

Draft Environmental Assessment For Naval Special Operations Training In Western Washington State



January 2018
Unclassified

DRAFT ENVIRONMENTAL ASSESSMENT
For
NAVAL SPECIAL OPERATIONS TRAINING
IN WESTERN WASHINGTON STATE

January 2018



Abstract

Designation:	Draft Environmental Assessment
Title of Proposed Action:	Naval Special Operations Training in Western Washington State
Project Location:	Western Washington State
Lead Agency for the EA:	Department of the Navy
Cooperating Agency:	None
Affected Region:	Western Washington State
Action Proponent:	Naval Special Warfare Command
Point of Contact:	Naval Special Warfare Command 2000 Trident Way, Bldg. 624 San Diego, CA 92155-5599
Date:	January 2018

The United States (U.S.) Naval Special Warfare Command (herein after referred to as the NSWC), is the U.S. Navy's special operations force and maritime component of the U.S. Special Operations Command (USSOCOM). The NSWC has prepared this Environmental Assessment in accordance with the National Environmental Policy Act, as implemented by the Council on Environmental Quality and Navy regulations. The Proposed Action supports small-unit, intermediate and advanced cold-water maritime and land-based training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Training would start in 2018 and occur into the foreseeable future. This Environmental Assessment evaluates the potential environmental impacts associated with the No Action Alternative and three action alternatives (Alternatives 1, 2, and 3) on the following resource areas: socioeconomics, cultural resources, biological resources, public health and safety, air quality, and noise.

EXECUTIVE SUMMARY

ES.1 Proposed Action

The United States (U.S.) Naval Special Warfare Command (NSWC) proposes to conduct small-unit intermediate and advanced land and cold-water maritime training activities for naval special operations personnel. U.S. Naval Special Warfare Command is the U.S. Navy's special operations force and the maritime component of the U.S. Special Operations Command (USSOCOM). The proposed training activities consist of training by naval special operations personnel with occasional integration of other USSOCOM components, including United States Army Special Operations Command, Marine Corps Special Operations Command, Air Force Special Operations Command, and Joint Special Operations Command. The occasional integration of other USSOCOM components would occur only with NSWC-led training. The proposed training would occur on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast.

ES.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to support intermediate and advanced small-unit naval special operations training in increasingly complex, cold-water maritime, and land environments. The training would involve training activities designed to further develop and sustain proficiency in the cold-water maritime and land aspects of naval special operations. The Proposed Action would support meeting the requirements under 10 United States Code Section 167 for the Commander, U.S. Special Operations Command, to provide combat-ready forces.

ES.3 Alternatives Considered

NSWC considered three training area screening factors (training, safety and logistics) when identifying an area that could support cold-water naval special operations training and satisfy the training requirements. NSWC is considering a No Action Alternative and three action alternatives that meet the purpose of and need for the Proposed Action. For each alternative, a training block is defined as a 2–8 week period of time where up to 84 naval special operations trainees and support personnel (safety observers, medical support, boat drivers, vehicle drivers, evaluators, and equipment repair/maintenance support) arrive in western Washington State to participate in cold-water maritime and land-based training and ends when they leave.

Under the No Action Alternative, the baseline of current training activities conducted in Region 1 (Figure ES-1) over the past decades would continue at two training blocks per year in limited areas as approved under the 2015 Northwest Training and Testing Final Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) (“Personnel Insertion/Extraction – Submersible”), 2010 Northwest Training Range Complex EIS/OEIS (“Naval Special Warfare Training”), and application of event-based Categorical Exclusions, as applicable. The two EIS/OEIS documents do not cover the full range of naval special operation training activities, locations, and duration needed, or provide the diversity required of naval special operations personnel. This EA will supersede the “Personnel Insertion/Extraction-Submersible” and “Naval Special Warfare Training” activities as identified in the EIS/OEISs, respectively. Under the No Action Alternative, an individual site would be used no more than 10 times a year. The total number of trainees and support personnel would be up to 70 per training block. Training activities would include launch and recovery of the submersible or small boats, insertion and extraction of these vessels, diver/swimmer training, over-the-beach, special reconnaissance, and

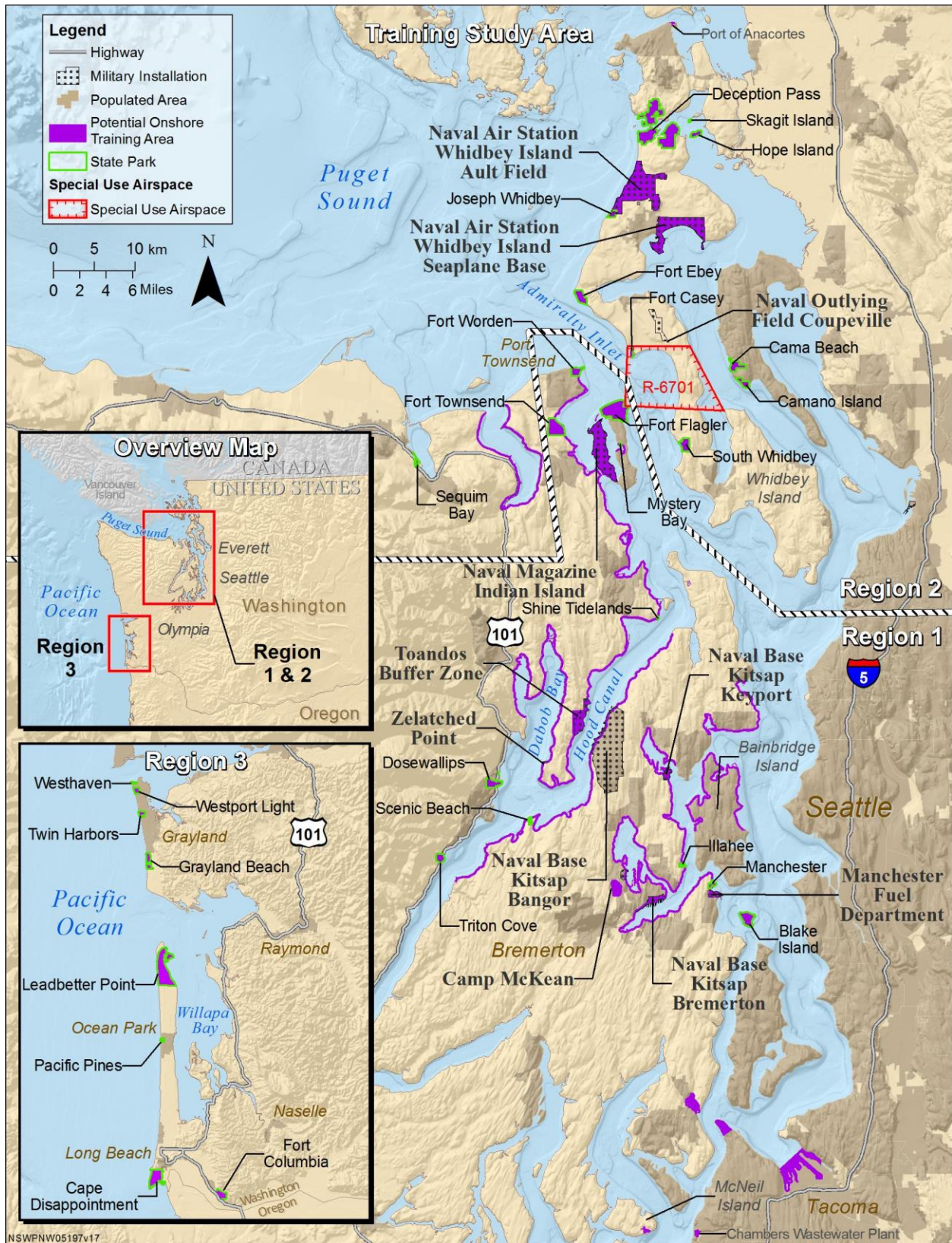


Figure ES-1: Training Study Area

the use of unmanned underwater vehicles (UUVs). Small recall devices would be used in emergency situations to alert the diver/swimmers to return to the surface of the water.

Under Alternative 1, proposed training activities and locations would increase in the Region 1 training study area (Figure ES-1), from two training blocks under the No Action Alternative to four training blocks. Alternative 1 adds simulated building clearance and training with unmanned aircraft system (UAS) at the Navy properties (Naval Base Kitsap Keyport, Toandos Buffer Zone, and Naval Magazine Indian Island). Training with remote operated vehicles would be included with UUVs. Under Alternative 1, an individual site would be used no more 20 times a year.

Under Alternative 2, the locations identified for training activities, number of training blocks per year, and site usage per year are the exact same as those identified in Alternative 1 for Region 1. However, Alternative 2 adds two new regions, Region 2 and Region 3. Regions 2 and 3 would have one training block every other year and an individual site would be used no more than three times every other year. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and simulated building clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at Restricted Area (R) 6701. Also, one new proposed training activity, high-angle climbing, would occur at Deception Pass State Park in Region 2.

Alternative 3 is the Preferred Alternative. As with Alternative 2, Alternative 3 would include the same proposed training activities within Regions 1, 2, and 3. Alternative 3 would increase the number of trainees and support personnel up to 84 per training block. Also, the number of training blocks in Region 1 would increase to six times per year and an individual site would be used no more than 36 times.

For all the alternatives discussed, it should be noted that not every site will be used every year. However, for any particular site within a region and alternative, the maximums as described above would not be exceeded. Additionally, some locations would not be used for training during certain times of the year when weather, currents, scheduled public events or protected species concerns are present. Other sites may not be used at all during a given year and still yet, other sites may be used intermittently throughout a year. The size of the study area allows for this flexibility which also helps to prevent overuse.

ES.4 Summary of Environmental Resources Evaluated in the Environmental Assessment

Council on Environmental Quality regulations, National Environmental Policy Act, and Navy instructions for implementing the National Environmental Policy Act, specify that an Environmental Assessment (EA) should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The Navy, on behalf of NSWC, will be consulting with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, State Office of Coastal Zone Management, and State Historic Preservation Office regarding the Preferred Alternative.

The following resource areas have been addressed in this EA: socioeconomics, cultural resources, biological resources, public health and safety, air quality, and noise. Because potential impacts were considered to be negligible or nonexistent, the following resources were not evaluated in this EA: water resources, geological resources, visual resources, airspace, infrastructure, transportation, and hazardous materials and wastes.

ES.5 Summary of Potential Environmental Consequences of the Action Alternatives

Table ES-1 provides a summary of potential environmental consequences of the action alternatives. Below is a summary for Endangered Species Act (ESA) conclusions.

There is no designated critical habitat for the golden paintbrush, water howellia, marsh sandwort, and humpback whale. Additionally, the proposed training activities would not overlap with the following critical habitats: Oregon silverspot butterfly and marbled murrelet.

No Action Alternative – The No-Action Alternative relies upon the ESA consultations conducted under the 2015 NWTTC EIS/OEIS and the 2010 NWTRC EIS/OEIS.

Alternative 1 – ESA-listed Species

Proposed training would have no effect on the water howellia or marsh sandwort as these species are believed to be extirpated from the training study area. Based on the analysis in Section 3.3, the proposed training activities may affect, not likely to adversely affect Puget Sound Chinook salmon, Hood Canal summer run chum salmon, Puget Sound Steelhead, Puget Sound/Georgia Basin bocaccio and yelloweye rockfishes, North American green sturgeon, bull trout, humpback whale, southern resident killer whale, and the marbled murrelet.

Alternative 1 – Critical habitat

As described in Section 3.3, the proposed training activities would not have an effect on critical habitat in Region 1 for Puget Sound Chinook Salmon ESU, Hood Canal summer run chum, Puget Sound Steelhead, Puget Sound/Georgia Basin DPS bocaccio, yelloweye rockfish, bull trout, and southern resident killer whale because essential physical and biological features described in that section would not be modified, either temporarily or permanently.

Alternative 2 – ESA-listed Species

Alternative 2 species will be the same as Alternative 1. The difference is, golden paintbrush, Taylor's checkerspot butterfly, and the Oregon silverspot butterfly all occur in Region 2. Region 3 adds the western snowy plover, streaked-horned lark, leatherback sea turtle, Columbia River Chum Salmon, and the Pacific Eulachon. Proposed training would have no effect on the golden paintbrush, because known locations would be avoided. Proposed training activities would have no effect on Taylor's checkerspot butterfly and the Oregon silverspot butterfly because activities would not overlap with existing populations of those species. Based on the analysis in Section 3.3, the proposed training activities may affect the western snowy plover, streaked-horned lark, leatherback sea turtle, Columbia River Chum Salmon, and the Pacific Eulachon.

Alternative 2 – Critical habitat

Alternative 2 critical habitat would be the same as Alternative 1. The difference is the addition of designated critical habitat for the following species: Taylor's checkerspot butterfly (only at Deception Pass State Park), western snowy plover, streaked-horned lark, Columbia River chum salmon, Pacific eulachon, North American green sturgeon, and the leatherback sea turtle. Based on the analysis in Section 3.3, the proposed training activities would not have an effect on critical habitat for these species in Regions 1, 2, and 3 because essential physical and biological features described in that section would not be modified, either temporarily or permanently.

Alternative 3 – ESA-listed Species and Critical Habitats

Alternative 3 species and habitats would be the same as Alternative 2. The only difference is Alternative 3 would increase the training blocks in Region 1 to six times per year and an individual site would be used no more than 36 times. Training activities associated with the proposed action are low impact and activities would occur at infrequent intervals and for a brief duration of time. Because the goal of training is for the trainees to be in the field undetected, the environment tends to be minimally disturbed and materials (e.g., gear and trash) are not left behind. In addition, identical travel routes would rarely be used; the level of foot traffic associated with each group would not wear paths in the training study area. Therefore, the increase in the number of training blocks and site usage is not expected to change the impacts, analysis, and determinations as described in Alternative 2.

ES.6 Public Involvement

The Navy, on behalf of NSWC, welcomed public and agency comments during an early outreach period from April 18, 2017, through May 18, 2017. Early outreach meetings were held on May 2, 3, and 4, 2017, in Poulsbo, Port Townsend, and Oak Harbor, Washington. During the early outreach meetings, NSWC provided information on the training activities, training locations, Section 106 process and NEPA process for the purpose of introducing the proposed action to the public, answering general questions about the Proposed Action, and receiving comments from the public. Information received during the early outreach period was considered in preparing the EA.

NSWC circulated the Draft EA for public review from January 22, 2018 to February 21, 2018.

Table ES-1: Summary of Potential Impacts on Resource Areas

Resource Area: Socioeconomics			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. The continuation of training under the No Action Alternative would not increase or decrease the regional population demographics, as personnel (up to 70) are temporarily in Western Washington for a duration of time associated with the training. Training activities do not restrict transportation and shipping patterns, commercial and recreational fishing activities, or the ability of individuals to use or access recreational activities within the training study area. Right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed. Minimization measures employed during training activities limit encounters with the public during training events. Therefore, no significant impacts to socioeconomic would occur with the continuation of training under the No Action Alternative.</p>	<p>Impacts would be similar to the No Action Alternative. The difference would be the increases in the training blocks (10/year) and individual site usage (20 times/year); addition of simulated building clearance, UASs at Navy installations, and remote operated vehicles. UASs and simulated building clearance would be used away from the public. All would have similar impacts as those described in the No Action Alternative. Minimization measures for interaction with the public would be the same as described under the No Action Alternative and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed.</p> <p>The aggregate impact on socioeconomic and recreation resources would not observably differ from current conditions, and impacts are negligible.</p> <p>Therefore, no significant impacts on socioeconomic would occur with implementation of Alternative 1.</p>	<p>Impacts would be similar to Alternative 1. The difference is the addition of training in Regions 2 and 3 (three training blocks every other year), individual site usage in Region 2 and 3 (3 times/every other year each); and in Region 2 - UAS training at R6701 and high-angle climbing at Deception Pass State Park. All would have similar impacts as those described in Alternative 1. Minimization measures for interaction with the public would be the same as described under Alternative 1 and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed.</p> <p>The aggregate impact on socioeconomic and recreation resources would not observably differ from current conditions, and impacts are negligible.</p> <p>Therefore, no significant impacts on socioeconomic would occur with implementation of Alternative 2.</p>	<p>Impacts would be similar to Alternative 2. The difference is the increase of personnel (up to 84) and in Region 1 the training blocks (6/year) and individual site usage (36 times/year) would increase. All would have similar impacts as those described in Alternative 2. Minimization measures for interaction with the public would be the same as described under Alternative 1 and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed.</p> <p>The aggregate impact on socioeconomic and recreation resources would not observably differ from current conditions, and impacts are negligible.</p> <p>Therefore, no significant impacts on socioeconomic would occur with implementation of Alternative 3.</p>

Table ES-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Cultural Resources			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. The proposed training activities would continue to be non-invasive in nature, trainees intending to leave no trace of their presence during or after training activities.</p> <p>Where applicable, training would continue to follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with the continuation of training under the No Action Alternative.</p>	<p>The increase in proposed training blocks and locations in Region 1 would result in the same parameters, considerations, and impacts as the No Action Alternative. The proposed training would be non-invasive in nature and would follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with implementation of Alternative 1.</p>	<p>The increase in proposed training blocks and locations in Region 1, 2, and 3 would result in the same parameters, considerations, and impacts as Alternative 1. The proposed training would be non-invasive in nature and would follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with implementation of Alternative 2.</p>	<p>The increase in proposed training blocks in Region 1 would result in the same parameters, considerations, and impacts as Alternative 2. The proposed training would be non-invasive in nature and would follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with implementation of Alternative 3.</p>

Table ES-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Biological Resources			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area.</p> <p>As described in the NWTTC EIS/OEIS, NWTRC EIS/OEIS, and Categorical Exclusion documentation, the non-invasive nature of the naval special operations training activities (no live-fire, no digging, no cutting of vegetation, no fires, no human waste, etc.) would not impact terrestrial and marine biological resources.</p> <p>Therefore, the continuation of training under the No Action Alternative may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p>	<p>Proposed training activities and the associated disturbances would have minimal effects on terrestrial and marine biological resources because of the short duration, infrequency of occurrence, and low intensity of the proposed training activities.</p> <p>The Navy has determined the training activities under Alternative 1 may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p> <p>Impacts from the activities under Alternative 1 would not result in a significant adverse effect on migratory bird populations. In accordance with BGEPA, no eagles would be taken by the proposed training activities, nor would the activities limit use of nesting locations in the future.</p> <p>No take, as defined by the MMPA, of marine mammals would occur. There would be no adverse effect on Essential Fish Habitat (EFH) under Alternative 1.</p> <p>Therefore, no significant impacts on biological resources would occur with implementation of Alternative 1.</p>	<p>The types of impacts would be the same as under Alternative 1, even with the additional biological resources present in Regions 2 and 3.</p> <p>As with Alternative 1, the Navy has determined the training activities under Alternative 2 may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p> <p>Impacts from the activities under Alternative 2 would not result in a significant adverse effect on migratory bird populations. In accordance with BGEPA, no eagles would be taken by the proposed training activities, nor would the activities limit use of nesting locations in the future.</p> <p>No take, as defined by the MMPA, of marine mammals would occur. There would be no adverse effect on EFH under Alternative 2.</p> <p>Therefore, no significant impacts on biological resources would occur with implementation of Alternative 2.</p>	<p>The types of impacts would be the same as under Alternative 2, with an increase in tempo of training activities in Region 1.</p> <p>As with Alternatives 2, Alternative 3 may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p> <p>The potential impacts on MBTA-protected species, eagles protected under BGEPA, MMPA-protected marine mammals, and EFH would be the same under Alternative 3 as with Alternative 2.</p> <p>Therefore, no significant impacts on biological resources would occur with implementation of Alternative 3.</p>

Table ES-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Public Health and Safety			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area.</p> <p>Navy policy requires that training activities ensure the safety and health of personnel and the public. Under the No Action Alternative, trainees do not carry loaded weapons or explosives during training events. All personnel transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. Unmanned Aircraft Systems (UAS) carry non-hazardous payloads and are operated within Federal Aviation Administration (FAA) safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors are conducted in accordance with real estate agreements and approvals. A safety buffer is established around maritime training areas, and the NSWC dedicates a vehicle for emergency response during training events.</p> <p>Therefore, no significant impacts on public health and safety would occur with the continuation of training under the No Action Alternative.</p>	<p>The same safety parameters, considerations, and impacts as the No Action Alternative would take place. Navy policy requires that training activities ensure the safety and health of personnel and the public. Trainees would not carry loaded weapons or explosives during training events. All personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. UAS would carry non-hazardous payloads and be operated within FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors would be conducted in accordance with real estate agreements and approvals. A safety buffer would be established around maritime training areas, and NSWC would have a vehicle dedicated for emergency response during training events. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 1.</p>	<p>The same parameters, considerations, and impacts as Alternative 1 would take place under Alternative 2, but with the additional locations of Regions 2 and 3.</p> <p>Navy policy requires that training activities ensure the safety and health of personnel and the public. Trainees would not carry loaded weapons or explosives during training events. All personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. UAS would carry non-hazardous payloads and be operated within FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors would be conducted in accordance with real estate agreements and approvals. A safety buffer would be established around maritime training areas, and NSWC would have a vehicle dedicated for emergency response during training events. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 2.</p> <p>Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 2.</p>	<p>The same parameters, considerations, and impacts as Alternative 2 would take place under Alternative 3, with an increased training tempo in Region 1.</p> <p>Navy policy requires that training activities ensure the safety and health of personnel and the public. Trainees would not carry loaded weapons or explosives during training events. All personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. UAS would carry non-hazardous payloads and be operated within FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors would be conducted in accordance with real estate agreements and approvals. A safety buffer would be established around maritime training areas, and NSWC would have a vehicle dedicated for emergency response during training events.</p> <p>Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 3.</p>

Table ES-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Air Quality			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would be below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality would occur with the continuation of training under the No Action Alternative.</p>	<p>The same considerations and impacts as the No Action Alternative would take place. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would be below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality or air resources would occur with implementation of Alternative 1.</p>	<p>Alternative 2 would be the same as Alternative 1, with emissions dispersed throughout Regions 1, 2, and 3. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would remain below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality or air resources would occur with implementation of Alternative 2.</p>	<p>Alternative 3 would be the same as Alternative 2, with an increase in emissions due to the increased tempo of training in Region 1. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would remain below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality or air resources would occur with implementation of Alternative 3.</p>

Table ES-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Noise			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. Training events would continue to be performed with the training objective that the activities be undetected. Independent of location, the amount of noise created by these activities would likely be similar to ambient noise levels or, if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts on the noise environment would occur with continuation of training under the No Action Alternative.</p>	<p>The increase in tempo and location proposed in Region 1 under Alternative 1 would result in the same parameters, consideration and impacts as presented under the No Action Alternative. The amount of noise created would be similar to ambient noise levels, or if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts to the noise environment would occur with implementation of Alternative 1.</p>	<p>The increase in tempo and location proposed in Regions 1, 2, and 3 under Alternative 2 would result in the same parameters, considerations, and impacts as Alternative 1. The amount of noise created would be similar to ambient noise levels, or if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 2.</p>	<p>The increase in tempo proposed in Regions 1 under Alternative 3 would result in the same parameters, considerations, and impacts as Alternative 2. The amount of noise created would be similar to ambient noise levels, or if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 3.</p>

Notes: BGEPA = Bald and Golden Eagle Protection Act, EFH =Essential Fish Habitat, ESA = Endangered Species Act, FAA = Federal Aviation Administration; MBTA=Migratory Bird Treaty Act, MMPA=Marine Mammal Protection Act, NWTTS EIS/OEIS=Northwest Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement, NWTRC=Northwest Training Range Complex, UAS = Unmanned Aircraft System, U.S. = United States

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Environmental Assessment

Naval Special Operations Training in Western Washington State

TABLE OF CONTENTS

1	PURPOSE AND NEED FOR THE PROPOSED ACTION	1-1
1.1	Introduction	1-1
1.2	Background	1-2
1.3	Proposed Training Location	1-3
1.4	Purpose of and Need for the Proposed Action	1-4
1.5	Scope of Environmental Analysis	1-4
1.6	Key Documents	1-6
1.7	Public and Agency Participation and Intergovernmental Coordination	1-7
2	DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES.....	2-1
2.1	Proposed Action.....	2-1
2.1.1	Training Activities	2-2
2.1.1.1	Water-Based Training	2-3
2.1.1.2	Land-Based Training Activities.....	2-4
2.1.1.3	Unmanned Aircraft Systems Training Activities	2-5
2.1.2	Training Sites.....	2-6
2.1.3	Training Equipment	2-6
2.2	Training Area Screening Factors	2-7
2.3	Alternatives Development and Alternatives Carried Forward for Analysis	2-9
2.3.1	No Action Alternative	2-9
2.3.2	Alternative 1 – Region 1 Training	2-11
2.3.3	Alternative 2 – Region 1, 2, and 3 Training.....	2-11
2.3.4	Alternative 3 (Preferred Alternative) – Region 1, 2, and 3 with an Increased Training Tempo	2-11
2.3.5	Best Management Practices and Standard Operating Procedures	2-12
2.4	Alternatives Considered but not Carried Forward for Detailed Analysis.....	2-16
2.4.1	United States Coast Guard Base Kodiak Island, Alaska	2-16
2.4.2	San Francisco Bay Area, California.....	2-17
2.4.3	Newport, Rhode Island	2-17
3	AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	3-1
3.1	Socioeconomics.....	3.1-1
3.1.1	Regulatory Setting	3.1-1

3.1.2	Affected Environment.....	3.1-1
3.1.2.1	Transportation and Shipping	3.1-1
3.1.2.2	Commercial and Recreational Fishing	3.1-2
3.1.2.3	Fishing Communities	3.1-3
3.1.2.4	Recreation.....	3.1-3
3.1.2.5	Tourism	3.1-4
3.1.3	Environmental Consequences	3.1-4
3.1.3.1	No Action Alternative	3.1-4
3.1.3.2	Alternative 1	3.1-5
3.1.3.3	Alternative 2	3.1-6
3.1.3.4	Alternative 3 (Preferred Alternative).....	3.1-7
3.2	Cultural Resources	3.2-1
3.2.1	Regulatory Setting	3.2-1
3.2.2	Affected Environment.....	3.2-1
3.2.2.1	Archaeological Resources	3.2-3
3.2.2.2	Architectural Resources.....	3.2-6
3.2.2.3	Traditional Cultural Properties	3.2-12
3.2.3	Environmental Consequences	3.2-13
3.2.3.1	No Action Alternative	3.2-13
3.2.3.2	Alternative 1	3.2-14
3.2.3.3	Alternative 2	3.2-15
3.2.3.4	Alternative 3 (Preferred Alternative).....	3.2-16
3.3	Biological Resources.....	3.3-1
3.3.1	Regulatory Setting	3.3-1
3.3.1.1	Endangered Species Act.....	3.3-1
3.3.1.2	Marine Mammal Protection Act.....	3.3-1
3.3.1.3	Migratory Bird Treaty Act	3.3-1
3.3.1.4	Bald and Golden Eagle Protection Act.....	3.3-2
3.3.1.5	Magnuson-Stevens Fishery Conservation and Management Act.....	3.3-2
3.3.2	Affected Environment.....	3.3-2
3.3.2.1	Terrestrial Biological Resources.....	3.3-2
3.3.2.2	Aquatic Biological Resources	3.3-4
3.3.2.3	Special Status Species	3.3-11

3.3.3	Environmental Consequences	3.3-37
3.3.3.1	No Action Alternative	3.3-39
3.3.3.2	Alternative 1	3.3-40
3.3.3.3	Alternative 2	3.3-51
3.3.3.4	Alternative 3 (Preferred Alternative).....	3.3-58
3.4	Public Health and Safety	3.4-1
3.4.1	Regulatory Setting	3.4-1
3.4.2	Affected Environment.....	3.4-2
3.4.3	Environmental Consequences	3.4-2
3.4.3.1	No Action Alternative	3.4-3
3.4.3.2	Alternative 1	3.4-5
3.4.3.3	Alternative 2	3.4-6
3.4.3.4	Alternative 3 (Preferred Alternative).....	3.4-7
3.5	Air Quality	3.5-1
3.5.1	Introduction	3.5-1
3.5.1.1	Hazardous Air Pollutants	3.5-5
3.5.1.2	General Conformity Evaluation	3.5-5
3.5.1.3	Climate Change.....	3.5-6
3.5.2	Existing Air Quality.....	3.5-8
3.5.3	Environmental Consequences	3.5-10
3.5.3.1	No Action Alternative	3.5-10
3.5.3.2	Alternative 1	3.5-11
3.5.3.3	Alternative 2	3.5-12
3.5.3.4	Alternative 3 (Preferred Alternative).....	3.5-13
3.6	Noise	3.6-1
3.6.1	Basics of Sound and A-weighted Sound Level	3.6-1
3.6.2	Affected Environment.....	3.6-1
3.6.2.1	Sensitive Receptors.....	3.6-1
3.6.2.2	Ambient Noise Conditions	3.6-2
3.6.3	Environmental Consequences	3.6-2
3.6.3.1	No Action Alternative	3.6-3
3.6.3.2	Alternative 1	3.6-3
3.6.3.3	Alternative 2	3.6-4
3.6.3.4	Alternative 3 (Preferred Alternative).....	3.6-5

3.7	Summary of Potential Impacts to Resources	3.7-1
4	CUMULATIVE IMPACTS	4-1
4.1	Definition of Cumulative Impacts	4-1
4.2	Scope of Cumulative Impacts Analysis.....	4-2
4.3	Past, Present, and Reasonably Foreseeable Actions	4-2
4.3.1	Other Ongoing Activities.....	4-8
4.3.1.1	Coastal and Marine Spatial Planning	4-8
4.3.1.2	Coastal Land Development and Tourism.....	4-9
4.3.1.3	Commercial and Recreational Fishing	4-9
4.3.1.4	Maritime Traffic.....	4-10
4.3.1.5	Ocean Pollution	4-10
4.3.1.6	Academic Research.....	4-10
4.4	Cumulative Impact Analysis	4-11
4.4.1	Socioeconomics	4-11
4.4.1.1	Description of Geographic Study Area.....	4-11
4.4.1.2	Relevant Past, Present, and Future Actions.....	4-11
4.4.1.3	Cumulative Impact Analysis.....	4-11
4.4.2	Cultural Resources	4-11
4.4.2.1	Description of Geographic Study Area.....	4-11
4.4.2.2	Relevant Past, Present, and Future Actions.....	4-11
4.4.2.3	Cumulative Impact Analysis.....	4-12
4.4.3	Biological Resources	4-12
4.4.3.1	Description of Geographic Study Area.....	4-12
4.4.3.2	Relevant Past, Present, and Future Actions.....	4-12
4.4.3.3	Cumulative Impact Analysis.....	4-12
4.4.4	Public Health and Safety	4-14
4.4.4.1	Description of Geographic Study Area.....	4-14
4.4.4.2	Relevant Past, Present, and Future Actions.....	4-14
4.4.4.3	Cumulative Impact Analysis.....	4-15
4.4.5	Air Quality	4-15
4.4.5.1	Description of Geographic Study Area.....	4-15
4.4.5.2	Relevant Past, Present, and Future Actions.....	4-15
4.4.5.3	Cumulative Impact Analysis.....	4-15
4.4.6	Noise	4-15

	4.4.6.1	Description of Geographic Study Area.....	4-15
	4.4.6.2	Relevant Past, Present, and Future Actions.....	4-16
	4.4.6.3	Cumulative Impact Analysis.....	4-16
5		OTHER CONSIDERATIONS REQUIRED BY NEPA	5-1
	5.1	Consistency with Other Federal, State, and Local Laws, Plans, Policies and Requisitions ..	5-1
	5.1.1	Coastal Zone Management Act	5-3
	5.1.2	American Indian Traditional Resources.....	5-3
	5.2	Irreversible or Irretrievable Commitments of Resources	5-4
	5.3	Relationship between Short-Term Use of the Environment and Long-Term Productivity.	5-5
6		REFERENCES	6-1
7		LIST OF PREPARERS	7-1
8		DISTRIBUTION LIST.....	8-1

List of Figures

1 Purpose and Need for the Proposed Action

Figure 1-1: Examples of Different Construction Environments 1-3

Figure 1-2: Training Study Area..... 1-5

2 Description of Proposed Action and Alternatives

There are no figures in this chapter.

3 Affected Environment and Environmental Consequences

There are no figures in this chapter.

3.1 Socioeconomics

There are no figures in this section.

3.2 Cultural Resources

There are no figures in this section.

3.3 Biological Resources

There are no figures in this section.

3.4 Public Health and Safety

There are no figures in this section.

3.5 Air Quality

There are no figures in this section.

3.6 Noise

Figure 3.6-1: A-Weighted Sound Levels from Typical Sources..... 3.6-2

3.7 Summary of Potential Impacts to Resources

There are no figures in this section.

4 Cumulative Impacts

There are no figures in this chapter.

5 Other Considerations Required By NEPA

There are no figures in this chapter.

6 References

There are no figures in this chapter.

7 List of Preparers

There are no figures in this chapter.

8 Distribution List

There are no figures in this chapter.

List of Tables

1 Purpose and Need for the Proposed Action

There are no tables in this chapter.

2 Description of Proposed Action and Alternatives

Table 2-1: Current and Proposed Equipment for Naval Special Operations Training2-6

Table 2-2: Proposed Training Activities by Alternative.....2-10

Table 2-3: Proposed Number of Training Blocks and Maximum Potential Site Usage by Alternative2-10

Table 2-4: Best Management Practices for Naval Special Operations Training.....2-13

Table 2-5: Relevant Range Operations Procedures for NAVSEA NUWC Keyport Range Complex2-14

3 Affected Environment and Environmental Consequences

There are no tables in this chapter.

3.1 Socioeconomics

There are no tables in this section.

3.2 Cultural Resources

Table 3.2-1: NRHP Listed/Eligible Archaeological Sites in the Region 2 Training Area.....3.2-5

Table 3.2-2: NRHP Listed/Eligible Archaeological Sites/Shipwrecks in the Region 3 Training Area3.2-6

Table 3.2-3: NRHP Listed/Eligible Buildings and Structures in the Region 2 Training Area3.2-8

Table 3.2-4: NRHP Listed/Eligible Buildings and Structures in the Region 3 Training Area3.2-12

3.3 Biological Resources

Table 3.3-1: Threatened and Endangered Species Known to Occur or Potentially Occurring in the Training Study Area and Critical Habitat Present in Training Study Area3.3-12

3.4 Public Health and Safety

There are no tables in this section.

3.5 Air Quality

Table 3.5-1: Ambient Air Quality Standards in Washington State.....3.5-3

Table 3.5-2: General Conformity *De Minimis* Levels.....3.5-6

Table 3.5-3: Emissions Inventory of Air Quality Control Regions within the Training Study Area (2014)	3.5-9
Table 3.5-4: Annual Emissions under the No Action Alternative	3.5-10
Table 3.5-5: Annual Emissions under Alternative 1	3.5-11
Table 3.5-6: Annual Emissions under Alternative 2	3.5-12
Table 3.5-7: Annual Emissions under Alternative 3	3.5-13

3.6 Noise

There are no tables in this section.

3.7 Summary of Potential Impacts to Resources

Table 3.7-1: Summary of Potential Impacts on Resource Areas	3.7-2
---	-------

4 Cumulative Impacts

Table 4-1: Cumulative Action Evaluation	4-3
---	-----

5 Other Considerations Required By NEPA

Table 5-1: Executive Orders and Principal Federal and State Laws Applicable to the Proposed Action	5-1
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6 References

There are no tables in this chapter.

7 List of Preparers

There are no tables in this chapter.

8 Distribution List

There are no tables in this chapter.

Appendices

Appendix A Biological Assessment for Naval Special Operations Training in Western Washington State

Appendix B Correspondence for Naval Special Operations Training in Western Washington State

Acronyms and Abbreviations

Acronym	Definition	Acronym	Definition
$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter	DE	Determined Eligible
ac.	Acre(s)	DNL	Day-Night Level
ACQR	Air Quality Control Region	DNR	Department of Natural Resources
AIRSTA	Air Station	DoD	Department of Defense
APE	Area of Potential Effect	DPS	Distinct Population Segment
ATC	Air Traffic Control	DPSPHD	Deception Pass State Park Historic District
BGEPA	Bald and Golden Eagle Protection Act	EA	Environmental Assessment
BMP	Best Management Practice	EFH	Essential Fish Habitat
BP	Before Present	EIS	Environmental Impact Statement
CDHD	Cape Disappointment Historic District	EO	Executive Order
CAA	Clean Air Act	ESA	Endangered Species Act
CATEX	Categorical Exclusion	ESU	Evolutionary Significant Unit
CEQ	Council on Environmental Quality	FAA	Federal Aviation Administration
CFR	Code of Federal Regulations	FR	Federal Register
CO	Carbon Monoxide	ft.	Foot/feet
CO ₂	Carbon Dioxide	ft. ²	Square feet
CO ₂ e	Carbon Dioxide equivalent	FY	Fiscal Year
COMNAVREGNW	Commander, Navy Region Northwest	GHG	Greenhouse Gas
CP	Chinook Point	HAP	Hazardous Air Pollutant
CRRC	Combat Rubber Reconnaissance Craft	Hz	Hertz
CWIHD	Central Whidbey Island Historic District	IHA	Incidental Harassment Authorization
D/S	Diver/Swimmer	in.	Inch(es)
DAHP	Department of Archaeology and Historic Preservation	km	Kilometer(s)
dB	Decibel(s)	km ²	Square kilometer(s)
dBA	A-Weighted Decibel(s)	L _{eq}	Equivalent Sound Level
		L _{max}	Maximum A-Weighted Sound

Acronym	Definition	Acronym	Definition
	Level		Fisheries Service
LWD	Large Woody Debris	NO ₂	Nitrogen Dioxide
MBTA	Migratory Bird Treaty Act	NOAA	National Oceanic and Atmospheric Administration
MEM	Military Expended Material	NOTAM	Notice to Airmen
mi.	Mile(s)	NOTMAR	Notice to Mariners
mi. ²	Square mile(s)	NO _x	Nitrogen Oxide
MMA	Mission Maritime Aircraft	NRHP	National Register of Historic Places
MMPA	Marine Mammal Protection Act	NSW	Naval Special Warfare
MOA	Military Operations Area	NSWC	Naval Special Warfare Command
mph	Miles per hour	NUWC	Naval Undersea Warfare Center
MSAT	Mobile Source Air Toxic	NWIFC	Northwest Indian Fisheries Commission
NAAQS	National Ambient Air Quality Standards	NWTRC	Northwest Training Range Complex
NAGPRA	Native American Graves Protection and Repatriation Act	NWTT	Northwest Training and Testing
NAS	Naval Air Station	OEIS	Overseas Environmental Impact Statement
NAVBASE	Naval Base		
NAVMAG	Naval Magazine	OPAREA	Operating Area
NAVSTA	Naval Station	Pb	Lead
Navy	United States Department of the Navy	PCE	Primary Constituent Element
NCO	Noncommissioned Officers	PM _{2.5}	Particulate matter less than or equal to 2.5 microns in diameter
NEPA	National Environmental Policy Act	PM ₁₀	Particulate matter less than or equal to 10 microns in diameter
NHL	National Historic Landmark		
NHPA	National Historic Preservation Act	ppm	Parts per million
NIPTS	Noise Induced Permanent Threshold Shift	PSD	Prevention of Significant Deterioration
NM	Nautical Mile(s)	R	Restricted Area
NMFS	National Marine	ROD	Record of Decision
		ROI	Region of Influence

Acronym	Definition	Acronym	Definition
ROV	Remote Operated Vehicle	U.S.	United States
SBHD	Seaplane Base Historic District	U.S.C.	United States Code
SECNAVINST	Secretary of the Navy Instruction	UAS	Unmanned Aircraft System
SFO	Sector Field Office	USCG	U.S. Coast Guard
SHPO	State Historic Preservation Office	USEPA	U.S. Environmental Protection Agency
SIP	State Implementation Plan	USSOCOM	U.S. Special Operations Command
SO ₂	Sulfur Dioxide	USFWS	U.S. Fish and Wildlife Service
SPBHD	Seaplane Base Historic District	UUV	Unmanned Underwater Vehicle
TCP	Traditional Cultural Property	VAQ	Electronic Attack Squadron
tpy	Tons per year	VHHD	Victory Homes Historic District
µg/m ³	Micrograms per cubic meter	VOC	Volatile Organic Compound
U&A	Usual and Accustomed	WWII	World War II

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1 Purpose and Need for the Proposed Action

1.1 Introduction

The United States (U.S.) Naval Special Warfare Command (NSWC) proposes to conduct small-unit intermediate and advanced land and cold-water maritime training activities for naval special operations personnel. U.S. Naval Special Warfare Command is the U.S. Navy's special operations force and the maritime component of the U.S. Special Operations Command (USSOCOM). The proposed training activities consist of training by naval special operations personnel with occasional integration of other USSOCOM components, including United States Army Special Operations Command, Marine Corps Special Operations Command, Air Force Special Operations Command, and Joint Special Operations Command. The occasional integration of other USSOCOM components would occur only with NSWC-led training. The proposed training would occur on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. The NSWC has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), as implemented by Council on Environmental Quality (CEQ) and Navy regulations.

The intent of the proposed training is to build trainees' skills, experience, and confidence by challenging them in a location with dynamic weather and land/cold-water conditions. As part of the rigorous training, the trainees learn skills needed to avoid detection along with the goal of leaving no trace of their presence during or after training activities. Proposed training activities broadly fit into two categories: water-based training and land-based training. Water-based training generally includes naval special operations personnel diving/swimming, launching/recovering small vehicles designed to operate underwater (submersible) as discreet activities, or in combination. Water-based training may also incorporate inserting and extracting naval special operations personnel and/or equipment using watercraft as part of a training event and prior to performing a land-based training component. Land-based training would include personnel transiting over the beach on foot, simulating building clearance activities using simulated munitions in a few selected sites, high angle climbing would occur at Deception Pass State Park, and using observation techniques in a pre-arranged scenario (special reconnaissance operations). Naval special operations training would include the use of unmanned aircraft systems during no more than 10 percent of the time training is taking place. Section 2.1.1 (Training Activities) of the EA provides greater detail on the proposed training activities. The Proposed Action would not include the use of live-fire ammunition, explosive demolitions, off-road driving, manned air operations, digging, vegetation cutting or removal, tree climbing, or the building of campfires or infrastructure.

The proposed training in western Washington State would involve naval special operations trainees and support personnel for each training block. Naval special operations personnel would travel from their home-based areas to western Washington State to conduct cold-water maritime and land-based training. During a training block, trainees would conduct a variety of activities supporting training requirements. Training would occur on an as-needed basis up to six training blocks a year, depending on the alternative selected. Training would occur on both federal and non-federal properties within western Washington State. As the trainees progress in their training, subsequent training requirements are identified and scheduled, sites included in this EA would be selected based on the type of training to be conducted, ability of a site to support and facilitate the training, and pending receipt of real estate agreements/right-of-entry permits. For example, some locations would not be used for training during certain times of the year when weather, currents, scheduled public events or protected species concerns are present. Other sites may not be used at all during a given year and still yet, other sites may

be used intermittently throughout a year. The size of the study area allows for this flexibility which also helps to prevent overuse. Site selection is also based on the availability of a site at the time the training would be scheduled to occur. Support staff would typically visit a site prior to the training event to ensure there is minimal public in the area; if the public is present, the safety support personnel will assess the situation and, based upon safety considerations of all, they will either not start the training, continue the training, temporarily suspend the training, completely stop the training, or relocate the training to another approved training site.

This EA also supports Naval Facilities Engineering Command Northwest obtaining appropriate real-estate agreements or right-of-entry permits, on behalf of NSWC, for the proposed training areas located off federal property. No training would occur on non-federal property until the required real estate agreement or right of entry permit is obtained. For safety and coordination purposes, land managers of public property and owners of private property, where training has been authorized, would typically be contacted 24 hours in advance of training. Local law enforcement personnel would also be contacted for safety purposes. Naval Facilities Engineering Command Northwest will coordinate any required real estate agreements/right-of-entry permits.

1.2 Background

Naval special operations personnel have been training in certain areas of the Pacific Northwest for decades. Western Washington State is considered by NSWC as an important training location due to the Puget Sound, including Hood Canal, and the southwestern Washington coast offering unique hydrographic and bathymetric conditions, which create opportunities for realistic and challenging special operations training in a safe, sheltered, cold-water environment. The presence of other Navy forces in western Washington State affords superior logistics to support and secure the necessary equipment employed during training activities and enables a high degree of safety due to the proximity of critical Navy facilities.

The potential environmental impacts of water-based naval special operations training activities conducted at the unit level within offshore (coastal) and inland waters were evaluated in the 2015 Northwest Training and Testing (NWTT) Final Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS), dated October 2015, and Record of Decision signed on October 31, 2016. The NWTT Final EIS/OEIS included water-based training activities that did not have a land-based component. Additionally, NWTT only provided environmental coverage for Naval Special Warfare “Personnel Insertion/Extraction-Submersible” at five locations and it did not include activities inside the 3 NM limit from Westport to the Columbia river. The 2010 Northwest Training Range Complex (NWTRC), and Record of Decision signed on October 10, 2010, evaluated “NSW (Naval Special Warfare) Training” from Port Townsend marina to Naval Magazine Indian Island. This training was twice a year for up to three weeks. It included land-based activities (over the beach and special reconnaissance) and limited water-based activities (launch and recovery from Port Townsend, Insertion and Extraction and Diver/Simmer). The NWTT and the NWTRC EIS/OEISs do not cover the full range of activities, locations, and duration needed, or provide the diversity required of naval special operations personnel. This EA will supersede the same Naval Special Warfare activities (“Personnel Insertion/Extraction-Submersible” and “NSW Training”) identified in the NWTT EIS/OEIS and NWTRC EIS/OEIS, respectively.

Naval special operations personnel need the flexibility to conduct training that incorporates both land-based and cold-water-based training activities. This EA addresses cold water and land-based naval special operations training, which have associated real estate agreements or right-of-entry permit access requirements. Real estate, or right of entry requirements, would not typically be required for

activities conducted exclusively within coastal or federal waters, such as insertion/extraction and diver/swimmer activities.

Current naval special operations training activities have occurred within public, private, and federal property in western Washington State and have been limited to individual events at a select number of sites. Prior to these training activities occurring, these sites were reviewed under NEPA and found to qualify for a categorical exclusion under Navy regulation. No training occurs without prior permission from the landowner and completion of the NEPA process. NSWC has determined that the current selection of sites is not sufficiently varied and diverse to support long-term training requirements.

Naval special operations training needs to be conducted in various environments for trainees to experience, grow, and master their skill sets before progressing to advanced training environments, and then deploying on missions. When trainees repeatedly use the same site for training, site familiarity negates the quality and value of the training being conducted. NSWC recognizes the need for relevant training and experience to adequately prepare personnel for world-wide deployments. This includes training in realistic environments. Military construction on bases looks and is different than construction found in the outside world (Figure 1-1). Because the nature of naval special operations requires them to operate world-wide, often times off military installations, it is imperative that their training provides this diversity and replicates real world environments.



Figure 1-1: Examples of Different Construction Environments

1.3 Proposed Training Location

To facilitate naval special operations training in a variety of environments, proposed training areas have been identified in western Washington State for cold-water and land-based training. The training study area is located in the Puget Sound, including Hood Canal, and the southwestern Washington coast. Three general regions are contained within the training study area: Region 1, an area within one hour of Keyport; Region 2, an area around Whidbey Island, and Region 3, an area along the Pacific Coast. Training activities would occur on Navy installations, state parks, public properties, and private properties if appropriate approvals are granted. Training locations would vary due to seasonal weather conditions, public presence at sites, protected species considerations, training qualifications to be satisfied, and training requirements. If selecting a particular non-federal site for a potential training event, communication with individual public property managers or private property owners would be conducted as appropriate to establish or confirm real estate agreements to allow for training activities to be conducted.

Having a varied selection of sites in an expansive area provides trainers with flexibility to select increasingly complex and challenging locations in order to meet training requirements. Additionally, a wider selection of training sites minimizes the potential for overuse of the areas. This also limits impacts to any one location and allows for maintaining the natural habitat. Training value can be degraded when

the same activities are routinely conducted using the same sites. Figure 1-2 shows the training study area and associated regions.

