finer substrates due to an abundance of epibenthic prey in this type of habitat (Beauchamp, 1986). Shoreline habitat bordering NAVSTA Everett consists of riprap, pilings, and piers. Although juvenile Chinook salmon are known to forage amongst riprap, there is little aquatic vegetation and no eelgrass beds along or near the shoreline of the installation that would provide quality foraging or resting habitat. Given the lack of habitat (foraging, refuge, rearing, and staging) for juveniles and adults, Chinook presence in the East Waterway is likely to be minimal relative to less modified habitats in the northern portion of the estuary.

Figure 2-18. Chinook salmon critical habitat near NAVSTA Everett.[1]

[1] Critical habitat data layer downloaded from https://www.fisheries.noaa.gov/resources/research on February 24, 2021. Per 70 FR 52670-52671, areas subject to the NAVSTA Everett INRMP are exempt. Accordingly, data layer was revised by Navy staff for this figure to reflect the FR.

Studies in the Snohomish system have demonstrated that reduced water quality in the lower river and estuary has had adverse effects on Snohomish-origin salmonids. O'Neill et al. (2020) found that polybrominated diphenyl ethers (PBDEs) originating from wastewater treatment plant outfalls and combined sewer overflows in the watershed were a significant source of contaminant exposure in juvenile Chinook salmon. Due to their longer residence time in the lower estuary, the authors estimated that 73 percent of natural-origin Chinook salmon had high enough PBDE levels to alter their immune response and increase their disease susceptibility, relative to zero of the hatchery-origin Chinook.

For decades, the principal industrial uses of the East Waterway have included the Navy, the Kimberly-Clark wood products mill, and the Port of Everett. The first salmonid survey in the East Waterway was an April-May 1997 visual survey looking for schools of salmonids occurring in proximity to 16 shoreline, bulkhead, and pier sites along Port of Everett property (Pentec, 1997). Due to the methods used, this study provided some indication where fish schools were observed most frequently, but was not able to determine species. As this survey was conducted during an odd year (1997), any juvenile salmonid schools detected at that time were likely not pink salmon, which are the most numerically dominant species in the Snohomish River during even years, but comparatively absent in odd years.

To better understand the potential utilization of the East Waterway by ESA-listed fish, the Navy contracted WDFW to conduct a spring through summer beach seine, underwater video, and hydroacoustic study in 2015. WDFW conducted monthly beach seines at NAVSTA Everett from May through September at four locations (Frierson et al., 2016). The only confirmed ESA-listed species captured in beach seines was juvenile Chinook salmon, with a mean length of less than four inches. Approximately 21 percent of the juvenile Chinook salmon were naturally spawned, with 79 percent originating from hatcheries. Juvenile Chinook were present at all four sampling sites with peak catch rates of juveniles occurring in May and June. As this timing coincides with hatchery release dates, seasonal occurrence of juvenile Chinook at NAVSTA Everett is strongly hatchery-dependent. Based on these results, the current juvenile salmon work window at NAVSTA Everett (July 15 to February 15) would be protective of peak juvenile Chinook salmon outmigration.

In order to address the need for a more spatiotemporally comprehensive study of fish utilization of the East Waterway, the Navy began planning a year-round study in 2019, in coordination with natural resources agencies (NMFS, USFWS, and WDFW). The Navy coordinated with the Port of Everett to expand the study beyond Navy properties and include some locations along Port property. An additional component was to increase sampling frequency during key times of the year (peak juvenile salmonid outmigration, in-water work window). To accomplish this effort, the Navy contracted NMFS to conduct these surveys for a two-year study period. NMFS biologists selected eight sampling sites in the East Waterway based on vessel accessibility, beach seine feasibility, and sites used in the previous WDFW study. The start of the study was delayed due to COVID-19 and sampling began in October 2020.

Chinook salmon have been observed in the Middle Fork Quilceda Creek several miles downstream from the NSC Smokey Point, but their presence in Hayho Creek is considered unlikely due to narrow and shallow conditions downstream (Snohomish County, 2012) and seasonally poor habitat conditions, including very low to no flows detected in August and September 2020 by Navy biologists.

Major threats to the Puget Sound Chinook salmon population include habitat loss or conversion, invasive species, environmental contaminants, oil spills, and increasing water temperatures and ocean acidification associated with climate change (NMFS, 2007; NMFS, 2016a).

2.3.1.2 Puget Sound Steelhead

Figure 2-19. Juvenile steelhead.
(Photo Credit: Roger Tabor, USFWS)

General Species Description

The rainbow trout (*Oncorhynchus mykiss*) exhibits two different life history strategies: an anadromous lifestyle, or a resident lifestyle (McEwan and Jackson, 1996). The name "steelhead" is used primarily for the anadromous form that migrates to sea, whereas "rainbow trout" is used for those that spend their entire life in fresh water. The offshore marine distribution of steelhead extends from the Kamchatka Peninsula in Asia, east to Alaska, and south to southern California, although the species' historical range extended at least to Mexico (Good et al., 2005).

Anadromous steelhead display two different seasonal life history strategies; a winter-run and a summer-run. In Washington, winter-run steelhead are more abundant. Ocean-maturing steelhead, also called winter-run steelhead, enter stream systems late in their maturation and spawn not long after reaching suitable habitat. Stream-maturing adult fish, called summer-run steelhead, enter fresh water at an early stage of maturation. These summer-run fish migrate to headwater areas and hold for several months to a year before spawning in the spring.

While there is some temporal overlap in spawn timing between these spawning forms, in basins where both winter- and summer-run steelhead are present, summer-run steelhead spawn farther upstream, often above a seasonally impassable barrier. In many cases, it appears that the summer migration timing evolved to access areas above falls or cascades that present velocity barriers to migration during high-flow winter months, but are passable during low summer flows. Winter-run steelhead are predominant in Puget Sound, in part because there are relatively few basins in the Puget Sound Distinct Population Segment (DPS) with the geomorphological and hydrological characteristics necessary to establish the summer-run life history. The two runs of summer-run steelhead within the Snohomish Basin occur in the Tolt and North Fork of the Sykomish River (Snohomish Basin Salmon Recovery Forum, 2019). These fish typically spawn in upper reaches of tributaries with steep gradients.

Steelhead spawning habitats typically include fast-flowing, well-oxygenated rivers and streams with spawning gravel largely clear of fine sediment. Following hatching, juvenile steelhead typically spend approximately one to three years, but as many as seven years, in freshwater before outmigrating (Daly et al., 2014; Quinn and Myers, 2004). Steelhead then migrate rapidly through estuaries, bypassing coastal migration routes of other salmonids, moving into offshore oceanic feeding grounds. High seas tagging programs have indicated that steelhead make more extensive offshore migrations in their first year than any other Pacific salmonid (Quinn and Myers, 2004). Once in offshore marine habitats, maturing subadult and adult steelhead feed on squid, crustaceans, and small fishes, including juvenile salmon (NMFS, 2012a). Steelhead can remain at sea from zero to five years before returning to their stream of origin to spawn (Scott and Gill, 2008; Myers, 2018). For the Snohomish basin, wild steelhead typically spend two years in freshwater and spend two to three years in the marine environment (R2 Resource Consultants, 2008). Unlike Pacific salmon, which die shortly after spawning, steelhead can be

repeat spawners (iteroparous), returning to marine waters as kelts to replenish energy before returning to spawn in their natal stream in subsequent years.

Regulatory Framework

As indicated in Table 2-3, NMFS listed the Puget Sound steelhead DPS as threatened under the ESA (72 FR 26722) and, following the initial listing, the status was subsequently updated (79 FR 20802). This DPS includes naturally spawned steelhead originating below natural and manmade impassable barriers from rivers flowing into Puget Sound from the Elwha River (inclusive) eastward, including rivers in Hood Canal, South Sound, North Sound, and the Strait of Georgia. This DPS also includes steelhead from five artificial propagation (hatchery) programs (85 FR 81822).

Despite federal listing, WDFW has not designated Puget Sound steelhead as a state listed or candidate species per the Washington State Threatened and Endangered Species List (WDFW, 2020a). Similar to Chinook salmon, as noted above, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered in Washington, regardless of their federal status (WAC 220-311-040; WAC 220-610-110; RCW 77-12-020). Puget Sound steelhead are, however, included in the list of SGCN in Washington's SWAP (WDFW, 2015).

As indicated in Table 2-3, NMFS designated critical habitat for the Puget Sound steelhead including approximately 2,031 stream miles (3,269 km) within the geographical area presently occupied by this DPS (no marine habitat) (81 FR 9251). Designated critical habitat for the Puget Sound steelhead does not overlap spatially with NAVSTA Everett.

Population, Distribution, and Abundance

Puget Sound steelhead are at low abundance relative to historical levels, and there is widespread occurrence of hatchery fish in naturally spawning populations (Good et al., 2005; NMFS, 2012a). With the exception of an increasing escapement of wild steelhead in the Skagit River system, there has been no measurable improvement to Puget Sound steelhead DPS populations in Whidbey basin since their ESA listing (WDFW, 2018; Cram et al., 2018). Winter-run steelhead are found throughout Whidbey basin streams. Summer-run steelhead populations are critically depressed and both historically and currently restricted to the headwaters of a few tributary streams in each of the three major river basins. Native populations of summer-run steelhead occur in Finney Creek and the Cascade and Sauk Rivers of the Skagit River system, Deer and Canyon Creeks of the Stillaguamish River system, and the Tolt and North Fork Skykomish Rivers of the Snohomish River system (WDFW and Western Washington Treaty Indian Tribes, 1994, 2002).

The ten-year (2009 through 2018) average annual escapement of winter-run steelhead in the Snohomish River system is 2,316 (WDFW, 2018). With an average count of 80 fish, the Tolt River population in the Snohomish River system is the only summer-run steelhead population currently monitored in the Whidbey basin of Puget Sound (WDFW, 2018). The five-year average of hatchery escapements of steelhead in the Stillaguamish River system reported by WDFW is 141 summer-run and 124 winter-run fish (WDFW, 2019a). The reported five-year average of hatchery escapements of steelhead in the Snohomish River system is 1,403 summer-run and 1,051 winter-run fish (WDFW, 2019a).

Historically, most steelhead hatchery programs in Puget Sound river basins have raised out-of-basin stocks of summer- and winter-run fish (Skamania and Chambers Creek stocks). Many of these programs have been either eliminated or greatly curtailed since 2014, but may be resumed as NMFS determines whether individual WDFW steelhead hatchery programs fully address diversity risks to wild populations of ESA-listed Puget Sound steelhead (Cram et al., 2018).

Currently-permitted steelhead hatchery programs in the Whidbey basin are the Wallace River Hatchery (Skykomish River watershed in Snohomish system), Tokul Creek Hatchery (Snoqualmie River watershed in Snohomish system), Reiter ponds (North Fork Skykomish River watershed in Snohomish system), and Whitehorse Pond (North Fork Stillaguamish River in Stillaguamish system) (WDFW, 2019b; NMFS, 2019a). Yearling steelhead plants typically occur in May.

The Snohomish River remains one of the more productive systems for Puget Sound steelhead and is the most likely origin for steelhead that occur in the waters around NAVSTA Everett. Adult and juvenile summer and winter steelhead are expected to migrate seasonally past NAVSTA Everett as they move between freshwater and marine habitats. However, the extent of steelhead presence around the NAVSTA Everett's piers and shoreline is unknown.

Adult steelhead migrations into freshwater vary between winter- and summer-run fish and vary between hatchery and naturally spawning fish ("wild" fish). Adult hatchery, winter-run steelhead enter the Snohomish system from November to February and adult "wild" fish from February to May (R2 Resources Consultants, 2008). Adult hatchery, summer-run steelhead enter the Snohomish system from June to January and adult "wild" fish from May to October (R2 Resources Consultants, 2008).

Juvenile steelhead outmigration is dependent on their origin. Within the Snohomish system, most wild steelhead rear in freshwater habitats for two years prior to outmigrating (WDFW, 2008b). However, yearling hatchery steelhead smolts typically outmigrate in in the same year they are released. In a literature review, R2 Resources Consultants (2008) noted that steelhead outmigration from the Snohomish system typically occurs from April to mid-May.

Shoreline habitat bordering NAVSTA Everett has been extensively developed and largely consists of riprap, pilings, and piers. Outmigrating juvenile steelhead pass through these waters as a migration corridor; however, there is little aquatic vegetation and no eelgrass beds along the shoreline of the installation that would provide quality foraging or resting habitat for prolonged occurrence. Given the lack of habitat (foraging, refuge, rearing, and staging), steelhead presence in the lower Snohomish River, along the western boundary of the installation, and in the East Waterway, is likely to be minimal.

The shoreline visual survey of schooling salmonids study conducted by Pentec (1997) did not provide any useful information on steelhead occurrence or habitat utilization in the East Waterway. From May through September 2015, WDFW conducted a monthly beach seine survey at four locations at NAVSTA Everett, including the extreme lower Snohomish River and East Waterway (Frierson 2016). No steelhead were captured during this spatiotemporally limited survey.

To gain a more comprehensive understanding of the potential use of NAVSTA Everett waters by marine and anadromous fish, the Navy contracted NMFS to conduct a two-year beach seine study beginning in 2020, as described in *Section 2.3.1.1 Puget Sound Chinook Salmon*. The start of the study was delayed due to COVID-19 and sampling began in October 2020.

Steelhead presence in Hayho Creek is unlikely due to narrow and shallow conditions downstream (Snohomish County, 2012) and seasonally poor habitat conditions, including very low to no flows detected in August and September 2020 by Navy biologists.

Threats to the Puget Sound steelhead population are identical to those listed for Puget Sound Chinook in *Section 2.3.1.1*, including habitat loss or conversion, invasive species, environmental contaminants, oil spills, and increasing water temperatures and ocean acidification associated with climate change (NMFS, 2007; NMFS, 2016a).

2.3.1.3 Coastal-Puget Sound Bull Trout

General Species Description

The bull trout is a char native to western North America, predominantly inhabiting pristine cold-water streams. This species' geographic range includes Oregon, Washington, Idaho, Montana, Nevada, and extends northward into Canada. Bull trout habitat requirements vary by life stage and form. They exhibit resident and migratory life history strategies throughout much of their range, variously using small streams, large rivers, lakes, and marine waters to rear, mature, and spawn. Resident bull trout complete their entire life cycle in the tributary (or nearby) streams in which they spawn and mature. Migratory bull trout spawn in tributary streams where juveniles stay from one to four years before migrating to either a lake (adfluvial), river (fluvial), or coastal area (anadromous), where maturity is reached (63 FR 31647). The ESA-listed Coastal-Puget Sound DPS is the only population from which anadromy has been documented, with spawning and rearing occurring in rivers and streams, and subadult rearing and adult phases in nearshore marine waters (USFWS, 2004). Individual bull trout have been documented to switch between fluvial (stream-resident) and anadromous (ocean-migrant) life histories in alternate years (Goetz, 2016).

Figure 2-20. Adult bull trout.
(Photo Credit: Steve Corbett, NMFS)

In freshwater systems, the specific habitat requirements of bull trout have been described as the "Four C's": cold, clean, complex and connected habitat. As a result, bull trout are highly sensitive to habitat degradation or destruction, and the health of this species can serve as a good indicator of water quality. Requirements for freshwater spawning habitat are variable, but generally include streams with deep pools, riffles, undercut banks, and numerous large logs. All life stages of bull trout in freshwater require some type of cover, such as overhanging vegetation or undercut banks that form ledges (USFWS, 2015).

Bull trout are opportunistic feeders, with food habits primarily a function of size and life history strategy. Resident and juvenile migratory bull trout in freshwater systems prey on terrestrial and aquatic insects,

macro-zooplankton, and small fish (Goetz, 1994; Donald and Alger, 1993). Adult fluvial migratory bull trout feed primarily on a wide variety of resident and anadromous fish species (Fraley and Shepard, 1989; Brown, 1992; Donald and Alger, 1993; Guy et al., 2011). As bull trout enter marine waters, they prey on surf smelt, Pacific sand lance, juvenile Pacific herring, shiner perch (*Cymatogaster aggregata*), three-spine stickleback (*Gasterosteus aculeatus*), and juvenile salmonids (*Oncorhynchus* spp.) (Goetz et al., 2004; Goetz, 2016).

Bull trout in marine waters are largely shoreline-oriented (Goetz, 2016) and enter marine water for the principal purpose of foraging on smaller fish in the intertidal and subtidal photic zone, primarily in water less than 10 meters in depth. Although bull trout in marine water will occasionally use areas deeper than 10 meters, they soon return to shallower water. Puget Sound anadromous bull trout enter marine waters in early spring, with residence time in salt water averaging two months and not exceeding four months (Goetz, 2016). Tagged bull trout have been documented migrating up one river system before migrating back to the marine environment and migrating up a different river system to forage and spawn. Similar to steelhead, bull trout can spawn in multiple years (iteroparous).

Once entering marine waters, subadult and adult bull trout typically migrate through, and forage in, nearshore marine habitats. Crossing water depths of over 10 m is unusual behavior (Goetz et al., 2004; Goetz, 2016). Bull trout occasionally enter water up to 25 m in depth (Goetz et al., 2004), and were reported crossing over depths of 7 to 84 m while transiting Skagit Bay to the shoreline of Whidbey Island (Goetz, 2016). On a few rare occasions, bull trout have been tracked crossing water up to 250 m deep for as far as 6.9 km (Goetz, 2016) but do not maintain position in deep water (Hayes et al., 2011). However, bull trout bearing acoustic tags in Puget Sound are usually detected less than 0.4 km from the shoreline in water less than 4 m deep (Goetz, 2016; Hayes et al., 2011).

Regulatory Framework

As indicated in Table 2-3, USFWS listed the Coastal Puget Sound DPS of bull trout as a threatened species in the coterminous U.S. (64 FR 58910). The Coastal-Puget Sound DPS of bull trout encompasses all Pacific Coast drainages within the U.S. north of the Columbia River in Washington, including those flowing into Puget Sound. This DPS contains the only known anadromous forms of bull trout in the U.S. As described in the Recovery Plan (USFWS, 2015), the Coastal Recovery Unit of bull trout is further divided geographically. The Puget Sound geographic region contains eight core areas. Bull trout core areas within Washington support anadromous, fluvial, adfluvial, and resident life history forms.

WDFW includes this species on their PHS List (WDFW, 2008a) and as a SGCN in Washington's SWAP (WDFW, 2015). WDFW has assigned the species a "State Candidate" status on the Washington State Species of Concern List (WDFW, 2020a). As noted above, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered in Washington, regardless of their federal status (WAC 220-311-040; WAC 220-610-110; RCW 77-12-020).

As indicated in Table 2-3, USFWS designated critical habitat for the Coastal Puget Sound DPS of bull trout (75 FR 63897). In designating critical habitat, certain lands were exempt from final critical habitat designation. The bull trout critical habitat designation specifically exempted NAVSTA Everett and various other lands owned by or under the jurisdiction of the DOD (75 FR 63897; Figure 2-21). The final bull

trout critical habitat rule identified nine PBFs (cited in 2010 FR as PCEs) essential for the conservation of bull trout:

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
2. Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks, and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.
5. Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.
6. In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.
7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.
8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Sufficiently low levels of occurrence of non-native predators (e.g., lake trout, walleye [*Stizostedion vitreum*], northern pike [*Esox lucius*], smallmouth bass [*Micropterus dolomieu*]); resource competitors (e.g., brown trout [*Salmo trutta*]); and reproductive competitors capable of interbreeding (e.g., brook trout [*Salvelinus fontinalis*]). If present, these species should be adequately spatiotemporally isolated from bull trout.

Population, Distribution, and Abundance

Bull trout populations are less prevalent in the greater Whidbey Basin relative to historic abundance levels. Possible sources of anadromous bull trout in the vicinity of NAVSTA Everett are populations in the Skagit, Stillaguamish, and Snohomish River basins (WDFW, 2004; Goetz, 2016). A study of 286 bull trout tagged with acoustic transmitters between 2002 and 2010, found that 53 percent of the fish detected in the Snohomish River Delta and nearshore region returned to the Skagit River, 25 percent to the Snohomish River, and 22 percent to the Stillaguamish River (Goetz, 2016). The 2008 five-year review determined that populations in the Skagit and Snohomish river basins are increasing, while the

population trend of the Stillaguamish population is unknown (USFWS, 2008). The adult population of the lower Skagit River basin was estimated at 2,500 to 10,000 fish, the Snohomish River population estimated at 1,000 to 2,500, and the Stillaguamish River population estimated at 250 to 1,000 (USFWS, 2008).

Four populations of bull trout are known to occupy and use the Snohomish River and the Snohomish estuary for rearing, and may be present near NAVSTA Everett. One population is resident and does not migrate, while the remaining three populations migrate to the marine environment. There is limited information on the use of the Snohomish River by bull trout (Goetz, et al., 2004, 2016; Snohomish Basin Salmonid Recovery Technical Committee, 2005). The total number of bull trout in the Snohomish Basin is unknown, though it is believed that only one migratory population has greater than 100 individuals (NMFS, 2007).

Those populations that migrate are opportunistic feeders and have been observed foraging on juvenile salmon and forage fish during the spring months along the northern end of Jetty Island (Snohomish Basin Salmon Recovery Forum, 2005; Port of Everett, 2006). Although adult bull trout have accessed the upper Snohomish and suitable spawning habitat occurs in the basin, very few juvenile bull trout have been found in screw traps on the Snohomish and Stillaguamish Rivers (Goetz et al., 2004, 2016). Acoustic tagging data indicates that adult bull trout heavily utilize the lower Snohomish River, estuary, and adjacent marshland drainages as foraging habitat (Goetz, et al., 2004; Snohomish Basin Salmonid Recovery Technical Committee, 2005). However, neither beach seine surveys nor a visual survey have detected bull trout using East Waterway habitats (Pentec, 1997; Frierson et al., 2016). It is likely that bull trout occurrence at NAVSTA Everett and in the East Waterway is transitory in nature, due to lack of high quality habitat (foraging, rearing, staging,) for adults or juveniles in the pier-side, deeper water environments.

To gain a more comprehensive understanding of the potential use of NAVSTA Everett waters by marine and anadromous fish, the Navy contracted NMFS to conduct a two-year beach seine study beginning in 2020, as described in *Section 2.3.1.1 Puget Sound Chinook Salmon*. The start of the study was delayed due to COVID-19 and sampling began in October 2020. Hook and line methods have been most productive for regional bull trout studies as adult bull trout are able to see and avoid beach seines (Goetz et al., 2014; Goetz 2016). As a result, it is unknown whether the NMFS beach seine survey will be as productive for bull trout as it will be for other marine fishes, such as Chinook salmon and steelhead trout.

Bull trout presence in Hayho Creek is highly unlikely due to narrow and shallow conditions downstream (Snohomish County, 2012) and seasonally poor habitat conditions, including very low to no flows detected in August and September 2020 by Navy biologists.

Figure 2-21. Bull trout critical habitat near NAVSTA Everett.

2.3.1.4 Yelloweye Rockfish

Figure 2-22. Yelloweye rockfish.
(Photo Credit: WDFW Marine Fish Science Program)

General Species Description

Yelloweye rockfish (*Sebastes ruberrimus*) occur throughout most of the eastern Pacific Ocean ranging from northern Baja California to the Aleutian Islands, Alaska. They are among the largest and longest-lived rockfishes, reaching lengths of 91 cm and living up to at least 118 years (Gunderson and Vetter, 2006; Love et al., 2002; NMFS, 2012b). Yelloweye rockfish, and other rockfishes, are distinctive among bony fishes in that fertilization and embryonic development of their young is internal, and they give birth to live larvae. Maintaining large female yelloweye rockfish in a population is important as these larger, older females can produce far more larvae per unit body mass than a recently matured fish. Fecundity in female yelloweye rockfish ranges from 1.2 to 2.7 million young. Yelloweye rockfish larval release occurs between February and September. The larval young are found in surface waters and may be distributed over a wide area extending several hundred miles (several hundred kilometers) offshore (Love et al., 2002). Their survival is affected by ocean conditions such as temperature, currents, and the availability of food. Larvae and small juvenile rockfish may remain in open waters for several months, being passively dispersed by ocean currents. Yelloweye rockfish juveniles, unlike bocaccio rockfish (*S. paucispinis*) (see below), do not typically occupy shallow, intertidal areas. They can settle in waters as shallow as 30 meters (Studebaker et al., 2009), but more typically settle in deeper waters from 300 to 590 feet (91 to 180 meters) (Lowry et al., 2020; NMFS, 2012b; Pacunski et al., 2020). In some areas they may be associated with shallow, high-relief rock and/or sponge garden habitats (Love, 2011). Approximately 50 percent of adult yelloweye rockfish are mature by 16 inches (41 cm) total length, which is about 6 years of age.

As adults, yelloweye rockfish move to deeper rocky, high-relief habitats greater than 30 meters, particularly associated with caves and crevices, pinnacles, and boulder fields (Carlson and Straty, 1981; Love et al., 1991; Lowry et al., 2020; O'Connell and Carlile, 1993; Pacunski et al., 2020; Richards, 1986; Yoklavich et al., 2000). Adults are most commonly found between 40 and 250 meters (Love et al., 2002; Orr et al., 2000). Yelloweyes generally occur as individuals, with loose, residential aggregations infrequently found (Coombs, 1978; DeMott, 1982; Love et al., 2002). In the Puget Sound region, sport catch records from the 1970s indicate that Sucia Island and other islands of the San Juan Archipelago, as well as Bellingham Bay, had the highest concentrations of catches (DeLacy et al., 1972; Miller and Borton, 1980).

Common predators of adult yelloweye rockfish include killer whales, seals, sharks, and dolphins. Juvenile yelloweye rockfish may be taken by birds, porpoises, and fishes such as other rockfish and lingcod

(*Ophiodon elongatus*). Larval rockfish feed on diatoms, dinoflagellates, tintinnids, and cladocerans, while juveniles consume copepods and euphausiids of all life stages. Adults eat demersal invertebrates and small fishes, including other species of juvenile rockfish associated with kelp beds, rocky reefs, pinnacles, and sharp drop-offs (NMFS, 2012b).

Non-pelagic rockfish, including the yelloweye rockfish, exhibit a high degree of site fidelity and are extremely vulnerable to overfishing, as well as bycatch during fisheries for other rockfish species. Another contributing factor to the vulnerability of yelloweye rockfish, as well as with other rockfishes, is they lack the capacity to quickly vent their swim bladder. Without being able to vent, rockfish brought up from depth can suffer injury as air in the swim bladder expands, which often leads to bulging eyes or the stomach protruding from the mouth, in addition to other unseen internal injuries (collectively, barotrauma) (Rankin et al., 2017). With an inflated swim bladder, the rockfish cannot submerge easily and, if released, is subject to predation while floating on the surface. Washington State has closed nearly all non-salmonid commercial fisheries that result in incidental catch of rockfish, and direct commercial harvest has been closed since 2010 in Puget Sound. Because of the low survival rates of released rockfish (Hannah et al., 2014; Jarvis and Lowe, 2008), catch and release recreational fishing is not allowed and, since 2010, WDFW has restricted recreational bottomfish fishing to depths shallower than 120 feet where these fish are less likely to occur.

Regulatory Framework

NMFS listed the Puget Sound/Georgia Basin DPS of yelloweye rockfish as threatened under the ESA (75 FR 22276)(Table 2-3). The listing includes yelloweye rockfish throughout greater Puget Sound in marine waters east of the Victoria Sill (which spans the Strait of Juan de Fuca from Victoria, B.C. to Port Angeles, WA), and recognizes that the DPS continues across the international border into the inland waters of British Columbia, Canada. Recent research has found evidence for two populations of yelloweye rockfish within the DPS—one in Hood Canal and one within the rest of the Puget Sound/Georgia Basin (NMFS, 2017a). Following the initial listing, NMFS updated and amended the listing description of the yelloweye rockfish DPS (82 FR 7711) to include fish residing within the Puget Sound/Georgia Basin rather than fish originating from the Puget Sound/Georgia Basin, and correcting a descriptive boundary to include Johnstone Strait in Canada based on a new evaluation of genetic similarity and systematic variation (Andrews et al., 2018).

WDFW includes yelloweye rockfish on their PHS List (WDFW, 2008a) and as a SGCN in Washington's SWAP (WDFW, 2015). WDFW has assigned the species a “State Candidate” status on the Washington State Species of Concern List (WDFW, 2020a). As noted above, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered in Washington, regardless of their federal status (WAC 220-311-040; WAC 220-610-110; RCW 77-12-020).

As indicated in Table 2-3, NMFS designated critical habitat for this DPS (79 FR 68041), including 414.1 square miles (1,072.5 square km) of deepwater habitat in Puget Sound/Georgia Basin for yelloweye rockfish. Benthic habitats or sites deeper than 30 meters (98 feet) that possess or are adjacent to areas of complex bathymetry consisting of rock and or highly rugose habitat are essential to conservation because these features support growth, survival, reproduction, and feeding opportunities by providing

the structure for rockfishes to avoid predation, seek food, and persist for decades. PBFs essential to the conservation of adult and juvenile yelloweye rockfish include:

1. Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities,
2. Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities, and
3. The type and amount of structure and rugosity necessary to provide adequate shelter.

NMFS concluded that NAVSTA Everett INRMP would provide benefit to ESA-listed rockfishes, but also found the nearshore of this area does not overlap with essential features for listed rockfishes and, therefore, is not designated as critical habitat (79 FR 68041; Figure 2-23).

Population, Distribution, and Abundance

Historically, yelloweye rockfish have not contributed substantially to the Puget Sound rockfish fishery. Yelloweye rockfish were 2.4 percent of the rockfish harvest in the North Sound during the 1960s, 2.1 percent of the harvest during the 1980s, and further decreased to an average of one percent from 1996 to 2002 (Palsson et al., 2009). In Puget Sound proper (i.e., south of the entrance to Admiralty Inlet), yelloweye rockfish were 4.4 percent of the rockfish harvest during the 1960s, 0.4 percent during the 1980s, and 1.4 percent from 1996 to 2002 (Palsson et al., 2009).

WDFW has generated several population estimates for portions of the Puget Sound/Georgia Basin yelloweye rockfish DPS in recent years. Surveys using a remotely operated vehicle (ROV) in the San Juan Island region in 2008 (focused on rocky substrate) and 2010 (across all habitat types) estimated a population of 47,407 ± 11,761 and 114,494 ± 31,036 individuals, respectively. A 2015 ROV survey focused on rocky substrates within Puget Sound proper encountered only 35 yelloweye rockfish, producing a preliminary population estimate of 66,998 ± 7,370 individuals for this portion of the DPS (WDFW, 2017). Trawl studies conducted by WDFW from 1987 to 2019 indicate yelloweye rockfish are rarely captured within the central Puget Sound waters (Palsson, 2009; Blaine et al., 2020; Blaine, 2020), though otter trawling does not target habitats that are most likely to be utilized by yelloweye rockfish (i.e., high-complexity, rocky bottoms).

NMFS' latest 2016 status review indicates that the population status of yelloweye rockfish has not changed significantly since the final listing determinations in 2010 (Tonnes et al., 2016). Since NMFS does not have sufficient data on population trends for listed rockfish, they assessed available data from recreational fisheries and scuba divers reports for all rockfish species. The population growth rate for the total rockfish (all species) trend was found to be -3.1 to -3.8 percent per year and the listed rockfish declined as a proportion of the assemblage in both the recreational surveys and Reef Environmental Education Foundation Volunteer Survey Project surveys. Therefore, population growth rate for the listed rockfish species was likely lower (more negative) than that for total rockfish (Tolimieri et al., 2017).

The NMFS rockfish recovery plan (NMFS, 2017a) identified the following threats as factors contributing to the decline of Puget Sound/Georgia Basin rockfish: degradation and/or loss of nearshore and benthic/deepwater habitat; invasive/nonindigenous species; contaminants; nutrient addition and low dissolved oxygen; predation by marine mammals and piscivorous fish; infectious diseases; inbreeding of small isolated populations; hybridization; competition with other rockfish species and hatchery releases

of Pacific salmon; derelict fishing gear; climate change; ocean acidification; and anthropogenic noise and vessel traffic (NMFS, 2017a). These threats pose a serious challenge to the persistence of the Puget Sound/Georgia Basin DPS of yelloweye rockfish.

Palsson (2009) included maps of the distribution of nearshore rocky habitats in Puget Sound potentially suitable for rockfish. These distribution maps coincide with NOAA Multi-beam Bathymetry Surveys showing areas of deeper water with steep relief, particularly those areas south of Gedney Island (NOAA, 2012a). Water depths around the installation are less than 50 feet MLLW; much shallower than depths at which juvenile and adult yelloweye rockfish would occur. The nearest deep water environment with rocky substrate near NAVSTA Everett is located southwest of the mouth of the Snohomish River toward the center of Port Gardner Bay, and is apparent on NOAA Multi-beam Bathymetry Surveys. While there are no impairments prohibiting adult rockfish from occupying waters near the installation, little suitable habitat exists. These studies helped support the findings of the 2014 final designation of yelloweye rockfish critical habitat, that suitable recruitment habitat for juvenile and adult yelloweye does not occur at NAVSTA Everett (79 FR 68041).

In 2015, WDFW conducted surveys of the water and substrate surrounding NAVSTA EVERETT using an ROV, hydroacoustics, and beach seining (Frierson et al., 2016). Security restrictions prevented surveying within the security barrier around Piers A and B but in all other areas, surveys noted a predominantly mud-sand substrate with occasional shell hash. Very few rockfish were observed, and neither ESA-listed bocaccio nor yelloweye rockfishes were documented.

Recorded water depths and habitat characteristics were not consistent with those used by rockfish species; however, 12 rockfish—predominantly quillback (*Sebastes maliger*) and copper rockfish (*S. caurinus*)—were noted immediately adjacent to anchor blocks and boulder riprap.

The ongoing NMFS fish survey at NAVSTA Everett uses beach seines to assess fish occurrence and habitat utilization. This methodology is better suited for capturing juvenile salmonids than rockfish. Although it is likely that this survey will catch some juvenile rockfish, it is highly unlikely that a yelloweye rockfish would be captured due to the absence of suitable habitat in the lower Snohomish River and East Waterway.

Though rockfish larvae are passively distributed by prevailing currents, the large volume of freshwater exiting the Snohomish River and the fact that adult yelloweye rockfish have not been documented to occur near the installation in recent years, makes it unlikely that larvae would be carried from where they originated into waters around NAVSTA Everett. However, because there is no absolute barrier to preclude the movement of larvae, they could be passively transported to waters near the installation under appropriate weather and current conditions.

Figure 2-23. Yelloweye rockfish and bocaccio critical habitat near NAVSTA Everett.

2.3.1.5 Bocaccio Rockfish

General Species Description

The bocaccio is a long-lived species of rockfish, ranging from Stepovac Bay on the Alaska Peninsula to Punta Blanca in central Baja California (Drake et al., 2010). Like yelloweye rockfish, they are among the largest rockfishes and can reach lengths of 91 cm (Gunderson and Vetter, 2006: Love et al., 2002). Approximately 50 percent of adult bocaccio mature in 4 to 6 years and may live as long as 50 years (NMFS, 2012c). They school with widow (*Sebastes entomelas*), yellowtail (*S. flavidus*), vermillion (*S. miniatus*), and speckled rockfishes (*S. ovalis*) and, in regions where they are more abundant, occur in large aggregations under drifting kelp beds and over firm sand-mud bottoms (Love and York, 2006).

Bocaccio and other rockfishes are distinct among bony fishes in that the fertilization and embryo development is internal, and they give birth to live larval young. Once females become mature (at 54 to 61 cm TL), they produce 20,000 to 2.3 million eggs annually, with the number increasing as females age and grow larger (Hart, 1973; Echeverria, 1987; Love et al., 2002). Mating occurs between August and November, with larvae born between January and April (NMFS, 2016b). Larval (3 cm) and pelagic juvenile (3 to 9 cm) bocaccio have been found at varying depth ranges within the water column and are often associated with floating kelp mats, algae, and seagrass (NMFS, 2016b; NMFS, 2017a). Larvae and small juvenile rockfish offshore may remain in open waters for several months, being passively dispersed by ocean currents. The retentive circulation patterns of currents within the Puget Sound make it likely that a significant fraction of larvae released by bocaccio (especially in more inland portions of the Sound) are retained within the Sound (75 FR 22276). Once juvenile bocaccio reach 1 to 3.5 inches, they move into shallow nearshore waters, with rocky or cobble substrates, preferably with kelp (Love et al., 1991; Love et al., 2002). Juveniles then move to deeper water as they age. Subadult and adult bocaccio (> 3.6 inches) may be found in depths ranging from 12 to 478 meters, but are most often associated with rocky habitat and complex structure of 50 to 250 meters (NMFS, 2017a; Pacunski et al., 2013).

Figure 2-24. Bocaccio.
(Photo credit: NOAA)

Bocaccio are generally sedentary. Tagging studies have recaptured juveniles between 1 and 148 km from their tagging location after 2 years (Hartmann, 1987). In that same study, adults were recaptured at their tagging location as much as 827 days later. Acoustic tagging work has shown more complex behavior, with most bocaccio residing within 200 to 400 hectares (ha) much of the time, but some fish utilizing areas greater than 1,200 ha. Some individuals remain at fairly constant depths, while others change depth by as much as 100 meters, generally moving to more shallow depths during the day

(Drake et al., 2010; Starr et al., 2002). Drake et al. (2010) summarize information on migration and movements for bocaccio.

Larval bocaccio feed on larval krill, diatoms, dinoflagellates, tintinnids, and cladocerans. Pelagic juveniles are opportunistic feeders, consuming fish larvae, copepods, and krill. Adults are primarily piscivorous, eating other rockfishes, Pacific hake (*Merluccius productus*), sablefish (*Anoplopoma fimbria*), anchovies, lanternfishes, and squid (Drake et al., 2010).

Predators of juvenile bocaccio include piscivorous fish, such as salmon and rockfish; fish-eating birds, such as terns and cormorants; and harbor seals (*Phoca vitulina*) (Love et al., 2002). The main predators of adult bocaccio are pinnipeds, such as sea lions and harbor seals (Species at Risk Act, 2002).

Demersopelagic (i.e., bottom oriented, but prone to use of the water column as well) rockfish, such as bocaccio, are extremely vulnerable to overfishing and bycatch during fisheries for other rockfish species. Another contributing factor to the vulnerability of bocaccio, as with other rockfishes, is the lack of ability to quickly vent their swim bladder. Without being able to vent, bocaccio brought up from depth can suffer injury as air in the swim bladder expands, which often leads to bulging eyes or the stomach protruding from the mouth, in addition to other unseen internal injuries (collectively, barotrauma) (Rankin et al., 2017). With an inflated swim bladder, the bocaccio cannot submerge easily and, if released, is subject to predation while floating on the surface. Washington State has closed nearly all non-salmonid commercial fisheries that result in incidental catch of rockfish, and direct commercial harvest has been closed since 2010 in Puget Sound. Because of the low survival rates of released rockfish (Hannah et al., 2014; Jarvis and Lowe, 2008), catch and release recreational fishing is not allowed and, since 2010, WDFW has restricted recreational bottomfish fishing to depths shallower than 120 feet where these fish are less likely to occur.

Regulatory Framework

NMFS determined the Puget Sound/Georgia Basin Bocaccio DPS is listed as endangered under the ESA (75 FR 22276) (Table 2-3). The listing includes bocaccio throughout greater Puget Sound in marine waters east of the Victoria Sill (which spans the Strait of Juan de Fuca from Victoria, B.C. to Port Angeles, WA), and recognizes that the DPS continues across the international border into the inland waters of British Columbia, Canada. Following the initial listing, NMFS issued a final rule to update and amend the listing description of the bocaccio DPS to include fish residing within the Puget Sound/Georgia Basin rather than fish originating from the Puget Sound/Georgia Basin (82 FR 7711).

WDFW includes bocaccio on their PHS List (WDFW, 2008a) and as a SGCN in Washington's SWAP (WDFW, 2015). WDFW has assigned the species a "State Candidate" status on the Washington State Species of Concern List (WDFW, 2020a). As noted above, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered in Washington, regardless of their federal status (WAC 220-311-040; WAC 220-610-110; RCW 77-12-020).

As indicated in Table 2-3, NMFS designated critical habitat for this DPS (79 FR 68041), including 590.4 square miles (1529 square km) of nearshore habitat and 414.1 square miles (1072.5 square km) of deepwater habitat. Benthic habitats or sites deeper than 30 meters (98 feet) that possess or are adjacent to areas of complex bathymetry consisting of rock and or highly rugose habitat are essential to

conservation because these features support growth, survival, reproduction, and feeding opportunities by providing the structure for rockfishes to avoid predation, seek food, and persist for decades. NMFS concluded that NAVSTA Everett is covered by an INRMP that would benefit listed rockfishes, but also found the nearshore of this area does not overlap with essential features for listed rockfishes and, therefore, it was not designated as critical habitat (79 FR 68041; Figure 2-23).

PBFs essential to the conservation of adult bocaccio include:

1. Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities,
2. Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities, and
3. The type and amount of structure and rugosity necessary to provide adequate shelter.

For juvenile bocaccio, juvenile settlement habitats located in the nearshore with substrates such as sand, rock, and/or cobble compositions that also support kelp (families Chordaceae, Alariaceae, Lessoniacea, Costariaceae, and Laminaricea) are essential for conservation because these features enable forage opportunities and refuge from predators, and enable behavioral and physiological changes needed for juveniles to occupy deeper adult habitats. PBFs essential to the conservation of juvenile bocaccio include:

1. Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities and
2. Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities.

Population, Distribution, and Abundance

Though bocaccio were likely never a predominant component of the multi-species rockfish abundance within the Puget Sound/Georgia Basin (Drake et al., 2010), their present-day abundance is likely a fraction of their historical abundance. Historically, bocaccio have not contributed substantially to the Puget Sound rockfish fishery (Palsson et al., 2009). Bocaccio contributed less than 0.2 percent to the recreational rockfish catch in North Sound between 1980 and 2007 (Palsson et al., 2009). Bocaccio averaged 0.2 percent in South Sound during the 1980s, but since 1996 has not been encountered in South Sound (Palsson et al., 2009).

In 2013, WDFW generated several population estimates for portions of the Puget Sound/Georgia Basin bocaccio DPS in recent years. ROV surveys were conducted in the San Juan Island region in 2008 (focused on rocky substrate) and 2010 (across all habitat types) but bocaccio were encountered only at a single site in 2008. The survey produced an estimate of 4,606 (100 percent variance) based on a very small sample size (four fish observed along a single transect) (Pacunski et al., 2013). No abundance estimate could be obtained in the 2010 ROV survey because this species was not encountered. A single bocaccio encountered in a 2015 ROV survey produced a statistically invalid population estimate for that portion of the DPS lying south of the entrance to Admiralty Inlet and east of Deception Pass (WDFW 2017). Trawl studies conducted by WDFW from 1987 to 2019 indicate bocaccio are rarely captured within the central Puget Sound waters (Palsson, 2009; Blaine et al., 2020; Blaine, 2020), though otter trawling only samples some of the habitats known to be utilized by the species. In recent years several

juvenile bocaccio have been encountered in trawl surveys just west of the western limit of the DPS in the Strait of Juan de Fuca (Blaine, 2020).

Based on an evaluation of abundance trends, spatial structure, and diversity in the 2010 status review, the NMFS Puget Sound Rockfish Biological Review Team (BRT) determined that Puget Sound/Georgia Basin DPS of bocaccio continues to be at high risk of extinction throughout all of its range (Drake et al., 2010). Some members of the BRT noted that there was insufficient data upon which they could adequately predict population growth rate trends for bocaccio. Based on the downward trend for the limited data available, the BRT indicated that the Puget Sound/Georgia Basin bocaccio DPS was in danger of extinction in the near future. In the most recent 5-Year Review (NMFS, 2016b), the BRT concluded that new genetic and abundance data was not sufficient to change the conclusions of the previous BRT documented in Drake et al. (2010). The NMFS (2017) rockfish recovery plan identified the threats contributing to the decline of Puget Sound/Georgia Basin rockfish in general, as described for yelloweye rockfish in *Section 2.3.1.4*.

Rockfish larvae in open waters are passively distributed with the local prevailing currents. For this reason, they would likely not be carried into waters near NAVSTA Everett. The freshwater influence of the nearby Snohomish River, and tidal currents from rising and falling tides acting with the river's current, create strong surface water movements. Should there be larvae in the vicinity, they would be readily dispersed and not concentrated or present in one location. The unique oceanographic conditions within Puget Sound likely result in rockfish larvae staying within the region where they are released rather than being broadly dispersed (Drake, 2010).

Juvenile bocaccio use shallower water areas; however, they rely on kelp beds/forests and eelgrass beds for refuge and quickly (days-weeks) move to deeper water settings, usually contiguous with these nearshore areas. Palsson et al. (2009) included maps of the distribution of nearshore rocky habitats in Puget Sound potentially suitable for rockfish. These distribution maps coincide with NOAA Multi-beam Bathymetry Surveys showing areas of deeper water with steep relief, particularly those areas south of Gedney Island (NOAA, 2012a). Water depths around the installation are less than 50 feet MLLW, but are within the depth parameters that juvenile bocaccio could occur. Eelgrass beds are present along the southern shoreline of Port Gardner Bay, near the mouth of Pigeon Creek, and on the southern end of Jetty Island, but there are no kelp or eelgrass beds within the boundary of NAVSTA Everett. There are no impairments preventing juveniles from occupying waters near the installation; however, as indicated in the final designation of critical habitat, suitable habitat such as steep/rocky shorelines, boulder-cobble substrate, and contiguous protective environments do not occur in the vicinity of the installation (79 FR 68041). The nearest deepwater environment with rocky substrate near NAVSTA Everett is located southwest of the mouth of the Snohomish River toward the center of Port Gardner Bay, and is apparent on NOAA Multi-beam Bathymetry Surveys. While there are no impairments prohibiting adult rockfish from occupying waters near the installation, little to no suitable adult bocaccio habitat exists.

As noted above under yelloweye rockfish, WDFW conducted surveys of the water and substrate surrounding the NAVSTA Everett waterfront site using an ROV, hydroacoustics, and beach seining, and found that water depths and habitat characteristics were not consistent with those used by most rockfish species (Frierson et al., 2016). However, 12 rockfish (predominantly quillback and copper rockfish) were noted immediately adjacent to anchor blocks and boulder riprap. The ongoing NMFS

beach seine fish surveys at NAVSTA Everett are also highly unlikely to capture juvenile bocaccio due to the absence of suitable habitat in the lower Snohomish River and East Waterway.

2.3.1.6 Green Sturgeon

Figure 2-25. Green sturgeon.
(Photo credit: Laura Heironimus, WDFW)

General Species Description

The North American green sturgeon (*Acipenser medirostris*) is a large (up to approximately 2.5 meters) and long-lived (up to 70 years) anadromous fish. The geographic range of the species spans from Mexico to the Bering Sea (Colway and Stevenson, 2007), though they occur most commonly in the coastal waters of Washington, Oregon, and Vancouver Island, and near San Francisco and Monterey Bays (Huff et al., 2012). Green sturgeon is an iteroparous (repeat spawning) species that spawns infrequently in natal streams. It is the most broadly distributed, wide-ranging, and marine-oriented species within the sturgeon family.

Green sturgeon use both freshwater and saltwater habitats throughout their life cycles. The ESA-listed Southern DPS only spawns in the Sacramento, Feather, and possibly Yuba rivers in California from April through early July (Heublein et al., 2009; Bergman et al., 2011; Seesholtz et al., 2015). There is no green sturgeon spawning in Washington, so this life stage is not relevant to management at NAVSTA Everett.

After spawning, adults migrate back downstream into holding habitats in the lower Sacramento River or Bay-Delta, eventually exiting San Francisco Bay to the Pacific Ocean (Israel and Klimley, 2008). Adult green sturgeon live in oceanic waters, bays, and estuaries when they are not spawning. Juveniles migrate downstream toward the Sacramento-San Joaquin Delta/Estuary as early as one and a half years old (Allen and Cech, 2007), where they rear for one to four years before migrating out to, and northward within, the Pacific Ocean as subadults (Nakamoto et al., 1995). They remain there until they reach maturity at more than 15 years of age and over 4 feet (1.3 meters) in length.

Regulatory Framework

As indicated in Table 2-3, the Southern DPS of Green Sturgeon is listed as threatened (71 FR 17757). Green sturgeon stocks from the Southern DPS (coastal and Central Valley populations south of the Eel River) were found to be genetically distinct from the Northern DPS (populations in coastal watersheds northward of and including the Eel River) (Israel et al., 2004; Israel et al., 2009; 71 FR 17757).

WDFW includes the Southern DPS of green sturgeon on their PHS List (WDFW, 2008a), and as a SGCN in Washington's SWAP (WDFW, 2015). WDFW has not designated the Southern DPS of green sturgeon as a

state listed or candidate species per the Washington State Threatened and Endangered Species List (WDFW, 2020a). As noted above, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered in Washington, regardless of their federal status (WAC 220-311-040; WAC 220-610-110; RCW 77-12-020).

As indicated in Table 2-3, NMFS designated critical habitat for the Southern DPS of green sturgeon, which includes several rivers and estuaries along the U.S. West Coast, but excludes Puget Sound (74 FR 52299). As a result, there is no designated critical habitat for the Southern DPS of green sturgeon at NAVSTA Everett or in the adjacent waters.

Population, Distribution, and Abundance

The most recent status review (NMFS, 2015a) indicates that the spawning population of the Southern DPS is smaller than the Northern DPS, which is consistent with the threatened listing for the Southern, but not the Northern DPS. It should be noted, however, that the confidence interval for the Southern and Northern DPS total adult population estimates overlaps when one considers the lower bound of the Northern DPS estimate and the upper bound of the Southern DPS estimate (Northern DPS: 1,113–3,555 adults; Southern DPS: 824–1,872 adults).

Mora et al. (2018) used sonar sampling in the Sacramento River for five years between 2010 and 2015 to estimate spawning run size and population size of the Southern DPS green sturgeon. Spawning run size varied across years, from a minimum of 336 to a maximum of 1,236 individuals. The total population size for the Sacramento River was estimated at 17,548 individuals (95 percent confidence interval [CI] = 12,614 to 22,482). The study likely underestimates the total population, as it does not include recent detections of spawning that occurs in the Feather River (Mora et al., 2018).

Juvenile Southern DPS green sturgeon do not occur in Washington waters, given the lack of nearby spawning. Subadult green sturgeon leave their Californian natal rivers and disperse widely along continental shelf waters of the west coast within the 110-meter contour (Erickson and Hightower, 2007; Moyle, 2002; NMFS, 2005). In coastal waters, subadult and adult green sturgeon occupy relatively shallow depths (<100 meters) over the continental shelf (Moser and Lindley, 2007; Huff et al., 2011). Seasonal migration is typically northward along the continental shelf from U.S. to Canadian waters in the fall, returning southward in the spring, spending summers foraging in coastal estuaries, then repeating the cycle again in the fall (Israel et al., 2009; Lindley et al., 2008; Moser and Lindley, 2007). Subadult and adult green sturgeon enter Willapa Bay and Grays Harbor during the summer months to forage on burrowing shrimp in fine-grained substrates 8 to 20 meters deep (Moser and Lindley, 2007; Borin et al., 2017).

Green sturgeon have been found in high concentrations in the Willapa Bay, Grays Harbor, and the Columbia River estuaries during summer and fall. However, no green sturgeon have been reported in Washington coastal and Puget Sound recreational fisheries (outside of Willapa Bay and Grays Harbor) since the 2007 closure (NMFS, 2015a). This is based on anglers reporting only fish they have kept and not those released. Adams et al. (2002) noted very limited, incidental capture of adult or subadult green sturgeon in fisheries in Puget Sound, predominately from trawl fisheries. In addition, a 2000 to 2001 WDFW sport catch report documented that green sturgeon have been captured from Admiralty Inlet and the Whidbey Basin (Manning and Smith, 2004). In general, many of the pre-2007 WDFW sports catches did not identify sturgeon to species or determine their exact capture locations. However, based

on recreation and commercial catch reports over the years, it is apparent that green sturgeon are not uncommon near Whidbey Island (on both the Admiralty and Whidbey Basins sides of the island). Lindley et al. (2011) reported that green sturgeon have been detected year-round in Puget Sound, though at a very low rate.

Prior to the ESA listing of the Southern DPS, green sturgeon were recorded in Washington State sports catch reports from Puget Sound in good numbers relative to white sturgeon (*A. transmontanus*). The sports catch reports for Puget Sound were usually non-specific for locality, but a catch report for the 2000 season listed a catch of 158 white and 35 green sturgeon for all of Puget Sound, with 35 green sturgeon and 53 white sturgeon reported specifically in the Port Susan, Port Gardner, and Admiralty Inlet region (Manning and Smith, 2004).

There is little or no suitable green sturgeon habitat in the immediate vicinity of NAVSTA Everett. The lower Snohomish River adjacent to NAVSTA Everett may provide a transit route from the marine waters of Port Gardner to the brackish sloughs of the lower Snohomish estuary, but the habitats north of the estuary provide less turbulent access to these same habitats. There is likely little or no suitable green sturgeon foraging habitat in the East Waterway. As an industrial waterway, the benthic habitats have been adversely affected by activities including a deep-water port for the Navy and Port of Everett, pulp and paper manufacturing, bulk petroleum storage, and sawmilling. Wood waste attributed to the former Everett Kimberly Clark Mill and timber exports have accumulated on benthic habitats, reducing habitat quality (WDOE, 2017) and the suitability of these habitats to foraging green sturgeon.

Until recently, the Navy had limited knowledge regarding the seasonal distribution and habitat use of green sturgeon in the waters near Puget Sound Navy installations and ranges. Although researchers have deployed acoustic receiver arrays in Puget Sound to track salmonids, a similar analysis had not been conducted for acoustically tagged green sturgeon. Over the past two decades, NMFS implanted hundreds of adult and subadult green sturgeon with acoustic tags in an effort to increase knowledge of their seasonal migratory patterns and habitat use, and to improve protection and management of the species. In 2019, the Navy began coordinating with NMFS and funding research to review data from acoustic receivers deployed throughout the Strait of Juan de Fuca and Puget Sound, looking for codes specific to green sturgeon (Moser et al., 2021). NMFS reviewed the available green sturgeon tag codes, differentiating between Southern and Northern DPS codes, and then reviewed the extensive receiver databases for Puget Sound receivers looking for these tag codes. The receiver locations were mapped to show the distribution of Puget Sound receivers relative to specific geographic features, Navy installations, and population centers.

Green sturgeon were detected at very low abundances in central Puget Sound, including near Admiralty Inlet and at receivers south of Whidbey Island; however, the majority of these fish were from the Northern DPS (Moser et al., 2021). For example, of the six green sturgeon detected at Admiralty Inlet, only one was from the Southern DPS. No receivers were located in Port Gardner, the lower Snohomish River, or the East Waterway. One receiver was initially placed at the mouth of the Snohomish River to detect bull trout, but was lost shortly after due to strong river and tidal currents. It was not replaced, and therefore green sturgeon data in the vicinity of NAVSTA Everett are not available in the database. The general findings of Moser et al. (2021.) are that, although Southern DPS green sturgeon likely occur at least seasonally in north and central Puget Sound, their abundance is extremely low.

Threats to green sturgeon that contribute to their risk of extinction include the loss of spawning habitat; concentration of spawning into a single spawning river; entrainment or impingement by water project operations, dredging, power plant operations, or other in-water activities; bycatch in other fisheries; and poor water quality conditions. The main factor in the decline of the Southern DPS of green sturgeon is the reduction of the spawning area to a limited section of the Sacramento River. Other threats to the DPS include insufficient freshwater flow rates in spawning areas; contaminants (e.g., pesticides); bycatch in other fisheries; poaching (for caviar); entrainment by water projects; influence of non-native species; small population size; impassable river barriers; and elevated water temperatures (NMFS, 2012d). A recently identified threat to green sturgeon is environmental or anthropogenic changes in the thermal regime of shallow estuary habitat and associated reduction of prey availability (Borin et al., 2017).

2.3.1.7 Pacific Eulachon

General Species Description

The present distribution of Pacific eulachon (*Thaleichthys pacificus*), a forage fish, extends from the southeastern Bering Sea to northern California (NMFS, 2012e). Like Pacific salmonids, steelhead, and green sturgeon, Pacific eulachon are anadromous. Adults spawn on sand or small gravel in coastal rivers. After hatching, the larvae are carried downstream to the ocean where they are dispersed by ocean currents. After approximately three years, they return to their natal freshwater stream to spawn from the late winter through mid-spring. Most Pacific eulachon adults die after spawning, but a small percentage return to the sea and may spawn in a subsequent season. The major spawning runs for Pacific eulachon occur in the lower Columbia River basin and, until very recently, the Fraser River in southern British Columbia. The majority of Columbia River Pacific eulachon spawning occurs in the Cowlitz River (Gustafson et al., 2016).

Figure 2-26. Pacific eulachon.
(Photo Credit: Laura Heironimus, WDFW)

Pacific eulachon occur in very low abundances in Puget Sound. They can be found sporadically throughout the inland sea, from the eastern end of the Strait of Juan de Fuca, from Cape Lazo to Point Roberts in the Strait of Georgia, in and around the San Juan Islands, and from Bellingham Bay and Camano Island south to Carr Inlet and Commencement Bay (Pietsch and Orr, 2019). Pacific eulachon are regularly caught in Deschutes River screw traps and other potential spawning streams, such as the Nisqually River, may have small populations (Dionne, 2019). However, these populations are not recognized as part of the ESA-listed southern DPS of Pacific eulachon.

Regulatory Framework

As indicated in Table 2-3, the Southern DPS of Pacific eulachon is listed as threatened under the ESA (75 FR 13012). This listing encompassed all subpopulations of eulachon within the states of Washington, Oregon, and California and extended from the Skeena River in British Columbia south to the Mad River in Northern California. The BRT concluded that the major threats to eulachon included climate change impacts on ocean conditions and freshwater habitat; bycatch in offshore shrimp trawl fisheries; changes in downstream flow timing and intensity due to dams or water diversions; and predation. These threats, together with large declines in abundance, indicated to the BRT that the southern DPS of eulachon was at moderate risk of extinction throughout all of its range (Gustafson et al., 2010, 2012).

WDFW includes eulachon on their PHS List (WDFW, 2008a) and as a SGCN in Washington's SWAP (WDFW, 2015). WDFW has assigned the species a "State Candidate" status on the Washington State Species of Concern List (WDFW, 2020a). As noted above, fish species that are actively pursued for harvest or sport (Food Fish or Game Fish, respectively) cannot be granted status as threatened or endangered in Washington, regardless of their federal status (WAC 220-311-040; WAC 220-610-110; RCW 77-12-020).

As indicated in Table 2-3, NMFS designated critical habitat for the Southern DPS of Pacific eulachon (76 FR 65324), including 16 specific areas within the states of California, Oregon, and Washington. In designating critical habitat, NMFS relied on areas with evidence of spawning and spawning migration within freshwater and estuarine areas but did not consider nearshore or offshore rearing or migration locations. No designated critical habitat occurs in the vicinity of NAVSTA Everett.

Population, Abundance, and Distribution

Although eulachon abundance in monitored populations has generally improved, especially in the 2013 through 2015 return years, recent poor ocean conditions and the likelihood that these conditions will persist into the near future suggest that population declines may be widespread in upcoming years. Therefore, it is too early to tell whether recent improvements in the southern DPS of eulachon will persist or whether a return to the severely depressed abundance years of the mid-late 1990s and late 2000s will recur (NMFS, 2017b).

Small numbers of eulachon may utilize marine habitats and some tributaries emptying into Puget Sound; however, eulachon abundance is extremely low. Eulachon have been documented very rarely in the Snohomish River, with a couple fish caught during fish surveys in 2012 (Zackey, 2021) and 2013 (Kagley, 2021). Eulachon have not been documented in the East Waterway. No eulachon were captured at four NAVSTA Everett locations during a May through September WDFW monthly beach seine survey (Frierson et al., 2016). In 2020, the Navy funded NMFS to conduct an expanded beach seine survey at NAVSTA Everett and Port of Everett properties. To date, no eulachon have been captured during the 2020 and 2021 surveys. Based on information compiled by the Eulachon BRT and emails between the Navy and NMFS, eulachon are not expected to occupy waters near NAVSTA Everett (Longenbaugh, 2011). Accordingly, there is no Management Plan for Pacific eulachon in this INRMP.

2.3.1.8 Marbled Murrelet

General Species Description

The marbled murrelet (*Brachyramphus marmoratus*) is a small, robin-sized, diving seabird that ranges from the Aleutian Archipelago in Alaska to central California. Marbled murrelets spend the majority of their lives in the marine environment, generally within 0.6 to 1.2 miles of shore (USFWS, 1997). Marbled murrelets exhibit seasonal shifts in distribution during the breeding and non-breeding seasons. Generally, during the breeding season they tend to forage closer to shore, and during the non-breeding season are more dispersed and found farther offshore, although higher concentrations still occur close to shore and in protected waters where prey is more abundant (Strachan et al., 1995).

Foraging habitat for the marbled murrelet includes areas of open water, usually at water depths between 20 and 80 meters (Strachan et al., 1995). Marbled murrelets generally forage as pairs or singles, and are most active in the day, particularly in the morning and late afternoon hours (Strachan et al., 1995). They feed primarily on small forage fish such as Pacific sand lance, northern anchovy, surf smelt, Pacific herring, and capelin (*Mallotus villosus*), as well as invertebrate species such as squid, euphausiids (e.g., *Thysanoessa spinifera* and *Euphausia pacifica*), mysid shrimp, and large pelagic amphipods (McShane et al., 2004).

Figure 2-27. Marbled murrelet observed near Pier A at NAVSTA Everett, September 2020. Inset: Marbled murrelet in breeding plumage.

(Photo Credit Inset: USFWS)

Nesting habitat for the marbled murrelet includes old-growth forests or mature forests with moss or duff covered tree limbs large enough to provide nesting platforms (61 FR 26256). Nesting takes place from March to late September, during which time the adults make multiple trips daily between nesting areas and marine foraging areas to incubate their eggs or deliver food to the chicks (USFWS, 1997). There is no suitable nesting habitat for marbled murrelet at NAVSTA Everett waterfront site or NSC Smokey Point. Daily flights between their nesting sites and foraging grounds are most frequent near dawn and sunset during the nesting period, and the birds tend to follow watercourses while in transit (Stumpf, 2011). This represents a key exposure time, when marbled murrelets may pass over or near the NAVSTA Everett waterfront site or NSC Smokey Point.

Regulatory Framework

As indicated in Table 2-3, the marbled murrelet population occurring in California, Oregon, and Washington is listed as threatened by the USFWS (57 FR 45328).

WDFW originally listed the marbled murrelet as threatened in 1993, but it was uplisted to endangered in 2016 (WAC 220-610-010).

As indicated in Table 2-3, USFWS designated critical habitat for the marbled murrelet (81 FR 51348), which includes only upland forest areas. There is no designated critical habitat for marbled murrelet at NAVSTA Everett, and PBFs are not discussed in this document since they only include forest habitats and do not apply to the habitats present at the installation. The nearest designated critical habitat for marbled murrelet to waterfront site is located approximately 13 miles to the east in the Mount Baker-Snoqualmie National Forest, and the nearest designated critical habitat to the NSC Smokey Point is located at Naval Radio Station (Transmitting) Jim Creek, approximately 10 miles to the northeast.

Population, Distribution, and Abundance

Marbled murrelets are regularly observed foraging in the waters of Possession Sound to the west of NAVSTA Everett (Figure 2-28), in the fall and winter, and during the breeding season. Beginning in 2012, WDFW has conducted annual fall/winter surveys for marbled murrelets around Navy installations (including NAVSTA Everett), covering the months of September through April (Pearson and Lance, 2021). These surveys have documented murrelets as close as approximately 75 feet from the Navy's security barrier (U.S. Navy, 2020a). Figure 2-28 shows all locations where WDFW fall/winter surveys documented marbled murrelets in Possession Sound from 2012 to 2020. Note that surveys are conducted on transects via boat, so detections are concentrated in areas where transects are located. In addition to WDFW detections, a marbled murrelet was detected by the NRM within the Navy's security barrier after normal work hours when human and boat activity had decreased (Figure 2-27). Marbled murrelets generally show avoidance of high boat traffic areas, but may become habituated to vessels in areas of regular activity (Speckman et al., 2004). Even when marbled murrelets appear habituated to vessels, there may still be impacts, such as decrease in food delivery to chicks, resulting from vessel disturbance in close proximity (Speckman et al., 2004).

Fall/winter marbled murrelet surveys during the 2018 to 2019 season resulted in an estimated average density of less than one marbled murrelet (0.599) per square km in Stratum 4, which includes Possession Sound, the Saratoga Passage, and Port Susan (Pearson and Lance, 2019). The estimated density for the 2020 to 2021 season showed a slight increase to 0.643 marbled murrelets per square km (Pearson and Lance, 2021). Surveys conducted for the Northwest Forest Plan Effectiveness Monitoring Program during the breeding season use different survey strata than the fall/winter surveys, but use the same methodology. Breeding season surveys in 2018 resulted in an estimated average density of less than one marbled murrelet (0.977) per square km in Stratum 3, which includes the Saratoga Passage, Port Susan, and the area of Possession Sound around Gedney Island, and does not include the areas closer to NAVSTA Everett (McIver et al., 2019). In 2020, estimated average density in Stratum 3 during the breeding season decreased to 0.419 marbled murrelet per square km (McIver et al., 2019). These densities are markedly lower than in other portions of the marbled murrelet's range, such as the Oregon coast, where density estimates for strata surveyed in the breeding season in 2020 were as high as 8.499 marbled murrelets per square km (McIver et al., 2021).

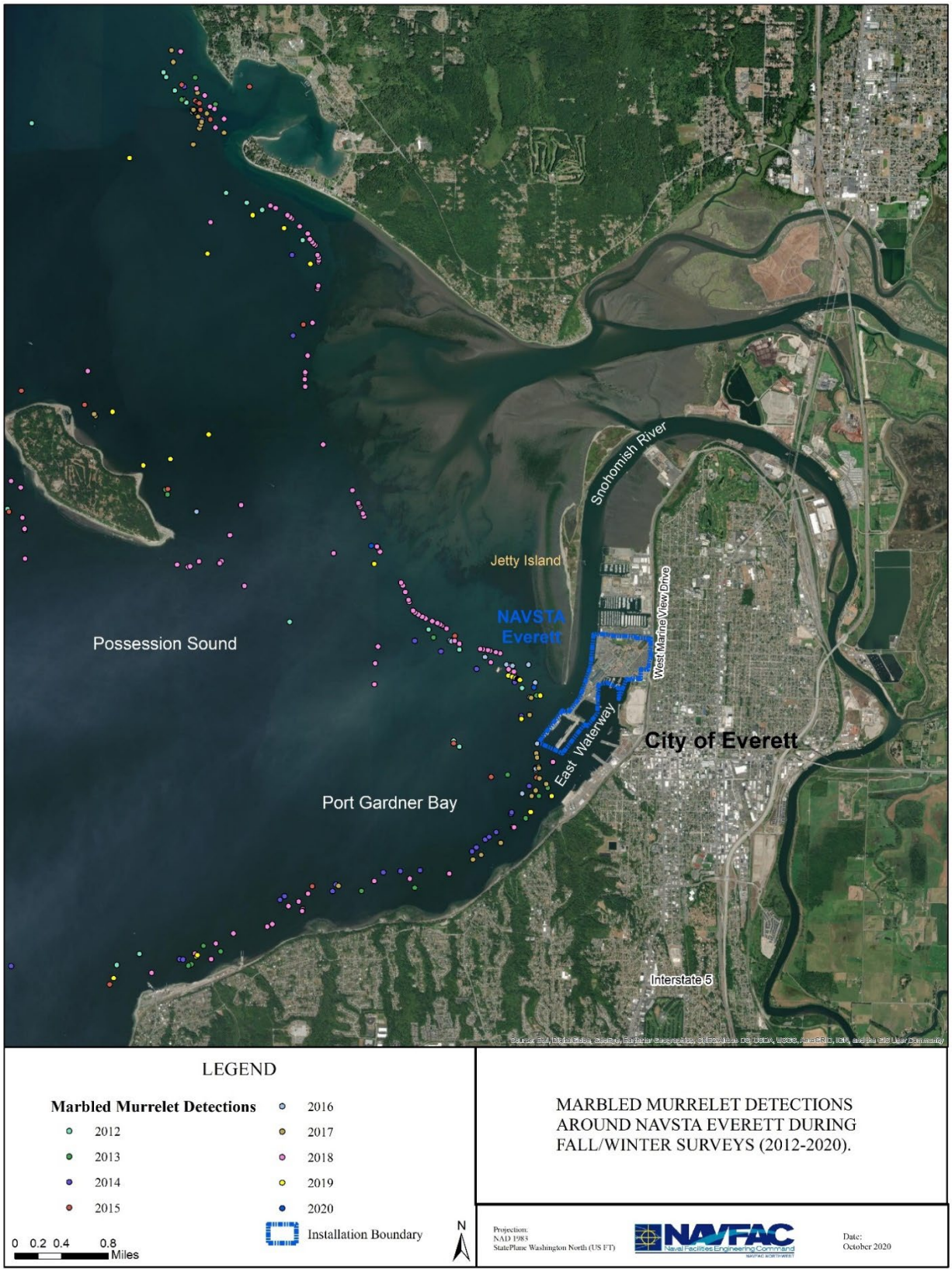

Figure 2-28. Marbled murrelet detections around NAVSTA Everett during fall/winter surveys.

While marbled murrelet populations in other portions of their range may be stabilizing, the population in Conservation Zone 1 (Puget Sound, San Juan Islands, and Strait of Juan de Fuca) is estimated to be declining at an average annual rate of 5.0 percent, based on at-sea population surveys for the Northwest Forest Plan Effectiveness Monitoring Program during the 2001 to 2020 period of analysis (McIver et al., 2021). WDFW fall/winter surveys conducted for the Navy have also detected a declining population trend – the 2013 to 2019 data indicated a 16.42 percent annual decline in the Puget Sound wintering population of marbled murrelets (Pearson and Lance, 2019). The 2020 to 2021 winter density estimate for Puget Sound of 1.05 birds per square km indicates an increase in density over the past two non-breeding seasons (Pearson and Lance, 2021). WDFW was funded by the Navy to prepare a trend analysis report that will provide a more detailed study of the data gathered during the Navy's annual marbled murrelet surveys.

The primary reason for the listing of the marbled murrelet under the ESA was loss of nesting habitat, with only an estimated 10 percent of pre-settlement old-growth forests remaining in western Washington (USFWS, 2019a). Current threats to the marbled murrelet include continued loss of nesting habitat (via timber harvest, wildfire, and effects of climate change); declining quantity and quality of forage fish prey species (via accumulation of toxic contaminants, hypoxic/anoxic events, overfishing, and ocean acidification); mortality from harmful algal blooms and biotoxins, predation (including nest predation), gill-net and purse seine fishing, and oil spills; and the inadequacy of regulatory mechanisms (USFWS, 2019a).

2.3.1.9 Southern Resident Killer Whale

Species Description

Killer whales are the world's largest dolphin, members of the family Delphinidae. They are highly social animals that occur in groups or pods primarily of 40 to 50 animals, but can also travel in pairs, or in groups of several hundred animals that are temporary associations of smaller groups (Dahlheim and Heyning, 1999; Baird, 2000). The structure of the division of groups within the species is complex and has a strong bearing on the range, behavior, foraging strategy, and physiology of each type of killer whale (Baird, 2000). Killer whales can be found in a wide range of depths, salinities, and water temperatures, including intertidal areas with water depths of only a few meters (NMFS, 2008a).

Figure 2-29. Southern Resident killer whales. (Photo credit: Dawn Noren, NMFS)

In the Northeast Pacific, three types of killer whales are recognized: resident, transient, and offshore. These types differ in morphology, ecology, behavior, and genetics, and are not known to interbreed; however, their home ranges can overlap and they can be found in the same places at the same time

(Bigg et al., 1990; Baird, 2000; Ford et al., 2000; Barrett-Lennard, 2000; Morin et al., 2006; Dahlheim et al., 2008). Of these, the Southern Resident killer whales (SRKW) and transients, sometimes referred to as Bigg's killer whales, are the types most likely to be present in the inland waters of the Salish Sea. SRKW are fish-eaters foraging primarily on Chinook salmon (Ford et al., 1998). Transient killer whale populations in the Salish Sea are mammal-eaters, primarily feeding on harbor seals (Ford et al., 1998). The transient whales are regular year-round visitors to the Salish Sea, but the occurrence of different transient groups in less predictable, and they generally spend more time in coastal waters (Ford et al., 1998; Houghton et al., 2015).

Regulatory Framework

The SRKW subpopulation is identified by NMFS as a DPS and is listed as endangered under the ESA (70 FR 69903) (Table 2-3).

The SRKW is listed as endangered on the Washington State Threatened and Endangered Species List (WDFW, 2020a).

As indicated in Table 2-3, NMFS designated critical habitat for the SRKW (71 FR 69054). The designation includes marine habitat in Puget Sound, excluding areas less than 20 feet deep relative to extreme high water. The designation excludes NAVSTA Everett pursuant to a National Defense exclusion (71 FR 69054; Figure 2-30). NMFS identified the following PBFs (cited in 2006 FR as PCEs) for conservation of the SRKW critical habitat:

1. Water quality to support growth and development;
2. Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and
3. Passage conditions to allow for migration, resting, and foraging.

Following the initial designation, NMFS revised the SRKW critical habitat (86 FR 41668); however, this revision was specific to coastal areas added to the designation, and did not change the PBFs for the SRKW or change the National Defense exclusion for NAVSTA Everett.

Population, Distribution, and Abundance

Three pods comprise the SRKW population: Pods J, K, and L. Single whales, usually adult males, also occur in the vicinity (Hoelzel, 1993; Baird, 1994). According to the U.S. Pacific Marine Mammal Stock Assessments: 2019, the estimated total population of SRKW is 75 whales (NMFS, 2020). In comparison, the Northern Resident Killer Whale population in Canada is comprised of 302 whales (Muto et al., 2020).

SRKW have seasonal shifts in distribution from the inland waters of the Salish Sea to locations that can be up to hundreds of miles from Washington waters, as far north as Southeast Alaska or as far south as central California (Carretta et al., 2018; Hanson et al., 2017; Hanson et al., 2018). Specifically, the K and L pods have been sighted as far south as Monterey Bay and central California in recent years; and L pod was identified in in Chatham Strait, Southeast Alaska in June 2007 (Carretta et al., 2018).

SRKW use various habitats in association with different life stages and activities, but the main factor that determines their location is prey availability (Olson et al., 2018; 71 FR 69054). In the spring and summer,

SRKW are most frequently seen in the San Juan Islands region with intermittent sightings in Puget Sound (Olson et al., 2018), which is consistent with the "summer core area" identified during the establishment of the critical habitat for the species (71 FR 69054). In the fall and early winter, SRKW are seen more frequently in Puget Sound, where returning chum (*Oncorhynchus keta*), steelhead, and Chinook salmon are concentrated. By winter, they spend progressively less time in the inland marine waters and more time off the coast of Washington, Oregon, and California (Hanson et al., 2017; Olson et al., 2018).

While SRKW are frequently sighted in the main basin of Puget Sound, their presence near NAVSTA Everett is infrequent and Possession Sound is not identified as a "hot spot" for SRKW occurrence (Olson et al., 2018). Based upon data collected by the Orca Network, a community based marine mammal monitoring effort, there were 24 SRKW sightings in Possession Sound and Saratoga Passage from 2007-2011, and 10 sightings in 2019 (Orca Network, 2020).

Factors thought to contribute to the decline of the SRKW population include prey availability (primarily Chinook salmon), human-generated noise, vessel presence/harassment, and chemical contamination (NMFS, 2008a).

Figure 2-30. Southern Resident killer whale critical habitat near NAVSTA Everett.[2]

[2] Critical habitat data layer downloaded from https://www.fisheries.noaa.gov/resources/research on February 24, 2021. Per 71 FR 69065-69066, NAVSTA Everett was excluded from SRKW critical habitat. Accordingly, data layer was revised by Navy staff for this figure to reflect the FR.

2.3.1.10 Humpback Whale

Species Description

The humpback whale (*Megaptera novaeangliae*) is a baleen whale species (mysticete) with a worldwide distribution. During the summer months, humpback whales spend most of their time in colder waters, feeding and building up fat stores to sustain them throughout the winter. Humpback whales filter-feed on small crustaceans (mostly krill) and small pelagic fish. During the winter, the whales spend their time in warmer, tropical waters in their calving grounds (Bettridge et al., 2015; Calambokidis et al., 2017a).

The humpback whale has three major populations: the North Atlantic, North Pacific, and southern oceans. During the summer, humpback whales in the North Pacific migrate and feed over the continental shelf and along the coasts of the Pacific Rim, from Point Conception, California to the Gulf of Alaska, Prince William Sound, and Kodiak Island. Humpback whales in the eastern North Pacific spend the winter in three separate wintering grounds: the coastal waters along Baja California and the mainland of Mexico, offshore waters of Central American Dome, and the main islands of Hawaii (NOAA, 2012b).