1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to support intermediate and advanced small-unit activities of naval special operations training, with the progression of training in increasingly complex maritime and land environments, focusing on the training progression in a cold-water environment that is appropriate for training in any season. The training would involve activities of personnel to further develop and sustain a set of skills in the maritime and land aspects of Navy special operations in a cold water environment. The Proposed Action would support meeting the requirements of 10 United States Code (U.S.C.) section 167 for the Commander, U.S. Special Operations Command to provide combat-ready, forward deployed forces.

The skills needed to achieve peak military readiness for special operations are challenging to master and difficult to maintain without constant practice. Therefore, training must be diverse, and as realistic as possible in order to prepare U.S. service members to successfully accomplish future missions and ensure their success and survival. Current cold-water naval special operations training being conducted in western Washington State does not provide sufficiently varied and diverse training locations or physical environmental features, and lacks elements of unpredictability and unfamiliarity, both of which are essential to prepare personnel for more advanced training environments and real-world combat operations in support of U.S. interests.

Having a varied selection of federal, public, and private property sites in an extensive area would provide trainers with diversity and flexibility in selecting increasingly complex and challenging sites in order to meet unique individual and group training requirements. This additional diversity and flexibility in training locations would ensure that training requirements could be satisfied, even if a selected training site is not available at a scheduled time (e.g., due to weather conditions, large number of public in the area, or protected species considerations). The ability to select from a diverse set of non-military sites would also introduce the critical elements of unpredictability and unfamiliarity, helping to further prepare naval special operations trainees for real-world combat scenarios.

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the action alternatives and the No Action Alternative. The environmental resource areas analyzed in this EA include socioeconomics (including recreation and tourism), cultural resources, biological resources, public health and safety, air quality, and noise. The training study area for each resource analyzed may differ due to how the Proposed Action potentially interacts with or impacts the resource.

Title 10, U.S.C., section 167 assigns U.S. Special Operations Command, a unified combatant command, responsibility to prepare combat ready, forward-deployed special operations forces to carry out assigned missions. Per USSOCOM Directive 10-1cc, U.S. Special Operations Command has designated Commander, NSWC, the Navy component command of U.S. Special Operations Command, as the Lead Component for maritime training. Per Chief of Naval Operations Instruction 5450.221D, the mission of NSWC is to "organize, train, man, equip, educate, sustain, maintain combat readiness, and deploy" special operations forces. The Proposed Action meets the requirements of 10 U.S.C. 167 and NSWC's mission of providing combat-ready special operations forces.

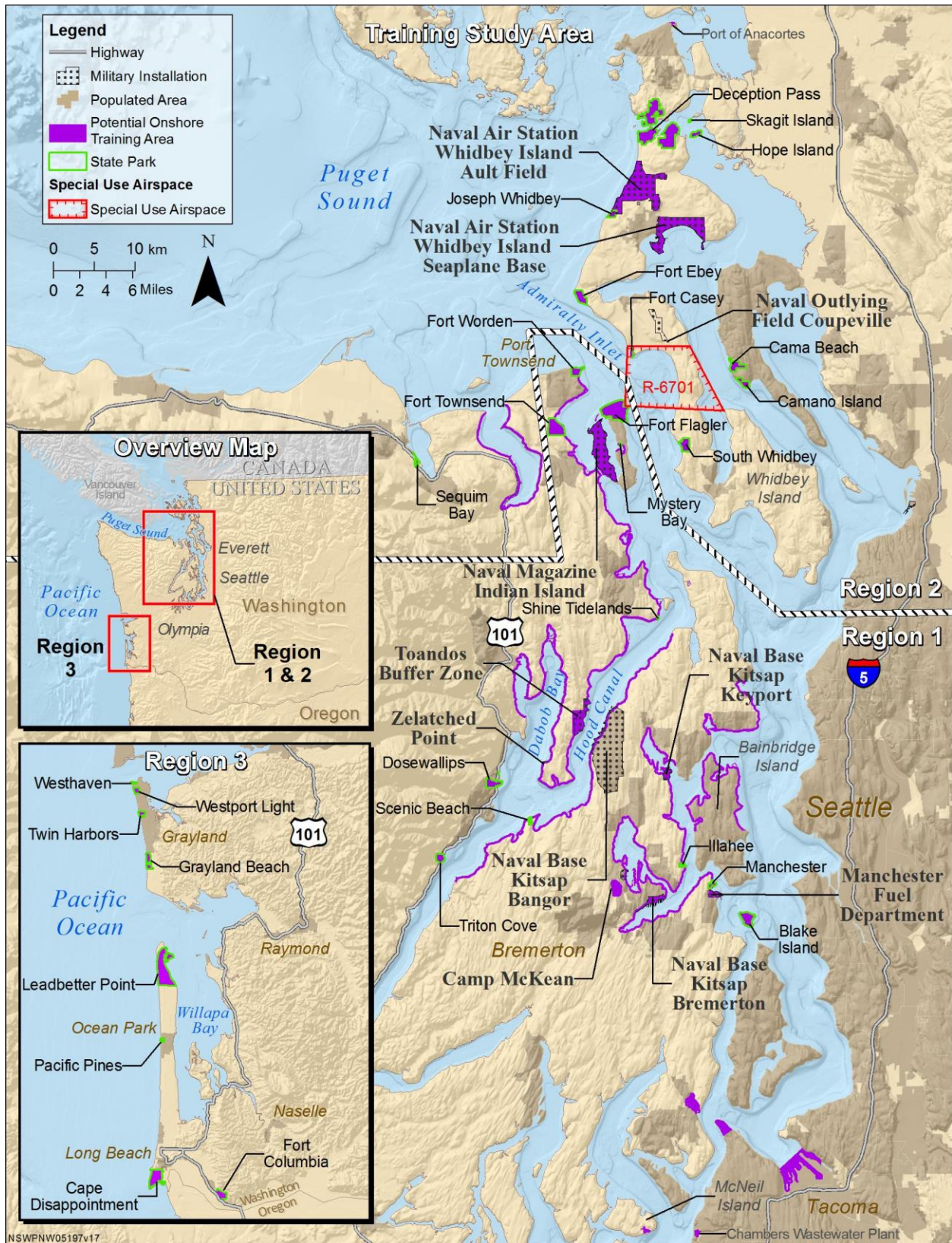


Figure 1-2: Training Study Area

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- NWTRC EIS/OEIS, October 2010. The NWTRC EIS/OEIS detailed actions to support current, emerging, and future training, as well as research, development, test, and evaluation activities within the NWTRC, including implementation of range enhancements. These actions included increasing the number of training activities, operating air and surface target services for locally based units, developing additional electronic threat signal simulators, and developing a small-scale training minefield off the coast of Washington. The naval special operations training that was analyzed in the EIS/OEIS is similar to what is proposed in this EA and included “NSW (Naval Special Warfare) Training” from Port Townsend marina to Naval Magazine Indian Island. This training was twice a year for up to three weeks. It included land-based activities (over the beach and special reconnaissance) and limited water-based activities (launch and recovery from Port Townsend, Insertion and Extraction and Diver/Swimmer).
- NWTT EIS/OEIS, October 2015. The Navy’s Proposed Action was to conduct training and testing activities primarily within the existing NWTRC and Naval Undersea Warfare Center range complex operating areas and testing ranges located in the Pacific Northwest of the United States, to include portions of the Strait of Juan de Fuca, Puget Sound, and the Western Behm Canal in southeastern Alaska. The naval special operations training analyzed in the EIS/OEIS similar to what is proposed in this EA as “Personnel Insertion/Extraction-Submersible”. It covered the use of small submersibles in five areas (Dabob Range Complex, Keyport Range Site, Naval Magazine Indian Island, Crescent Harbor, and Navy 7 operating area), as well as the routes between these locations. The activity analysis was limited to in-water activities and did not involve a land component. The submersible proposed for use in this current EA would operate in the same five locations addressed in the NWTT EIS/OEIS, plus additional locations. The notice of intent for a supplement to the NWTT EIS/OEIS was published August 22, 2017. However, the naval special warfare activities proposed in this EA are not included in the NWTT EIS/OEIS Supplement.

Relevant Laws and Regulations

The Navy has prepared this EA based upon federal and state laws, statutes, regulations, and policies that are pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 U.S.C. sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508)
- Navy regulations for implementing NEPA (32 CFR part 775), which provides Navy policy for implementing CEQ regulations and NEPA
- Antiquities Act (16 U.S.C. sections 431–433)
- Bald and Golden Eagle Protection Act (16 U.S.C. section 668 et seq.)
- Clean Air Act (42 U.S.C. section 7401 et seq.)

- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Rivers and Harbors Act (33 U.S.C. section 407)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (16 U.S.C. section 1801 et seq.)
- Marine Mammal Protection Act (16 U.S.C. section 1361 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. section 703–712)
- Comprehensive Environmental Response and Liability Act (CERCLA) (42 U.S.C. section 9601 et seq.)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Farmland Protection Policy Act (7 U.S.C. sections 4201–4209)
- Submerged Lands Act of 1953 (43 U.S.C. sections 1301–1315)
- Sunken Military Craft Act (Public Law 108–375, 10 U.S.C. section 113 Note and 118 Stat. 2094–2098)
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13693, Planning for Federal Sustainability in the Next Decade
- EO 13783, On Promoting Energy Independence and Economic Growth

A description of the Proposed Action’s consistency with these laws, policies, and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5 (Table 5-1).

1.7 Public and Agency Participation and Intergovernmental Coordination

The CEQ regulations implementing NEPA (40 CFR part 1506.6) direct agencies to involve the public in preparing and implementing their NEPA procedures. NSWC welcomed public and agency comments during an early outreach period from April 18, 2017, through May 18, 2017. Early outreach meetings were held on May 2, 3, and 4, 2017, in Poulsbo, Port Townsend and Oak Harbor, Washington. Information received during the early outreach period was considered in preparing the EA.

NSWC published a Notice of Availability of the Draft EA for three consecutive publications in the Anacortes American, Chinook Observer, Kitsap Sun, Peninsula Daily News, and Whidbey News-Times, and for two publications in the Port Townsend and Jefferson County Leader and the Tacoma Weekly, from January 22 through February 7, 2018. The notice described the Proposed Action, solicited public comments on the Draft EA, provided dates of the public comment period, announced the public meeting locations and dates, and announced that a copy of the EA would be available for review at the following public libraries: Anacortes Public Library, Bainbridge Public Library, Gig Harbor Library, Kitsap Regional Library – Poulsbo, Oak Harbor Public Library, Port Townsend Public Library, Sequim Branch Library,

Tacoma Public Library – Main Branch, Timberland Regional Library – Ilwaco, and Timberland Regional Library – Westport. In addition, a digital copy of the EA was made available at <https://navfac.navy.mil/NSOEA>.

The Navy, on behalf of NSWC, will be consulting with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, State Office of Coastal Zone Management, and State Historic Preservation Office regarding the Preferred Alternative.

2 Description of Proposed Action and Alternatives

2.1 Proposed Action

The Naval Special Warfare Command (NSWC) proposes to conduct small-unit intermediate and advanced cold-water maritime and land training activities for naval special operations personnel in the coastal and inland waters, and adjoining shore environments of western Washington State. The proposed training would consist of:

- Diving and swimming
- Inserting and extracting trainees and/or equipment using watercraft (including submersible craft)
- Launching and recovering watercraft (including submersible craft)
- Using unmanned underwater vehicles
- Moving on foot over the beach
- Hiking to an observation point and using observation techniques on military role players while remaining hidden
- Simulated building clearance training involves clearing areas/structures using paint pellets as simulated munitions (pellets emit a splash of paint the circumference of a dime and are used only in limited locations)
- Conducting high-angle climbing (negotiating cliffs, rock faces, and other vertical challenges)
- Using small unmanned aircraft systems

Systems used during training may include unmanned aircraft systems (UAS), and submersible craft such as manned or unmanned underwater vehicles (UUV) and other personal underwater propulsion devices. Trainees may also utilize equipment such as a remote operated vehicle (ROV) which can operate on or below the surface of the water and provides the operator with real-time feedback of underwater conditions. Vessels such as small ships, jet skis, or small boats may be used in conjunction with training systems during certain training scenarios, as well as for safety and training support.

Training in western Washington State would be conducted in training blocks. A training block is defined as the 2–8 week period of time where up to 84 naval special operations trainees and support personnel (safety observers, medical support, boat drivers, vehicle drivers, evaluators, and equipment repair/maintenance support) arrive in western Washington State to participate in cold-water maritime and land-based training and ends when they leave. A training block consists of single or multiple simultaneous training events (described below) on land and in the water. During a training block, trainees and support personnel would disperse throughout the training study area (Figure 1-2); not all 84 personnel would be at one site for a training event.

A training event (a component of a training block) may consist of one or multiple training activities (e.g., launch and recovery, diver/swimmer, over the beach). During a typical training event, there would be up to eight trainees and up to 26 support personnel (or up to 34 people in total) at a training site within the training study area. In a few instances, there could be up to 14 trainees; however, total personnel would not exceed 34. Support personnel would be divided up to assist the in-water training activity and the on-land training activity. It is assumed for purposes of analysis that not all 34 personnel would be in the water or on land at any given time because they would be dispersed between the two areas. Training events are progressive in nature and would range between 2 and 72 hours depending on the activity.

The intent of the proposed training is to build trainees' skills, experience, and confidence by challenging them in a location with dynamic weather and land/cold-water conditions. As part of the rigorous training, the trainees learn skills needed to avoid detection along with the goal of leaving no trace of their presence during or after training activities. To support the intent of the training, there is no use of live fire ammunition, explosives, manned air operations, off-road driving, vegetation removal or cutting, digging, tree climbing, construction, or the building of camp fires or infrastructure. There is no requirement to assemble training devices or structures at any site. The training in and around existing military facilities or other facilities designated for simulated building clearance training activities would include the use of simulated weapons that use water-soluble paint pellets. The proposed training would occur on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast.

As specific training activities are scheduled, compatible sites within the training study area would be selected to support each training event. To sustain the highest level of training value and avoid trainee familiarity with specific sites, site selections are made to create the most challenges for the trainees and be responsive to training needs. Not all sites within the training study area would be utilized over a one-year period. Depending on the selected alternative, a site would be used no more than 3 to 36 times a year (see Table 2-2). Site selection would also consider cultural and biological resource site conditions (i.e., scheduled public events or protected species considerations).

Once in western Washington State, there is minimal travel of personnel and equipment from the staging area at Naval Base Kitsap Keyport to the individual training sites. This travel is incorporated into the overall training scenario. Personnel would utilize government and public waterways and roads, and travel may include military support vehicles towing small boats as well as the movement of safety and maintenance equipment. It could also include transportation of military personnel involved in the safety and training phases of the event. Waterborne transportation would similarly include the movement of training vessels (such as small surface support vessels or small boats from Naval Base Kitsap Keyport/Bangor/Bremerton), safety equipment, and military personnel from the staging base to the event location. Typically, submersibles are launched from boat ramps near the site where training activities are scheduled.

2.1.1 Training Activities

The training activities associated with the Proposed Action are described in detail below and broadly fit into two categories: water-based training and land-based training. Training activities can occur in the water or on the land and would occur at designated sites and facilities within a particular region (i.e., Region 1) in order to support the objectives and requirements associated with the training activity. To meet training objectives, training activities may be single, distinct events or they may be combined together sequentially. A generic example would be the submersible or small boat would launch from a boat ramp (launch and recovery), the vessels would travel to the training locations (the insertion part of insertion/extraction); trainees would exit the vessel and swim to the objective area (diver/swimmer); trainees observing the surrounding area; and, when conditions are met, proceeding ashore (over-the-beach). Once onshore, trainees would focus on observing a specific site or a specific individual who is a part of the support personnel (special reconnaissance), and upon completion of the on-land training objectives, trainees would reenter the water, swim to the extraction point (diver/swimmer), be extracted from the water (the extraction part of insertion/extraction). The vessel would then return to the boat ramp and be placed on a trailer to go back to NAVBASE Kitsap Keyport (recovery portion of launch and recovery). Trainees may utilize UAS within an authorized training area as prescribed by the

Department of Defense and the Federal Aviation Administration (FAA) to provide local surveillance over the training objective prior to and during the training action. The UAS would be retrieved as part of the activity. All events are conducted in a safe and controlled manner, are the result of extensive planning, and include specific training standards and success criteria.

2.1.1.1 Water-Based Training

Water-based training activities are identified as diver/swimmer, insertion/extraction, UUV training, and launch/recovery. In general, water-based training activities would include trainees, a training supervisor, and safety support personnel for the submersible craft or watercraft operation phases of the event. Support personnel are assigned to supervise water-based training (typically from a boat) and provide medical support if required. Supervisor and safety personnel would focus on maintaining a safety buffer around the small submersible or watercraft consistent with United States (U.S.) Coast Guard regulations, namely the USCG Navigation Rules and Regulations Handbook, and as site conditions and the surrounding environmental dictate. For example, navigation lights on a dive boat (i.e., red over white over red) or a diver down flag indicate that a dive is in progress and oncoming vessel traffic needs to keep well clear at slow speed. Dive site locations would avoid locations that experience heavy traffic patterns, such as the Washington State Ferry System routes or fishing activities. In the event maritime vessels approach an active dive site, safety personnel would utilize Channel 16 (intended for international distress, safety, and calling) to contact vessels. If an oncoming vessel does not respond, a safety boat would approach the vessel and, depending on the situation, ask it to (1) hold its position, (2) go around the dive site, (3) if necessary, be escorted by the safety boat around the dive site, or (4) divers would be recalled out of the water with the use of the recall device.

Safety buffers ensures the safety for the trainees, training vessels, and any commercial or civilian craft transiting near the event location. Other responsibilities for safety support personnel include looking out for hazards to navigation that could affect the safety of the trainees, and recalling swimmers and divers, or the small submersible, to the surface if required. If the public enters the training area, the safety support personnel will assess the situation and, based upon safety considerations of all, they will either continue the training, temporarily suspend the training, completely stop the training, or relocate the training to another approved training site.

Water-based training activities would use existing boat ramps near the selected training location to launch the training platform (small submersible vehicle, surface support craft, or small inflatable boat) into the waterway. However, some training scenarios require an ocean launch using a ship (occasionally in Region 1, typically in Regions 2 and 3). A ship launch may also occur during training activities in locations that are not served by an existing boat ramp or if weather or tidal conditions result in a safety concern regarding a boat ramp launch.

2.1.1.1.1 Diver/Swimmer Training Activities

During diver/swimmer training events, trainees swim or dive to an objective area (e.g., harbor, beach, and or moored vessel) for up to six hours. Diver/swimmer training would be confined to the ocean (Region 3), inland water areas (Region 1 and 2), and Kitsap Lake (Region 1). During night training, the trainees would use buoys marked with a glow stick (Chemlight) to identify their location to the support staff. Rubber replica weapons could be carried by trainees to reproduce the bulk and weight of the gear the trainee would carry during an actual mission.

2.1.1.1.2 Insertion and Extraction Training Activities

During insertion/extraction training events, trainees may approach or depart an objective area using submersible craft, to include UUVs and ROVs, or water crafts (jet skis or small boats). This activity trains personnel to effectively insert and extract people and equipment during the day or night. Submersible and surface crafts would have lighting for night training. Insertion/extraction training events utilizing submersible craft would operate along the shoreline to conduct water-based training.

2.1.1.1.3 Launch and Recovery Training Activities

During launch and recovery training events, training would be conducted in water areas and consist of launching and recovering submersibles or surface craft, or a combination of both, from a boat ramp, water platform, or via a crane located on a ship or a barge (not on military terrestrial property).

2.1.1.1.4 Unmanned Underwater Vehicle Activities

A subset of water-based training would involve the use of a UUV and on occasion an ROV (herein both described as UUVs). A UUV is a battery-powered, unmanned submersible that is hand-launched from a host vessel and would be used to assist with swimmer navigation. The UUVs operate within the water column and would not be set on the floor of the ocean or Puget Sound. UUVs operate under the same navigational rules as any water vessel and would be operated to avoid other vessels. UUVs would be used during approximately 10 percent of the time that other water based training activities would be taking place. The launching and recovery of the UUV would be conducted in water areas only and would utilize a fish finder type of device for navigation. UUVs can be autonomous or tethered and are controlled from the water surface or by a diver for real-time feedback to the operator. Diving personnel may be in the water in the near vicinity of the host vessel for the launch or retrieval portions of the activity. UUVs are tracked by personnel on the host vessel to ensure they remain on course and, if needed, can be recalled any point along the pre-programmed track.

2.1.1.2 Land-Based Training Activities

Land-based training events are identified as Over-the-Beach, Special Reconnaissance, Simulated Building Clearance, and High-Angle Climbing. All land-based training events would include support personnel. Support personnel are responsible for the safety and oversight of trainees participating in the event. The support personnel would continually evaluate the training scenario and employ standard operating procedures (see Section 2.3.5) to ensure that training activities are isolated and conducted safely. Trainees receive safety briefings, have constant oversight by instructors, and NSWC Public Affairs Officers, or their representatives, would be available to interact with the public should anyone happen upon an active training scenario. Additionally, as part of the training intent that the activities be undetected, the support personnel teach trainees that no expended equipment, human waste, or transported liquids remain on site after the training activity is completed. Vehicles would be utilized by the support personnel, with one unmarked NSWC vehicle designated as an emergency response vehicle. The vehicles used by support personnel would stay on designated roads and be parked in designated parking areas that afford optimal availability if required during the training event.

2.1.1.2.1 Over-The-Beach Training Activities

During an Over-The-Beach training activity, trainees would exit water, cross the beach, and quietly transition to land-based activities. Upon arrival at a pre-designated area, trainees would remain out of sight for several hours before exiting the site or continue moving towards a pre-determined objective. Typically, when trainees conduct Over-The-Beach at a site, they cross the beach twice (arrival and

departure). However, when conducting Over-The-Beach training at Naval Base Kitsap Keyport, trainees could move over the beach multiple times. This is a core training competency, as such, trainees are required to conduct this activity until they perform it correctly.

2.1.1.2.2 Special Reconnaissance Training Activities

Upon arrival at a designated area, trainees would hike to a designated observation point. Trainees are taught the techniques for conducting reconnaissance without alerting anyone to their presence or location. Trainees would remain undetected for a period of time with the goal of leaving no trace of their presence behind. This includes no vegetation being trampled, no branches broken, no footprints visible, or any other indicators that they were there. Trainees would use observation techniques, follow procedures, and report back on a scenario involving role play with military instructors or support staff. Special reconnaissance would be performed on activities that are staged and pre-arranged for training purposes.

2.1.1.2.3 High-Angle Climbing Training Activities

High-Angle Climbing events are training evolutions where trainees negotiate cliffs, rock faces, and other vertical challenges to develop infiltration and retrieval of climbing equipment techniques. Trainees are instructed in the use of ropes and other climbing gear to traverse obstacles while carrying gear.

2.1.1.2.4 Simulated Building Clearance Training Activities

The activity would consist of trainees conducting simulated actions against a site, or a military individual designated as part of the exercise who is simulating a threat or enemy, within a confined area or building. Simulated Building Clearance training develops the trainees' ability to operate within a small unit, move into a structure, conduct clearance from room to room, and engage in role play (military instructors or support staff) simulated combat scenarios. The combat scenarios involve the use of simulated weapons and simulated munitions from both trainees and support staff acting as enemy opponents. The intent is for trainees to remain concealed and silent, and then departing the area with minimal disturbance and avoiding detection. The training includes the use of weapons configured to only fire plastic or paint pellets. No live-fire weapons or ammunition would be used. The simulated munitions would be marking rounds, which are specialized plastic/paint capsules that are environmentally friendly and water soluble. The temporary marks these simulated munitions make are about the circumference of a dime. Sounds associated with the firing of the simulated munitions sound similar to an air rifle. No property damage would occur, and cleanup (picking up simulated marking rounds/washing away paint marks if present) would be handled by the instructors and support staff immediately at the conclusion of the training scenario. Support staff would be on site at all times in order to ensure the overall safety in the training environment. Simulated Building Clearance sites would typically be separated from the public and would support the appropriate progression of training. These sites would be approved by property owners or land managers. Simulated Building Clearance training would comprise approximately 10 percent of each training block.

2.1.1.3 Unmanned Aircraft Systems Training Activities

UAS would be utilized 10 percent of the time concurrent with other water-based or land-based training activities. The UAS consists of a hand-launched or catapult system, a control system, and a remotely piloted or self-piloted (i.e., preprogrammed flight pattern) air vehicle that may be fixed-wing or rotary-wing. They would carry only non-hazardous payloads such as cameras, sensors, and communications equipment.

Propulsion is through electrical motor-driven propellers powered by rechargeable batteries. UASs are allowed in FAA designated restricted airspace (R6701). For training outside of R6701, the UAS would be flown at military installations in accordance with a valid FAA Certificate of Authorization. UAS training may be a standalone activity or used in conjunction with other training activities. UAS utilized for the proposed training would:

- be categorized as FAA Group 1 or Group 2 systems, weighing up to 55 pounds,
- vary in size up to approximately two meters in length, with a wingspan of three meters,
- normally operate below 2,000 feet above ground level,
- would utilize on the ground observers (no manned aircraft observers), and
- fly in accordance with FAA authorizations.

2.1.2 Training Sites

Under the Proposed Action, the proposed training activities would occur at pre-approved sites throughout the training study area in western Washington State (Figure 1-2). Three geographic areas within western Washington State (Regions 1, 2, and 3) are identified as areas supporting the proposed training activities (Section 2.1, Proposed Action). The training study area offers a varied topography, hydrography, and bathymetry (to include strong and shifting currents and varying salinity) to units conducting extended, recurring, and sustainment training.

The variety of sites allows for a training progression to occur based on the operator skill set demonstrated as they accomplish each training skill objective. Multiple sites are needed to allow training to accommodate seasonal changes, evolving skill sets, and site-specific restrictions that may occur at certain times of the year. The varied training study area facilitates minimal interaction with the public and limits impacts to any one location to maintain the natural environments at each potential training site through planned infrequent and sporadic use. Additionally, infrequent use of sites helps to minimize negative training aspects associated with trainees becoming too familiar with what to expect when they repeatedly conduct the same training at the same sites.

2.1.3 Training Equipment

Table 2-1 lists the current and proposed equipment that may be used during training activities across the training study area in western Washington State. Each activity would require a specific mix of personnel, equipment, and supporting systems. Further, the particular goal of a single training evolution may require a specific set of equipment.

Table 2-1: Current and Proposed Equipment for Naval Special Operations Training

Equipment Type	Description	Area of Utilization
Signaling Devices and Simulated Weapons		
Signaling Devices are only used for emergency use in accordance with naval special operations standard operating procedures established by the Navy that are incorporated into training.		
Recall Device	Audible signal similar to a small firecracker that is used to recall a diver or to signal a diver in danger per prearranged instructions.	Training Study Area Waters

Table 2-1: Current and Proposed Equipment for Naval Special Operations Training (continued)

Equipment Type	Description	Area of Utilization
Signaling Devices and Simulated Weapons (Continued)		
Simulated Weapon	Trainees carry simulated weapons throughout each training event to accurately represent the weight and balance of the mock weapon and to experience the considerations needed to maintain and keep functioning in undersea and cold-weather maritime conditions. No real bullets are carried at any time throughout any training evolution (paint pellets are used). Live fire is not part of any training event.	Training Study Area
Simunitions Cartridge	A small cartridge (plastic/paint capsules) that emits a plastic projectile that leaves a mark the size of dime and is utilized only during simulated building clearance exercises. All traces of the marks are removed by rubbing with water and a cloth, and all expended shell casings are picked up by the instructors, support staff, and trainees.	Only at sites where Simulated Building Clearance would occur
Boats		
Surface Support Craft	Surface support craft includes commercial or military boats (generally in the 20–30 foot range) for open water utility operations and jet skis (NSWC-owned <i>Wave Runners</i> are used for swimmer safety in certain events during training).	Training Study Area Waters
Submersibles	Submersible craft are manned and include other underwater propulsion devices. The manned submersible craft is the primary transit and delivery vehicle for all naval special operations undersea maritime training events.	Training Study Area Waters
Small Inflatable Boats	Small rubber inflatable boats, typically no greater than 9 meters in length.	Training Study Area Waters
UUV	UUVs and small remote operated vehicles controlled by a trainee with real-time feedback. UUVs can be tethered, untethered or autonomous when operated and can operate on or below the surface.	Training Study Area Waters
Ground Support Vehicles		
Passenger Van	Personnel transport in support of training.	Training Study Area
Emergency Response Vehicle	Navy medical command and NSWC control vehicle in support of training.	Training Study Area
Pick-up Truck	Transport of essential equipment, including surface support craft and personnel in support of training.	Training Study Area

2.2 Training Area Screening Factors

NSWC considered three factors (training, safety, and logistics) when identifying broad geographic areas that could support cold water naval special operations training and satisfy the training requirements. These factors were applied to the State of Washington, State of Alaska, northern California, and Newport, Rhode Island to identify geographic areas that were suited to support the proposed training. These geographic areas were evaluated by NSWC to identify ones that were suited to support cold-

water training requirements. Included in that evaluation were logistical and safety concerns, and the desire to have little to no impact on the public and environmental resources.

Training: Land and maritime special operations training activities prepare naval special operations personnel for global operations in a spectrum of environments, including cold water environments. The Proposed Action would support training for the diverse global challenges facing naval special operations personnel. The training study area would have to have the unique specific characteristics needed to develop skillsets and objectives of the naval special operator training program. The coastline environment with extended timeframes of cold water exposure and inclement weather conditions that support training conditions include:

- Rain, fog, or low ceilings and restricted visibility.
- Tides and currents that replicate extreme and diverse maritime environments throughout the world.
- Complex navigation, specifically a challenging environment for submersible piloting, which includes bottom contours, diverse shorelines, commercial and recreational shipping, and tides and currents.
- A variety of geography over shorelines and waterways that allows for a rapid progression of training that transitions trainees from intermediate levels to advanced scenarios that replicate real-world situations.
- Access to both open-ocean and inland waters.
- Protection from heavy surf afforded by the selected training areas, which allows for specific training to be accomplished while affording high levels of safety for military personnel involved in the training events.
- A complex bathymetry, which both offers challenges in operating and replicates real-world operational environments.
- A complex hydrography of the waters that offers unique and challenging training conditions, including a partially mixed, two-layer system, with relatively fresh water flowing seaward at the surface and saline oceanic water returning landward at depth. The seaward surface flux is balanced by the landward flux at depth. The seaward flux is augmented by the freshwater inflow from several large rivers and many smaller streams. As a result of the small freshwater inflow into the sound and the large amount of tidal energy, the water is not strongly stratified most of the year. Because of the large amount of tidal energy, turbulent mixing takes place.
- The varied operating environments, coupled with the extensive proximity of naval facilities and associated units, allows for the training of several diverse ways of launching the submersibles. Additionally, this collection of varied associated units and platforms allows for a maximization of training by supporting other training evolutions during the same scheduled training period. The breadth of training sites across the three geographic areas in western Washington ensures that new locations and the varied amount of training locations within the training block would prevent

Bathymetry – National Oceanic Atmospheric Administration defines bathymetry as “the study of the ‘beds’ or ‘floors’ of water bodies, including the ocean, rivers, streams, and lakes.” The term ‘bathymetry’ originally referred to the ocean’s depth relative to sea level, although it has come to mean ‘submarine topography,’ or the depths and shapes of underwater terrain.

Hydrography – National Oceanic Atmospheric Administration defines Hydrography as “the science that measures and describes the physical features of the navigable portion of the earth’s surface and adjoining coastal areas.”

familiarity with a common training environment and continually challenge the naval special operations units conducting the training.

Safety: Specific safety considerations that must be met include proximity and ready access to an active recompression dive chamber that is located within a one-hour transit time from the training site, and multiple military facilities with on-call response medical capabilities, as well as the capacity to minimize impacts on commercial and personal activities and infrastructure in the training areas.

Logistics: Due to the unique training and operational requirements for naval special operations, the combination of meeting training objectives and proximity of secured Navy facilities/installations is critical. Specifically, the required level of security for storing and repairing the equipment used in naval special operations training activities can only be met onboard a military facility. Staging for all aspects of the training is optimally served by local Navy installations. This includes lodging, proximity to transportation, maintenance support, classified material storage, and recompression chamber and medical support.

2.3 Alternatives Development and Alternatives Carried Forward for Analysis

NSWC must consider alternatives to the Proposed Action in accordance with the National Environmental Policy Act (NEPA) and Council on Environmental Quality regulations for implementing NEPA (Parts 1500–1509 of Title 40 of the Code of Federal Regulations). After review of the screening factors, it was determined that the training study area in western Washington State fulfills all of the intermediate and advanced-level, cold-water maritime naval special operations training requirements. In addition to meeting the training requirements, the safety and logistical training area screening factors presented in Section 2.2 are also satisfied by western Washington State. Thus, western Washington State fully satisfies all three training area screening factors and is considered the only feasible cold-water location for training naval special operations personnel prior to their final pre-deployment activities and follow-on real world missions (Section 2.4 discusses alternatives considered but not carried forward for detailed analysis). Western Washington State also affords superb contiguous water training space, with associated commercial boat traffic, and relatively isolated locales, facilitating minimal interaction with civil and commercial activities during training activities. Conducting the training in western Washington State enables the highest degree of safety for naval special operations personnel due to close proximity of Puget Sound military facilities, to include a broad availability of on-call medical facilities offering the flexibility to rapidly respond to any emerging safety issue. The Puget Sound also affords naval special operations personnel with superior logistics to support and secure the necessary equipment employed during training activities.

Accordingly, NSWC focused its alternatives analysis on variances to the tempo and variable use of training sites within the western Washington State training study area to satisfy the purpose of and need for the Proposed Action which is to enhance naval special operations and other U.S. special operations (Section 1.4, Scope of Environmental Analysis). Thus, three regions and tempo-related action alternatives have been identified in addition to the No Action Alternative. The alternatives analyzed in this EA are discussed in detail below. Table 2-2 lists the specific training activities and under which alternative they would occur.

2.3.1 No Action Alternative

Training activities conducted in western Washington State have typically occurred in a subset of Region 1. The training included nearshore waters and land-based areas with two training blocks per year. A training block is defined as a 2–8-week period of time where up to 70 naval special operations

trainees and support personnel (safety observers, medical support, boat drivers, vehicle drivers, evaluators, and equipment repair/maintenance support) arrive in western Washington State to participate in cold-water maritime and land-based training until the time they leave. Table 2-2 identifies the added training activities and Table 2-3 presents the frequency of potential site use for naval special operations training under all alternatives.

All training areas within Region 1 are within a safety-specified one-hour transit to the recompression chamber at Naval Undersea Warfare Center Keyport and within a nominal one-hour response for equipment repair and recovery.

Table 2-2: Proposed Training Activities by Alternative

		Water-Based Training Activities				Land-Based Training Activities				
		D/S	I & E	L & R	UUV	OTB	SR	HA	SBC	UAS
No Action Alternative¹	Region 1	✓	✓	✓	✓	✓	✓			
Alternative 1¹	Region 1	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓	✓
Alternative 2¹	Region 1	✓	✓	✓	✓	✓	✓		✓	✓
	Region 2	✓	✓	✓	✓	✓	✓	✓		✓
	Region 3	✓	✓	✓	✓	✓	✓			
Alternative 3²	Region 1	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓
	Region 2	✓	✓	✓	✓	✓	✓	✓		✓
	Region 3	✓	✓	✓	✓	✓	✓			

Notes: D/S = Diver/Swimmer Training, I&E = Insertion and Extraction Training, L&R = Launch and Recovery Training, UUV = Unmanned Underwater Vehicle Activities, OTB = Other-The-Beach Training, SR = Special Reconnaissance Training, HA = High-Angle Climbing Training, SBC = Simulated Building Clearance Training. ✓✓ = Increased Training Frequency, Note¹ = Includes up to 70 Trainees and Support personnel, Note² = Includes up to 84 Trainees and Support personnel

Table 2-3: Proposed Number of Training Blocks and Maximum Potential Site Usage by Alternative

Alternatives	Region	# Training Blocks ¹ per year	Duration of Each Training Block	Maximum potential site usage per year
No Action Alternative	Region 1	2	2–8 weeks	10
Alternative 1	Region 1	4	2–8 weeks	20
Alternative 2	Region 1	4	2–8 weeks	20
	Region 2	1 every other year	2 weeks	3
	Region 3	1 every other year	2 weeks	3
Alternative 3	Region 1	6	2–8 weeks	36
	Region 2	1 every other year	2 weeks	3
	Region 3	1 every other year	2 weeks	3

¹ A training block is defined as the 2–8 week period of time where up to 84 naval special operations trainees and support personnel (safety observers, medical support, boat drivers, vehicle drivers, evaluators, and equipment repair/maintenance support) arrive in western Washington State to participate in land and cold-water maritime training until they leave. A training block consists of single or multiple simultaneous training events on land and in the water. During a training block, trainees and support personnel would disperse throughout the training study area (Figure 1-2); not all 84 personnel would be at one site for a training event.

Under the No Action Alternative, training locations available in cold-water maritime environments would continue to be restricted to a limited number of sites within Region 1. When naval special operations personnel train at a reduced number of training locations, the essential element of

unpredictability is removed from the training environment. Familiarity with a training site leads to prior awareness of a training scenario, thus negating the quality of training. Training scenarios at a limited number of known sites would not be sufficiently diverse enough to support the long-term requirements for intermediate and advanced naval special operations training and training progression, and would not adequately support the requirements to achieve combat readiness. The No Action Alternative therefore does not meet the purpose of and need for the Proposed Action, but it is being carried forward for analysis in this EA as a baseline from which to compare the impacts of the Proposed Action and action alternatives.

2.3.2 Alternative 1 – Region 1 Training

Under Alternative 1, the proposed training activities would be the same as described above under the No Action Alternative in the Region 1 training study area; however, Alternative 1 would increase the number of potential training sites and training tempo from two to four training blocks per year. Table 2-2 identifies the training activities proposed and Table 2-3 summarizes the potential frequency of site use within Region 1 (pending receipt of real estate agreement/right-of-entry permit). Under Alternative 1, naval special operations would have more flexibility to better accommodate occasional training with USSOCOM units. The occasional integration of other USSOCOM units would occur only with NSWC-led training.

2.3.3 Alternative 2 – Region 1, 2, and 3 Training

Under Alternative 2, the proposed training activities include all training activities and personnel that would occur in Region 1 as identified in Alternative 1. In addition, Regions 2 and 3, which are areas outside of the one-hour distance from Keyport, would be added as training venues and utilized every other year. The number of total training activities would generally increase under Alternative 2 due to the addition of Regions 2 and 3. Table 2-2 identifies the added training activities and Table 2-3 presents the frequency of potential site use for naval special operations training under Alternative 2.

Under this alternative, NSWC would deploy a support platform to facilitate training occurring outside the one-hour distance from Keyport (Regions 2 and 3). The support platform would have a recompression chamber available, as well as the capability to repair and recover training devices.

Under Alternative 2, increasing the variety of training locations available for selection would reduce the reuse of sites, thus increasing the value of the training by placing trainees in new and unfamiliar environments. Exposure to unfamiliar environments and variable conditions (e.g., sea state, water currents, and varying topography and shorelines) creates a challenging training environment and enables the trainees to further develop and sustain skills in the cold-water maritime and land aspects of Navy special operations.

2.3.4 Alternative 3 (Preferred Alternative) – Region 1, 2, and 3 with an Increased Training Tempo

Alternative 3 includes all the proposed training activities, personnel and regions as identified in Alternative 2, with an increased training tempo in Region 1 from four to six training blocks per year. Table 2-2 lists all the training activities that would occur and Table 2-3 presents the frequency of potential site use for naval special operations training under Alternative 3 (pending receipt of real estate agreements/right-of-entry permits).

Alternative 3 would result in the same added value as Alternative 2. However, Alternative 3 best meets the purpose of and need for the Proposed Action to support intermediate and advanced small-unit

activities of naval special operations training, with the progression of training in increasingly complex maritime and land environments, and thus combat-ready naval special operations personnel.

For all the alternatives discussed, it should be noted that not every site will be used every year; however, for any particular site within a region and alternative, the maximums as described above would not be exceeded.

2.3.5 Best Management Practices and Standard Operating Procedures

This section presents an overview of the best management practices (BMPs) and standard operating procedures that are incorporated into the proposed naval special operations training activities for naval special operations personnel addressed by this EA. BMPs are existing policies, practices, and measures that the Navy would adopt to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing, reducing, or eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action; (2) ongoing, regularly occurring practices; or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Table 2-4 includes a list of BMPs. Minimization and avoidance measures are discussed separately in Chapter 3 (Affected Environment and Environmental Consequences). In addition to the BMPs provided in Table 2-4 below, naval special operations training would follow the current version of the Northwest Training Range Complex (NWTRC) User's Manual and the Keyport Range Operating Procedures Manual. In addition to the BMPs provided, Navy special operations training would follow the Protective Measures Assessment Protocol (PMAP) general training category. The measures used in the PMAP general training category would also follow current versions of the NWTRC's User's manual and the Keyport Range Operating Procedures Manual which also reiterate the PMAP general training category measures.

The use of shipboard lookouts is a critical component of all Navy protective measures. Navy shipboard lookouts are highly qualified and experienced observers of the marine environment. Their duties require that they report all objects sighted in the water to the Officer of the Deck (e.g., trash, a periscope, marine mammals, sea turtles) and all disturbances (e.g., surface disturbance, discoloration) that may be indicative of a threat to the vessel and its crew.

Because of the relatively smaller number of support boats that accompany submersibles and swimmers during in-water training activities, and the limited number of personnel that can be on a support vessel, dedicated lookouts would not likely be on board the small support boats; however, boat operators will have completed the Marine Species Awareness Training (MSAT), which provides information on sighting curs, visual observation tools and techniques, and sighting notification procedures.

Table 2-4: Best Management Practices for Naval Special Operations Training

Training Activity	BMP Description	Purpose
Water-Based Training Activities (continued)		
Swimmer/Diver	Diving and swimming events would have on-site safety support. For dives there would be a minimum of two boats with support personnel. Boat 1 would have the Safety Supervisor with coxswain, crewperson, and qualified medic. Boat 1 would maintain proximity to the divers or swimmers. Boat 2 would serve as a lookout boat and interdict oncoming vessel traffic. Additionally, depending on the length of the dive or swim, jet skis would be onsite to provide additional safety coverage.	Maintain safety of trainees and the public
All Activities	Vessels would avoid contact with hard surfaces during in-water training activities, vessels and personnel would avoid marine mammals, and vessels would remain within the water column (with the exception of small inflatable boats, which would be carried ashore).	Maintain safety of trainees and avoidance of marine mammals
Land-Based Training Activities		
All Activities	Land-based training would have onsite safety personnel. At a minimum there would be three personnel, a Lead Safety Supervisor, Assistant Safety Supervisor, and a qualified medic. The medic would stage an emergency response vehicle onsite.	Maintain safety of trainees and the public
All Activities	Vehicles would remain on existing established roadways, and sound would be minimized during training to avoid detection.	Maintain safety of trainees and the public
All Training Activities		
Unmanned Aircraft System	Support personnel would maintain line of sight at all times with UAS. Personnel would enact immediate recovery in the event of a platform error.	Maintain positive control of the UAS before, during, and after training event
All Activities	Activities are coordinated with local and tribal law enforcement, park rangers and property owners. All training events would be conducted in accordance with military training procedures, approved standard operating procedures, and protective measures, including Chief of Naval Operations Instruction 5100.23G, <i>Navy Safety and Occupational Health Program Manual</i> (2011)	Maintain safety of trainees and the public

Relevant requirements as identified in the NWTRC User's Manual are summarized below, and are Standard Operating Procedures to avoid collisions with marine mammals and sea turtles in all in-water training locations:

- All commanding officers, executive officers, lookouts, officers of the deck, and junior officers of the deck supporting NSO training exercises will have completed the MSAT. All bridge lookouts will complete both parts one and two of the MSAT; part two is optional for other personnel. This training addresses the lookout's role in environmental protection, laws governing the protection of marine species, Navy stewardship commitments, and general observation information to aid in avoiding interactions with marine species.

- Naval special operations personnel piloting the small boats will complete Coxswain training and operate the boats in accordance with all U.S. Coast Guard rules and regulations.
- While in transit, naval vessels will be alert at all times, use extreme caution, and proceed at a safe speed so that the vessel can take proper and effective action to avoid a collision with any marine animal and can be stopped within a distance appropriate to the prevailing circumstances and conditions.
- When marine mammals have been sighted in the area, Navy vessels will increase vigilance and take reasonable and practicable actions to avoid collisions and activities that might result in close interaction of naval assets and marine mammals. Actions may include changing speed and/or direction and are dictated by environmental and other conditions (e.g., safety, weather).
- Naval vessels will maneuver to keep at least 1,500 feet away from any observed whale and avoid approaching whales head-on. This requirement does not apply if a vessel's safety is threatened, such as when change of course will create an imminent and serious threat to a person, vessel, or aircraft, and to the extent vessels are restricted in their ability to maneuver. Restricted maneuverability includes, but is not limited to, situations when vessels are engaged in dredging, submerged training activities, launching and recovering aircraft or landing craft, minesweeping training activities, replenishment while underway and towing training activities that severely restrict a vessel's ability to deviate course. Vessels will take reasonable steps to alert other vessels in the vicinity of the whale.
- Where feasible and consistent with mission and safety, vessels will avoid closing to within 200 yards of sea turtles and marine mammals other than whales (whales addressed above).
- Floating weeds and kelp, algal mats, clusters of seabirds, and jellyfish are good indicators of sea turtles and marine mammals. Therefore, where these circumstances are present, the Navy will exercise increased vigilance in watching for sea turtles and marine mammals.
- All vessels will maintain logs and records documenting training activities should they be required for event reconstruction purposes.

Table 2-5 lists relevant Range Operations Procedures for the NAVSEA NUWC Keyport Range Complex.

Table 2-5: Relevant Range Operations Procedures for NAVSEA NUWC Keyport Range Complex

ROP	ROP Implementation
ROP 10-1	Establishes policies and procedures to be followed in the event of an OTTO Fuel II spill within the NAVSEA NUWC Keyport Range Complex or aboard a NUWC Keyport craft during the loading/offloading, retrieval/recovery, or stowage of test units containing OTTO Fuel II; and the handling of OTTO Fuel II waste material or reclaimable liquids by range or craft personnel.
ROP 10-4 Safety/Environmental and Operational Restrictions for Test Units	Establishes safety/environmental requirements and operational restrictions for all test units (this includes, but is not limited to, torpedoes, mobile ASW targets, inert mines, UUVs, and research and developmental vehicles) to be tested within the NAVSEA NUWC Keyport Range Complex or used in support of range activities.

**Table 2-5: Relevant Range Operations Procedures for NAVSEA NUWC Keyport Range Complex
(continued)**

ROP	ROP Implementation
<p>ROP 6-4 Range Operations and Marine Mammals</p>	<p>Ensures that NAVSEA NUWC Keyport Range Complex personnel from NUWC Keyport are in compliance with OPNAVINST 5090.1C, <i>Navy Environmental and Natural Resources Program Manual</i> (or latest version of this document: OPNAVINST 5090.1D and associated Manual [M-5090.1]); MMPA; and Endangered Species Act (ESA). In particular, the following marine mammal protection measures are implemented per ROP 6-4:</p> <ol style="list-style-type: none"> 1. Range activities shall be conducted in such a way as to ensure marine mammals are not harassed or harmed by human-caused events. 2. Marine mammal observers are on board ship during range activities. All range personnel shall be trained in marine mammal recognition. Marine mammal observer training is normally conducted by qualified organizations such as NOAA/National Marine Mammal Lab (NMML) on an as needed basis. 3. Vessels on a range use safety lookouts during all hours of range activities. Lookout duties include looking for any and all objects in the water, including marine mammals. These lookouts are not necessarily looking only for marine mammals. They have other duties while aboard. All sightings are reported to the Range Officer in charge of overseeing the activity. 4. Visual surveillance shall be accomplished just prior to all in-water exercises. This surveillance shall ensure that no marine mammals are visible within the boundaries of the area within which the test unit is expected to be operating. Surveillance shall include, as a minimum, monitoring from all participating surface craft and, where available, adjacent shore sites. 5. The Navy shall postpone activities until cetaceans (whales, dolphins, and porpoises) leave the project area. When cetaceans have been sighted in an area, all range participants increase vigilance and take reasonable and practicable actions to avoid collisions and activities that may result in close interaction of naval assets and marine mammals. Actions may include changing speed and/or direction and are dictated by environmental and other conditions (e.g., safety, weather). 6. In accordance with the MMPA and ESA, which address marine mammal protection, an "exclusion zone" shall be established and surveillance will be conducted to ensure that there are no marine mammals within this exclusion zone prior to the commencement of each in water exercise. For cetaceans (whales, dolphins, and porpoises), the exclusion zone must be at least as large as the entire area within which the test unit may operate, and must extend at least 1,000 yards from the intended track of the test unit. For pinnipeds, the exclusion zone extends out 100 yards (91 m) from the intended track of the test unit. 7. The minimum marine mammal exclusion zones defined above are sufficient to mitigate the effects of the acoustic energy transmitted by the test units, range tracking equipment, and the range target simulators currently in operation on U.S. ranges as of this writing. The exclusion zones specified in ROP 6-4 meet the requirements of Navy and NOAA and thereby ensure that active acoustic emissions from the acoustic sources currently in use do not constitute marine mammal harassment. 8. The NMFS recommendation that vessels not approach within 100 yards (91 m) of marine mammals shall be followed to the extent practicable considering human and vessel safety priorities. All Navy vessels and aircraft, including helicopters, are expected to comply with this directive. This includes marine mammals "hauled-out" on islands, rocks, and other areas such as buoys.