Figure 2-31. Humpback whale.
(Photo credit: NOAA)

Regulatory Framework

In 2016, NMFS revised the listing status of the humpback whale to remove the species-level listing and to divide the species into 14 DPSs based on humpback whale breeding areas (Figure 2-32). Four of those DPSs were listed as endangered and one DPS as threatened (81 FR 62259). The remaining nine DPSs were determined to not warrant listing under the ESA.

Three of the DPSs have the potential to occur in the vicinity of the Salish Sea: the Hawaii DPS, which is not listed; the Mexico DPS, which is listed as threatened; and the Central America DPS, which is listed as endangered (81 FR 62259). The Hawaii DPS migrates from Hawaii to Alaska, British Columbia, and the northern portions of U.S. West Coast, including Washington State (Figure 2-32). The Mexico and Central America DPSs seasonally migrate past Washington State between breeding areas (Mexico and Central America, respectively) and feeding areas in the north (Figure 2-32). The Hawaii DPS and Mexico DPS are the most likely DPSs to occur in the inland waters of Puget Sound, but the Central America DPS may also be present. To date, a review of photo identification of humpbacks in the inland waters of Washington have not matched any animals to the Central America DPS (NMFS, 2016c).

As indicated in Table 2-3, critical habitat for the humpback whale is designated in the coastal waters of Washington and the Strait of Juan de Fuca (86 FR 21082); however, no critical habitat was designated in Possession Sound.

The humpback whale is listed as endangered on the Washington State Threatened and Endangered Species List (WDFW, 2020a).

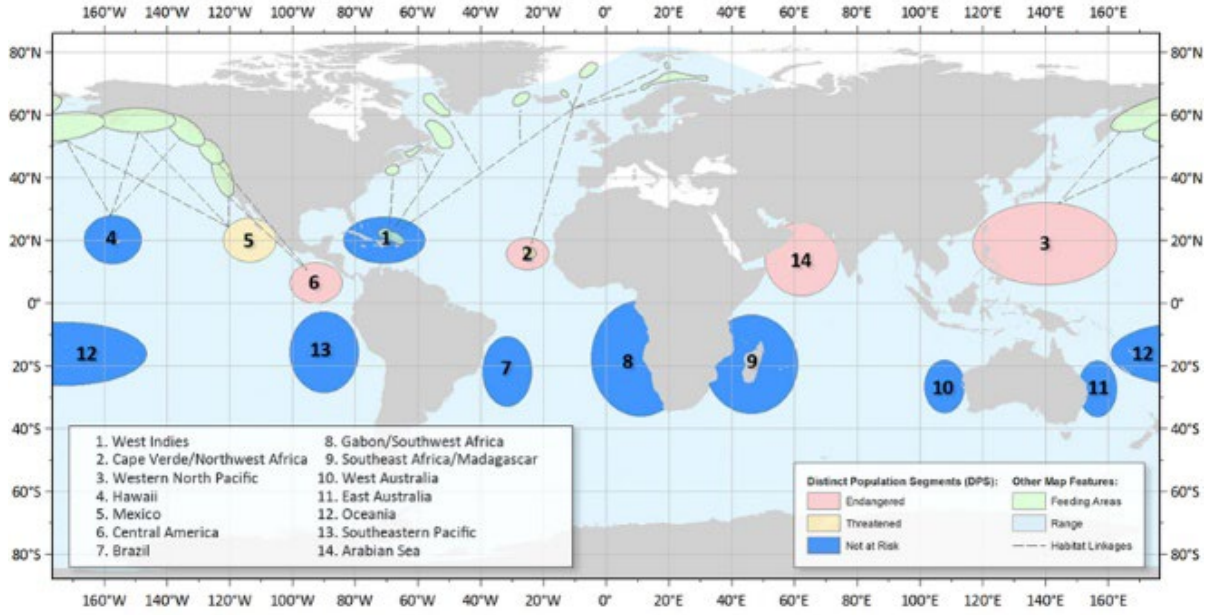

Figure 2-32. Map of humpback whale Distinct Population Segments.
(Credit: NOAA)

Population, Distribution, and Abundance

For centuries, humpback whales were commercially hunted throughout their range, resulting in the depletion of populations worldwide. By the time modern commercial whaling officially ended in 1965, the population of humpback whales in the North Pacific may have been as small as 1,000 whales (84 FR 54354). Since then, populations have been steadily increasing but some have not yet returned to historical abundance levels (Bettridge et al., 2015). The current population estimate for the Central America DPS is 411 whales, and 3,264 whales for the Mexico DPS (81 FR 62259).

Surveys and monitoring studies have detected humpbacks along the Washington coast year-round, with peak occurrence during the summer and fall (Cogan, 2015; Debich et al., 2014; Emmons et al., 2017; Oleson et al., 2009; Širović et al., 2012; Trickey et al., 2015). Based on data compiled by the Orca Network and other studies, humpbacks are regular visitors to the Straits of Juan de Fuca in recent years (although in low numbers) and are infrequent but increasing visitors to Puget Sound. Humpback whales have very rarely been observed as far east as Possession Sound or Everett (Orca Network, 2020; Cascadia Research, 2017). The recent return of humpback whales to Puget Sound is consistent with the increase of the overall population and their use of this area prior to whaling (Calambokidis et al., 2017a).

Moderate to high threats to the three DPSs potentially occurring in the inland waters of Washington include entanglement in fishing gear, and marine debris and vessel strikes (NMFS, 2015b; WDFW, 2020b). For the Central America DPS, small population size remains a risk, increasing the likelihood of inbreeding, loss of genetic variability, and exacerbating the risk to the population of other threats (WDFW, 2020b).

2.3.2 Marine Mammals

Pacific harbor seal, California sea lion (*Zalophus californianus*), and Steller sea lion (*Eumetopias jubatus*) have been documented at NAVSTA Everett. Gray whales (*Eschrichtius robustus*), transient killer whales, and harbor porpoises (*Phocoena phocoena*) have also been documented nearby in Port Gardner Bay. Northern elephant seals (*Mirounga angustirostris*) have been identified in small numbers hauling out on the beaches of Anacortes and Whidbey Island (Central Puget Sound Stranding Network, 2020), and have the potential to be present on rare occasions at NAVSTA Everett. Though not ESA-listed, these species of marine mammals are protected under the MMPA. The MMPA, subject to limited exceptions, prohibits any person, including Federal agencies or vessels subject to the jurisdiction of the U.S. from "taking" marine mammals on the high seas, in U.S. waters or on land under the jurisdiction of the U.S. Under the MMPA a "taking" includes "harassment" of a marine mammal.

Weekly marine mammal surveys are conducted at the installation by the NRM or other member of the NAVSTA Everett Environmental Division. These surveys began in 2012 and provide long-term data for monthly and annual trends in marine mammal presence.

2.3.2.1 Pacific Harbor Seal

Pacific harbor seals are found throughout the temperate and arctic waters of the northern hemisphere and have the widest distribution of any pinniped. Within the Northern Pacific, it is considered a non-migratory species, breeding and feeding in the same area throughout the year. The harbor seal is the most common pinniped found in Washington waters, and is frequently sighted by recreational boaters, ferry passengers, and other users of the marine environment. The most recent estimate of the total population of harbor seals in Washington inland waters is 13,692 seals, and is based on counts conducted by NOAA in 1999 (Carretta et al., 2020). A more recent study estimated the year-round abundance of harbor seals in North Puget Sound (including Everett) at 2,651 seals (Jefferson et al., 2021).

Harbor seals use hundreds of sites to rest or haulout along the coast and inland waters, including intertidal sand bars and mudflats in estuaries, intertidal rocks and reefs, sandy, cobble, and rocky beaches, islands, log booms, docks, and floats in all marine areas of the state. Group sizes typically range from small numbers of animals on some intertidal rocks to several thousand animals found seasonally in coastal estuaries (Jeffries et al., 2000, 2003; Jeffries, 2013). Pupping seasons vary by geographic region, with pups born in eastern bays of Puget Sound from June through August. The harbor seal population appears to be relatively stable, with a population of approximately 1,000 (Pamplin et al., 2018).

Seals haul out at various sites near NAVSTA Everett, including log rafts secured in the East Waterway (Figure 2-33), docks and floats (such as at the marina), riprap shorelines, and the security barrier surrounding the piers (Figure 2-36). Harbor seal pupping has been documented at NAVSTA Everett, and

Figure 2-33. Pacific harbor seals on a dock in the "notch" area of the East Waterway at NAVSTA Everett.

seal counts during the summer (April – September), which includes the breeding season, are often high, peaking at over 700 animals. An average of 167 animals were observed during summer surveys from 2012 to 2019. Winter (October – March) numbers are often lower, with an average of 124 animals (U.S. Navy, 2019). The number of harbor seals hauled out within the East Waterway is often related to the size of log rafts available. When log rafts are removed or of smaller size, the number of seals in the East Waterway is often lower, although seals will switch to other haulout locations, such as docks (U.S. Navy, 2019).

The Pacific harbor seal is included on WDFW's PHS list (WDFW, 2008a) but has not been designated as a state-listed species in Washington (WDFW, 2020a).

2.3.2.2 California Sea Lion

The California sea lion population in the U.S. breeds on the offshore Islands off southern and central California, and has grown from just a few thousand in the 1920s to 257,606 in 2019 (Carretta et al., 2020). In the nonbreeding season, adult and sub-adult males, and juveniles migrate northward along the coast to central and northern California, Oregon, Washington State, and Vancouver Island and return south the following spring (DeLong et al., 2017; Weise and Harvey, 2008). Females remain at the breeding rookeries nursing their young during the non-breeding season (U.S. Navy, 2006). As the population has grown, California sea lions have expanded their range to include the Salish Sea. They feed in waters at NAVSTA Everett, preying on Pacific hake, Pacific herring, North Pacific spiny dogfish (*Squalus suckleyi*), salmon, Pacific cod (*Gadus macrocephalus*), and walleye pollock (*Gadus chalcogrammus*) (Everitt et al., 1981; Calambokidis and Baird, 1994). Sea lions use the floats of the installation's security barrier as haulouts (Figure 2-34) and occasionally use other nearby areas, such as the log rafts in the East Waterway (Figure 2-36). They are found near the installation in fall, winter, and spring but are mostly absent during summer.

Most of the California sea lions at NAVSTA Everett are males. Counts performed by NAVSTA Everett Environmental Division staff from 2012 through 2019 occasionally found over 300 animals hauled out on the security barrier, although the average was 128 animals in the winter (October – March) and 51 animals in the summer (April – September) (U.S. Navy, 2019). Branded sea lions are occasionally observed during weekly surveys. In 2019 and 2020, four branded animals were identified on NAVSTA

Figure 2-34. California sea lions on security barrier at NAVSTA Everett, including branded sea lion X66.

Everett: X978 (branded in June 2017 at Astoria, OR), C69 (branded in spring 2015 at the Bonneville Dam on the Columbia River), X66, and X168 (both branded in fall 2015 at Astoria, OR). The sea lion branded X168 was found on Pier E in a state of severe illness or injury and was reported to the Sno-King Marine Mammal Response by the NRM. Stranding Network veterinarians determined there was nothing that could be done since the animal was still mobile. The sea lion later washed ashore dead near Howarth Park.

The California sea lion is included on WDFW's PHS list (WDFW, 2008a) but has not been designated as a state listed species in Washington (WDFW, 2020a).

2.3.2.3 Steller Sea Lion

The Steller sea lion is the largest eared seal (Otariid) species. The average male is over 9 feet long and weighs about 1250 lbs. Females are quite a bit smaller with an average length and weight of about 7 feet and 580 lbs respectively. Adult coloration is pale yellow to light tan on the dorsal side with dark, reddish brown shading on the flippers and underside of the body (NFMS, 2008b).

Foraging habitat is primarily shallow, nearshore, and continental shelf waters, although some Steller sea lions will feed in freshwater rivers. Haulouts and rookery sites are located on isolated islands, rocky shorelines, and jetties throughout their range (NMFS, 2008b). Steller sea lions are known to utilize a few areas of Puget Sound and Hood Canal, and can occur in these areas year-round. The eastern stock of Steller sea lions has historically bred on rookeries located in Southeast Alaska, British Columbia, Oregon, and California. However, within the last several years a new rookery has become established on the outer Washington coast (at the Carroll Island and Sea Lion Rock complex), with >100 pups born there in 2015 (R. DeLong and P. Gearin, NMFS-AFSC-MML, pers. comm., as cited in Carretta et al., 2019). Haul-out locations exist in coastal and inland waters, but there are no consistently used haul-outs documented in Puget Sound in the vicinity of NAVSTA Everett. The closest known haul-outs used by Steller sea lions are the navigation buoys between Point Wilson (Port Townsend) and Point No Point, on the NE corner of the Kitsap Peninsula, approximately 20 miles (direct distance) to the west of NAVSTA Everett (NOAA, 2012c). Steller sea lions are also reported at Marrowstone Island south of Port Townsend. Potential haul-out locations could occur at the Everett Harbor Buoys, about three quarters of a mile west of NAVSTA Everett; however, Jeffries et al. (2000) did not note this location as being used by Steller sea lions.

Individuals of this species have been seen on the floating portion of the security barrier at NAVSTA Everett (Figure 2-35) but are uncommon. A 1994 Environmental Assessment (EA) indicated two Steller sea lions were observed hauled out on the south side of Jetty Island. This same assessment cites a 1992 survey which indicated between 1-6 Steller sea lions frequent the East Waterway and Port Gardner (U.S. Navy, 1994b). Subsequently, a Biological Assessment document indicates small groups (3 to 5) Steller sea lions were observed near NAVSTA Everett during a winter/early spring survey in 2000 (SAIC, 2001). Four Steller sea lions observations were documented between late September and late November, 2019 during weekly marine mammal counts by the NRM (U.S. Navy, 2019).

Figure 2-35. Steller sea lion on security barrier at NAVSTA Everett, November 12, 2019.

The Steller sea lion is included on WDFW's PHS list (WDFW, 2008a) but has not been designated as a state listed species in Washington (WDFW, 2020a).

2.3.2.4 Gray Whale

The gray whale is the baleen whale species (Mysticete) most frequently occurring near NAVSTA Everett, and this is due in part to the repeated return of a number of gray whales to Puget Sound, Possession Sound, and northward through Saratoga Strait to Whidbey Island to forage (Stout et al., 2001; Calambokidis et al., 2015). The eastern North Pacific stock of gray whale annually migrates north to its summer range off the coast of Alaska and Siberia from February to July, and south to its winter range in Mexico from October to March (Calambokidis et al., 2015). Gray whale diet consists of small invertebrates filtered from sediments scooped from the sea floor in shallow waters (WDFW, 2015).

Gray whales are observed in Washington inland waters, including Possession Sound, in all months of the year (Calambokidis et al., 2017b; Orca Network, 2020). In most years, fewer than 20 gray whales are documented in the inland waters of Washington and British Columbia, with the first whales arriving in January and peak numbers from March through June (Calambokidis et al., 2015, 2017b). The majority of whales sighted are part of a small regularly occurring group of 6 to 10 gray whales that use mudflats in the Whidbey Island and the Camano Island area as a springtime feeding area (Calambokidis et al., 2015, 2017b).

Figure 2-36. Seal and sea lion haulout sites near NAVSTA Everett.
(Source: NAVFAC, 2012)

Figure 2-37. Gray whale.
(Photo credit: NOAA)

During annual marbled murrelet surveys conducted by WDFW for the Navy in the months of September through April, WDFW surveyors also collect data on marine mammals detected. The 2018 through 2020 survey data indicate that gray whales were detected during WDFW surveys in Port Gardener Bay on 25 percent of sampling days, including detections in the months of March, April, and October (U.S. Navy, 2020a).

The gray whale is listed as a Washington State Sensitive Species (WDFW, 2020a) and on WDFW's PHS list (WDFW, 2008a).

2.3.2.5 Other Marine Mammals

A search of the Orca Network Sightings Archives indicates five species of cetaceans have been reported within Port Gardner Bay, Everett, or Possession Sound between 2002 and 2019 (Orca Network, 2020). Of these sightings, the majority were gray whales, but other sightings included transient killer whales, SRKW, and very rarely, humpback whales, harbor porpoises, and Minke whales (*Balaenoptera acutorostrata*).

Transient killer whales are briefly described in *Section 2.3.1.9 Southern Resident Killer Whale*, in comparison to the SRKW. Occurrence of these whales has been increasing in Puget Sound in recent years, possibly in response to increasing pinniped populations, but the transients are most frequently found in the Strait of Juan de Fuca versus any other areas of the Salish Sea (Houghton et al., 2015). Transient killer whales may occur in inland waters in any month, but an analysis of data from 2004 to 2010 showed that transient killer whales occurred in Washington inland waters most frequently in August to September with a second peak occurring in April to May (Houghton et al., 2015).

The harbor porpoise is a candidate for listing in Washington as a State endangered, threatened, or sensitive species (WDFW, 2020a), and is included on WDFW's PHS list (WDFW, 2008a). In the early 1900s, harbor porpoises were one of the most frequently sighted cetaceans in Puget Sound, but by the 1970s, had almost completely disappeared. The harbor porpoise population has since recovered, starting in about 1999/2000 and accelerating from 2006 to 2014 (Evenson et al., 2016). Aerial line transect surveys conducted from 2013 to 2015 detected year-round presence of harbor porpoises in Puget Sound, with relatively high densities (1.54 per square km) found in northern Puget Sound, and localized areas of particularly high density in the South Whidbey area (Jefferson et al., 2016).

Northern elephant seals typically are a pelagic species found off the U.S. west coast, but small number of individuals from the California breeding stock have been found in the inland waters of Puget Sound. Regular haulout sites are documented at Smith and Minor Islands, Dungeness Spit, and Protection Island in the Strait of Juan de Fuca that are thought to be used year-round (Jeffries et al., 2000), and pupping of elephant seal was documented on a beach in Mutiny Bay on Whidbey Island as far back as 2010, with

continued visitation of the site for breeding and/or molting since that time (Mayer, 2021). In addition to neighboring Whidbey Island, several incidental sightings of juvenile and molting adult elephant seals have occurred south of NAVSTA Everett in Seattle (Mayer, 2021).

2.3.3 Other Species of Concern

In addition to federally listed species, NAVSTA Everett prioritizes management of other species identified by USFWS and WDFW as a conservation priority. These species may be in decline; in need of conservation actions to prevent further decline and listing; identified as keystone, ecologically important species; or identified as economically and culturally important to human communities. Sections below discuss these species in further detail.

2.3.3.1 Birds of Conservation Concern

The USFWS identifies a list of species considered to be Birds of Conservation Concern (BCC), which are migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. This list represents the highest conservation priorities for the USFWS beyond those species already designated as federally threatened or endangered (USFWS, 2019b). The BCC list is separated into Bird Conservation Regions (BCRs), which are ecologically distinct regions in North America with similar bird communities, habitats, and resources management issues. NAVSTA Everett is located within BCR 5, the Northern Pacific Rainforest Region. Table 2.4 lists BCR 5 BCC species potentially found at the NAVSTA Everett waterfront site or NSC Smokey Point, their habitat requirements, and whether their presence has been documented or is probable.

While many of the BCC species have been documented or may occur at NAVSTA Everett, there are no resident populations of any of these species on the installation that would require special management planning, above the management planning for bird species in general.

Table 2-4. USFWS Birds of Conservation Concern for Bird Conservation Region 5, with the potential to occur at NAVSTA Everett.

Common name	*Scientific Name*	*Habitat Type*	*Presence at NAVSTA Everett*
Western Grebe	*Aechmophorus occidentalis*	Freshwater lakes and ponds, marine nearshore	Documented
Clark's Grebe	*Aechmophorus clarkii*	Freshwater lakes and ponds, marine nearshore	Potential
Black Swift	*Cypseloides niger*	Forests	Potential
Vaux's Swift	*Chaetura vauxi*	Forests	Potential
Rufous Hummingbird	*Selasphorus rufus*	Open woodlands	Potential
Black Oystercatcher	*Haematopus bachmani*	Marine nearshore	Potential
Red Knot (Pacific)	*Calidris canutus*	Marine nearshore	Unlikely, migration only
Rock Sandpiper (Pribilof)	*Calidris ptilocnemis*	Marine nearshore	Documented
Short-billed Dowitcher	*Limnodromus griseus*	Freshwater marshes, marine nearshore	Potential, migration only
Lesser Yellowlegs	*Tringa flavipes*	Marshes	Potential, migration only
Ancient Murrelet	*Synthliboramphus antiquus*	Marine nearshore, oceans	Potential
Cassin's Auklet	*Ptychoramphus aleuticus*	Marine nearshore, oceans	Potential
Western Gull	*Larus occidentalis*	Marine nearshore, oceans	Documented
California Gull	*Larus californicus*	Freshwater lakes and ponds, marine nearshore	Documented
Brandt's Cormorant	*Phalacrocorax penicillatus*	Marine nearshore, oceans	Documented
Western Screech-Owl (Northern Pacific)	*Megascops kennicottii*	Open woodlands	Potential
Olive-sided Flycatcher	*Contopus cooperi*	Open woodlands	Potential
Chestnut-backed Chickadee (Northern)	*Poecile rufescens*	Forests	Potential

2.3.3.2 WDFW Priority Species

WDFW's PHS Program is used as a means of identifying species of concern for cities and counties to consider when implementing and updating land use plans and development regulations under the state's GMA and SMA. This INRMP includes management strategies for species documented or potentially occurring at NAVSTA Everett or NSC Smokey Point that are included on the PHS list. Table 2-5 lists these PHS species, their documented or potential occurrence, and the section of this INRMP that

provides further information on the species (not including species already covered under *Sections 2.3.1 Threatened and Endangered Species* and *2.3.2 Marine Mammals*).

Table 2-5. WDFW Priority Species at NAVSTA Everett.

Common Name	***Scientific Name***	***Presence at NAVSTA Everett***	***INRMP Section***
Dungeness crab	*Cancer magister*	Documented	2.3.4.5 Invertebrates
Chum salmon	*Oncorhynchus keta*	Documented	2.3.4.3 Fish
Coho salmon	*Oncorhynchus kisutch*	Documented	2.3.4.3 Fish
English sole	*Parophrys vetulus*	Documented	2.3.4.3 Fish
Pacific cod	*Gadus macrocephalus*	Documented	2.3.4.3 Fish
Pacific hake	*Merluccius productus*	Documented	2.3.4.3 Fish
Pacific herring	*Clupea pallasii*	Documented	2.3.4.3 Fish
Pacific sand lance	*Ammodytes personatus*	Documented	2.3.4.3 Fish
Pink salmon	*Oncorhynchus gorbuscha*	Documented	2.3.4.3 Fish
Sea-run cutthroat	*Oncorhynchus clarkii*	Potential	2.3.4.3 Fish
Sockeye salmon	*Oncorhynchus nerka*	Potential	2.3.4.3 Fish
Surf smelt	*Hypomesus pretiosus*	Documented	2.3.4.3 Fish
Walleye pollock	*Gadus chalcogrammus*	Documented	2.3.4.3 Fish
White sturgeon	*Acipenser transmontanus*	Potential	2.3.1.6 Green Sturgeon
Various rockfish species	*Sebastes* spp.	Potential	2.3.1.4 Yelloweye Rockfish and 2.3.1.5 Bocaccio Rockfish
Band-tailed pigeon	*Columba fasciata*	Potential	2.3.4.2 Birds
Common loon	*Gavia immer*	Documented	2.3.4.2 Birds
Great blue heron	*Ardea herodias*	Documented	2.3.4.2 Birds
Harlequin duck	*Histrionicus histrionicus*	Documented	2.3.4.2 Birds
Snow goose	*Anser caerulescens*	Documented	2.3.4.2 Birds
Western grebe	*Aechmophorus occidentalis*	Documented	2.3.4.2 Birds
Western high arctic brant (black brant)	*Branta bernicla*	Documented	2.3.4.2 Birds
Western WA nonbreeding concentrations of Barrow's goldeneye, Common goldeneye, and Bufflehead	*Bucephala islandica*, *Bucephala clangula*, and *Bucephala albeola*, respectively	Documented	2.3.4.2 Birds
Western toad	*Anaxyrus boreas*	Potential	2.3.4.4 Amphibians and Reptiles

2.3.4 Fauna

In addition to the federally-listed species and species of concern discussed above, the NAVSTA Everett waterfront site and NSC Smokey Point support many other species, which also benefit from the installation's natural resources program. A general overview of taxa is presented in sections below.

2.3.4.1 Terrestrial Mammals

The NAVSTA Everett waterfront site offers minimal habitat for terrestrial mammals. Species including coyote (*Canis latrans*), long-tailed weasel (*Mustela frenata*), raccoon (*Procyon lotor*), European rabbit (*Oryctolagus cuniculus*), and Eastern gray squirrel (*Sciurus carolinensis*) have been observed on the installation. Other mammal species that could potentially use the site include river otter (*Lontra canadensis*), deer mouse (*Peromyscus maniculatus*), shrew (*Soricidae* spp.), Norway rat (*Rattus norvegicus*), and bats of the genus *Myotis*.

NSC Smokey Point has supported beavers (*Castor canadensis*) and raccoons. The site is probably also populated by numerous small mammals including Eastern gray squirrels, shrews, voles (*Microtus* spp.), deer mice, Norway rats, and bats of the genus *Myotis*. Coyotes have been observed in the fields directly across from the east side of the NSC Smokey Point (Miller, 2004), and may hunt on the property at night.

2.3.4.2 Birds

Due to the lack of natural vegetation and the large areas covered by asphalt and buildings, the bird species using upland area of the NAVSTA Everett waterfront are generally species habituated to human presence, activities, and resources. The most common species regularly using the site include glaucous-winged gull (*Larus glaucescens*), Caspian tern (*Hydroprogne caspia*), American crow (*Corvus brachyrhynchos*), Canada goose (*Branta canadensis*), rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and American robin (*Turdus migratorius*). Osprey (*Pandion haliaetus*) and bald eagles (*Haliaeetus leucocephalus*) roost on various structures around the installation, including light poles, buildings, and the rigging on ships.

The aquatic areas of the installation are used by a greater diversity of bird species. The most common species regularly observed are great blue heron (*Ardea herodias*), belted kingfisher (*Megaceryle alcyon*), pigeon guillemot (*Cepphus columba*; Figure 2-38), mallard (*Anas platyrhynchos*), Barrow's goldeneye (*Bucephala islandica*), double-crested cormorant (*Phalacrocorax auritus*), and glaucous-winged gull. Great blue herons and cormorants roost on pilings, piers, docks, riprap shorelines, log rafts, and barges filled with woodchips anchored near the Notch. Over 20 great blue herons have been observed at one time within the installation. Belted kingfisher roost on the piers and pilings. Pigeon guillemots, mallards, Barrow's goldeneyes, and gulls are frequently observed floating or foraging in waters within and around the installation.

Incidental bird species observations are collected during the weekly marine mammal counts. In addition, NAVSTA Everett has participated in the Annual Christmas Bird Count since 2011, in collaboration with the Pilchuck Chapter of the Audubon Society. WDFW also collects data on all species incidentally observed during the annual marbled murrelet surveys, discussed in *Section 2.3.1.8 Marbled Murrelet*.

Some of the incidental species observations and species documented during recent years of the Christmas Bird Count and WDFW surveys include the following:

- Black brant (*Branta bernicula nigricans*)
- Snow goose (*Anser caerulescens*)
- American wigeon (*Mareca americana*)
- Northern pintail (*Anas acuta*)
- Surf scoter (*Melanitta perspicillata*)
- White-winged scoter (*Melanitta deglandi*)
- Bufflehead (*Bucephala albeola*)
- Barrow's goldeneye
- Common goldeneye (*Bucephala clangula*)
- Red-breasted merganser (*Mergus serrator*)
- Red-throated loon (*Gavia stellata*)
- Common loon (*Gavia immer*)
- Pacific loon (*Gavia pacifica*)
- Horned grebe (*Podiceps auritus*)
- Red-necked grebe (*Podiceps grisegena*)
- Western grebe (*Aechmophorus occidentalis*)
- Pelagic cormorant (*Phalacrocorax pelagicus*)
- Brandt's cormorant (*Phalacrocorax penicillatus*)
- Double-crested cormorant
- Western gull (*Larus occidentalis*)
- Ring-billed gull (*Larus delawarensis*)
- Mew gull (*Larus canus*)
- Bonaparte's gull (*Chroicocephalus philadelphia*)
- Thayer's gull *(Larus glaucoides thayeri*)
- Black-bellied plover (*Pluvialis squatarola*)
- Black turnstone (*Arenaria melanocephala*)
- Dunlin (*Calidris alpina*)
- Least sandpiper (*Calidris minutilla*)
- Common murre (*Uria aalge*)
- Pigeon guillemot
- Rhinoceros auklet (*Cerorhinca monocerata*)
- Marbled murrelet
- House sparrow (*Passer domesticus*)
- Song sparrow (*Melospiza melodia*)

A full list of species documented during the Christmas Bird Count, including total numbers each year, is included in Appendix D.

Figure 2-38. Pigeon guillemots.
(Photo Credit: Dick Daniels, USFWS)

All migratory bird species are protected by the MBTA. The MBTA provides regulations prohibiting the taking, selling, transporting, and importing migratory birds, nests, parts, or products, and provides enforcement and penalties for violations. This protection extends to all species of waterfowl, shorebirds, raptors, woodpeckers, etc. and nearly all songbirds. In continental North America, only the European starling, rock pigeon, and the house sparrow are not protected under this Act.

Nuisance birds using the waterfront site in different seasons, particularly the nesting season, include Canada goose, American crow, and glaucous-winged gull. During construction of the waterfront site facilities, when large areas were cleared and leveled, glaucous-winged gulls, western gulls, and Caspian terns nested by the thousands on this property. These nesting birds were a nuisance due to the large amounts of feces they dropped and could have posed a hazard to helicopters using the helipad (which is no longer in use). Because the MBTA prohibited Navy personnel from harassing all birds except rock pigeon, European starling, and house sparrow without special permits, in 1996 the Navy contracted U.S. Department of Agriculture (USDA) Animal Damage Control, now USDA Animal and Plant Health Inspection Service (APHIS) Wildlife Services, to control these problem birds. Under current operations, these species are considered nuisance species because their nesting activities result in damage to facilities (particularly rooftops), unsanitary conditions, or aggression towards humans. The past and current management actions taken by Wildlife Services for nuisance birds is discussed in *Section 2.3.6 Invasive, Noxious, and Nuisance Species*.

The water features and riparian areas in the vicinity of the NSC Smokey Point support palustrine (marshland birds) and passerine (perching songbirds) species. These species include: violet-green swallow (*Tachycineta thalassina*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), mallard, northern shoveler (*Spatula clypeata*), gadwall (*Anas strepera*), cinnamon teal (*Anas cyanoptera*), blue-winged teal (*Anas discors*), European starling, American crow, marsh wren (*Cistothorus palustris*), American robin, common yellowthroat (*Geothlypis trichas*), bushtit (*Psaltriparus minimus*), house sparrow, red-winged blackbird (*Agelaius phoeniceus*), song sparrow, savannah sparrow (*Passerculus sandwichensis*), and American goldfinch (*Spinus tristis*) (observations by K. Livezey, 1998 to 1999). At least one red-tailed hawk (*Buteo jamaicensis*) was regularly observed between 2001 and 2004 hunting in the nearby fields year-round and hawks probably nest nearby (Miller, 2004). A great blue heron was also observed during a field visit by Navy biologists in August, 2020. Herons could potentially nest in nearby forest habitat.

2.3.4.3 Fish

Snohomish River and Estuary

The Snohomish River Basin, the second largest drainage basin in Puget Sound, encompasses an area of approximately 1,856 square miles and includes an estimated 2,718 miles of streams and rivers (Snohomish Basin Salmon Recovery Forum, 2005). The confluence of the Skykomish and Snoqualmie rivers, approximately 20 miles upstream from NAVSTA Everett, combine to form the Snohomish River. The Skykomish and lower Snohomish provide the majority of the natural cobble-rich spawning habitat as the Snoqualmie is a lower gradient system, which results in the accumulation of fine-grained sediment less conducive to successful spawning habitat (Snohomish Basin Salmon Recovery Forum, 2005, 2019). The Skykomish provides the majority of the naturally spawning Chinook populations due to the cobble-rich spawning habitat (Snohomish Basin Salmon Recovery Forum, 2005, 2019). The main Snohomish River channel is approximately 500 feet wide where it empties into Possession Sound adjacent to NAVSTA Everett. However, while much of the Snohomish River is channelized, the geographic region where the Snohomish estuary and sloughs empty into the marine waters of Possession Sound extends from the East Waterway at the south end of NAVSTA Everett north nearly four miles to Priest Point, due west of Marysville.

Salmonids

The freshwater portions of the Snohomish River basin provide spawning, rearing, and foraging habitat for nine salmonid species: Chinook (spring and summer/fall runs), coho (*Oncorhynchus kisutch)*, pink, sockeye (*O. nerka*), and chum salmon, steelhead, cutthroat (*O. clarkii*), and bull trout, and mountain whitefish (*Prosopium williamsoni*) (Snohomish Basin Salmon Recovery Forum, 2005; WDFW 2020b). Detailed regulatory descriptions, life history, and potential occurrence details for ESA-listed fish species (i.e., Chinook, steelhead, and bull trout) are provided in *Section 2.3.1 Threatened and Endangered Species*.

Table 2-6 summarizes the adult run timing and spawning seasons of both ESA-listed, and non-listed, anadromous salmonids utilizing the Snohomish Basin.

Adult anadromous salmonids use the waters of Possession Sound and Port Gardner Bay as temporary holding areas prior to migrating upstream to spawn. There are no studies documenting the utilization of the East Waterway by adult salmonids, though it is likely that some adult fish may temporarily mill in the area prior to migrating up the Snohomish River. Juvenile anadromous salmonids utilize the estuarine area at the mouth of the Snohomish River as a migratory pathway during a period of adjustment to the marine environment. Sea-run cutthroat use the Snohomish estuary for foraging and summer rearing. Stomach content analysis of the juvenile salmon caught indicates that all of the species mentioned above feed in the nearshore areas near NAVSTA Everett (U.S. Navy, 1985). Juveniles captured in the nearshore area had predominantly epibenthic species in their stomachs while those from deeper waters had eaten primarily pelagic prey.

The first and most abundant juvenile salmon outmigrating to the estuarine waters near NAVSTA Everett are pink salmon (Beauchamp, 1986). They appear in February and peak in numbers mid-April through mid-May, spending a short time in the nearshore area and moving into deeper surrounding waters around mid-June. Arriving about two weeks after the pinks, chum salmon juveniles peak from mid-April until mid-June, but are present through at least June. Chinook salmon juveniles arrive in these waters in February and peak from mid-June to early July. Coho salmon juveniles are less abundant and quickly emigrate through the area, occurring as early as late February, but peak in late May through early June (Table 2-6). Other anadromous game fish are found in lower numbers than salmon and occur in nearshore locations. Coastal cutthroat trout spend a greater portion of their life in the estuarine habitats. Bull trout are the least numerous of the anadromous fish occurring adjacent to NAVSTA Everett.

Table 2-6. Seasonal use of Snohomish River by anadromous fish.

SPECIES (RUN)	*Time of Adult Return*	*Spawning Season*	*Time in Freshwater*	*Estuarine Residence Time*
Summer Chinook	Jun-Jul	Late Sep-Nov	90-180 days	Mar-Jul
Fall Chinook (ocean type)	Aug-Sep	Late Sep-Nov	90-180 days	Apr-Jul
Fall Chinook (stream type)	Aug-Oct	Oct-Dec	1 year	Feb-May
Coho	Aug-Dec	Oct-Jan	1 year	Feb-Jun
Chum	Oct-Jan	Nov-Feb	0-30 days	Feb-May
Sockeye*	Data not avail.	Data not avail.	Data not avail.	Data not avail.
Pink	Aug-Sep	Sept-Oct	0-7 days	Feb-Jun
Winter steelhead	Nov-Apr	Jan-Jun	2-3 years	Mar-May
Summer steelhead	May-Oct	Jan-Jun	2 years	Mar-May
Sea-run cutthroat	Dec-Jun	Dec-Jun	1-4 years	Jan-Oct
Bull trout	Apr-Aug	Sept-Oct	2-3 years	Mar-May

(**S**ource: Washington State Conservation Commission, 2002; Snohomish Basin Salmon Recover Forum 2005, 2019)

* Though no native stocks of sockeye exist in the Snohomish Basin, attempts were made to introduce a run and fish are occasionally still encountered during WDFW surveys (Verhey, 2020).

Pink salmon

Within the Snohomish system, returning adult pink salmon are numerically dominant in odd years (Snohomish Basin Salmon Recovery Forum, 2005, 2019). As a two-year maturing fish, the even year returning spawning population are extremely low. Counts of odd year returning adults had exceeded 2 million fish annually, but following poor egg survival of the 2013 and 2015 cohorts, the 2017 population was the lowest on record (Snohomish Basin Salmon Recovery Forum, 2019). In 2009 and 2013 the pink run size in the Snohomish was 3.7 M and 3.4 M fish, respectively (PFMC, 2020). By 2015, the run size decreased to 693,031 fish and further even further decreased to 94,041 fish in 2017 (PFMC, 2020). The poor pink salmon egg survival of the 2013 and 2015 cohorts is largely attributed to large river flows in the upper Snohomish Basin immediately following pink salmon spawning. As a result, many of the pink salmon redds were either flushed out or buried under silt. Smaller tributaries less affected by the large flows and turbidity, such as the Sultan River, may have served as refuges for some of these cohorts.

Coho salmon

Since at least 2014, naturally spawning coho terminal run size has been greater in even years than in odd years (PFMC, 2020). In 2014, 2016, and 2018, the combined Puget Sound commercial net fishery catches and spawning escapements in numbers of fish for hatchery and natural coho in the Snohomish River was estimated at 109,549, 128,492, and 94,509 fish, respectively (PFMC, 2020). However, in 2015 and 2017, the estimates were only 33,597 and 72,085 fish. As mentioned above for Chinook, this trend may be a response to competition with large numbers of odd-year-returning pinks salmon (Ruggerone and Goetz, 2004; Ruggerone and Nielsen, 2004; Ruggerone and Irvine, 2018). Due to various pressures

on coho populations, including overfishing, the Pacific Fisheries Management Council adopted a rebuilding plan in September 2019 (PFMC, 2019a, 2020). However, Snohomish natural coho now meet the criteria for 'not overfished/rebuilding' status (PFMC, 2020).