**Table 2-5: Relevant Range Operations Procedures for NAVSEA NUWC Keyport Range Complex
(continued)**

ROP	ROP Implementation
ROP 6-4 Range Operations and Marine Mammals	9. In the event of a collision between a Navy vessel and a marine mammal, NUWC Keyport activities will notify the Navy chain of Command, which would result in notification to NMFS. 10. Procedures for reporting marine mammal sightings on the NAVSEA NUWC Keyport Range Complex shall be promulgated, and sightings shall be entered into the Range Operating System and forwarded to NOAA/NMML Platforms of Opportunity Program.

Source: National Oceanic and Atmospheric Administration (1993); U.S. Department of the Navy (2001, 2002, 2003)

Notes: ROP = Range Operations Procedure, NAVSEA = Naval Sea Systems Command, NUWC = Naval Undersea Warfare Center, OPNAVINST = Chief of Naval Operations Instruction, UUV = Unmanned Underwater Vehicle, ASW = Anti-Submarine Warfare, MMPA = Marine Mammal Protection Act, NOAA = National Oceanic and Atmospheric Administration, NMFS = National Marine Fisheries Service

In the event of a collision between a NSWC vessel and a marine mammal, NSWC would immediately notify, up through their chain of Command, NMFS.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

The following alternatives were considered, but not carried forward for detailed analysis in this EA as they did not meet the purpose and need for the project and they did not satisfy the training location screening factors presented in Section 2.2 (Training Area Screening Factors). The three other areas considered for cold-water naval special operations training, (United States Coast Guard Base, Kodiak, Alaska, San Francisco Bay Area, California, and Newport, Rhode Island) lack key components that are offered in western Washington State. During early outreach, public comments suggested naval special operations training be conducted in warm-water locations such as Hawaii or southern California. These locations were not considered because they do not meet the need for cold-water maritime training. Below is a summary of the alternative sites considered but eliminated from further consideration.

2.4.1 United States Coast Guard Base Kodiak Island, Alaska

NSWC considered the United States Coast Guard Base Kodiak as it offers the same diverse training environment (e.g., cold water, currents, high-volume commercial and personal shipping traffic, and varying bathymetric profiles) as western Washington. However, the lack of a recompression chamber at the United States Coast Guard Base Kodiak, the minimal emergency medical facilities across the entire island, limited lodging options, limited weather window to conduct training, the austere environment of the large island outside of the city of Kodiak, a limited buffered water environment, and the absence of any Navy repair facilities on Kodiak Island makes this alternative not desirable from both a safety and logistics support perspective. While cold-weather naval special operations training currently occurs within Kodiak, Alaska, the requirements being satisfied are broader to include a set of cold-weather land and maritime training requirements as opposed to cold-water maritime training requirements under the Proposed Action. Specifically, the Naval Special Warfare Center, Detachment Kodiak provides five to seven cold weather maritime training classes to 300–400 students annually. It also supports tailored equivalent cold weather maritime training for other Naval Special Warfare teams and USSOCOM units, as available. Additionally, due to the nature and specific requirements of the specific training that occurs in Kodiak, it is very seasonal and weather dependent, thus it does not provide the diversity needed nor

the year round ability to train. This alternative was considered but is not being carried forward for detailed analysis in the EA because, although it can offer a similar complexity in a few training areas, as well as a diverse environment similar to western Washington, with the requisite complex hydrography and high-volume commercial and personal shipping traffic, the lack of logistics support for the proposed type of training, along with safety compromises makes it an unacceptable location to conduct the advanced level of training intended to be accomplished in western Washington State.

2.4.2 San Francisco Bay Area, California

NSWC considered the San Francisco Bay Area as it offers a somewhat similar diverse training environment to western Washington State, with a similar climate, and bathymetry. However, the complete lack of any existing Navy facilities in the San Francisco Bay Area and the lack of a dedicated recompression chamber makes this alternative not desirable from both a safety and logistics support perspective. The San Francisco Bay Area also lacks a buffered environment with frequent high winds and dangerous sea conditions; available inlets and waterways that are necessary to develop underwater navigation skills are also lacking, thus the complex hydrography needed is not present. The extremely high-volume of commercial and personal shipping traffic in the San Francisco Bay Area would be hazardous to trainees. This alternative was considered but is not being carried forward for detailed analysis in the EA because, although it can offer a similar diverse environment of western Washington, the lack of logistics support along with safety compromises makes it unacceptable for naval special operations training.

2.4.3 Newport, Rhode Island

NSWC considered Newport, Rhode Island as a possible training site for cold-water maritime naval special operations training as it offers a somewhat similar cold-water training environment to western Washington State. However, Newport is smaller in scale with a limited buffered environment and waterways. Compared to western Washington State, there are few designated military areas with water access and adequate diving facilities are not present. Military lodging is also limited, thus personnel would be required to lodge in towns creating an additional cost burden and operational security concern. Rhode Island also presents logistical challenges as transporting necessary support personnel, trainees and equipment from their home station to Rhode Island would be costly and would decrease the available time to train. Finally, there is no military recompression chamber on site, with the nearest being in Groton, Connecticut. This alternative was considered but is not being carried forward for detailed analysis in the EA because, although it can offer the cold-water maritime environment of western Washington, it lacks the requisite complex hydrography and available buffered environment and complex waterways for developing underwater navigation skills, and the lack of logistics support makes it unacceptable for naval special operations training.

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3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect effects of each alternative.

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ), and 32 Code of Federal Regulations [CFR] part 775 guidelines, the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

“Significantly,” as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant (40 CFR part 1508.27). Intensity refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would be expected to be significant.

This section includes socioeconomics, cultural resources, biological resources, public health and safety, air quality, and noise.

The potential impacts to the following resource areas are considered to be negligible or non-existent so they were not analyzed in detail in this EA:

Water Resources: The Proposed Action would not impound, divert, drain, control, or otherwise modify the waters of any stream or other body of water. The proposed training activities do not involve changes to drainage patterns or the introduction of pollutants to training study area surface waters or ground water. Fueling activities would occur in established fueling stations and not in the water. Use of explosives is not proposed, thus no chemicals related to explosives would be released. Military Expended Material (MEM) such as sonobuoys, munition casings, or targets would not be utilized as part of naval special operations training. Additionally, in keeping with the “leave no trace” intent of the training, all assets utilized in training will be retrieved. The Proposed Action does not include construction on undeveloped lands or permanent ground-disturbing activities over an undisturbed area and human waste would not remain at a training site, thus water quality of training study area surface waters is not expected to undergo a measurable impact due to the Proposed Action. Biological Resources which occur in the water are addressed in Section 3.2 (Cultural Resources). Therefore, this resource area was not carried forward for detailed analysis.

Geological Resources: The Proposed Action does not include construction on undeveloped lands or ground-disturbing activities over an undisturbed area. Therefore, this resource area was not carried forward for detailed analysis.

Land Use: The Proposed Action would not change the manner of use or quality of land, or land forms and soil. Training is consistent with the existing land use of the area for federal, state, and private lands, with trainees swimming in the water, moving across the beach, and walking on and off trails. The

Proposed Action does not include construction on undeveloped lands or permanent ground-disturbing activities over an undisturbed area. Therefore, this resource area was not carried forward for detailed analysis.

Visual Resources: The Proposed Action does not include construction or permanent ground-disturbing activities over an undisturbed area and would not alter the visual landscape within the training study area. This is also in keeping with the intent of the training, to avoid detection and leave no trace of their presence during or after training activities. Therefore, this resource area was not carried forward for detailed analysis.

Airspace: The Proposed Action would not result in a permanent change of airspace designation or restriction in the existing airspace within the training study area or surrounding area. Restricted Area (R)6701 has a current authorization for unmanned aircraft system (UAS) training from the Federal Aviation Administration (FAA). To support UAS training activities outside of R6701, a Certificate of Authorization (COA) would be obtained from the FAA. The Certificate of Authorization would specify conditions or limitations, if necessary, as part of the approval to ensure the UAS can operate safely with other airspace users. Therefore, this resource area was not carried forward for detailed analysis.

Infrastructure: The Proposed Action does not include changes to infrastructure within the training study area. There are no construction or permanent ground-disturbing activities included as part of the Proposed Action. Therefore, this resource area was not carried forward for detailed analysis.

Transportation: The Proposed Action would not involve large troop movements or convoys, thus transportation facilities or circulation of traffic patterns would not be changed or altered within the training study area or surrounding area. Additionally, aircraft transport of equipment is considered transient use and is covered by existing airfield documentation. Therefore, this resource area was not carried forward for detailed analysis.

Hazardous Materials and Wastes: The proposed training activities involve use of machinery, equipment, or vehicles which are currently located in western Washington State; as such, no changes in the type of hazardous waste produced would be expected. The Proposed Action would comply with Naval Base Kitsap Keyport/Bangor/Bremerton Spill Prevention and Control and Countermeasure plans. MEM such as flares and pyrotechnics, propellants, and explosives would not be utilized as part of naval special operations training. Other Hazardous materials (HAZMAT) used during the proposed training activities would be limited to re-breathers for diving (i.e., SODASORB), oily rags, aerosol cans, and, in rare occasions, unused fuels. These materials are stored in appropriated HAZMAT lockers and transported to and from the training sites in accordance with state and Federal regulations. All unused materials are secured and returned to Keyport for storage in the HAZMAT lockers to be used during the next training event. Upon completion of a complete training cycle, all unused materials are turned into the Keyport HAZMAT center. Associated wastes (e.g., oily rags, SODASORB, expended batteries) are handled in compliance with state and Federal regulations and are turned-in to Naval Facilities Engineering Command (NAVFAC) for final disposal. Therefore, this resource area was not carried forward for detailed analysis.

American Indian Traditional Resources: The proposed training activities would not restrict access to treaty-reserved off-reservation usual and accustomed (U&A) fishing grounds and stations in co-use navigable waters, nor impede access to treaty-reserved off-reservation hunting areas. The intent of the proposed training is to build trainees skills, experience, and confidence by challenging them in a location with dynamic weather and land/cold-water conditions. As part of the rigorous training, the trainees learn skills needed to avoid detection along with the goal of leaving no trace of their presence during or after training activities. Proposed training activities would not change the availability of protected

marine or terrestrial resources or habitat as the proposed training activities would be localized, infrequent in nature, and brief in duration. The Navy, on behalf of Naval Special Warfare Command (NSWC), is providing information to federally-recognized tribes that have off-reservation treaty-reserved fishing and hunting rights in the training study area. The Navy's preliminary assessment indicates that the Proposed Action does not have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands. Therefore, the American Indian Traditional Resources area was not carried forward for detailed analysis. See Chapter 5, Other Considerations Required by NEPA, for additional information.

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3.1 Socioeconomics

This section provides an overview of the characteristics of socioeconomic resources in the training study area. This section discusses transportation and shipping, commercial and recreational fishing, fishing communities, recreation, and tourism information to provide insights into socioeconomic conditions (e.g., population and employment) that might be affected by the Proposed Action.

3.1.1 Regulatory Setting

Socioeconomic data shown in this section are presented at the United States (U.S.) Census Bureau Tract, Metropolitan Statistical Area, state, and national levels to characterize baseline socioeconomic conditions in the context of regional, state, and national trends. A Metropolitan Statistical Area is a geographic entity defined for use by federal statistical agencies based on the concept of a core urban area with a high degree of economic and social integration with surrounding communities. Data have been collected from previously published documents issued by federal, state, and local agencies and from state and national databases (e.g., U.S. Bureau of Economic Analysis' Regional Economic Information System).

NSWC identified broad socioeconomic topics based on their association with human activities and livelihoods in the training study area. Each of these socioeconomic resources is an aspect of the human environment that involves economics and social conditions associated with the marine environment of the training study area. Therefore, this evaluation considered potential impacts on transportation and shipping, commercial and recreational fishing, to include usual and accustomed fishing by Pacific Northwest American Indian Tribes, and recreation and tourism.

3.1.2 Affected Environment

3.1.2.1 Transportation and Shipping

The training study area is used by the military and civilians for a broad spectrum of activities. The Navy conducts training and testing activities in areas where transportation and shipping occurs. Notifications of potentially hazardous operations are communicated to all vessels and operators by use of Notices to Mariners, issued by the U.S. Coast Guard, and Notices to Airmen (NOTAM), issued by the FAA. The FAA also issues COA for government use of UAS. The Department of Defense (DoD) also publishes separate NOTAMs about runway closures, missile launches, special traffic management procedures, and malfunction of navigational aids.

Special use airspace in Puget Sound, Restricted Area (R)6701 is used for air-based training activities. This airspace is used by Naval Air Station (NAS) Whidbey Island. In this airspace, UAS are allowed by right. UAS weigh less than 20 pounds, operate below 1,200 feet, and fly at speeds less than 250 knots. The UAS do not interfere with commercial air traffic, transportation, or private air traffic in R6701. For training outside restricted airspace or warning areas, the UAS are flown in accordance with a valid FAA COA.

Shipping is a significant component of the regional economy and frequently occurs within Regions 1 and 2 of the training study area. The marine freight waterways in Washington State consist of the Pacific Ocean, the Puget Sound, and the Columbia-Snake River System. The largest ports in Washington State are the ports of Seattle and Tacoma, which together rank third among North American ports in total container traffic (Washington State Department of Transportation, 2017). Other key ports in the training study area include:

- Kingston, Indianola, Keyport, Poulsbo, Brownsville, Tracyton, Waterman, Bremerton, Silverdale, and Manchester (Kitsap County, Washington State; Region 1)
- Port Townsend (Jefferson County, Washington State; Region 2)
- Coupeville and South Whidbey Island (Island County, Washington State; Region 2)
- Port of Anacortes (Skagit County, Washington State; Region 2)
- Grays Harbor (Grays Harbor County, Washington State; Region 3)

Bassett et al. (2012) recorded vessel traffic over a period of just under a year as large vessels passed within 12.4 miles (20 kilometers) of a hydrophone site located at Admiralty Inlet in Puget Sound. During this period, there were 1,363 unique Automatic Identification System transmitting vessels recorded. In 2014, there were over 5,300 cargo, cruise, or fishing vessels docking at one of the major ports in Puget Sound. In addition to these port calls resulting in approximately 10,600 annual vessel transits, there is routine ferry, recreational, and other vessel traffic from commercial activities such as whale watching in the Inland Waters portion of the training study area.

Ocean traffic—transit of commercial, private or military vessels—occurs within Region 3 off the Pacific Coast. Most vessels entering or leaving the Washington State ports travel northwest, southwest, or south through the training study area without incident or delay. Shipping to and from the south typically follows the coastline of Washington State, Oregon, and California. Traffic flow controls are implemented to ensure that harbors and ports of entry remain as uncongested as possible.

In addition to maritime traffic, there is vehicle traffic within Regions 1, 2, and 3 of the training study area. State Route 104 is located on the west side of Puget Sound in northern Jefferson and Kitsap Counties. The route extends across the Hood Canal Floating Bridge, a drawbridge with two 300-foot span that can open to allow marine traffic to pass. During openings, vehicular traffic on State Route 104 queues and back-ups occur. During 2010, there were 335 bridge openings and 17,000 vehicles are estimated to cross the bridge daily.

3.1.2.2 Commercial and Recreational Fishing

The Puget Sound supports several industry sectors that are integrally linked to the marine environment, including commercial fishing in Regions 1 and 2 of the training study area. Washington State's commercial fishing industry is the second-largest seafood producer in the United States following Alaska; Washington State fishermen catch more than 60 percent of the edible seafood harvested in the United States (Washington State Department of Commerce, 2012). The state is the largest producer of farmed shellfish in the nation and is a leading producer of naturally growing shellfish, most of which come from Puget Sound. Salmon also support a variety of fisheries in the Puget Sound region. These include sport, commercial, and tribal usual and accustomed fisheries (Pacific Fishery Management Council, 2012). Commercial and tribal usual and accustomed fisheries are conducted with purse seine or gill nets, primarily in the open waterways of Puget Sound and Hood Canal (Washington Department of Fish and Wildlife, 2012). In addition to Regions 1 and 2, commercial and tribal fishing takes place throughout Region 3 in coastal waters. Tribal fishing in the training study area is discussed in Chapter 5, Other Considerations Required by NEPA.

Recreational fishing typically occurs throughout Regions 1 and 2 of the training study area, including inlets of Puget Sound and Hood Canal. Recreational sportfishing in Puget Sound has been conservatively estimated to contribute \$117 million per year to the regional economy (Washington Department of Ecology, 2012). In 2004, an estimated 438,000 marine angler trips were taken (Kraig & Smith, 2011) and over 175,000 pounds of fish (not counting shellfish) were caught by sportfishermen (Kraig & Smith,

2011). In Region 3, recreational fishing is limited off the Pacific Coast near Grays Harbor and the Columbia River due to dangerous marine conditions. Grays Harbor and the Columbia River are dangerous for inexperienced recreational fishers, and fishermen are warned to watch conditions carefully as these areas can be difficult to navigate (Washington Department of Fish and Wildlife, 2017).

3.1.2.3 Fishing Communities

National Marine Fisheries Service (NMFS) social scientists have identified 40 fishing communities in Washington State. Historically, fishing communities on the Pacific Coast were relatively small and isolated. However, over the years, ecological, demographic, technological, and commercial-industrial trends have caused fishing activities to consolidate into larger centers of commercial and recreational fishing (National Marine Fisheries Service, 2009).

The Pacific Fishery Management Council is one of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 to manage fisheries of the U.S. coastline, including Washington State. In 2006, the NMFS completed an assessment for the Pacific Fishery Management Council of West Coast fishing communities examining their engagement in commercial or recreational fishing, their dependence on fisheries income, and their resilience and vulnerability to changes in income from those fisheries. This assessment found that communities that access fishery resources in Region 3 tend to have small populations, are geographically isolated, and are heavily dependent on tourism and natural resource extraction industries, like fishing.

3.1.2.4 Recreation

The Puget Sound and coastal areas of Washington State, including areas within the training study area, accommodate many diverse outdoor activities on public land, including local parks and Washington State Parks. An estimated 390,000 people participate in recreational activities in the waters and on the beaches of Puget Sound at least once a year (Washington Department of Ecology, 2012). Within the training study area, recreation sites are diverse in their designated use (day or night) and types of recreational opportunities available (water-based or land-based). Washington State Parks manages sites through a pass and permit system (Washington Tourism Alliance, 2017).

3.1.2.4.1 Water-Based Recreation Activities

Water-based activities within the training study area include boating, canoeing, water skiing, fishing, kayaking, swimming, scuba diving, tubing, windsurfing, shellfish and seaweed harvesting. Within Region 1, Naval Base Kitsap manages a small portion of shoreline along Kitsap Lake (Camp McKean), which is used for water-based recreation activities, including recreational fishing year round. The training study area, Regions 1, 2, and 3, encompass several Water Trails: The Cascadia Marine Trail, Willapa Bay Trail, the Kitsap Peninsula Water Trail and the Lower Columbia River Water Trail. These trails are utilized by individuals with small boats such as kayaks, canoes, day sailors or rowboats to visit land facilities (landing sites, campsites, rest areas and points of interest) via small boat (Washington Water Trail Association, 2017).

The emergency recall device is an MK-137 that is intended for underwater use only. It contains a small pyrotechnic of 1.75 grams of double-based propellant composition, an ignition charge of black powder, a primer, and a blasting fuse to produce a 6.6-second delay. The device would only be used in an emergency situation, during an in-water training event that has already commenced. It is dropped adjacent to the diver/swimmers to alert them that a potential emergency situation is occurring and that they should return to the surface. Due to the “avoid detection” intent of the training, it is highly unlikely

that recreational swimmer/divers would be near the naval special operations swimmer/divers during a training evolution and because it would only occur during an emergency, which is unpredictable, emergency recall device is not carried forward for further analysis.

3.1.2.4.2 Land-Based Recreation Activities

Land-based recreation activities within the training study area include backpacking, bird watching, golf, geocaching, camping, hunting, off-roading, mountain biking, hiking trails and nature walks, metal detecting, wildlife viewing, remote controlled aircraft, photography, rock climbing and winter recreation (U.S. Department of the Navy, 2015; Washington State Parks, 2017; Washington Tourism Alliance, 2017).

3.1.2.5 Tourism

The Washington Tourism Alliance was established in 2011 following the closure of the State Tourism office. Their mission is to advocate, promote, develop and sustain the economic wellbeing of the Washington State tourism industry (Washington Tourism Alliance, 2017). Tourism within the training study area occurs mostly within the Puget Sound Region, Regions 1 and 2 of the training study area, and some occurs in State Parks along the coast, Region 3 of the training study area. The economy of Whidbey Island south of Oak Harbor relies heavily on tourism-related commerce. Tourism is also important for the towns of Coupeville and Langley (U.S. Department of the Navy, 2015). Puget Sound and the Straits of Juan De Fuca are home to an active whale watching tourism industry. Other areas within the Puget Sound have recreational fishing, boating, sailing, diving, and other tourist activities that are centered on boat basins, marinas, and the ports of the areas. Communities with a reputation for good fishing also tend to be linked to the tourism industry in general with more tourism infrastructure such as lodging, restaurants, and other amenities. Recreational boating and ocean-related tourism activities contribute to the regional economy of Puget Sound. Puget Sound has 244 marinas with 39,400 moorage slips and another 331 launch sites for smaller boats. Statewide, approximately 180,000 boats are registered, not counting thousands more small boats and watercraft that do not require registration. An estimated 390,000 people participate in recreational activities in the waters and on the beaches of Puget Sound at least once a year (U.S. Department of the Navy, 2015). Recreational boating and other ocean-related tourism activities contribute millions of dollars to the regional economy each year (U.S. Department of the Navy, 2015).

Coastal tourism within Region 3 of the training study area includes the full range of tourism, leisure, and recreation activities that take place in the coastal zone and offshore coastal waters (e.g., ecotourism, boating, swimming, fishing, surfing).

3.1.3 Environmental Consequences

Analysis of impacts to socioeconomics is focused on the issues of the effects of the alternatives on population, employment, transportation and shipping, recreation and tourism. The alternatives were evaluated based on the potential for and the degree to which the training activities could impact socioeconomic resources. The potential for impacts depends on the likelihood that the training activities would interact with public activities or infrastructure.

3.1.3.1 No Action Alternative

Under the No Action Alternative, training activities conducted in western Washington State over the past 30 years would continue in Region 1 training study area with two training blocks per year (as approved under the 2015 Northwest Training and Testing Final Environmental Impact Statement [EIS]/Overseas EIS [OEIS], 2010 Northwest Training Range Complex EIS/OEIS, and event-based

Categorical Exclusions, as applicable). Under the No Action Alternative, an individual site would be used no more than 10 times a year. Training activities would include launch and recovery of the submersible or small boats, insertion and extraction of these vessels, diver/swimmer training, over-the-beach, special reconnaissance, and the use of unmanned underwater vehicles. Small recall devices could be used in emergency situations to alert the diver/swimmers to return to the surface of the water.

Under the No Action Alternative, up to 70 naval special operations personnel would travel to western Washington State to conduct cold-water maritime and land-based training. Personnel typically stay on military installations. However, if lodging on military installations is not available, personnel stay in hotels in Kitsap County. While in the area, personnel contribute to the local economy by frequenting restaurants for meals and shops to purchase incidentals. Personnel also participate in leisure activities when off duty, which also contributes to the general economy. Under the No Action Alternative, there is no substantial shift in socioeconomic conditions within the Region 1 training study area as a result of naval special operations training. Regional population demographics do not increase or decrease because personnel are only in western Washington State for a limited duration of time associated with the training. There are potential beneficial impacts to the local economy occur (albeit slight) because of trainees and support personnel frequenting local businesses while deployed in the area for training.

Training activities do not restrict transportation and shipping patterns, commercial and recreational fishing activities, or the ability of individuals to use or access recreational activities within the Region 1 training study area. Training does not include large troop movements; therefore, vehicular traffic on the roadways within the training study area is not restricted. Training within Region 1 is localized, infrequent, and brief in duration. In addition, training is consistent with the existing land use of the area for federal, state, and private lands, with trainees swimming in the water, moving across the beach, walking on trails and only off trails when necessary.

The airborne noise produced from surface vessels supporting training activities is consistent with noise from non-Navy vessels (such as recreational fishing boats) common in the area and would not disrupt other recreational activities in the training study area. Naval special operations personnel have been training in the area for the past 30 years and no negative effects on tourism or recreation have been reported. Tourism and recreational activity in the state of Washington continue to increase, exhibiting positive trends (Dean Runyan Associates, 2015). Minimization measures employed during training activities limit encounters with the public during training events. Minimization may include temporarily ceasing training if the public enters the immediate training area or delaying the start of training until the public is done using or transiting the area. In some instances, training may continue if the public enters the training area. Under the No Action Alternative, public parks and waterways remain open to the public during training and access is not restricted. The Navy, on behalf of NSWC, obtains a right-of-entry permit prior to conducting training where consent is needed from Washington State Parks, private property owners, or other public owners. Within the training study area, an individual site would be used for no more than 10 times per year.

As presented above, under the No Action Alternative, there are no significant socioeconomic impacts, in Region 1; therefore, no significant impacts to socioeconomic resources would occur as a result of the continuation of training under the No Action Alternative.

3.1.3.2 Alternative 1

Under Alternative 1, proposed training activities would be conducted in western Washington State in Region 1 and would include an increased tempo above the No Action Alternative from two to four

training blocks per year. Within Region 1, an individual site would be used for no more than 20 times per year. The same training activities in the No Action Alternative would occur. The following training activities would be added: simulated building clearance and the training with UASs. The use of remote operated vehicles would be included with unmanned underwater vehicles (UUV).

Under Alternative 1, the increase in training blocks and potential training locations, when compared to the No Action Alternative, would result in a small beneficial change in the local economy due to the increased number of trainees and personnel visiting the area. Even with the increase in training, socioeconomic resources would not be observably different from current conditions described under the No Action Alternative. Under Alternative 1, increased training activities would not restrict transportation and shipping patterns, commercial and recreational fishing activities, or the ability of individuals to use or access water-based or land-based recreational activities within the training study area. In addition, increases would continue to be consistent with common noise from non-Navy vessels.

UASs would introduce airborne noise. Proposed UAS training activities would not disrupt other recreational activities, especially considering their propulsion system, the altitudes at which they would fly, the short duration of the flights, and the fact that they would be used in austere environments, typically away from the general public. In Alternative 1, UASs would be used at the following Navy installations: Naval Magazine Indian Island, Naval Base Kitsap Keyport, and the Toandos Buffer Zone.

Minimization measures for interaction with the public would be the same as described under the No Action Alternative and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed. Therefore, no significant impacts on socioeconomic resources would occur with implementation of Alternative 1.

3.1.3.3 Alternative 2

Under Alternative 2, the locations identified for training activities, number of training blocks per year, and site usage per year are the exact same as those identified in Alternative 1 for Region 1. However, Alternative 2 adds two new training locations, Regions 2 and 3. Regions 2 and 3 would have one training block every other year with an individual site being used no more than three times every other year in each region. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and Simulated Building Clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at Restricted Area (R) 6701. Also, one new proposed training activity, High-Angle Climbing, would occur at Deception Pass State Park in Region 3.

Under Alternative 2, the increase in total training blocks and potential training locations, when compared to Alternative 1, would result in a small beneficial change in the local economy due to the increased number of trainees and personnel visiting the area. Even with the increase in training, socioeconomic resources would not be observably different from current conditions described above under Alternative 1. The addition of proposed High-Angle Climbing training in Region 2 at a known recreation area would be non-invasive, consistent with recreational uses, and infrequent. Thus, training in this location would not impact the public's recreational use of the area. Increased training activities and locations under Alternative 2 would not restrict transportation and shipping patterns, commercial and recreational fishing activities, or the ability of individuals to use or access water-based or land-based recreational activities within the training study area. In addition, increases would continue to be consistent with common noise from non-Navy vessels. Minimization measures for interaction with the public would be the same as described under Alternative 1 and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed. Therefore, no significant

impacts on socioeconomic resources would occur with implementation of Alternative 2.

3.1.3.4 Alternative 3 (Preferred Alternative)

Under Alternative 3, proposed training activities would be conducted in Regions 1, 2, and 3 as identified in Alternative 2; in addition, there would be an increase in training tempo in Region 1 from four to six training blocks per year and an individual site would be used no more than 36 times per year. The number of trainees would increase by four and additional support personnel would be added for a total of up to 84 personnel.

Under Alternative 3, the increase in total training blocks and personnel when compared to Alternative 2 would result in a small beneficial change in the local economy due to the increased number of trainees and personnel visiting the area. Even with the increase in training, socioeconomic resources would not be observably different from current conditions described above under Alternative 2. The addition of two training blocks in Region 1 would not restrict transportation and shipping patterns, commercial and recreational fishing activities, or the ability of individuals to use or access water-based or land-based recreational activities within the training study area. In addition, increases would continue to be consistent with common noise from non-Navy vessels. Minimization measures for interaction with the public would be the same as described under Alternative 2 and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed. Within Region 1, a site would be used no more than 36 times in a year. Within Regions 2 and 3, a site would be used no more than three times every other year for each region. Therefore, no significant impacts on socioeconomic resources would occur with implementation of Alternative 3.

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3.2 Cultural Resources

This discussion of cultural resources includes prehistoric and historic archaeological sites; historic buildings, structures, and districts; and physical entities and human-made or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources can be divided into three major categories:

- Archaeological resources (prehistoric and historic) are locations or material remains of past human life or activities.
- Architectural resources include standing buildings, structures, landscapes, and other built-environment resources of historic significance.
- Traditional cultural properties (TCPs) may include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

3.2.1 Regulatory Setting

Cultural resources are governed by federal laws and regulations. These include the National Historic Preservation Act (NHPA), Archeological and Historic Preservation Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. Federal agencies' responsibility for protecting historic properties is defined primarily by sections 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. Section 110 of the NHPA requires federal agencies to establish, in conjunction with the Secretary of the Interior, historic preservation programs for the identification, evaluation, and protection of historic properties.

Section 106 of the NHPA requires federal agencies to consider the effects of their actions on cultural resources listed in or eligible for inclusion in the National Register. In order to satisfy this requirement, the regulations implementing Section 106 (36 CFR Part 800) require federal agencies to consult with the appropriate State Historic Preservation Officer (SHPO); Advisory Council on Historic Preservation (ACHP); Native American tribes; other local, state, and federal agencies; and the public. Consultation with the Washington SHPO is ongoing to define the Area of Potential Effect (APE) as well as to identify historic properties located in the APE. The Navy, on behalf of NSWC, will evaluate, in consultation with the SHPO, what effects the Proposed Action Alternatives may have on identified historic properties. The Navy's Section 106 requirements will be completed once the SHPO has concurred with a finding of No Effect, No Adverse Effect, or, when a Memorandum of Agreement (MOA) is signed, if there is a finding of Adverse Effect that cannot be avoided.

3.2.2 Affected Environment

Cultural resources that are listed in the National Register of Historic Places (NRHP) or determined eligible for listing in the NRHP are "historic properties" as defined by the NHPA. The list was established under the NHPA and is administered by the National Park Service on behalf of the Secretary of the Interior. The NRHP includes properties on public and private land. Properties can be determined eligible for listing in the NRHP by a federal agency official with concurrence from the applicable SHPO. A NRHP-eligible property has the same protections as a property listed in the NRHP. The historical properties may include archaeological and architectural resources and TCPs.

The APE for cultural resources is the geographic area or areas within which an undertaking (project, activity, program or practice) may cause changes in the character or use of any historic properties present. The APE is influenced by the scale and nature of the undertaking and may be different for various kinds of effects caused by the undertaking. For this Proposed Action, the Navy determined that the APE includes the training study area as shown in Figure 2-1, Figure 2-2, and Figure 2-3, including the specific sites identified in Region 1 (see Figure 2-1, Chapter 2), Region 2 (see Figure 2-2, Chapter 2), and Region 3 (see Figure 2-3, Chapter 2).

The coastal region of the northwestern United States was largely shaped by a series of glacial events and changes in sea level, with subsequent emergence of land masses and deposition of glacial till and outwash. During the last glacial maximum (19,000 years ago), the Pacific Ocean was about 120 meters lower than the modern sea level and the Washington coastline expanded 39 kilometers west of the modern coast (ICF International et al., 2013). Early populations may have migrated into the area using different routes at different times. At least three possible migration routes have been proposed and include the full maritime migration, the partially amphibious migration, and the ice-free corridor migration (ICF International et al., 2013). Regardless of their migration route or initial adaptation, the first human inhabitants were probably big game hunters and are known as Paleoindians (8,000–14,000 years Before Present [BP]). Although they probably supplemented their diet by gathering various plant species, such organic items are not often well preserved by the archaeological record. Instead, they are best known through the artifacts they left behind, principally projectile points. Additionally, technological distinctions among the projectile points (Clovis, Folsom) may be indicative of cultural divisions and possibly the specialization toward hunting, particularly of game animals (U.S. Department of the Navy, 2015).

Continuing human occupation and use of the northern Puget Sound region dates to over 14,000 years ago. Prehistoric Northwest Coast peoples lived in an area with a relatively mild climate, temperate rain forest, and rich marine life. The chronological sequence for the northern Puget Sound is composed of four periods. The Generalized Resource Development (ca. 13,000–6,000 years BP) period, the succeeding Specialized Resource Development (ca. 6,000–2,500 years BP) period, the period of Specialized Resource Management (ca. 2,500–250 years BP), and finally, the period of Culture Conflict (ca. 250–100 years BP) which represents the early historic times (Dames & Moore, 1994).

As the climate became warmer and drier after 8,000 years BP, native groups along the coastline of the Pacific Northwest adapted to a maritime subsistence, focusing on the harvest of marine fish and mammals. Subsistence activities among the Northwest Coast peoples, including those living in the regions of Puget Sound, included a reliance on fishing, hunting, and gathering with an emphasis on aquatic resources, and the utilization of preservation and storage technologies.

The basic food sources included salmon, shellfish, land mammals, berries, freshwater fish, and wild plants. Vegetable foods included camas roots and lily bulbs supplemented by berries and nuts. Net traps or spears were used to capture waterfowl, and bows and arrows were used for game. Among the northwest tribes, riverine fishing, especially the taking of salmon and steelhead, was universally important as an element of diet and, in cultural traditions, in religious practices and trade. The northwest groups developed a wide variety of fishing methods such as nets, traps, weirs, spears, and hook and line, which they used to catch fish at numerous locations throughout the areas they lived and traveled. Species taken included coho, Chinook, pink, sockeye, and chum salmon; rockfish; perch; ling cod; halibut; herring; smelt; and trout. They gathered numerous shellfish species on beaches and mudflats, including cockles, clams, saltwater snails, oysters, barnacles, crab, chitons, and mussels (U.S.

Department of the Navy, 1997). Hunting expeditions pursued elk, deer, bear, otters, seals, and ducks (Watson, 1999). With a few exceptions, Northwest Coast peoples occupied permanent villages in winter, and many had permanent structures for other seasons. Their cedar-plank dwellings typically housed several related families. They often settled along the estuaries of small rivers and along the open coastline where intertidal, estuarine, and marine resources were available for subsistence uses. Northwest Coast material culture is distinctive for its highly developed woodworking technology that produced plank houses, dugout canoes, and beautifully crafted utensils. Renowned art work included carving, painting, and textiles.

Spanish, English, and Russian explorers and fur traders visited the area that would become the Northwest Coast of the United States during the late 1700s. In 1774, Juan Pérez explored the Northwest coastline. A year later, an expedition led by Bruno Heceta made the first recorded landing in what would become Washington State near the mouth of the Hoh River. Between 1770 and 1853, diseases such as smallpox, measles, influenza, malaria, and tuberculosis reduced the Puget Sound Native population from approximately 20,000 to 7,000 (Crowley et al., 2001). In 1792, Captain George Vancouver set out to map and explore coastal areas in what is now northern Washington. In May 1792, Joseph Whidbey, accompanied by Peter Puget, mapped and explored areas of what is now Puget Sound. America's formal incursion into this area was marked by the entry of the United States Exploring Expedition, commanded by Lieutenant Charles Wilkes, into Puget Sound in 1841.

The Puget Sound area became U.S. territory when the 1846 Oregon Treaty was signed. In 1850, Colonel Isaac Ebey claimed a square mile of prairie on Admiralty Inlet to become the first permanent settler on Whidbey Island. Immigrants continued to arrive in the Pacific Northwest and, during the 1850s, communities such as Port Townsend, Jefferson County, Island County (Oak Harbor), Coupeville, and Clallam County began taking shape. In 1853, Isaac Stevens became the first Washington Territory governor. Bainbridge Island, Bremerton, and other communities took shape in the later 1800s from the 1870s to the 1890s. These communities were largely founded by immigrants and grew based on resources that were available to them such as fishing, fur, farming, and trade location. Port Townsend was the Puget Sound's Customs Port of Entry in 1851; however, it did not remain the Port of Entry due to the absence of a railroad connection to the major markets that developed on the Puget Sound to the South (Caldbrick, 2010, 2014; Crowley et al., 2001; McClary, 2005a, 2005b; Oldham, 2005; Ott, 2007; Riddle, 2010; Wilma, 2007).

During the late 1850s and early 1860s, traders, travelers, missionaries, and settlers entered the area and began to move into land cleared by logging operations. These newcomers interacted with local tribes in numerous ways, including bringing in new diseases and alcohol. Maritime activity in the Puget Sound was associated with procurement of marine resources (fishing by the Puget Sound tribes and nations); general exploration and transit (initial exploration and trade, military activity and shipbuilding); and transport of raw materials, manufactured goods, and people (e.g., furs, timber, fish, gold, and miners).

Because of the treacherous nature of the Pacific coastline in Washington, light stations or lighthouses were initially constructed from 1852 to 1858 to assist in the rescue of mariners. These Life Saving Service locations joined with the Revenue Cutter Service in 1915 and became the U.S. Coast Guard. During World War II (WWII), these light stations were used as spotting stations for military land and sea operations as well as radio stations (ICF International et al., 2013).

3.2.2.1 Archaeological Resources

Archaeological sites within the Puget Sound region have largely been recognized in two settings: shell middens in littoral areas and sites located in riverine areas. In general, shell middens occur just above the mean high tide line. The oldest dated coastal shell midden site in Washington is approximately

4,000 years old, but the majority are less than 3,000 years old as that is around the time when the current sea level stabilized. Shell middens can be villages, camp sites, or shellfish processing areas that contain organically rich dark soil with shell fragments or shells, artifacts, and fire-cracked rocks near saltwater shorelines (Stilson et al., 2003). A 10,000-year-old stone tool site was discovered in 2015 in urban Seattle and is the oldest artifact assemblage from western Washington found to date (De Pastino, 2015).

Societies along the Washington coast ranged from camps to large complex villages along major rivers with monumental architecture and elaborate art. These societies functioned around harvesting and storing salmon that came in predictable runs. The families would move with the seasons, living in a village during the winter and seasonally moving from camp to camp to collect resources during seasons as appropriate (Stilson et al., 2003).

3.2.2.1.1 Region 1

There are 24 archaeological sites that are eligible for listing on the NRHP and one site that is listed on the NRHP in Region 1. A shell midden site is listed on the NRHP on the southwest shore of Ostrich Bay. McNeil Island is eligible for listing on the National Register of Historic Places as an archaeological district. Two Washington State Register properties occur in Region 1, they are the Tree of Heaven in Port Townsend, and Hadlock Bay Cultural Resources in Port Hadlock. At Naval Magazine (NAVMAG) Indian Island, three determined eligible and seven potentially eligible sites are within Region 1. South of Port Ludlow, burials are potentially eligible for listing on the NRHP. Burials and shell midden/burials are also on the south shore of Port Ludlow and are unevaluated. Historic debris is potentially eligible at the Point Hannon State Park. Two shell midden sites are potentially eligible at the Shine Tidelands State Park.

Naval Base (NAVBASE) Kitsap Bangor has a shell midden site that has been determined eligible for listing on the NRHP. A midden site is potentially eligible on the west shore of Bainbridge Island, and a petroglyphs site on the north shore of Bainbridge Island is potentially eligible for listing on the NRHP. At NAVBASE Kitsap Keyport, a pig bone site is potentially eligible for listing on the NRHP. A burial site at the east side of the Manette Bridge, Bremerton has been determined eligible for listing on the NRHP. Three shell midden sites have been determined eligible for listing on the NRHP.

Nine shipwrecks occur in Region 1. Obstructions and wrecks are listed in the National Oceanic and Atmospheric Administration Automated Wreck and Obstruction Information System database. In this area, most shipwrecks are of unknown origin, date of sinking, or type (National Oceanic and Atmospheric Administration, 2008). Archaeological sites that are listed or eligible for listing on the NRHP and shipwrecks in Region 1 described in this section make up the majority of the features in this Region. A table of features in this Region is under development pending confirmation of the final APE boundaries of Region 1, and will be updated in the Final EA. Listed and eligible sites in the Region are not expected to significantly change.

3.2.2.1.2 Region 2

Various archaeological investigations have identified a number of cultural resources at NAS Whidbey Island. Over ten archaeological surveys have been conducted and resulted in the recordation of 17 archaeological sites within the installation. Seven shell midden and lithic sites located at Seaplane Base were found potentially or determined eligible for listing on the NRHP as shown on Table 3.2-1. There are known historic era and prehistoric archaeological sites nearby in the northern portion of Whidbey Island (Washington State Parks and Recreation Commission, 2016).

One archaeological site is listed on the NRHP, site 45-IS-2 at Cama Beach. There are 18 properties that are potentially eligible or determined eligible for listing on the NRHP within the training study area in Region 2. These eligible properties are listed in Table 3.2-1. There are no known shipwrecks in Region 2.

Table 3.2-1: NRHP Listed/Eligible Archaeological Sites in the Region 2 Training Area

#	PROPERTY NAME	LOCATION	DATE LISTED NRHP/ DETERMINED ELIGIBLE	DAHP RESOURCE ID
1	SK00021: Shell Midden	HISP	Potentially Eligible (PE) 8/9/1974	648646
2	SK00007: Shell Midden	DPSP	PE 4/9/2009	648632
3	SK00008: Shell Midden	DPSP	PE 4/9/2009	648633
4	SK00536: Bowman Bay Marine Biological Station	DPSP	PE 6/17/2014	661484
5	SK00144: Lithic Midden	DPSP	-	648762
6	SK00209: Lithic Scatter	DPSP	PE 7/07/2000	639530
7	IS00090: Shell Midden	DPSP	PE 3/1988	639490
8	IS00107: Midden	DPSP	PE 7/1988	639502
9	IS00031: Midden	DPSP	PE 2001	639431
10	IS00323: Historic Debris	AF*	PE 3/2013	659549
11	IS00283: Historic Debris	AF*	PE 3/2009	652905
12	IS00041: Lithic Debris	SB*	PE 9/13/2013	639441
13	IS00240: Shell Midden	SB*	PE 9/15/2007	639548
14	IS00241: Historic Debris	SB*	PE 9/27/2007	639549
15	IS00082: Midden	SB*	DE 8/3.2010	639482
16	IS00204: Midden	SB*	PE 10/1/2007	639526
17	IS00081: Lithic/Midden	SB*	PE 10/19/2007	639481
18	IS000237: Shell Midden	SB*	PE 9/15/2007	639546
19	IS00002: xwi?əx pəqwəb	CB	Listed 10/23/2008	639402

Notes: AF = Ault Field, CB = Cama Beach, DAHP = Department of Archaeology and Historic Preservation, DE = Determined Eligible, DPSP = Deception Pass State Park, HISP = Hope Island State Park, NAS = Naval Air Station, NRHP = National Register of Historic Places, SB = Seaplane Base, * = NAS Whidbey Island

3.2.2.1.3 Region 3

At Cape Disappointment State Park there are four potentially eligible sites on land. There are five unevaluated shipwrecks listed in the Department of Archaeology and Historic Preservation (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) database in close proximity to the Cape Disappointment part of Region 3's APE. These are listed in Table 3.2-2. These five shipwrecks are the only ones known in the Region 3 APE.

Table 3.2-2: NRHP Listed/Eligible Archaeological Sites/Shipwrecks in the Region 3 Training Area

#	PROPERTY NAME	LOCATION	DATE LISTED NRHP/ DETERMINED ELGIBLE	DAHP RESOURCE ID
1	PC00118: Historic Refuse Dump	CDSP	Potentially Eligible (PE) 11/12/2002	646757
2	PC00220: Historic Wagon Road	CDSP	PE 11/12/2002	659089
3	PC00113 & 00114: Old Coast Guard Road	CDSP	PE 11/12/2002	646752
4	PC00120: Park Hub WWII Foundations	CDSP	PE 11/12/2003	646759
7	<i>Rosecrans</i> (Shipwreck)	CD	Unevaluated	-
8	<i>Unknown</i> (Shipwreck)	CD	Unevaluated	-
9	<i>Unknown</i> (Shipwreck)	CD	Unevaluated	-
10	<i>Admiral Benson</i> (Shipwreck)	CD	Unevaluated	-
11	<i>Bette M</i> (Shipwreck)	CD	Unevaluated	-

Notes: CD = Cape Disappointment, CDSP = Cape Disappointment State Park, DAHP = Department of Archaeology and Historic Preservation, NRHP = National Register of Historic Places, WWII = World War II

3.2.2.2 Architectural Resources

3.2.2.2.1 Region 1

Region 1 contains historical areas such as Fort Flagler, Fort Townsend, Fort Worden, NAVMAG Indian Island, NAVBASE Kitsap Keyport, NAVBASE Kitsap Bangor, NAVBASE Kitsap Bremerton, Manchester Fuel Department Black Island, and McNeil Island. The U.S. government established military outposts on the Olympic Peninsula during the early twentieth century, including Fort Flager and Fort Worden in 1902 near Port Townsend. The timber, and shipbuilding industries were the largest in this region followed by iron-smelting operation and paper mill. The Olympic National Park was established in 1938 by President Franklin D. Roosevelt covering 922,653 acres. During World War I a railroad was planned for the peninsula but was not finished in time and was disassembled. Ferries operated until a bridge was constructed in 1952 across Hood Canal. Indian Island was a sparsely populated and rural, and was supported mostly by nearby towns such as Port Hadlock. The need for more ammunition storage facilities and an aircraft arming station for Naval Air Station, Seattle was identified by the Navy in 1936. The NAVMAG Indian Island facility was established in 1941 as a Naval ammunition depot and a Naval net depot during World War II and was involved in storing ordnance and loading ordnance to and from ships, as well as manufacturing nets for harbor and fleet defense.

NAVMAG Indian Island is largely composed of groupings of World War II-era magazines situated in wooded areas. Activity decreased at Indian Island after World War II until the 1970s when the Trident missile base was established in Bangor and upgrades were made at Indian Island to make it a fully functioning ordnance depot. Four buildings have been classified as eligible for the NRHP at NAVMAG Indian Island (Hampton et al., 2010a).