Coho salmon, more so than other Pacific salmonids, have demonstrated a high rate of both juvenile and pre-spawn adult mortality in urban streams (McIntyre et al., 2018: Feist et al., 2011; Chow, 2018; Chow et al., 2019; Peter et al., 2018). Recent findings by Tian et al. (2020) have linked pre-spawn mortalities to the breakdown of a tire-rubber preservative. To what extent this has had an effect on coho salmon in the Snohomish Basin is unknown.

Sockeye salmon

There are no native stocks of sockeye salmon occurring in the Snohomish Basin, which lacks a suitable lake for use as rearing habitat. Having once been introduced into the basin in an effort to establish a fishable run, sockeye salmon occur at low abundance levels in the Snohomish Basin. Incidental observations have occurred during annual Chinook salmon red counts, with an estimated 120 fish observed over a 10-year period (Verhey, 2020). At the Sunset Falls trap facility on the South Fork of the Skykomish River, 370 sockeye salmon were observed over a similar period (est. 37 fish annually). Based on these observations over the past 10 years, sockeye salmon would seasonally occur in very low numbers when both adult and juvenile fish migrate through the waters adjacent to NAVSTA Everett.

Chum salmon

Chum salmon are the second largest Pacific salmonid. Fall chum typically return to Snohomish Basin spawning habitats in November and December. Fry hatch and emerge from the gravel beginning in March and begin their downstream migration to the estuary. Chum escapement in the Snohomish system are typically greater in even years than in odd years, which may be attributed to the historical abundance of pink salmon in odd years. Within the Snohomish system, chum salmon have shown a marked decline over the past 20 years (Snohomish Basin Salmon Recovery Forum, 2019). The three-year geometric mean for Snohomish River chum salmon escapement was greater than 120,000 fish in 2005, approximately 65,000 fish in 2006, and nearly 80,000 fish in 2007 (Snohomish Basin Salmon Recovery Forum, 2019). However, beginning in 2008, chum salmon escapement rapidly declined. The three-year geometric mean for escapement in the years 2016-2018 was below 10,000 fish annually, far below the established return goals.

Cutthroat trout

Coastal cutthroat trout (*Oncorhynchus clarki clarki*) inhabit a diverse and ecologically varied range of habitats in the Puget Sound region (Anderson, 2008). Because of their ability to occupy a wide range of habitats, they occur over a broader distribution than any other subspecies of cutthroat trout. Relative to other anadromous salmonids, coastal cutthroat have limited ocean migrations, are rarely found in oceanic waters, and spend more time in fresh water and estuaries than other anadromous salmonids (Pearcy et al., 2018). Mature fish tend congregate in estuaries during the summer before swimming upstream to spawn (Pearcy et al., 2018). Cutthroat trout are repeat spawners, meaning following spawning they may remain in freshwater or return to marine waters before returning to spawn in a following summer, typically in the same system.

In the region near NAVSTA Everett, cutthroat trout utilize the lower Snohomish River and estuary as migration and foraging habitats. Within Puget Sound estuarine and nearshore marine habitats, cutthroat trout feed on gammarid amphipods, isopods, shrimps, three-spine stickleback, Pacific sand lance, and other small fishes (review in Pearcy et al., 2018). They are also a significant predator of juvenile salmonids (Duffy and Beauchamp, 2008). In 22 beach seine sets deployed from May through September 2015, only one cutthroat was captured in estuarine habitats adjacent to NAVSTA Everett (Frierson et al., 2016). Under a contract with the Navy, NMFS is currently conducting a more comprehensive beach seine study in the same region. As the study is currently ongoing, preliminary results are not yet available. Regarding cutthroat trout populations in the Snohomish River system, although data for this system was limited prior to the initiation of their status review, they have been designated as "healthy" (Johnson et al., 1999; PSTT and WDFW, 2004).

Mountain Whitefish

The 2005 *Snohomish River Basin Salmon Conservation Plan* indicates that mountain whitefish are distributed throughout the Snohomish Basin, though their population status is unknown (Snohomish Basin Salmon Recovery Forum, 2005). However, as a freshwater-occurring salmonid that prefers clear and cold water habitats, mountain whitefish are not expected to occur in the estuarine or marine waters in the lower Snohomish River near NAVSTA Everett.

Non-Salmonid Fish

The University of Washington was funded to conduct fish and invertebrate trawl studies in support of the Navy siting study and the Puget Sound Dredge Disposal Analysis siting studies in the 1980s. The University utilized beam trawls, otter trawls, crab pots, shrimp pots and a submarine (the Pisces IV) Dinnel et al., 1987, 1988; Donnelly et al., 1986; Lauth et al., 1988). A diverse community of pelagic, or off-bottom, species of fish have been documented in the vicinity of NAVSTA Everett (Dinnel et al., 1987, 1988; Donnelly et al., 1986; Lauth et al., 1988). Species documented in these waters include Pacific hake, walleye pollock, Pacific cod, Pacific herring, Pacific tomcod (*Microgadus proximus*), shiner perch, spotted ratfish (*Hydrolagus colliei*), and Pacific spiny dogfish. Demersal fish, or on-bottom, fish documented in the area included Pacific staghorn sculpin (*Leptocottus armatus*), English sole (*Parophrys vetulus*), Dover sole (*Microstomus pacificus*), slender sole (*Lyopsetta exilis*), sand sole (*Psettichthys melanostictus*), Pacific sanddab (*Citharichthys sordidus*), tubesnouts (*Aulorhynchus flavidus*), eelpouts (Family *Zoarcidae*), poachers (Family *Agonidae*), northern ronquil (*Ronquilus jordani*), and a number of other marine fish species (Lauth et al., 1988). No comprehensive beam or otter trawl studies have been conducted since these early siting studies. As part of the WDOE's Bay-Wide Characterization studies in the late 2000s, both beam and otter trawls were attempted in the East Waterway in an attempt to collect demersal organisms for tissue analysis. However, due to the large amount of wood waste that had accumulated on the benthos, no trawls were successful (Hunt, 2021).

From May to September 2015, the Navy funded WDFW to conduct a beach seining survey along the NAVSTA Everett shoreline (Frierson et al., 2016). This study resulted in the capture of shiner perch, three-spine stickleback, bay pipefish (*Syngnathus leptorhynchus*), greenling (*Hexagrammos* sp.), kelp perch (*Brachyistius frenatus*), Pacific herring, Pacific sand lance, Pacific sanddab, surf smelt, and various species of sculpin (Family Cottidae). The three most prevalent species were Pacific herring, shiner perch, and three-spine stickleback. The Navy is currently funding NMFS to conduct a similar study but with a two-year long duration. The study is ongoing and the preliminary results are not yet available.

There are documented surf smelt and Pacific sand lance spawning areas located within Port Gardner Bay (Figure 2-40). Surf smelt spawning habitat has been documented to the south, near the mouth of Pigeon Creek, while Pacific sand lance spawning habitat has been documented north near the mouth of Tulalip Bay, south near Howarth Park as well as on some areas on Gedney Island. WDFW mapping does not identify any known Pacific herring spawning sites within Port Gardner Bay. Given the intervening distance between NAVSTA Everett and known sites, actions on the installation are not expected to affect forage fish spawning.

However, Pacific herring, surf smelt, and Pacific sand lance all utilize sheltered and/or vegetated nearshore areas throughout Puget Sound for early rearing and maturation, so minor impacts to these life stages can be assumed for any nearshore activity in the region.

A mitigation plan developed in consultation with WDFW, describes in detail the impacts of the construction of the Breakwater Pier, the Spruance Boulevard expansion, and the repair of Pier D on the intertidal and shallow sub-tidal habitat areas of NAVSTA Everett (Beak, 1994). The impacts of these projects included impairment of fish passage due to the construction of wave attenuation baffles on Pier B (Figure 2-39). As mitigation for these impacts, the plan provided for the protection of intertidal and shallow sub-tidal areas by the placement of dolphins and pilings at regular intervals along the shoreline of the south Notch area. This prevents log rafts stored in the area by the Port of Everett from grounding out at low tides onto the intertidal and shallow sub-tidal areas. Estuaries and nearshore marine habitats are inhabited by epibenthic invertebrates such as gammarid amphipods preyed upon by juvenile salmon during their estuarine residence, and are considered a critical food resource for salmonid survival and success (Simenstad et al., 1982; Duffy et al., 2010). These same areas are habitat for some invertebrates, crustaceans, and mollusks; thus, the mitigation plan also serves to protect the habitat of these other species.

As shown in Figure 2-39, Pier B was designed with wave attenuation baffles that create a wall forcing migrating fish out into deeper water away from the shore. To mitigate this, the Navy designed a fish passage opening between Pier B and the South Wharf that allows fish in the Snohomish River to stay inshore as they move to and from the East Waterway and the river (Figure 2-41). The fish passage is located on the northwest corner of the South Wharf and steel piles have been placed on the riverside to prevent unauthorized boat access under Pier B. Debris barrier floats are attached to the steel piles (indicated by dotted line in Figure 2-41).

Figure 2-39. Pier B wave attenuation baffles.

Figure 2-40. Forage fish spawning beaches near NAVSTA Everett.

Figure 2-41. Baffle mitigation - Fish passage through Pier B.

Hayho Creek

The Arlington-Marysville Manufacturing/Industrial Center's Sub Area Plan notes the headwaters of Hayho Creek, an approximately 3-mile long seasonal ditched drainage, originate from a wetland approximately 4,500 feet north of NSC Smokey Point (City of Marysville, 2018). The creek flows south, adjacent to agricultural and developed properties, in a mostly straightened channel where it runs along the western side of NSC Smokey Point, meanders south-southeast through residential properties, before discharging into the Middle Fork of Quilceda Creek.

Although the City of Marysville indicates they currently plan to maintain Hayho Creek in its current alignment, *Hayho Creek Channel Realignment* was included in a list of future projects to implement between 2023 to 2035 (City of Marysville, 2018). Due to its small size, habitat studies are limited in the reach adjacent to NSC Smokey Point. However, limited studies have indicated poor sediment and water quality conditions, including fecal coliforms and metals in sediments, since the early 1990's (Snohomish County, 1993). More extensive habitat studies have been conducted downstream, in the larger, perennial Quilceda Creek.

Quilceda Creek is considered an urban stream that provides some year-round pool habitat, and riparian habitat comprised of hard wood species. Sediments in the Quilceda Creek drainage were found to have a high percentage of sediment fines (69 percent) relative to reference areas (Snohomish County, 2002). A USGS stream gauge for Quilceda Creek stopped collecting data in 1977; however, from January through September 1977, maximum spring flows were approximately 21 cubic feet per second (cfs), but an annual average of 8 to 10 cfs was more typical (USGS stream gauge 12157000). The combination of climate change and urban development, including the increase of impervious surfaces, is expected to result in basin-wide reductions of riparian habitats and stream flows during summer months, while contributing to larger, flashier outflows during summer months (Snohomish Basin Salmon Recovery Forum, 2005; Snohomish County, 2002, 2010; Snohomish County Surface Water Management, King County Snoqualmie Watershed Forum Staff, and Tulalip Tribes Natural Resources Department, 2015; leDoux et al., 2017).

In an assessment of aquatic habitats, Snohomish County (2002) noted that historically, Chinook, coho, and chum salmon and steelhead and cutthroat trout have utilized the greater Quilceda Creek watershed. However, the *Snohomish River Basin Salmon Conservation Plan* indicates that the potential for this system to support Chinook is low, though coho and chum salmon, cutthroat trout, and rainbow trout use of the Quilceda Creek sub-basin continues (Snohomish Basin Salmon Recovery Forum, 2005). In fact, the Quilceda Creek system, though impacted by surrounding development, remains an important system in the sub-basin for the production of coho salmon (Snohomish Basin Salmon Recovery Forum, 2005). In a review of the Snohomish Basin, including the Quilceda Creek sub-basin, the *Snohomish River Basin Salmon Conservation Plan* provided no mention of Hayho Creek as a seasonal tributary to Quilceda Creek (Snohomish Basin Salmon Recovery Forum, 2005).

In 2001 and 2002, small numbers of spawning coho salmon were observed in beaver ponds and in the large culvert on the south edge of the NSC Smokey Point property but were not observed north of the bend along the west side of the property. The streambed along the west side of the NSC Smokey Point property consists of mud/silt and does not provide good spawning habitat, so this may be the reason for the infrequent observations of coho in this portion of the stream. In 2003, unknown persons removed the beaver dam, and the pond was lowered considerably. The beaver dam was later rebuilt, but the City

of Marysville, in conjunction with Snohomish County, installed a beaver-proof water-level by-pass pipe, or "beaver deceiver," to maintain the level of the pond at a height lower than in the past. During lower flows, it is unlikely that salmon can get through the pipe or access habitats above the dam, including the pond and the upstream portions of Hayho Creek. However, Navy biologists conducted a site visit in January 2022 following a seasonal high flow event. Water levels were sufficiently elevated to a point where water flowed around the berm. The discovery of an adult coho salmon carcass on the upstream side of the beaver deceiver device indicates salmon can access upstream habitats during higher flows.

With respect to updated salmonid occurrence in the reach of Hayho Creek adjacent to NSC Smokey Point, WDFW's SalmonScape mapping tool indicates the following: fall chum (documented spawning), resident coastal cutthroat trout (documented presence), coho (presumed presence), fall Chinook (gradient accessible), winter steelhead (gradient accessible), odd year pink salmon (gradient accessible), and bull trout (presumed presence) (WDFW, 2021). A literature search was unable to find any survey data or reports documenting the occurrence of ESA-listed fish species in Hayho Creek. Navy biologists conducted site visits at Hayho Creek in August and September 2020, finding no flowing water and only muddy habitats with a limited number of small pools – habitat conditions insufficient to support year-round presence of salmonids. As discussed above, due to the absence of flowing water during summer and early fall, potentially occurring fish could at best seasonally occupy the portions of Hayho Creek adjacent to NSC Smokey Point when high flow conditions allow passage over the beaver deceiver.

2.3.4.4 Amphibians and Reptiles

There have been no comprehensive surveys of reptiles or amphibians at the NAVSTA Everett waterfront site or NSC Smokey Point; however, preliminary amphibian surveys were conducted at NSC Smokey Point in May 2013. NAVSTA Everett does not have any wetland areas, freshwater streams or ponds, or above ground stormwater structures that might be attractive habitat for these species. The NSC Smokey Point includes wetlands and storm water ponds, which may support populations of amphibians or reptiles. During the sampling effort in May 2013 at NSC Smokey Point, the stormwater ponds had the highest sampling success for amphibians (NAVFAC NW, 2013). Pacific treefrogs (*Pseudaris regilla*), northern red-legged frogs (*Rana aurora*), and American bullfrogs (*Lithobates catesbeianus*) were captured during this effort (NAVFAC NW, 2013).

The Washington Herp Atlas (2009) identifies 9 reptiles and amphibians that have been observed in the Snohomish County lowlands and could potentially occur at NSC Smokey Point, in addition to the three species identified above: western toad (*Anaxyrus boreas*), northwestern salamander (*Ambystoma gracile*), western long-toed salamander (*Ambystoma macrodactylum*), Oregon ensatina (*Ensatina escholtzii*), rough-skinned newt (*Taricha granulosa*), northern alligator lizard (*Elgaria coerulea*), northwestern garter snake (*Thamnophis ordinoides*), common garter snake (*Thamnnophis sirtalis*), and painted turtle (*Chrysemys picta*).

Of the 12 potentially occurring species at Smokey Point, species of special management concern include the American bullfrog, which is invasive and discussed further in *Section 2.3.6 Invasive, Noxious, and Nuisance Species*, and the western toad, discussed further below. The other 10 species have a National Heritage Program ranking of S5, indicating lowest conservation concern in the state of Washington (Washington Herp Atlas, 2009). However, the fungal disease Chytridiomycosis presents a serious concern to even common amphibian species, discussed further in *Section 2.3.4.6 Wildlife Diseases*.

WDFW includes western toad on their PHS List (WDFW, 2008a). Additionally, the western toad is a state candidate species (WDFW, 2020a) and WDFW designated western Washington populations as SGCN (WDFW, 2015). Though the species is widespread throughout the state, declines have been observed in the Puget Sound trough region and the lower Columbia River; of approximately 107 historical sites, only 19 are thought to remain (WDFW, 2020c).

Western toads occur in a variety of terrestrial habitats, including grasslands, scrublands, woodlands, and forests, and may occur at NSC Smokey Point, likely in proximity to the stormwater ponds or the riparian buffer of Hayho Creek. As described above, western toads have been observed in Snohomish County lowlands, but the species has not been detected at NSC Smokey Point.

2.3.4.5 Invertebrates

Benthic Invertebrates

Benthic invertebrates include highly dense invertebrates that utilize or live in or on a lake or sea floor for at least some life stages.

Benthic infaunal organisms live in or are associated with sub-tidal marine sediments. The health of the benthic and epibenthic infauna community can be an important measure of sediment quality in an area when compared to the benthic community in uncontaminated sediments. The health or status of the benthic community is measured by the relative abundance of benthic organisms per unit area and/or the degree of species diversity of the community, or how many species are found at a location. In addition, high densities of pollution tolerant "indicator" species and the exclusion of other species can indicate degraded sediment quality.

A benthic infauna study performed for the initial planning of the Naval Station concluded that the East Waterway benthic communities were environmentally stressed, as measured by indicators, as mentioned above (U.S. Navy, 1985). The authors concluded this was most likely due to: 1) the effects of wood waste derived from log storage in the East Waterway, 2) organic enrichment from a pulp mill outfall and a combined sewer overflow, and 3) toxic substances from other sources. At all of the East Waterway stations, the dominant organisms were found to be the polychaete worm (*Capitella capitata*) and nematodes. Both *C. capitata* and nematodes are considered indicator species for organic enrichment and/or pollution (Dean, 2008; Moreno et al., 2008).

In May 1993, as part of baseline sampling for the NAVSTA Everett waterfront site water and sediment quality certification monitoring effort, ten sediment quality stations and one reference station inside the East Waterway and in the near vicinity were sampled for benthic infauna as well as for sediment quality. More recently, in 2010 SAIC published a sediment characterization study for the purpose of guiding future WDOE remediation actions. The results of the 2010 study generally confirm the results and conclusions of earlier studies, in particular finding that: 1) the inner East Waterway stations had lower abundance of benthic infauna than found in the outer waterway stations; 2) the inner East Waterway stations had proportionately more polychaetes and crustaceans that the outer waterway stations, and fewer bivalves, indicating greater disturbance; and 3) the inner waterway stations showed a decrease in species richness and diversity compared to those found in the outer waterway stations (Dames and Moore, 1994; SAIC, 2010).

The nearshore areas of the East Waterway and other areas of the Everett harbor are utilized as habitat by epibenthic invertebrates that live immediately above the bottom. These organisms are preyed upon by juvenile salmon during their outward migration from the Snohomish River, in the spring and early summer of each year. While resident in the Snohomish River estuary before going out to deeper water and the Pacific Ocean, juvenile salmon feed upon the epibenthic invertebrates in the nearshore areas of the estuary. These prey organisms undergo a distinct population increase just prior to the juvenile salmonid out migration and estuary residence time. This period of time, during which the fish undergo physiological adaptation to saltwater, is considered a critical phase in the life history success of the Snohomish River salmon runs (EDAW, 1994).

Epibenthic Invertebrates

Epibenthic invertebrates describe those who occupy areas within the water column immediately above a lake or sea floor. These animals are less dense than benthic invertebrates.

In July 1984, as part of the original environmental impact analyses for the Everett Homeport, nine stations in the East Waterway were sampled for epibenthic invertebrates (U.S. Navy, 1985). The results of the epibenthic study concluded that the populations of epibenthic prey organisms in the East Waterway were healthy and abundant as compared to other stations in Puget Sound. In addition, they found that the juvenile salmon caught in the East Waterway in parallel studies were feeding on the epibenthic organisms present in the East Waterway (U.S. Navy, 1985). The study also found that in the stations at the north end of the East Waterway, certain indicator species for the presence of organic enrichment or chronic toxicity were present at higher numbers than in the other stations. The presence of these species indicates that the sediments in those areas were contaminated and/or organically enriched. Testing in 1997-1999 indicated the north end of the East Waterway was impacted by past industrial sources of pollution (Long, 2003). Though there was no specific comment about these specific sources, the area of the east waterway is characterized similarly in the most recent study (SAIC, 2010). Since Long's 2003 report the Kimberly-Clark log processing facility has ceased operation and the site is in the process of redevelopment.

No significant populations of commercial or recreational species of mollusks are found in the East Waterway except for low numbers of the Eastern softshell clam (*Mya arenaria*), the Pacific littleneck clam (*Leukoma staminae*), and the Washington butterclam (*Saxidomus gigantea*) (U.S. Navy, 1984; WDF, 1992). Trawl records indicate Dungeness crab (*Cancer magister*), varnish clam (*Nuttallia obscurata*), Eastern softshell clam, and sand ghost shrimp (*Biffarius arenosus*) are present (SAIC, 2010).

Many species of small noncommercial crustaceans were documented at sub-tidal stations in the East Waterway (U.S. Navy, 1984). The one significant commercial and recreational species found in the East Waterway is the Dungeness crab (Puget Sound Water Quality Action Team, 1994; WDFW, 1994). In the past, the shoreline along the western side of the East Waterway was found to support large numbers of juvenile Dungeness crab, which utilize the muddy/sandy areas at the base of the

Figure 2-42. Dungeness crab.
(Photo credit: USFWS)

rip-rap slope (U.S. Navy, 1985). Zero age juvenile Dungeness crab were found in densities of 0.0 to 8.0 crabs per square meter in a location at the northeast corner of the East Waterway. Dungeness crab instars were found to be most abundant in mid-June through July (Weitkamp, 1986). The most recent Port Gardner Sediment Characterization Study included trawl capture and tissue sampling of Dungeness crab from the East Waterway. Tissues were analyzed for metals, Aroclor PCBs, and dioxin/furan congeners. Results were used to indicate current sediment quality and did not include assessment of habitat or species abundance (SAIC, 2010). Harvesting Dungeness crab is not allowed in the East Waterway because of the Navy's restricted area. However, crab is harvested just outside of the restricted area by tribal and recreational fishermen when seasons allow.

2.3.4.6 Wildlife Diseases

All sick, injured, or dead wildlife found on base are reported to the NAVSTA Everett Environmental Division. The NRM investigates and photo documents any suspicious cases and reports to the appropriate management agency (e.g. NOAA for marine mammals, and WDFW for birds, bats, or other mammals).

Chytridiomycosis

Chytridiomycosis is a disease found in amphibians and is caused by high levels of the chytrid fungus *Batrachochytrium dendrobatidis* (Bd). Bd can potentially devastate amphibian populations on a global scale. The distribution of amphibians with Bd infections is widespread but the distribution of amphibian population declines caused by lethal outbreaks of Bd is restricted to several areas including the western U.S.

The DOD conducted surveys in 2009, 2011, and 2013 for the presence of Bd on U.S. military lands. Samples were taken from amphibians at NSC Smokey Point in 2013 as part this study (Lannoo et al., 2014).

Of twenty amphibian samples taken at NSC Smokey Point, three tested positive for Bd. Although present, the Bd fungus does not appear to be having a negative impact on amphibian species at a population level at NSC Smokey Point. For a Bd infection to be considered the disease chytridiomycosis, zoospore levels must be greater than 10,000. The average zoospore equivalent for positive samples in Lannoo's 2013 study, which included NSC Smokey Point, was 11.

White-Nose Syndrome

White-nose syndrome is a disease found in bats caused by the fungus *Pseudogymnoascus destructans*. It is devastating to bat populations but is not known to pose a threat to humans, pets, livestock or other wildlife. The disease is transmitted primarily from bat to bat, although people can carry fungal spores on their clothing, shoes, or caving gear (USFWS, 2019c). The fungus invades the skin of hibernating bats and causes damage, especially to delicate wing tissue, and physiologic imbalances that can lead to disturbed hibernation, depleted fat reserves, dehydration, and death (USFWS, 2019c). White-nose syndrome has spread quickly among bats in eastern North America, killing more than six million beneficial insect-eating bats since it was first documented in 2006 (USFWS, 2019c). White-nose syndrome was first detected in Washington State in infected bats 2016, and in Snohomish County in bat guano in 2020 (WDFW, 2020d).

There is a low potential for bats to be present at either the NAVSTA Everett waterfront site or NSC Smokey Point. Bats could roost in buildings or eaves, or in trees along Hayho Creek.

Marine Mammal Diseases

Leptospirosis is a bacterial disease that can affect pinnipeds such as California sea lions and Pacific harbor seals. Humans, dogs, and other wildlife can also contract the disease. On the Pacific Coast, there have been major outbreaks of leptospirosis among California sea lions every three to five years, normally between July and December (Greig et al., 2005). Symptoms include dehydration, increased drinking or urinating, vomiting, depression, and a reluctance to use the hind flippers. These symptoms are the result of damage to the kidneys and/or liver (Gulland et al., 1996).

There are several other diseases that have caused large marine mammal mortality events in other locations; however, none are currently a major threat in the Salish Sea. Introduction of novel pathogens, such as cetacean morbillivirus could prove catastrophic for sensitive marine mammal populations in the Salish Sea, particularly the SRKW (Weiss et al., 2020).

2.3.5 Flora

There are no intact native vegetative communities within the boundaries of NAVSTA Everett. The site's flora and vegetation are generally fescue and turf grass along paths, walkways, and sports fields, with landscaped areas of ornamental trees and shrubs around buildings and in parking lot islands. Street shading is provided predominantly by ornamental maple trees.

Prior to redevelopment by the Navy, the Smokey Point site was a cleared pasture-like area. As a result, there are no natural vegetation communities retained. The extensive stormwater ponds were developed along the eastern side of the property, and currently support native and invasive species of shrubs and emergent plants. On the western side of the property, the buffer around Hayho Creek has well-established tree and shrub cover between NSC Smokey Point and the U.S. Army Reserve center and another privately-owned parcel, located immediately to the west of the site. See *Section 2.2.4.2 Hayho Creek* and *Section 2.2.4.3 Freshwater Wetlands*, for additional detail.

Landscaping at NSC Smokey Point includes ornamental trees and shrubs around buildings (particularly the Navy Gateway Inn and Suites) and in parking lot islands around the perimeter of the main parking lot in the southern half of the installation.

2.3.6 Invasive, Noxious, and Nuisance Species

Throughout Washington State, aggressive non-native plants and animals are displacing native species, profoundly altering natural systems and affecting the state's economy and human health.

Nuisance Birds at NAVSTA Everett Waterfront Site

Nuisance birds using the NAVSTA Everett waterfront site, particularly the nesting season, include Canada goose, American crow, and glaucous-winged gull. These species and others are considered nuisance species because their nesting activities result in damage to facilities (particularly rooftops), unsanitary conditions from large deposits of feces, or aggression towards humans. During the initial years after the base was constructed, the primary issue was extensive nesting of gulls and terns on roofs of buildings. In

1995, approximately 2,000 Caspian Terns and 2 pairs of Arctic terns (*Sterna paradisaea*) nested on base. In 1996, about 3,000 glaucous-winged (90 percent) and western gulls (10 percent), and about 100-200 ring-billed gulls nested or tried to nest on base. Also in 1996, scores of Canada geese attempted to nest on base. Harassment (by whistling, hand-waving, pyrotechnics) of the terns by Wildlife Services personnel eliminated all successful tern nesting by 1997. Hundreds of glaucous-winged gulls, western gulls, Caspian terns, and Canada geese continue to nest on nearby Jetty Island and the roofs of buildings on Port of Everett properties.

To prevent birds from nesting on buildings, NAVFAC Public Works installed bird diverter wires, "nixolite", and "Rid-a-Bird" (two brands of rooftop wire "criss-crosses"), on roofs and rooftops beginning in 2006. Over the years, this system has proven ineffective in preventing bird nesting and has led to several entanglement issues per year. The Public Works Department has not maintained the wire system, leading to decreased effectiveness. Removal of this system is in progress, as further described in *Section 4.3 Integrated Pest Management*. Other bird deterrent methods currently in use include mesh installed under eaves to prohibit birds from roosting/nesting, and spikes on roof peaks and edges to prevent perching.

All bird species considered nuisance birds are included in the Navy's Integrated Pest Management Program, which includes a service contract with Wildlife Services to harass these birds using various methods, so they do not constitute a continued nuisance. For example, crows occasionally build nests in ornamental trees on the installation and can aggressively defend their nesting areas. When nuisance behaviors are reported to the NAVSTA Everett Environmental Division, Wildlife Services is called in and will use methods to resolve the issue, such as removing the nests from these trees. In 2018, Wildlife Services treated 146 gull nests by pulling down the nests or using corn oil to coat the eggs. In 2019, only 22 gull nests were treated. Additionally, five Canada goose nests were treated in 2019 (no goose data available for 2018; Spadaro, 2020). On rare occasions, lethal removal is required for Canada geese that become overly aggressive towards humans (e.g. biting).

Figure 2-43. European green crab.
(Photo Credit: WDFW)

The Wildlife Services program is the primary contractor responsible for obtaining and maintaining required permits from the USFWS; the installation is not the holder of the permit. The current USFWS Depredation permit for Wildlife Services is Permit # MB692908.

<u>European Green Crab</u>

European green crab (*Carcinus maenas*) is a voracious intertidal and shallow subtidal predator that feeds on many types of organisms, particularly bivalve mollusks (clams, oysters and mussels) and small crustaceans (WSG, 2020). The species competes with Dungeness crab and other native crab species for habitat and food resources. In addition, green crabs have been documented to prey upon juvenile native *Cancer* crabs and native shore crabs. Green crabs have also been observed to damage eelgrass beds, which are important habitat for fish and shellfish species (WSG, 2020). While

Dungeness crab is not listed as endangered or threatened and not afforded the protection of a federal or state listed species, it is identified by WDFW as a priority species and is considered a commercially valuable resource within the state (WDFW, 2008a).

The green crab was first reported in Washington waters in Willapa Bay in 1998, and has since spread to other areas, including Padilla Bay in 2016 (35 miles north of NAVSTA Everett as the crow flies) and locations on Whidbey and Marrowstone Islands in 2018 (18 and 22 miles west of NAVSTA Everett) (WSG, 2020). Locations on Union Slough and in the delta of Ebey and Steamboat Sloughs are identified as a highly susceptible sites at risk of green crab invasion (WSG, 2020); however, the East Waterway and lower Snohomish River adjacent to NAVSTA Everett do not provide habitats typically associated with green crab occurrence.

Tunicates

Three species of non-native tunicates have been invading waters in Puget Sound: *Styela clava*, *Didemnum vexillum*, and *Ciona savignyi*. These marine animal species form dense mats attached to docks, rocks, or the undersides of boats, and *C. savignyi* has been detected as close as Whidbey Island. The invasive tunicates compete with native filter feeders such as clams, mussels, and oysters, and can smother other sea life (WISC, 2016). They are primarily spread through the ballast water of ships or by attaching themselves to vessels that are moved from one water body to another (WISC, 2016), and therefore pose a risk at NAVSTA Everett.

Figure 2-44. Invasive tunicate species (*Ciona savignyi*).
(Photo credit: Washington Invasive Species Council)

American Bullfrog

In freshwater habitats, the proliferation of the non-native American bullfrog has had a severe impact on declining species such as western pond turtles (*Actinemys marmorata*), northern leopard frogs (*Lithobates pipiens*), and other native species. Bullfrogs have been documented at NSC Smokey Point but have not yet been targeted for removal efforts.

Figure 2-45. American bullfrog.
(Photo credit: Alan D. Wilson, USFWS)

Noxious Weeds and Invasive Plants

The Washington State Noxious Weed Control Board maintains the state's official list of noxious weeds that landowners may be required to control. The list is updated annually, and noxious weeds are separated into three classes: Class A (nonnative species whose distribution in Washington State is still limited), Class B (nonnative species whose distribution is limited to portions of Washington State), and Class C (nonnative species that are widespread in Washington or are of special interest to the agricultural industry). Eradication of all Class A noxious weeds is required by Washington State law (NWCB, 2020). The Snohomish County Weed Control Board carries out the state's noxious weed law at the local level and determines which Class B and C noxious weeds will be required for control in the County (Snohomish County, 2020).

A comprehensive survey of invasive plant and animal species at NAVSTA Everett and NSC Smokey Point has not been completed; however, several noxious weeds and invasive plant species have been noted on the property. At the NAVSTA Everett waterfront site, Himalayan blackberry and common St. Johnswort (*Hypericum perforatum*), both Class C noxious weeds, are in small patches along the fence line near Piers D and E and the North Wharf. English ivy (*Hedera helix*), another Class C noxious weed, is by far the most prevalent weed on site, with patches in landscaping areas in the parking lots, around several buildings (e.g., Buildings 2010, 2200, and 2104), and particularly lining the west side of Spruance Boulevard. It appears that the ivy may have been intentionally planted at some point in the past and is now allowed to continue growing in these areas. Unwanted noxious weeds, such as Himalayan blackberry and common St. Johnswort are controlled during normal landscaping maintenance activities. There is a low likelihood for infestations of aquatic noxious weeds at the waterfront site given that there are no natural shorelines and the accumulated wood waste on the floor of the East Waterway.

Three species listed as Class C noxious weeds on the Washington State Noxious Weed List have been documented at NSC Smokey Point: reed canarygrass (*Phalaris arundinacea*), evergreen blackberry (*Rubus laciniatus*), and Himalayan blackberry. In 2015, common reed (*Phragmites australis*), a Class B noxious weed, was detected in one of the stormwater ponds at NSC Smokey Point and was treated and eradicated by Snohomish County in 2016.

3 ENVIRONMENTAL MANAGEMENT STRATEGY AND MISSION SUSTAINABILITY

A successfully implemented INRMP, as stated in the Sikes Act and emphasized in the Navy INRMP Guidance (U.S. Navy, 2006), will meet the overarching goals described in *Section 1.3 Goals and Objectives*, including ensuring no net loss of the capability of military installation lands to support the military mission of the installation into the future and ensuring that conservation of natural resources on military installations will continue without permanent loss of function into the future. These goals are closely related and not mutually exclusive. This INRMP was developed to meet overarching goals and objectives by identifying and prioritizing program elements that achieve both functions.

3.1 Supporting Sustainability of the Military Mission and the Natural Environment

Pursuant to DODI 4715.03 and the Sikes Act, military installations shall protect and manage their natural resources to facilitate the military mission, conserve biodiversity, and maintain ecosystem services. Successful management of natural resources at NAVSTA Everett will protect and enhance the military mission. Priorities will include those management activities that protect infrastructure (such as planning for the effects of climate change and sea level rise and managing nuisance bird species) and those that reduce risk of regulatory requirements that could interfere with operations (such as establishing strong baseline data sets that will inform minimization measures and ESA consultations, and providing benefits to species and habitats). Program elements planned for the current five-year cycle and for the long-term are described in detail in *Section 4 Program Elements*. The benefits and impacts to the military mission are assessed for each element.

In addition to implementation of the INRMP, the NAVSTA Everett Public Works Department Environmental Division will provide technical oversight of mission-related activities at the installation, so that all future development and operations at the facility are conducted in an environmentally sensitive way with cooperation between environmental, engineering, operational, and planning personnel.

Project planning and review are achieved through an environmental review process which requires all new projects, programs, and operations, or changes to existing projects, programs, and operations, be reviewed by the NRM for potential impacts to the environment. The NRM reviews planned actions, identifies the risks to natural resources, and provides comments and/or alternatives to the action proponents that will minimize or eliminate the risks, if possible.

An established procedure is in place within the Public Works Department at NAVSTA Everett, which requires the project proponent to complete and submit an “Environmental Checklist” to the Environmental Division and provide adequate detail to discern potential impacts. Depending on the scope of the proposed project, more information may be collected from the project proponent via phone and email, beyond that provided initially, and the project may require additional review at later stages if the design changes significantly. Requirements (prescriptions/conditions of approval) for projects or plans are prepared and documented, including media-specific BMPs and prudent limitations. Environmental Protection Plans are generally required for projects, and reviewed by Environmental Division staff to verify environmental compliance and standards are met. The NRM consults with other

agencies (as necessary) to obtain required approvals, permits and concurrences, and incorporates conditions and limitations imposed by agencies as requirements to the projects.

For larger projects, such as military construction (MILCON) projects, the Site Approval process is a planning tool utilized by the Public Works Department, following NAVFACINST 11010.45A. This instruction provides for a team of standard reviewers (e.g. security, fire, safety, and environmental) in the early planning phase. The environmental review determines consistency with regulations and the INRMP, and identifies the level of permitting and other environmental documentation (such as NEPA) required for the action. Larger projects (such as those requiring formal consultation for ESA or an EA for NEPA) are often led by NAVFAC NW environmental staff at the Region office.

Regulatory agencies may require changes or mitigation to proposed Navy actions that could result in delays and additional costs. Consequently, it is imperative that the installation and public works staff initiate early environmental review of proposed actions in order to assess risks, develop alternatives, avoid impacts where possible, and correctly identify mitigation costs. The NRM will engage early with the regulatory agencies for technical assistance and to ensure these issues are addressed and coordinated prior to permit application submittal.

3.2 Natural Resources Consultation Requirements

Five federal laws – the ESA, MSA, MMPA, MBTA, and BGEPA – require consultation with USFWS and/or NMFS for Navy actions that could affect wildlife or plant species protected under these laws. The CWA requires notification or permits from the USACE and the WDOE. In addition, the Navy consults with federally-recognized tribes on a Government-to-Government basis as provided by law on all Navy proposed actions that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands, as described in *Section 1.5.3 Tribal Governments*.

3.2.1 Endangered Species Act

Section (7)(a)(1) of the ESA directs federal agencies to manage federally listed T&E species and their habitat in a manner promoting conservation consistent with plans for recovery of such species. Section 7(a)(2) of the ESA requires federal agencies to consult with USFWS or NMFS whenever actions are proposed that may affect ESA-listed species, or species proposed for listing. Specifically, pursuant to Section 7 of ESA, the DOD consults with USFWS or NMFS when threatened or endangered species or designated critical habitats may be affected in order to ensure that no DOD action will likely jeopardize the continued existence of listed species, or destroy or adversely modify designated critical habitats. T&E species for NAVSTA Everett and NSC Smokey Point are identified in *Section 2.3.1 Threatened and Endangered Species*.

The NRM is responsible for reviewing proposed projects, operations, or other actions within the NAVSTA Everett AOR for potential impacts to ESA-listed species through a formal review process. ESA Section 7 consultations will be initiated if warranted, otherwise, written documentation that there are no effects to ESA-listed species or critical habitats will be generated by the NRM and kept with the project files. The Navy enters into consultation with USFWS or NMFS if a proposed action, or restoration activity, may affect a threatened or endangered species or their critical habitat.

3.2.2 Magnuson-Stevens Fishery Conservation Management Act

The Navy must consult with NMFS and prepare an Essential Fish Habitat Assessment prior to undertaking any actions that may adversely affect an EFH, pursuant to the MSA (16 U.S.C. 1801 et seq.). The Pacific Fishery Management Council (PFMC) and NMFS are required by law to identify and protect the EFH of species managed under fishery management plans. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." This may include areas that were historically used by fish, like a river above a dam. The consultation must also describe conservation measures proposed to avoid, minimize, or otherwise offset potential adverse effects to designated EFH resulting from the proposed action. Subsection 50 CFR 600.920(f) specifies that EFH consultation should be consolidated with existing environmental review procedures required by other statutes, such as ESA, when appropriate.

Below is a brief summary of EFH designated within the boundaries of the NAVSTA Everett waterfront site, as well as EFH fish species that occur within Puget Sound. Hayho Creek is not located on Navy property at NSC Smokey Point. Further, the wetlands at NSC Smokey Point were likely manmade given the channelized ditch formation and the pre-military use of the property for agriculture, and therefore, were not historically occupied by salmonids. As a result, Smokey Point does not include habitats that would be designated as EFH.

The Pacific Fishery Management Council (PFMC) and NMFS have management responsibilities over the EFH in Puget Sound. EFH protected under Fishery Management Plans (FMPs) includes fisheries for Pacific Coast Groundfish (e.g., rockfish, flatfish, roundfish, sharks, skates, and chimeras); Pacific Coast Salmon (e.g., Chinook, coho, and pink salmon); and Coastal Pelagic Species (e.g., northern anchovies and market squid). The PFMC also designates Habitat Areas of Particular Concern (HAPC). These subsets of EFH are rare, sensitive, ecologically important, or located in an area that is already stressed.

Within Puget Sound waters adjacent to NAVSTA Everett, the PFMC designated EFH and HAPCs and manages them through the following three FMPs:

- *Pacific Coast Groundfish* (PFMC, 2019a)
- *Pacific Coast Salmon* (PFMC, 2016)
- *Coastal Pelagic Species* (PFMC, 1998, 2019b)

The fourth FMP, *Highly Migratory Species* (e.g., tunas, sharks, and swordfish) (PFMC, 2018), does not apply to the waters adjacent to NAVSTA Everett due to the extremely rare occurrence in Puget Sound of species in this management plan.

The PFMC has designated both areas and habitat types of five HAPCs: estuaries, canopy kelp, seagrass, rocky reefs, and areas of interest such as undersea features, such as banks, seamounts, and canyons. HAPCs based on habitat type may vary in location and extent over time. Defining criteria of habitat type for HAPCs are described below and may be applied in specific circumstances to determine whether a given area is designated as a groundfish HAPC. HAPCs include all waters, substrates, and associated biological communities falling within the area defined by the criteria below. A brief description of the three FMP's in the Puget Sound waters near NAVSTA Everett and specific HAPCs is provided in Table 3-1.

Further description of the three types of EFH and a list of the fish species managed under the MSA relevant for NAVSTA Everett is included in Appendix E.

Table 3-1. NAVSTA Everett Essential Fish Habitat and Habitat Areas of Particular Concern.

Management Unit	EFH	HAPCs
Pacific Coast Groundfish	All waters and substrate in areas less than or equal to 3,500 m (1,914 fm) to mean higher high water level or the upriver extent of saltwater intrusion. Seamounts in depths greater than 3,500 m (1,914 fm) as mapped in the EFH assessment geographic information system.	Estuaries, canopy kelp, seagrass, rocky reefs, and "areas of interest"
Pacific Coast Salmon	All waters from the ocean extent of the EEZ to the shore, and inland up to all freshwater bodies occupied or historically accessible to salmon in Alaska, Washington, Oregon, Idaho, and California.	Complex channels and floodplain habitats, thermal refugia, spawning habitat, estuaries, and marine and estuarine submerged aquatic vegetation
Coastal Pelagic Species	All marine and estuarine waters above the thermocline from the shoreline offshore to 200 nm offshore.	None

Notes: EFH = Essential Fish Habitat, fm = fathoms, HAPC = Habitat Area of Particular Concern, m = meters, nm = nautical miles
Source: PFMC 1998, 2016, 2019b, c, d

3.2.3 Marine Mammal Protection Act

Under the Marine The MMPA of 1972, as amended (16 U.S.C. Section 1371(a)(5)(D), and its implementing regulations (50 CFR 216.104), allow upon request, the incidental take of small numbers of marine mammals. Incidental take is an unintentional, but not unexpected, "take." Authorization under MMPA is provided by NMFS through issuance of Incidental Harassment Authorizations (IHAs) and Letter of Authorizations (LOAs). Activities at NAVSTA Everett that would require and/or have the potential to require authorization under MMPA include military sonar and training and testing activities, in-water construction activities, and certain scientific research projects.

The Navy will apply for an IHA which will cover incidental harassment of marine mammals that will occur during weekly marine mammal counts conducted by the Navy at Puget Sound Navy installations, including NAVSTA Everett. There are currently no other foreseeable Navy actions which may require consultation under MMPA at NAVSTA Everett. The NRM is responsible for reviewing proposed projects, operations, or other actions within the NAVSTA Everett AOR for potential impacts to marine mammals, and coordinating with the NAVFAC NW marine mammal specialist to determine if consultation or permits under the MMPA are required.

Navy precautions to avoid disturbance and take of marine mammals are discussed in *Section 4.1.2 Marine Mammal Management*.

3.2.4 Migratory Bird Treaty Act

The MBTA implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and Russia for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful.

The MBTA protects migratory birds and their nests and eggs from being hunted, captured, purchased, or traded. If an installation plans to control bird populations other than European starlings, house sparrows, and rock pigeons, it may be required to coordinate with the USFWS. Future proposed projects, operations, or other actions that would potentially affect migratory birds would be evaluated through a formal review process in consultation with USFWS under the MBTA.

The MBTA does not explicitly address incidental take from otherwise lawful activities, and the courts have been divided on the issue over the years. The DOD will continue to comply with EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) and its associated MOU, which requires federal agencies to identify actions that may result in unintentional take of migratory birds and to develop BMPs to minimize the amount of unintentional take. The military readiness rule, 50 CFR 21.15, authorizes the Armed Forces to take migratory birds incidental to military readiness activities when unintentional take cannot be avoided.

3.2.5 Bald and Golden Eagle Protection Act

Bald and golden eagles (*Aquila chrysaetos*) are protected under the BGEPA. Bald eagles have been documented in the vicinity, but no active nests are known to occur on the installation.

The BGEPA states that no one may “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or any golden eagle, alive or dead, or any part, nest, or egg thereof of the foregoing eagles…”. Any action taken by the Navy with the potential to result in take of an eagle may require an Eagle Incidental Take Permit and should be coordinated through the Region 1 Migratory Bird Permit Office of USFWS. Currently, there are no Navy actions planned where the need for an Eagle Incidental Take Permit would be anticipated.

3.2.6 Clean Water Act

The CWA (33 U.S.C. 404) prohibits discharges of dredged or filled material into waters of the U.S., including wetlands, without first obtaining a permit from USACE. EO 11990 requires federal agencies to minimize the loss or degradation of wetlands and to enhance their natural values. Washington State has unique guidelines for the mitigation sequence for wetlands in the state.

In accordance with Section 401 of the CWA, federal agencies also must obtain a water quality certificate from the state for any action requiring a federal license or permit. In Washington, the 401 program is administered by WDOE.

As part of the permit evaluation process used to authorize a particular project proposing to impact regulated waters (including wetlands), applicants must (1) establish that avoidance of impacts to regulated waters, including wetlands is not practicable; (2) demonstrate that all practicable efforts to minimize unavoidable impacts to regulated waters, including wetlands, have been taken into account in the project design and construction plan; and (3) provide a plan for compensation for all unavoidable impacts.

A number of Nationwide Permits (NWPs) issued by USACE may be used to streamline the permitting process for activities that would have minimal adverse effect on aquatic environments. The NWPs protect all jurisdictional waters through their terms and conditions, such as acreage limits and linear foot limits. The NWPs also support the "no overall net loss goal" through mitigation requirements. Some NWPs require notification to the District Engineer, usually in the form of a permit application. If project impacts are expected to exceed allowable impact thresholds outlined under a particular NWP, then an individual permit must be obtained.

Compensatory mitigation requirements are determined by USACE District Engineers on a case-by-case basis, after considering relevant and available information, such as the ecological conditions of the project site, the type of activity, the impacts of the activity on the aquatic environment, and other public interest factors. General conditions for NWPs require compensatory mitigation at a minimum 1:1 ratio for all wetland losses that exceed 0.10 acre and require a preconstruction notification. The mitigation ratio, however, can be adjusted upward as necessary to provide more appropriate mitigation for a specific activity.

All activities with the potential to disturb regulated waters at the NAVSTA Everett waterfront site or NSC Smokey Point must be coordinated with the NRM to obtain certifications and permits required by federal and state pollution control laws applicable to federal agencies. Environmental compliance staff (stormwater media managers, etc.) also will review erosion and sediment control plans for construction projects and actions that are 10,000 square feet or greater in size, and/or review the project-specific stormwater pollution prevention plan that would be required for construction projects that disturb 1 acre or more. Site visits will be conducted during construction of such projects to ensure compliance with erosion and sediment control plans and that BMPs are being implemented.

3.3 Planning for NEPA Compliance

NEPA requires that federal agencies evaluate the impacts of major federal actions on the quality of the human environment. The Navy's policies regarding NEPA, including OPNAV-M 5090.1E and the SECNAVINST 5090.6A, Environmental Planning for DON Actions (26 April, 2004), emphasize that environmental planning is necessary and most effective at the earliest stages of project development. This ensures that planning and decision-making reflect environmental values, avoid unnecessary impacts, avoid delays, and avoid potential conflicts. The NAVSTA Everett Environmental Division will review individual projects proposed at NAVSTA Everett to determine the appropriate level of analysis under NEPA, and whether a Categorical Exclusion (CATEX), an EA, or an Environmental Impact Statement (EIS) is applicable.

Development and implementation of an INRMP is considered a major federal action and, as such, is subject to NEPA. Since the original INRMP and EA, successive updates of the NAVSTA Everett INRMP

have been assessed to determine the type of NEPA analysis needed. An EA was prepared for the previous revision of the NAVSTA Everett INRMP (NAVFAC NW, 2015), in order to evaluate the potential environmental effects associated with natural resource management actions and projects identified. The Navy signed a Finding of No Significant Impact on 19 JAN 2016 (Appendix F).

3.4 Beneficial Partnerships and Collaborative Resource Planning

NAVSTA Everett collaborates with several state and federal agencies and community groups to plan and execute natural resources management activities. Examples include coordinating with the Pilchuck Chapter of the Audubon Society for the annual Christmas Bird Count, and the East Waterway Fish study initiated in 2020, which is coordinated with both NMFS and the Port of Everett. Current cooperative agreements, including the East Waterway fish study, are discussed in *Section 5.3 Use of Cooperative Agreements*.

Other potential partnerships or collaborative efforts could include working with partners to assess impacts from climate change and develop appropriate adaptation strategies to protect natural resources in the region, including rare, threatened, and endangered species.

3.5 Public Access and Outreach

Though public recreation opportunities are limited at the NAVSTA Everett waterfront site and NSC Smokey Point, the installation cooperates with regional partners to protect and conserve shared natural and cultural resources and is a proud steward of federal lands. Further details on public access and outreach programs are discussed below.

3.5.1 Public Access and Outdoor Recreation

There is no general public access permitted on NAVSTA Everett; however, active duty and retired military service members and civilian employees have access to limited recreation opportunities on base. Outdoor recreation includes use of the designated sports fields (such as for intramural sports), and the Sailor's Choice Marina in the East Waterway managed by MWR. Access and use of the marina is limited to military service members and retirees and their guests. No Sikes Act fees are collected for use of the marina.

Public Access is discouraged along the Industrial working waterfront, as much of the Port of Everett property south of NAVSTA Everett is subject to the Maritime Transportation Security Act (46 U.S.C. 2101 et seq.). Seaports that had always been open for the public to view commerce in action became secured, allowing only those with official business to gain access. However, the Port of Everett properties to the north of NAVSTA Everett offer multiple public access and recreational opportunities including parks, picnic tables, boardwalks, a public boat launch and water-touch access, including seasonal ferry service to Jetty Island (Jetty Island Nature Preserve) – a long stretch of man-made sandy beaches.

Direct public benefits involving NAVSTA Everett are limited to viewshed access. Visitors to Grand Avenue Park and residents occupying houses on the bluff east of Marine View Drive may look over NAVSTA

Everett and enjoy the view of Port Gardner Bay and Possession Sound from the vantage point atop the bluff.

Activities conducted at the NSC Smokey Point are generally commercial in scope and nature. Access and use of these facilities is limited to service members, retirees, and civilian employees.

3.5.2 Public Outreach

One of the greatest concerns for commanders of military installations is a change of existing land use for areas near the installation with the potential to affect the National Defense Strategy. The Navy's relationships with the surrounding are an essential to the Navy's mission readiness and sustaining the mission capabilities of its fleet. The goals of community outreach efforts are to:

- Enhance coordination to create lasting partnerships;
- Share information to raise awareness of encroachment on naval operations;
- Coordinate with local governments to ensure plans and regulations support land uses that are compatible with military operations; and
- Work with non-profit, local, and state entities to protect land for environmental conservation that will also buffer military operations.

Coordination beyond the fence line is a regular part of the Navy's planning and environmental programs. NAVSTA Everett partners and consults with federal, state, local agencies, and Tribes to protect and conserve shared natural and cultural resources. NAVSTA Everett is proud to continue its track record as a good neighbor and responsible steward of fiscal and natural resources. Today, the Navy is:

- Promoting coordinated approaches to sustainability through implementation of this INRMP, developed by NAVSTA Everett cooperatively with other natural resource agencies, regulators, and Tribes;
- Participating in the Puget Sound Partnership as well as the Readiness and Environmental Protection Integration program;
- Coordinating with the Audubon Society to support the annual Christmas Bird Count (CBC) since 2011 year with trained observers at the waterfront site;
- Rewarded for its conservation achievements – NAVSTA Everett received a SECDEF Sustainability Citation of Achievement in 2017 for an Industrial Installation, the CNO 2017 Environmental Award for Sustainability at an Industrial Installation, the 2017 Secretary of the Navy Energy Conservation Award, and the Secretary of the Navy 2018 Environmental Award for Sustainability at an Industrial Installation.
- Researching and implementing new strategies to increase efficiency and conservation through systems monitoring and innovative projects that further reduce our energy footprint; and
- Organizing community events, such as Earth Day celebrations, National Public Lands Day volunteer events, and Energy Day.

3.6 Encroachment Partnering

As growth continues to surround Navy installations in the Pacific Northwest, the potential for the community to impact and to be impacted by the Navy increases. In addition, demands on Navy facilities, transportation networks, utilities, and natural resources often accompany increasing density inside and outside the fence. Addressing these threats proactively and maintaining readiness depends on encroachment management that prevents or mitigates encroachment challenges through awareness, proactive engagement, collaboration, alignment, resources, and strategic planning (OPNAVINST 11010.40A May 2020).

An Encroachment Action Plan (EAP) is the primary tool and process used in the identification, quantification, mitigation, and prevention of the potential encroachment challenges to an installation or a range. The EAP, initially prepared for NAVSTA Everett in 2008, is now managed through a database called the Mission Compatibility Analysis Tool. The Navy's ability to properly manage encroachment relies upon an encroachment risk protection program that identifies and addresses encroachment challenges and issues early and systematically. The following definitions are used to maintain consistency in the program monitoring and evaluation:

- Compatibility – When Navy operational forces, installations, and missions exist in harmony with activities that require the same resources or operate in the same domain.
- Encroachment – Any action or condition that restricts or prohibits the attainment or sustainment of the Navy's statutory responsibilities to man, train, maintain, and equip a combat-ready force.
- Encroachment Challenge – A broad category of a type of encroachment.
- Encroachment Issue – A specific or individual example of an encroachment challenge.
- Readiness Sustainment – The continued ability of the Navy to sustain or enable mission readiness or accomplish performance objectives.

Effective encroachment management requires a proactive approach, and must include consideration beyond the fence line, building community relationships, and timely action where necessary. Encroachment issues are closely coordinated between installation Environmental and Facilities Planning personnel.

Encroachment challenges identified at the waterfront site included:

- Changes in adjacent property development as the industrial waterfront and surrounding neighborhoods transition into mixed use, commercial-residential developments; and the redevelopment of the former Kimberly Clarke site.
- Increased vessel size and use, both commercially and recreationally, places more watercraft in areas immediately adjacent to NAVSTA Everett, which may give rise to security and operation concerns.

3.7 GIS Management, Data Integration, Access, and Reporting

Accurate and current geospatial data representing the natural resources managed at NAVSTA Everett and NSC Smokey Point are a critical component of an effective natural resources management program. Geospatial data facilitate the installation's efforts to comply with environmental laws and ensure the

protection of sensitive resources, while supporting military mission activities. Informed decision-making relies upon data collection and integration into an enterprise system.

All natural resource geospatial data are to be stored and maintained in NAVFAC's enterprise geodatabase, referred to as the GeoReadiness Enterprise System (GES). This will facilitate accessibility in the GeoReadiness Explorer (GRX), NAVFAC's primary web-based geospatial data viewing tool, as well as future editing of data. Regional data for all NAVFAC NW installations are maintained by the CNRNW GeoReadiness Center (GRC). As this INRMP is reviewed and updated to accommodate new information and objectives, natural resource data requirements and planning-level surveys will be identified. Any data acquisition proposed under this INRMP must comply with the standards identified in the current version of the Navy Data Model. The GRC will be consulted when scopes of work are being prepared to ensure sufficient compliance with data standards and formats for integration into the GES. Further, Data Collection Guides for each feature class in the Navy Data Model Natural Resource Dataset are available from the GRC and must be referenced for any geospatial data collection efforts.

3.8 Training of Natural Resources Personnel

Personnel with natural resources conservation responsibilities shall receive the appropriate job-specific education and training to perform their assigned tasks per OPNAV-M 5090.1E, Chapter 12. Assigned personnel submit and obtain training through their approved Individual Development Plan. Staff attend training sponsored by the Civil Engineer Corps Officers School (CECOS) and other internal Navy sources.

Attending annual workshops or conferences held by various professional organizations is important for NR staff to keep appraised of current and emerging natural resource issues. Professional organizations such as the National Military Fish and Wildlife Association (NMFWA), The Wildlife Society, and the Society for Ecological Restoration all host annual meetings focused on the management of natural resources. Trainings specific to NRM duties are frequently offered at the NMFWA annual meeting. Additional training opportunities are listed in Appendix G.

4 NATURAL RESOURCES PROGRAM ELEMENTS

The NRM is responsible for the oversight, management, and implementation of the natural resources program for NAVSTA Everett and NSC Smokey Point. The following five sections describe the relevant program elements and identify goals and objectives for each program element. Objectives are numbered under each program element, but are not necessarily ranked. There are additional goals and objectives under *Section 4.6 Reduced Programs at NAVSTA Everett* for program elements that play a minor role in natural resources management at NAVSTA Everett. These goals and objectives are considered secondary to the primary objectives in *Sections 4.1* through *4.5*. Strategies and parameters to determine the effectiveness of management actions are included for each program element. The effectiveness parameters will be monitored, assessed, and reported annually during the INRMP review and Metrics, as well as during the five-year Review for Operation and Effect.

INRMP projects are developed directly from the program element objectives and management strategies. *Section 5 INRMP Implementation* lists and prioritizes the INRMP projects and identifies the program element objectives targeted by each project. INRMP projects that have been submitted for funding in EPRWeb are assigned EPR project numbers, which are referenced in this section.

Four standard program elements for Navy INRMPs are not included in this INRMP because they are not relevant to the NAVSTA Everett waterfront site or NSC Smokey Point: Forestry Management, Wildland Fire Management, Land (Erosion) Management, and Agricultural Outleasing. NAVSTA Everett and NSC Smokey Point do not have forests, erosion issues, or agricultural opportunities.

4.1 Fish and Wildlife Management

An important function of the INRMP is to maintain and enhance habitats that support a full spectrum of native wildlife species, including mammals, birds, reptiles, amphibians, fish, and invertebrates, at levels that are compatible with the military mission and are characteristic of a healthy ecosystem. Employing an ecosystem-based approach to wildlife management helps ensure that the needs of a full range of native wildlife species are supported, rather than those of a single or few select species.

Goal 1

Promote healthy populations of native fish and wildlife species and protect and enhance their habitats at NAVSTA Everett and NSC Smokey Point, while minimizing potential impacts to mission.

Information/Data Needs

- Baseline surveys to characterize the fish community in the East Waterway
- Baseline wildlife surveys at NSC Smokey Point, particularly for amphibians
- Stream buffer habitat assessment at NSC Smokey Point

Objectives

1.1 – Minimize detrimental effects of projects and operations on fish, wildlife, and their habitats by implementing BMPs and avoidance and minimization measures.

1.2 – Survey and monitor species populations to assess whether avoidance and minimization measures implemented as integral parts of Navy actions are effective, adaptively adjust the measures as needed, and document long-term changes in the populations, potentially including climate-related trends.
1.3 – Protect, restore, and enhance fish and wildlife habitat through targeted policy guidance and focused, site-specific actions.
1.4 – Increase awareness of species conservation amongst military and civilian personnel at NAVSTA Everett.

These objectives should be met during the five-year timeframe before the next Review for Operation and Effect of this INRMP.

Management Strategies

Objective 1.1 - Detrimental effects on fish and wildlife caused by proposed Navy activities or construction or maintenance projects are minimized by environmental review and appropriate actions, as described in *Section 3.0 Environmental Management Strategy and Mission Sustainability*. Avoidance and minimization measures are applied, as needed. Examples include scheduling construction projects during the in-water work window for fish, using daily timing restrictions and monitoring for murrelets and marine mammals during noise-generating projects, selecting appropriate materials for construction, and involving the NRM and environmental planners early during engineering design and construction planning to ensure project- and site-specific avoidance and minimization measures are integrated into the project. In addition, the debris barrier floats at Shield's Park (the protruding land area just north of the South Wharf on the Snohomish River side) are removed annually from May 1 to June 30 to create an open and unobstructed fish passage route under the South Wharf during the peak of the juvenile salmonid outmigration (Figure 2-41), in accordance with a previous consultation with NMFS (NMFS, 2016d).

Stormwater management is an important factor in minimizing impacts on aquatic species and their habitats. The stormwater testing program established in compliance with the MSGP for industrial stormwater discharges at NAVSTA Everett monitors potential contaminant releases into the aquatic environment so that they are avoided or minimized through corrective actions, as described in *Section 1.8.5 Stormwater Management Plan*. The SPCC Plan for NAVSTA Everett puts protections in place to prevent contaminant spills from affecting aquatic habitats, as described in *Section 1.8.6 Spill Prevention, Control, and Countermeasures Plan.*

Most operations at NAVSTA Everett, which are mainly low-velocity ship and boat movements, have low potential to disturb or displace fish and wildlife species that are sensitive to human or vessel presence. The NAVSTA Everett Environmental Division has a SOP in place to notify tribal fisherman ahead of planned ship movements in order to minimize loss of crab pots placed outside the port security barrier, and therefore avoid creating derelict gear which could harm fish and wildlife. Training and testing activities that could affect species are infrequent. Sonar testing occurs a few times a year (typically fewer than six times a year), and several minimization and mitigation measures are implemented. These are discussed in *Section 4.1.2 Marine Mammal Management*.

Parameters used to determine the effectiveness of actions for this objective include: (a) successfully meeting stormwater and SPCC testing goals, (b) corrective actions to be taken and documented if goals

are not met, and (c) inclusion of appropriate BMPs and avoidance and minimization measures in projects, as reviewed during program audits and during consultations with agencies.

Objective 1.2 - Current species survey and monitoring efforts at NAVSTA Everett include weekly surveys of marine mammals, during which incidental observations are made of other species (mainly birds) (EPR #68742MMS01, Table 5-1). WDFW winter marbled murrelet surveys document all seabird species encountered, not just murrelets (EPR #68742CN001, Table 5-1). The Navy will continue to conduct these and other long-term survey and monitoring programs to learn how fish and wildlife community characteristics change over time, providing insight into species occurrence, movement patterns, and climate resilience that will support ongoing planning at NAVSTA Everett.

Fish surveys of the East Waterway are in progress to characterize the seasonal occurrence, distribution, and habitat association of fish communities (EPR #68742CN002, Table 5-1). This study includes two of the same sampling sites from a previous (2015/2016) WDFW fish study so that results can be compared at these locations. Waterfront facility expansions are planned at NAVSTA Everett, and data on seasonal fish occurrence and distribution gained from the East Waterway study will support the planning and design of the requisite MILCON projects to avoid and minimize adverse impacts.

The Navy is currently developing a harbor seal tagging study at NAVSTA Everett in coordination with WDFW and the Stillaguamish Tribe (EPR #68742MMS01, Table 5-1). The goal of the study is to provide improved baseline data on harbor seal presence, haul out locations and patterns, population size, and movement and occurrence trends in north Puget Sound. The study also aims to provide data that can be used to characterize the impacts of pinniped predation on salmon. The results of the study will be used to inform the management plans of the three participating agencies.

Bat surveys may be proposed at NSC Smokey Point in the future (EPR #68742BAT01, Table 5-1), depending on priorities amongst Navy installations in the region. Given that white-nose syndrome was detected in Snohomish County in 2020, bat surveys at NSC Smokey Point may be particularly urgent in order to understand the baseline condition and future impacts of this disease to the bat community.

In addition, the NRM is working with Navy Geographic Information System (GIS) specialists in the early planning stages of a wildlife observation reporting program that will use standard GIS/Global Positioning System (GPS) products such as the Environmental Systems Research Institute (ESRI) Collector application. This program will enable personnel on NAVSTA Everett to report wildlife sightings as they occur, contributing to a long-term data set of incidental wildlife observations. This program will also support Objective 1.4.

Parameters used to determine the effectiveness of actions for this objective include: (a) conducting fish and wildlife studies, (b) sharing the results of these studies annually with Sikes Act partners during the metrics meetings, (c) incorporating results from the studies in this INRMP annually or during the Review for Operation and Effect every 5 years, and (d) reassessing of impacts to species during the Review for Operation and Effect to plan adaptive management actions.

Objective 1.3 - Habitat conservation through restoration and enhancement of marine, riparian, and wetland habitats (EPR #68742NWTJ1, Table 5-1) provides an important benefit for fish and wildlife species at NAVSTA Everett and NSC Smokey Point. It supports the military mission by providing the

healthy natural infrastructure needed for the daily operation of facilities and activities as well as the Navy's broader environmental stewardship responsibilities.

Fish habitat in the East Waterway is very limited and of poor quality. Given the highly developed shoreline areas, the wood waste and other contaminants on the seafloor, and ongoing military mission activities, there is little opportunity for salmonid habitat restoration or enhancement at NAVSTA Everett. NAVSTA Everett requires a deepwater setting and lacks what is referred to as "the landscape context" required to yield sufficient environmental benefits at a reasonable cost; therefore NAVSTA Everett remains a poor candidate for many restoration or recovery actions (Fresh, 2004). However, water quality is the aspect of aquatic habitat that could be targeted for improvement without limiting the military mission. Future MILCON projects and base expansion (both at the waterfront site and NSC Smokey Point) provide an opportunity to improve stormwater treatment as new facilities are built.

Managing wetlands, the vegetation buffer of Hayho Creek, and stormwater ponds for diversity, protection, and enhancement of habitat will benefit wildlife at NSC Smokey Point. See *Section 4.2 Water Resources Management* for a discussion of enhancement and restoration of these habitats.

Decontamination procedures should be put in place for personnel working in aquatic areas of NSC Smokey Point to prevent the spread of chytridiomycosis and other waterborne diseases affecting amphibians. Spores that spread Bd have been detected at Smokey Point (see *Section 2.3.4.6 Wildlife Diseases*), and the disease could be spread elsewhere. The Navy's Partners in Amphibian and Reptile Conservation organization (NEPARC, 2014) has defined decontamination procedures for boots or other gear used in aquatic areas, including sterilizing equipment with a 10 percent bleach solution or other chemical agent. Cleaning gear with hot water at a temperature of at least 140° F and drying gear completely for 30 days are also effective decontamination methods (USFS, 2014). In addition, wetlands and stormwater ponds should be monitored in the spring for dead or dying frogs, as a high mortality rate of amphibians may indicate Bd infection. It will be important to increase the awareness of military and civilian personnel about the disease, and to ensure that all field personnel at NSC Smokey Point are using decontamination procedures.

Parameters used to determine the effectiveness of actions for this objective include: (a) quantifying pre- and post-treatment conditions (such as metal concentrations in stormwater, diversity or abundance of native plant species, or abundance of invasive plant species), and (b) documenting and reporting results to permitting agencies and in this INRMP.

Objective 1.4 – The NRM will continue the environmental education program currently implemented at NAVSTA Everett. This program features informational posters during seal pupping season to remind personnel not to disturb or touch seal pups encountered on waterfront structures and provides contact information so that pups, or injured or dead seals or sea lions, can be reported to the NAVSTA Everett Environmental Division. The program is described further in *Section 4.1.2 Marine Mammal Management*.

Since 2020, the Stormwater Media Manager has coordinated a quarterly Environmental Newsletter. Past topics of articles written by the NRM have included reminders not to feed wildlife, reminders about seal pupping season, and information about white-nose syndrome and bats. There is ample opportunity to expand the environmental education program, including informational talks and volunteer projects for habitat restoration at NSC Smokey Point during Earth Day and National Public Lands Day. Parameters

used to determine the effectiveness of actions for this objective include: (a) planning and execution of outreach events, and (b) documentation of numbers of participants in the annual metrics reports and updates to this INRMP.

Specific management strategies are presented below for federally listed T&E species (*Section 4.1.1*), marine mammals (*Section 4.1.2*), and migratory birds (*Section 4.1.3*).

4.1.1 Federally Threatened and Endangered Species Management

One of the important functions of the INRMP is to provide protection and benefits for ESA-listed species. Pursuant to Section 4(a)(3)(B)(i) of the ESA, the Secretary of the Interior will not designate as critical habitat any lands or other geographical areas owned or controlled by the DOD, or designated for its use, that are subject to an INRMP prepared under the Sikes Act, if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation. Navy management plans for ESA-listed species must demonstrate compliance with three criteria established by USFWS to determine if an INRMP provides adequate special management or protection to obviate the need for critical habitat designation. These criteria, and NAVSTA Everett's compliance, are described below.

Criterion 1 - Conservation Benefit

The INRMP must provide a conservation benefit to the species. The cumulative benefits of INRMP management activities for the duration 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 conservation of the species. A conservation benefit may result from reducing fragmentation of habitat, maintaining or increasing populations, insuring against catastrophic events, enhancing and restoring habitats, buffering protected areas, or testing and implementing new conservation strategies.

Methods of Compliance for Criterion 1

Timing: The NAVSTA Everett Command ensures that all proposed routine construction or repair activities are restricted to the approved work window for the species. This includes scheduling projects to occur during the in-water work windows for fishes, using daily timing restrictions and monitoring for marbled murrelets and marine mammals during noise-generating projects, selecting appropriate non-toxic materials (such as for pilings), etc. In addition, the debris barrier floats at Shield's Park are removed annually from May 1 to June 30 to create an open and unobstructed area during the peak of the juvenile salmonid outmigration.

Consultation: NAVSTA Everett ensures that all proposed actions that potentially affect (including beneficially affect) ESA-listed species comply with Section 7 of the ESA, which requires, at a minimum, informal consultation with NMFS and USFWS. This includes emergency repairs to structures and other activities required by the installation's mission. See *Section 3.2 Natural Resources Consultation Requirements*.

Operations and Oversight: All new projects, programs, and operations, or changes to existing projects, programs, and operations go through an environmental review process, which requires review by the NRM for potential impacts to the environment (see *Section 3.1 Supporting Sustainability of the Military*

Mission and the Natural Environment). The Stormwater Media Manager, in coordination with the NRM, oversees and updates the Stormwater Management Plan and SPCC Plan, which set benchmarks for water quality standards in stormwater runoff and put in place measures to prevent and respond to accidental contaminant releases to fresh or marine waters. The training, testing, and inspection programs for these plans are described in *Sections 1.8.5 Stormwater Management Plan* and *1.8.6 Spill Prevention, Control, and Countermeasures Plan*.

Current and Proposed Projects: These include surveys/monitoring for marbled murrelets, surveys/monitoring for marine mammals (including SRKW and humpback whale), and fish surveys in the East Waterway. These studies provide a benefit not only for management within NAVSTA Everett, but for neighboring land managers (such as the Port of Everett) and regionally, in the case of marbled murrelets and marine mammals. The intent of these current and future Navy projects is to reduce existing data gaps.

Criterion 2 - Implementation of the Plan

The INRMP must provide assurances that the management plan will be implemented. Persons charged with plan implementation are capable of accomplishing the 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 the necessary authorizations or approvals. The plan provides a natural resources project implementation schedule (Table 5-1), including completion dates.

Methods of Compliance for Criterion 2

Staffing: CNRNW annually funds and tasks an NRM position with natural resources oversight of the installation's facilities and grounds. The NRM is directed by the Command to implement the INRMP. NAVSTA Everett also calls on the natural resources expertise of NAVFAC NW, which is staffed with environmental planners and specialists to assist facility managers in conservation and environmental compliance requirements.

Projects and Funding: The NRM annually proposes and submits projects and seeks funding to address natural resources management issues, including habitat enhancement projects and special projects to assist in the recovery of T&E species.

Planning and Authority: The NRM has the authority to implement BMPs and protection plans via the project review process, and works to obtain all the necessary authorizations or approvals required for proposed management actions. See *Section 3.2 Natural Resources Consultation Requirements*.

Concurrency: The NRM regularly meets with NAVSTA Everett's command and departments to ensure that planning for proposed new missions, or changes to existing missions, considers adequate protection measures for T&E species and their respective habitats.

Criterion 3 - Management Effectiveness

The INRMP must provide assurances that the conservation effort will be effective. The following criteria will be considered when determining the effectiveness of the conservation effort:

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.
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 conservation effort. This goal will be accomplished during the annual INRMP review and update in coordination with the appropriate federal and state agencies.
5. Duration sufficient to implement the plan and achieve the benefits of its goals and objectives. The INRMPs are ongoing plans, reviewed and updated annually and reviewed at least once every five years for operation and effect. This INRMP will be reviewed and updated or rewritten, as necessary, to continue protection and enhancement for T&E species and habitats.

Methods of Compliance for Criterion 3

Goals and Objectives: Overarching goals and objectives to fish and wildlife are provided in *Section 4.1 Fish and Wildlife Management*. The applicability to each ESA-listed species is described further in *Sections 4.1.1.1* through *4.1.1.7* below.

Parameters: The Navy will use quantifiable, scientifically valid parameters that will demonstrate achievement of objectives. The parameters, are included in the management strategy for each objective and represent the standard by which progress will be measured.

Monitoring and Adaptive Management: Species surveys and monitoring are included as Objective 1.2 and as projects in Table 5-1. Final detailed survey plans will be designed and timed to deliver the best quality data possible within the constraints of the project budget. Survey design will consider repeatability to facilitate future follow-up surveys to monitor species abundance.

Adaptive management is built into the annual INRMP review and Metrics process, which requires annual review, analysis, and adjustment of management strategies in coordination with USFWS, WDFW, and NMFS. Changes to the INRMP are made during the Review for Operation and Effect every five years; however, out-of-cycle updates can occur, as needed.

Reporting: During annual review of the INRMP, consult with USFWS, WDFW, and NMFS staff to examine the results of management actions and studies, and discuss necessary changes to the plan that would benefit the species. Assess effectiveness based on the parameters. Update the INRMP to document progress and effectiveness at least every five years during the Review for Operation and Effect.

Sufficient Duration: The INRMP is intended to provide continuing management guidance with no specified endpoint. The annual INRMP review and Metrics process with USFWS, WDFW, and NMFS, and the Review for Operation and Effect at least every five years, provide suitable mechanisms and sufficient flexibility to enable plan effectiveness.

4.1.1.1 Puget Sound Chinook Salmon, Puget Sound Steelhead, and Coastal-Puget Sound Bull Trout Management

Several conservation and recovery plans developed by the Services and other regional conservation coalitions guide the management actions needed to recover ESA-listed salmonid populations in the region as a whole, and to meet criteria for de-listing.

The Snohomish River Basin Salmon Conservation Plan in Volume II of the Puget Sound Salmon Recovery Plan (Snohomish Basin Salmon Recovery Forum, 2005) identified the following management actions in the nearshore areas needed for recovering salmon populations in the Snohomish River Basin:

- Protect areas of undeveloped shoreline and low-gradient areas, retain forest cover, and prevent fill or dredging within the photic zone.
- Restore shoreline conditions by removing armoring, lessening armored bank slopes, restoring beaches in front of hardened shorelines, and using bioengineering or "soft" engineering in place of riprap.
- Restore sediment processes by removing barriers to sediment transport, and increasing connectivity between coastal bluffs and the marine environment.
- Enhance riparian habitat by planting native species on the waterward side of the railroad tracks and private homes.
- Protect and restore water quality, including removal of some areas of contaminated sediment in the East Waterway.

While Puget Sound steelhead are not specifically addressed in the Snohomish River Basin Salmon Conservation Plan, management actions developed for Chinook and bull trout will also benefit steelhead. NMFS issued a recovery plan for the Puget Sound steelhead on December 20, 2019 (NMFS, 2019b). This plan identified management actions for the North Cascades major population group (which includes the Snohomish River steelhead runs) that are primarily focused on freshwater habitats, such as restoring access to historical habitats, restoring riparian functions by improving degraded riparian areas, and use of low-impact development techniques. However, the plan also prioritizes management strategies to improve early marine survival by:

- Reducing predation, disease, and toxic contaminants
- Removing bank armoring
- Enhancing tidal wetlands
- Otherwise increasing fish survival

In addition to the Puget Sound Recovery Plan, the USFWS developed the Recovery Plan for the Coterminous U.S. Population of Bull Trout (USFWS, 2015) and established four categories of recovery actions for bull trout:

- Protect, restore, and maintain suitable habitat conditions.
- Minimize demographic threats by restoring connectivity, or populations where appropriate, to promote diverse life history strategies and conserve genetic diversity.
- Prevent and reduce negative effects of non-native fishes and other non-native taxa.
- Work with partners to conduct research and monitoring to implement and evaluate recovery activities, consistent with an adaptive management approach using feedback from implemented, site-specific recovery tasks, and considering the effects of climate change.