NAVBASE Kitsap Keyport contains the Keyport Industrial Historic District, Keyport Residential Historic District, and Building 6, which are all eligible for listing on the NRHP. NAVBASE Kitsap Keyport on Keyport Peninsula is named Keyport because it was considered the key to Liberty Bay. In the late nineteenth century, the peninsula was used for agricultural activity and limited development of U.S. Navy facilities. The Puget Sound Naval Yard at Bremerton was established in 1891 on the Kitsap Peninsula to serve as a

U.S. Navy Pacific Fleet repair facility. The Pacific Coast Torpedo Station was established in 1914 on the Kitsap Peninsula, and the Manchester Refueling Station was established in 1938. Keyport and the Puget Sound Naval Yard underwent rapid expansion in 1939 when Hitler invaded Poland, and the per-war and World War II years changed the Kitsap Peninsula from a rural farming and milling community to a large Naval facility (Hampton et al., 2011b).

At NAVBASE Kitsap Bangor one facility, Building 2000 is recommended s eligible for listing on the NRHP. NAVBASE Kitsap Bangor was created after the Navy annexed the town of Bangor and relocated 1,100 people in 1944. The Navy established a NAVMAG at Bangor and the installation connected the marginal wharfs, magazines, and warehouses in the region. During World War II the NAVMAG Bangor accommodated over 1,600 uniformed military service personnel and the primary focus of the base was the trans-shipment of ordnance. In the 1960s, Bangor was transformed to a base for handling ballistic nuclear missiles called Polaris missiles. In 1973 Bangor became the home port for nuclear missile-armed Trident submarines, which it still accommodates today (Hampton et al., 2010b).

Naval Base NAVBASE Kitsap Bremerton contains four historic districts that are listed on the NRHP, Puget Sound Radio Station Historic District, Naval Hospital Reservation Historic District, Officers' Row Historic District, and Marine Reservation Historic District. NAVBASE Kitsap Bremerton contains mostly dormitories, officer housing, personnel support facilities, warehouses, administrative facilities, supporting utilities buildings and an inactive ship storage facility. The base supports ships and submarines that home port in Bremerton and Bangor. Bremerton supported the Navy Yard Puget Sound as the first dry dock, administration building, and officers' housing were completed in 1896. United States involvement in World War I and World War II contributed to the overall need for facilities and personnel in the Pacific Northwest and the development at Naval Base Kitsap Bremerton (Hampton et al., 2011a).

There are 6 buildings at Naval Supply Station Manchester that are eligible for listing on the NRHP. Manchester was originally known as Brooklyn, but it was changed to Manchester in 1892 in hopes that it would be a successful port city like Manchester in England. Manchester grew slowly throughout the 1900s until the 1940s and the WWII military effort. It grew rapidly during this decade with the development of the Naval fuel depot and added new housing and businesses until 1949 when ferry service was discontinued to the city. In 1970 the Manchester Division of Naval Supply Center Puget Sound was reassigned as the Naval Supply Center Puget Sound, Manchester Fuel Depot, and 150 acres of the property were deemed excess and decommissioned. This area became the Manchester State Park. The Naval Supply Station Manchester's primary mission is to provide bulk fuel and lubricant support to area Navy afloat and shore activities (Hampton et al., 2010c).

There are 49 potentially eligible or determined eligible architectural sites for listing on the NRHP in Region 1. Three sites are listed as National Historic Landmarks (NHLs), 14 are listed on the NRHP, and 5 are listed on the Washington Heritage Register. All Architectural sites that are listed or eligible for listing on the NRHP in Region 1 described in this section make up the majority of the features in this Region. A table of features in this Region is under development pending confirmation of the final boundaries of Region 1, and will be updated in the Final EA. Listed and eligible sites in the Region are not expected to significantly change.

3.2.2.2.2 Region 2

There are 77 listed or eligible buildings and structures in Region 2 that are listed in Table 3.2-3. Whidbey Island is located within a littoral setting. Prior to 1942, the lands on Whidbey Island were rural. Farms

and their accompanying structures dominated the landscape. Roughly 85 rural or farm lots were located at Seaplane Base. Condemnation of these rural lots for use by the Navy was accepted on 22 June 1942 (Hardlines Design Company, 2010).

NAS Whidbey Island was intended to provide the barest operational buildings and utilities for re-arming seaplanes. The outbreak of World War II brought more activity to Whidbey Island, leading to the air station becoming an important training center. Patrol planes based on NAS Whidbey Island flew long-range navigation training missions over the north Pacific. Buildings continued to be added to the original complement throughout World War II (Hardlines Design Company, 2010). In 1949, NAS Whidbey Island became a major fleet support station, and the only major station north of San Francisco and west of Chicago. This decision and the rising tensions of the Cold War, in connection with the outbreak of the Korean War, resulted in the development of additional facilities and rehabilitation of existing structures in the early 1950s (Dames & Moore, 1994). This development centered on Ault Field with the Seaplane Base taking a supporting role. The Seaplane Base Historic District (SPBHD) is eligible for listing in the NRHP (Houser, 2010). The Navy determined that 37 buildings, structures, and landscape features are NRHP-eligible, either individually or as contributing resources of the NRHP-eligible SPBHD. The SPBHD was redefined in January 2010 with the help of the SHPO extending its limits from the Fuel Farm to the Victory Homes at the top of the hill on Coral Sea Drive.

The Central Whidbey Island Historic District was listed on the NRHP in 1973 and has a local level of significance (National Park Service, 1973). Fort Casey is a contributing factor to the Central Whidbey Island Historic District (Washington State Parks and Recreation Commission, 2008).

Ebey's Landing National Historical Reserve is made up of a partnership between the federal, state, county and town, and offers support to the community in preservation of their cultural and natural legacy. Approximately 85 percent of the Reserve is privately owned and preserves connections to the Coast Salish peoples, English explorers and traders, American farmers and sea captains, and Chinese farmers. The Reserve consists of over 17,000 acres and encompasses the entire central Whidbey Island area including Penn Cove and the town of Coupeville (National Park Service, 2016). These listed or eligible sites are shown in Table 3.2-3.

Table 3.2-3: NRHP Listed/Eligible Buildings and Structures in the Region 2 Training Area

#	PROPERTY NAME	LOCATION	DATE LISTED NRHP/ DETERMINED ELIGIBLE	DAHP RESOURCE ID
1	Deception Pass State Park Historic District (DPSPHD)	DPSP	Determined Eligible (DE) 12/12/2012	674889
1a	Latrine (Cranberry Lake Bathing)	DPSP	Contributes to DPSPHD	-
1b	Combination Building (Cranberry Lake Bathing)	DPSP	Contributes to DPSPHD	-
1c	Shelter Kitchen (Cranberry Lake Bathing)	DPSP	Contributes to DPSPHD	-
1d	Campstove Shelter Bldg (Cranberry Lake Bathing)	DPSP	Contributes to DPSPHD	-
1e	Pump House (Cranberry Lake Bathing)	DPSP	Contributes to DPSPHD	-
1f	Comfort Station (Cranberry Lake Bathing)	DPSP	Contributes to DPSPHD	-
1g	Caretaker's Residence (Cranberry Lake Caretaker's)	DPSP	Contributes to DPSPHD	-
1h	Caretaker's Shop & Garage (Cranberry Lake Caretaker's)	DPSP	Contributes to DPSPHD	-
1i	Maintenance Shop (Cranberry Lake Caretaker's)	DPSP	Contributes to DPSPHD	-

**Table 3.2-3: NRHP Listed/Eligible Buildings and Structures in the Region 2 Training Area
(continued)**

#	PROPERTY NAME	LOCATION	DATE LISTED NRHP/ DETERMINED ELIGIBLE	DAHP RESOURCE ID
1j	Fire Circle (Cornet Bay Picnic Area)	DPSP	Contributes to DPSPHD	-
1k	Incinerator (Cornet Bay Picnic Area)	DPSP	Contributes to DPSPHD	-
1l	Drinking Fountain (Cornet Bay Picnic Area)	DPSP	Contributes to DPSPHD	-
1m	Community Kitchen (North Beach Picnic Area)	DPSP	Contributes to DPSPHD	-
1n	Shelter Kitchen (North Beach Picnic Area)	DPSP	Contributes to DPSPHD	-
1o	Campstove Shelter (North Beach Picnic Area)	DPSP	Contributes to DPSPHD	-
1p	Latrine (North Beach Picnic Area)	DPSP	Contributes to DPSPHD	-
1q	Caretaker's Residence (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1r	Caretaker's Shop & Garage (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1s	Barn (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1t	Bath House (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1u	Community Kitchen (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1v	Combination Building (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1w	Latrine (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1x	Campstove Shelter (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1y	Drinking Fountain (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1z	Pump House (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1aa	Bath House (Bowman Bay Bathing)	DPSP	Contributes to DPSPHD	-
1ab	Entrance Piers	DPSP	Contributes to DPSPHD	-
1ac	Pedestrian Underpass (Highway 20)	DPSP	Contributes to DPSPHD	-
1ad	Log and Stone Guardrails (Highway 20)	DPSP	Contributes to DPSPHD	-
1ae	Deception Pass Bridge	DPSP	Contributes to DPSPHD	676025
2	Facility 118	AF*	DE 1/26/2010	57764
3	Facility 386	AF*	DE 1/26/2010	41581
4	Facility 410	AF*	DE 4/4/2014	15-00041
5	Facility 960	AF*	DE (no date)	57724
6	Facility 2700	AF*	DE 4/4/2014	67797
7	Seaplane Base Historic District (SBHD)	SB*	DE 1/26/2010	-
7a	Facility 12	SB*	Contributes to SBHD	57765
7b	Facility 13	SB*	Contributes to SBHD	57794
7c	Facility 14	SB*	Contributes to SBHD	57766
7d	Facility 16	SB*	Contributes to SBHD	57795
7e	Facility 17	SB*	Contributes to SBHD	57796
7f	Facility 18	SB*	Contributes to SBHD	57797
7g	Facility 20	SB*	Contributes to SBHD	57767
7h	Facility 22	SB*	Contributes to SBHD	57800
7i	Facility 26	SB*	Contributes to SBHD	57768
7j	Facility 27	SB*	Contributes to SBHD	57769

**Table 3.2-3: NRHP Listed/Eligible Buildings and Structures in the Region 2 Training Area
(continued)**

#	PROPERTY NAME	LOCATION	DATE LISTED NRHP/ DETERMINED ELIGIBLE	DAHP RESOURCE ID
7k	Facility 33	SB*	Contributes to SBHD	57801
7l	Facility 34	SB*	Contributes to SBHD	57802
7m	Facility 49	SB*	Contributes to SBHD	57770
7n	Facility 60	SB*	Contributes to SBHD	57804
7o	Facility 62	SB*	Contributes to SBHD	57805
7p	Facility 81	SB*	Contributes to SBHD	57807
7q	Facility 87	SB*	Contributes to SBHD	57772
7r	Facility 94	SB*	Contributes to SBHD	57811
7s	Facility 98/215	SB*	Contributes to SBHD	57812
7t	Facility 613	SB*	Contributes to SBHD	57777
7u	Facility 800	SB*	Contributes to SBHD	26
7v	Facility 802	SB*	Contributes to SBHD	73
7w	Facility 2588-2599	SB*	Contributes to SBHD	67863
8	Victory Homes Historic District (VHHD)	SB*	DE 1/26/2010	-
8a	Facility 613 & 614	SB*	Contributes to VHHD	57821
9	Central Whidbey Island Historic District (CWIHD) ¹	CWI	Listed 12/12/1973	674588
9a	Fort Casey Military site	FCSP	Contributes to CWIHD	639500
9b	Admiralty Head Lighthouse	FCSP	Contributes to CWIHD	-
9c	Officers' Housing	FCSP	Contributes to CWIHD	-
9d	Warehouses	FCSP	Contributes to CWIHD	-
9e	Firehall	FCSP	Contributes to CWIHD	-
9f	Gas Station	FCSP	Contributes to CWIHD	-
9g	Quartermaster Office	FCSP	Contributes to CWIHD	-
9h	Barracks	FCSP	Contributes to CWIHD	-
9i	Gymnasium	FCSP	Contributes to CWIHD	-
9j	Rubin Turman Battery	FCSP	Contributes to CWIHD	-
9k	Quartermaster Wharf	FCSP	Contributes to CWIHD	-
9l	Pump House	FCSP	Contributes to CWIHD	-

¹ 396 buildings, sites, structures and objects contribute to the Central Whidbey Island Historic District. Only the contributing elements that fall in the APE are identified.

Notes: AF = Ault Field, CWI = Central Whidbey Island, CWIHD = Central Whidbey Island Historic District, DAHP = Department of Archaeology and Historic Preservation, DPSP = Deception Pass State Park, DPSPHD = Deception Pass State Park Historic District, FCSP = Fort Casey State Park, NAS = Naval Air Station, NRHP = National Register of Historic Places, SB = Seaplane Base, * = NAS Whidbey Island

3.2.2.2.3 Region 3

Region 3 contains Westhaven, Twin Harbors, Grayland Beach, Leadbetter Point, Pacific Pines, and Cape Disappointment, along the West coast of Washington and Fort Columbia on the Columbia river. The Westport Light State Park and Westhaven state park were combined into one park in 2016. The historic

Westport Lighthouse, also known as the Grays Harbor Lighthouse, was built in 1898 and is adjacent to the park on Coast Guard property. The lighthouses along the west coast of Washington were built to aide in navigation. The Westport Lighthouse was used to at the south entrance of Grays Harbor for Point Chehalis (Washington State Parks, 2017a). Twin Harbors state park allows for camping in cabins, tents, and Recreational Vehicles along the beach. It is a 222-acre camping park that is 4 miles south of Westport. During the 1930s, the park was a military training ground. In 1977, the last remaining barracks were removed from Twin Harbors state park (Washington State Parks, 2017b).

Grayland Beach state park contains a beach loop campground, on 412 acres with 7,449 feet of ocean frontage. The camping includes full hook up campsites, yurts, and standard and primitive tent sites. Settlement of the lands that comprise the park began in the 1870s by Euro-Americans, but the land was traditional territory of multiple Native American groups prior to that, which included the Shoalwater Bay and Chehalis tribes (Washington State Parks, 2017c). Leadbetter Point state park is a day use area that is known for birdwatching. It is next to the Willapa National Wildlife Refuge where visitors can kayak, canoe, and paddleboard. The park contains snowy plovers and breeding areas that are blocked off from visitor access for the bird's protection. Other activities at the park include clamming, hiking, and saltwater fishing (Washington State Parks, 2017d). Pacific Pines is a 10-acre day use beach park on the Long Beach Peninsula. It offers beach walking, birding, fishing, shellfish harvest, crabbing, and other wildlife viewing (Washington State Parks, 2017e).

Cape Disappointment was originally part of the Chinook tribal territory and was used for maritime fur trade. It was first mapped by Burno de Hezeta in 1775, and named by Captain John Meares in 1788 when he could not locate the river entrance. In 1792, Captain Robert Gray found the river entrance and named the river the Columbia river after his ship. Lewis and Clark arrived at Cape Disappointment in 1805 from St. Louis, Missouri after a 3,700 mile, 18-month trek. In 1856, the Cape Disappointment Lighthouse was constructed as a warning to mariners of the river bar where the Columbia river meets the Pacific. The river bar is known as "the graveyard of the Pacific" due to its treacherous conditions. The Cape Disappointment Lighthouse is the oldest operating lighthouse in the Pacific Northwest. The North Head Lighthouse was completed in 1898 to warn southbound ships of the river bar. During the Civil War, smoothbore cannons were installed at Cape Disappointment to protect the mouth of the Columbia River. In 1875, the installation was expanded and became Fort Canby. The fort was used until the end of World War II. In 1912, the U.S. Army Corps of Engineers constructed the North Jetty to provide safer navigation of the Columbia River Bar and to complement the South Jetty on the Oregon side of the river. The Civilian Conservation Corps camp restored the fort and improved roads and trails at Cape Disappointment from 1935 to 1938. Washington State Parks purchased "Bell's View" in 1938 and began Cape Disappointment State Park which now covers 1,882 acres. The park offers camping in yurts, cabins, historic vacation homes, and tents. Other park activities include hiking, boating, clamming, crabbing, fishing, bird watching, beach exploration, concerts, museum attendance (Washington State Parks, 2017f).

The Fort Columbia Historical state park is one of the most intact coastal defense sites in the United States. It was built between 1896 and 1903, renovated in World War II, and decommissioned in 1947. It is a day-use park on Chinook Point with historic buildings including officers' homes, artillery batteries, and 6-inch rapid-fire WWII-era disappearing guns. The park offers vacation housing, bird watching, hiking, and secluded beaches over its 617 acres within the Lewis and Clark National Historical Park (Washington State Parks, 2017g).

There are 17 NRHP listed or eligible buildings and structures in the Region 3 Training Area, and they are shown in Table 3.2-4. The Grays Harbor light station was listed on the NRHP in 1977. It is an octagonal masonry tower that is 26 feet (ft.) 6 in. in diameter and rises to a height of 108 ft. and 1 in. (diminishing in diameter as it rises) (National Park Service, 1977). The Cape Disappointment Historic District was listed on the NRHP in 1975. A large headland that forms the northern portion of the mouth of the Columbia River, Cape Disappointment Historic District includes the southernmost extension of the land into the Columbia River, North Head, and McKenzie Head. The district includes lighthouses, batteries, Fort Canby, and supporting facilities (National Park Service, 1975). There are two historic properties listed in the NRHP in Region 3 and shown in Table 3.2-4.

Table 3.2-4: NRHP Listed/Eligible Buildings and Structures in the Region 3 Training Area

#	PROPERTY NAME	LOCATION	DATE LISTED NRHP/ DETERMINED ELGIBLE	DAHP RESOURCE ID
1	Grays Harbor Light Station	WLSP	Listed 7/15/2009	674813
2	Cape Disappointment Historic District (CDHD)	CDSP	Listed 8/15/1975	674637
2a	Fort Canby Searchlight 5	CDSP	Contributes to CDHD	53975
2b	Fort Canby Searchlight 6	CDSP	Contributes to CDHD	53976
2c	North Head Base End Station Complex	CDSP	Contributes to CDHD	53977
2d	North Head Base End Station Powerhouse	CDSP	Contributes to CDHD	53978
2e	North Head Lighthouse Keeper's House	CDSP	Contributes to CDHD	57982
2f	North Head Lighthouse	CDSP	Contributes to CDHD	626856
3	Chinook Point (CP)	FCSP	Listed NHL 6/28/1978	675678
3a	Building 7	FCSP	Contributes to CP	4357909
3b	Building 6: NCO Duplex	FCSP	Contributes to CP	435789
3c	Building 5: Scarborough House	FCSP	Contributes to CP	435787
3d	Building 11: NCO Duplex	FCSP	Contributes to CP	618813
3e	Building 10: Steward's House	FCSP	Contributes to CP	618814
3f	Building 1: Interpretive Center	FCSP	Contributes to CP	613381
3g	Building 2: Admin Building	FCSP	Contributes to CP	613382
3h	Commanding Officer's Quarters	FCSP	Contributes to CP	50191

Notes: CDSP = Cape Disappointment State Park, DAHP = Department of Archaeology and Historic Preservation, FCSP = Fort Columbia State Park, NCO = Noncommissioned Officers, NHL = National Historic Landmark, NRHP = National Register of Historic Places, WLSP = Westport Light State Park

3.2.2.3 Traditional Cultural Properties

To date, no TCPs have been identified in the APEs (Regions 1–3). There are no TCPs listed in the DAHP Database identified in the APEs. Tribes whose traditional lands fall in the training study area are being consulted with for their assistance in identifying TCPs.

3.2.2.3.1 Region 1 and 2

A Western Washington tribe has indicated that the marine waters used by tribal fishermen are composed of a network of sites within the context of a traditional cultural landscape; the tribe believes that this network of sites is likely to be considered eligible for the NRHP as a TCP. In 2017, Josh Wisniewski completed an Evaluation of S'Klallam and Chemakum Places of Historical and Cultural

Significance at Naval Magazine Indian Island, Jefferson County, Washington for Naval Facilities Northwest at Silverdale, Washington. This study supplemented consultation that continues to further define TCPs in Regions 1 and 2.

Cultural features within the maritime cultural landscape, spread throughout the APE, are located in submerged, nearshore, intertidal, and marine settings. Cultural features include, but are not limited to, clam and oyster beds and fishing stations, landmarks, camps, underwater outcroppings, reefs, and kelp beds. Many TCPs are natural objects, or appear to have had little or no visible modification by humans. Yet a natural object, a traditional salmon set net site, shellfish beds, a yew tree, a kelp bed, or an underwater rock outcropping may be eligible for the NRHP based on local cultural and historic significance. Different sites across the training study area have unique cultural and historical distinctiveness for tribal members. Some sites have distinct and clear associations with important aspects of tribal history. Other sites have associations with particular tribal families and important associations with historic individuals significant in tribal history. Other important harvest sites may appear to lack individual distinction but are an integral part of broader traditional cultural network of maritime and marine cultural sites (U.S. Department of the Navy, 2015).

3.2.2.3.2 Region 3

No known TCP studies have been performed in the training study area of Region 3. No TCPs are identified in the DAHP's Washington Information System for Architectural and Archaeological Records Data.

3.2.3 Environmental Consequences

The analysis of potential effects to cultural resources considers both direct and indirect effects. Direct effects may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment that contribute to the importance of the resource, introducing visual, atmospheric, or audible elements that are out of character for the period the resource represents (thereby altering the setting), or neglecting the resource to the extent that it deteriorates or is destroyed. Indirect effects may be the result of direct effects such as a physical damage to an architectural resource and the indirect effect that people are no longer able to see or access that resource. Fifty-eight organizations were contacted by the Navy for consultation to minimize effects to cultural resources as a result of implementing Alternative 1, 2, and 3 and are listed in Appendix B (Agency Correspondence).

3.2.3.1 No Action Alternative

Under the No Action Alternative, training activities would occur in the Region 1 training study area with two training blocks per year and an individual site would be used no more than 10 times a year. Training activities under the No Action Alternative include launch and recovery of submersible or small boats; driving these vessels (including unmanned underwater vehicles) to training locations (insertion and extraction); swimming and diving; walking in the nearshore, on the beach (over-the-beach), and on land (special reconnaissance); and staying overnight (special reconnaissance). Under the No Action Alternative, small recall devices could be used in emergency situations to alert the diver/swimmers to return to the surface of the water.

The emergency recall device is an MK-137 that is intended for underwater use only. It contains a small pyrotechnic of 1.75 grams of double-based propellant composition, an ignition charge of black powder, a primer, and a blasting fuse to produce a 6.6-second delay. It is dropped adjacent to the

diver/swimmers to alert them that a potential emergency situation is occurring and that they should return to the surface. Due to the small force of the 1.75 grams of double-based propellant, it is not expected that any potential underwater cultural resource would be affected. Additionally, because the device would only be used during an emergency, which is unpredictable, emergency recall device was not carried forward for further analysis.

3.2.3.1.1 Archaeological Resources

Naval special operations training would avoid known burial sites and eroding shell middens. In the event archaeological materials not previously identified are discovered, all training activities in the immediate area would be stopped and the appropriate Navy Cultural Resources Manager contacted to initiate Section 106 procedures.

Water-based training avoids known shipwrecks or sunken resources that may be present within the APE. In addition, proposed training activities avoid contact with hard surfaces that may be present within the training study area in the interest of trainee safety and avoidance of potential adverse effects.

As presented under the No Action Alternative, naval special operations training would avoid burial sites and eroding shell middens; therefore, no adverse effects with regard to archaeological resources would occur with the continuation of training under the No Action Alternative.

3.2.3.1.2 Architectural Resources

Under the No Action Alternative, buildings are not used as part of the training activities in Region 1. Therefore, no adverse effects with regard to historic structures would occur with the continuation of training under the No Action Alternative.

3.2.3.1.3 Traditional Cultural Properties

The No Action Alternative does not include the use of live fire, explosives, construction, tree climbing, digging, building of camp fires, or infrastructure. Vehicles supporting training events would remain on existing roadways. Trainees operate with the intent of minimizing noise to avoid detection. Training activities do not restrict access to TCPs under the No Action Alternative, however, if a training event were to disrupt a TCP that is in use due to noise or visual effects of training, the training event would be moved. Thus, the No Action Alternative would not adversely affect TCPs that may be present within the training study area. Therefore, no adverse effects with regard to TCPs would occur with the continuation of training under the No Action Alternative.

3.2.3.2 Alternative 1

Under Alternative 1, the proposed training would occur in Region 1 with an increased tempo above the No Action Alternative from two to four training blocks per year. Within Region 1, an individual site would be used for no more than 20 times per year. The same training activities in the No Action Alternative would occur. The following training activities would be added: simulated building clearance and the training with UASs. The use of remote operated vehicles would be included with unmanned underwater vehicles.

3.2.3.2.1 Archaeological Resources

While there is an increase in site usage and potential training locations under Alternative 1 when compared to the No Action Alternative, there would be no change in potential effects under Alternative 1 from those presented under the No Action Alternative. Training activities would not disturb known burial and eroding shell midden sites and would avoid known shipwrecks or sunken

resources that may be present within the APE. Therefore, a finding of no historic properties adversely affected with regard to archaeological resources would occur with implementation of Alternative 1.

3.2.3.2.2 Architectural Resources

Under Alternative 1, simulated building clearance training activities in Region 1 would be localized, infrequent, and brief in duration. The training could be addressed as a Catastrophic Exercise and minimization measures would be discussed and agreed upon during SHPO consultation during the consultation process, per Section 106 and 36 CFR Part 800. Trainees operate with the intent to leave no trace during or after a training event. No doors or windows would be broken when entering or leaving a building used for training. Paint pellets used during training would bounce off of hard surfaces, and paint markings would be water soluble and cleaned off with water once training is completed. Brass from the paint pellets would also be picked up once training is completed.

Thus, the non-invasive nature of the training under the No Action Alternative avoids potential adverse effects to architectural resources in the Region 1 training study area. Therefore, no adverse effects with regard to historic structures would occur with the continuation of training under the No Action Alternative.

3.2.3.2.3 Traditional Cultural Properties

Trainees operate with the intent of minimizing noise to avoid detection and training activities would not restrict access to TCPs. Training activities within Region 1 and resource avoidance and minimization measures under Alternative 1 would not vary from those presented under the No Action Alternative. Thus, Alternative 1 would not adversely affect TCPs that may be present within the training study area. Therefore, a finding of no historic properties adversely affected with regard to TCPs would occur with implementation of Alternative 1.

3.2.3.3 Alternative 2

Under Alternative 2, the locations, training activities, number of training blocks per year, and site usage per year would be exactly the same as those identified in Alternative 1 for Region 1. However, Alternative 2 adds two new training locations, Regions 2 and 3. Regions 2 and 3 would have one training block every other year with an individual site being used no more than three times every other year in each region. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and Simulated Building Clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at R6701. Also, one new proposed training activity, High-Angle Climbing, would occur at Deception Pass State Park in Region 3.

3.2.3.3.1 Archaeological Resources

While there is an increase in site usage and potential training locations under Alternative 2 when compared to Alternative 1, there would be no change in anticipated effects, as activities would be non-invasive in nature as described under Alternative 1. Training activities would not disturb known burial and eroding shell midden sites and would avoid known shipwrecks or sunken resources that may be present within the APE. Therefore, a finding of no historic properties adversely affected with regard to archaeological resources would occur with implementation of Alternative 2.

3.2.3.3.2 Architectural Resources

The addition of training in Regions 2 and 3 under Alternative 2 would remain consistent with the non-invasive nature of the training as described under Alternative 1. The additional regions would result

in a broader use of the training study area; however, training events would remain localized, infrequent, and brief in duration. Trainees would operate with the goal to leave no trace during or after a training event. The non-invasive nature of the training associated with the implementation of Alternative 2 would avoid potential adverse effects to architectural resources in the training study area. Therefore, a finding of no historic properties adversely affected on historic structures would occur with implementation of Alternative 2.

3.2.3.3.3 Traditional Cultural Properties

Under Alternative 2, the increase in total training blocks and potential training locations, when compared to Alternative 1, would remain consistent with the non-invasive nature of the training as described under Alternative 1. Trainees would operate with the intent of minimizing noise to avoid detection and training activities would not restrict access to TCPs. Thus, Alternative 2 would not adversely affect TCPs that may be present within the training study area. Therefore, no adverse effects on TCPs would occur with implementation of Alternative 2.

3.2.3.4 Alternative 3 (Preferred Alternative)

Under Alternative 3, proposed training activities would be conducted in Regions 1, 2, and 3 as identified in Alternative 2. In addition, there would be an increase in training tempo in Region 1 from four to six training blocks per year and an individual site would be used no more than 36 times per year.

3.2.3.4.1 Archaeological Resources

Under Alternative 3, the proposed training activities would occur as identified in Alternative 2, with an increase in tempo in Region 1 from four to six training blocks.

While there is an increase in training blocks and site usage under Alternative 3 when compared to Alternative 2 in Region 1, there would be no change in anticipated effects, as activities would remain non-invasive in nature. Training activities would not disturb known burial sites and eroding shell middens and would avoid known shipwrecks or sunken resources that may be present within the APE. Therefore, a finding of no historic properties adversely affected with regard to archaeological resources would occur with implementation of Alternative 3.

3.2.3.4.2 Architectural Resources

The increase in tempo in Region 1 under Alternative 3 would remain consistent with the non-invasive nature of the training as described under Alternative 2. The additional training in Region 1 would result in a broader use of the training study area; however, training events would remain localized, infrequent, and brief in duration. Trainees would operate with the goal to leave no trace during or after a training event. The non-invasive nature of the training associated with the implementation of Alternative 3 would avoid potential adverse effects to architectural resources in the training study area. Therefore, a finding of no historic properties adversely affected with regard to historic structures would occur with implementation of Alternative 3.

3.2.3.4.3 Traditional Cultural Properties

The increase in tempo in Region 1 under Alternative 3 would remain consistent with the non-invasive nature of the training as described under Alternative 2. Trainees would operate with the intent of minimizing noise to avoid detection and training activities would not restrict access to TCPs. Thus, Alternative 3 would not adversely affect TCPs that may be present within the training study area.

Therefore, a finding of no historic properties adversely affected with regard to TCPs would occur with implementation of Alternative 3.

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3.3 Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into four major categories: (1) terrestrial vegetation, (2) terrestrial wildlife, (3) aquatic vegetation, and (4) aquatic wildlife. Threatened, endangered, and other special-status species are discussed in their respective categories.

3.3.1 Regulatory Setting

Special-status species, for the purposes of this EA, are those species listed as threatened or endangered under the federal Endangered Species Act (ESA), species afforded federal protection under the Marine Mammal Protection Act (MMPA), species protected under the Migratory Bird Treaty Act (MBTA), eagle species protected under the Bald and Golden Eagle Protection Act (BGEPA), and species considered by the State of Washington as threatened or endangered under state law. The federal regulatory frameworks relevant to biological resources analyzed in this EA are summarized below:

3.3.1.1 Endangered Species Act

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the DoD where an Integrated Natural Resources Management Plan has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

3.3.1.2 Marine Mammal Protection Act

All marine mammals are protected under the provisions of the MMPA. The MMPA prohibits any person or vessel from “taking” marine mammals in the United States or the high seas without authorization. The MMPA defines “take” to mean “to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal.”

3.3.1.3 Migratory Bird Treaty Act

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by Executive Order (EO) 13186 (Migratory Bird Conservation). Under the MBTA it is unlawful by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior authority to prescribe regulations to exempt the Armed Forces from the incidental taking of migratory birds during authorized military readiness activities. The final rule authorizing the incidental taking of migratory birds in such cases includes a requirement that the Armed Forces must confer with the USFWS to develop and implement appropriate conservation measures to minimize or mitigate adverse effects of the Proposed Action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species. Subsequently, the DoD and USFWS entered

into a memorandum of understanding to promote the conservation of migratory birds on September 5, 2014 (U.S. Department of Defense & U.S. Fish and Wildlife Service, 2014).

3.3.1.4 Bald and Golden Eagle Protection Act

Bald and golden eagles are protected by the BGEPA. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

3.3.1.5 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act provides for the conservation and management of the fisheries. Under the Magnuson-Stevens Fishery Conservation and Management Act, essential fish habitat (EFH) consists of the waters and substrate needed by fish to spawn, breed, feed, or grow to maturity.

3.3.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under biological resources at training locations described in Section 2.1 (Proposed Action). Because of the disparate conditions at different land-based and in-water training locations within the training study area, terrestrial and marine species and habitats are analyzed based on location. Special status species managed under the regulatory frameworks summarized in Section 3.3.1 (Regulatory Settings) are described in Section 3.3.2.3 (Special Status Species).

3.3.2.1 Terrestrial Biological Resources

3.3.2.1.1 Terrestrial Vegetation

Terrestrial vegetation includes terrestrial plants and constituent plant species. Most training activities would occur in developed areas (e.g., existing military facilities and private and public marinas) or managed parklands (e.g., within state parks) and avoid sensitive native habitats. Vegetation within terrestrial environments of the training study area is best characterized as transitional riparian vegetation that links marine environments and inland ecosystems (Brennan, 2007). Coastal trees and other vegetation on backshore areas, banks, and bluffs help stabilize the soil, control pollution entering marine waters, provide fish and wildlife habitat, and modify stressful physical conditions along shorelines. The historical climax communities in marine riparian areas were likely forests of western hemlock (*Tsuga heterophylla*) and Douglas fir (*Pseudotsuga menziesii*), intermixed with western red cedar (*Juniperus virginiana*) and a variety of associated understory species. In areas of frequent disturbance, early successional trees, such as red alder and maple, dominated coastal forests. Douglas fir is currently the most common conifer in relatively undisturbed sites. Maple (*Acer* spp.), alder (*Alnus* spp.), and non-native species typically dominate shorelines. These species colonize rapidly after various types of disturbance, including soil erosion, fire, logging, and other anthropogenic impacts. Pacific madrone (*Arbutus menziesii*) forests are found on more xeric (dry) sites. Other, more specialized riparian communities include prairies, dune-grass associations, salt marshes, and tidal or surge-plain communities; losses of most of these habitats have been extensive in Puget Sound (Dunwiddie et al., 2014). Because most of the bluffs around Puget Sound experience soil movement at intervals shorter than those needed for the development of a climax forest, these “fringe” forests often have a higher composition of disturbance-adapted vegetation. In addition to soil movement, disturbances such as wind, salt spray, timber harvest, development, and other anthropogenic activities have resulted in the conversion of conifer forests to vegetation communities dominated by alder, maple, and non-native

species, making these forest communities much more common and widespread today than they were historically (Brennan, 2007).

3.3.2.1.2 Terrestrial Wildlife

Wildlife includes all animal species (i.e., insects and other invertebrates, reptiles, birds, and mammals) that primarily occur on land, focusing on the species and habitat features of greatest importance or interest. Aquatic species (marine and freshwater vegetation, invertebrates, fishes, reptiles, and marine mammals) are discussed under Section 3.3.2.2, Aquatic Biological Resources.

Terrestrial Invertebrates

Terrestrial invertebrates within the training study area are generally associated with low-elevation, moist coastal habitats. Representative species may include ants (family Formicidae), sweat bees (family Halictidae), jumping spiders (family Salticidae), hobo spiders (*Tegenaria agrestis*), and multiple species of butterflies (order Lepidoptera).

Birds

Within the training study area, major taxonomic groups of birds include songbirds (neotropical and resident passerines), seabirds, shorebirds and waders, and birds of prey (Gelfenbaum et al., 2006). The shorelines of the training study area along the Straits of Juan de Fuca, Puget Sound, and Pacific coast are generally rocky, with small beaches at the mouths of streams and rivers. Extensive mudflats associated with river deltas support large populations of shorebirds and waterfowl in the winter (Nysewander et al., 2005). The numerous bays and inlets provide sheltered waters for wintering waterfowl, shorebirds, and seabirds. The beaches and mudflats within Puget Sound and along the coastal areas of the training study area provide important stopover and wintering habitats for numerous migratory birds.

Neotropical migratory birds pass through the training study area on their annual migrations. The majority of neotropical migratory birds are songbirds, but there are also many shorebirds, some raptors, and a few types of waterfowl that migrate. Species of migratory birds that can be found in the training study area include Townsend's warbler (*Dendroica townsendi*), varied thrush (*Ixoreus naevius*), green-winged teal (*Anas carolinensis*), Hutton's vireo (*Vireo huttoni*), robin (*Turdus migratorius*), and the spotted sandpiper (*Actitis macularia*) (U.S. Department of the Navy, 2017).

Shorebirds and wading birds include species such as herons, phalaropes, sandpipers, oystercatchers, and plovers. They do not swim but rather wade or probe at the water's edge, feeding on organisms in shallow water or in the intertidal mud or sand. While most shorebirds tend to feed on sandy beaches or mudflats, several species prefer to forage on rock substrate (Galbraith et al., 2005). Most shorebird species prefer open, sparsely vegetated nesting cover near shallow water. Areas for nesting include lowland arctic tundra, wide sloping beaches, and along the edges of wetlands (Ericson et al., 2003). Representative species of shorebirds within the training study area include the killdeer (*Charadrius vociferous*), semipalmated plover (*Charadrius semipalmatus*), pigeon guillemot (*Cephus columba*), common snipe (*Gallinago gallinago*), and federally threatened western snowy plover. Shorebirds are migratory, travelling thousands of miles between Arctic nesting grounds and wintering grounds in Central and South America. About two-thirds of all western hemispheric shorebird species leave Arctic breeding grounds in the fall and move south via the Pacific flyway to wintering grounds (U.S. Fish and Wildlife Service, 2005). Shorebirds depend on critical staging sites along the coast during migrations. Coastal bays and estuaries along the Washington outer coast, including Grays Harbor and Willapa Bay, are important feeding and resting areas for large concentrations of birds during migration and the

winter season. At least 12 species of shorebirds stage in the spring, with numbers of more than a million in the Grays Harbor area and 750,000 in Willapa Bay (U.S. Fish and Wildlife Service, 2005).

Approximately 32 species of nocturnal and diurnal birds of prey live within Washington, including owls (e.g., flammulated owl [*Otus flammeolus*], burrowing owl [*Athene cunicularia*]), hawks (northern goshawk [*Accipiter gentilis*]), falcons (e.g., peregrine falcon [*Falco peregrinus*]), and two species of eagles (bald eagle [*Haliaeetus leucocephalus*], golden eagle [*Aquila chrysaetos*]) (Washington Department of Fish and Wildlife, 2017).

Mammals (Terrestrial)

Habitats along undeveloped shorelines of the training study area support a variety of mammal species. Representative species include black-tailed deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), cougar (*Puma concolor*) (one mated pair is known to occur on Naval Magazine Indian Island), beaver (*Castor canadensis*), river otter (*Lutra canadensis*), short-tailed weasel (*Mustela erminea*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), fox (*Vulpes vulpes*), and bobcat (*Lynx rufus*). In developed areas (e.g., residential, commercial, and industrial portions of the training study area), typical mammal species include raccoons, occasional coyotes, rodent species (*Rattus* spp.), domesticated and feral cats, and dogs (U.S. Department of the Navy, 2017).

3.3.2.2 Aquatic Biological Resources

3.3.2.2.1 Aquatic Vegetation

Marine Vegetation

Marine vegetation includes plants occurring in marine or estuarine waters. These may include algae and various grasses (Belleveau et al., 2015). Kelp, which are large brown seaweeds, attach to bedrock or cobbles in shallow waters, especially in areas with moderate to high waves or currents. Twenty-one kelp species inhabit Washington marine waters (Gabrielson et al., 2006). Kelp are found in a variety of intertidal and subtidal habitats, but all require some sort of solid substrate for growth—bedrock or rocks as small as pebbles, as well as a variety of artificial substrates such as boat bottoms, floats, docks, and mooring buoys and chains. Kelp tend to grow in areas of moderate-to-high wave energy or currents, are abundant wherever there is suitable substrate, and include both floating and non-floating species. Because kelp is photosynthetic and unable to root in soft sediments, it requires a fairly well-defined set of physical conditions: high ambient light, hard substrate, minimum sediment in the water that could block the light or smother the tiny gametophyte stages, and fairly low marine water temperatures and moderate to high salinities (Mumford Jr, 2007). Thus, they are completely confined to nearshore habitats. Eelgrass, which is a flowering plant adapted to the marine environment, roots in sand or mud in shallow waters where waves and currents are not too severe (Thayer & Phillips, 1977). Both these organisms need fairly high light levels to grow and reproduce, so they are found only in shallow waters (mostly less than 20 meters for kelp, and 10 meters for eelgrass). Competitors of eelgrass in Puget Sound include the introduced brown seaweed *Sargassum muticum*, the sand dollar (*Dendraster excentricus*), and possibly the newly discovered kelp species in Hood Canal, *Chorda filum* (Short et al., 2014). In situations where there are excessive nutrients, algal species such as sea lettuce (*Ulva* spp.) will overgrow eelgrass, and excessive nutrient loading can cause other vegetation (epiphytes) to grow on the blades and reduce the eelgrass ability to photosynthesize (Short et al., 2014). Eelgrass conservation is a management priority reflected through a network of local, state, and federal programs. Impacts to eelgrass would require consultation with NMFS for impacts to Essential Fish Habitats under the Magnuson-Stevens Fishery Conservation and Management Act.

Sporophytes of bull kelp are always found attached to bedrock or to large cobbles in the subtidal zone, especially in areas of considerable water movement (either wave exposure or tidal currents). Plants that attach to small cobbles (less than 10 centimeters) tend to lift their substrate off the bottom in any water movement and thus are carried to the shore or into deeper water. The plants attach by holdfasts, which, unlike roots, do not penetrate the substrate or carry nutrients to the rest of the plant. Bull kelp in Puget Sound occurs from the extreme low tide level to a depth of 10–30 meters, depending on water clarity. Their reliance on areas of considerable water movement may stem from the tiny gametophyte phase's intolerance of being covered with silt (Thom et al., 2014). The sporophytes, which can reach 40 meters in length, are annuals, growing from the bottom starting in early spring, reaching the surface by April or May, and being swept away by fall and winter storms. In Washington, bull kelp is found in discrete beds on the outer coast northward from Copalis Rocks (the southernmost extent of suitable substrate) and throughout the Strait of Juan de Fuca (including on offshore shallow banks) and the San Juan archipelago. It is also found in high-current areas in central Puget Sound and to a lesser degree in southern Puget Sound. The southernmost bed is near Squaxin Island (Aston et al., 2017; Mumford Jr, 2007).

The sporophytes of the giant kelp *Macrocystis* are found attached to bedrock and large boulders in the lower intertidal and shallow subtidal zone to a depth of 4 meters. In Washington, this species is found on the outer coast north of Copalis Rocks and in the Strait of Juan de Fuca west of Low Point but never in Puget Sound proper (probably because of seasonally low salinity; see below). Plants tend to inhabit somewhat less energetic environments than bull kelp. Sporophytes are perennial, living two to five years and growing up to 6 meters long, but little is known about the ecology of the gametophyte phase. Interannual variation of canopy cover is up to 30 percent (Mumford Jr, 2007).

Beds of *Zostera marina* are found throughout Puget Sound, except for south of Anderson Island and Carr Inlet in southern Puget Sound. *Zostera marina* grows in lower and shallow intertidal areas in muddy to sandy substrates and low to moderately high-energy environments. In the higher energy areas, such as Salmon Bank, it may grow in the finer substrates trapped between cobbles and boulders. The deepest beds of *Zostera marina* in Puget Sound are found in the Strait of Juan de Fuca and the San Juan Islands (Mumford Jr, 2007; Thom et al., 2014).

In the Pacific Northwest, over 80 percent of estuarine landscapes have been altered and degraded (Belleveau et al., 2015). Restoration of estuaries is a focus of conservation investment in Puget Sound, with fisheries (specifically for salmon recovery) as a primary driver.

Freshwater Vegetation

Freshwater aquatic vegetation can be found in a variety of wetland types within the training study area. These wetland habitats consist of primarily three types—deciduous forested, coniferous forested, and shrub-dominated wetlands. These wetlands that have been traditionally called marshes, swamps, bogs, fens, ponds, and sloughs. They are primarily found in heavily forested areas and are usually dominated by vegetation. Common wetland plants include yellow pond lily (*Nuphar polysepalum*), skunk cabbage (*Lysichiton americanus*), pickleweed (*Salicornia virginica*), pondweed (*Potamogeton* sp.), water cress (*Nasturtium officinale*), (Spiraea douglasii), lady fern (*Athyrium filix-femina*), aspen (*Populus tremuloides*), Northwestern sedge (*Carex concinnoides*), Pacific Coast bulrush (*Scirpus pacificus*), alder, aster (*Aster subspicatus*), Puget Sound gumweed (*Grindela integrifolia*), saltgrass (*Distichlis spicata*), saltweed (*Atriplex patula*), coast willow (*Salix hookeriana*), and the invasive reed canarygrass (*Phalaris arundinacea*) (Cooke & Azous, 1997; U.S. Department of the Navy, 2017).

Deciduous forested wetlands consist of deciduous trees such as red alder or big-leaf maple. The trees provide shade, keeping water temperatures cool, and supplying a rich organic food source as they shed their leaves. As the wetland water levels rise and fall, some trees are killed by having the root zones inundated with water. The trees quickly rot, providing homes for cavity nesters, food for insect foragers, and, after they have fallen into the wetland, additional organic matter from which the other existing wetland plants feed. Coniferous forested wetlands have Douglas fir and lodgepole pine in close proximity to their edge, and the waters are usually somewhat acidic and brackish in color. Acidic tolerant plants, such as hardhack, reed canarygrass, and water lilies, are indicators of the wetland community, but trees are still an important component as they provide a temperature regulation as well as providing necessary large woody debris as they decay and fall to the surrounding area.

Shrub-dominated wetlands are peat bogs in origin, containing hardhack, serviceberry, skunk cabbage, and cattails (U.S. Department of the Navy, 2017).

3.3.2.2.2 Aquatic Invertebrates

Marine Invertebrates

Animals that live on the sea floor are called benthos. Most of these animals lack a backbone and are called invertebrates. Typical benthic invertebrates include sea anemones, sponges, sea stars, sea urchins, worms, bivalves, and crabs. Animals that spend most of their lives in the water column are called pelagic. The following section discusses both benthic and pelagic invertebrates that are found in the Study Area.

Benthic Invertebrates

Marine benthic invertebrates in the training study area inhabit a wide variety of habitats, including salt marshes, mudflats, kelp forests, sandy soft sediments, underwater canyons, the nearshore portions of the continental shelf along the Washington Coast, and inland waters of Puget Sound. Salt marsh invertebrates include oysters, crabs, and worms that are important prey for birds and small mammals. Mudflats provide habitat for substantial amounts of crustaceans, bivalves, and worms. The sandy intertidal area is dominated by species that are highly mobile and can burrow. Some of the most common invertebrates found in soft bottom intertidal and subtidal areas include razor clams (*Siliqua patula*), geoduck clams (*Panopea generosa*), Dungeness crabs (*Cancer magiste*), sea pens (*Ptilosarcus gurneyi*), smooth bay shrimp (*Crangon stylirostris*), Lewis's moonsnails (*Euspira lewisii*), and rainbow stars (*Orthasterias koehlen*) (National Oceanic and Atmospheric Administration, 1993, 2017).

Sponges include over 8,000 marine species worldwide and are classified in the Phylum Porifera (Appeltans et al., 2010). Sponges are bottom-dwelling, multi-cellular animals that can be best described as an aggregation of cells that perform different functions. Sponges are largely sessile (not mobile), except for their larval stages, and are common throughout the Study Area at all depths. Multiple sponge communities occur within Puget Sound. There are three sponge reef complexes that all occur in the northern Puget Sound region from 90 to 210 meters of water depth at North McCall Bank, South McCall Bank, and Fraser Ridge. Habitat-forming deep-sea corals occur in the Puget Sound, as well as on the continental shelf of the Offshore Area. While the mean depth range of deep-sea corals in the Northeast Pacific Ocean is 265–1,262 meters, deep-sea corals of the Study Area occur in water depths ranging from 9 to 3,450 m (Clarke et al., 2015). Stylasteriidae corals are found in Puget Sound and Georgia Strait and on the shelf and shelf slope in waters shallower than approximately 820 meters (Clarke et al., 2015; Etnoyer & Morgan, 2005; Etnoyer et al., 2016). Jellyfish (cnidarians), comb jellyfish (ctenophorans), and

hydroids are also found in the inland water area, throughout the water column, and on the water surface.