Approved in-water work windows for protection of salmon during the peak outmigration are provided by USACE and applied by most other regulatory agencies (including USFWS, NMFS, and WDFW). For Marine and Estuarine Tidal Reference Area 7 (Everett), the combined salmon and bull trout in-water work window is July 16 to February 15 (USACE, 2015). For freshwater environments, Hayho Creek falls under all other Snohomish River tributaries, and a work window of July 1 to August 31 would apply to

NSC Smokey Point (USACE, 2010). Although Hayho Creek is not on Navy property and does not contain habitats suitable for supporting year-round salmonid presence, actions in the wetlands or riparian buffer could have downstream impacts that should be timed in the work window. Bull trout are not specifically called out in the USACE posted work windows for freshwater environments (USACE, 2010).

As described above in *Section 4.1 Fish and Wildlife Management*, opportunities for enhancing fish habitat at NAVSTA Everett, and ESA-listed salmonid habitat in particular, are limited. The Snohomish River Basin Salmon Conservation Plan prioritizes management actions for the nearshore areas north of Everett, where shorelines are undeveloped or less developed (Snohomish Basin Salmon Recovery Forum, 2005). Using management actions from the conservation and recovery plans as a guide, NAVSTA Everett may contribute to the preservation of ESA-listed salmonids by planning and implementing the following management strategies in alignment with the objectives detailed above in *Section 4.1 Fish and Wildlife Management*:

- Ensuring salmonids are not directly harmed or harassed resulting in unauthorized "take" (Objective 1.1). Consultation will be conducted with USFWS and/or NMFS when listed species may be affected. In-water work will be timed to occur in the recommended in-water work window to the maximum extent feasible, which avoids the peak presence of listed fish species and minimizes incidental take.
- Contributing information from surveys to the greater body of scientific knowledge in order to improve the quality and effectiveness of ESA-fish management efforts (Objective 1.2).
- Minimizing negative impacts on existing habitats, including habitats for prey species (Objective 1.3, PBF #3 for Coastal-Puget Sound bull trout). This includes implementing the SPCC plan and pursuing improved stormwater management/treatment systems in future MILCON and expansion projects. Reducing metal concentrations in stormwater could improve water quality (PBF #5 for Puget Sound Chinook and PBF #8 for Coastal-Puget Sound bull trout). This also includes the annual removal of the debris barrier floats at Shield's Park during the peak outmigration of juvenile salmonids on the Snohomish River to create and an open and unobstructed area (PBF #5 for Puget Sound Chinook and PBF #2 for Coastal-Puget Sound bull trout).
- Monitor for and control invasive aquatic marine species (Objectives 4.1 – 4.3, described in *Section 4.4 Noxious Weed and Invasive Species Management*).
- Maintain situational awareness of recovery plans, regional conservation efforts, and new research to inform management of these species at NAVSTA Everett. During the annual review of the INRMP with USFWS, WDFW, and NMFS, identify necessary changes to the plan or adaptive management that would benefit the species.

4.1.1.2 Bocaccio and Yelloweye Rockfish Management

WDFW published a Puget Sound Rockfish Conservation Plan in 2011, and an updated version in 2020 (Lowry et al., 2020). The goal of the plan is to restore and protect the natural heritage of Puget Sound rockfish populations by increasing the abundance, distribution, diversity, and productivity of rockfish as a component of the greater ecosystem; provide opportunities to view rockfish in the marine environment; and, when appropriate, provide sustainable fishing opportunities (WDFW, 2011; Lowry et al., 2020).

NMFS developed a Rockfish Recovery Plan for the Puget Sound/Georgia Basin (NMFS, 2017a) with three objectives to achieve recovery goals:

- Improve knowledge of the current and historical status of yelloweye rockfish and their habitats. This will be necessary so that populations can be characterized on a management unit basis and a detailed plan can be adaptively managed to carry out recovery actions in a way that will most efficiently achieve the delisting criteria.
- Reduce or eliminate existing threats to listed rockfish from fisheries and other anthropogenic threats.
- Reduce or eliminate existing threats to listed rockfish habitats and restore important rockfish habitat.

As described above *in Section 4.1 Fish and Wildlife Management*, opportunities for enhancing fish habitat at NAVSTA Everett are limited, and are particularly restricted in the case of rockfish habitat, where the water depth and natural structure and rugosity are absent within the installation boundaries. Some of these actions are not feasible for the Navy to implement, such as reducing threats from fisheries. NAVSTA Everett will plan and implement the following management strategies which will contribute to the recovery of the bocaccio and yelloweye rockfish:

- Contributing information from surveys to the greater body of scientific knowledge in order to improve the quality and effectiveness of ESA-fish management efforts (Objective 1.2). Surveys were conducted at NAVSTA Everett by WDFW in 2015, and opportunities for additional research will continue to be explored.
- Implement an effective stormwater management program and SPCC Plan to ensure pollutants, chemical contaminants, and oil spills do not degrade water quality and rockfish habitat outside of the installation boundary (Objective 1.3, PBF #2).
- Maintain situational awareness of recovery plans, regional conservation efforts, and new research to inform management of these species at NAVSTA Everett. During the annual review of the INRMP with USFWS, WDFW, and NMFS, identify necessary changes to the plan or adaptive management that would benefit the species.

4.1.1.3 Green Sturgeon Management

Available data indicate the occurrence of green sturgeon at NAVSTA Everett is unlikely. Although the installation has no apparent barriers that would preclude the presence or movement of the species, the nearest suitable estuarine environment for green sturgeon could be the Snohomish River estuary to the north of NAVSTA Everett. However, it is not possible for NAVSTA Everett staff to determine the population origin of any green sturgeon that might occupy the estuary, whether from the northern or southern DPS. The principal risk to the ESA-listed Southern DPS is the loss of spawning and rearing habitats located in the Sacramento Basin and the San Francisco Bay-Delta region, respectively. Therefore, action undertaken as part of this INRMP will have little effect on this main source of risk.

The Report "Status Review for North American Green Sturgeon, *Acipenser medirostris*" indicates conservation measures for the benefit of Chinook salmon appear to deliver similar benefits to green sturgeon, at least in the freshwater/estuarine environment (Adams et al., 2002). *Section 4.1.1.1 Puget Sound Chinook Salmon, Puget Sound Steelhead, and Coastal-Puget Sound Bull Trout Management* details

conservation measures and other benefits to Chinook salmon and other species provided by implementing the management strategies in this INRMP. These measures are also likely to protect individual green sturgeon that could be present.

4.1.1.4 Pacific Eulachon Management

Available data for the Snohomish River indicate the occurrence of Pacific eulachon at NAVSTA Everett is likely very rare. The NRM will maintain situational awareness of best available information on this species. Should new information become available indicating this species may be present or that NAVSTA Everett may have Habitat Elements favorable to this species, further planning and action will be undertaken.

4.1.1.5 Marbled Murrelet Management

The Marbled Murrelet Recovery Plan (USFWS, 1997) lists actions needed to stabilize marbled murrelet populations, including:

- Identify and protect terrestrial and marine habitat areas within each marbled murrelet Conservation Zone.
- Monitor marbled murrelet populations and habitat, and survey suitable breeding habitat to identify potential nesting areas.
- Implement short-term actions to stabilize the marbled murrelet population.
- Implement long-term actions to stop population decline and increase marbled murrelet population growth.

Some of these actions are not feasible at the scale of NAVSTA Everett, such as protecting habitat within each Conservation Zone or surveying breeding habitat (not applicable because there is no suitable breeding habitat at the NAVSTA Everett waterfront site or NSC Smokey Point). As stated above in *Section 4.1 Fish and Wildlife Management*, NAVSTA Everett will plan and implement the following management strategies which will contribute to the recovery of the marbled murrelet:

- Ensure marbled murrelet are not directly harmed or harassed resulting in unauthorized “take” (Objective 1.1). This includes following the SPCC Plan to ensure oil spills are prevented and contained. In cases of MILCON projects where take cannot be avoided, consultation will be conducted with USFWS. Noise-generating work (such as pile driving) or other in-water work will implement murrelet monitoring and daily timing restrictions to the maximum extent feasible, and when appropriate, in order to minimize incidental take.
- Contribute information from annual marbled murrelet winter monitoring to the greater body of scientific knowledge to improve the quality and effectiveness of management efforts (Objective 1.2).
- Ensure existing habitats are not negatively impacted and improve habitat conditions, including habitats for prey species, such as forage fish (Objective 1.3). This includes implementing the SPCC Plan and pursuing improved stormwater management/treatment systems in future MILCON and expansion projects. Reducing contaminant loads in stormwater will improve water quality for forage fish and food web effects on marbled murrelets.

- Maintain situational awareness of marbled murrelet recovery plans, regional conservation efforts, and new research to inform management of this species at NAVSTA Everett. During the annual review of the INRMP with USFWS, WDFW, and NMFS, identify necessary changes to the plan or adaptive management actions that would benefit the species.

4.1.1.6 Southern Resident Killer Whale

The SRKW Recovery Plan (NMFS, 2008a) lists the following management measures:

- Rebuild depleted populations of salmon and other prey to ensure an adequate food base for recovery of the Southern Residents.
- Minimize pollution and chemical contamination in Southern Resident habitats.
- Minimize disturbance of SRKWs from vessels.
- Minimize the risk of oil spills.
- Monitor and minimize the risk of infectious diseases in Southern Resident whales.
- Continue to use agency coordination and established MMPA mechanisms, such as IHAs, to minimize any potential impacts from human activities involving acoustic sources, including Navy tactical sonar, seismic exploration, in-water construction, and other sources.
- Reduce potential for impacts of invasive species in Southern Resident habitats.
- Develop public information and education programs.
- Respond to killer whales that are stranded, sick, injured, isolated, pose a threat to the public, or exhibit nuisance behaviors.
- Transboundary and interagency coordination and cooperation.
- Monitor status and trends of the SRKW population.
- Conduct research to facilitate and enhance recovery efforts for SRKWs.

Some of these actions are not feasible at the scale of NAVSTA Everett, such as minimizing the risk of infectious diseases in SRKW. As described in the objectives above in *Section 4.1 Fish and Wildlife Management*, NAVSTA Everett will plan and implement the following management strategies that will contribute to the recovery of SRKW:

- Support the protection and recovery of salmon stocks, as detailed in *Section 4.1.1.1 Puget Sound Chinook Salmon, Puget Sound Steelhead, and Coastal-Puget Sound Bull Trout Management* (PBF #2).
- Schedule pierside operations and testing and construction activities to avoid direct exposure of SRKW to elevated sound levels that may disturb or harm the whales (Objective 1.1). For example, sonar testing is subject to operational requirements to contact the NRM three days prior to a scheduled test, and again immediately prior to the test. This process allows the NRM to review recent reports from various sources to maintain local situational awareness, and to alert sonar operators if whales are reported in the vicinity. Additional minimization and mitigation measures for sonar testing are described in *Section 4.1.2 Marine Mammal Management*.
- Implement an effective stormwater management program and SPCC Plan to ensure pollutants, chemical contaminants, and oil spills do not degrade SRKW habitat (Objective 1.3, PBF #1).
- Contribute information to the greater body of scientific knowledge to improve the quality and effectiveness of wildlife management efforts through the weekly marine mammal surveys and reporting incidental sightings (Objective 1.2).

- Develop an education/outreach program with the aim of informing NAVSTA Everett personnel about the importance of water quality and spill prevention to species recovery, and the measures for avoiding and minimizing exposure to elevated noise and vessel disturbance (Objective 1.4).
- Monitor for and control invasive aquatic marine species (Objectives 4.1 – 4.3, described in *Section 4.4 Noxious Weed and Invasive Species Management*).
- Maintain situational awareness of SRKW recovery plans, regional conservation efforts (including the SRKW Recovery Task Force), and new research to inform management of this species at NAVSTA Everett. During the annual review of the INRMP with USFWS, WDFW, and NMFS, identify necessary changes to the plan or adaptive management actions that would benefit the species.

4.1.1.7 Humpback Whale Management

The Recovery Plan for the Humpback Whale (NMFS, 1991) includes four recovery goals:

- Maintain and enhance habitats used by humpback whales currently or historically
- Identify and reduce direct human-related injury and mortality
- Measure and monitor key population parameters
- Improve administration and coordination of recovery program for humpback whales

Given the range of the humpback whale and the rarity of its presence in Puget Sound, there are few actions that could be conducted at NAVSTA Everett that could have a measurable effect upon individual whales, the species, or its habitat. Many of the management actions listed above for SRKW would also provide benefits to the humpback whale, if present.

4.1.2 Marine Mammal Management

Marine mammals regularly and seasonally use the artificial structures and the waters within or adjacent to NAVSTA Everett's waterfront site for breeding, resting, migrating, and foraging. The presence of marine mammals does not significantly impact NAVSTA Everett operations or training, except in instances of pier-side and on-water training exercises, sonar tests, and in-water construction and maintenance actions, when measures must be implemented to prevent take under the MMPA. The marine mammals most frequently occupying and using nearby waters (Pacific harbor seals and California sea lions) remain generally unaffected by daily operations at NAVSTA Everett.

Accordingly, the NRM will review all proposed projects, operations, and training plans to ensure that potential impacts to marine mammals are avoided and minimized to the greatest extent feasible (Objective 1.1). If potential impacts to marine mammals are identified, the NRM will provide recommendations to the program or project managers so that changes or mitigation can be incorporated early in the planning process. Additionally, agency consultation is undertaken on a case-by-case basis to incorporate practices and processes to avoid noise impacts to marine mammals as the result of construction and maintenance activities.

In order to reduce sonar testing impacts to marine mammals, there are several minimization and mitigation measures that the Navy has committed to implementing as part of the NW Training and Testing Program (U.S. Navy, 2020b). These include:

- Using the lowest active sonar source levels practical to successfully accomplish each event.
- Posting a qualified lookout (or lookouts) on an observation platform to search for and detect marine mammals prior to initiating sonar and during the activity.
- Relocating or delaying the start of sonar testing activities if marine mammals are present prior to initiating sonar activities (except for pinnipeds hauled out on, or in the water near, man-made structures or vessels).
- Powering down or shutting down sonar activities if marine mammals are observed in the mitigation area during the activity (except for pinnipeds hauled out on, or in the water near, man-made structures or vessels). For low-frequency active sonar at 200 decibels (dB) and hull-mounted mid-frequency active sonar, the mitigation zones are 1,000 yards (power down 6 dB), 500 yards (power down 10 dB), and 200 yards (shut down). For low frequency active sonar less than 200 dB and high-frequency active sonar, the mitigation zone is 200 yards (shut down).
- Allowing sighted marine mammal(s) to leave the mitigation area prior to restarting sonar activities by observing the animal(s) exiting the mitigation area or waiting 30 minutes after the mitigation area has been clear of any additional sightings.
- Issuing seasonal awareness notification messages to alert ships within Puget Sound to the possible presence of concentrations of SRKW, humpback, and gray whales as a reminder to stay vigilant, avoid potential impacts both from vessel strikes and testing activities. Lookout(s) will use the information from the awareness notification messages to assist in their observation of mitigation zones during sonar testing activities.

Other minimization measures incorporated in the NAVSTA Everett Afloat Guide (NAVSTAEVERETTINST 3128.1 G) are also implemented for sonar testing and operations to the extent feasible, including:

- Orienting the ship bow in at the pier when sonar testing and operations are planned in order to direct the sound towards land versus the open water.
- Ending sonar testing and operations at sundown to ensure sufficient visibility conditions for lookout(s).
- Coordinating with the NAVSTA Everett Environmental Division in advance of sonar testing and operations to provide the opportunity for current local updates on marine mammals. Ships must contact the NAVSTA Everett Environmental Division at least 48 hours prior to the sonar test for a situational awareness brief concerning the presence of marine mammals in the general area.

When distressed, injured, or stranded marine mammals are discovered at NAVSTA Everett, the NRM is immediately notified. The NRM or other Environmental Division staff records the species, evidence of injuries, and location information, and photographs the animal. The NRM reports all injured or stranded marine mammals by email or phone to the Sno-King Marine Mammal Response, which is a partner of the Western Region Marine Mammal Stranding Network overseen by NMFS. Previous coordination with the Stranding Network has been very effective. Stranding Network staff responded to an injured sea lion (which later died) and a pre-maturely born harbor seal pup at NAVSTA Everett in 2020.

The NRM or other member of the Environmental Division will conduct weekly marine mammal surveys in continuance of the long-term marine mammal study in Navy Region NW (Objective 1.2). The weekly marine mammal surveys at four Navy installations, including NAVSTA Everett, have been ongoing since 2012. These weekly surveys provide important information on seasonal and long-term marine mammal abundance and distribution to inform the Navy's installation INRMPs, and environmental documents for MILCON projects and testing and training activities across the region. The Navy is also developing a harbor seal tagging study with WDFW and the Stillaguamish Tribe that will provide improved abundance and distribution estimates.

The NRM will post fliers annually during seal pupping season and will use other methods (such as the Stormwater Media Manager's Environmental Newsletter) to inform personnel about the MMPA regulations and restrictions regarding disturbance to marine mammals (Objective 1.4).

4.1.3 Migratory Bird Management

The DOD PIF program is intended to guide DOD's blending of military preparedness with conservation actions targeting avian species. Since partnering with the PIF initiative in 1991, DOD has become a leader in the effort to keep common birds common, while complying with federal regulations and sustaining the natural landscapes required to maintain military readiness. Further details are provided in *Section 1.8.2 Partners in Flight Strategic Plan*.

The DOD PIF strategic plan provides management goals and recommendations for bird species on military lands (DOD PIF, 2014). The goals and recommendations applicable to NAVSTA Everett, and congruent with the fish and wildlife management objectives in *Section 4.1*, focus on inventory and monitoring (Objective 1.2), collaboration and partnerships, habitat conservation (Objective 1.3), and compliance with regulations (Objective 1.1).

Developing and implementing an inventory and monitoring program is important for:

- Assessing the status and trends of bird populations and habitats, including migrating, breeding, and wintering birds;
- Identifying the habitat components and conditions needed by bird species, including species of concern;
- Understanding interrelationships of co-existing species; and
- Evaluating the effects of management activities on habitats and populations of migratory birds.

Currently, NAVSTA Everett participates in the Christmas Bird Count at the waterfront site in collaboration with the Pilchuck Chapter of the Audubon Society. The NRM will continue to support this collaboration, and will explore options to include the NSC Smokey Point location in future Christmas Bird Count events (Objective 1.2). Other collaboration and partnership opportunities could include participating in long-term regional or national inventory and monitoring programs such as the Breeding Bird Survey, International Migratory Bird Day, and breeding bird atlas projects.

In addition to informing updates of this INRMP, data collected for breeding, migrating, and wintering bird populations and habitats could be provided to national data repositories such as eBird, Avian Knowledge Network, and Monitoring Avian Productivity and Survivorship, as a way of furthering collaboration, if approved by the Navy.

Habitat conservation through restoration and enhancement of marine, riparian, and wetland habitats provides an important benefit for migratory birds (Objective 1.3). Management actions for habitat conservation are described in *Section 4.1 Fish and Wildlife Management*. Additional habitat-related actions targeting bird species could include creating nesting platforms or nest boxes, particularly for osprey. There is a large breeding population of osprey in Port Gardner Bay. Currently these osprey depend on derelict creosote-treated timber pilings, which will likely be removed in the future.

Compliance with the MBTA and EO 13186 requires avoiding and minimizing incidental take of migratory birds to the extent possible (Objective 1.1). The primary hazard to migratory bird species at NAVSTA Everett is the unmaintained bird deterrent wires on buildings. In 2020, the Public Works Department began including removal of the bird deterrent wires as part of any projects planned on the roofs of buildings with wires. Under this strategy, all bird wires will be removed from NAVSTA Everett over the course of approximately 10 years.

Lighting on buildings, piers, and sports fields can attract or disorient migrating birds, leading to stress or mortality. Issues are more prevalent at nighttime and during periods of particularly poor visibility (Poot et al., 2008). The NAVSTA Everett waterfront site has light posts on the streets, piers, track, and baseball field. The Installation Energy Manager has made many improvements to the lighting system that address light pollution concerns including:

- All lights regularly used on the installation are controlled by light sensors, so that lights are only on at nighttime and automatically adjust to seasonal difference in dawn and dusk times.
- Many lights are not regularly used at night, but are instead controlled by switches on an as-needed basis. Examples include all baseball field lights, all but one light on the track, and half of the lights on the North Wharf.
- All street lights and pier lights are pointed down, directed away from the water, and use the dimmest light level possible, as safety and security needs permit (e.g. crosswalks have brighter lights). This is also the case for nearly all other lights on the installation, with only a few exceptions due to security needs.

Any new lighting of equipment or structures or repairs to the current lighting system will take migratory birds and other natural resources into account and continue to make improvements to the system, as possible.

4.2 Water Resources Management

In additional to the CWA regulations discussed in *Section 3.2.6 Clean Water Act*, EO 11990 requires federal agencies to minimize the loss or degradation of wetlands and to enhance their natural values. OPNAV-M 5090.1E states the Navy must comply with the national goal of “No Net Loss of Wetlands Policy” and avoid the degradation or loss of size, function, or value of wetlands. Water quality management and protection are important issues at NAVSTA Everett, particularly given the sensitive species present and the benefits to the mission provided by increased regulatory certainty.

Sea level rise and ocean acidification have the potential to affect marine resources associated with NAVSTA Everett, as well as the military mission. Management strategies for these topics are addressed under *Section 4.5 Climate Adaptation Planning*.

Goal 2

Avoid or minimize impacts to wetlands and waterbodies to the greatest extent practicable, mitigate any unavoidable impacts in accordance with state and federal regulations, and restore or enhance nearshore marine and freshwater habitats to provide for healthy ecosystem functions, wildlife habitat, and the natural infrastructure needed to support the military mission.

Information/Data Needs

- Delineate the wetland boundaries at NSC Smokey Point
- Stream buffer habitat assessment at NSC Smokey Point

Objectives

2.1 – Maintain systems and implement management plans to protect and improve water quality.

2.2 – Ensure no net loss of wetlands at NSC Smokey Point, either in extent or in function.

2.3 – Restore and enhance riparian buffer and wetland habitat at NSC Smokey Point through the removal of noxious and invasive plants species and replanting with native species.

Management Strategies

Objective 2.1 – The Stormwater Media Manager runs a rigorous program at the NAVSTA Everett waterfront site and NSC Smokey Point to maintain and inspect facilities and operations that affect water quality. The stormwater testing program and facility inspections ensure contaminants affecting aquatic habitats are minimized, as described in *Section 1.8.5 Stormwater Management Plan*. The SPCC Plan puts protections in place to prevent spills from affecting aquatic habitats, as described in *Section 1.8.6 Spill Prevention, Control, and Countermeasures Plan.*

Currently, there is no defined management plan for vegetation in the stormwater ponds at NSC Smokey Point. In the past, vegetation was cut back every few years, but areas of native emergent plants were retained. Although these are stormwater facilities, the vegetation can provide suitable habitat for wildlife species, and also provides a level of treatment by filtration for the stormwater, which improves water quality entering the groundwater. The NRM will work with the stormwater media manager and Public Works maintenance team to define a vegetation management plan that meets stormwater treatment needs as well as providing habitat, where possible.

As MILCON projects and base expansion plans are pursued and developed, the Public Works Department, including the Stormwater Media Manager and NRM, will consider alternatives for enhanced stormwater treatment on new facilities (such as new piers) and for retrofits of existing facilities.

Parameters used to determine the effectiveness of actions for this objective include: (a) successfully meeting stormwater and SPCC inspection and testing goals, (b) corrective actions taken and

documented if goals are not met, (c) develop a vegetation management plan, and (d) document the characteristics and extent of the native plant community in the stormwater ponds on an annual basis.

Objective 2.2 – The NRM will review all construction and operational actions to ensure adverse impacts to wetlands are avoided to the greatest extent practicable. Any planned construction that cannot be sited to avoid wetlands will be designed to minimize wetland degradation and include compensatory mitigation as required by regulatory agencies in all phases of the project's planning, programming, and budgeting process.

Parameters used to determine the effectiveness of actions for this objective include: inclusion of appropriate BMPs and avoidance and minimization measures in projects, as reviewed during program audits and during consultations with agencies.

Objective 2.3 – The Navy will maintain the wetlands, 25-foot wetland buffer, and the 50-foot Native Growth Protection Area (riparian buffer) around Hayho Creek. In-house labor will document the current distribution of invasive plants species and areas that could benefit from additional plantings of habitat-appropriate native species, and monitor the wetlands and buffers annually. Projects to remove invasive plants and restore native plant species will be conducted (EPR #68967NR004 and #68742NWTJ1, Table 5-1). In particular, restoration of the wetland buffer will improve upland and aquatic habitats, since it is currently dominated by Himalayan blackberry, with some native emergent species in the wetland itself. Also, volunteer projects for habitat restoration can be planned for Earth Day or National Public Lands Day.

Parameters used to determine the effectiveness of actions for this objective include: (a) quantifying pre- and post-treatment conditions (such as diversity or abundance of native plant species, or abundance of invasive plant species) and (b) documenting/reporting results in this INRMP.

4.3 Integrated Pest Management

This section primarily addresses nuisance bird species issues. In normal years, control of rodents or insects at NAVSTA Everett is minor. Noxious and invasive plants are addressed in *Section 4.4 Noxious Weed and Invasive Species Management*.

Goal 3

Use targeted sustainable methods including habitat modification, biological, genetic, cultural, mechanical, physical and regulatory controls and, when necessary, the judicious use of the least hazardous pesticides to control pests at NAVSTA Everett.

Information/Data Needs

- Track the number, species, and locations of nesting birds at the waterfront site every year
- Track the number, species, and locations of bird nests treated and number of other Wildlife Services actions taken every year

Objectives

3.1 – Reduce the presence and/or undesirable behaviors of nuisance bird species at the NAVSTA Everett waterfront site to protect infrastructure and human health and safety.

3.2 – Maintain a current IPMP and professionally trained staff to respond on an as-needed basis to other pest management concerns.

Management Strategy

Objective 3.1 – Nuisance birds using NAVSTA Everett include glaucous-winged gull, Canada goose, European starling, and American crow. These species and others are considered nuisance species because their nesting activities result in damage to facilities (particularly rooftops), unsanitary conditions, or aggression towards humans. Gulls and geese in particular produce large amount of feces. It may be necessary to clear away this material in the interest of public health. There have been no nuisance wildlife concerns at the NSC Smokey Point.

The Navy has contracted with Wildlife Services to control these nuisance birds on some of the installations. Wildlife Services has the expertise and the necessary permits to handle problem wildlife, and are a good resource should there be a need for systematic bird or other animal control in the future. Private contractors also have the capability of handling problem wildlife. Regardless of the agent chosen to manage these wildlife issues, the NRM will ensure that the responders have the necessary permits.

In the past, the IPM program has not kept records relating to the number of nuisance birds reported, nesting birds documented, or number of intervention actions (e.g. removing birds or nests). The NRM will work with the Navy IPMC and the representative from Wildlife Services to develop tracking systems so that these data can be used to better inform management actions. In addition, in 2020 the Environmental Division began disseminating educational messages at NAVSTA Everett about the harm in feeding wildlife, including in the new Environmental Newsletter produced by the Stormwater Media Manager, and in updates to the NAVSTA Everett Environmental Guide for Contractors (NAVFAC NW, 2020). The NRM will continue to provide educational messages and materials to discourage feeding of wildlife and will look for opportunities to integrate this into installation rules and guidelines. These actions should contribute to reducing an attractant that draws nuisance birds and other animals to the installation's facilities.

Parameters used to determine the effectiveness of actions for this objective include: (a) creation of a tracking database within the IPM program to document number of nuisance birds reported, nesting birds documented, and number of intervention actions, and (b) reduction in the number of intervention actions.

Objective 3.2 – As described in *Section 1.8.8 Integrated Pest Management Plan*, NAVSTA Everett has an approved IPMP that is due to be updated. The IPMC, a Public Works employee, is designated and currently managing the program, coordinating as needed with the IEPD and NRM.

Outside of the nuisance bird management described above, in normal years, there are few needs for pest management for rodent or insect issues. When a specific building or problem is identified for pest management, personnel notify IPMC, who initiates a service request to the BOSC contractor. These may include setting traps (including baited traps) for rodents or spraying insects nests, e.g. hornets nests.

The NRM will continue to coordinate with the IPMC to ensure updates to the IPMP and annual pest management activities meet the intent of Goal 3.

Parameters used to determine the effectiveness of actions for this objective include: (a) development of updated IPMP, reviewed by NRM and IEPD, and (b) annual reporting of pesticide usage to NAVFAC NW.

4.4 Noxious Weed and Invasive Species Management

EO 13112, Invasive Species, as amended by EO 13751, Safeguarding the Nation establishes U.S. policy "to prevent the introduction, establishment, and spread of invasive species, as well as to eradicate and control populations of invasive species that are established." An invasive species is defined as, "…a non-native organism, [with regard to a particular ecosystem,] whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health." Responsibilities of federal agencies, with respect to implementing the U.S. invasive species policy, are enumerated in Section 3 of EO 13751, and OPNAV-M 5090.1E, Section 12-3.9, which details Navy guidance with respect to invasive species management. Washington state law establishes roles and responsibilities for preventing and controlling the spread of noxious weeds. The Washington State Noxious Weed Control Board maintains the state's official list of noxious weeds and classifies the species that landowners may be required to control, as described in *Section 2.3.6 Invasive, Noxious, and Nuisance Species*.

Nuisance bird management is addressed above under *Section 4.3 Integrated Pest Management*, because these nuisance species efforts are included in the IPMP.

Goal 4

Reduce or eradicate (where practical) noxious weed species and invasive plant and animal species to improve the quality of native vegetation and wildlife communities and habitat.

Information/Data Needs

- Survey of noxious weeds and invasive plant species at the NAVSTA Everett waterfront site and NSC Smokey Point.

Objectives

4.1 – Control Class A, B, and C noxious weeds and other invasive plant species within the installation.

4.2 – Maintain situational awareness and monitor for aquatic invasive fauna, and cooperate with county, state, and federal agencies on eradication efforts.

Management Strategy

Objective 4.1 – NAVSTA Everett will cooperate with county and state programs for controlling noxious plants that occur at the installation. For example, the NRM cooperated with Snohomish County to have County staff treat and eradicate common reed at NSC Smokey Point in 2016. Control efforts will be selected in accordance with Goal 3 above and the IPMP, and will include targeted sustainable methods and appropriate BMPs to minimize any impacts to the natural environment, such as aquatic habitats.

This objective is supported by in-house labor and a proposed project for survey and control invasive and non-native plants and animals (EPR #68967NR004, Table 5-1). Survey efforts will be repeated at appropriate intervals to ensure that eradication efforts are successful and that changing conditions (such as new introductions or climate change) are addressed through adaptive management. Surveys for

specific infestations should be conducted for three consecutive years post-treatment, and comprehensive noxious and invasive plant surveys should be planned at five year intervals.

Grounds maintenance activities will be coordinated to control noxious or invasive weeds if detected in landscaped areas. The BOSC includes up to 25,000 square feet of weed spraying in pavement cracks for the waterfront site. The area to be treated is identified annually by the IPMC as part of the grounds maintenance plan.

The riparian buffer (designated Native Growth Protection Area) along Hayho Creek and the wetland and wetland buffer will be managed to ensure noxious and invasive weeds are controlled to the maximum extent practicable. Control efforts in these areas may require a contractor or other entity, since these natural areas are not part of the normal grounds maintenance areas. Primary efforts at control should consist of manual and/or mechanical removal and replacing with native plants, with emphasis on fast-growing species such as willows, red osier dogwood (*Cornus sericea*), spiraea (*Spiraea douglasii*), and black cottonwood.

Parameters used to determine the effectiveness of actions for this objective include: (a) surveying NAVSTA Everett to document noxious and invasive plant species infestations, (b) quantifying pre- and post-treatment conditions (area or abundance of species) to document a reduction in noxious and invasive plants, and (c) documenting/reporting results in this INRMP.

Objective 4.2 – Invasive animal species that have been documented at or could potentially occur at the NAVSTA Everett waterfront site or NSC Smokey Point include European green crab, non-native tunicates, and American bullfrog. These species are described further in *Section 2.3.6 Invasive, Noxious, and Nuisance Species*. The NRM will increase awareness amongst NAVSTA Everett Public Works staff and others on the installation in order to monitor for these species at the facilities. The NRM will also stay up-to-date on the spread of infestations, current eradication efforts, opportunities for cooperation with other agencies, and the threat of new invasive species. USFWS, NMFS, and WDFW can provide support to the NRM through their channels by providing the latest information during the annual Metrics.

All fuel tank compensating water (referred to as comp water by the Navy) must be collected during in port refueling and sent to the City via the sanitary system. Therefore, no comp water is released while in port at NAVSTA Everett, eliminating the risk of spreading invasive species in this way. Due to the high zinc content in the comp water, NAVSTA Everett runs the water through a treatment process which reduces the zinc levels and removes any residual fuel in the comp water prior to sending it the City of Everett via the sanitary system. The City's treatment plant processes eliminate any living organisms, including larval invasive species.

Parameters used to determine the effectiveness of actions for this objective includes documenting outreach efforts to NAVSTA Everett personnel targeting awareness of invasive animal species.

4.5 Climate Adaptation Planning

As discussed in *Section 2.2.2 Climate Change*, OPNAV-M 5090.1E and DODI 4715.03 directs installations to address climate resilience in INRMPs.

Goal 5

Identify, prepare for, and reduce risks from a changing climate to natural resources and the military mission at NAVSTA Everett.

Information/Data Needs

- Information gaps identified in other program elements related to the current condition of natural resources must be addressed for comprehensive climate adaptation planning.
- Climate projections are constantly being refined and updated. As new National Climate Assessments and other credible reports are produced, this INRMP should be updated to reflect best available science.

Objectives

5.1 – Complete the step-by-step method for INRMP climate adaptation planning prior to the each INRMP update and incorporate climate-informed changes into the INRMP.

5.2 – Integrate climate adaptation planning into other relevant planning documents and processes.

Management Strategy

Objective 5.1 – The DOD has developed a guide for integrating climate adaptation planning in INRMPs: *Climate Adaptation for Natural Resources Managers* (Stein et al., 2019). This guide provides a process for proactively integrating planning for mitigation, restoration, or adaptation in the objectives and management strategies developed for the program elements. This six-step process includes:

1. Setting the context for adaptation planning
2. Assessing climate vulnerabilities and risks
3. Evaluating implications for INRMP goals and objectives
4. Developing strategies and actions to reduce climate risk
5. Implementing adaptation actions and projects, and
6. Monitoring and adjusting adaptation actions.

Some of these steps are already underway. The context and climate vulnerabilities (steps 1 and 2) are addressed in many sections of this INRMP, such as *Section 2.2.2 Climate,* as well as the rest of *Section 2 Current Conditions and Use*, which describes baseline conditions and the interactions between military mission and natural resources. The most significant vulnerabilities to climate change identified for NAVSTA Everett include overwater and shoreline structures; stormwater and drinking water systems; salmon and forage fish populations; and wetlands and wetland-dependent species. Additional effort is needed to document current (baseline) conditions of natural resources at the site in order to plan for and adapt to projected impacts of climate change. The information and data needs include surveys for fish at the NAVSTA Everett waterfront site, particularly ESA-listed species, as well as surveys for noxious and invasive plant species, focusing primarily at NSC Smokey Point. Once these data gaps have been filled, climate adaptation planning can more comprehensively address the vulnerabilities and risks to natural resources and the military mission at the installation.

Objectives for each program element were developed with the projected effects of climate change in mind (step 3). The ecosystem-based approach for natural resources management in this INRMP targets restoring and enhancing habitats and removing invasive species as a way to promote resiliency for

native plant and wildlife species (Objectives 1.3 and 2.3). As projects are developed to address these objectives, the potential future climate will be considered so that the desired ecological community will be able to persist under future conditions. For example, native plant species that are tolerant of hotter and drier summer conditions could be selected for restoration projects.

Developing program element objectives for climate change also includes monitoring natural resources to detect changes over time that would require reassessing management strategies (step 6). Timeframes of less than 25 years to 100 years and more are used by researchers to characterize projected effects from climate change. Climate change effects to the natural resources at NAVSTA Everett will occur incrementally over similar timeframes, and therefore a long-term monitoring and planning strategy is required, with the appropriate timeframe identified in each objective (Objectives 1.2, 4.1, and 4.2). Based on the results of long-term monitoring, program element goals and objectives should be reassessed during the five-year Reviews for Operation and Effect to ensure continuing feasibility or to include climate-informed updates, as needed.

Further effort is needed to fully complete all the steps in the *Climate Adaptation for Natural Resources Managers* guide. Working through the step-by-step method for INRMP climate adaptation planning with appropriate Public Works staff prior to the next INRMP update would create a starting point for developing strategies and actions to reduce climate risk for NAVSTA Everett as a whole, and an opportunity to incorporate additional objectives, strategies, and actions related to natural resources into the next revision of this INRMP.

In addition to this initial planning effort, as both INRMP projects and public works projects are developed, worksheets 4.1 and 4.2 *in Climate Adaptation for Natural Resources Managers* may be helpful for incorporating climate change planning. Implementing climate adaptation actions and projects will be dependent on INRMP project programming and budgeting priorities, coordination in the early planning of Public Works projects, and cooperation with partner agencies to complete projects through means outside of INRMP project funding. In many cases, habitats and the distribution of species on the Navy's limited property at this installation may be too small in scale to address climate change vulnerabilities. Therefore, regional partnerships may be the most appropriate means to conduct climate adaptation projects.

Monitoring and adaptive management are essential to determine the effectiveness of management actions and course-correcting based on results. During annual review of this INRMP with USFWS, NMFS, and WDFW, climate change program element objectives will be assessed according to the effectiveness parameters. After several years of long-term monitoring, program element goals and objectives should be reassessed during the five-year Reviews for Operation and Effect to ensure continuing feasibility or to include climate-informed updates, as needed.

Parameters used to determine the effectiveness of actions for this objective include: (a) complete the step-by-step method for INRMP climate adaptation planning with appropriate Public Works staff prior to the next INRMP update, and (b) revise or add objectives and strategies to address climate adaption and/or propose new INRMP actions and projects to achieve climate-informed goals and objectives.

Objective 5.2 – In accordance with Unified Facilities Criteria 2-100-01 (Installation Master Planning) and other DOD guidance, Navy Master Development Planners are directed "to consider" climate change in the development of Master Plans and projects. Currently, planning documents for NAVSTA Everett,

specifically the 2016 IDP (discussed in *Section 1.8.7 NAVSTA Everett Master Plan*), have not been updated to include climate change considerations. The Facilities Management Division (FMD) of the NAVSTA Everett Public Works Department will coordinate with the Environmental Division to integrate climate adaptation planning into the next Master Plan update, expected in 2023, and other relevant planning documents and processes.

Parameters used to determine the effectiveness of actions for this objective include: (a) coordination between Environmental and FMD prior to Master Plan update, and (b) updated sections/discussion in planning documents and INRMP demonstrating synchronized climate adaptation planning.

4.6 Reduced Programs at NAVSTA Everett

The following sections discuss other natural resources program elements that have only a minor role at NAVSTA Everett, including NSC Smokey Point.

4.6.1 Vegetation Management

This section covers vegetation management in developed and landscaped areas of NAVSTA Everett, including NSC Smokey Point. *Section 4.1 Fish and Wildlife Management* addresses management of vegetation in undeveloped areas of the installation where the goal is to maintain natural ecosystems and plant communities. Protection of vegetation in wetlands and streams, which plays an integral part in their functionality, is discussed in *Section 4.2 Water Resources Management*. See Objective 2.1 for proper maintenance of vegetation in stormwater ponds.

Landscaping at these installations is described in *Section 2.3.5 Flora*. Currently, maintenance of landscaping vegetation is conducted by the BOSC contractor.

It is Navy policy that environmentally and economically beneficial landscaping practices be used. These practices are detailed in the 21 April 2000, EO 13148 “Greening the Government through Leadership in Environmental Management”, which consolidated and superseded a number of previous instructions and orders. In particular, Section 207 of this order directs federal agencies to use landscaping techniques that enhance the local environment and minimize the adverse effects that landscaping can have on the environment. This EO has subsequently become the impetus for choosing regionally native plants and practices. Integrated measures include reducing use of fertilizers, pesticides, and water use for both economic and environmental benefits.

Goal 6

Vegetation management will maintain and enhance landscaped areas at the NAVSTA Everett waterfront site and NSC Smokey Point while minimizing the use of energy, water, chemical herbicides, and fertilizers.

Information/Data Needs

- Current schedule of regular maintenance needs, including fertilizer and herbicide use.

Objectives

6.1 – Maintain or increase the number of native trees at the waterfront site and NCS Smokey Point.

6.2 – Increase the area of native shrub habitat at the waterfront site and NCS Smokey Point.

Management Strategy

Objective 6.1 – Landscaping at NAVSTA Everett should be designed and replaced with predominately native plants, which require minimal maintenance. Native vegetation is better suited for local site conditions than nonnative species, and will require less maintenance (such as watering, pesticides, and fertilizers) to keep healthy. In addition, native vegetation provides better wildlife habitat than non-native plants and trees. Currently, maintenance of landscaped areas includes minimal or no supplemental watering; however, as summer climate conditions become hotter and drier in the future, landscaping needs may change. Use of native species will help meet the goal of reducing energy and water needs.

NAVSTA Everett currently follows an internal policy of replacing any tree that dies or is removed to maintain the number of trees at the installation. New development or re-development of the installation in the near future provides an opportunity to increase the number of trees.

Parameters used to determine the effectiveness of actions for this objective include: (a) coordination between Environmental Division and Maintenance and FMD regarding landscaping design and replacement, and (b) continuation of NAVSTA Everett tree replacement policy.

Objective 6.2 – NSC Smokey Point provides opportunities for increasing the area of native shrub habitat, particularly in the wetland buffer, as discussed in *Section 4.2 Water Resources Management* (Objective 2.3). Designs for new development or re-development of the installation in the near future should consider reducing the mowed areas, such as the large grassy area near the sport fields at NSC Smokey Point. Transitioning mowed areas into scrub/shrub areas with native vegetation types will enhance wildlife habitat, and may also result in a maintenance cost savings for the Navy.

Parameters used to determine the effectiveness of actions for this objective include: (a) coordination between Environmental Division and Maintenance and FMD regarding landscaping design and replacement, and (b) increase in area of native shrub habitat (e.g. as measured on aerial photos) over a period of ten years.

4.6.2 Law Enforcement of Natural Resources Laws and Regulations

Currently, there is no law enforcement program specific to natural resource laws and regulations at NAVSTA Everett or NSC Smokey Point. Hunting and fishing are not permitted within the restricted area at NAVSTA Everett, except for tribal use. The current means of enforcement are signs identifying the restricted area and the Security patrol boat at the waterfront site.

Navy compliance with laws such as the ESA, MMPA, MBTA, and CWA is managed through the NAVSTA Everett Environmental Division. Violations documented by NAVSTA Everett organizations would be brought to the attention of the Environmental Division and reported to the appropriate State or Federal fish and wildlife management agency. These agencies would be relied on to provide law enforcement assistance in upholding State and Federal laws and would be provided access to NAVSTA Everett for this purpose. Violations would also be referred to the NAVSTA Everett CO for determining the need for further investigation, adjudication, and correcting and/or punitive action.

Law enforcement associated with individual actions beyond official federal duties, such as harassing protected migratory birds, seals, or sea lions, is the responsibility of base security or other entities as directed by the CO with technical assistance from the IEPD and NRM. The services of State and Federal fish and wildlife agency or other regulatory enforcement personnel may be requested where their technical expertise or staffing support is needed.

No goals or objectives are proposed for this program element at this time.

4.6.3 Outdoor Recreation

There are no significant outdoor recreation opportunities at NAVSTA Everett, aside from the MWR-operated Marina and the athletic fields. The NRM will review all projects related to these facilities as part of the environmental review process, and will ensure that outdoor recreation will continue to be sustainable with natural resources conservation.

No goals or objectives are proposed for this program element at this time.

4.6.4 Bird Aircraft Strike Hazard

There is a helicopter landing pad near the South Wharf, but helicopter flights are very rare and only for training purposes approximately every five years. There is no BASH plan for the helicopter pad implemented at this time. Recent helicopter tests used the baseball field for a landing location.

If helicopter or other aircraft landings become regular activities in the future, the IEPD and NRM will determine if development of a BASH plan is necessary. The NRM will also inspect the periphery of the helicopter landing pad for bird nests and inform Wildlife Services or the appropriate authorized contractor so that nests may be removed if helicopter operations are expected during the nesting season.

No goals or objectives are proposed for this program element at this time.

5 IMPLEMENTATION

The INRMP reflects a strategy that addresses legal, regulatory, DOD, DON, and OPNAV directives or policy requirements regarding funding and manpower. Formal adoption of an INRMP by a Regional Commander, or their designee as ICO, constitutes a commitment to seek funding and execute all Environmental Readiness Level (ERL) 4 projects and activities (described below in *Section 5.1.1 INRMP Programming Priority Setting*) in accordance with specific time-frames identified in the INRMP. All actions contemplated in the plan are subject to the availability of funds properly authorized and appropriated under federal law. Nothing in the INRMP is intended to be, or construed to be, a violation of the Anti-Deficiency Act.

In accordance with DODM 4715.03, the INRMP is considered implemented once the installation completes the following:

- Actively requests and uses funds for natural resources management projects, activities, and other requirements in support of goals and objectives identified in the INRMP.
- Ensures that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by the INRMP.
- Invites annual feedback from the appropriate USFWS and state fish and wildlife agency offices on the effectiveness of the INRMP.
- Documents specific INRMP action accomplishments undertaken each year.
- Evaluates the effectiveness of past and current management activities and adapts those activities as needed to implement future actions.

Implementation further includes NRM input to military activities and proposed projects in order to ensure they are consistent with natural resource requirements and with this INRMP.

5.1 Project Development Process

This INRMP provides a long-term plan for projects and actions to implement the program element objectives, which will be updated every five years during the Review for Operation and Effect. Effectiveness of INRMP project implementation is assessed annually through the INRMP review and Metrics process. Projects can be added, modified, or removed in coordination with the regulatory partners to maintain a viable, effective natural resources program.

5.1.1 INRMP Programming Priority Setting

Project priority within this INRMP is initially determined by funding classification as defined in DODI 4715.03, Natural Resources Conservation Program. This instruction identifies recurring and non-recurring requirements. Recurring requirements include personnel costs and natural resources management requirements connected to ongoing activities/facilities. Non-recurring requirements include staying in compliance with applicable DOD, federal, and state regulations; natural resources planning surveys in support of a proposed action; implementation of conservation recommendations in biological opinions; enhancement of conservation resources that are not specifically required by law,

regulation, or EO and are not of an immediate nature; and enhancing existing recreation, outreach, and educational resources. Further information on DOD Funding Classifications is provided in Appendix H.

In accordance with OPNAV-M 5090.1E Chapter 2, the Navy has developed four separate ERLs to facilitate project funding priorities:

ERL 4: Legal requirements derived from existing laws, regulations, EOs, final government standards, or the Overseas Environmental Baseline Guidance Document, as applicable, and applies to Navy activities, platforms, and operations.

ERL 3: Requirements derived from DOD policy and Navy policy, or proactive initiatives that could enable future compliance or result in a positive return on Navy investments. They could also support critical readiness activities by decreasing encumbrances of statutory compliance requirements. These efforts are not mandated by law or other federal, state, or local requirements but would minimize current or future impacts (including costs) to the Navy mission.

ERL 2: Requirements derived from pending federal, state, or local legal requirements, laws, regulations, or EOs that could enable future compliance but result in less certain returns on investments and uncertain benefits to the Navy mission. These project efforts are not mandated by existing law or other federal, state, or local requirements. Funding requirements should be based on best-available scientific or commercial data or on pending federal, state, or local regulations under development (where publication is scheduled) using model state regulations or permit standards, if available.

ERL 1: Investments in environmental leadership and general proactive environmental stewardship.

"Must fund" conservation requirements are those projects and activities that are required to meet recurring natural and cultural resources conservation management requirements or current legal compliance needs, including EOs. These projects are designated ERL 4 or 3 in the Navy funding classification system. INRMPs should also include valid projects and programs that enhance an installation's natural resources, promote proactive conservation measures, and support investments that demonstrate Navy environmental leadership and proactive environmental stewardship. These projects are considered "stewardship" projects and will fall under ERL 1 or 2 in the Navy classification system. In addition, the NRM should also utilize the EPRWeb Guidebook, which assists project originators in preparing environmental program requirement submissions for consideration during the development of the Shore Environmental Quality Program Memorandum or Program Review.

The EPRWeb is an online database used to define all programming for the Navy's environmental requirements. The EPRWeb records data on project expenditures and provides access to requirements entered by multiple Navy environmental programs. All INRMP projects must be entered into the EPRWeb and receive approval up the chain of command prior to programming and budgeting. CNO, Code 45, is the final authority for designating the appropriate ERL.

5.1.1 INRMP Projects, Actions, and INRMP Implementation Table

The purpose of the INRMP Project Implementation Table (Table 5-1) is to summarize all projects that NAVFAC NW intends to implement over the duration of the INRMP timeframe. It is organized according to program element, linking each project to the program element objectives described in *Section 4 Program Elements*. Individual projects may address multiple program element objectives.

Table 5-1 also identifies the primary legal drivers, programming and budgeting priority (ERL), potential funding source, cost estimate, and implementation schedule for each project. The various EPR project codes and descriptions are referenced or placeholders are included for future EPR projects. Primary statutes and regulations identified in the project table include the ESA, CWA, Sikes Act, NEPA, MBTA, BGEPA, Soil and Water Conservation Act, Forest and Rangeland Renewable Resources Planning Act, National Invasive Species Act, state and local conservation laws and plans, Navy and DOD instructions and policies, and presidential EOs.

Many program element objectives identified in *Section 4* do not require a project for implementation, but can be achieved through normal management actions or activities by in-house staff with no additional funding requested. These activities are not included in Table 5-1, INRMP project implementation, but will be assessed during the annual INRMP review and Metrics using the parameters to determine the effectiveness of each objective, as listed below each objective in *Section 4*.

Table 5-1. INRMP project implementation.

Project description	*EPR #*	*INRMP Section / Program Element Objectives*	*Legal Driver*	*ERL*	*Funding Source*	*Implementation Frequency*	*Year*	*INRMP Metrics Focus Area*
1 CR NW Marbled Murrelet Density and Occupancy Surveys – Marbled murrelet surveys at CNRNW installations to estimate (1) population trends, (2) population size during both the winter season and spring (breeding) season, (3) determine if suitable nesting habitat occurs in the terrestrial environment of CNRNW installations, and (4) determine if Marbled Murrelets are occupying this suitable habitat during the breeding season.	68742CN001	Fish and Wildlife Management, Objective 1.2	ESA	4	Operations and Maintenance, Navy (O&MN)	Annual	2022 - 2026	6. Natural Resources Management
1 S NW Threatened and Endangered Fish Surveys and Habitat Assessments – Implement surveys, monitoring, and assessments for T&E fish species and their habitats. Current projects for NAVSTA Everett include two year beach seine study in the East Waterway.	68742CN002	Fish and Wildlife Management, Objective 1.2	ESA	4	O&MN	Annual (for all of NW installations)	2022 - 2026	6. Natural Resources Management
MMPA NW Marine Mammal Monitoring and Orca Network – Weekly marine mammal monitoring at NRNW installations to support ESA Section 7 consultations and MMPA permits (IHA applications) for mission activities and construction. Also includes analysis of marine mammal sighting network data to document marine mammal species occurrence and general frequency. In addition, proposed projects for NAVSTA Everett include harbor seal tagging study examining population size, distribution, and salmon predation.	68742MMS01	Fish and Wildlife Management, Objective 1.2	MMPA, ESA	4	O&MN	Annual	2022 - 2026	6. Natural Resources Management
SIKES NW Puget Sound & Alaska INRMP Conservation Mapping – GIS data collection, analysis, and mapping support for CNRNW installations natural resources programs. Mapping data is used for periodic updates of natural resources information that supports INRMPs, with information such as vegetation communities, unique habitat types/locations, bird nest sites, conservation and restoration project locations, and natural resource treatments.	68742NRMAP	Fish and Wildlife Management, Objective 1.2 and 1.3 Water Resources Management, Objective 2.1	ESA, Sikes	4	O&MN	Annual (for all of NW installations)	2022 - 2026	6. Natural Resources Management
EO 13751 NW Naval Station Everett & FSC Smokey Point Invasive Species/Noxious Weed Control – Periodic monitoring of NAVSTA Everett and the NSC Smokey Point for the presence of non-native and invasive species identified by state and local species management and control boards. Eradication and treatment will be performed under this project. Current priorities include control of noxious weeds in wetlands and riparian buffer at NSC Smokey Point.	68967NR004	Invasive, Noxious, and Nuisance Species Management, Objectives 4.1 and 4.2 Fish and Wildlife Management, Objective 1.3	EO 13751 / 13112 Invasive Species, ESA	4	O&MN	Biannual	2022, 2024, 2026	6. Natural Resources Management
1 CP NW Establishing, Sustaining & Improving Threatened and Endangered Species Habitats – Implement projects at NRNW installations to improve habitat and benefit multiple T&E species, while creating more resilient landscapes to the effects of climate change and protecting the Navy mission. Proposed projects at NAVSTA Everett include restoration and enhancement of wetlands and riparian buffer at NSC Smokey Point.	68742NWTJ1	Fish and Wildlife Management, Objective 1.3 Water Resources Management, Objective 2.3	ESA, Sikes	4	O&MN	Annual (for all of NW installations)	2022 - 2026	6. Natural Resources Management
1 S NW Bat Surveys and Monitoring – Conduct bat surveys at NRNW installations to identify species and monitor bat presence at the installations where bats may occur. These proposed surveys will establish baseline data for INRMPs, including abundance, habitat use, and diversity of bats on the installations, and identification of maternal colonies/roosting sites, if present. Due to the recent detections of white-nose syndrome in WA, the Navy will analyze feces found at roosting sites to monitor for white-nose syndrome.	68742BAT01	Fish and Wildlife Management, Objective 1.2	Sikes, ESA	4	O&MN	Semi-annual (for all of NW installations)	2022 - 2024, 2026, 2028	6. Natural Resources Management
SIKES NW Region Climate Resilience and Adaptation – Provide for planning, analysis, and execution of projects to support climate resilience and adaptation at NRNW installations, and directly inform future INRMP updates and adaptive management. The first year of funding will be used to develop a 10-year plan and project list that best addresses data needs, provides a baseline to measure changes due to climate and success of future adaptation actions, and resilience and adaptation measures/actions that will support ecosystem-based management in the face of changing climate conditions.	68742CN009	Climate Adaptation Planning, Objective 5.1 and 5.2	Sikes	4	O&MN	Annual (for all of NW installations)	2024 - 2028	6. Natural Resources Management

5.2 Achieving No Net Loss

Section 101(b)(1)(I) of the Sikes Act states that each INRMP shall, to the extent appropriate and applicable, and consistent with the use of the Installation to ensure the preparedness of the Armed Forces, provide for "no net loss in the capability of military installation lands to support the military mission of the installation." It is DOD policy that appropriate management objectives to protect mission capabilities of installation lands (from which annual projects are developed) be clearly articulated and receive high priority in the INRMP planning process (U.S. Navy, 2006).

There may be instances where a "net loss" of mission capability may be unavoidable to fulfill regulatory requirements other than the Sikes Act, such as complying with provisions of the ESA, or wetland protection under provisions of the CWA. However, both the USFWS and USACE are required to adhere to the Sikes Act provision of no net loss. Loss of mission capability in these instances will be identified in the annual Metrics process and will include a discussion of measures being undertaken to recapture any net loss in mission capability. The Metrics are discussed in *Section 1.6.1 Annual INRMP Review and Conservation Metrics* and annual reports for the Metrics are included in Appendix C.

5.3 Use of Cooperative Agreements

The Sikes Act provides for the authority to enter into interagency or cooperative agreements with federal and state agencies, Indian tribes, and other nonfederal agencies, organizations, or individuals for the purpose of management of natural resources. A cooperative agreement functions as an acquisition tool that is less formal than a contract but has more control than a grant. The principal purpose of a cooperative agreement relationship is to transfer money, property, services, or anything of value to the recipient to support or stimulate an activity undertaken for the public good. Cooperative agreements assume substantial involvement between the federal agency and the recipient during activity performance, establishing the recipient as a "partner" during performance. In accordance with Section 670a(d)(2) of the Sikes Act and a 2014 Under Secretary of Defense Memorandum on Sikes Act Implementing Procedures, when acquiring services to implement and enforce an INRMP that has been agreed to under the Sikes Act, priority is to be given to federal and state agencies that are responsible for conserving or managing the fish and wildlife resources covered by the INRMP, provided those agencies are interested in and capable of providing the services.

The Navy has three active interagency/cooperative agreements with natural resources agencies to conduct work at NAVSTA Everett as of January 2021. Beginning in 2012, the Navy contracted with WDFW to conduct annual fall/winter surveys for marbled murrelets around Navy installations (including NAVSTA Everett), covering the months of September through April. As discussed in *Section 4.3 Integrated Pest Management*, the Navy has contracted with Wildlife Services to control nuisance birds on some of the Puget Sound installations, including NAVSTA Everett.

In 2020, the Navy contracted with NMFS to conduct beach seine surveys for fish in the East Waterway, with a particular focus on federally-listed salmonid species. NMFS biologists selected eight sampling sites in the East Waterway based on vessel accessibility, beach seine feasibility, and sites used in the previous WDFW study conducted in 2015 and 2016. The start of the current study was delayed due to COVID-19 and sampling began in October 2020. This project is expected to be funded for two years of sampling, plus a final report.

In the future, the Navy intends to utilize interagency and cooperative agreements to conduct natural resources management activities proposed at these sites, and may work with federal, state, county, and/or native government organizations.

The following list contains additional partnerships and collaborative agreements that DOD has entered to assist with natural resources management:

- NAVSTA Everett and the NSC Smokey Point, as part of DOD, benefit from the January 2006 MOU between DOD, USFWS and the International Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resources Management Program on Military Installations.
- NAVSTA Everett and the NSC Smokey Point, as part of DOD, benefit from the July 2006 MOU between the USFWS and DOD to Promote the Conservation of Migratory Birds.
- NAVSTA Everett and the NSC Smokey Point, as part of DOD, benefit from the November 2006 MOU between DOD and USDA Natural Resources Conservation Service. Both agencies signed an MOU agreeing to coordinate activities to preserve land and improve water quality on lands surrounding government-owned military bases.

5.4 Funding

Given that INRMPs must be implemented and the status of implementation is reported to Congress, the INRMP must provide an annual strategy.

Once validated and entered into EPRWeb, funding for all ERL Level 3 and 4 projects will typically be programmed. INRMPs should also include valid ERL 1 and 2 projects and actions that would enhance an installation's natural resources, though projects that are ERL 1 or 2 should seek alternate funding sources. There are restrictions on how different Navy funding sources for natural resources management can be used. It is important, therefore, that appropriate funding sources are used and that EPRWeb entries clearly justify funding requests, so that (1) natural resource funds are distributed wisely and (2) funding levels are not threatened by the use of funds in ways that are inconsistent with funding program rules. Natural resources projects may also be funded via project funds in relation to mitigation or forward planning for projects.

The majority of natural resource projects are funded with Operations and Maintenance, Navy (O&MN) environmental funds. These appropriated funds are the primary source of resources to support must-fund environmental compliance (i.e., Navy ERL 4 projects). O&MN funds are generally not available for Navy ERL 3 - 1 projects. In addition to the restriction to ERL 4 requirements, there are other limitations placed on the use of O&MN funds:

- Only the initial procurement, construction, and modification of a facility or project are considered valid environmental funding requirements. The subsequent operation, modification due to mission requirements, maintenance, repair, and eventual replacement is considered a Real Property Maintenance funding requirement. For example, the cost of initially installing a BMP can be funded through O&MN, but future maintenance or repair of that BMP must be paid by Real Property Maintenance funds.

- When natural resource requirements are tied to a specific construction project or other action, funds for the natural resource requirements should be included in the overall project costs. For example, if a permit for filling wetlands is required as part of a MILCON project, the costs of obtaining the permit and implementing required mitigation should be paid by MILCON funds as part of the overall construction project costs.

Another potential source of funding is the Legacy Resource Management Program (Legacy Program), which is a special congressionally-mandated initiative to fund military conservation projects. This program could be used to fund ERL 3 - 1 projects that are not funded by O&MN environmental funds. The program assists DOD in protecting and enhancing resources while supporting military readiness. A Legacy project may involve regional ecosystem management initiatives, habitat preservation efforts, archaeological investigations, invasive species control, Native American consultations, and/or monitoring and predicting migratory patterns of birds and animals. Three principles guide the Legacy Program: stewardship, leadership, and partnership. Stewardship initiatives assist DOD in safeguarding its irreplaceable resources for future generations. By embracing a leadership role as part of the program, DOD serves as a model for respectful use of natural and cultural resources. Through partnerships, the program strives to access the knowledge and talents of individuals outside of DOD.

If the installation intends to request Legacy Program funds, the following should be noted:

- The availability of Legacy funds is generally uncertain early in the year.
- Pre-proposals for Legacy projects are due in March and submitted using the Legacy Tracker Website: https://www.dodlegacy.org.
- Project proposals are reviewed by the Navy chain of command before being submitted to the DOD Legacy Resources Management Office for final project selection.
- The Legacy Website provides further guidance on the proposal process and types of projects requested.
- Development of innovative new technologies to provide more efficient and effective natural resources management.

Other potential funding sources are listed in Appendix H. These funding sources are less frequently used to fund natural resources projects or are unlikely to be available for NAVSTA Everett.

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APPENDIX A. DESCRIPTION OF POLICIES, REGULATIONS, AND LEGISLATION GUIDING DEVELOPMENT AND IMPLEMENTATION OF INRMPS

The Sikes Act, 16 United States Code (U.S.C.) 670a et seq., as amended. Requires an INRMP be written and implemented for all Department of Defense (DOD) installations with significant natural resources. According to the Sikes Act, the purposes of a military conservation program are conservation and rehabilitation of natural resources, sustainable multipurpose use of those resources, and public access to military lands, subject to safety requirements and military security. Moreover, the conservation program must be consistent with the mission-essential use of the installation and its lands. The Sikes Act requires the preparation of an INRMP to facilitate the conservation program: "the Secretary of each military department shall prepare and implement an INRMP for each military installation in the United States under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate."

DOD Instruction (DODI) 4715.03, (18 March 2011, As amended 31 August 2018). Establishes policy and assigns responsibility for compliance with applicable Federal, State, and local statutory and regulatory requirements, Executive Orders (EOs), Presidential memoranda, and DOD policies for the integrated management of natural resources including lands, air, waters, coastal, and nearshore areas managed or controlled by DOD. In addition, develops and updates policy for the integrated management of natural resources (including biological and earth resources) on property and lands managed or controlled by DOD, implements Natural Resources Conservation metrics, and provides procedures for DOD Components and installations for developing, implementing, and evaluating effective natural resources management programs.

DOD Manual (DODM) 4715.03, (25 November 2013, As amended 31 August 2018) INRMP Implementation Manual. Provides procedures to prepare, review, update, and implement INRMPs in compliance with the Sikes Act. Exhibit 1–1 of this manual lists the specific contents required in an INRMP document.

Memorandum of Understanding (MOU) between the U.S. Department of Defense, U.S. Fish and Wildlife Service (USFWS) and the Association of Fish and Wildlife Agencies. (July 29, 2013). The purpose of this MOU is to further a cooperative relationship between DOD, USFWS, and state fish and wildlife agencies acting through the Association of Fish and Wildlife Agencies in preparing, reviewing, revising, updating, and implementing INRMPs for military installations.

USFWS Guidelines for Coordination on Integrated Natural Resource Management Plans (June 2015). This document provides guidance to USFWS personnel for implementing the requirements of the Sikes Act and addresses USFWS program responsibilities, INRMP contents and requirements, reviews and mutual agreement, interagency agreements, reporting, and other items.

Mutual DOD and USFWS Guidelines for Streamlined Review of Integrated Natural Resources Management Plan Updates (July 20, 2015). These guidelines clarify and describe a process for cooperating agencies to review and concur specifically on updates to existing INRMPs; not revisions or new documents. To more effectively respond and rapidly adapt to ongoing natural resource activities (e.g., monitoring, recreational fishing) and to changes that are administrative, process-oriented, or minor (e.g. expanding an existing trail, conducting biological surveys), the USFWS, DOD, and the state fish and wildlife agencies as represented by the Association of Fish and Wildlife Agencies included a provision in the Tripartite MOU to streamline the review process. Such updates do not result in new biophysical effects, do not change the management prescriptions set forth in the INRMP, and do not require analysis under the NEPA nor associated public review. The guidelines provide guidance on format, coordination and responsibilities for submitting draft and final updates. These guidelines are not a required process,

and need not apply to DOD components or installations that have already implemented a successful method for updating INRMPs with their USFWS field offices and state agencies.

Memorandum on Implementation of Sikes Act Improvement Amendment: Updated Guidance. This Memorandum of the Under Secretary of Defense, issued on 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. The October 2002 memorandum and its supplement issued in November 2004 emphasize implementing and improving the overall INRMP coordination process, and focus 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 the INRMP review process.

The Implementation of Sikes Act Improvement Amendments: Supplemental Guidance Concerning Leased Lands. This Memorandum of the Under Secretary of Defense, issued 17 May 2005 states that INRMPs must address resource management on all of the lands for which the subject installation has real property accountability, including 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. Installation Commanding Officers may require tenants, lessees, permittees, and other parties that request permission to occupy or use installation property to accept responsibility, as a condition of their occupancy or use, for performing appropriate natural resource management actions. This does not preclude the requirement to address the natural resource management needs of any such lands in the installation INRMP.

Chief of Naval Operations (OPNAV) Instruction (OPNAVINST) 5090.1E, Environmental Readiness Program (September 3, 2019). Contains instructions on the implementation of the OPNAV-M 5090.1E Environmental Readiness Program Manual.

OPNAV Manual (OPNAV-M) 5090.1E, Environmental Readiness Program Manual (September 3, 2019). Discusses requirements, delineates responsibilities, and issues implementing policy guidance for the management of the environmental, natural and cultural resources for all Navy ships and shore activities. It discusses federal environmental laws and regulations, EOs, and DOD and DON environmental policies applicable to Navy installations, organizations, and platforms. This manual establishes broad policy and assigns responsibilities for the Naval Natural Resources Program. Chapter 12 of this Manual establishes Navy policy guidance and requirements to ensure sustainable military readiness through compliance with all applicable laws and regulations related to the conservation of natural resources.
***Guidance in OPNAV-M 5090.1 that is pertinent to this INRMP in incorporated herein by reference.

Guidelines for Preparing Integrated Natural Resources Management Plans for Navy Installations (April 2006). This guidance provides natural resources managers at Navy installations with an interpretation of what processes are needed to prepare INRMPs, including the INRMP template. This document is divided into three sections. The first section suggests a process to develop an INRMP. The second section addresses traditional technical areas to be included in the INRMP. The third section includes a discussion on implementing the INRMP. Of particular value within this guidance is a comprehensive list of Laws, Regulations, EOs, templates, and instructions applicable to this INRMP.

DOI Secretarial Order 3289 (September 14, 2009). This Order establishes Landscape Conservation Cooperatives, which focus on on-the-ground strategic conservation efforts at the landscape level. Landscape Conservation Cooperatives (LCCs) are management-science partnerships that inform integrated resource management actions addressing climate change and other stressors within and across

landscapes. They link science and conservation delivery. LCCs are true cooperatives, formed and directed by land, water, wildlife and cultural resource managers and interested public and private organizations. Federal, State, tribal, local government, and non-governmental management organizations are all invited as partners in their development.

Naval Facilities Engineering Command Natural Resources Management Procedural Manual (P-73, Chapter 2: Integrated Natural Resources Management Plans, 07 December 2005). Establishes the governing format under which the INRMP is structured. This document addresses all CNO natural resources program requirements, guidelines, and standards.

APPENDIX B. NATURAL RESOURCE MANAGER DESIGNATION LETTER

DEPARTMENT OF THE NAVY
NAVAL STATION EVERETT
2000 WEST MARINE VIEW DRIVE
EVERETT, WA 98207-5001

IN REPLY REFER TO:
1040
N4
6 Jun 19

From: Commanding Officer, Naval Station Everett
To: Ms. Alicia M. Higgs

Subj: DESIGNATION AS NAVAL STATION EVERETT NATURAL RESOURCES MANAGER

Ref: (a) OPNAVINST 5090.1D

1. Per reference (a), you are hereby designated as the Natural Resources Manager for all properties and facilities under the purview of the Naval Station (NAVSTA) Everett Commanding Officer. You will familiarize yourself with the policies and procedures of reference (a) in the performance of your duties.

2. This designation will remain in effect until rescinded in writing or upon your transfer from this command, whichever occurs first.

M. F. DAVIS

Copy to:
NAVSTA Everett (N4)

APPENDIX C. CONSERVATION METRICS

Annual Meeting Participants and Attendees

Navy Lead	Last Name	First Name	Organization	Telephone	Email
	Corum	Lee	USFWS	xxxxxxxxxx	lee_corum@fws.gov
	Hamer	Matt	WDFW	(360) 522-6361	Matthew.Hamer@dfw.wa.gov
X	Higgs	Alicia	NAVFACNW	425-304-3464	alicia.higgs@navy.mil
	Hubner	Don	NMFS	206-526-4359	donald.hubner@noaa.gov
	Kunz	Cindi	NAVFACNW	360-396-1860	cindi.kunz@navy.mil
	Senner	Robert	NAVFACNW	(360) 990-8861	robert.g.senner1@navy.mil
	Yarborough	Fenner	WDFW	xxxxxxxx	Richard.Yarborough@dfw.wa.gov

Goals

1. Goal 1: Fish and Wildlife Management

Promote healthy populations of native fish and wildlife species and protect and enhance their habitats at NAVSTA Everett and NSC Smokey Point, while minimizing potential impacts to mission.

2. Goal 2: Water Resources Management

Avoid or minimize impacts to wetlands and waterbodies to the greatest extent practicable, mitigate any unavoidable impacts in accordance with state and federal regulations, and restore or enhance nearshore marine and freshwater habitats to provide for healthy ecosystem functions, wildlife habitat, and the natural infrastructure needed to support the military mission.

3. Goal 3: Integrated Pest Management

Use targeted sustainable methods including habitat modification, biological, genetic, cultural, mechanical, physical and regulatory controls and, when necessary, the judicious use of the least hazardous pesticides to control pests at NAVSTA Everett.

4. Goal 4: Noxious Weed and Invasive Species Management

Reduce or eradicate (where practical) noxious weed species and invasive plant and animal species to improve the quality of native vegetation and wildlife communities and habitat.

5. Goal 5: Climate Adaptation Planning

Identify, prepare for, and reduce risks from a changing climate to natural resources and the military mission at NAVSTA Everett.

Objectives

1. 1.1–Minimize detrimental effects of projects and operations on fish, wildlife, and their habitats

Goal 1: Fish and Wildlife Management

Minimize detrimental effects of projects and operations on fish, wildlife, and their habitats by implementing BMPs and avoidance and minimization measures.

2. 1.2–Survey and monitor species populations

Goal 1: Fish and Wildlife Management

Survey and monitor species populations to assess whether avoidance and minimization measures implemented as integral parts of Navy actions are effective, adaptively adjust the measures as needed, and document long-term changes in the populations, potentially including climate-related trends.

3. 1.3–Protect, restore, and enhance fish and wildlife habitat

Goal 1: Fish and Wildlife Management

Protect, restore, and enhance fish and wildlife habitat through targeted policy guidance and focused, site-specific actions.

4. 1.4–Increase awareness of species conservation

Goal 1: Fish and Wildlife Management

Increase awareness of species conservation amongst military and civilian personnel at NAVSTA Everett.

5. 2.1–Maintain systems and management plans to protect and improve water quality

Goal 2: Water Resources Management

Maintain systems and management plans to protect and improve water quality.

6. 2.2–Ensure no net loss of wetlands at NSC Smokey Point

Goal 2: Water Resources Management

Ensure no net loss of wetlands at NSC Smokey Point, either in extent or in function.

7. 2.3–Restore and enhance riparian buffer and wetland habitat at NSC Smokey Point

Goal 2: Water Resources Management

Restore and enhance riparian buffer and wetland habitat at NSC Smokey Point through the removal of noxious and invasive plants species and replanting with native species.

8. 3.1–Reduce the presence and/or undesirable behaviors of nuisance bird species

Goal 3: Integrated Pest Management

Reduce the presence and/or undesirable behaviors of nuisance bird species at the NAVSTA Everett waterfront site to protect infrastructure and human health and safety.

9. 3.2–Maintain a current IPMP and trained staff

Goal 3: Integrated Pest Management

Maintain a current IPMP and trained staff to respond on an as-needed basis to other pest management concerns.

10. 4.1–Control noxious weeds and invasive plants

Goal 4: Noxious Weed and Invasive Species Management

Control Class A, B, and C noxious weeds and other invasive plant species within the installation.

11. 4.2–Maintain situational awareness and monitor for aquatic invasive fauna

Goal 4: Noxious Weed and Invasive Species Management

Maintain situational awareness and monitor for aquatic invasive fauna, and cooperate with county, state, and federal agencies on eradication efforts.

12. 5.1–Complete method for INRMP climate adaptation planning

Goal 5: Climate Adaptation Planning

Complete the step-by-step method for INRMP climate adaptation planning prior to the each INRMP update and incorporate climate-informed changes into the INRMP.

13. 5.2–Integrate climate adaptation planning

Goal 5: Climate Adaptation Planning

Integrate climate adaptation planning into other relevant planning documents and processes.

1 - Ecosystems

Terrestrial Ecosystems

	1. Urban, Low Density	2. Urban, High Density	3. Riparian Wetland
1.1. Has the ecosystem been identified in the INRMP? *	Yes	Yes	Yes
1.1.a. To what degree are the INRMP goals and objectives being achieved? *	Somewhat Achieved	Somewhat Achieved	Somewhat Achieved
1.3. What is the level of effect Natural Resources management actions have had on desired outcomes to meet the goals and objectives as identified in the INRMP? *	Actions have had the desired effect on desired conditions to meet the goals and objectives as identified in the INRMP	Actions have had a limited effect on desired conditions to meet the goals and objectives as identified in the INRMP	Actions have had a limited effect on desired conditions to meet the goals and objectives as identified in the INRMP

Marine Ecosystems

	1. Marine Nearshore
1.1. Has the ecosystem been identified in the INRMP? *	Yes
1.1.a. To what degree are the INRMP goals and objectives being achieved? *	Somewhat Achieved
1.3. What is the level of effect Natural Resources management actions have had on desired outcomes to meet the goals and objectives as identified in the INRMP? *	Actions have had a limited effect on desired conditions to meet the goals and objectives as identified in the INRMP

2 - Threatened and Endangered Species

(2 - Threatened and Endangered Species) 1 - 4 of 9

	1. (V01) Bocaccio : Sebastes paucispinis	2. (V06) Bull Trout : Salvelinus confluentus	3. (V04) Chinook salmon : Oncorhynchus (=Salmo) tshawytscha	4. (V06) Humpback whale : Megaptera novaeangliae
2.2. Have inventories and/or surveys for this species ever been completed on the site(s)? *	Yes	Yes	Yes	Yes
2.2.b. Does existing survey data provide adequate information on the population presence and numbers on the site(s)? *	Yes	No	No	Yes
2.2.c. Do existing surveys provide adequate data on habitat conditions on the site(s)? *	Yes	Yes	Yes	Yes
2.4. To what extent are quantifiable goals, objectives, and monitoring requirements in place to address the conservation needs of the species and/or the species' habitat? *	N/A	Good	Good	Good
2.7. Has critical habitat been proposed for the species during the reporting period on the site(s) (per Federal Register [FR] Proposed Rule)? *	No	No	No	No
2.8. Has USFWS and/or NMFS designated critical habitat for the species during the reporting period on the site(s)? (Per Federal Register [FR] Final Rule) *	No	No	No	No
2.12. If a critical habitat exemption/exclusion exists for this species on the site(s), are critical habitat management actions/projects clearly identified in the INRMP? *	N/A	Yes	Yes	N/A
2.13. If a critical habitat exemption/exclusion exists for this species on the site(s), are critical habitat management actions/projects clearly identified in the EPRWeb? *	N/A	Yes	Yes	N/A
2.15. Please identify mission types that are or could be impacted by this species. Select all that apply. If you choose N/A, please explain in the comment field. *	N/A	Homeport/Shipyard Ops, Military Construction	Military Construction, Homeport/Shipyard Ops	Homeport/Shipyard Ops, Military Construction

(2 - Threatened and Endangered Species) 5 - 8 of 9

	5. (V07) Humpback whale : Megaptera novaeangliae	6. (V01) Killer whale : Orcinus orca	7. (V01) Marbled murrelet : Brachyramphus marmoratus	8. (V13) Steelhead : Oncorhynchus (=Salmo) mykiss
2.2. Have inventories and/or surveys for this species ever been completed on the site(s)? *	Yes	Yes	Yes	Yes
2.2.b. Does existing survey data provide adequate information on the population presence and numbers on the site(s)? *	Yes	Yes	Yes	No
2.2.c. Do existing surveys provide adequate data on habitat conditions on the site(s)? *	Yes	Yes	Yes	Yes
2.4. To what extent are quantifiable goals, objectives, and monitoring requirements in place to address the conservation needs of the species and/or the species' habitat? *	Good	Good	Good	Good
2.7. Has critical habitat been proposed for the species during the reporting period on the site(s) (per Federal Register [FR] Proposed Rule)? *	No	No	No	No
2.8. Has USFWS and/or NMFS designated critical habitat for the species during the reporting period on the site(s)? (Per Federal Register [FR] Final Rule) *	No	No	No	No
2.11. If known, please provide the number of acres excluded or exempted from critical habitat. *	0	0	0	0
2.12. If a critical habitat exemption/exclusion exists for this species on the site(s), are critical habitat management actions/projects clearly identified in the INRMP? *	N/A	N/A	N/A	N/A
2.13. If a critical habitat exemption/exclusion exists for this species on the site(s), are critical habitat management actions/projects clearly identified in the EPRWeb? *	N/A	N/A	N/A	N/A
2.15. Please identify mission types that are or could be impacted by this species. Select all that apply. If you choose N/A, please explain in the comment field. *	Military Construction, Homeport/Shipyard Ops	Homeport/Shipyard Ops, Military Construction	Homeport/Shipyard Ops, Military Construction	Homeport/Shipyard Ops, Military Construction

(2 - Threatened and Endangered Species) 9 - 9 of 9

	9. (V01) yelloweye rockfish : Sebastes ruberrimus
2.2. Have inventories and/or surveys for this species ever been completed on the site(s)? *	Yes
2.2.b. Does existing survey data provide adequate information on the population presence and numbers on the site(s)? *	Yes
2.2.c. Do existing surveys provide adequate data on habitat conditions on the site(s)? *	Yes
2.4. To what extent are quantifiable goals, objectives, and monitoring requirements in place to address the conservation needs of the species and/or the species' habitat? *	N/A
2.7. Has critical habitat been proposed for the species during the reporting period on the site(s) (per Federal Register [FR] Proposed Rule)? *	No
2.8. Has USFWS and/or NMFS designated critical habitat for the species during the reporting period on the site(s)? (Per Federal Register [FR] Final Rule) *	No
2.12. If a critical habitat exemption/exclusion exists for this species on the site(s), are critical habitat management actions/projects clearly identified in the INRMP? *	N/A
2.13. If a critical habitat exemption/exclusion exists for this species on the site(s), are critical habitat management actions/projects clearly identified in the EPRWeb? *	N/A
2.15. Please identify mission types that are or could be impacted by this species. Select all that apply. If you choose N/A, please explain in the comment field. *	Homeport/Shipyard Ops, Military Construction

2 - Proposed and Candidate Species

No items in this module.