The characteristic fauna of an Inland Waters portion of the Study Area sand flat includes cockle (*Clinocardium nuttalli*), white-sand clam (*Macoma secta*), and bent-nosed clam (*Macoma nasuta*) (Proctor et al., 1980). In unprotected rocky intertidal zones, mussels (*Mytilis* spp.) and barnacles form a biotic substrate that provides the necessary habitat for many other species. Pacific oysters are widely cultivated in Dabob Bay, which is one of only three bays on the West Coast where successful spawning of Pacific oysters occurs. Geoduck clams are the basis of an important commercial fishery in Puget Sound and are found in lower intertidal to subtidal soft bottom habitats; they can be found in waters as deep as 110 meters but are most abundant from 9 to 18 meters below mean low water level (Greene et al., 2015). In Puget Sound, hard substrate provides a substrate for the Olympia oyster (*Ostreola conchaphila*). The Olympia oyster is the only oyster native to the Pacific Northwest. Historically, Olympia oyster beds existed throughout most of southern Puget Sound and specifically Willapa and Samish Bays. By 1960, overharvesting and pollution had nearly exterminated most of south Puget Sound's once-thriving Olympia oyster populations. In 1998, the Washington Department of Fish and Wildlife developed the Olympia Oyster Stock Rebuilding Plan. Subsequently, Olympia oysters have survived in north and central Puget Sound, and populations in the south Sound and Hood Canal are gradually recovering (Thom et al., 2014).

Pelagic Invertebrates

A wide variety of marine invertebrates live in the water column in the Study Areas. Some of the most common include hydroids, jellyfish, zooplankton, squid, some species of shrimp, and early life stages (larvae) for many marine invertebrate species. For example, at least six species of gelatinous zooplankton (jellyfish) are common in Puget Sound, including water or crystal (*Aequorea* spp.), moon (*Aurelia labiate*), cross (*Mitrocoma cellularia*), lion's mane (*Cyanea capillata*), fried-egg (*Phacellophora camtschatica*), and umbrella (*Clytia gregaria*) jellyfish (Greene et al., 2015). In addition to the cnidarian jellyfish, ctenophore comb jellyfish (*Pleurobrachia* spp.) are also common. The market squid (*Doryteuthis opalescens*) is one of the few federally managed marine invertebrates found in both inshore and offshore locations in the Study Area.

General threats to marine invertebrates include overexploitation and destructive fishing practices (Jackson et al., 2001; Miloslavich et al., 2011; Pandolfi et al., 2005), habitat degradation from pollution and coastal development (Galloway et al., 2009; Greene et al., 2015; Preikshot et al., 2016), disease, and invasive species (Preikshot et al., 2016; Short et al., 2014). These threats are compounded by global threats to marine life, including the increasing temperature and decreasing pH of the ocean from pollution linked to global climate change (Cohen et al., 2009; Miloslavich et al., 2011).

There are no marine invertebrates in the training study area listed as threatened or endangered under the ESA; however, three species are considered species of concern by NMFS, the Pinto abalone (*Haliotis kamtschatkana*), the Olympia oyster (*Ostreola conchaphila*), and the Newcomb's littorine snail (*Algamorda subrotundata*).

Freshwater Invertebrates

Aquatic freshwater invertebrates within the training study area are generally associated riverine, lake and pond, and marsh habitats. Aquatic freshwater species that occur can include species of mosquitoes (family Culicidae), mayflies (family Baetidae), damselflies and dragonflies (order Ordonata), and water beetles (order Coleoptera).

3.3.2.2.3 Fishes

Marine Fishes

Fish are vital components of the marine ecosystem. They have great ecological and economic aspects. To protect this resource, NMFS works with the regional fishery management councils to identify the essential habitat for every life stage of each federally managed species, using the best available scientific information. EFH has been described for approximately 1,000 managed species to date. EFH includes all types of aquatic habitat including wetlands, coral reefs, seagrasses, and rivers; all locations where fish spawn, breed, feed, or grow to maturity. More than 200 species of fish have been identified in Puget Sound (Brennan, 2007). These include resident species of demersal and pelagic fish that use Puget Sound habitats during a portion of their life cycle. Fish are not distributed uniformly throughout the training study area and are closely associated with a variety of habitats. Even within a single fish species, the distribution and specific habitats in which individuals occur may be influenced by its developmental stage, size, sex, reproductive condition, and other factors. Nine fish species listed as either threatened or endangered under the ESA can potentially occur in the training study area and are described below in Section 3.3.2.3 (Special Status Species).

Salmonids found in the Study Area include Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), chum salmon (*Oncorhynchus keta*), pink salmon (*Oncorhynchus gorbuscha*), sockeye salmon (*Oncorhynchus nerka*), anadromous steelhead (*Oncorhynchus mykiss*), and cutthroat trout (*Oncorhynchus clarki clarki*). Commercial marine fish species include Pacific hake (*Merluccius productus*), Pacific cod (*Gadus macrocephalus*), walleye pollock (*Theragra chalcogramma*), Pacific herring (*Clupea harengus pallasii*), spiny dogfish (*Squalus acanthias*), lingcod (*Ophiodon elongatus*), English sole (*Pleuronectes vetulus*), and various rockfish species (*Sebastes* spp.) (Greene et al., 2015). In addition to salmonids, forage fish species such as Pacific herring (*Clupea harengus pallasii*), surf smelt (*Hypomesus pretiosus*), and Pacific sand lance (*Ammodytes hexapterus*) are commonly occur within Puget Sound. Forage fish are important as prey for a large variety of other marine organisms, including birds, fish, marine mammals, and Pacific salmonids. Forage fish species occupy every marine and estuarine habitat in Puget Sound. Other marine fish species found in both inshore and offshore locations in the Study Area include a number of flatfishes (Dover sole, English sole, rex sole, and starry flounder), rockfishes (brown, copper, greenstriped, quillback, and yellowtail), sculpi, and gobies.

General threats to fish include overfishing, bycatch, pollution, and other human-caused stressors. Overfishing is the most serious threat to fish (Carretta et al., 2017a; Crain et al., 2009), with habitat loss also contributing to extinction risk (Cheung et al., 2007). Overfishing occurs when fishes are harvested in quantities above a sustainable level. Overfishing impacts targeted species and non-targeted species (or “bycatch” species) that often are prey for other fishes and marine organisms. Bycatch may also include seabirds, turtles, and marine mammals. Additionally, in recent decades the marine fishes being targeted have changed such that when higher-level predators become scarce, different organisms on the food chain are subsequently targeted; this has negative implications for entire marine food webs (Pauly & Palomares, 2005; Richardson et al., 2016).

Pollution primarily impacts coastal fishes that occur near sources of run-off, such as cities and areas dense in agriculture. However, global oceanic circulation patterns result in a considerable amount of marine pollutants and debris being scattered throughout the open ocean (Richardson et al., 2016). Other human-caused stressors on marine fishes are the introduction of non-native species, climate change, aquaculture, energy production, vessel movement, and underwater noise. Underwater noise is a threat to marine fishes. However, the physiological and behavioral responses of marine fishes to

underwater noise (Slabbekoorn et al., 2010) have been investigated for only a limited number of species (Popper et al., 2016).

Essential Fish Habitat Species

The Pacific Fisheries Management Council is responsible for designating EFH for all federally managed species occurring in the coastal and marine waters off the coasts of Washington, Oregon, and California, including Puget Sound. The Pacific Fisheries Management Council designated EFH for these species within the Fishery Management Plans (FMPs) for each of the four primary fisheries that they manage: Coastal Pelagic Species (Pacific Fishery Management Council, 2011b), Pacific Coast Salmon (Pacific Fishery Management Council, 2014b), Pacific Coast Groundfish (Pacific Fishery Management Council, 2014a), and West Coast Fisheries for Highly Migratory Species (Pacific Fishery Management Council, 2011a). Of these fisheries, three (Pacific coast groundfish, coastal pelagic species, and Pacific coast salmon) contain species for which EFH has been designated in the water in the training study area.

The Coastal Pelagic Species FMP (Pacific Fishery Management Council, 2011b) includes a management framework for northern anchovy (*Engraulis mordax*), market squid, Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicas*), jack mackerel (*Trachurus symmetricus*), and krill species (*Euphausiid* spp.). EFH for non-krill coastal pelagic species addresses five pelagic species that are treated as a single species complex (Northern anchovy, Pacific sardine, Pacific mackerel, jack mackerel, and market squid) because of similarities in life histories and habitat requirements.

The management unit in the Pacific Coast Groundfish FMP includes over 90 groundfish species (Pacific Fishery Management Council, 2014a). Many of these species occur within or in the vicinity of the training study area, including flatfishes such as Dover sole, English sole, Petrale sole, starry flounder, and numerous rockfish species.

The Pacific coast salmon management unit includes Chinook, coho, and pink (*Oncorhynchus gorbuscha*) salmon. The EFH designation for the Pacific coast salmon fishery in estuarine and marine environments in the state of Washington extends from nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone 200 miles offshore (Pacific Fishery Management Council, 2014b). In addition to marine and estuarine waters, salmon species have a defined freshwater EFH, which includes all lakes, streams, ponds, rivers, wetlands, and other bodies of water that have been historically accessible to salmon (Pacific Fishery Management Council, 2014b). Chinook, coho, and pink salmon all use the marine environment for rearing as juveniles and offshore environment for migration as adults.

In addition to EFH designations, areas called Habitat Areas of Particular Concern (HAPCs) are also designated by the regional Fishery Management Councils. Designated HAPC are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (50 CFR 600.805–600.815). Regional Fishery Management Councils may designate a specific habitat area as an HAPC based on one or more of the following reasons: (1) importance of the ecological function provided by the habitat; (2) the extent to which the habitat is sensitive to human-induced environmental degradation; (3) whether, and to what extent, development activities are, or will be, stressing the habitat type; and (4) rarity of the habitat type (67 Federal Register [FR] 23432383). Categorization as HAPC does not confer additional protection or restriction to the designated area.

Freshwater Fishes

Several freshwater fish species are found in Lake Kitsap at Camp McKean, including chum salmon that utilize the lower reaches of Kitsap Creek, and coho salmon that use the upper reaches of the creek as well as Kitsap Lake, which provides migratory and first-year habitat (U.S. Department of the Navy, 2017). According to the Washington Department of Fish and Wildlife, threespine stickleback, rainbow trout, largemouth bass, bluegill, and brown bullhead are also present in the lake.

3.3.2.2.4 Reptiles and Amphibians

Sea Turtles

The six sea turtle species that are found in U.S. waters or that nest on U.S. beaches are designated as either threatened or endangered under the ESA. Sea turtles are highly migratory and utilize the waters of more than one country in their lifetimes. The USFWS and NMFS share federal jurisdiction for sea turtles, with the USFWS having lead responsibility on the nesting beaches and NMFS, the marine environment.

Sea turtles are long-lived reptiles that are found throughout the world's tropical, subtropical, and temperate seas. Four of the seven living species of sea turtles (leatherback [*Dermochelys coriacea*], loggerhead [*Caretta caretta*], olive ridley [*Lepidochelys olivacea*], and green [*Chelonia mydas*]) have the potential to be found in the Study Area (Benson et al., 2011a; Moore et al., 2009). Of the four sea turtle species potentially found in the training study area, two are listed as endangered (the leatherback and North Pacific Ocean distinct population segment (DPS) of the loggerhead sea turtle). The olive ridley and green turtle are listed as threatened under the ESA, with the exceptions of their Pacific coast of Mexico breeding colonies of each species, which are listed as endangered for both species.

The cold waters off Washington are above the typical northern limits for the loggerhead, olive ridley, and green sea turtles, and these species are considered rare in the training study area. However, as water temperatures drop or other oceanographic changes occur, all of the sea turtle species except leatherbacks become cold stressed and strand on the beaches with no way to survive the return to warmer waters. Although sightings of loggerhead, olive ridley, and green sea turtles have been documented the training study area, most of these involve individuals that were either cold stressed, likely to become cold stressed, or already deceased (Hodge & Wing, 2000). Thus, the training study area is considered to be outside the normal range for these sea turtle species (family Cheloniidae), and are not considered further. Leatherback sea turtles are the only species analyzed below for potential impacts.

Amphibians

The training study area supports a wide variety of fresh water, brackish, and saltwater aquatic habitats where amphibians would likely occur. Surveys have found native species such as northwest salamanders (*Ambystoma gracile*), long-toed salamanders (*Ambystoma macrodactylum*), rough-skinned newts (*Taricha granulosa*), red-legged frogs (*Rana aurora*), and Pacific treefrogs (*Hyla regilla*). Invasive bull frog invasions into aquatic habitats were first reported throughout the 1990s (McAllister et al., 1999; U.S. Department of the Navy, 2017; Washington Department of Fish and Wildlife, 2012c).

Seabirds

Seabirds include species such as loons, grebes, albatrosses, shearwaters, storm-petrels, pelicans, jaegers, gulls and terns, and alcids (auklets, murre, and puffins) (U.S. Fish and Wildlife Service, 2005).

The federally listed marbled murrelet and short-tailed albatross are within this group. Seabirds are a diverse group that is adapted to living in marine environments (Lascelles et al., 2016). The group includes those birds that are pelagic (generally foraging far offshore over the continental shelf and in oceanic waters) and those that feed in nearshore zones. Seabirds have many biological, physical, and behavioral adaptations that are different from those of terrestrial birds. Seabirds typically live longer, breed later in life, and produce fewer young than other bird species (Onley & Scofield, 2007). The feeding habits of seabirds are related to their individual physical characteristics, such as body mass, bill shape, and wing area (U.S. Fish and Wildlife Service, 2005). Some seabirds look for food (forage) on the sea surface, whereas others dive to variable depths to obtain prey (Burger et al., 2004).

3.3.2.2.5 Marine Mammals

Jurisdiction over marine mammals is maintained by NMFS and the USFWS. NMFS maintains jurisdiction over whales, dolphins, porpoises, seals, and sea lions. The USFWS maintains jurisdiction for certain other marine mammal species, including walruses, polar bears, dugongs, sea otters, and manatees. All marine mammals in the United States are protected under the MMPA, and some species receive additional protection under the ESA. The MMPA defines a marine mammal “stock” as “a group of marine mammals of the same species or smaller taxon in a common spatial arrangement that interbreed when mature.” For management purposes under the MMPA, a stock is considered an isolated population or group of individuals within a whole species that is found in the same area. However, generally due to a lack of sufficient information, management stocks defined by NMFS may include groups of multiple species, such as with *Mesoplodon* beaked whales (Carretta et al., 2014). In other cases, a single species may include multiple stocks recognized for management purposes (e.g., harbor porpoise in the Pacific Northwest). Although all marine mammals are protected under the MMPA, only a few species that occur in the training Study Area are listed under the ESA. Information on ESA-listed marine mammals is presented below in Section 3.3.2.3 (Special Status Species). Only those ESA-listed species that have the potential to be impacted by training and testing activities are discussed further.

Marine mammals are a diverse group of approximately 130 species. Most live predominantly in the marine habitat, although some species (e.g., seals) spend time in terrestrial habitats, or in some cases, in freshwater environments, such as certain freshwater dolphins (Jefferson, 2009; Rice, 1998). Marine mammal species with the potential to occur in the training study area include whales, dolphins, and porpoises, and pinnipeds such as seals and sea lions. Although numerous whale species can be found in the Study Area, only a few nearshore species would likely be present in the proposed training areas, including humpback whales (*Megaptera novaeangliae*) and gray whales (*Eschrichtius robustus*). Dolphins that may be observed in proposed training areas include transient and southern resident killer whales (*Orcinus orca*), Harbor porpoise (*Phocoena phocoena*), and Dall’s porpoise (*Phocoenoides dalli*). Pinnipeds likely to occur within the training areas include Steller sea lions (*Eumetopias jubatus*), California sea lions (*Zalophus californianus*), and harbor seals (*Phoca vitulina*).

3.3.2.3 Special Status Species

Federal and state-listed species that are potentially present within the training study area are presented in Table 3.3-1. Critical habitat that has been designated or proposed within the training study area that might conceivably be affected by the Proposed Action and the spatial and temporal distribution, life history, and ecological requirements of these species is also presented below. Critical habitat, the associated Primary Constituent Elements (PCEs), and essential physical and biological features within the training study area, if applicable, are identified and described. Of note, PCEs is a term that is no longer

used by the USFWS and NMFS, but it is used in the older critical habitat designations in Federal Register notices, and thus has been retained in this document for consistency and to aid in review.

Table 3.3-1: Threatened and Endangered Species Known to Occur or Potentially Occurring in the Training Study Area and Critical Habitat Present in Training Study Area

Species	Federal Listing Status	State Listing Status	Critical Habitat Designation
Plants			
Golden paintbrush <i>Castilleja levisecta</i>	Threatened	Threatened	Critical habitat has not been designated for this species.
Marsh sandwort <i>Arenaria paludicola</i>	Endangered	-	Critical habitat has not been designated for this species.
Water howellia <i>aquatilis</i>	Threatened	Threatened	Critical habitat has not been designated for this species.
Pink sand-verbena <i>Abronia umbellata</i> var. <i>acutalata</i> **	-	Endangered	n/a
Coyotebush <i>Baccharis pilularis</i> ssp. <i>Consanguinea</i>	-	Threatened	n/a
Roll's golden log moss <i>Brotherella roellii</i> **	-	Threatened	n/a
Large-awned sedge <i>Carex macrochaeta</i>	-	Threatened	n/a
Pacific lanceleaved springbeauty <i>Claytonia multiscapa</i> ssp. <i>Pacifica</i> **	-	Endangered	n/a
Threeleaf goldthread <i>Coptis trifolia</i>	-	Threatened	n/a
Black lily <i>Fritillaria camschatcensis</i> **	-	Threatened	n/a
Pacific pea <i>Lathyrus vestitus</i> var. <i>ochropetalus</i>	-	Endangered	n/a
White meconella <i>oregana</i>	-	Endangered	n/a
Western yellow oxalis <i>Oxalis suksdorfii</i>	-	Threatened	n/a
Ocean-bluff bluegrass <i>Poa unilateralis</i> ssp. <i>Pachypholis</i>	-	Threatened	n/a
Great polemonium <i>Polemonium carneum</i>	-	Threatened	n/a
Bear's-foot sanicle <i>Sanicula arctopoides</i> **	-	Endangered	n/a
Hairy-stemmed checker-mallow <i>Sidalcea hirtipes</i>	-	Threatened	n/a
Water bur-weed <i>Sparganium fluctuans</i>	-	Threatened	n/a
Rush aster <i>Symphyotrichum boreale</i>	-	Threatened	n/a

Table 3.3-1: Threatened and Endangered Species Known to Occur or Potentially Occurring in the Training Study Area and Critical Habitat Present in Training Study Area (continued)

Species	Federal Listing Status	State Listing Status	Critical Habitat Designation
Plants (continued)			
Hall's aster <i>Symphyotrichum hallii</i>	-	Threatened	n/a
Erioderma lichen <i>Erioderma soledatum</i>	-	Threatened	n/a
Torn shingles lichen <i>Fuscopannaria laceratula</i>	-	Endangered	n/a
Kaernefeltia lichen <i>Kaernefeltia californica</i>	-	Threatened	n/a
Treepelt lichen <i>Leioderma soledatum</i>	-	Endangered	n/a
Cartilage lichen <i>Ramalina thrausta</i>	-	Threatened	n/a
Lamb's navel lichen <i>Umbilicaria lambii</i>	-	Endangered	n/a
Rigid navel lichen <i>Umbilicaria rigida</i>	-	Threatened	n/a
Beard lichen <i>Usnea lambii</i> **	-	Threatened	n/a
Invertebrates			
Taylor's checkerspot butterfly <i>Euphydryas editha taylori</i>	Endangered	-	Critical habitat designated at Deception Pass State Park. Critical habitat has been designated outside the training study area near Coupeville (Whidbey Island) and other locations on the Olympic Peninsula.
Oregon silverspot butterfly <i>Speyeria zerene hippolyta</i>	Threatened	Endangered	Critical habitat designated outside of the training study area at Suislaw National Forest (Oregon).
Amphibians and Reptiles			
Northern leopard frog <i>Lithobates pipiens</i>	-	Endangered	n/a
Western pond turtle <i>Actinemys marmorata</i>	-	Endangered	n/a
Birds			
Marbled murrelet <i>Brachyramphus marmoratus</i>	Threatened	Endangered	Critical habitat designated outside of the Training Study Area primarily in old growth forests and forests with suitable nesting trees, within 35 miles of marine foraging areas.

Table 3.3-1: Threatened and Endangered Species Known to Occur or Potentially Occurring in the Training Study Area and Critical Habitat Present in Training Study Area (continued)

Species	Federal Listing Status	State Listing Status	Critical Habitat Designation
Birds (continued)			
Western snowy plover <i>Charadrius lexandrinus nivosus</i>	Threatened	Endangered	Critical Habitat designated at Grayland Beach State Park and Leadbetter Point State Park, and outside the training study area at Copalis Beach and Ocean Shores.
Streaked horned lark <i>Eremophila alpestris strigata</i>	Threatened	-	Critical Habitat designated at Grayland Beach State Park and Leadbetter Point State Park, and outside the training study area on islands within the Columbia River.
American white pelican <i>Pelecanus erythrorhynchos</i>	-	Threatened	n/a
Tufted puffin <i>Fratercula cirrhata</i>	-	Endangered	n/a
Fishes			
Puget Sound Chinook salmon <i>Oncorhynchus tshawytscha</i>	Threatened	Endangered	Designated within the training study area along the shoreline to depth of -30 meters mean lower low water, excluding DoD waterfronts.
Hood Canal summer-run chum salmon <i>Oncorhynchus keta</i>	Threatened	Candidate Species	Designated within the training study area along the shoreline to depth of -30 meters mean lower low water, excluding DoD waterfronts.
Columbia River chum salmon <i>Oncorhynchus keta</i>	Threatened	Candidate Species	Includes the stream channels within the designated stream reaches, and includes a lateral extent as defined by the ordinary high-water line. Designated critical habitat exists near the mouth of the Columbia River in Region 3.
Puget Sound steelhead <i>Oncorhynchus mykiss</i>	Threatened	-	Includes freshwater and estuaries within the training study area excluding DoD waterfronts.
Bull trout <i>Salvelinus confluentus</i>	Threatened	Candidate Species	Designated within the training study area along the shoreline to depth of -33 feet (-10 meters) relative to the mean lower low water, and deltas of the Duckabush River and Hamma Hamma River.
Puget Sound/Georgia Basin DPS bocaccio <i>Sebastes paucispinis</i>	Endangered	Candidate Species	Includes deepwater and nearshore marine habitat in Puget Sound, including the training study area excluding DoD waterfronts and some restricted areas.
Puget Sound/Georgia Basin DPS yelloweye rockfish <i>Sebastes ruberrimus</i>	Threatened	Candidate Species	Includes deepwater marine habitat in Puget Sound, including the training study area excluding DoD waterfronts and some restricted areas.

Table 3.3-1: Threatened and Endangered Species Known to Occur or Potentially Occurring in the Training Study Area and Critical Habitat Present in Training Study Area (continued)

Species	Federal Listing Status	State Listing Status	Designated Critical Habitat Within the Training Study Area
Fishes (continued)			
Pacific Eulachon Southern DPS <i>Thaleichthys pacificus</i>	Threatened	Candidate Species	Critical habitat exists in Region 3 of the training study area at the mouth of the Columbia river.
North American Green sturgeon Southern DPS <i>Acipenser medirostris</i>	Threatened	-	Coastal marine waters within 60 fathoms (110 m) depth within Regions 2 and 3 of the training study area excluding DoD waterfronts.
Marine Reptiles			
Leatherback sea turtle <i>Dermochelys coriacea</i>	Endangered	Endangered	Coastal and pelagic waters off Washington (not within Puget Sound).
Humpback whale <i>Megaptera novaeangliae</i>	Endangered	Endangered	n/a
Southern Resident killer whale <i>Orcinus orca</i>	Endangered	Endangered	Marine waters deeper than 20 ft. (6 m) within Puget Sound and the Strait of Juan de Fuca.

Notes: (1) DoD = Department of Defense, n/a = Not applicable, mi.2 = square miles, km2 = square kilometers, ft. = feet

(2) The U.S. Fish and Wildlife Service and NMFS may designate critical habitat for ESA-listed species. Non-ESA-listed species are noted as "n/a" (not applicable).

3.3.2.3.1 Special Status Plants

Golden paintbrush (*Castilleja levisecta*)

The USFWS listed the Golden paintbrush (*Castilleja levisecta*) as threatened in 1997 (62 FR 31740 31748). No critical habitat has been designated for this species. Golden paintbrush plants are found on flat grasslands, mounded prairies, and steep grassy bluffs in sandy, well-drained soils of glacial origin (U.S. Fish and Wildlife Service, 2010).

Historically, golden paintbrush was reported from more than 30 sites in the Puget Trough of Washington, British Columbia, and as far south as the Willamette Valley of Oregon. Many populations have been extirpated due to agricultural, residential, and commercial development. Currently, nine populations are known to exist in Washington, most of which are found on Whidbey Island and San Juan Island. The two largest populations occur on the Rocky Prairie Natural Reserve Area in Thurston County and on private land in the San Juan Valley, San Juan Island (U.S. Fish and Wildlife Service, 2010). Golden paintbrush generally do not survive longer than five to six years and reproduce exclusively by seed. Plants begin to emerge as early as February and flowers by mid-summer, with fruits maturing in August (Caplow, 2005).

A reintroduction plan for golden paintbrush was completed in 2004. Experimental outplantings and augmentation plantings, as part of the golden paintbrush reintroduction plan (Caplow, 2004, 2005), have been successful in south Puget Sound (at Glacial Heritage Preserve, Scatter Creek Wildlife Area, and Morgan prairies) and north Puget Sound (at Naas Preserve, Smith Prairie at Pacific Rim Institute,

Ebey's Landing, Waldron Island, American Camp, and False Bay on San Juan Island) (U.S. Fish and Wildlife Service, 2010).

Marsh sandwort (*Arenaria paludicola*)

The marsh sandwort (*Arenaria paludicola*) was listed as endangered in 1993. This plant is a coastal species that was historically known to occur in wetlands and in freshwater marshes. Plants have been documented in areas with or without standing water and in acidic, organic bog soils and sandy substrates with high organic content. The marsh sandwort is believed to be extirpated from both Washington and Oregon (Elvin, 2008).

Water howellia (*Howellia aquatilis*)

The USFWS listed the water howellia (*Howellia aquatilis*) as threatened in 1994 (9 FR 35860 35864). No critical habitat has been designated for this species. Water howellia plants are found on flat grasslands, mounded prairies, and steep grassy bluffs in sandy, well-drained soils of glacial origin (Camp et al., 2011l).

In Washington, water howellia occurs in three different landscape settings. Most known occurrences are in small, ephemeral wetlands in the eastern portion of the state. In Pierce County, the sites are all located in the Puget Trough lowlands, bordered by Douglas-fir-dominated forests. These wetlands all have a significant Oregon ash component. In Clark County, this species occurs in a mosaic of wetlands and Oregon ash and Oregon white oak communities in the floodplain of the Columbia River (Camp et al., 2011l). Although these locations overlap with the training study area, this species is believed to be extirpated from the locations in the training study area.

Water howellia usually flowers in May and June, with small trumpet-shaped blooms ranging from white to light purple in color, at or above the water surface. There may also be small axillary flowers beneath the water surface. Water howellia reproduces only by seed that germinates when ponds dry during fall (Schierenbeck & Phipps, 2010).

State-listed Species

A number of vascular plants and lichens are considered endangered or threatened under state statutes. These species' accounts are summarized below:

Pink sand verbena (*Abronia umbellata* var. *acutalata*)

Pink sand verbena is a small coastal groundcover plant associated with sandy areas and beaches containing dunegrass (*Leymus mollis*) and the more common coastal sand verbena. The only known extant population in Washington is within Pacific County (Camp et al., 2011i).

Coyote bush (*Baccharis pilularis* ssp. *consanguinea*)

Coyote bush is an evergreen shrub that inhabits sea cliffs, bluffs, sand dunes, and coastal shrub thickets. Although coyotebush is mostly associated with coastal habitats, this species can range as high as 5,000 feet in eastern Washington. This species tends to be more common towards the south, in Oregon and California (Camp et al., 2011h).

Roll's golden log moss (*Brotherella roellii*)

Roll's golden log moss is a shiny golden to yellowish-green moss forming thin patchy carpets, usually on old logs and other rotten wood. This moss grows at low elevations in cool, moist, open, mixed deciduous and coniferous forests of riparian corridors and valley margins (Camp et al., 2011g).

Large-awned sedge (*Carex macrochaeta*)

Large-awned sedge ranges from the northeast coast of Asia through the Aleutian Islands to Alaska, and south through British Columbia and Washington. This sedge is found in moist open areas, including seeps, mesic prairies, and along riparian corridors near the coast (Camp et al., 2011f).

Pacific lanceleaved springbeauty (*Claytonia multiscapa* ssp. *Pacifica*)

Pacific lanceleaved springbeauty ranges from Vancouver Island and the North Cascade Range of British Columbia to the Olympic Peninsula in Washington. This plant is found in wet subalpine to alpine meadows, often flowering near the edge of melting snowfields (Camp et al., 2011r).

Threeleaf goldenthread (*Coptis trifolia*)

Threeleaf goldenthread is a low-growing perennial forb that ranges from Alaska south through Oregon, across North America to Greenland down, and the eastern coast through North Carolina. This plant is found in mesic forests, bogs, muskegs, willow scrub, and tundra, often alongside various species of mosses. The only known occurrence in Washington is in a coastal cedar bog in Clallam County (Camp et al., 2011e).

Black lily (*Fritillaria camschatcensis*)

Black lily is a bulb-bearing perennial herb that ranges from Kodiak Island and coastal Alaska to Vancouver Island and mainland British Columbia, through Washington and Oregon. This plant is found in moist open meadows along the coast up to about 3,000 feet in the mountains. In Washington, black lilies are found near lakes and streams, wet meadows, salt marshes, sphagnum bogs, coniferous forest wetlands, and deciduous lowland valley forests (Camp et al., 2011k).

Pacific pea (*Lathyrus vestitus* var. *ochropetalus*)

Pacific pea is a perennial herb in the pea family, ranging from central and western Washington into northern California. This plant is found in dry, open to wooded areas, along forest edges and roadsides, and within or near historic prairies. It is often found with Douglas firs and black raspberries (Camp et al., 2011j).

White meconella (*Meconella oregana*)

White meconella is a slender annual in the poppy family, ranging from Vancouver Island south into northern California. This poppy is found primarily in grasslands and occasionally along steep slopes (Camp et al., 2011o).

Western yellow oxalis (*Oxalis suksdorfii*)

This perennial is within the wood-sorrel family ranges from British Columbia to northwestern California along the western slopes of the Cascades. Western yellow oxalis is usually found in meadows and mesic forests and sometimes on dry open slopes in shrubby areas. The only known population in Washington is found in Clallam County (Camp et al., 2011m).

Great polemonium (*Polemonium carneum*)

Great polemonium is a perennial woody shrub that ranges from Washington south to San Francisco Bay in California. It is known from woody thickets, moist open forests, meadows, prairie edges, roadsides, and along fence rows. This shrub is usually found in dappled shade, with moist soils (Camp et al., 2011n).

Ocean bluff bluegrass (*Poa unilateralis* ssp. *pachypholis*)

Ocean bluff bluegrass is a coastal plant known to occur on bluffs, sand dunes, and open grassy slopes along the Washington and Oregon coasts. In Washington, the only occurrence is in Pacific County along a 3-mile stretch of cliffs and bluffs. Associated species include broadleaf stonecrop (*Sedum spathulifolium*) and red fescue (*Festuca rubra*), and it flowers between July and August (Camp et al., 2011p).

Hairy-stemmed checkermallow (*Sidalcea hirtipes*)

This perennial herb is within the mallow family and is a regional endemic of Washington and Oregon. This mallow is found in moist remnant prairies, along fencerows, open meadows, and roadside ditches, and is usually associated with creeks and streams. This plant is found mostly in the Puget Trough at low elevations (Camp et al., 2011q).

Bear's-foot sanicle (*Sanicula arctopoides*)

Bear's-foot sanicle is within the carrot family and ranges from southern Vancouver Island to Santa Barbara, California. This plant is found exclusively in maritime environments, often along coastal bluffs or grassy sand dunes. The only known current location in Washington occurs in Pacific County (Camp et al., 2011c).

Water bur-weed (*Sparganium fluctans*)

Water bur-weed is an aquatic plant distributed widely in western North America, from Washington State to Idaho. This plant can be found in ponds, lakeshores, and slow-moving streams in lowland and montane forests. Associated plants include various pondweeds (*Potamogeton* spp.). The only known occurrences in Washington State include Clallam County along the Pacific coast (Camp et al., 2011b).

Rush aster (*Symphyotrichum boreale*)

This perennial herb ranges from Alaska and Canada, south into the Atlantic and Pacific coastlines. Rush aster can be found along lakesides, marshes, bogs, and open peatlands. Rush aster flowers from July through September (Camp et al., 2011a).

Hall's aster (*Symphyotrichum hallii*)

Hall's aster is a perennial herb that is restricted to Oregon and Washington, west of the Cascade Mountains. This plant is found on moist to dry prairies and open places in valleys and plains. Hall's aster flowers from July through October (Camp et al., 2011d).

State-listed Lichen Species

Eight species of state-listed lichens may also occur within the training study area. A lichen is a nonvascular plant that is formed from a symbiotic relationship between algae and fungus. Within the training study area, the seven state-listed species include erioderma lichen (*Erioderma soledatum*) (a very rare lichen primarily associated with forests in the Olympic peninsula), torn shingles lichen (*Fuscopannaria laceratula*), kaernefeltia lichen (*Kaernefeltia californica*), treepelt lichen (*Leioderma soledatum*), Lamb's navel lichen (*Umbilicaria lambii*), rigid navel lichen (*Umbilicaria rigida*), and beard lichen (*Usnea lambii*) (Calabria et al., 2015; Derr & Stein, 2005).

3.3.2.3.2 Special Status Invertebrates

Taylor's checkerspot butterfly (*Euphydryas editha taylori*)

The USFWS listed the Taylor's checkerspot butterfly (*Euphydryas editha taylori*) as endangered in 2013 (62 FR 31740 31748). The USFWS also designated critical habitat in 2013 at Deception Pass State Park and other locations outside of the training study area for this species, and determined that the PCEs of Taylor's checkerspot butterfly included:

- Patches of early seral, short-statured, perennial bunchgrass plant communities composed of native grass and forb species in a diverse topographic landscape ranging in size from less than 1 acre up to 100 acres (0.4 to 40 hectares) with little or no overstory forest vegetation that have areas of bare soil for basking that contain
- In Washington and Oregon, common bunchgrass species found on northwest grasslands include *Festuca roemerii* (Roemer's fescue), *Danthonia californica* (California oat grass), *Koeleria cristata* (prairie Junegrass), *Elymus glaucus* (blue wild rye), *Agrostis scabra* (rough bentgrass), and on cooler, high-elevation sites typical of coastal bluffs and balds, *Festuca rubra* (red fescue).
- On moist grasslands found near the coast and in the Willamette Valley, there may be *Bromus sitchensis* (Sitka brome) and *Deschampsia cespitosa* (tufted hairgrass) in the mix of prairie grasses. Less abundant forbs found on the grasslands include, but are not limited to, *Trifolium* spp. (true clovers), narrow-leaved plantain (*Plantago lanceolata*), harsh paintbrush (*Castilleja hispida*), Puget balsamroot (*Balsamorhiza deltoidea*), woolly sunshine (*Eriophyllum lanatum*), nine-leaved desert parsley (*Lomatium triternatum*), fine-leaved desert parsley (*Lomatium utriculatum*), common camas (*Camassia quamash*), showy fleabane (*Erigeron speciosus*), Canada thistle (*Cirsium arvense*), common yarrow (*Achillea millefolium*), prairie lupine (*Lupinus lepidus*), and sickle-keeled lupine (*Lupinus albicaulis*).
- Primary larval host plants (narrow-leaved plantain and harsh paintbrush) and at least one of the secondary annual larval host plants (blue-eyed Mary [*Collinsia parviflora*], sea blush [*Plectritis congesta*], dwarf owl-clover [*Triphysaria pusilla*] or one of several species of speedwell [*Veronica scutella*, *Veronica beccabunga* var. *Americana*, *Veronica serpyllifolia*]).
- Adult nectar sources for feeding that include several species found as part of the native (and one nonnative) species mix on northwest grasslands, including, but not limited to narrow-leaved plantain; harsh paintbrush; Puget balsam root; woolly sunshine; nine-leaved desert parsley; fine-leaved desert parsley or spring gold; common camas; showy fleabane; Canada thistle; common yarrow; prairie lupine; sickle-keeled lupine, and wild strawberry (*Fragaria virginiana*).
- Aquatic features such as wetlands, springs, seeps, streams, ponds, lakes, and puddles that provide moisture during periods of drought, particularly late in the spring and early summer. These features can be permanent, seasonal, or ephemeral.
- The historical distribution of the Taylor's checkerspot butterfly included grassland habitats from southeastern Vancouver Island southward through the southern portion of Willamette Valley (in Oregon), with 40 known locations in Washington from the San Juan Islands south to the Cowlitz River in Lewis County (Stinson, 2005). Dornfeld (1980) reported that the Willamette Valley meadows were "fairly swarming" with checkerspot butterflies. The subspecies is now restricted to a small scattering of about seven populations in Washington, one population in British Columbia, and two populations in Oregon. In Washington, sites occupied by Taylor's

checkerspot included balds, coastal bluffs, and estuarine grasslands along the Strait of Juan de Fuca in Clallam County as well as prairies and balds in Thurston, Mason, Pierce, and Lewis counties (Stinson, 2005). These locations are all outside of the training study area.

- Females emerge in the spring and lay eggs on host plants of the family Scrophulariaceae, which are often specific to sites. Emerging from diapause in late winter, the caterpillars feed more broadly on the primary hosts and other post-diapause food plants that may be available. The decline of Taylor's checkerspot in Washington has accompanied the loss of prairie and grassland habitats. As with other grassland-dependent species, forest encroachment together with invasion by non-native grass and forb species have degraded checkerspot habitat (Stinson, 2005; Washington Department of Fish and Wildlife, 2012a).

Oregon silverspot butterfly (*Speyeria zerene hippolyta*)

The USFWS listed the Oregon silverspot butterfly (*Speyeria zerene hippolyta*) as threatened in 1980 and designated critical habitat for this species at the time of listing at Siuslaw National Forest, which is outside the training study area in Oregon (45 FR 44935 44939).

The historical range of this subspecies extends from the Long Beach Peninsula, Pacific County, Washington, southward to Del Norte County, California. All of these populations were restricted to the immediate coast, centered around salt-spray meadows, or within a few miles of the coastline in similar meadow-type habitat. At the time of listing, the only viable population known was on the Siuslaw National Forest in Tillamook County, Oregon. Additional populations have since been discovered at Cascade Head, Bray Point, and Clatsop Plains in Oregon, on the Long Beach Peninsula in Washington, and in Del Norte County in California (Washington Department of Fish and Wildlife, 2012b). These known locations are outside of the training study area.

3.3.2.3.3 Special Status Amphibians and Terrestrial Reptiles

State-listed amphibians and reptiles

One amphibian species and one reptile species are considered endangered under state statutes. Species accounts for the northern leopard frog (*Lithobates pipiens*) and western pond turtle (*Actinemys marmorata*) are summarized below.

Northern Leopard Frog (*Lithobates pipiens*)

Northern leopard frogs were once one of the most widely distributed amphibians in North America (Washington Department of Fish and Wildlife, 2012c) but were listed as endangered by the State of Washington in 1999 (McAllister et al., 1999). This leopard frog is associated with a wide variety of habitats; however, leopard frogs require permanent deep water for overwintering, in proximity to seasonal ponds and wetlands for breeding.

Museum records indicate that leopard frogs inhabited at least 18 general areas in eastern Washington, many of these along the Columbia River and its major tributaries (McAllister et al., 1999). Currently, this species is believed to only occur outside the Study Area in ponds at the Potholes Reservoir and Gloyd Seeps units of the Columbia Basin Wildlife Area in Grant County. With the 2012 reported invasion of large bull frogs in these habitats, it is possible that this species has been extirpated in Washington (Washington Department of Fish and Wildlife, 2012c).

Western Pond Turtle (*Actinemys marmorata*). Western Pond Turtles were listed as endangered in Washington in 1993, and ranged historically through central and southern Puget Sound from Snohomish

to Thurston counties, along the Columbia Gorge in Skamania and Klickitat counties, and in Clark County (Hays et al., 1999). The current distribution is known from six locations in Washington (three sites in Skamania County, one site in Klickitat County, one site in Mason County, and one site in Pierce County). The turtles inhabit lakes, ponds and wetlands. They also require the availability of adjoining open upland habitats (Hallock et al., 2017).

Declines are attributed to habitat loss, overharvest, and introduction of non-native plants, fish, and bullfrogs. By 1994, only about 150 turtles persisted at the two remaining Columbia Gorge sites, and the Puget Sound population was effectively extirpated (Hays et al., 1999). Through various recovery actions, including release of captive-bred and wild-bred head-started turtles, the statewide population in 2015 had increased to a total of 800–1,000 turtles at six locations. Two of the sites, Sondino and the Pierce County site, each contain about 250 turtles and together hold half or more of the state's population (Hallock et al., 2017). None of these locations are within the training study area; however, suitable habitat can be found in freshwater systems within the training study area that exhibit connectivity with uplands. These conditions likely occur in state parks and federal properties that are under some type of conservation management to reduce the impact of invasive species.

3.3.2.3.4 Special Status Birds

Marbled murrelet (*Brachyramphus marmoratus*)

The marbled murrelet is listed as a threatened species in Washington, Oregon, and California under the ESA (U.S. Fish and Wildlife Service, 1992). Marbled murrelet populations have suffered significant declines in the Pacific Northwest, caused primarily by the removal of habitat by logging and coastal development (International Union for Conservation of Nature and Natural Resources, 2010).

Marbled murrelets generally forage in waters within 1 mi. (1.6 km) of the shore (Raphael et al., 2007; U.S. Fish and Wildlife Service, 2005) out to depths of about 1,300 feet (400 meters) and are reported to dive at least as deep as 90 feet (27 meters), based on their capture in gillnets set at this depth. The species' wintering range is poorly documented but includes most of the marine areas used for foraging during the breeding season (Raphael et al., 2007). Marbled murrelets are unique among alcids in their use of old-growth forest stands (Falxa & Raphael, 2016). Marbled murrelets do not build a nest but use natural features, such as moss, clumps of mistletoe, or piles of needles as a nest site on tree limbs. Nests are in large conifers, such as coastal redwood and western hemlock, in old-growth stands typically within 35 mi. (56 km) of marine waters. Nesting season is asynchronous between April 1 and September 23. During the breeding season, murrelets trend to forage in well-defined areas along the shoreline in relatively shallow marine waters. Important features in nesting habitat are stands of 500 acres (202.3 hectares) or larger, multistoried canopy layers, and less-than-average canopy closures (Barbaree et al., 2014). Marbled murrelets would be expected to fly over terrestrial portions of the training study area to access marine foraging areas; some of these areas may be within the in-water portion of the training study area.

To stem declines of marbled murrelets, critical habitat was designated in 1996 in mature and old-growth forest nesting habitat within 30 mi. (48.3 km) off the coast in Washington, Oregon, and California (Piatt et al., 2007). Critical habitat for the murrelet was revised in 2011. It includes 3,698,100 acres (1,497,000 hectares) in 14 critical habitat units in Washington, Oregon, and California.

There is no critical habitat designated for the marbled murrelet within the training study area. Critical habitat for the marbled murrelet on the Olympic Peninsula is the closest nesting area for murrelets to the training study area, particularly along Dabob Bay and Hood Canal.

Western snowy plover (*Chadrius lexandrines nivosus*)

The Pacific coast population of the western snowy plover was listed as threatened under ESA in 1993 (58 FR 12864). The Pacific coast population is defined as those individuals that nest within 50 mi. (80 km) of the Pacific Ocean on the mainland coast, peninsulas, offshore islands, bays, estuaries, or rivers of the United States and Baja California, Mexico.

The Pacific coast population of the western snowy plover breeds in March and April and winters on coastal beaches, including sand spits, dune-backed beaches, beaches at river and creek mouths, and lagoon/estuarine salt pans (Dinsmore et al., 2017). Individuals also occasionally use bluffbacked beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. Nest sites are usually found on sandy or saline substrates with little or no vegetation and debris. Although western snowy plovers move up and down the West Coast during the nonbreeding season, they primarily winter on the same beaches used for breeding (U.S. Fish and Wildlife Service, 2007b).

The waterlines of these same beaches constitute their foraging habitat. In the Pacific Northwest, western snowy plovers generally feed in the wet sand or among surf-cast kelp, where they visually forage for flies, beetles, small clams and crabs, amphipods, seed shrimp (ostracods), and polychaetes (U.S. Fish and Wildlife Service, 2007b). During the winter, western snowy plovers often feed in loose flocks and roost in depressions or behind sheltering debris, such as driftwood or kelp.

The historical breeding and winter range for this species extends from Copalis Spit in southern Washington, south along the Pacific coast of Oregon and California to southern Baja California, Mexico. Coastal beaches are the primary habitat used by these birds for breeding, foraging, and wintering (U.S. Fish and Wildlife Service, 2007b). Historically, five areas supported nesting plovers in Washington (Pearson et al., 2016), with Copalis Spit being the northernmost. Within the training study area, western snowy plovers may be found at Grayland State Park.

Critical habitat for this species was designated in 1999 and revised in 2012 (Todd & Elbert, 2014) The PCEs of western snowy plover critical habitat are sandy beaches, dune systems immediately inland of an active beach face, salt flats, mud flats, seasonally exposed gravel bars, artificial salt ponds and adjoining levees, and dredge spoil sites, as well as:

- areas that are below heavily vegetated areas or developed areas and above the daily high tides;
- shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low-water flow and annual high tide or high-water flow, are subject to inundation but not constantly under water, and support small invertebrates, such as crabs, worms, flies, beetles, spiders, sand hoppers, clams, and ostracods, that are essential food sources;
- surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates, that supports and attracts small invertebrates in shoreline habitats for food, provides cover or shelter from predators and weather, and assists in avoidance of detection (crypsis) for nests, chicks, and incubating adults; and
- relatively undisturbed areas with minimal disturbance from the presence of humans, pets, vehicles, or human-attracted predators, which provide for individual and population growth and for normal behavior.

Critical habitat for the western snowy plover overlaps with the training study area at Grayland Beach State Park and Leadbetter Point.

Streaked horned lark (*Eremophila alpestris strigata*)

The streaked horned lark is endemic to the Pacific Northwest and is a subspecies of the wide-ranging horned lark. The streaked horned lark was listed as threatened and critical habitat was designated in November 2013 (78 FR 61451).

Streaked horned larks nest on the ground in sparsely vegetated sites dominated by grasses and forbs in habitats such as native prairies, coastal dunes, fallow and active agricultural fields, wetland mudflats, sparsely vegetated edges of grass fields, and disturbed areas such as grazed pastures, gravel roads or gravel shoulders of lightly traveled roads, and airports. Breeding and wintering habitat along the Washington Coast consists of sparsely vegetated expanses of sand adjacent to the ocean that are dominated by grasses and forbs with few or no trees and shrubs. Foraging occurs in the same habitat, as well as in intertidal habitat (Stinson, 2005).

According to (Pearson & Altman, 2005), “the streaked horned lark has been extirpated as a breeding species throughout much of its range, including all of its former range in British Columbia, the San Juan Islands, the northern Puget Trough, the Washington coast north of Grays Harbor, the Oregon coast, and the Rogue and Umpqua Valleys in southwestern Oregon.” Recent site visits suggest that streaked horned larks in Washington currently breed on six sites in the Puget lowlands (one site on McChord Air Force Base, three sites on Ft. Lewis, Olympia Airport, and Shelton Airport), four sites on the coast (Damon Point, Midway Beach, Graveyard Spit, and Leadbetter Point), and two sites on islands in the lower Columbia River (White’s/Brown’s Island and the Washington portion of Rice Island). In addition, three new probable breeding sites were discovered in 2012 outside the training study area, including two along the Columbia River (Kalama and Sand Island Marine Park near St. Helens, Oregon) and on Johns River Island, on the Washington Coast (Washington Department of Fish and Wildlife, 2013).