2 - State, Local, and other Species

No items in this module.

2 - Unoccupied Critical Habitat

2.34. Has unoccupied critical habitat for any federally listed species been designated on the site(s)? * **No**

3 - Recreation Use and Access and Conservation Law Enforcement

3. Are there Natural Resources related recreational opportunities on the site(s)? (i.e. Hunting, Fishing, Trapping, Hiking, Archery, Wildlife watching, Fresh Watersports, Marine watersports or Day use-picnic) * **N/A: Not available due to mission, security, safety, or environmental constraints**

4 - Sikes Act Cooperation

4. Select which Sikes Act partners work with this installation/site(s)? * **NOAA-National Marine Fisheries Service (NMFS), USFWS, State**

4.1. Was the agency invited to participate in the annual INRMP/Natural Resources Program review? * **Yes**

4.1.a. The agency is familiar with and has reviewed the INRMP. * **Yes - This partner is familiar with and has reviewed the site(s)' INRMP.**

4.1.b. The agency is engaged in the INRMP development and implementation. * **The sites(s) engaged the USFWS and these efforts are well documented.**

4.1.f. Did the agency participate in the annual INRMP/Natural Resources Program review? * **Yes**

4.1.g. How well are site(s) natural resource management goals and objectives aligned with conservation goals of the agency? e.g. USFWS/NOAA Fisheries Service regional goals? * **Somewhat aligned**

4.1.h. Was a report of the previous year's annual INRMP/Natural Resources Program review submitted to the agency during this reporting period? * **Yes**

4.2. Was the agency invited to participate in the annual INRMP/Natural Resources Program review? * **Yes**

4.2.a. The state fish and wildlife agency is familiar with and has reviewed the INRMP. * **Yes - The partners is familiar with and has reviewed the site(s)' INRMP.**

4.2.b. The agency is engaged in the INRMP development and implementation. * **The sites(s) engaged the state fish and wildlife agency and these efforts are well documented.**

4.2.f. Did the agency participate in the annual INRMP/Natural Resources Program review? * **Yes**

4.2.g. How well are site(s) natural resource management goals and objectives aligned with conservation goals of the agency? e.g. State Wildlife Action Plans (SWAPs)? * **Completely aligned**

4.2.h. Was a report of the previous year's annual INRMP/Natural Resources Program review submitted to the agency during this reporting period? * **Yes**

4.3. Was the agency invited to participate in the annual INRMP/Natural Resources Program review? * **Yes**

4.3.a. The agency is familiar with and has reviewed the INRMP. * **Yes - This partner is familiar with and have reviewed the site(s)' INRMP.**

4.3.b. The agency is engaged in the INRMP development and implementation. * **The sites(s) engaged the NOAA Fisheries Service and these efforts are well documented.**

4.3.f. Did the agency participate in the annual INRMP/Natural Resources Program review? * **Yes**

4.3.g. How well are site(s) natural resource management goals and objectives aligned with conservation goals of the agency e.g. USFWS/NOAA Fisheries Service regional goals * **Somewhat aligned**

4.3.h. Was a report of the previous year's annual INRMP/Natural Resources Program review submitted to the agency during this reporting period? * **Yes**

4.4. What is the level of collaboration/cooperation between Sikes Act partners? * **Effective collaboration/cooperation**

Please answer the following general questions associated with INRMP Actions. Questions followed by an asterisk * are mandatory and must be completed before the datacall can be approved and submitted to DoD.

4.5. Do the goals and objectives of the INRMP/Natural Resources Program support other conservation partnerships/initiatives? * **Yes**

4.6. Which conservation partnerships/initiatives are supported? * **National Military Fish and Wildlife Association (NMFWA), Partners in Amphibian and Reptile Conservation (PARC), Land Conservation Cooperatives (LCCs), Partners in Flight, Other, please list**

4.7. To what level does the Natural Resources Program/INRMP meet or exceed USFWS expectations? * **Somewhat satisfied**

4.8. To what level are Natural Resources Program executions meeting State Fish and Wildlife Agency conservation management expectations? * **Satisfied**

4.9. To what level are Natural Resource program executions meeting NOAA/NMFS conservation management expectations, if applicable? * **Somewhat satisfied**

4.10. Are Cooperative Agreements used to execute natural resources program requirements? * **Yes**

4.11. Describe any partnership obstacles to INRMP implementation. (Any obstacles that exist within the framework of the partnership. For example: Regulatory or permitting issues) * **Understaffing of NR program results in limitations in INRMP implementation.**

5 - Team Adequacy

5.1. Is there a Navy professional Natural Resources Manager designated by the Regional Commander/Installation Commanding Officer? * **Yes**

5.2. Is there an on-site Navy professional Natural Resources Manager? * **Yes**

5.3. Is there adequate installation staff assigned or available to properly implement the INRMP/Natural Resources Program goals and objectives? * **Insufficient**

5.8. The Natural Resources team is adequately trained to implement the goals and objectives of the INRMP. * **Professionals received adequate supplemental training**

FY21 Projects

(FY21 Projects) 1 - 4 of 7

	1. (FY20) 68742CN001 : 1 CR NW Marbled Murrelet Density and Occupancy Surveys	2. (FY20) 68742CN002 : 1 S NW Threatened and Endangered Fish Surveys and Habitat Assessments - Climate	3. (FY21) 68742CN002 : 1 S NW Threatened and Endangered Fish Surveys and Habitat Assessments - Climate	4. (FY20) 68742MMS01 : MMPA NW Marine Mammal Monitoring and Orca Network
cc(FY21) 6.7. Does this action meet the goals and objectives of the INRMP? *	Yes - meet or exceed overall INRMP goals and objectives.	Yes - meet or exceed overall INRMP goals and objectives.	Yes - meet or exceed overall INRMP goals and objectives.	Yes - meet or exceed overall INRMP goals and objectives.
6.7.a. Please select the goal(s) that this action supports. *	Goal 1: Fish and Wildlife Management	Goal 1: Fish and Wildlife Management	Goal 1: Fish and Wildlife Management	Goal 1: Fish and Wildlife Management
6.7.b. Please select the objective(s) that this action supports. *	1.2–Survey and monitor species populations	1.2–Survey and monitor species populations	1.2–Survey and monitor species populations	1.2–Survey and monitor species populations
cc(FY21) 6.8. Which Natural Resources Program Area most benefitted from the INRMP action? (Select all the apply) (If other, please describe in the comments) *	Fauna, Listed Species	Fauna, Habitat, Listed Species	Fauna, Habitat, Listed Species	Fauna, Listed Species
cc(FY21) 6.9. If the INRMP action provided an ecosystem integrity benefit, select the ecosystem(s) benefitted and provide additional details in the comment field. If no specific "ecosystem" benefit, then leave blank.	Marine Nearshore	Marine Nearshore	Marine Nearshore	
cc(FY21) 6.10. Does this project support mitigation for a project/action? *	No	No	No	No

(FY21 Projects) 5 - 7 of 7

	5. (FY21) 68742MMS01 : MMPA NW Marine Mammal Monitoring and Orca Network	6. (FY20) UC-68742FOR17 : SIKES NW Forest Damage Assessment & Prescription	7. (FY21) UC-NRNW-FOR-1 : FY21 SCA Labor and Supplies
cc(FY21) 6.7. Does this action meet the goals and objectives of the INRMP? *	Yes - meet or exceed overall INRMP goals and objectives.	No - cannot accomplish overall INRMP goals and objectives.	Partially accomplish overall INRMP goals and objectives.
6.7.a. Please select the goal(s) that this action supports. *	Goal 1: Fish and Wildlife Management		Goal 1: Fish and Wildlife Management, Goal 2: Water Resources Management, Goal 4: Noxious Weed and Invasive Species Management
6.7.b. Please select the objective(s) that this action supports. *	1.2–Survey and monitor species populations		1.3–Protect, restore, and enhance fish and wildlife habitat, 2.3–Restore and enhance riparian buffer and wetland habitat at NSC Smokey Point, 4.1–Control noxious weeds and invasive plants
cc(FY21) 6.8. Which Natural Resources Program Area most benefitted from the INRMP action? (Select all the apply) (If other, please describe in the comments) *	Fauna, Listed Species	None	Habitat
cc(FY21) 6.9. If the INRMP action provided an ecosystem integrity benefit, select the ecosystem(s) benefitted and provide additional details in the comment field. If no specific "ecosystem" benefit, then leave blank.			Riparian Wetland
cc(FY21) 6.10. Does this project support mitigation for a project/action? *	No	No	No

7 - Support of Installation Mission

7.0. Please identify the mission types related to your reporting unit/site. Select all that apply. Do not choose N/A. Please contact Admin to add a mission if it is not available on the list. * **Medical Ops, Military Construction, Education & Training, Homeport/Shipyard Ops, Logistics**

Actively Managed Invasive Species

	1. Glaucous-winged gull : Larus glaucescens
1. Identify the species category. *	Nuisance
2. What is the species occurrence? *	Confirmed present on installation
3. Identify any of the partners you work with in managing or monitoring this (these) species. *	Other (Add explanation)
4. Is this species being mapped or managed using GIS tools? *	No
4.1. If No, please identify any limiting factors to using mapping or monitoring tools? *	Other (Add explanation)
5. Identify the impacts to the installation mission caused by the presence of the species. *	Degrades operations, Harmful effects to humans
6. Identify the impacts to sensitive habitats or protected species. *	No known impacts
7. How much Navy funding was expended during the past FY to control, interdict, survey, manage or monitor this species on this installation/site? *	0
8. If the species is being eradicated, please estimate the timeframe it will take to eradicate selected species. *	10+ yrs

Not Actively Managed Invasive Species

	1. Common reed : Phragmites australis	2. Himalayan Blackberry : Rubus armeniacus
11. Identify the species category. *	Noxious	Noxious
12. Identify limiting factors to control, interdict, survey, manage or monitor the species. *	Other (Add explanation)	Insufficient funding
13. Identify the impacts to the installation mission caused by the presence of the species. *	No known impacts	No known impacts
14. Identify the impacts to sensitive habitats or protected	Degrades habitat, Impacts wetlands, Harmful effects to other species	Degrades habitat, Impacts wetlands, Harmful effects to other species

	1. Common reed : Phragmites australis	2. Himalayan Blackberry : Rubus armeniacus
species. *		

Accomplishments

List the top three accomplishments for the Natural Resources Program during this reporting period. Please include a statement regarding how these accomplishments support the mission of the installation or other activities. This information may be used to brief program successes up to leadership.

1. As a result of this year's annual review, have any additional actions, such as management recommendations related to regulatory drivers (ACOE permits, EFH Issues, etc.), been identified that should be considered for incorporation into the INRMP? * **No**

4. List the top accomplishment for the Natural Resources Program during this reporting period. * **Completed first draft of updated NAVSTA Everett INRMP, incorporating feedback from Sikes Act partners.**

5. List the second accomplishment for the Natural Resources Program during this reporting period. * **Conducted first year of East Waterway fish study in partnership with NOAA.**

6. List the third accomplishment for the Natural Resources Program during this reporting period. * **Continued conducting marine mammal density surveys on a weekly basis. Good coordination with the Stranding Network this year.**

Summary Score

Focus Area	Score
1 - Natural Resources Management	0.64
2 - Listed Species Critical Habitat	0.79
3 - Recreation Use and Access	0.00
4 - Sikes Act Cooperation	0.89
5 - Team Adequacy	0.66
6 - INRMP Implementation	1.00
7 - Support of Installation Mission	0.70
FY21 Projects	1.00
NAVSTA EVERETT - Overall Score	0.78

APPENDIX D. CHRISTMAS BIRD COUNT SPECIES LISTS

Audubon Christmas Bird Count
Everett / Marysville Circle - WAEV

Naval Station Everett

Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2021
Brant				30		50				20
Snow Goose									25	
Canada Goose		3	19			20	35	4	27	
Gadwall						7				
Eurasian Wigeon						1				
American Wigeon						140	30			26
Mallard			16			5	4	2	9	100
Northern Pintail						20				30
Greater Scaup						2		4		
scaup sp.										50
Surf Scoter	422			12	180	143	8			
Bufflehead					25	4		1		11
Common Goldeneye		18	10	4	10	12	4		2	2
Barrow's Goldeneye	49			60	60	54	16	225	76	32
Red-breasted Merganser					4	3	2	2		2
Common Merganser							4			
Red-throated Loon		24		1		1	1			1
Pacific Loon		4			2	2	1			2
Common Loon		8		1			2		2	1
Horned Grebe	2	6		3	9	2	1		4	1
Red-necked Grebe		6			2	2	1		1	
Western Grebe					2	1				
Brandt's Cormorant		4	6	6	3	5	24	2	18	2
Pelagic Cormorant	35	30	77	15	14	25	55	8	34	3
Double-crested Cormorant	43	100	119	65	30	51	180	82	53	35
cormorant sp.										70
Great Blue Heron	13		13	5	6	1	1			1
Bald Eagle		1				1	1		1	1
Black-bellied Plover		15			7				8	2
Black Turnstone			21		2	2	2	8		25
Dunlin					15			300		4
Rock Sandpiper	2									
Least Sandpiper			2				8	23		
Common Murre		16	1	2	4					
Pigeon Guillemot		10	1	10		7				
Marbled Murrelet				4	2					
Rhinoceros Auklet		14		2						
Bonaparte's Gull		1			1			1		
Mew Gull	33		170	25	20	200	40		4	
Ring-billed Gull	82	10		4				1		
Western Gull	1	2					1			2
California Gull				1						
Herring Gull			2							
Thayer's Gull			1	2			1	2		
Glaucous-winged Gull	401	400	260	80	30	30	130	91	33	108
Western x Glaucous-winged Gull (hybrid)	51	150	60	40	80	40	120	118	17	132
gull sp.										50
Rock Pigeon (Feral Pigeon)					20	23	8		8	
Belted Kingfisher				1	1	2	2			1
American Crow	19	40	25	9	6	18	20	26	10	8
Black-capped Chickadee							4			
Bushtit							20			
European Starling	14	5	12	50	35	1	16	24	25	4
American Pipit					2					
White-crowned Sparrow				8						
Song Sparrow	1	1			1					1
House Finch	12									
House Sparrow			4	15			5			
Total Birds	**1180**	**868**	**819**	**455**	**573**	**875**	**747**	**924**	**357**	**727**
Total Species	**16**	**23**	**19**	**26**	**28**	**32**	**32**	**19**	**19**	**30**

APPENDIX E. DESCRIPTION OF ESSENTIAL FISH HABITAT AND SPECIES LIST FOR MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

This appendix provides additional information on Essential Fish Habitat (EFH) Fishery Management Plans (FMPs) and the species that are covered in these plans, which have been detected in marine waters east of Port Angeles, WA. This appendix is a supplement to *Section 3.2.2 Magnuson-Stevens Fishery Conservation Management Act*, which identifies Habitat Areas of Particular Concern (HAPCs) found at or adjacent to the nearshore environment of NAVSTA Everett.

Description and Identification of Pacific Coast Groundfish Essential Fish Habitat

The Pacific Coast Groundfish FMP and its 28 amendments guide management of more than 90 species within a large and ecologically diverse area (PFMC, 2019a). The Pacific Coast Groundfish FMP appendices are also updated frequently. These appendices address topics ranging from life history descriptions, and fishing activities to over-fished species rebuilding plans. Information on the life histories and habitats of these species varies in completeness, so while some are well-studied, there is relatively little information on others. Information about the species managed by the FMP will change over time due to new studies being conducted, thus providing varying degrees of information improvement for each species. For these reasons, it is impractical to include descriptions identifying the EFH for each life stage of the species included in the FMP. Therefore, the FMP includes a description of the overall area identified as Pacific Coast Groundfish EFH and describes the assessment methodology supporting this designation.

The Pacific Coast Groundfish FMP contains the rules for managing the groundfish fishery. It outlines the areas, species, regulations, and methods that the Council and the Federal government must follow to make changes to the fishery. Designations of EFH for each species and their component individual life history stages are provided in Appendix B of PFMC Pacific Coast Groundfish FMP for the California, Oregon, and Washington Groundfish Fishery (PFMC, 2019b). A list of Pacific Coast Groundfish FMP managed species with the potential to utilize habitats in Puget Sound is provided in Table E-1. A summary of which HAPCs are associated with Pacific Coast Groundfish FMP is provided in Table 3-1.

Description and Identification of Pacific Coast Salmon Essential Fish Habitat

The current Pacific Coast Salmon FMP, and its 19 amendments, guide management of salmon fisheries in Federal waters (3-200 nautical miles) off the coast of Washington, Oregon, and California (PFMC, 2016). The FMP covers natural and hatchery salmon encountered in ocean salmon fisheries, but only has management objectives and allocation provisions for Chinook, coho, and pink salmon; other salmon species are less frequent in ocean fisheries. The main species harvested that originate from the Snohomish Basin are Chinook, coho, and pink salmon (Table E-1). Chinook and coho salmon fisheries occur annually, whereas the pink salmon fishery is significant only in odd-numbered years. Sockeye, chum, and steelhead populations are much less abundant in the Snohomish Basin, do not contribute significantly to the Pacific Coast Salmon harvest, and are not addressed further. The life history and recent population estimates for salmonid populations within the Snohomish Basin are provided in Sections *2.3.1 Threatened and Endangered Species* and *2.3.4.3 Fish*. A summary of which HAPCs are associated with Pacific Coast Salmon FMP is provided in Table 3-1.

Description and Identification of Coastal Pelagic Species Essential Fish Habitat

In 1998, Amendment 8 expanded the Northern Anchovy FMP from one to five species, becoming the Coastal Pelagic Species FMP (PFMC, 1998). Since that time, nine additional amendments to the Coastal

Pelagic Species FMP have been made, including to address fishing protections, incidental catch, allocations, and other management issues (PFMC, 2019c). Coastal Pelagic Species inhabit pelagic habitat associated with the water column and are commonly found from surface waters to a depth of 3,281 feet. (1,000 m). For the purposes of EFH analysis, Coastal Pelagic Species are typically treated as a complex because of the similarities in their life histories and similarities in their habitat requirements (PFMC, 2019c). The full suite of Coastal Pelagic Species listed in the FMP includes four finfish northern anchovy, Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), jack mackerel (*Trachurus symmetricus*) and two invertebrates—market squid (*Loligo opalescens*) and krill (Order Euphausiacea). Coastal Pelagic Species that utilize Puget Sound marine habitats within the vicinity of NAVSTA Everett are the northern anchovy, market squid, and two species of krill (Table E-1). The designation of essential habitat for krill is based on information about EFH for the two principal species, *Euphausia pacifica* and *Thysanoessa spinifera*. No Coastal Pelagic Species HAPCs occur at NAVSTA Everett (Table 3-1).

Table E-1. Species Detected in US waters East of Port Angeles, WA for which EFH is Protected under one of the Four FMPs

Common Name	***Species name***
PACIFIC COAST GROUNDFISH	
Flatfish	
Arrowtooth Flounder	*Atheresthes stomias*
Butter Sole	*Isopsetta isolepis*
Curlfin Sole	*Pleuronichthys decurrens*
Dover Sole	*Microstomus pacificus*
English Sole	*Parophrys vetulus*
Flathead Sole	*Hippoglossoides elassodon*
Pacific Sanddab	*Citharichthys sordidus*
Petrale Sole	*Eopsetta jordani*
Rex Sole	*Glyptocephalus zachirus*
Sand Sole	*Psettichthys melanostictus*
Rock Sole	*Lepidopsetta bilineata*
Starry Flounder	*Platichthys stellatus*
Rockfish	
Black Rockfish	*Sebastolobus melanops*
Blue Rockfish	*S. mystinus*
Bocaccio	*S. paucispinis*
Brown Rockfish	*S. auriculatus*
Calico Rockfish	*S. dallii*
Canary Rockfish	*S. pinniger*
China Rockfish	*S. nebulosus*
Copper Rockfish	*S. caurinus*

Common Name	***Species name***
Darkblotched Rockfish	*S. crameri*
Greenstriped Rockfish	*S. elongatus*
Halfbanded Rockfish	*S. semicinctus*
Pacific Ocean Perch	*S. alutus*
Puget Sound Rockfish	*S. emphaeus*
Quillback Rockfish	*S. maliger*
Redbanded Rockfish	*S. babcocki*
Redstripe Rockfish	*S. proriger*
Rosethorn Rockfish	*S. helvomaculatus*
Rosy Rockfish	*S. rosaceus*
Rougheye Rockfish	*S. aleutianus*
Sharpchin Rockfish	*S. zacentrus*
Shortspine Thornyhead	*S. alascanus*
Silvergray Rockfish	*S. brevispinis*
Splitnose Rockfish	*S. diploproa*
Stripetail Rockfish	*S. saxicola*
Tiger Rockfish	*S. nigrocinctus*
Vermilion Rockfish	*S. miniatus*
Widow Rockfish	*S. entomelas*
Yelloweye Rockfish	*S. ruberrimus*
Yellowtail Rockfish	*S. flavidus*
Roundfish	
Cabezon	*Scorpaenichthys marmoratus*
Kelp Greenling	*Hexagrammos decagrammus*
Lingcod	*Ophiodon elongatus*
Pacific Cod	*Gadus macrocephalus*
Pacific Whiting (Hake)	*Merluccius productus*
Sablefish	*Anoplopoma fimbria*
Elasmobranchs	
Big Skate	*Beringraja (Raja) binoculata*
Leopard Shark	*Triakis semifasciata*
Longnose Skate	*Raja rhina*
Pacific Spiny Dogfish	*Squalus suckleyi*
Coastal Pelagic Species	
Pacific sardine	*Sardinops sagax*
Pacific (chub) mackerel	*Scomber japonicus*
Northern anchovy	*Engraulis mordax*
Market squid	*Doryteuthis opalescens*
Jack mackerel	*Trachurus symmetricus*
Krill/Euphausiids	*Euphausia pacifica*

Common Name	***Species name***
Krill/Euphausiids	*Thysanoessa spinifera*
Krill/Euphausiids	*Nyctiphanes simplex*
Pacific Coast Salmon	
Chinook Salmon	*Oncorhynchus tshawytscha*
Coho Salmon	*O. kisutch*
Pink Salmon	*O. gorbuscha*
Highly Migratory Species	
Common Thresher Shark	*Alopias vulpinus*
Blue Shark	*Prionace glauca*
Skipjack Tuna (bonito)	*Katsuwonus pelamis*

APPENDIX F. FINDING OF NO SIGNIFICANT IMPACT FOR NAVSTA EVERETT INRMP

DEPARTMENT OF DEFENSE
DEPARTMENT OF THE NAVY

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE ENVIRONMENTAL ASSESSMENT (EA) FOR A REVISED INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN AT NAVAL STATION (NAVSTA) EVERETT, SNOHOMISH COUNTY, WASHINGTON AND THE FAMILY SUPPORT COMPLEX AT SMOKEY POINT IN MARYSVILLE, WASHINGTON

Pursuant to the Council on Environmental Quality regulations (40 Code of Federal Regulations Parts 1500-1508) implementing the National Environmental Policy Act and Navy regulations (32 CFR Part 775), and Chief of Naval Operations Instruction 5090.1D, the Department of the Navy (Navy) gives notice that an EA has been prepared and an Environmental Impact Statement (EIS) is not required for a Revised Integrated Natural Resources Management Plan (INRMP) at NAVSTA Everett, Snohomish County, Washington and the Family Support Complex (FSC) at Smokey Point in Marysville, Washington.

A Notice of Availability (NOA) of the Draft EA was published on January 9-11, 2015 in the Everett Daily Herald and on January 10, 17, and 24, 2015 in the Marysville Globe. The Draft EA was made available for public review on the Naval Facilities Engineering Command Northwest (NAVFAC NW) website. The public comment period on the Draft EA was from January 9 to February 9, 2015 and no public comments were received. A NOA of the Final EA and FONSI will be published in the Everett Daily Herald and the Marysville Globe and copies of the documents will be available on the NAVFAC NW website at http://go.usa.gov/tAr4.

Proposed Action: The Navy will adopt and implement a revision to the 2009 INRMP for NAVSTA Everett in Everett, Washington, and the Smokey Point FSC Marysville, Washington.

The purpose of the Proposed Action is to meet statutory requirements under the Sikes Act, provide management requirements for species listed under the Endangered Species Act (ESA), and meet the requirements of the Department of Defense and Navy instructions and regulations.

Existing Conditions: NAVSTA Everett is 117 acres built entirely upon fill material imported to the site. The installation contains a small range of habitat types; the upland landscape is almost entirely developed and the shoreline is armored. The mouth of the Snohomish River and the Port of Everett Marina border it to the north. Further to the north is Port Gardner Bay, and the East Waterway is to the southeast.

The Smokey Point FSC is 52 acres located on land formerly used for agricultural purposes that was subsequently developed to contain a Navy Exchange, Navy Lodge, Commissary, Morale Welfare and Recreation facility, parking, and administrative facilities, as well as storm water drainage and retention ponds. There is a narrow wetland area to the north of the Navy Exchange within a fenced, confined area, immediately adjacent to a narrow storm water detention trench. Hayho Creek runs along the western boundary and has a well-established tree buffer.

Alternatives Analyzed: Two alternatives are evaluated in this EA: the Preferred Alternative (adopt and implement a revised INRMP), and the No Action Alternative (continue implementation of the existing INRMP).

Environmental Effects: The following is a summary of the environmental consequences of the Proposed Action:

Water Resources. The revised INRMP implements a water resources management approach that evaluates current conditions, evaluates impacts of Navy activities, and determines appropriate actions to protect local watersheds. Additionally, the revised INRMP will help to ensure that water quantity and quality would remain unchanged or would be improved by maintaining or enhancing buffers along water bodies.

Under the No Action Alternative, NAVSTA Everett would still be required to comply with water resource laws, therefore limiting direct adverse impacts on specific regulated water resources (e.g., wetlands and waters of the United States, floodplains, coastal zones, and marine protected areas). There would be no increase in flooding potential, erosion, or pollutants entering water bodies; however, lack of a comprehensive management strategy would result in the potential for inefficient, redundant, and more costly management of these resources.

Terrestrial and Marine Biology. Implementing a revised INRMP at NAVSTA Everett and Smokey Point FSC will have a beneficial effect on vegetation, terrestrial, aquatic, and marine species and their habitats. The control and eradication of invasive species that compete with native plant species would promote growth of native plant species on NAVSTA Everett and Smokey Point FSC. The revised INRMP also provides a management strategy for ther protection of species, which includes project

review to identify actions with potential adverse effects. Improved water quality on NAVSTA Everett and the Smokey Point FSC would improve the health of individuals and populations of aquatic species. Enhancing fish passage in Hayho Creek would benefit anadromous and resident fish. The quality of habitat in riparian corridors would increase because of buffer zones along the creek as well as the wetland on Smokey Point FSC. Controlling invasive species and planting of native vegetation will improve shading, woody debris recruitment, create refuge, increase species diversity, and improve habitat.

The No Action Alternative would maintain existing conditions for flora and fauna. There would be no change from the management strategies under the previous INRMP; however, several studies and initiatives would not be implemented.

Threatened, Endangered, and Sensitive Species and Essential Fish Habitat. There are no known threatened or endangered species or essential fish habitat (EFH) on or around the Smokey Point FSC. Several wildlife species listed as threatened or endangered under the ESA have been observed in the marine waters along or adjacent to NAVSTA Everett and there is EFH that has been designated within the vicinity of NAVSTA Everett.

Implementing the revised INRMP will have a beneficial effect on both threatened and endangered species and EFH adjacent to NAVSTA Everett. The revised INRMP includes surveys for threatened and endangered species, which would contribute to the natural resources managers' awareness of their use of habitats at NAVSTA Everett. The natural resources managers may also use the revised INRMP as a tool to help identify, at an early stage, potential impacts (both beneficial and negative) of planned Navy actions on threatened and endangered species and EFH to provide a basis for altering the action to prevent or minimize those negative impacts.

The revised INRMP implements projects that will be beneficial to threatened, endangered, and sensitive species. Protection of EFH and forage fish habitat will benefit most listed species likely to be found in the waters near NAVSTA Everett since these fish are vital food sources for threatened and endangered species. Furthermore, having a revised INRMP could preclude future designations of critical habitat under the ESA within NAVSTA Everett and Smokey Point FSC property boundaries.

Under the No Action Alternative, the Navy would continue to consult with the United States Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA/NMFS) under Section 7 of the ESA. The Navy would also continue to consult with NOAA/NMFS under the Magnuson-Stevens Fisheries Conservation and Management Act for any activity that may affect EFH. The Navy would implement terms and conditions required by the agencies to minimize impacts to listed species and ensure no adverse effects. However, no additional habitat and species surveys would occur (unless required through the ESA/EFH consultations).

While there is currently no designated critical habitat at or near NAVSTA Everett or Smokey Point FSC, outdated information that may not reflect species presence, density, and use of habitats at the two locations could result in future designations of ESA critical habitat on NAVSTA Everett or the Smokey Point FSC. Designation of critical habitat would result in mission impacts from more costly and time-consuming development and changes to existing land use plans and/or operations.

Finding: Based on the analysis presented in the EA and coordination with the USFWS, Washington Department of Fish and Wildlife, and the NOAA/NMFS, the Navy finds that implementation of the proposed action will have no significant impact to the quality of the human environment.

The EA, which was prepared by the Navy addressing this action, is on file; interested parties may obtain a copy from Commanding Officer, Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Silverdale, WA 98315.

19 JAN 16
Date

J. S. RUTH
Rear Admiral, U.S. Navy
Commander, Navy Region Northwest

APPENDIX G. TRAINING OPPORTUNITIES FOR THE NATURAL RESOURCES MANAGER

Natural Resources Training Opportunities
CECOS - Civil Engineer Corps Officers School Offers many of the trainings required by OPNAV-M 5090.1E for NRMs, such as Natural Resources Compliance, Environmental Protection, and Environmental Negotiation. https://denix.osd.mil/cecos/home/
National Military Fish and Wildlife Association (NMFWA) Annual Meeting Several trainings specific to NRM duties are offered at the annual meetings, such as Climate Adaptation for DOD Natural Resources Managers. https://www.nmfwa.org
The Wildlife Society, Washington Chapter Annual Meeting Offers multiple days of technical sessions as well as trainings and workshops related to wildlife science in Washington State and the region. https://wildlife.org/washington-chapter/
U.S. Army Corps of Engineers – Learning Center Offers trainings on natural resources management, wetlands, and regulatory topics. http://ulc.usace.army.mil/
U.S. Fish and Wildlife Service - National Conservation Training Center Offers trainings on habitat restoration and management, conservation policy, wildlife biology and field techniques, ecological adaptations (climate change), and other topics. http://training.fws.gov/
Natural Resources Conservation Service – National Employee Development Center Offers trainings on wetlands, soils, GIS, and other topics. https://www.nrcs.gov/wps/portal/nrcs/main/national/nedc/training/
Wetland Training Institute, Inc. Offers trainings on wetlands, plant identification, regulatory policy, and permitting. http://www.wetlandtraining.com/
Xerces Society Offers webinars on invertebrates and pollinator conservation. https://www.xerces.org/events/webinars

APPENDIX H. FUNDING CLASSIFICATION AND SOURCES

Department of Defense Funding Classifications

Navy policy requires funding of all DOD Recurring Natural Resources Conservation Management Requirements and Non-Recurring Current Compliance projects. Enclosure 4 of DODI 4715.03 defines the four classes of conservation programs:

Recurring Natural Resources Conservation Management Requirements

These activities are needed to cover the administrative, personnel, and other costs associated with managing the DOD Natural Resources Conservation Program that are necessary to meet compliance with federal and state laws, regulations, EOs, and DOD policies, or in direct support of the military mission. DOD components shall give priority to recurring natural resources conservation management requirements associated with the operation of facilities, installations, and deployed weapons systems. These activities include day-to-day costs as well as annual requirements, including manpower, training, supplies, permits, fees, testing and monitoring, sampling and analysis, reporting and record keeping, maintenance of natural resources conservation equipment, and compliance self-assessments.

Non-Recurring Current Compliance

These projects and activities are needed to support: an installation currently out of compliance; signed compliance agreements or consent order; meeting requirements with applicable federal or state laws, regulations, standards, EOs, or policies; immediate and essential maintenance of operational integrity or military mission sustainment; and projects or activities that will be out of compliance if not implemented in the current program year.

Non-Recurring Maintenance Requirements

These projects and activities are needed to meet an established deadline beyond the current program year and maintain compliance. Examples include: compliance with future deadlines; conservation, GIS mapping, and data management to comply with federal, state, and local regulations, EOs, and DOD policy; efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives; wetlands enhancement to minimize wetlands loss and enhance existing degraded wetlands; and conservation recommendations in Biological Opinions.

Non-Recurring Enhancement Actions Beyond Compliance

These projects and activities enhance conservation resources or the integrity of the installation mission or are needed to address overall environmental goals and objectives, but are not specifically required by law, regulation, or EO, and are not of an immediate nature. Examples include: community outreach activities; educational and public awareness projects; restoration or enhancement of natural resources when no specific compliance requirement dictates a course or timing of action; and management and execution of volunteer and partnership programs.

Funding Sources

Fish and Wildlife Fees

Fish and wildlife fees to hunt or fish are authorized by the Sikes Act. NAVSTA Everett does not anticipate these funds since a hunting and fishing program is not compatible with the installation.

Agricultural/Grazing Outleases or Forestry Program

Revenues from rents on agricultural and grazing outleases on Navy lands are a funding source for natural resources management programs. NAVSTA Everett does not anticipate these funds since there are no

forested lands on the installation and these programs are not compatible with the leased installation lands.

Strategic Environmental Research and Development Program and Environmental Security Technology Certification Program

The Strategic Environmental Research and Development Program (SERDP) and Environmental Security Technology Security Program are the DOD's environmental science and technology program, planned and executed in partnership with the U.S. Department of Energy and U.S. Environmental Protection Agency. Investments are made across a broad spectrum of basic and applied research, as well as advanced development to improve DOD's environmental performance, reduce costs, and enhance and sustain mission capabilities. This program promotes collaboration among academia, industry, the military services, and other federal agencies. Due to the competitive process involved with allocation of SERDP Funds, NAVSTA Everett is not expected to receive funds through this source.

Special Initiatives

The DOD or Navy may establish special initiatives to fund natural resource projects. Funding is generally small and available only for a limited number of projects. Streamside Forests is currently the only initiative applicable to NAVSTA Everett. Streamside Forests: Lifelines to Clean Water is a DOD streamside restoration small grants program. Applications and additional information are available on the DENIX website.

Memoranda of Understanding

Memoranda of Understanding (MOU) that the DOD has signed on to provide valuable opportunities for collaboration can benefit both sustainability of the military mission and natural resources management at NAVSTA Everett. Examples of such opportunities are listed below:

- January 2006 MOU between DOD, USFWS and the International Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resources Management Program on Military Installations.
- July 2014 MOU between the USFWS and DOD to Promote the Conservation of Migratory Birds. This MOU promotes the conservation of migratory bird populations while sustaining the use of military lands and airspace for testing, training, and operations.
- November 2006 MOU between DOD and U.S. Department of Agriculture Natural Resources Conservation Service. Both agencies signed an MOU agreeing to coordinate activities to preserve land and improve water quality on lands surrounding government-owned military bases.
- 1996 MOU between the U.S. Environmental Protection Agency and DOD for coordinating of Integrated Pest Management activities.
- 1996 cooperative agreement between DOD and The Nature Conservancy for conducting natural resources inventories at installations.

Cooperative Ecosystem Studies Units

The Cooperative Ecosystem Studies Units (CESU) program is a working collaboration among federal agencies, universities, state agencies, non-governmental organizations, and other non-federal institutional partners. The CESU National Network provides multidisciplinary research, technical assistance, and education to resource and environmental managers. Although the overall program is overseen by the U.S. Department of the Interior, one of the participating agencies is DOD.

University Assistance

Universities are an excellent source of research assistance. NAVSTA Everett has not yet partnered with universities to help with specialized needs (e.g. natural resources research).