Critical habitat for the streaked horned lark is within the Action Area at Grayland Beach State Park and Leadbetter Point State Park. The PCEs for this species includes areas with sparse and low stature vegetation in large patches of habitat or in smaller areas with open access to open water or fields. Training activities (Over-the-Beach and Special Reconnaissance) may overlap vertical habitat at Grayland Beach State Park and Leadbetter Point State Park.

Pearson and Altman (2005) found that the majority of streaked horned larks winter in the Willamette Valley (72 percent) and on the islands in the lower Columbia River (20 percent); the rest winter on the Washington coast (8 percent) or in the south Puget Sound (less than 1 percent). Streaked horn larks have been observed nesting and wintering within the Study Area, specifically at Leadbetter Point State Park (78 FR 61451). Potentially suitable habitat breeding and wintering habitat occurs along the Washington coast within the training study area.

Bald Eagles and Golden Eagles

Bald eagle

While no longer listed under ESA, bald eagles are still protected under the MBTA and the BGEPA. On non-federal lands, bald eagles are protected through such measures as Revised Code of Washington 77.12.655 (establishing habitat buffer zones for bald eagles) and Washington Administrative Code 232-12-292 (mandating protections for bald eagle habitat and management plans on state lands).

Bald eagles occur year-round within the training study area. Bald eagles are widely distributed in Washington State, including the San Juan Islands, the greater Puget Sound region, the Strait of Juan de Fuca, the Pacific Coast and associated estuaries, and the lower Columbia River (Kalasz & Buchanan, 2016). Most nest sites are in or near the marine environment. Proximity to water is important, as their primary food source is fish, although they also commonly prey on birds, such as waterfowl, gulls, and seabirds (Kalasz & Buchanan, 2016). Eagles also are found in association with nearly all major waterways, inland lakes, and reservoirs away from the marine zone, including eastern Washington. Bald Eagles are scarce or absent in higher elevations and portions of the Columbia Basin and Palouse region. Within the training study area, eagles nest on private lands, state lands, and federal properties. Bald eagles are known to nest at Camano Beach State Park (Washington State Parks and Recreation Commission, 2013), Fort Ebey State Park (Washington State Parks and Recreation Commission, 2009), and Fort Flagler State Park (at Kinney Point) (Washington State Parks and Recreation Commission, 2008b). Bald eagles may potentially occur or are known to occur at all Naval Base Kitsap properties (Camp McKean, Camp Wesley Harris, Naval Base Kitsap Bangor, Naval Base Kitsap Bremerton, Naval Base Kitsap Keyport, Toandos Buffer Zone, and Zelatched Point) with nesting reported at Naval Base Kitsap Bremerton, Naval Base Kitsap Keyport, Naval Base Kitsap Bangor (U.S. Department of the Navy, 2017). Bald eagles are also known to nest at Naval Magazine Indian Island and Whidbey Island at NAS Whidbey Island.

Golden eagle

Golden eagles are rare, transient visitors to the training study area, and are more abundant east of the Cascades. During migration, golden eagles hunt over wetlands, agricultural areas, and grasslands for small to medium-sized reptiles, mammals, and birds (Kociert & Steenhof, 2002). Within the training study area, suitable migration foraging habitats are plentiful; however, observations are limited. Hansen (2017) studied the distribution and foraging of golden eagles in western Washington and suggested that a golden eagle breeding territory was more likely to be frequently occupied if it occurred at a higher elevation, included a larger range of elevations, or included less forest cover.

State-Listed Birds

Within the training study area, the states of Washington and Oregon have listed American white pelican (*Pelecanus erythrorhyncho*) as threatened and the tufted puffin (*Fratercula cirrhata*) as endangered. These two species are not listed under the federal ESA.

American white pelican (*Pelecanus erythrorhyncho*)

The American white pelican is widespread in much of western and southeastern North America and is associated with lakes, reservoirs, and rivers. This species of pelican breeds at widely scattered island colonies. Birds from colonies west of the North American continental divide generally winter along the Pacific coast from central California to Central America and interior locations of Southern California and southwestern Arizona (Evans & Knopf, 1993; Knopf, 2004; Yates, 1999). In Washington and Oregon, small numbers of white pelicans are seen in winter along major rivers in the Columbia basin, breeding primarily on isolated islands in freshwater lakes and rivers, and foraging in shallow areas (Stinson, 2016). American white pelicans are somewhat adapted to changes in nesting and foraging sites (resulting from droughts and flooding); however, the largest colonies exist where these resources have been consistent and disturbance by humans or mammalian predators is rare. Primary winter habitats are shallow coastal bays, inlets, and estuaries with exposed loafing and roosting sites (e.g., sand bars) near foraging areas (Stinson, 2016).

Tufted puffin (*Fratercula cirrhata*)

The tufted puffin is known for its distinctive jet black body feathers, a white face framed by long golden plumes that sweep backward and down the neck, and a bright red ring of bare skin around the eyes. Tufted Puffins range throughout the temperate and sub-arctic North Pacific (Hanson & Wiles, 2015). Though vagrants have been noted as far south as Laysan Island in the Northwestern Hawaiian Islands, they are generally restricted to the cool waters above 30–34°N latitude (Piatt, 2002). In Washington, tufted puffin breeding colonies lie mainly along the outer coast from Point Grenville north to Cape Flattery. No breeding colonies were ever detected in Puget Sound (Hanson & Wiles, 2015).

3.3.2.3.5 Special Status Fishes

NMFS has jurisdiction over eight federally-listed fish species that may occur within the study area, including three species of salmon, steelhead, two rockfish species, Pacific eulachon, and green sturgeon on the West Coast, all of which occur within the training study area. The USFWS has listed bull trout throughout its range, which overlaps with the Study Area. In addition, three candidate species and nine species of concern occur within the Study Area. Candidate species are any species that are undergoing a status review that NMFS has announced through an FR notice (71 FR 61022). Critical habitat is designated within the training study area for the Puget Sound Chinook Salmon Evolutionary Significant Unit (ESU), Hood-Canal Summer Run Chum Salmon ESU, Columbia River chum salmon ESU, Puget Sound steelhead, Puget Sound/Georgia Basin bocaccio, yelloweye rockfish, and green sturgeon.

Puget Sound Chinook Salmon Evolutionary Significant Unit

On June 28, 2005, the Puget Sound Chinook Salmon ESU was listed as threatened (70 FR 37160–37204). This ESU includes all wild (naturally spawned) populations of Chinook salmon from rivers and streams flowing into Puget Sound, including the Strait of Juan de Fuca from the Elwha River, eastward, including rivers and streams flowing into Hood Canal, South Sound, North Sound, and the Strait of Georgia in Washington, and 26 artificial propagation programs. The listing includes all naturally spawned populations of Chinook salmon from rivers and streams flowing into Puget Sound including the Strait of Juan De Fuca from the Elwha River eastward, as well as 26 artificial propagation programs. These programs include Kendal Creek Hatchery, Marblemount Hatchery (fall, spring yearlings, spring subyearlings, and summer run), Harvey Creek Hatchery, Whitehorse Springs Pond, Wallace River Hatchery (yearlings and subyearlings), Tulalip Bay, Issaquah Hatchery, Soos Creek Hatchery, Icy Creek Hatchery, Keta Creek Hatchery, White River Hatchery, White Acclimation Pond, Hupp Springs Hatchery, Voights Creek Hatchery, Diru Creek, Clear Creek, Kalama Creek, George Adams Hatchery, Rick's Pond Hatchery, Hamma Hatchery, Dungeness/Hurd Creek Hatchery, and Elwha Channel Hatchery.

Critical habitat was designated for the Puget Sound ESU Chinook salmon February 2000 and re-designated September 2005 (70 FR 52630). In marine waters, designated critical habitat extends to - 30 mean lower low water (MLLW). DoD lands were excluded from designation because of implementation of Integrated Natural Resources Management Plan (INRMP) that outlines species protection measurements. Designated critical habitat for Puget Sound ESU Chinook salmon occurs within the training study area and outside DoD lands. NMFS also designated six PCEs, two of which occur in marine water (70 FR 52630) and are present in the training study area. These include:

- Estuarine areas free of obstruction and excessive predation with (i) water quality and quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; (ii) natural cover such as submerged and overhanging large wood, aquatic

vegetation, large rocks and boulders side channels; and (iii) juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation;

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

Most of the ESUs for Chinook salmon have a low abundance relative to historical levels. NMFS has reported population sizes from individual ESUs, but because all of these units occur together while at sea, it is difficult to estimate the marine population numbers in the training study area.

The general life history of anadromous Chinook salmon includes both freshwater and ocean phases of development. Incubation, hatching, and emergence occur in fresh water, followed by seaward migration to the ocean, which is preceded by the onset of smoltification. After several years at sea, maturation is initiated and adults return to freshwater habitats to spawn in their natal streams. Stream-type Chinook salmon spend extended periods in fresh water before smoltification, in contrast to the ocean-type that immigrates to the ocean as sub-yearling smolts. Coastal streams are dominated by the ocean-type, whereas the stream-type are mainly found in the headwater streams of larger river systems (Gamble, 2016; Hertz et al., 2016). The Puget Sound Chinook Salmon ESU entering the Inland Waters of the Study Area are predominantly ocean-type fish. Like other species of Pacific salmon, Chinook salmon die after spawning and are therefore not able to spawn more than once (Chasco et al., 2017).

Hood-Canal Summer Run Chum Salmon Evolutionary Significant Unit

The Hood Canal summer-run ESU chum salmon was listed as threatened in June 2005 (70 FR 37160). The listing includes all naturally spawned populations of summer-run chum salmon in Hood Canal and its tributaries, as well as populations in Olympic Peninsula rivers between Hood Canal and Dungeness Bay, Washington, and eight artificial propagation programs (81 FR 72759). However, all Hood Canal summer chum hatchery programs except Lilliwaup were terminated by 2014. The last supplementation-origin spawners, outside of Lilliwaup River, are expected to return to the Tahuya River in 2018 (Northwest Fisheries Science Center, 2015). The NMFS recovery plan for this species was adopted on May 24, 2007 (72 FR 29121).

The Puget Sound Technical Review Team designated two independent populations for the Hood Canal summer-chum ESU, one that includes spawning aggregations from rivers and creeks draining into the Strait of Juan de Fuca and one that includes spawning aggregations within Hood Canal proper (Northwest Fisheries Science Center, 2015). The Hood Canal summer-run chum population is composed of nine extant runs that include the Big Quilcene River, Little Quilcene River, Dosewallips River, Duckabush River, Hamma River, Lilliwaup Creek, Union River, Big Beef Creek, and Tahuya River populations.

Chum salmon are second only to Chinook in dependence upon estuaries (West Coast Salmon Biological Review Team et al., 2003). Chum salmon usually spawn in the lowest reaches of streams, and juveniles move out into the estuaries almost immediately after emerging from their spawning gravel. Ocean migration of juveniles is correlated with increasing water temperature and plankton blooms. This means survival and growth of juveniles depends less on river habitat conditions and more on favorable estuarine and ocean conditions. Chum salmon are mostly found within the continental shelf; juveniles are found at depths less than 40 meters while adults are typically epipelagic (the part of the oceanic

zone into which enough light penetrates for photosynthesis) (Quinn & Myers, 2004). After spending between one and five years in the ocean, chum salmon mature and return to their home freshwater stream to spawn. In most areas, maturity is reached at four years of age. Like other species of Pacific salmon, chum salmon die after spawning and are not able to spawn more than once.

Critical habitat was designated for the Hood Canal summer-run chum salmon ESU in February 2000 and re-designated September 2005 (70 FR 52630). Designated critical habitat includes nearshore marine areas (including areas adjacent to islands) of Hood Canal and the Strait of Juan de Fuca (to Dungeness Bay) from the line of extreme high tide out to a depth of 30 meters, with the exception of DoD lands. Two PCEs occur in marine waters, as described above for the Puget Sound Chinook salmon ESU, are essential to conserving the Hood Canal summer-run chum ESU (70 FR 52630).

Columbia River Chum Salmon Evolutionary Significant Unit

The Columbia River Chum Salmon ESU was listed as threatened on June 28, 2005 (70 FR 37160) and includes all naturally spawned populations of chum salmon in the Columbia River and its tributaries in Washington and Oregon, as well as the three artificial propagation programs: Chinook River (Sea Resources Hatchery), Grays River, and Washougal River/Duncan Creek chum hatchery programs.

The distribution and abundance of fishes, including chum salmon, depends greatly on the physical and biological factors of the marine ecosystem, such as salinity, temperature, dissolved oxygen, population dynamics, predator and prey interaction oscillations, seasonal movements, reproduction and life cycles, and recruitment success (Helfman et al., 1997). A single factor is rarely responsible for the distribution of fish species; more often, a combination of factors is accountable. This species is most commonly found in Region 3 in the Columbia River.

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Critical habitat for this species was designated on September 2, 2005. Critical habitat includes the stream channels within the designated stream reaches, and includes a lateral extent as defined by the ordinary high-water line (70 FR 52630). In estuarine and nearshore marine areas, critical habitat includes areas contiguous with the shoreline from the extreme high water line out to a depth no greater than 30 meters relative to mean lower low water. Within these areas, some of the PCEs essential for the conservation of these ESUs are:

- sites and habitat components that support one or more life stages, include freshwater spawning and rearing sites,
- freshwater migration corridors free of obstruction and excessive predation,
- estuarine areas free of obstruction and excessive predation, and
- offshore marine areas to support growth and maturation.

Critical habitat for this species includes the Columbia River and its tributaries in Region 3 near the Cape Disappointment and Fort Columbia training areas.

Puget Sound Steelhead

The Puget Sound steelhead DPS was listed in May 2007 under the ESA as a threatened DPS (72 FR 26722). The DPS includes all naturally spawned anadromous winter-run and summer-run *O. mykiss* (steelhead) populations in streams in the river basins of the Strait of Juan de Fuca, Puget Sound, and Hood Canal, Washington, bounded to the west by the Elwha River (inclusive) and to the north by the Nooksack River and Dakota Creek (inclusive), as well as the Green River natural and Hamma Hamma winter-run steelhead hatchery stocks (National Marine Fisheries Service, 2016c). The winter-run steelhead is the predominant run in Puget Sound, in part because there are relatively few basins in the Puget Sound DPS with the flow and watershed characteristics necessary to establish the summer-run life history (National Marine Fisheries Service, 2016c). All summer-run stocks are depressed and concentrated in northern and central Puget Sound and Hood Canal.

Steelhead may occur in all regions of the Action Area. Production of hatchery stocks that are either out-of-DPS-derived stocks (Skamania River summer-run) or within-DPS stocks that are substantially diverged from local populations (Chambers Creek winter-run) largely outnumber naturally produced steelhead in many basins throughout Puget Sound (National Marine Fisheries Service, 2016c).

The winter-run steelhead is the predominant run in Puget Sound, in part because there are relatively few basins in the Puget Sound DPS with the flow and watershed characteristics necessary to establish the summer-run life history (National Marine Fisheries Service, 2010b). All summer-run stocks are depressed and concentrated in northern and central Puget Sound and Hood Canal. Production of hatchery stocks that are either out-of-DPS-derived stocks (Skamania River summer-run) or within-DPS stocks that are substantially diverged from local populations (Chambers Creek winter-run) largely outnumber naturally-produced steelhead in many basins throughout Puget Sound (National Marine Fisheries Service, 2016c).

Threats to Puget Sound steelhead are mainly due to reduced life history, diversity of stocks, and the potential threats posed by artificial propagation and harvest in the Puget Sound. NMFS (2016d) indicated the principal factor for decline for Puget Sound steelhead is the present or threatened destruction, modification, or curtailment of its habitat or range. Within Puget Sound, these threats may include barriers to fish passage, adverse effects on water quality, loss of wetland and riparian habitats, and other urban development activities contributing to the loss and degradation of steelhead habitats (National Marine Fisheries Service, 2016c, 2016d).

Critical habitat for Puget Sound steelhead was proposed in January 2013 (78 FR 2725), and the Final Rule was published in February 2016 (81 FR 9251). Changes from the proposed critical habitat document include the addition of 101 mi. of occupied habitat, the removal of 27 mi. of areas incorrectly identified as occupied by Puget Sound steelhead in the proposed critical habitat designation, and designation of 85 mi. of occupied steelhead habitat on the Kitsap Peninsula originally proposed for exclusion. No critical habitat is designated at Naval Base Kitsap Bangor because the current INRMPs contain measures that provide benefits to this DPS, such as actions that eliminate fish passage barriers, control erosion, protect riparian zones, increase stream habitat complexity, and monitor listed species and their habitats. Two PCEs for Puget Sound steelhead occur in marine waters, as described above for the Puget Sound Chinook salmon ESU.

Bull Trout

On November 1, 1999, the Coastal-Puget Sound Bull Trout DPS was listed as threatened across five states in the coterminous United States (64 FR 58910). Bull trout are listed as a single DPS but are managed via six biologically based Recovery Units, of which only the Coastal Recovery Unit is adjacent to the Study Area (Lowery & Beauchamp, 2015; U.S. Fish and Wildlife Service, 2004). The Coastal Recovery Unit encompasses Washington and western Oregon. Within Washington, the major geographic regions containing this unit include the Olympic Peninsula, Puget Sound, and Lower Columbia River basins. The Olympic Peninsula and Puget Sound geographic regions also include their associated marine waters (Puget Sound, Hood Canal, Strait of Juan de Fuca, and Pacific Coast). The Puget Sound region contains eight core areas (Chilliwack River, Nooksack River, Upper Skagit River, Lower Skagit River, Stillaguamish River, Snohomish and Skykomish Rivers, Chester Morse Lake, and Puyallup River). The Olympic Peninsula Region contains six core areas (Dungeness River, Elwha River, Hoh River, Queets River, Quinault River, and Skokomish River). The only core areas currently supporting anadromous populations of bull trout are located within the Puget Sound and Olympic Peninsula regions.

Bull trout have declined in overall range and numbers of fish and are severely reduced throughout the Study Area. Bull. Though still widespread, there have been numerous local extirpations reported throughout the Columbia River basin. Bull trout generally occur as isolated sub-populations in headwater lakes or tributaries where migratory fish have been lost.

Bull trout are a native fish in western North America, inhabiting pristine cold-water streams. Unlike other salmonids, bull trout require colder water temperatures. They exhibit resident and migratory life history strategies throughout much of their current range. 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 in certain coastal areas to salt water (anadromous), where maturity is reached in one of the three habitats (63 FR 31647). In the ocean, bull trout remain within 3 nautical miles (NM) of the shore. There are four distinct types of bull trout: anadromous, adfluvial (migrating between lakes, rivers, or streams), fluvial (inhabiting a stream or river), and resident. Only the anadromous type migrates from fresh water habitats to ocean habitats.

Threats to bull trout include habitat loss and fragmentation due to historically human-caused land and water management activities; overutilization for commercial, scientific, or educational purposes; disease or predation by native or nonnative/invasive species; inadequacy of existing regulatory mechanisms; fish passage issues; competition and hybridization; and climate change impacts such as warming climates, changing precipitation, and hydrologic regimes (Lowery & Beauchamp, 2015).

Critical habitat for bull trout was originally designated on September 26, 2005 (70 FR 56212) and later revised on October 18, 2010 (75 FR 63898). In marine nearshore areas, the inshore extent of critical habitat is the mean higher high-water line, including the uppermost reach of the saltwater wedge within tidally influenced, freshwater heads of estuaries. Critical habitat extends offshore to the depth of 10 meters (33 feet) relative to the MLLW line. There is minimal overlap of bull trout critical habitat with the Training Study Area, including along the west side of Hood Canal, on the southern tip of the peninsula between Bangor and Dabob Bay, in Sequim Bay. Other areas of overlap include the north side of Whidbey Island towards Anacortes and Deception Pass, sites at Skagit Island and Hope Island State Parks, the eastern most tip of Oak Harbor, potential training sites on Camano Island, sites in the Port of Tacoma, and the site at the tip of Point Defiance. The quantity and quality of critical habitat are

evaluated by reference to PCEs. Of the nine PCEs identified as essential for conserving bull trout, five PCEs occur in marine waters (75 FR 63898). These include:

- Migratory 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;
- An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish;
- Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and substrates, to provide a variety of depths, gradients, velocities, and structure;
- Water temperatures ranging from 2 to 15 °Celsius (36 to 59 °Fahrenheit), with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; and local groundwater influence; and
- Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

Puget Sound/Georgia Basin Bocaccio Rockfish DPS

Puget Sound/Georgia Basin DPSs of bocaccio (*Sebastes paucispinis*) was federally listed as endangered under the ESA in 2010 (75 FR 22276). The listing indicated that bocaccio occupy all waters of Puget Sound/Georgia basin to the northern boundary of the Northern Strait of Georgia along the southern contours of Quadra Island and the western boundary of the U.S. side of the Strait of Juan de Fuca in a straight line to the Canadian side (82 FR 7711).

Bocaccio are found from Stepovac Bay on the Alaska Peninsula to Punta Blanca in central Baja California (National Marine Fisheries Service, 2014a). Information on habitat requirements for most rockfishes is limited despite years of research, and even less is known about bocaccio in Puget Sound (Drake et al., 2010; Palsson et al., 2009). In general, most adult rockfish are associated with high relief, rocky habitats, but have also been documented in non-rocky substrates such as sand, mud, and other unconsolidated sediments. Larval and juvenile stages of some rockfishes utilize open water and nearshore habitats as they grow. Reviews of rockfish habitat utilization in Puget Sound indicate that nearshore vegetated habitats are particularly important for some species and serve as nursery areas for juveniles (Palsson et al., 2009) (79 FR 68042). Juvenile bocaccio settle to shallow, algae-covered rocky areas or to eelgrass and sand (Love et al., 2002). Palsson et al. (2009) indicate that in Puget Sound waters, recruitment habitats may include nearshore vegetated habitats, or deep-water habitats consisting of soft and low relief rocky substrates.

Critical habitat for the Puget Sound/Georgia Basin DPS of bocaccio was designated on November 13, 2014 (79 FR 68041) and updated on January 23, 2017 (82 FR 7711). Designated critical habitat that overlaps with the training study area includes deepwater (greater than 30 m for adults) and nearshore (juveniles) critical habitat (82 FR 7711) excluding DoD waterfronts and some restricted areas.

NMFS has listed the following as essential features to the conservation of adult bocaccio:

- Benthic habitats or sites deeper than 30 meters that possess or are adjacent to areas of complex bathymetry consisting of rock or highly rugose habitat, as these features support growth, survival, reproduction, and feeding opportunities by providing the structure for rockfish to avoid predation, seek food, and persist for decades. Attributes of these essential features include
 - quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities;
 - water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities; and
 - the type and amount of structure and rugosity that supports feeding opportunities and predator avoidance.

NMFS has also listed the following essential features to conserve juvenile bocaccio:

- Juvenile settlement habitats located in the nearshore with substrates such as sand, rock, or cobble compositions that also support kelp (families Chordaceae, Alariaceae, Lessoniaceae, Costariaceae, and Laminariceae) 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. Attributes of the essential features include
 - quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities; and
 - water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities.

Critical habitat is designated within the training study area except at Navy shorelines subject to INRMPS that address listed rockfish habitat and contain measures that provide benefits to these DPSs (79 FR 68042).

Puget Sound/Georgia Basin Yelloweye Rockfish DPS

Puget Sound/Georgia Basin DPSs of yelloweye rockfish (*Sebastes ruberrimus*) were federally listed as threatened under the ESA in 2010 (75 FR 22276). Yelloweye rockfish are found within Puget Sound/Georgia Basin, inclusive of the Queen Charlotte Channel to Malcom Island and the western boundary of the U.S. side of the Strait of Juan de Fuca in a straight line to the Canadian side (82 FR 7711).

Recent reviews of Puget Sound rockfish species and their habitats (Drake et al., 2010; Palsson et al., 2009) (79 FR 68042) suggest little distinction between some rockfish species in terms of habitat use in Puget Sound. Adult yelloweye have been documented in non-rocky substrates such as sand, mud, and other unconsolidated sediments, but have also been recorded in areas of mud/cobble habitat. However, yelloweye juveniles are rarely found in nearshore waters less than 30 meters (79 FR 68042). Therefore, consistent with the discussion for bocaccio, adult yelloweye rockfish are considered associated with deeper, high-relief, rocky habitats, and larval stages may use open water and nearshore habitats, but juveniles are not anticipated to be in shallow nearshore habitats.

NMFS (2014a) documented occurrence of yelloweye rockfish mainly at the southern end of Hood Canal, in Possession Sound at Everett and south of Everett, and south of Manchester near Vashon Island. Palsson et al. (2009) noted 113 documented Puget Sound yelloweye rockfish historical records associated with recreational catch. Of these records, 14 occurred in Hood Canal waters: 1 in the 1930s and 13 in the 1960s (Miller & Borton, 1980). Yelloweye rockfish accounted for 1 percent and 1.4 percent of recreational catch in northern and southern Puget Sound, respectively, from 1996 to 2002 when their retention was prohibited (Palsson et al., 2009).

Critical habitat for yelloweye rockfish was designated on November 13, 2014 (79 FR 68041) and updated on January 23, 2017 (82 FR 7711). Critical habitat is designated within the training study area, excluding DoD waterfronts and some restricted areas. NMFS has listed the following as essential features to the conservation of adult and juvenile yelloweye rockfish:

- Benthic habitats or sites deeper than 30 m that possess or are adjacent to areas of complex bathymetry consisting of rock or highly rugose habitat. These features support growth, survival, reproduction, and feeding opportunities by providing the structure for rockfish to avoid predation, seek food, and persist for decades. Attributes of these essential features include:
 - quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities;
 - water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities; and
 - the type and amount of structure and rugosity that supports feeding opportunities and predator avoidance.

Pacific Eulachon Southern DPS

The Pacific southern eulachon DPS was listed as threatened under the ESA on March 18, 2010 (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.

Eulachon is an anadromous smelt that ranges from northern California to the southeastern Bering Sea coast of Alaska (Moody & Pitcher, 2010; Willson et al., 2006). Eulachon occur in nearshore ocean waters and to 1,000 feet in depth, except for the brief spawning runs into their natal (birth) streams (National Marine Fisheries Service, 2017b). Spawning grounds are typically in the lower reaches of larger snowmelt-fed rivers with water temperatures ranging from 39 to 50°F (4 to 10°C). Spawning occurs over sand or coarse gravel substrates. Eulachon typically spend three to five years in saltwater before returning to freshwater to spawn from late winter through mid-spring (National Marine Fisheries Service, 2017b).

Eulachon abundance exhibits considerable year-to-year variability, and nearly all spawning runs from California to southeastern Alaska have shown considerable declines over the past 20 years. Major threats to the southern DPS of eulachon include climate change impacts on ocean and freshwater habitat, bycatch in offshore shrimp trawl fisheries, changes in downstream flow-timing and intensity due to dams and water diversions, and predation. Large declines in abundance, combined with these threats, suggest that the southern DPS of eulachon was at moderate risk of extinction throughout all of its range (Gustafson et al., 2010; Gustafson et al., 2012). This species is most commonly found in the Columbia River in Region 3 of the training study area.

Critical habitat for the southern DPS of Pacific eulachon was designated in October 2011 (76 FR 65324). Within the training study area, designated critical habitat has the potential to overlap with those areas that may be used for training near the Columbia River, such as Cape Disappointment and Fort Columbia.

The physical and biological features essential for conservation of eulachon include:

- freshwater spawning and incubation sites with water flow, quality and temperature conditions and substrate supporting spawning and incubation;
- Freshwater and estuarine migration corridors free of obstruction and with water flow, quality and temperature conditions supporting larval and adult mobility, and with abundant prey items supporting larval feeding after the yolk sac is depleted; and
- nearshore and offshore marine foraging habitat with water quality and available prey, supporting juveniles and adult survival.

North American Green Sturgeon Southern Distinct Population Segment

The North American green sturgeon Southern DPS was listed by as threatened under the ESA on April 7, 2006 (71 FR 17757). Green sturgeon are the most wide-ranging and most marine-oriented species of the sturgeon family and are believed to spend a majority of their lives in nearshore oceanic waters, bays, and estuaries. They spawn and rear outside of the study area. (National Marine Fisheries Service, 2015a).

Subadult and adult green sturgeon make annual migrations along the coast in the spring and fall, spending winters in the marine waters north of Vancouver Island and south of southeast Alaska, and summers in coastal waters, bays, and estuaries of Washington, Oregon, and California. Green sturgeon have been found in high concentrations along the Washington coast in Willapa Bay, Grays Harbor, and the Columbia River estuary during summer and fall. 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 (National Marine Fisheries Service, 2015a). This information is based on anglers reporting only fish they have kept and not those released. The extent to which green sturgeon use Puget Sound is unknown, but occurrence has been documented. Adams et al. (2002) noted incidental capture of few adult or subadult green sturgeon in fisheries in Puget Sound, predominately from trawl fisheries. Two tagged southern DPS green sturgeon originating from San Pablo Bay were detected south of Whidbey Island in 2006 (Moser, 2008, as cited in National Marine Fisheries Service, 2009) of which one of those was detected over several months over a two-year period in the area possibly foraging, holding, or resting. No tagged green sturgeon southern DPS have been detected in Hood Canal (Moser, 2008, as cited in National Marine Fisheries Service, 2009). Occurrence of green sturgeon within the interior Puget Sound waters is possible but expected to be rare.

Critical habitat was designated on October 9, 2009 (74 FR 52300). Critical habitat has been designated in coastal U.S. marine waters within 60 fathoms (110 meters) depth from Monterey Bay, CA (including the Bay), north to Cape Flattery, WA, including the Strait of Juan de Fuca, to the U.S.-Canada boundary; the Sacramento-San Joaquin Delta and Suisun, San Pablo, and San Francisco Bays in California; the lower Columbia River estuary; and certain coastal bays and estuaries in California (Humboldt Bay), Oregon (Coos Bay, Winchester Bay, Yaquina Bay, and Nehalem Bay), and Washington (Willapa Bay and Grays Harbor) (50 CFR Part 226). Several of these areas overlap with the training study area. In Region 2, it overlaps with waters adjacent to Joseph Whidbey State Park and continues along the coast past

Deception Pass State Park. In Region 3, it overlaps with Westhaven, Westport Light, Twin Harbors, Grayland Beach, Leadbetter Point, and Cape Disappointment off the coast of Washington.

Three PCEs were identified that are essential for conserving the southern green sturgeon DPS in coastal marine areas (74 FR 52300). These include:

- **Migratory Corridor.** A safe and timely migratory pathway within marine and between estuarine and marine habitats. Safe and timely passage is defined as human-induced impediments (physical, chemical, or biological) do not alter migratory behavior of the fish.
- **Water Quality.** Coastal marine waters with adequate dissolved oxygen levels and acceptably low levels of contaminants.
- **Food Resources.** Abundant prey items for subadults and adults, which may include benthic invertebrates and fish.

3.3.2.3.6 Special Status Marine Reptiles

Leatherback Sea Turtle

The leatherback sea turtle is listed as a single population and is classified as endangered under the ESA (35 FR 8491). Although USFWS and NMFS believe the current listing is valid, preliminary information indicates an analysis and review of the species should be conducted under the DPS policy (National Marine Fisheries Service & U.S. Fish and Wildlife Service, 2013).

Unlike populations in the Caribbean and Atlantic Ocean, which are generally stable or increasing, western Pacific leatherbacks have declined more than 80 percent and eastern Pacific leatherbacks have declined by more than 97 percent since the 1980s (Kobayashi et al., 2016). Western leatherbacks occur off of Washington's coast. Because the threats to these subpopulations have not ceased, the International Union for Conservation of Nature has predicted a decline of 96 percent for the western Pacific subpopulation and a decline of nearly 100 percent for the eastern Pacific subpopulation by 2040 (Nachtigall et al., 2016; Wallace et al., 2016).

The eastern and western Pacific leatherback populations have been the subjects of several action plans and recovery plans over the last two decades including the Bellagio Blueprint for Action on Pacific Sea Turtles (Polasek et al., 2017), the U.S. Recovery Plan for Pacific populations of Leatherbacks (National Marine Fisheries Service & U.S. Fish and Wildlife Service, 1998), and the North American Conservation Action Plan for Pacific Leatherback Sea Turtles (Seymour et al., 2017). NMFS has updated their conservation strategy for Pacific leatherback sea turtles with the publication of *Species in the Spotlight Priority Actions: 2016-2020 Pacific Leatherback Turtle Dermochelys coriacea* (National Marine Fisheries Service, 2016a). This plan focuses on five primary areas: (1) reducing fisheries interactions, (2) improving nesting beach protections and increasing reproductive output, (3) international cooperation, (4) monitoring and research, and (5) public engagement.

Occurrence within the training study area should be considered extremely rare, as this species would only be present under certain oceanographic conditions. Recent research using satellite telemetry indicates that Washington's outer coast (especially the area near the Columbia River plume, an upwelling that is favorable to leatherback foraging) is an important foraging area for the species (Benson et al., 2011b). Leatherback sea turtles are not anticipated to occur in the Region 1 portion of the training study area. Within Region 2, leatherback sea turtles have been reported only on rare occasions within the Strait of Juan de Fuca (Vanselow et al., 2009; Witteveen & Wynne, 2017). As for Region 3, commercial and recreational fishermen have noted occasional sightings of single individuals or small

groups of leatherbacks off the coast of Washington. There were 78 documented occurrences from a variety of sources from 1975 to 2013, with records extending from the mouth of the Columbia River north to Cape Flattery. The number of western Pacific leatherbacks in Washington is likely decreasing over time, based on the strong declines in the nesting population in Indonesia (Athens, 2002). (Gaydos & Zier, 2014; Tsao et al., 2005)

In 2012, NMFS designated critical habitat for the leatherback sea turtle off the coast of Washington and Oregon. The designated areas include marine habitat and waters from the ocean surface down to a maximum depth of 262 feet (80 meters) (77 FR 4170). Critical habitat overlaps with the potential training areas located in Region 3.

NMFS identified one PCE for the conservation of leatherbacks in marine waters off the U.S. west coast. This PCE is the occurrence of prey species, primarily scyphomedusae of the order Semaestomeae (an order of large jellyfish), of sufficient condition, distribution, diversity, abundance, and density necessary to support individual, as well as population, growth, reproduction, and development.

3.3.2.3.7 Special Status Marine Mammals

Mexico Distinct Population Segment and Central America Distinct Population Segment

Humpback Whale

Humpback whales of the Mexico DPS are listed as threatened, and those from the Central America DPS are listed as endangered under the ESA (National Marine Fisheries Service, 2016b). Together these two DPSs are considered the California, Oregon, and Washington stock of humpback whales and are listed as depleted under the MMPA (Carretta et al., 2017b; National Marine Fisheries Service, 2016b).

Humpback whales are distributed worldwide in all major oceans and most seas. They typically are found during the summer on high-latitude feeding grounds and during the winter in the tropics and subtropics around islands, over shallow banks, and along continental coasts, where calving occurs (Barlow et al., 2011; Calambokidis et al., 2008). Off the U.S. West Coast, humpback whales are more abundant in shelf and slope waters (<2,000 meter deep), and are often associated with areas of high productivity (Becker et al., 2010; Becker et al., 2012; Becker et al., 2016; Forney et al., 2012; Redfern et al., 2013). While most humpback whale sightings are in nearshore and continental shelf waters, humpback whales frequently travel through deep oceanic offshore waters during migration (Calambokidis et al., 2001; Clapham & Mattila, 1990; Clapham, 2000).

Although recent estimates show variable trends in the number of humpback whales along the U.S. West Coast, the overall trend in the estimates is consistent with growth rate of 6–7 percent for the California, Oregon, and Washington stock and appear consistent with the highest-yet abundances of humpback whales in the most recent 2014 survey of that stock (Barlow, 2016; Carretta et al., 2017b; Smultea & Jefferson, 2014).

Humpback whale sightings in inland Washington waters has increased. Inland water opportunistic sightings primarily occur from April through July, but sightings are reported in every month of the year. Most sightings occur in the Strait of Juan de Fuca and in the San Juan Island area, with only occasional sightings in Puget Sound. Visual surveys and acoustic monitoring studies in offshore areas have detected humpbacks along the Washington coast year-round, with peak occurrence during the summer and fall (Oleson et al., 2009).

Critical habitat has not been designated for this species.

Southern Resident Killer Whale Distinct Population Segment

Among the genetically distinct assemblages of killer whales in the northeastern Pacific, the Eastern North Pacific Southern Resident stock is one of two that may occur in the Proposed Action Area. The Southern Resident stock is listed as endangered under the ESA (70 FR 69903) and is protected and designated as depleted under the MMPA. The Southern Resident stock contains three pods (J, K, and L pods), considered one stock under the MMPA and as a “distinct population segment” (therefore, “species”) under the ESA.

The Eastern North Pacific Southern Resident stock is a transboundary stock that occurs in inland waters of Washington and British Columbia. They regularly visit coastal sites off Washington State and Vancouver Island (Ford et al., 2000) and are known to travel as far south as central California (Black, 2011). Tagging and acoustic data has shown that, throughout their range, K/L pods occurred almost exclusively on the continental shelf, with high use areas mainly between Grays Harbor and the Columbia River (Hanson et al., 2017). Photo-identification of individual whales in the stock through the years has resulted in a substantial understanding of this stock’s structure, behaviors, and movements in inland waters. Southern Resident killer whales are most frequently observed in the inland waters of Washington State and British Columbia during the late spring, summer, and fall (Hanson et al., 2017). In Washington inland waters, Southern Residents are most often observed outside the training study area in Haro Strait, along the west side of San Juan Island, and in the Strait of Juan de Fuca and enter Puget Sound typically in the fall or winter months (Hanson et al., 2017). Southern Resident killer whales regularly occur throughout the San Juan Islands and Strait of Juan de Fuca, and occur less frequently through main basins of Puget Sound (Orca Network, 2017).

Region 1. Southern Resident killer whales may occur occasionally in Puget Sound, with the exception of Hood Canal, including Dabob Bay, as they have not been documented there since 1995 (National Marine Fisheries Service, 2006). Southern Residents typically enter Puget Sound in the fall or winter months (National Marine Fisheries Service, 2006).

Region 2. In Region 2, Southern Residents are most often observed outside the Action Area in Haro Strait, along the west side of San Juan Island, and in the Strait of Juan de Fuca (Houghton et al., 2015; Kriete, 2007). Southern Residents enter Puget Sound typically in the fall or winter months (National Marine Fisheries Service, 2006). They are less frequently seen off northern Whidbey Island and within the Region 2 action area (Hanson et al., 2017).

Region 3. They regularly visit coastal sites off Washington state and Vancouver Island (Ford et al., 1994) and are known to travel as far south as central California (Black, 2011). Tagging and acoustic data have shown that, throughout their range, K and L pods occurred almost exclusively on the continental shelf, with high use areas mainly between Grays Harbor and the Columbia River (Hanson et al., 2017).

In November 2006, NMFS designated critical habitat for Southern Resident killer whales. Within the training study area, critical habitat has been designated as marine waters deeper than 20 ft. (6 m) below extreme high tide within Puget Sound, and the Strait of Juan de Fuca. Hood Canal is not included in critical habitat. There are 18 sites owned or controlled by the DoD which are excluded from critical habitat designation, including Navy locations within Puget Sound.

The PCEs essential for conservation of the Southern Resident killer whale critical habitat have been identified as:

- water quality to support growth and development;

- prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and
- passage conditions to allow for migration, resting, and foraging (National Marine Fisheries Service, 2006).

3.3.3 Environmental Consequences

This analysis focuses on wildlife or vegetation types that are important to the function of the ecosystem or are protected under federal or state law or statute. The Navy has identified two primary potential stressors from the Proposed Action that may impact biological resources and are described below.

- **Physical Stressors.** The physical presence of submersibles, swimmers, surface vessels, and trainees on land.
- **Acoustic Stressors.** Some training activities generate noise in the environment, such as vessel noise, vehicular noise, the use of simulated munitions, the emergency recall device, and noise generated from the use of UAS.

Since the types of wires and cables proposed for UUV training, which includes remotely operated vehicles (ROVs), would be monitored by the operator, are rigid, do not form loops, and would not be discarded, entanglement was eliminated as a potential stressor and not carried forward for analysis.

The emergency recall device is an MK-137 that is intended for underwater use only. It contains a small pyrotechnic of 1.75 grams of double based propellant composition, an ignition charge of black powder, a primer, and a blasting fuse to produce a 6.6 second delay. The device would only be used in an emergency situation, during an in-water training event that has already commenced. It is dropped adjacent to the diver/swimmers to alert them that a potential emergency situation is occurring and that they should return to the surface. Due to specific protection measures described further in the document, it is not anticipated that any species would congregate near the swimmer/divers during a training evolution and because it would only occur during an emergency, which is unpredictable, emergency recall device was eliminated as a potential stressor and not carried forward for further analysis.

A number of activity-specific protection measures, installation natural resource training constraints, and other factors reduce the potential impacts of stressors on biological resources and are summarized below. These measures are common to all alternatives analyzed in this EA.

Activity-specific protection measures. In order to reduce the potential impacts of the stressors from the Proposed Action, training activities are designed with activity-specific protection measures that ensure compliance with existing agreements between the Navy and regulatory agencies. Example measures include watch-out and avoidance procedures for marine mammals in water and on land, as well as avoiding potential impacts on seagrass beds by avoiding sensitive areas and timing of activities (e.g., avoiding low tides for some sensitive locations).

Installation-specific natural resource training constraints. In addition, various installations where training activities occur have identified a number of site-specific training restrictions that are included in INRMPs (U.S. Department of the Navy, 2012, 2017). These restrictions are the result of stewardship and compliance actions in consultation with USFWS and NMFS for other military proposed actions. The Navy and other services conduct training operations at various installations in Puget Sound. Training operations can require that equipment and personnel utilize the nearshore areas. Prior to scheduling of

activities, natural resource managers recommend shoreline areas or seasonal timing that would result in minimal or no impact to sensitive wildlife species. The review process identifies areas that have training constraints placed on them for environmental reasons (e.g., wetland buffers); suggests best management practices to minimize or eliminate any potential environmental degradation; identifies environmental permits, consultations, and other documents required to carry out the training activity; develops a cost estimate for any additional environmental permits; and carries out any consultations with state and federal resource and regulatory agencies. An example constraint of training activities within this EA may include avoiding training activities in proximity to bald eagle nests during certain times of year. These training constraints are also adhered to for training activities and are considered in the analysis of potential impacts of the Proposed Action. These constraints are discussed in the following analyses for potential impacts of the proposed training activities.

State park-specific natural resource training constraints. Training activities that may occur on state parks would be by agreement with the Washington State Parks and Recreation Commission. Training activities would be consistent with management objectives of individual parks, including prohibiting training in sensitive areas containing important natural and cultural resources. Some state parks have management plans with designated conservation areas that support conservation activities (e.g., providing important refugia for species, supporting reintroduction sites) or higher land use classifications (e.g., “heritage”), which is the most restrictive for access and is used to protect extremely rare species (e.g., golden paintbrush populations). The following state parks have management plans that proscribe land use classifications that would protect specific species and habitats from stressors of the Proposed Action: Blake Island State Park, Camano Island State Park, Dosewallips State Park, Fort Casey State Park, Fort Ebey State Park, Fort Flagler State Park, Fort Worden State Park, Hope Island State Park, Illahee State Park, Joseph Whidbey State Park, Manchester State Park, Scenic Beach State Park, and Sequim Bay State Park (Washington State Parks and Recreation Commission, 1997, 2006a, 2006b, 2008a, 2008b, 2008c, 2009, 2013).

Biosecurity Standard Operating Procedures. Biosecurity planning is also a standard operating procedure during exercise planning and execution. During this process, potential introduction pathways are identified specific to the training activity, and appropriate actions are taken to remove any potentially invasive species from these pathways. For example, an activity that originates in one location may form an exchange pathway for vegetation (e.g., hitchhiking seeds on clothing and equipment). In this case, self-inspection procedures are warranted, along with equipment washdowns to remove cultigens that may spread to new locations, or supplement the numbers and genetic variability of already-established invasive species. Together with site-specific recommendations for specific Navy installations and Washington state parks, the transport, introduction, and establishment of potentially invasive species is minimized to the maximum extent practical. Because of the types of training activities discussed in this EA, and with biosecurity procedures actively in place, the potential for invasive species transport and spread associated with the proposed training activities is not analyzed as a potential stressor on biological resources.

Siting for potentially invasive training activities. Siting of certain activities is an important consideration for the analysis of potential impacts on biological resources. For example, the use of simulated munitions would only occur at specific locations during simulated building clearance training activities, in existing structures and occasionally outdoors. These structures are located in previously developed areas, and the noise generated from simulated munitions would not likely impact biological resources in any measureable way. For those activities that would occur outside, the noise generated from firing the

simulated munition would be similar to that of firing an air rifle or a car door slamming and significantly less than the noise produced from firing actual live rounds. It also would not likely impact biological resources in any measurable way. Practice locations for UAS are sited only on federal properties in Region 1 or in already approved airspace (R6701 at Whidbey Island in Region 2). These siting restrictions for potentially disturbing training activities reduces the potential for biological resources to be exposed to noise-related stressors.

- **Low impact/minimally invasive training activities.** Further, it is important in the consideration of potential impacts on biological resources that the training activities considered in this EA are designed to be minimally invasive. Potential impacts from stressors on biological resources are minimized by the nature and objectives of the training activity, because the stressors that would potentially impact biological resources are similar to factors that may alert potential adversaries and non-combatants in real-world operations.

3.3.3.1 No Action Alternative

Under the No Action Alternative (described in Section 2.3.1), training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area with two training blocks per year, as approved under the 2015 Northwest Training and Testing Final EIS/OEIS, 2010 Northwest Training Range Complex EIS/OEIS, and event-based Categorical Exclusions, as applicable. Under the No Action Alternative, an individual site would be used no more than 10 times a year. Training activities would include launch and recovery of the submersible or small boats, insertion and extraction of these vessels, diver/swimmer training, over-the-beach, special reconnaissance, and the use of unmanned underwater vehicles. Small recall devices could be used in emergency situations to alert the diver/swimmers to return to the surface of the water.

The Navy consulted with both the USFWS and NMFS for NSO training activities that were included under the Navy's preferred alternative in the 2015 Northwest Training and Testing Final EIS/OEIS and in the 2010 Northwest Training Range Complex EIS/OEIS. These consultations are summarized below for NSO activities.

In 2010 and 2015, the USFWS issued biological opinions that determined that proposed training and testing activities described in the 2010 Northwest Training Range Complex Final EIS/OEIS and the 2015 Northwest Training and Testing Final EIS/OEIS. In 2010, the USFWS issued its *Biological Opinion on the U.S. Pacific Fleet Northwest Training Range Complex in the Northern Pacific Coastal Waters off the States of Washington, Oregon, and California, and Activities in Puget Sound and Airspace over the State of Washington* ((National Marine Fisheries Service, 2017a). In 2016, the USFWS issued its *Biological Opinion on the Navy's Northwest Training and Testing Activities* (U.S. Fish and Wildlife Service, 2016). In both consultations between the Navy and USFWS, the USFWS determined that NSO training activities ("NSW [Naval Special Warfare] Training" and "Personnel Insertion/Extraction-Submersible" respectively), analyzed in 2010 and 2015, may affect, but not adversely affect, the western snowy plover, streaked horned lark, and designated bull trout critical habitat. In both 2010 and 2015, the USFWS asserted that training and testing activities would not jeopardize the continued existence of bull trout, marbled murrelet (and designated critical habitat), and the short-tailed albatross. These adverse effects were attributed to other non-NSO training and testing activities not included in this EA. Other species that are outside of the training study area were included in these consultations, such as the northern spotted owl, Canada lynx, gray wolf, grizzly bear, and woodland caribou.

In 2010, NMFS issued its *Biological Opinion on the U.S. Navy's military readiness activities on the Northwest Training Range Complex* (National Marine Fisheries Service, 2010a) for activities described under the Navy's preferred alternative included in the 2010 Northwest Training Range Complex Final EIS/OEIS. In 2014, NMFS reinitiated consultation with the Navy and released a subsequent revised biological opinion (National Marine Fisheries Service, 2014b). The Navy and NMFS entered consultation proceedings again for activities described under the Navy's preferred alternative included in the 2015 Northwest Training and Testing Final EIS/OEIS. These consultations included an analysis of "Personnel Insertion/Extraction-Submersible" training activities. In all of these consultations, for species that occur within the training study area of this EA, NMFS determined that training and testing activities may affect, but not adversely affect, the southern DPS of green sturgeon, and designated critical habitats for ESA-listed rockfish, Pacific eulachon, Puget Sound chinook salmon, Puget Sound steelhead, and Hood Canal summer run chum salmon. In these consultations, NMFS asserted that training and testing activities would not jeopardize the continued existence the following species that may occur within the training study area of this EA—humpback whale, southern resident killer whale, leatherback sea turtle, ESA-listed rockfish, southern DPS of Pacific eulachon, chinook salmon, chum salmon, and steelhead. These adverse effects were attributed to other non-NSO training and testing activities not included in this EA.

Event-based Categorical Exclusions prepared for naval special operations training in Region 1 determined naval special operations activities will not have an adverse effect on either federally listed species or marine mammals. The Categorical Exclusion also determined that the activities will not impact forage fish spawning habitat. This finding was based on the training being non-invasive (no live-fire, no digging, no cutting of vegetation, no fires, no human waste, etc.).

3.3.3.2 Alternative 1

Under Alternative 1, the same training activities in the No Action Alternative would occur. The following training activities would be added: simulated building clearance and the training with UASs. The use of remote operated vehicles would be included with UUVs. The stressors from naval special operations training activities on terrestrial and marine biological resources would be limited to discrete training locations in Region 1 (within Puget Sound, see Figure 1.3-1 in Chapter 1). Training blocks would increase to four training blocks per year and an individual site would be used no more than 20 times per year in Region 1.

3.3.3.2.1 Terrestrial Species and Habitats

Terrestrial Vegetation

The only stressor analyzed for potential impacts on terrestrial vegetation is physical presence of personnel and logistical support vehicles. A disturbance may occur when trainees walk through an area. Logistical support vehicles would only use established roads and parking areas, and no vegetation would be removed. Acoustic stressors are not applicable to terrestrial vegetation.

The types of land-based training activities (as described in Section 2.1.1.2) that would introduce this stressor into areas of terrestrial vegetation include over-the-beach and special reconnaissance training activities. During these training activity types, trainees' foot traffic may impact vegetation; however, not all types of vegetation would be impacted by the training activities. Ground cover is most likely to be impacted by passing foot traffic, although it would quickly recover and would not impact the survival or function of the habitat. No vegetation would be removed as part of the training activity. Because the goal of training is for the trainees to be in the field undetected, the environment tends to be minimally

disturbed and materials (e.g., gear and trash) are not left behind. In addition, identical travel routes would be rarely used; the level of foot traffic associated with each group would not wear paths in the training study area. Logistical support vehicles use established roads and therefore do not impact vegetation.

Known or potential locations of ESA-listed golden paintbrush, marsh sandwort, water howellia, and other rare state-listed species are typically identified in INRMPs (for Navy installations) and in state park management plans. In general, private properties are developed areas that are not under conservation use. Because of the undisturbed habitat requirements for these species, these rare special status species are unlikely to occur on private properties. The golden paintbrush is not reported from these locations as occurring within Region 1; therefore, the activities under Alternative 1 would not impact this species. The marsh sandwort is believed to be extirpated from Washington, and the Proposed Action would not impact any potential reintroduction of this species into suitable habitats. Suitable habitat for the water howellia is reported from Camp Wesley Harris, Naval Hospital at Jackson Park, Naval Base Kitsap Bangor, Naval Base Kitsap Keyport, Navy Railroad, Toandos Buffer Zone, and Zelatched Point, but no confirmed presence of this species has been reported and this species is believed to be extirpated from locations within the training study area. The state-listed pink sand verbena could potentially occur on the Toandos Buffer Zone (U.S. Department of the Navy, 2017). Land-based training activities may occur on some of these Navy properties, as well as state lands and private properties that support suitable habitats, but locations of known populations of ESA-listed species, state-listed species, and other special habitats that are under natural resource constraints would either not be used for training or support minimally invasive activities that would not harm plants or populations. Real estate agreements with non-federal land administrators and owners would identify potential sensitive ecological resources, which would be avoided during training activities.

Impact Summary. Impacts to vegetation are not expected to occur from Alternative 1 because the training activities are designed to leave no trace, paths are not created, vegetation is not removed, no tree climbing, no digging, no construction, and no fire building. Therefore, no significant impacts on vegetation would occur with implementation of Alternative 1.

ESA Determinations. Alternative 1 would have no effect on the golden paintbrush because this plant does not occur within Region 1. Alternative 1 would also have no effect on the water howellia and marsh sandwort. These two species are believed to be extirpated from the training study area. Therefore, proposed training activities under Alternative 1 would have no effect on ESA-listed plant species.

Terrestrial Wildlife

The Navy has identified physical and acoustic stressors as potentially impacting terrestrial wildlife resources. Logistical support vehicles use established roads, and the potential to strike wildlife (e.g., native birds) can be discounted; therefore, it is not analyzed here for terrestrial wildlife.

Physical Stressors. The types of land-based training activities (as described in Section 2.1.1.2) that would introduce this type of stressor on terrestrial wildlife include over-the-beach, special reconnaissance, simulated building clearance when conducted outside, and UAS activities. Foot traffic may impact various animal species, such as invertebrates, amphibians and reptiles, birds, and mammals in different ways, depending on the specific species' ability to detect and respond to the presence of trainees during a training activity. Because the goal of training is for trainees to be in the field undetected, the environment tends to be minimally disturbed and materials (e.g., gear and trash) are not left behind to

impact species' habitat. In addition, identical travel routes are rarely used; trainees do not pass through the same areas in the training study area. Because these are students in-training, support vehicles are on standby for safety and may disturb various types of wildlife; however, the support vehicles stay on established roads. These disturbances are expected to be short term and infrequent. Example types of responses include fleeing (terrestrial mammals, invertebrates, reptiles and amphibians moving to an area away from an area), concealment (using surrounding structural components of habitat to camouflage or blend into surroundings to avoid detection), and flushing (a startle response in birds where they fly away rapidly). The duration of the disturbance would likely last as long as trainees are present, with a restoration of normal activities (e.g., resting, foraging, nest attendance) once trainees are gone from the area (Wright et al., 2007).

Within Region 1, there are no known populations of Taylor's checkerspot butterfly, Oregon silverspot butterfly, or state-listed northern leopard frog on state park lands or Navy installations that could support training activities (U.S. Department of the Navy, 2017). Therefore, exposure to physical stressors from training activities would not occur under Alternative 1. Critical habitat is designated for the Taylor's checkerspot butterfly and Oregon silverspot butterfly. However, these designations are not within Region 1, and therefore these designated critical habitats would not be impacted by Alternative 1.

The state-listed western pond turtle is not known to occur at Camp McKean, Camp Wesley Harris, and Naval Base Kitsap Bangor; however, suitable habitat may be found in these locations (U.S. Department of the Navy, 2017). Potential impacts on any western pond turtles that may occur in suitable habitats within Region 1 from the presence of trainees would likely be limited to temporary behavioral responses as described above, such as fleeing. This would likely occur in response to visual or audible cues (seeing or hearing movement of trainees during over-the-beach and special reconnaissance training), with a return to normal activities after the trainees leave the area. This impact is assumed to be temporary and minor, with no adverse impacts (injury to animals, degradation of habitats, population-level effects) resulting from training activities described under Alternative 1.

Western snowy plovers and streaked horned larks are not anticipated to occur in Region 1 training locations; therefore, Alternative 1 would have no effect on these species or designated critical habitats.

For bald eagles and other raptors (e.g., ospreys) that nest within potential training locations, known nests would be avoided. During the nesting season, on-land and in-water training activities would not occur within 330 feet of eagle nests as recommended by the USFWS National Bald Eagle Management Guidelines (U.S. Fish and Wildlife Service, 2007a). Use of UASs in the vicinity of eagle nests would also maintain a stand-off distance of 330 feet from the nest at a minimum. Raptors tend to demonstrate strong site fidelity (returning to the same nesting areas every season). These nesting sites are identified on federal properties through technical field studies supporting INRMP updates. On other non-federal properties (e.g., state and local parks, private lands), these nest locations would be identified in real estate agreements, and would be used by training activity planners to identify site-specific training constraints. Because known nests would be avoided, trainees would not disturb nesting activities. For unknown or undetected eagle or osprey nests, the potential for disturbing nesting activities would be minimal because of the low-impact training activities that would occur in these areas.

Under Alternative 1, effects from physical stressors would be temporary and minor, with no adverse impacts (injury to animals, degradation of habitats, population-level effects) resulting from training activities.

Acoustic Stressors. The two sources of noise analyzed for potential impacts on terrestrial wildlife are the use of UAS and simulated munitions. UASs would be categorized as Federal Aviation Administration (FAA) Group 1 or Group 2 systems and are small hand-launched, battery-operated models (see Section 2.1.1.3) or small gasoline powered models. UAS would be used in training activities during approximately 10 percent of the land-based training activities, and only on federal property. These locations within Region 1 include Naval Magazine Indian Island, Naval Base Kitsap Keyport, and the Toandos Buffer Zone. The majority of activities using simulated munitions would occur within enclosed spaces (buildings). For those activities that would occur outside, the noise generated would similar to that of firing an air rifle or a car door slamming. While terrestrial wildlife may be able to detect the sound, it is unlikely that this noise would induce a measurable response. Therefore, the use of simulated munitions is not analyzed further in the document.

For mammals, reptiles and amphibians, and birds, noise from UAS may alert different kinds of animals by simulating a potential threat. Predators of waterbirds and passerines include birds of prey. Noise from a UAS may alert birds to some threat in the air, which may be perceived as a predator. Such responses would likely be temporary, where normal activities would resume after the UAS left the area or was no longer perceived as a threat.

Bald eagle nesting sites are identified on federal properties through technical field studies supporting INRMP updates. Bald eagle nests are considered a training constraint, and UAS training would not occur within at least 330 feet of bald eagle nests. For unknown or undetected eagle or osprey nests, the potential for disturbing nesting activities would be minimal because of the low noise generated by UAS.

UAS use would not overlap with areas where western snowy plovers or streaked-horned larks would be present; therefore, there would be no effect from UAS training on these two ESA-listed birds.

Impact Summary. Impacts on terrestrial wildlife in the terrestrial environment are expected to be minimal, short term, and recoverable based on the (1) relatively low intensity of the impacts, (2) localized nature of the impacts, (3) infrequent nature of the impacts, (4) brief duration of the activities, and (5) standard operating procedures designed to minimize or avoid impacts on sensitive species and their habitats. For these reasons, long-term consequences to individuals or populations of birds in the terrestrial environment are not expected to result from the activities under Alternative 1. Therefore, no significant impacts on terrestrial wildlife would occur with implementation of Alternative 1.

MBTA Conclusion. A variety of bird species would be encountered in the training study area, including those protected under the MBTA. Under the MBTA regulations applicable to military readiness activities (50 CFR Part 21), impacts from the activities under Alternative 1 would not result in a significant adverse effect on migratory bird populations for the same reasons listed above. Therefore, no significant impacts on migratory birds would occur with implementation of Alternative 1.

BGEPA Conclusion. Bald eagles are known to occur and nest regularly within the training study area, while golden eagles may occur intermittently during migrations (but are generally associated with higher elevation locations in western Washington). On private properties, any known eagle nests would be identified through real estate agreements, which would be considered a training constraint during the nesting season. Because training activities would avoid bald eagle nests on private properties (identified through real estate agreements), on state properties (nests identified through park management plans and real estate agreements with individual parks) and Navy installations (specified in Integrated Natural Resource Management Plan documents), no take or disturbance of known bald or golden eagles are

anticipated from activities under Alternative 1. Further, in accordance with the BGEPA, no activities under Alternative 1 would impact unoccupied nests and thereby adversely impact an eagle's use of the location upon its return.

ESA Determinations. The land-based training activities described under Alternative 1 would have no effect on the Taylor's checkerspot butterfly, the Oregon silverspot butterfly, western snowy plover, or streaked-horned lark because the land-based training activities do not overlap with extant populations. Activities described under Alternative 1 would have no effect on critical habitat designations for the Taylor's checkerspot butterfly, Oregon silverspot butterfly, western snowy plover, or streaked-horned lark because Region 1 training locations do not overlap with these critical habitat designations. As a result, in accordance with ESA Section 7 (a)(2), the Navy would not be required to consult with the USFWS for these species and their designated critical habitat under Alternative 1.

3.3.3.2.2 Marine Species and Habitats

Marine Vegetation

The only stressor analyzed for potential impacts on marine vegetation is physical presence. There are no ESA-listed marine vegetation species within the training study area and no critical habitat designations for marine plants.

Under Alternative 1, activities that involve vessels and personnel in the water and walking to shore through the intertidal zone could impact marine vegetation present in Region 1. No vessels would have contact with the seafloor or the beach. Because marine vegetation is already adapted to natural disturbances by waves, tides, currents, storm energy, and cycles of erosion and deposition, walking through the intertidal zone would not cause long-term or permanent impairment to the surrounding marine vegetation.

Impact Summary. Proposed training activities would have minimal impacts on submerged vegetation because the types of training activities that would occur in areas supporting marine vegetation are minimally invasive to marine environments. Because marine vegetation is already adapted to natural disturbances, any disturbances from activities under Alternative 1 would not be expected to cause long-term or permanent impairment to the surrounding marine vegetation, particularly at the proposed training frequency. Therefore, no significant impacts on marine vegetation would occur with implementation of Alternative 1.

Marine Invertebrates

The only stressor analyzed for potential impacts on marine invertebrates is physical presence. There are no ESA-listed marine invertebrate species within the training study area and no critical habitat designations.

Under Alternative 1, activities that involve vessels and personnel in the water and walking to shore through the intertidal zone could impact marine invertebrates present in Region 1. No vessels would have contact with the seafloor or the beach. Because marine invertebrates are already adapted to natural disturbances by waves, tides, currents, storm energy, and cycles of erosion and deposition, walking through the intertidal zone would not cause long-term or permanent impairment to marine invertebrates.

Impact Summary. Proposed training activities would have minimal impacts on marine invertebrates because the types of training activities that would occur in areas supporting marine invertebrates are

minimally invasive. Because marine invertebrates are already adapted to natural disturbances, any disturbances from activities under Alternative 1 would not be expected to cause long-term or permanent impairment to marine invertebrates, particularly at the proposed training frequency. Therefore, no significant impacts on marine invertebrates would occur with implementation of Alternative 1.

Fishes

The Navy has identified physical and acoustic stressors as potentially impacting fishes in Region 1. Potential impacts to ESA-listed species and designated critical habitat, as well as federally managed fish species within the training study area, are also discussed below for each stressor.

Physical Stressors. Activities proposed under Alternative 1 that involve vessels, personnel, and submersible operations in the water could impact fish present in Region 1 of the training study area. Activities proposed under Alternative 1 also include surface and underwater vessel movement, trainees swimming from boats to shore, and walking in the intertidal and nearshore zones. Fish would likely respond to trainees in the water by fleeing the area and would return to normal activities after the activity (e.g., foraging, resting). These impacts would be short term and minor, with no long-term impacts on fish or fish populations in the areas where training activities would occur.

Vessels do not normally collide with fish since it is expected that fish are capable of detection and avoidance. One study on fishes' behavioral responses to vessels showed that most adults exhibit avoidance responses to engine noise (Jørgensen et al., 2004), reducing the potential for vessel strikes.

Activities involving vessel movements occur intermittently and range in duration from a few minutes to a few hours. While vessel movements have the potential to expose fish occupying the water column to sound and general disturbance, potentially resulting in short-term behavioral or physiological responses, such responses would not be expected to compromise the general health or condition of individual fish. Both submersibles and support vessels would operate with lights. Lighting would likely attract fish, but the lighting sources are minimal under the surface (e.g., chemical lights or "light sticks" so that the support vessel can track the trainees' use of the submersible). Because of the minimal lighting used under the surface, any behavioral change by a fish would be minimal and temporary.

Acoustic Stressors. The two sources of noise analyzed for potential impacts on fishes in Alternative 1 are vessel noise and sonar navigation device.

Vessel noise has the potential to expose fish to sound and general disturbance, which could result in short-term behavioral or physiological responses (e.g., avoidance, stress, increased heart rate). Moderate- to low-level passive sound sources, including vessel noise, would not likely cause any direct injury or trauma due to characteristics of the sounds and the moderate source levels. Navy vessels make up a very small percentage of the overall traffic (Mintz, 2012). Under Alternative 1, the use of small vessels during training activities would not substantially increase ambient noise levels in the training study area.

Submersibles use a sonar device to report depths to aid in navigation during a training activity. These devices have similar specifications to commercially available "fish finders" and other hand-held sonar devices, which typically generate frequencies over 200 kilohertz (kHz) and source levels less than 160 decibels referenced to 1 micropascal (dB re 1 μ Pa). In the NMFS' 2014 *Biological Opinion of U.S. Navy's Training Exercises and Testing Activities in the Northwest Training and Testing Area* (National Marine Fisheries Service, 2014b, 2015b), devices with these specifications are considered "*de minimis*" sources

of sound in the water. For fishes, the frequencies over 200 kHz overlaps with the hearing sensitivities of some fish species (e.g., a few species of shad within the Clupeidae family), but the low-intensity sound levels generated by these devices, the rapid dissipation of high frequency sonar in water, and the localized area of impacts are unlikely to impact fishes (Popper & Hawkins, 2016). Similarly, sound generated from UUV operation may introduce a relatively small amount of additional noise into the marine environment. UUVs are designed to be as quiet as possible to avoid detection, it is highly unlikely that sound generated from UUVs would disturb fish in any measureable or meaningful way.

Impact Summary. The risk of physical presence, disturbance, or strike from vessels, and acoustic energy (noise) generated during training activities under Alternative 1 would be extremely low because (1) most fish can detect and avoid vessel (surface and submersible) and human movements, and (2) activities occur at infrequent intervals and for a brief duration of time. Potential impacts of exposure to vessels are not expected to result in substantial changes to an individual's behavior, fitness, or species recruitment and are not expected to result in population-level impacts. Since impacts from strikes would be unlikely, impacts on fishes or fish populations would be negligible. Therefore, no significant impact on fishes would occur with implementation of Alternative 1.

ESA Determination. Activities proposed under Alternative 1 that involve vessels and personnel in the water may affect ESA-listed species present in Region 1. As described above for other fish species, impacts to ESA-listed fish are expected to be limited to short-term, insignificant behavioral reactions, and effects to fish populations would not occur. Based on the above analysis, the effect determination is may affect, not likely to adversely affect for Puget Sound Chinook salmon, Hood Canal summer run chum salmon, Puget Sound Steelhead, Puget Sound/Georgia Basin bocaccio and yelloweye rockfishes, North American green sturgeon, and bull trout.

Columbia River chum salmon, Pacific eulachon, and North American green sturgeon critical habitats do not occur in Region 1 and therefore would not be affected. Puget Sound Chinook Salmon ESU, Hood Canal summer run chum, Puget Sound Steelhead, Puget Sound/Georgia Basin DPS bocaccio and yelloweye rockfish, and bull trout have designated critical habitats within Region 1 as discussed in Section 3.3.2.3.5 (Special Status Fishes). PCEs and essential physical and biological features described in that section would not be modified, either temporarily or permanently, as a result of the minimally invasive proposed training activities as discussed above in marine vegetation, marine invertebrates, and fishes. Furthermore, impacts to water quality (Chapter 3 Affected Environment and Consequences - *Water Quality*) were determined to be negligible or non-existent. Therefore, the Navy's effect determination for designated critical habitat for these species is no effect.

Essential Fish Habitat Conclusion. Pursuant to the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations, activities proposed under Alternative 1 that involve vessels and personnel in the water were analyzed for potential impacts to EFH species and habitats present in Region 1. Such activities would include trainees swimming from boats to shore and walking in the intertidal and nearshore zones. The physical presence of training activities in nearshore areas where EFH species and habitats occur could disturb these resources when trainees leave the water and walk through the shallow intertidal zones. As discussed above, some temporary behavioral or physiological responses would occur from vessel noise, but these impacts would be short term, temporary in nature, and would not have a measurable effect. Disturbances from activities under Alternative 1 would also not be expected to cause any impairment to the EFH because of the dynamic nature of these nearshore habitats and because standard operating procedures would be used to avoid impact to EFH species and habitats. Due to the low-impact nature of the training activities, EFH would

not be adversely impacted in Region 1, and no direct or indirect changes to EFH that would have a measurable impact on waters, substrate, or prey necessary for spawning (fish, invertebrates, or vegetation), breeding, feeding, or growth to maturity of aquatic species would occur. Therefore, the Navy has concluded that there would be no adverse effect to EFH under Alternative 1 and consultation with NMFS would not be required.

Sea Turtles

Sea turtles are not expected to occur in Region 1, including the ESA leatherback sea turtle as described in Section 3.3.2.3.6 (Special Status Marine Reptiles). Also, the leatherback sea turtle critical habitat has not been designated in this area.

Impact Summary. Impacts to sea turtles are not expected to occur from Alternative 1 as sea turtles are not expected to occur in Region 1. Therefore, no impacts to sea turtles would occur with implementation of Alternative 1.

ESA Determination. Alternative 1 would have no effect on the leatherback sea turtle or its critical habitat because neither occurs in Region 1. Therefore, the effect determination for Alternative 1 is no effect for the Leatherback sea turtle and its designated critical habitat, and ESA Section (7)(a)(2) consultation with NMFS would not be required.

Marine Mammals

The Navy has identified physical and acoustic stressors as potentially impacting marine mammals in Region 1. Humpback whales and the Southern Resident killer whales are the only two ESA-listed marine mammals that would likely occur where training activities are typically scheduled. Critical habitat has only been designated for the Southern Resident killer whales within the training study area. Numerous non-ESA-listed marine mammals likely occur in nearshore waters of the training study area. These species are protected under the MMPA.

Physical Stressors. Activities proposed under Alternative 1 that involve vessels, UASs, personnel, and submersible operations in the water are not expected to impact marine mammals protected under the MMPA potentially found within Region 1. Such activities would include small vessel movements, submersible movements through the water, UASs flying over the water, and in-water presence of trainees swimming to beaches. These activities are proposed to occur in a variety of nearshore areas of the training study area. Boats carrying trainees for specific qualification training activities comply with established boating laws and reduce speed in accordance with established safety procedures, avoiding contact and proximity to marine mammals.

Marine mammals engage in avoidance behavior when surface vessels move toward them (Magalhães et al., 2002; Senigaglia et al., 2016). It is not clear whether these responses are caused by the physical presence of a surface vessel, the underwater noise generated by the vessel, or an interaction between the two. Physical disturbance from vessel use, including UASs flying over the water, is not expected to result in more than a short-term behavioral response because marine mammals engage in these avoidance behaviors. Furthermore, most vessel use would be nearshore and by small craft within the training study area, and the potential for contact with marine mammals, which generally occur in the offshore area, would be extremely low.

It is most likely that any marine mammals in the training study area would have an initial reaction to the vessel or UAS presence, such as leaving the area or tolerating the activity (i.e., continuing feeding, socializing, migrating, sleeping); a secondary reaction to the multiple trainees' presence in the water

would not be likely to occur. Due to the passage of time (less than an hour) between the boat presence and trainees entering the water, animals are likely to continue with their initial reaction of either retreating from the area or tolerating the activity at the site.

All vessels would comply with established boating laws and reduce speed in accordance with established safety procedures, avoiding contact and proximity to marine mammals. A crewman on the vessels would act as a lookout during training evolutions to avoid marine mammals that may enter the area during training activities. If a marine mammal is observed in the vicinity of the training area when submersibles are used, the support vessel would signal the submersible for recall. If a marine mammal is in the immediate area of a training activity, the activity would cease until the marine mammal leaves the area. In some instances, canceling the training for the night may be necessary. All vessels, including UASs, would avoid direct “head-on” approaches to marine mammals and would maneuver to maintain a mitigation zone of 1,500 feet around observed whales and 600 feet around all other marine mammals (with the exception of bow wave-riding dolphins). It should be noted that these requirements do not apply when a vessel’s safety is at risk (e.g., a course correction would cause an imminent and serious threat to personnel and equipment). If a marine mammal other than a whale continues to close in on the vessel after there has already been one maneuver or speed change to avoid the marine mammal, no further action is required. Due to these standard operating procedures, it is highly unlikely that collisions between marine mammals and vessels would occur during training.

During the transition from diver/swimmer to over-the-beach training, trainees would look for hauled out animals while coming ashore such as California sea lions, Stellar sea lions, or harbor seals. If any hauled out marine mammals are spotted on the beach, all personnel, vehicles, vessels, and UASs, would stay a safe distance of at least 50 yards away so as to not disturb the animals.

Acoustic Stressors. The three sources of noise analyzed for potential impacts on marine mammals in Alternative 1 are vessel noise, sonar navigation device, and the use of UAS.

Noise generated by the vessels is probably an important contributing factor to the responses of cetaceans to the vessels. In one study, North Atlantic right whales were documented to show little overall reaction to the playback of sounds of approaching vessels, but they did respond to an alert signal by swimming strongly to the surface (Nowacek et al., 2016). Moderate- to low-level passive sound sources, including vessel noise, would not likely cause any direct injury or trauma due to characteristics of the sounds and the moderate source levels. Navy vessels make up a very small percentage of the overall traffic (Mintz, 2012). Under Alternative 1, the use of small vessels during training activities would not substantially increase ambient noise levels in the training study area.

Submersibles use a sonar device to report depths to aid in navigation during a training activity. These devices have similar specifications to commercially available “fish finders” and other hand-held sonar devices, which typically generate frequencies over 200 kHz and source levels less than 160 dB re 1 μ Pa. In the NMFS’ 2015 *Biological Opinion on Navy Activities on the Northwest Training Range Complex and NMFS’s Issuance of an MMPA Letter of Authorization* (National Marine Fisheries Service, 2015b), devices with these specifications are considered “*de minimis*” sources of sound in the water and are not considered in models that estimate potential behavioral or injurious effects on marine mammals. This is because these types of devices do not produce pressure waves that are considered dangerous or that would cause temporary changes in behavior when exposed to the sound source. In addition, because the frequency bands used in these types of devices are very narrow, masking of underwater sounds that marine mammals use for orientation or underwater vocalizations would not occur, as would be

expected for broader frequency band widths of other sonar systems (Au et al., 2000; Popper & Hawkins, 2016). PCEs that comprise designated critical habitat for the southern resident killer whale include (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. Training activities would not impact water quality in any measureable way as to inhibit the growth and development of southern resident killer whales, nor would training activities limit movements of whales during migration, to access resting areas, or to access foraging grounds. Southern Resident killer whale prey, such as chinook salmon, would also not be measurably impacted by the Proposed Action. Impacts to prey species would be short in duration, localized to very small areas, and insignificant.

UASs would be categorized as FAA Group 1 or Group 2 systems and are small hand-launched, battery-operated models (see Section 2.1.1.3) or small gasoline-powered models. UAS would be used in training activities during approximately 10 percent of the land-based training activities, and only on federal property in Region 1. These locations include Naval Magazine Indian Island, Naval Base Kitsap Keyport, and the Toandos Buffer Zone. The UASs would fly over the land at these locations as well as the adjacent waterways. Marine mammals on the surface of the water or hauled out on land may hear the noise from the UAS engine. It is expected that the marine mammals would react to the UAS similar to marine vessels described above under Physical Stressors. The same standard operating procedures and avoidance measures would occur and are designed to not disturb the animals.

Impact Summary. Impacts on marine mammals in water and on land are not expected to occur under Alternative 1. Training activities associated with the Proposed Action are low impact and activities would occur at infrequent intervals and for a brief duration of time. Impacts due to physical stressors would be avoided using standard operating procedures designed to minimize or avoid impacts on marine mammals in water and hauled out on beaches. Noise associated with these activities is expected to be *de minimus*. For these reasons, long-term consequences to individuals or populations of marine mammals are not expected to result from the activities under Alternative 1. Therefore, no significant impacts on marine mammals would occur with implementation of Alternative 1.

ESA Determination. Activities proposed under Alternative 1 that involve vessels and personnel in the water may affect ESA-listed species present in Region 1. As described above, impacts to ESA-listed whales are avoided through standard operating procedures and effects to whale populations would not occur. Noise associated with these activities is expected to be *de minimus*. Based on the above analysis, effects to humpback whale and southern resident killer whales are expected to be insignificant and discountable. Therefore, the effect determination for humpback whales and southern resident killer whales is may affect, not likely to adversely affect.

Designated critical habitat occurs within Region 1 for southern resident killer whales. Proposed training activities would not affect PCEs as describe in Section 3.3.2.3.7 (Special Status Marine Mammals – *Southern Resident Killer Whale Distinct Population Segment*). PCEs described in that section would not be modified, either temporarily or permanently, as a result of the minimally invasive proposed training activities as discussed above in Section 3.3.2.3.7. Additionally, as discussed in Section 3.3.3.2.2 (Marine Species and Habitats – *Fishes*), there would not be a measurable effect to prey species and the availability of prey species would not be altered. Furthermore, impacts to water quality (Chapter 3 Affected Environment and Consequences - *Water Quality*) were determined to be negligible or non-existent. Therefore, the Navy's effect determination for designated critical habitat for southern resident killer whales is no effect.

MMPA Conclusion. Pursuant to the MMPA and as discussed above, the Navy has determined that, under Alternative 1, the Proposed Action is not likely to result in takes of marine mammals.

Marine Birds

Foraging areas for the ESA-listed marbled murrelet, state-listed American white pelican, and other seabirds and shorebirds overlap with the in-water training areas of Region 1. The Navy has identified physical and acoustic stressors as potentially impacting seabirds and shorebirds in Region 1 marine environments under Alternative 1.

Physical Stressors. Seabirds and shorebirds foraging in Region 1 have the potential to be disturbed by the physical presence of personnel, vessels, and UASs. Behavioral changes, such as cessation of foraging activities and moving away from training activities, could occur. This would likely occur in response to visual cues (seeing movement of trainees in the water or walking over-the-beach), with a return to normal activities after the trainees leave the area or if the bird moves to another location away from the training activity. These impacts are expected to be short term (only lasting while trainees are in a location) and minor (the birds can access areas where they are undisturbed by training activities or the duration of impact is short).

Acoustic Stressors. Seabirds and shorebirds foraging in Region 1 have the potential to be disturbed by acoustic sources from sonars, vessels, and UASs.

Diving birds when underwater could be exposed to the sound emitted by the submersible's navigation device. As discussed under Marine Mammals, Acoustic Stressors, submersibles use a sonar device similar to commercially available "fish finders" for navigation. While there are no published studies specific to sonar and its effects on any seabirds, the frequency used doesn't rise to the level of causing injury to the seabirds (U.S. Fish and Wildlife Service, 2016). Devices with these specifications are considered "*de minimis*" sources of sound in the water.

Vessel noise has the potential to expose seabirds and shorebirds to sound and general disturbance, which could result in short-term behavioral or physiological responses (e.g., avoidance, stress, increased heart rate). Moderate- to low-level passive sound sources, including vessel noise, would not likely cause any direct injury or trauma due to characteristics of the sounds and the moderate source levels. Navy vessels make up a very small percentage of the overall traffic (Mintz, 2012). Under Alternative 1, the use of small vessels during training activities would not substantially increase ambient noise levels in the training study area.

UASs could be used over the water as well as over the land at Naval Magazine Indian Island, Naval Base Kitsap Keyport, and the Toandos Buffer Zone in Region 1. Shorebirds may respond to audible cues of a UAS, with a return to normal activities after the UAS flies over the area. This impact is assumed to be temporary and minor, and should not affect the population of marine birds.

Impact Summary. Impacts on seabirds and shorebirds foraging in Region 1 are expected to be minimal, short term, and recoverable based on the (1) relatively low intensity of the impacts, (2) localized nature of the impacts, (3) infrequent nature of the impacts, and (4) brief duration of the activities. For these reasons, long-term consequences to individuals or populations of seabirds and shorebirds are not expected to result from the activities under Alternative 1. Therefore, no significant impacts on marine birds would occur with implementation of Alternative 1.

ESA Determination. The marbled murrelet is the only ESA-listed bird in Region 1. As described above for other marine bird species, impacts to ESA-listed marbled murrelets foraging in the nearshore of Region 1

are expected to be limited to short-term, insignificant behavioral reactions, and effects to marbled murrelet populations would not occur.

Marbled murrelet nesting is not known to occur in the forested portions of the training study area; however, suitable nesting habitat may be present in some areas of the study area. Potential impacts, such as temporary behavioral responses, could occur on nesting marbled murrelet from the physical presence of trainees. This would likely occur in response to visual or audible cues (seeing or hearing movement of trainees during over-the-beach and special reconnaissance training) with a return to normal activities after the trainees leave the area. Although marbled murrelets may detect the presence of trainees in these areas, the goal of training is for trainees to be in the field undetected and activities are not expected to result in adverse impacts to nesting activities.

Alternative 1 may affect the marbled murrelet because training activities within Region 1 may overlap with nearshore areas used for foraging and forested areas used for nesting. However, as described above, effects resulting from the training activities are expected to be insignificant. Therefore, the Navy's effect determination for marbled murrelets under Alternative 1 is may affect, not likely to adversely affect. Designated critical habitat for this species does not occur within the training study area in Region 1. Therefore, the Navy's effect determination for designated critical habitat for marbled murrelet is no effect.

MBTA Conclusion. A variety of marine birds would be encountered in Region 1, including those listed under the MBTA. Under the MBTA regulations applicable to military readiness activities (50 CFR Part 21), impacts from the activities under Alternative 1 would not result in a significant adverse effect on migratory bird populations in the marine environment for the same reasons listed above. Therefore, impacts on migratory seabirds from implementation of Alternative 1 would not be significant.

3.3.3.3 Alternative 2

Under Alternative 2, the locations identified for training activities, number of training blocks per year, and site usage per year are the exact same as those identified in Alternative 1 for Region 1. However, Alternative 2 adds two new regions, Region 2 and Region 3. Regions 2 and 3 would have one training block every other year and an individual site would be used no more than three times every other year. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and Simulated Building Clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at R6701. Also, one new proposed training activity, High-Angle Climbing, would occur at Deception Pass State Park in Region 2.

3.3.3.3.1 Terrestrial Species and Habitats

Terrestrial Vegetation

The stressor, analysis, and conclusions identified in Alternative 1, Section 3.3.3.2.1 (Terrestrial Species and Habitats – *Terrestrial Vegetation*), are applicable to Alternative 2. The difference is the anticipated presence of the ESA-listed golden paintbrush and the state listed pink sand verbena.

In Region 2, the golden paintbrush is known to occur at proposed training locations on Fort Casey State Park and the Navy's Seaplane Base on Whidbey Island. The state-listed pink sand verbena occurs only in Region 3 at Leadbetter Point State Park (U.S. Fish & Wildlife Service, 2018). As in Alternative 1, real estate agreements with individual parks and private land owners would include sensitive ecological resources and appropriate restrictions to avoid impacts to vegetation. Any ESA-listed or state-listed plants would be treated as training area constraints, prohibiting training from occurring at that location.

High-angle climbing would occur at Deception Pass State Park on rock formations and cliff faces. While there is some vegetation growing in these areas, High-angle climbing utilizes climbing equipment and ropes to scale the surfaces. Trainees would not be using trees or vegetation to help in their climbing activities, as such, vegetation would not be disturbed.

Impact Summary. Impacts to vegetation are not expected to occur from Alternative 2 because the training activities are designed to leave no trace, paths are not created, vegetation is not removed, no tree climbing, no digging, no construction, and no fire building. Additionally, state-listed pink sand verbena and other sensitive ecological resources would be avoided. Therefore, no significant impacts on vegetation would occur with implementation of Alternative 2.

ESA Determinations. The occupied habitat for the golden paintbrush within Region 2 at Fort Casey State Park and the Navy's Seaplane Base on Whidbey Island would not be used for training activities. Therefore, proposed training activities under Alternative 2 would have no effect on ESA-listed plant species.

Terrestrial Wildlife

The stressors, analysis, and conclusions identified in Alternative 1, Section 3.3.3.2.1 (Terrestrial Species and Habitats – *Terrestrial Wildlife*), are applicable to Alternative 2. In addition to species analyzed under Alternative 1, Region 2 also includes the presence of designated critical habitat for the Taylor's Checkerspot butterfly. In Region 3, the ESA-listed snowy plover and streaked horned lark and designated critical habitat for both species occur within the study area.

Within Regions 2 and 3, the only location where Taylor's checkerspot critical habitat is designated that overlaps with the training study area is at Deception Pass State Park (Bowman Bay area, West Beach, and along the shorelines where Fidalgo and Whidbey Island face each other). Taylor's checkerspot butterflies are believed to be extirpated from this location, and the designated critical habitat is no longer occupied (Washington Department of Fish and Wildlife, 2012a).

Within training locations under Alternative 2, the state-listed western pond turtle may occur on all the locations analyzed under Alternative 1, in addition to NAS Whidbey Island (U.S. Department of the Navy, 2012, 2017). Because of the similarity of training activities and habitats where these activities would occur, the potential impacts on the western pond turtle is the same under Alternative 2 as with Alternative 1.

Physical Stressors. Within Region 3, western snowy plovers and streaked-horned larks would likely occur at Grayland Beach State Park and Leadbetter Point State Park. Over-the-beach and special reconnaissance training activities would likely occur near nesting locations. As practice, snowy plover and streaked-horned lark nesting sites are usually roped off to prevent park visitors from trampling nest sites. Because training activities would not egress into roped-off areas for conservation purposes, nest trampling would be avoided and disturbance to nesting birds would be minimized. For adult and juvenile birds, foraging usually occurs during daylight. Potential impacts on the western snowy plover and the streaked-horned lark from the physical presence of trainees would likely be limited to temporary behavioral responses, such as flushing from nests or moving away from human presence. This would likely occur in response to visual or audible cues (seeing or hearing movement of trainees during over-the-beach and special reconnaissance training), with a return to normal activities after the trainees leave the area or if the plover moves to another location away from the training activity. This impact is assumed to be temporary and minor, with no adverse impacts (e.g., injury to animals, degradation of habitats, population-level effects) resulting from training activities described under Alternative 2.

For High-Angle Climbing, there is a possibility of cliff nesting birds. Naval special operations support staff would work with state park managers to identify sensitive areas and avoid the cliff nesting sites.

Acoustic Stressors. As with Alternative 1, the only noise sources analyzed under Alternative 2 for potential impacts on terrestrial wildlife are the use of UAS. The analysis under Alternative 2 includes the locations analyzed under Alternative 1, with the addition of Fort Casey and within R6701 restricted airspace designation. Although these additional areas must be analyzed under Alternative 2, the description of impacts for terrestrial wildlife is generally the same as described under Alternative 1. In Region 2, we have the addition of the Taylor's checkerspot butterfly, Oregon silverspot butterfly, and the northern leopard frog potentially occurring within the training study area.

Yack et al. (2000) found that species of *Hamadryas* butterflies use sounds during interactions with other conspecifics. It is hypothesized that the butterflies are listening to the flight sounds or foraging calls of predatory birds (Mikhail, 2014). It is plausible that butterflies could interpret frequencies generated from UAS as predatory flight sounds or foraging calls; however, it is not known if the frequencies generated by UAS electric motors and spinning propellers overlaps with hearing sensitivities of butterflies.

For amphibians, noise from UAS may alert them by simulating a potential threat. Such responses would likely be temporary, where normal activities would resume after the UAS left the area or was no longer perceived as a threat.

However, there are no known populations of Taylor's checkerspot butterfly, Oregon silverspot butterfly, or northern leopard frog on state park lands or Navy installations that could support proposed UAS training activities (U.S. Department of the Navy, 2017). It is highly unlikely that non-state or federal lands used during training activities would support these species; therefore, it is unlikely that this acoustic stressor would impact these species.

Impact Summary. Impacts on terrestrial wildlife in the terrestrial environment under Alternative 2 are expected to be the same as those identified in Alternative 1. Therefore, no significant impacts on terrestrial wildlife would occur with implementation of Alternative 2.

MBTA Conclusion. Impacts under Alternative 2 would not result in a significant adverse effect on migratory bird populations for the same reasons listed in Alternative 1. Therefore, no significant impacts on migratory birds would occur with implementation of Alternative 2.

BGEPA Conclusion. As in Alternative 1, training activities would avoid bald eagle nests on private properties (identified through real estate agreements), on state properties (nests identified through park management plans and real estate agreements with individual parks) and Navy installations (specified in Integrated Natural Resource Management Plan documents), no take or disturbance of known bald or golden eagles are anticipated from activities under Alternative 2. Further, in accordance with the BGEPA, no activities under Alternative 2 would impact unoccupied nests and thereby adversely impact an eagle's use of the location upon its return.

ESA Determinations. The land-based training activities described under Alternative 2 would have no effect on the Taylor's checkerspot butterfly or the Oregon silverspot butterfly because the land-based training activities do not overlap with existing populations. Land-based training activities under Alternative 2 may affect the western snowy plover and streaked horned lark. However, based on the analysis above, adverse effects are not expected and the Navy's effect determination is may affect, not likely to adversely affect.

Critical habitat occurs in the training study area for Taylor's checkerspot butterfly (Deception Pass State Park in Region 2), western snowy plover (Grayland Beach State Park and Leadbetter Point State Park in Region 3) and streaked horned lark (Regions 3). Impacts to Taylor's checkerspot butterfly critical habitat are not expected to occur from Alternative 2 because the training activities do not alter the habitat. Training activities are designed to leave no trace, create no paths, remove no vegetation, and no digging, construction, or fire building would occur. For western snowy plover critical habitat, the proposed training would not alter sandy beaches or dune systems, vegetative areas, or feeding habitats such as surf- or water-deposited organic debris that attracts small invertebrates. For the streaked horned lark critical habitat, the proposed training would not alter large open water or field areas. Additionally, the nature of the training, leaving no trace and the small overall footprint of the training activities would not affect the critical habitat. Therefore, the Navy's effect determination for designated critical habitat for these species is no effect.

3.3.3.3.2 Marine Species and Habitats

Marine Vegetation

The stressor, analysis, and conclusions identified in Alternative 1, Section 3.3.3.2.2 (Marine Species and Habitats – *Marine Vegetation*), are applicable to Alternative 2. There are no ESA-listed marine vegetation species and no critical habitat designations for marine plants within the proposed training areas in Regions 2 and 3.

Impact Summary. Proposed training activities under Alternative 2 would have minimal impacts on submerged vegetation for the same reasons as identified in Alternative 1. Therefore, no significant impacts on marine vegetation would occur with implementation of Alternative 2.

Marine Invertebrates

Similar to Alternative 1, the only stressor analyzed for potential impacts on marine invertebrates under Alternative 2 is physical presence. There are no ESA-listed marine invertebrate species and no critical habitat designations for marine invertebrates within the additional proposed training areas in Regions 2 and 3.

Under Alternative 2, vessels would have contact with the seafloor when the submersible would be parked or anchored on the sandy bottom in Region 3. Parking and anchoring would present less of a disturbance to the sandy bottom than that caused by natural waves, tides and currents due to the small footprint of the anchor and the submersible. Marine invertebrates are already adapted to natural disturbances by waves, tides, currents, as well as storm energy, and cycles of erosion and deposition. As a result, parking and anchoring would not cause long-term or permanent impairment to marine invertebrates.

Impact Summary. Proposed training activities under Alternative 2 would have minimal impacts on marine invertebrates for the same reasons as identified in Alternative 1 and stated above. Therefore, no significant impacts on marine invertebrates would occur with implementation of Alternative 2.

Fishes

The stressors, analysis, and conclusions identified in Alternative 1, Section 3.3.3.2.2 (Marine Species and Habitats – *Fishes*), are applicable to Alternative 2. The difference is the presence of two additional ESA-listed species in Region 3: Columbia River chum salmon and Pacific eulachon. As in Alternative 1, the American green sturgeon occurs there as well as Regions 2 and 3. All three of these species have critical

habitat in the training study area in Region 3. The North American green sturgeon also has critical habitat in Region 2. The PCEs and essential physical and biological features for these species are identified in 3.3.2.3.5 Special Status Fishes. The analysis and impacts on these ESA-listed fishes would be the same as those described in Alternative 1 for fishes.

Impact Summary. Proposed training activities under Alternative 2 would have minimal impacts on fishes for the same reasons as identified in Alternative 1 and stated above. Therefore, no significant impacts on fishes would occur with implementation of Alternative 2.

ESA Determination. Impacts on fishes under Alternative 2, as well as the ESA determinations, are expected to be the same as those identified in Alternative 1. As described in Alternative 1 and above for other fish species, impacts to the Columbia River chum salmon, Pacific Eulachon, and North American green sturgeon in Alternative 2 are expected to be limited to short-term, insignificant behavioral reactions, and effects to fish populations would not occur. Based on the analysis under Alternative 1 and above, the effect determination is may affect, not likely to adversely affect for all three ESA-listed species.

The no effect determination for species critical habitat discussed in Alternative 1 would remain the same for Region 1 in Alternative 2. Columbia River chum salmon (Region 3), Pacific eulachon (Region 3), and North American green sturgeon (Regions 2 and 3) designated critical habitats also overlap with proposed training in Alternative 2. PCEs and essential physical and biological features described in Section 3.3.2.3.5 (Special Status Fishes) would not be modified, either temporarily or permanently, as a result of the minimally invasive proposed training activities as discussed in marine vegetation, marine invertebrates, and fishes in Alternative 1 and above for Alternative 2. Furthermore, impacts to water quality (Chapter 3 Affected Environment and Consequences - *Water Quality*) were determined to be negligible or non-existent. Therefore, the Navy's effect determination for designated critical habitat for these species is no effect.

EFH Determination. Pursuant to the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations, activities proposed and potential impacts under Alternative 2 would be the same as those for Alternative 1, with the exception of submersible parking and anchoring on the seafloor in Region 3. Under Alternative 2, vessels would have contact with the seafloor when the submersible would be parked or anchored on the sandy bottom. Parking and anchoring would present less of a disturbance to the sandy bottom than that caused by natural waves, tides and currents. Like marine invertebrates, fish are already adapted to natural disturbances by waves, tides, currents, as well as storm energy, and cycles of erosion and deposition. Additionally, due to the small footprint of the anchor and the submersible, parking and anchoring would not cause long-term or permanent impairment to fishes. Proposed training activities are unlikely to have any effects to EFH. Impact on waters, substrate, or prey necessary for spawning (fish, invertebrates, or vegetation), breeding, feeding, or growth to maturity of aquatic species would not occur. Therefore, the Navy has concluded that there would be no adverse effect to EFH under Alternative 2 and consultation with NMFS would not be required.

Sea Turtles

Since sea turtles are unlikely to be found in Regions 1 and 2, the Navy has identified physical and acoustic stressors as potentially impacting sea turtles for Region 3 only. The leatherback sea turtle (Region 3) is the only ESA-listed sea turtle expected to occur where training activities would be scheduled.

Physical Stressors. Activities proposed under Alternative 2 that involve vessels, UASs, personnel, and submersible operations in the water could impact sea turtles present in Region 3 of the training study area. Such activities would include small vessel movements, submersible movements under the water, and in-water presence of trainees swimming from boats to shore and walking in the intertidal and nearshore zones. Although sea turtle presence in the training study area would be rare, training activities do have the potential to disturb turtles and elicit an alerting, avoidance, or other behavioral reaction. Sea turtles can detect approaching vessels, likely by sight rather than by sound (Bartol & Ketten, 2006). Vessel-related injuries to sea turtles in Region 3 of the training study area is unlikely since their presence in the region would be rare. During proposed training activities, a crewman would act as a lookout during training evolutions on boats and support vessels to avoid sea turtles that may enter the area during training activities. During nighttime training, the lookout would likely be equipped with night vision goggles. If a sea turtle is in the immediate area of a training activity, the activity would cease until the sea turtle leaves the area.

Acoustic Stressors. Submersibles use a sonar device to report depths to aid in navigation during a training activity. These devices have similar specifications to commercially available “fish finders” and other hand-held sonar devices, which typically generate frequencies over 200 kHz and source levels less than 160 (dB re 1 μ Pa. In the NMFS’ 2015 *Biological Opinion on Navy Activities on the Northwest Training Range Complex and NMFS’s Issuance of an MMPA Letter of Authorization* (National Marine Fisheries Service, 2015b), devices with these specifications are considered “*de minimis*” sources of sound in the water. For sea turtles, the behavioral effects threshold used by the NMFS is 175 dB or greater; therefore no behavioral effects would be expected because the sonar devices would not exceed the source level threshold for behavioral effects.

Impact Summary. Proposed training in Region 3 is expected to occur every other year. As described above, impacts on sea turtles are expected to be minimal, short term, and recoverable based on the (1) relatively low intensity of the impacts, (2) localized nature of the impacts, (3) infrequent nature of the impacts, (4) brief duration of the activities, and (5) standard operating procedures designed to minimize or avoid impacts on sea turtles in water. For these reasons, long-term consequences are not expected to result from the activities under Alternative 2. Therefore, no significant impacts on sea turtles would occur with implementation of Alternative 2.

ESA Determination. Activities proposed under Alternative 2 that involve vessels and personnel in the water may affect the ESA-listed leatherback sea turtle in Region 3. As described above, impacts to leatherback sea turtle are avoided through standard operating procedures and effects to the leatherback sea turtle population would not occur. Noise associated with these activities is expected to be *de minimus*. Based on the above analysis, effects to leatherback sea turtles are expected to be insignificant and discountable. Therefore, the effect determination for leatherback sea turtle is may affect, not likely to adversely affect.

Designated critical habitat for the leatherback sea turtle occurs within Region 3. Proposed training activities would not affect PCEs as described in Section 3.3.2.3.6 (Special Status Marine Reptiles – *Leatherback Sea Turtle*). The PCE described in that section is the occurrence of prey species, primarily a type of large jellyfish. There is no effect to or on the availability of prey species, as discussed in Section 3.3.3.3.2 (Marine Species and Habitats – *Sea Turtles*). Therefore, the Navy’s effect determination for designated critical habitat for leatherback sea turtle is no effect.

Marine Mammals

The stressors, analysis, and conclusions identified in Alternative 1, Section 3.3.3.2.2 (Marine Species and Habitats – *Marine Mammals*), are applicable to Alternative 2. The difference is the addition of training areas in Regions 2 and 3. There are no additional marine mammal species or changes that were previously analyzed.

Impact Summary. Impacts on marine mammals in the marine environment under Alternative 2 are expected to be the same as those identified in Alternative 1. The addition of the training areas in Regions 2 and 3 do not change the minimal, short-term, and recoverable impacts described in Alternative 1. The same standard operating procedures would be applied. Therefore, no significant impacts on marine mammals would occur with implementation of Alternative 2.

ESA Determination. Impacts on ESA-listed whales under Alternative 2, as well as the ESA determinations, are expected to be the same as those identified in Alternative 1 for all three Regions in the study area. Impacts on designated critical habitat within Regions 2 and 3 would be the same as described in Alternative 1 for Region 1. Therefore, the Navy's effect determination for designated critical habitat for southern resident killer whales is no effect.

MMPA Conclusion. Pursuant to the MMPA and as discussed above and in Alternative 1, the Navy has determined that, under Alternative 2, the Proposed Action is not likely to result in takes of marine mammals.

Marine Birds

The stressors, analysis, and conclusions identified in Alternative 1, Section 3.3.3.2.2 (Marine Species and Habitats – *Marine Birds*), are applicable to Alternative 2. The difference is the addition of training areas in Regions 2 and 3. There are no additional marine bird species or changes that were previously analyzed. The analysis and impacts identified in Alternative 1 for marine birds are applicable to marine birds in Regions 2 and 3.

Impact Summary. Impacts on marine birds in the marine environment under Alternative 2 are expected to be the same as those identified in Alternative 1. The addition of the training areas in Regions 2 and 3 do not change the minimal, short-term, and recoverable impacts described in Alternative 1. Therefore, no significant impacts on marine birds would occur with implementation of Alternative 2.

ESA Determination. Impacts on ESA-listed marbled murrelet, as well as the ESA determinations, under Alternative 2 are expected to be the same as those identified in Alternative 1. Therefore, the Navy's effect determination for marbled murrelets under Alternative 2 is may affect, not likely to adversely affect. Designated critical habitat for this species does not occur within the training study area in Regions 2 and 3. Therefore, the Navy's effect determination for designated critical habitat for marbled murrelet is no effect.

MBTA Conclusion. A variety of marine birds would be encountered in Regions 2 and 3, similar to Region 1 as described in Alternative 1. Impacts under Alternative 2 would be the same as in Alternative 1 and would not result in a significant adverse effect on migratory marine bird populations in the marine environment. Therefore, impacts on migratory seabirds from implementation of Alternative 2 would not be significant.

3.3.3.4 Alternative 3 (Preferred Alternative)

As with Alternative 2, Alternative 3 would include the same proposed training activities within Regions 1, 2, and 3. The only difference is Alternative 3 would increase the training blocks in Region 1 to six times per year and an individual site would be used no more than 36 times. Training activities associated with the Proposed Action are low impact and activities would occur at infrequent intervals and for a brief duration of time. Because the goal of training is for the trainees to be in the field undetected, the environment tends to be minimally disturbed and materials (e.g., gear and trash) are not left behind. In addition, identical travel routes would be rarely used; the level of foot traffic associated with each group would not wear paths in the training study area. Logistical support vehicles use established roads and do not impact resources. Therefore, increase in the number of training blocks and site usage is not expected to change the impacts, analysis, and determinations as described in Alternative 2. Because of the non-invasive nature of the training activities, terrestrial and marine species and habitats would experience impacts ranging from no measurable effects to short-term (lasting from minutes to hours depending on the type of activity) and minor (not inhibiting any major biological function) effects as described in Alternative 2. Given the nature of the action (i.e., “leave no trace”), the increase in the number of training blocks in Region 2 would not have a substantially greater impact on terrestrial or marine species and habitats. Therefore, the impact summaries and conclusions for ESA, EFH, MMPA, MBTA, and BGEPA in Alternative 2 would apply to Alternative 3.

Under Alternative 3, the Navy would consult with NMFS regarding potential impacts to the following ESA-listed species in accordance with Section (7)(a)(2) of the ESA: Puget Sound Chinook salmon, Hood Canal summer run chum salmon, Puget Sound Steelhead, Puget Sound/Georgia Basin bocaccio and yelloweye rockfishes, North American green sturgeon, Columbia River chum salmon, Pacific Eulachon, leatherback sea turtle, humpback whales, and southern resident killer whales.

Under Alternative 3, the Navy would consult with USFWS regarding potential impacts to the following ESA-listed species in accordance with Section (7)(a)(2) of the ESA: bull trout, marbled murrelet, streaked horn lark, and the western snowy plover.

3.4 Public Health and Safety

This discussion of public health and safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. A safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. The primary goal is to identify and prevent potential accidents or impacts on the general public. Public health and safety within this EA discusses information pertaining to community emergency services, construction activities, operations, and environmental health and safety risks to children.

Community emergency services are organizations which ensure public safety and health by addressing different emergencies. The three main emergency service functions include police, fire and rescue service, and emergency medical service.

Operational safety may refer to the actual use of the facility or built-out proposed project, or training or testing activities and potential risks to inhabitants or users of adjacent or nearby land and water parcels. Safety measures are often implemented through designated safety zones, warning areas, or other types of designations. The FAA issues a COA to operators of UASs to engage in a specific activity for operational safety.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

3.4.1 Regulatory Setting

Aircraft safety is based on the physical risks associated with aircraft flight. Military aircraft fly in accordance with Federal Aviation Regulations Part 91, *General Operating and Flight Rules*, which govern such things as operating near other aircraft, right-of-way rules, aircraft speed, and minimum safe altitudes. These rules include the use of tactical training and maintenance test flight areas, arrival and departure routes, and airspace restrictions as appropriate to help control air operations. In addition, naval aviators must also adhere to the flight rules, air traffic control (ATC), and safety procedures provided in Navy guidance. The FAA issues a NOTAM to disseminate information on upcoming or ongoing military training exercises with airspace restrictions (including the operation of UAS). Operators of civilian aircraft are responsible for being aware of any NOTAMs that are in effect. The FAA issues COAs to public and government operators for specific UAS activities. COAs may include specific safety provisions or limitations that a UAS operator must follow as part of the approval. The Department of Defense has signed a memorandum of agreement with the FAA that includes the procedure for obtaining a COA and requires additional safety measures (Department of Defense and Federal Aviation Administration, 2013). For example, under this memorandum, UAS cannot be operated over populated areas unless airworthiness allows.

Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to “make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”

3.4.2 Affected Environment

The training study area and contiguous nearshore waters encompass a broad spectrum of populations and landownership types, including private lands, public parks, harbors, golf courses, and recreation areas. Commercial, institutional, recreational, and military activities take place simultaneously within this area.

The affected environment includes portions of Skagit, Island, Jefferson, Kitsap, Pierce, Clallam, and Mason Counties, as well as Pacific and Grays Harbor Counties. There are several schools, hospitals, and churches within the training study area. The American Community Survey's five-year estimate for 2011–2015 estimated that the State of Washington had a population of approximately 1,596,576 children below the age of 18 (22.9 percent of the total population of Washington). These estimates do not include tourists and other visitors who may be found throughout the training study area.

Several federal, state, and local emergency services respond to emergencies within the training study areas, including local fire, police, and emergency medical services as well as the U.S. Coast Guard (USCG). NSWC currently designs and implements the safety and inspection procedures for its training activities within the training study area. In the absence of specific guidance on matters of safety, the NSWC follows the most prudent course of action to ensure the safety of all training participants and the nonparticipating public. The following paragraphs briefly discuss general rules and practices for recreational, commercial, institutional, and military use in sea surface areas, on land, and in airspace.

Although much of the offshore navigable and public waters in the training study area are freely accessible to the public for recreational and commercial activities, these waters include restricted areas, safety zones, danger zones, and prohibited areas. The USCG ensures that private and commercial vessels are aware of operations that could affect them and that they comply with all maritime regulations as administered by the USCG. The Navy's safety measures ensure public health and safety primarily through published and periodically reviewed standard operating procedures designed to minimize or avoid civilian exposure to training activities.

Department of Defense facilities are typically restricted from public use and access. Within the training study area, this includes NAVBASE Kitsap (Bremerton, Bangor, Keyport, Manchester Fuel Department, Zelatched Point, Toandos Buffer Zone, and Camp McKean), NAVMAG Indian Island, and NAS Whidbey Island. The remaining lands in the training study area are generally publicly accessible to recreation, commercial, and institutional activities where authorized by the landowners or land managers; this includes several state parks and public recreation areas (Figure 1-1).

The airspace in the training study area is accessible to general aviation (recreational, private, corporate) and commercial aircraft. Special use airspace is "airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activities, or both" (JO FAA 7400.8Z section 73.3 [2017]). Within the training study area, this includes warning areas, restricted areas, MOAs, and ATC-assigned areas. The FAA has authorized R-6701 for UAS. All other airspace in which the NSWC may operate UASs would require a COA from the FAA.

3.4.3 Environmental Consequences

The safety and environmental health analysis contained in the respective sections addresses issues related to the health and well-being of military personnel and civilians living on or in the vicinity of the training study area. Specifically, this section provides information on hazards associated with the

training activities identified in Chapter 2 (Description of Proposed Action and Alternatives). Additionally, this section addresses disproportionate environmental health and safety risks to children.

3.4.3.1 No Action Alternative

Under the No Action Alternative, training activities conducted in western Washington State over the past 30 years would continue in Region 1 training study area with two training blocks per year (as approved under the 2015 Northwest Training and Testing Final EIS/OEIS, 2010 Northwest Training Range Complex EIS/OEIS, and event-based Categorical Exclusions, as applicable). Training activities under the No Action Alternative include launch and recovery of the submersible or small boats; driving these vessels (including unmanned underwater vehicles) to training locations (insertion and extraction); swimming and diving; walking in the nearshore, on the beach (over-the-beach), and on land (special reconnaissance); and staying overnight (special reconnaissance).

Should the public observe any training activities, individuals, including children, may be curious or potentially startled. However, the intent of proposed training is to build trainees skills, experience, and confidence by challenging them in a location with dynamic weather and land/cold-water conditions. As part of the rigorous training, the trainees learn skills needed to avoid detection along with the goal of leaving no trace of their presence during or after training activities. Navy policy requires that training activities ensure the safety and health of personnel and the public and requires that every possible precaution in planning and executing its actions are enforced to prevent injury to people or damage to property. Naval special operations personnel conduct all training events in accordance with military training procedures, approved standard operating procedures, and protective measures, including Chief of Naval Operations Instruction 5100.23G, *Navy Safety and Occupational Health Program Manual* (2011). These policies assure a thorough consideration of public health and safety in conjunction with Navy personnel and their activities. As described in Chapter 2 (Description of Proposed Action and Alternatives), the proposed training activities do not include using live-fire weapons or explosives. Public safety is further ensured because trainees do not carry loaded weapons or explosives during training events.

The No Action Alternative does not include the construction, improvement, or maintenance of any road or right-of-way. The No Action Alternative also does not include designating or altering any special use airspace or restricted waters. All personnel transit to and from training areas using existing roads and waterways in compliance with all applicable safety regulations.

Supervisor and safety personnel focus on maintaining a safety buffer around the small submersible or watercraft consistent with USCG regulations, namely the USCG Navigation Rules and Regulations Handbook, and as site conditions and the surrounding environment dictate. For example, navigation lights on a dive boat (red over white over red) or a dive flag indicate that a dive is in progress and other vessels should keep well clear and at slow speed. Dive site locations avoid locations that experience heavy traffic patterns, such as Washington State Ferry System routes or fishing activities. In the event maritime vessels approach an active dive site, safety personnel would utilize Channel 16 (intended for international distress, safety, and calling) to contact vessels. If an oncoming vessel does not respond, a safety boat would approach the vessel and, depending on the situation, ask it to (1) hold its position; (2) go around the dive site; (3) if necessary, be escorted by the safety boat around the dive site; or (4) recall its divers to the surface or go to deep submerge. This ensures safety for the trainees and the training vessels as well as for any commercial and civilian craft that may transit adjacent to the event location.

In addition to maintaining a safety buffer, supervisor and safety support personnel are responsible for identifying hazards to navigation that could affect the safety of the trainees, and recalling swimmers and divers, or the small submersible, to the surface, if conditions require. If the public enters the training area, the selected training may temporarily cease while the public transits the training area.

For all open-water training events involving broadcast navigational hazards (NOTAMs), support personnel are present to ensure that training areas are clear and safe to conduct the training activity. In addition, on-call military medical response personnel are also available throughout each training event.

Trainees use fish-finder type sonar when conducting water-based training. To ensure safe and effective sonar use, NSWC applies safety procedures consistent with the U.S. Navy Diving Manual, Appendix 1A, *Safe Diving Distances from Transmitting Sonar*, the Navy's governing document for protecting divers during active sonar use (U.S. Department of the Navy, 2011). The manual provides procedures for calculating safe distances from active sonar. These procedures are derived from experimental and theoretical research conducted at the Naval Submarine Medical Research Laboratory and the Navy Experimental Diving Unit. Safety distances vary based on conditions that include diver dress, type of sonar, and duration of time in the water. These safety distances would also be applicable to recreational swimmers and divers. The sonar used during naval special operations training is the same as fish-finder type sonar employed by recreational and commercial fishermen, and commonly used throughout the training study area. Considering the existing use of fish-finder type sonar in the training study area, anticipated infrequent and short-term use of areas proposed for training and the large expanse of the training study area (Regions 1, 2, and 3), naval special operations training is not anticipated to overlap with recreational swimmers or divers or result in impacts to individuals.

Naval special operations personnel conducting training activities at state/city/county/district parks, harbors, and private property would be in accordance with real estate agreements and approvals, and when authorized by the property owner. NSWC would coordinate with law enforcement, park managers (where applicable), and property owners prior to use of property for training. NSWC would secure the appropriate permits, permissions, passes, or approvals prior to performing activities on these properties. NSWC's safety measures include standard operating procedures designed to avoid or minimize civilian exposure to training activities. If the public enters the training area while a training event is underway, the training may temporarily cease while the public transits the training area. Prior to land-based training, support staff would typically visit a site prior to the training event to ensure there is minimal public in the area; if public is present, and then the training event could shift away from the public or would not take place at the selected site. Live-fire weapons and ammunition are not part of this training activity. Additionally, support staff would be on site at all times to ensure the overall safety of the training environment. While schools and churches are present throughout the training study area, the measures described above to minimize naval special operations training interaction with the public would avoid potential impacts to the public's use of school and church facilities.

During training events, NSWC dedicates a vehicle for emergency response. Navy Region Northwest would be contacted if there is a spill of any hazardous substance or oil into state waters, ground, or air in accordance with the Navy's Oil and Hazardous Substance Integrated Contingency Plan (U.S. Department of the Navy, 2016). Navy Region Northwest would also be contacted if there is a spill of oil that would violate water quality standards, cause a film or sheen or discoloration on the water surface or shoreline, or cause sludge or emulsion to be deposited beneath the surface of the water. Should any spill pose a threat to human health, 911 would be called first. Any petroleum-contaminated soil from an accidental spill would be treated, stored, transported, handled, labeled, and disposed of in accordance

with federal, state, and local regulations. This ensures safety for the trainees and the training vessels as well as for any commercial and civilian craft that may transit adjacent to the event location.

In accordance with the requirements of EO 13045, this section also evaluates whether implementing the No Action Alternative would result in an environmental health and safety risk that would disproportionately affect children. The proposed activities would not be hazardous to non-participants and all activities would be consistent with both historic and current training activities within the training study area. Support staff would typically visit a site prior to the training event to ensure there is minimal public in the area; if the public is present, the safety support personnel will assess the situation and, based upon safety considerations of all, they will either not start the training, continue the training, temporarily suspend the training, completely stop the training, or relocate the training to another approved training site. As such, any effect on children would be fleeting—a glimpse of trainees or just being present in the general area. Therefore, the No Action Alternative would not result in environmental health or safety risks that would disproportionately affect children.

In addition, all activities would be completely consistent with both historic and current training activities within the training study area.

As presented above under the No Action Alternative, the proposed minimization would result in continued avoidance of impacts to public health and safety. Therefore, no significant impacts on public health and safety would occur with the continuation of training under the No Action Alternative.

3.4.3.2 Alternative 1

Under Alternative 1, proposed training activities would be conducted in western Washington State in Region 1 and would include an increased tempo above the No Action Alternative from two to four training blocks per year. Within Region 1, an individual site would be used no more than 20 times per year. The same training activities in the No Action Alternative would occur. The following training activities would be added: simulated building clearance and the training with UASs. The use of remote operated vehicles would be included with UUVs.

The same impacts, analysis, and measures from the No Action Alternative would apply to the proposed training activities and locations in Alternative 1. The increase in training blocks and potential training locations when compared to the No Action Alternative would not designate or alter any special use airspace or restricted waters. As described under the No Action Alternative, personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. Supervisor and safety personnel would be present at training sites to ensure safety of the training site for trainees and public (if present) for both UAS and simulated building clearance training as described in the No Action Alternative for other training activities.

The simulated building clearance training activity would consist of trainees conducting simulated actions against a site, or a military individual designated as part of the exercise who would be simulating a threat or enemy, within a confined area or building. Simulated building clearance sites would typically be separated from the public would comprise approximately 10 percent of each training block. The simulated munitions are marking rounds, which are specialized plastic/paint capsules that are environmentally friendly and water-soluble. The temporary marks these simulated munitions make are about the circumference of a dime. Sounds associated with the firing of the simulated munitions sound would be similar to an air rifle or a car door slamming and significantly less than the sound produced from firing actual live rounds. It is unlikely that the public would hear the sound since the proposed training would occur away from the public. No property damage would occur, and cleanup (picking up

simulated marking rounds/washing away paint marks if present) would be handled by the instructors and support staff immediately at the conclusion of the training scenario. Support staff would be on site at all times in order to ensure the overall safety in the training environment. The brass casings associated with the simulated munitions would then be recycled as part of Naval Undersea Warfare Center (NUWC) recycling program.

Proposed UAS training would occur at NAVBASE Kitsap Keyport, Toandos Buffer Zone, and NAVMAG Indian Island. UASs would carry non-hazardous payloads and would be operated in accordance with all FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA (Department of Defense and Federal Aviation Administration, 2013). To operate UAS, NSWC would obtain COAs prior to operating these systems in Region 1. If necessary, these COAs would include additional safety measures that would be adhered to while operating the UAS. UAS training activities would have staff on hand who would be responsible for the safety and oversight of trainees participating in these activities and would utilize ground-based observers when operating UAS.

For the reasons given in Section 3.4.3.1 (No Action Alternative) and above, Alternative 1 would not result in environmental health or safety risks that would disproportionately affect children. Alternative 1 would have the same safety restrictions and requirements as described under the No Action Alternative. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 1.

3.4.3.3 Alternative 2

Under Alternative 2, the locations, training activities, number of training blocks per year, and site usage per year are the exact same as those identified in Alternative 1 for Region 1. However, Alternative 2 adds two new training regions, Regions 2 and 3. Regions 2 and 3 would have one training block every other year with an individual site being used no more than three times every other year in each region. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and simulated building clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at R6701. Also, one new proposed training activity, high-angle climbing, would occur at Deception Pass State Park in Region 3.

The same impacts, analysis, and measures from Alternative 1 would apply to the proposed training activities and regions in Alternative 2. The increase in training blocks and training in Regions 2 and 3 when compared to the Alternative 1 would not designate or alter any special use airspace or restricted waters. As described under the Alternative 1, personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. Supervisor and safety personnel would be present at training sites to ensure safety of the training site for trainees and public (if present) for both UAS training at R6701 and High-Angle Climbing, both in Region 2, as described in the Alternative 1 for other training activities.

UAS training would not require a COA from FAA due to UAS usage being already approved at R6701. As described in Alternative 1, UAS usage at R6701 would carry non-hazardous payloads and would be operated in accordance with all FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA (Department of Defense and Federal Aviation Administration, 2013).

Alternative 2 includes the addition of high angle climbing as a training activity. Naval special operations support staff would coordinate with Deception Pass State Park managers prior this training activity. Support staff would set up safety climbing ropes in advance of training activity and would monitor the

ropes to ensure the public would not use of ropes. At completion of the training, the ropes would be removed.

For the reasons given in Section 3.4.3.2 (Alternative 1) and above, Alternative 2 would not result in environmental health or safety risks that would disproportionately affect children. Alternative 2 would have the same safety restrictions and requirements as described under Alternative 1. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 2.

3.4.3.4 Alternative 3 (Preferred Alternative)

As with Alternative 2, Alternative 3 would include the same proposed training activities and areas within Regions 1, 2, and 3. The only difference is Alternative 3 would increase the training blocks in Region 1 to six times per year and an individual site would be used no more than 36 times. The increase in the number of training blocks and site usage is not expected to change the impacts, analysis, and measures as described in Alternative 2. While there is an increase in total training blocks under Alternative 3, for the same reasons given in Section 3.4.3.3 (Alternative 2), Alternative 3 would not result in environmental health or safety risks that would disproportionately affect children. Alternative 3 would have the same safety restrictions and requirements as described under Alternative 2. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 3.

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3.5 Air Quality

3.5.1 Introduction

Air pollution is a threat to human health and also damages the environment (U.S. Environmental Protection Agency, 2007). Air pollution damages trees, crops, other plants, lakes, and animals. In addition to damaging the natural environment, air pollution damages the exteriors of buildings, monuments, and statues. It creates haze or smog that reduces visibility in national parks and cities and interferes with aviation. To improve air quality and reduce air pollution, Congress established the Clean Air Act in 1970 and followed with major amendments in 1977 and 1990, which set regulatory limits on air pollutants and helped to ensure basic health and environmental protection from air pollution.

Most air pollutants originate from stationary sources (e.g., factories, refineries, power plants), mobile sources (e.g., cars, trucks, buses), as well as indoor sources (e.g., some building materials and cleaning solvents). Air pollutants are also released from natural sources such as volcanic eruptions and forest fires.

Air quality is defined by ambient concentrations of specific air pollutants—pollutants the U.S. Environmental Protection Agency (USEPA) determined may affect the health or welfare of the public. Ambient air quality is reported as the atmospheric concentrations of specific air pollutants at a particular time and location. The units of measurement are expressed as a mass per unit volume (e.g., micrograms per cubic meter [$\mu\text{g}/\text{m}^3$] of air) or as a volume fraction (e.g., parts per million [ppm] by volume). The ambient air pollutant concentrations measured at a particular location are determined by the pollutant emissions rate, local meteorology, and atmospheric chemistry. Wind speed and direction, the vertical temperature gradient of the atmosphere, and precipitation patterns affect the dispersal, dilution, and removal of air pollutant emissions from the atmosphere.

The Clean Air Act required that the USEPA establish National Ambient Air Quality Standards (NAAQS) for six major pollutants of concern: carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter (dust particles less than or equal to 10 microns in diameter and fine particulate matter less than or equal to 2.5 microns in diameter), and lead. These pollutants are called “criteria” pollutants. The NAAQS set specific concentration limits for the pollutants in the outdoor (ambient) air. The concentration limits were developed because these pollutants are common in ambient outdoor air, considered harmful to public health and the environment, and come from numerous and diverse sources. The concentration limits are designed to aid in protecting public health (primary standards) and the environment (secondary standards).

In addition to the six criteria pollutants, the USEPA currently designates 187 substances as Hazardous Air Pollutants (HAPs) under the federal Clean Air Act. Hazardous air pollutants are air pollutants known or suspected to cause cancer or other serious health effects, or adverse environmental and ecological effects (U.S. Environmental Protection Agency, 2016a). Criteria air pollutants are classified as either primary or secondary pollutants based on how they are formed in the atmosphere. Primary air pollutants are emitted directly into the atmosphere from the source of the pollutant and retain their chemical form. Examples of primary pollutants are the smoke produced by burning wood and volatile organic compounds emitted by industrial solvents. Secondary air pollutants are those formed through atmospheric chemical reactions that usually involve primary air pollutants (or pollutant precursors) and normal constituents of the atmosphere. Ozone, a major component of photochemical smog, is a secondary air pollutant. Ozone precursors fall into two broad groups of chemicals: nitrogen oxides and volatile organic compounds. Nitrogen oxides consist of nitric oxide and nitrogen dioxide. Finally, some

criteria air pollutants are a combination of primary and secondary pollutants. Particulate matter less than or equal to 10 microns in diameter and particulate matter less than or equal to 2.5 microns in diameter are generated as primary pollutants by various mechanical processes (e.g., abrasion, erosion, mixing, or atomization) or combustion processes. They are also generated as secondary pollutants through chemical reactions or through the condensation of gaseous into fine aerosols.

Areas with air pollution problems typically have one or more criteria pollutants consistently present at levels that exceed the NAAQS. These areas are designated as nonattainment for the standards. Certain Naval special operations training activities under this action take place within nonattainment or maintenance areas. These areas are identified by their air quality designated areas (an area designated by the federal government where communities share a common air pollution problem).

The USEPA delegates authority to states, through their air quality management agencies, to prepare and implement State Implementation Plans for nonattainment areas, which demonstrate how the area will meet the NAAQS. Areas classified as attainment, after being designated as nonattainment, may be reclassified as maintenance areas subject to maintenance plans showing how the area will continue to meet federal air quality standards. If the state fails to develop an adequate plan to achieve and maintain the NAAQS or a State Implementation Plan revision is not approved by EPA, federal agencies must comply with the Federal Implementation Plan that the EPA is required to develop. States may also choose to adopt the Federal Implementation Plan as an alternative to developing their own State Implementation Plan.

Nonattainment areas for some criteria pollutants are further classified, depending on the severity of their air quality problem, to facilitate their management:

- ozone – marginal, moderate, serious, severe, and extreme
- carbon monoxide – moderate and serious
- particulate matter – moderate and serious

The Clean Air Act allows states to establish air quality standards more stringent than the NAAQS; however, they are prohibited from imposing more stringent conformity requirements unless the requirements apply equally to non-Federal activities. The state of Washington established standards more stringent than the NAAQS for certain pollutants (e.g., sulfur dioxide) and established standards for certain pollutants not covered by the NAAQS (e.g., Total Suspended Particulates). Table 3.5-1 shows all NAAQS and Washington Standards.

Washington is not classified as a nonattainment area for any of the criteria pollutants; therefore, a Conformity Determination is not required for the Proposed Action. However, portions of the training study area are classified as maintenance areas for the state's 1-hour ozone standard, and the federal carbon monoxide 8-hour, PM_{2.5} 24-hour, and PM₁₀ 24-hour standards.

Table 3.5-1: Ambient Air Quality Standards in Washington State

Pollutant	Averaging Period	National Standards		Washington State Standards	Details
		Primary	Secondary		
Ozone	8-hour	0.075 ppm	0.075 ppm	-	The 3-year average of the annual 4th-highest daily 8-hour maximum is not to be above this level.
	1-hour (Daily Maximum)	-	-	0.12 ppm	Not to be above this level on more than 1 day in a calendar year.
Particulate Matter less than or equal to 2.5 microns in diameter	Annual (Arithmetic Mean)	15.0 µg/m ³	15.0 µg/m ³	-	The 3-year average from a community-oriented monitor is not to be above this level.
	24-hour	35 µg/m ³	35 µg/m ³	-	The 3-year average of the annual 98th percentile for each population-oriented monitor within an area is not to be above this level.
Particulate Matter less than or equal to 10 microns in diameter	Annual (Arithmetic Mean)	-	-	50 µg/m ³	The 3-year average of annual arithmetic mean concentrations at each monitor within an area is not to be above this level.
	24-hour	150 µg/m ³	150 µg/m ³	150 µg/m ³	Not to be above this level on more than 3 days over 3 years with daily sampling.
Carbon Monoxide	8-hour	9 ppm	-	9 ppm	Not to be above this level more than once in a calendar year.
	1-hour	35 ppm	-	35 ppm	Not to be above this level more than once in a calendar year.
Nitrogen Dioxide	Annual (Arithmetic Mean)	0.053 ppm	0.053 ppm	0.05 ppm	Not to be above this level in a calendar year.
	1-hour	0.100 ppm	-	-	The 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor is not to be above this level.
Sulfur Dioxide	Annual (Arithmetic Mean)	0.03 ppm	-	0.02 ppm	Not to be above this level in a calendar year.
	24-hour	0.14 ppm	-	0.10 ppm	Not to be above this level more than once in a calendar year.
	3-hour	-	0.5 ppm	-	Not to be above this level more than once in a calendar year.
	1-hour	-	-	0.40 ppm	Not to be above this level more than once in a calendar year.
	1-hour	-	-	0.25 ppm	Not to be above this level more than twice in a consecutive 7-day period.

Table 3.5-1: Ambient Air Quality Standards in Washington State (continued)

Pollutant	Averaging Period	National Standards		Washington State Standards	Details
		Primary	Secondary		
Sulfur Dioxide (continued)	1-hour	75 ppb	-	-	The 3-year average of the annual 99th percentile of daily maximum 1-hour average is not to be above this level.
	5-minute	-	-	0.80 ppm	This is the Northwest Clean Air Agency's standard, which applies in Island and Skagit counties.
Lead	Rolling 3-Month Average	0.15 µg/m ³	0.15 µg/m ³	-	Not to be above this level.
	Quarterly Average	1.5 µg/m ³	1.5 µg/m ³	-	-
Total Suspended Particulates	Annual (Geometric Mean)	-	-	60 µg/m ³	Not to be above this level.
	24-hour	--	-	150 µg/m ³	Not to be above this level more than once in a calendar year.

Source: Washington Department of Ecology (2011)

Notes: ppm = parts per million, µg/m³ = micrograms per cubic meter

3.5.1.1 Hazardous Air Pollutants

Unlike the criteria pollutants, there are no NAAQS for hazardous air pollutants emissions. The Clean Air Act regulates stationary hazardous air pollutant emissions via two sets of national emissions standards: (1) the National Emission Standards for Hazardous Air Pollutants (40 CFR part 61) regulate emissions of specific hazardous air pollutant compounds from specific sources, and (2) National Emission Standards for Hazardous Air Pollutants (40 CFR part 63) regulate all hazardous air pollutant emissions from listed categories of stationary sources.

Mobile source hazardous air pollutants are emitted from highway vehicles and nonroad equipment, with six compounds being specifically identified as having the greatest influence on health: benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter. Specifically, Mobile Source Air Toxics are regulated by the 2007 Mobile Source Air Toxic Rules, which identified 21 compounds which are known or suspected to cause cancer or other serious health and environmental effects and the 2014 USEPA's Tier 3 vehicle and fuel standards which control the benzene content of gasoline (U.S. Environmental Protection Agency, 2015a). Mobile source HAPs are generally regulated at the production level, in the same manner as criteria pollutants.

3.5.1.2 General Conformity Evaluation

Federal actions are required to conform with the approved State Implementation Plan for those areas of the United States designated as nonattainment or maintenance areas for any criteria air pollutant under the Clean Air Act (40 CFR parts 51 and 93). The purpose of the General Conformity Rule is to ensure that applicable Federal actions, such as the Proposed Action evaluated in this EIS, would not cause or contribute to a violation of an air quality standard and that the Proposed Action would not adversely affect the attainment and maintenance of National Ambient Air Quality Standards. A conformity evaluation must be completed for every applicable Navy action that generates emissions to determine and document whether a proposed action complies with the General Conformity Rule. If a federal action is not an emergency response action, presumed to conform under the Rule, does not meet the approved facility emissions budget, is not a listed exempt activity, and is not covered by the Transportation Conformity Rule, then a conformity demonstration evaluating total direct and indirect emissions must be made. In determining the total direct and indirect emissions caused by the action, agencies must project the future emissions in the area with the action versus the future emissions without the action, what NEPA entitles "the no build option."

A Clean Air Act General Conformity Applicability Analysis is performed to support a determination pursuant to the General Conformity Rule (40 CFR Part 93B). This analysis focuses on activities that could impact nonattainment or maintenance areas within the region of influence. As noted above, the Study Area lies partly within or adjacent to some air quality designated areas. To evaluate whether or not the General Conformity Rule applies, air pollutant emissions associated with the Proposed Action within the applicable designated nonattainment or maintenance areas are estimated, based on the distribution of mobile source activity. The proposed training activities within this portion of the Study Area are then compared to the General Conformity Rule thresholds.

Emissions sources and the approach used to estimate emissions for the air quality analysis are based, wherever possible, on information from Navy subject matter experts. These data were used to estimate the numbers and types of potential sources of air emissions that would be involved in emissions generating activities under each alternative. The first step in the demonstration is a Conformity

Applicability Analysis and involves calculating the non-exempt direct and indirect emissions associated with the action. The emissions thresholds that trigger the conformity requirements are called *de minimis* levels. If the net change emissions equal or exceed the *de minimis* conformity applicability threshold values, a formal Conformity Determination must be prepared to demonstrate conformity with the approved State Implementation Plan.

The Navy Guidance for Compliance with the Clean Air Act General Conformity Rule, section 4.1, states that a Record of Non-Applicability must be prepared if the proposed action is subject to the Conformity Rule, but is exempt because it fits within one of the exemption categories listed under 40 CFR 93B, because the action's projected emissions are below the *de minimis* conformity applicability threshold values, or is presumed to conform (U.S. Department of the Navy, 2013). *De minimis* levels are shown in Table 3.5-2.

Table 3.5-2: General Conformity *De Minimis* Levels

Pollutant	Area Type	Tons per Year
Ozone (VOC or NO _x)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO _x)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, SO ₂ and NO ₂	All nonattainment & maintenance	100
PM ₁₀	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
PM _{2.5} Direct emissions, SO ₂ , NO _x (unless determined not to be a significant precursor), VOC or ammonia (if determined to be significant precursors)	All nonattainment & maintenance	100
Lead	All nonattainment & maintenance	25

Notes: VOC = Volatile Organic Compound, NO_x = nitrogen oxide, SO₂ = sulfur dioxide, NO₂ = nitrogen dioxide, PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter

3.5.1.3 Climate Change

Greenhouse gases are compounds that contribute to the greenhouse effect—a natural phenomenon in which gases trap heat within the lowest portion of the earth's atmosphere (surface-troposphere

system), causing heating (radiative forcing) at the surface of the earth. The primary long-lived greenhouse gases directly emitted by human activities are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride. Carbon dioxide, methane, and nitrous oxide occur naturally in the atmosphere. These gases influence the global climate by trapping heat in the atmosphere that would otherwise escape to space. The heating effect from these gases is considered the probable cause of the global warming observed over the last 50 years (U.S. Environmental Protection Agency, 2009a). Global warming and climate change affect many aspects of the environment. Not all effects of greenhouse gases are related to climate. For example, elevated concentrations of carbon dioxide can lead to ocean acidification and stimulate terrestrial plant growth, and methane emissions can contribute to higher ozone levels.

The administrator of the USEPA determined that six greenhouse gases in combination endanger both the public health and the public welfare of current and future generations. The USEPA specifically identified carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride as greenhouse gases (U.S. Environmental Protection Agency, 2009b).

To estimate global warming potential, which is the heat trapping capacity of a gas, the United States quantifies greenhouse gas emissions using the 100-year timeframe values established in the Intergovernmental Panel on Climate Change Fourth Assessment Report (Intergovernmental Panel on Climate Change, 2007), in accordance with United Nations Framework Convention on Climate Change (United Nations Framework Convention on Climate Change, 2013) reporting procedures. All global warming potentials are expressed relative to a reference gas, carbon dioxide, which is assigned a global warming potential equal to 1. Six other primary greenhouse gases have global warming potentials: 25 for methane, 298 for nitrous oxide, 124 to 14,800 for hydrofluorocarbons, 7,390 to greater than 17,340 for perfluorocarbons, 17,200 for nitrogen trifluoride, and up to 22,800 for sulfur hexafluoride. To estimate the carbon dioxide equivalency of a non-carbon dioxide greenhouse gas, the appropriate global warming potential of that gas is multiplied by the amount of the gas emitted. All seven greenhouse gases are multiplied by their global warming potential and the results are added to calculate the total equivalent emissions of carbon dioxide. The dominant greenhouse gas emitted is carbon dioxide, mostly from fossil fuel combustion (85.4 percent) (U.S. Environmental Protection Agency, 2016b). Weighted by global warming potential, methane is the second largest component of emissions, followed by nitrous oxide. Global warming potential-weighted emissions are presented in terms of equivalent emissions of carbon dioxide, using units of metric tonnes. The Proposed Action is anticipated to release greenhouse gases to the atmosphere. These emissions are quantified (primarily using methods elaborated upon in the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014) for the proposed Navy training and testing in the Study Area, and estimates are presented in Chapter 4 (Cumulative Impacts) (U.S. Environmental Protection Agency, 2016b).

The potential effects of proposed greenhouse gas emissions are by nature global and may result in cumulative impacts because most individual sources of greenhouse gas emissions are not large enough to have any noticeable effect on climate change. Therefore, the impact of proposed greenhouse gas emissions to climate change is discussed in the context of cumulative impacts.

3.5.1.3.1 Current Requirements and Practices

EO 13693, Planning for Federal Sustainability in the Next Decade, issued on March 19, 2015, establishes policy for federal agencies to maintain federal leadership in sustainability and greenhouse gas emission

reductions. As noted in the Order, through a combination of more efficient federal operations, agency direct greenhouse gas emissions can be reduced by at least 40 percent over the next decade while fostering innovation, reducing spending, and strengthening the communities in which federal facilities operate.

In June 2014, DoD released the 2014 Climate Change Adaptation Roadmap to document DoD's efforts to plan for the changes that are occurring or expected to occur as a result of climate change. The Roadmap provides an overview and specific details on how DoD's adaptation will occur and describes ongoing efforts (U.S. Department of Defense, 2014).

The Navy is committed to improving energy security and environmental stewardship by reducing reliance on fossil fuels. The Navy is actively developing and participating in energy, environmental, and climate change initiatives that will increase use of alternative energy and reduce emissions of greenhouse gases. The Navy has adopted energy, environmental, and climate change goals. These goals include increasing alternative energy use Navy-wide to 50 percent by 2020; reducing non-tactical petroleum use; ensuring environmentally sound acquisition practices; ensuring environmentally compliant operations for ships, submarines, aircraft, and facilities operated by the Navy; and implementing applicable elements of the Climate Change Adaptation Roadmap.

Equipment used by military units in the Study Area, including ships and other marine vessels, aircraft, and other equipment, are properly maintained and fueled in accordance with applicable Navy requirements. Operating equipment meets federal and state emission standards, where applicable.

3.5.2 Existing Air Quality

The training study area exists within two air quality control regions (ACQRs): Puget Sound ACQR and Olympic-Northwest Washington ACQR. The Puget Sound Intrastate ACQR, which is managed by the Puget Sound Clear Air Agency, encompasses Kitsap, King, Pierce, and Snohomish Counties and includes the Seattle-Tacoma metropolitan area. Puget Sound Naval Shipyard, Keyport Range Site, portions of Chinook Military Operations Area, the Explosive Ordnance Disposal Underwater Training Range in Hood Canal, Naval Base Kitsap Bangor, and portions of Dabob Bay Range Complex Site are in Kitsap County. Carr Inlet Operations Area is in Pierce County. Naval Station Everett is in Snohomish County. An urban portion of Pierce County (Wapato Hills–Puyallup River Valley) is in nonattainment of the federal 24-hour $PM_{2.5}$ standard because of smoke from fireplaces and stoves used for space heating. In addition, King, Pierce, and Snohomish Counties are a maintenance area for O_3 and CO. Kitsap County is in attainment of all NAAQS (U.S. Environmental Protection Agency, 2015b) and is not a maintenance area for any criteria air pollutant.

The Olympic Region Air Basin portion of the Olympic-Northwest Washington ACQR, which is managed by Olympic Region Clean Air Agency, includes Clallam, Jefferson, Grays Harbor, Mason, Pacific, and Thurston Counties. Thurston County is an air quality maintenance area for PM_{10} . The Olympic Military Operating Area overlies part of the Olympic peninsula within the Olympic Region Air Basin. Quinault Range Site and portions of Dabob Bay Range Complex Site are in Jefferson County. Jefferson County is in attainment of the NAAQS (U.S. Environmental Protection Agency, 2015b) and is not a maintenance area for any criteria air pollutant.

The Northwest Air Basin portion of the Olympic-Northwest Washington ACQR, which is managed by the Northwest Clean Air Agency, includes Island, Whatcom, and Skagit Counties. Explosives Ordnance Disposal Underwater Training Range Crescent Harbor, Chinook Military Operations Areas A and B, R-6701, Whidbey Island, and Navy 7 Operating Area (OPAREA) are in Island County, which is in attainment of the NAAQS, as well as state and regional air quality standards, for all criteria pollutants.

Table 3.5-3 shows the most recent emissions inventory for the ACQRs within the training study area. Volatile organic compound and NO_x emissions are used to represent ozone generation because they are precursors of ozone.

Table 3.5-3: Emissions Inventory of Air Quality Control Regions within the Training Study Area (2014)

Location (Air Quality Control Region)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	CO _{2e} (Metric Tons per Year)
Olympic-Northwest Washington	26,690	124,223	156,706	7,925	11,653	8,716	3,011,155
Puget Sound	25,499	54,710	169,514	1,957	12,751	7,494	5,622,562
Study Area Total	52,189	178,933	326,220	9,882	24,404	16,210	8,633,717

Source: U.S. Environmental Protection Agency (2014)

Notes: tpy = tons per year, CO = carbon monoxide, VOC = Volatile Organic Compound, NO_x = nitrogen oxide, SO₂ = sulfur dioxide, PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter

Climate plays an important role in determining how persistent air pollutants are in a region. Rain effectively removes pollutants from the air, so consistently wet climates experience better air quality. The wettest time of year for the state of Washington is between October and March. The Pacific Coast Training Region lies on the windward slope of the Olympic Mountains, meaning that it receives large amounts of rain and snow (117 inches on average) (Western Regional Climate Center, 2016a). However, the majority of the training study area falls within the rain shadow of the Olympic Mountains. The climate of the Puget Sound area generally consists of abundant winter rains, infrequent snow, and dry summers (Sound Science Contributors & National Oceanic and Atmospheric Administration, 2012). Average annual precipitation for the Puget Sound is 45 inches per year, which is substantially less than the Pacific Coast Training Region (Western Regional Climate Center, 2016b). The Island County portion of the training study area has the least amount of precipitation with an average of 20 inches per year (Western Regional Climate Center, 2016c). In addition to rain, consistently windy areas generally promote dispersal of air pollutants and prevent accumulation. Wind not only carries pollutants away through advection, but it also breaks up sharp inversion layers that otherwise inhibit vertical dispersal of pollutants. Wind speeds and predominant wind directions in the Puget Sound area range from 0 to 13 miles per hour (mph) out of the south (22 percent of the time), northeast (16 percent of the time), and southwest (15 percent of the time), with no wind 34 percent of the time according to data taken at the Bremerton National Airport (WeatherSpark, 2016a). Whidbey Island experiences higher wind speeds than Puget Sound with typical speeds of 0 to 17 mph out of the southeast (22 percent of the time), west (20 percent of the time), east (14 percent of the time), and southwest (12 percent of the time), with no winds 15 percent of the time according to data collected at Naval Station Whidbey Island (WeatherSpark, 2016b). Winds in the Pacific Coast Training Region are taken from Western Regional

Climate Center Data at Hoquiam Airport, which describe wind speeds as being between 0 and 17 mph out of the east (20 percent of the time), west (20 percent of the time), and southwest (11 percent of the time), with no winds 22 percent of the time (WeatherSpark, 2016c).

3.5.3 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The region of influence (ROI) for assessing air quality impacts is the ACQRs in which the project is located: Puget Sound ACQR and Olympic-Northwest Washington ACQR. Estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations.

3.5.3.1 No Action Alternative

Under the No Action Alternative, training activities conducted in western Washington State over the past 30 years would continue in Region 1 of the training study area with two training blocks per year (as approved under the 2015 Northwest Training and Testing Final EIS/OEIS, 2010 Northwest Training Range Complex EIS/OEIS, and event-based Categorical Exclusions, as applicable). Training activities under the No Action Alternative include launch and recovery of the submersible or small boats; driving these vessels (including unmanned underwater vehicles) to training locations (insertion and extraction); swimming and diving; walking in the nearshore, on the beach (over-the-beach), and on land (special reconnaissance); and staying overnight (special reconnaissance).

Under the No Action Alternative, air pollution associated with the No Action Alternative originates from watercraft and ground transportation. Equipment used for training in the training study area, including boats and vehicles, is properly maintained in accordance with applicable Navy and federal CAA (e.g., 40 CFR 63 Subpart ZZZZ) requirements. Operating equipment meets federal and state emission standards, where applicable. There are no fixed sources of emissions, such as generators, contributing to emissions. All sources of pollution are considered to be mobile sources. Due to this aspect of naval special operations training and the fact that training activities occur over a large expanse of land, emissions are readily dispersed throughout the Region 1 training study area, inhibiting accumulation of pollutants in a single location. Table 3.5-4 summarizes the annual emissions associated with the No Action Alternative.

Table 3.5-4: Annual Emissions under the No Action Alternative

Equipment Type	Annual Emissions (tpy)					
	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Watercraft	33	659	1,140	2	1	1
Ground Transportation	8	1	6	0	0	0
Total	41	660	1,146	2	1	1
<i>De Minimis</i> Thresholds	100	100	100	100	100	100

Notes: tpy = tons per year, CO = carbon monoxide, VOC = Volatile Organic Compound, NO_x = nitrogen oxide, SO₂ = sulfur dioxide, PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter, UAS = unmanned aircraft system(s)

Although the total amount of criteria pollutants being emitted throughout Region 1 would exceed the *de minimis* levels for certain pollutants, the *de minimis* levels only apply to areas that are designated as

being a nonattainment or maintenance area. Additionally, the only maintenance area that is in Region 1 is in Pierce County. Under the No-Action Alternative, training would not occur in Pierce County. All other emissions would occur within nonattainment areas and would be highly dispersed across Region 1.

3.5.3.1.1 Greenhouse Gases

Implementation of the No Action Alternative contributes directly to emissions of GHGs from the combustion of fossil fuels. Training activities generate approximately 818 tons (742 metric tons) of CO₂e each year. These estimated annual GHG emissions account for 0.00001 percent of the United States' contribution to GHGs. This limited amount of emissions does not likely contribute to global warming to any discernible extent.

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to baseline air quality. Therefore, no significant impacts on air quality or air resources would occur with of the continuation of training under the No Action Alternative.

3.5.3.2 Alternative 1

Under Alternative 1, the proposed training activities would be conducted in western Washington State in Region 1 with an increased tempo above the No Action Alternative from two to four training blocks per year. Within Region 1, an individual site would be used no more than 20 times per year. The same training activities in the No Action Alternative would occur. The following training activities would be added: simulated building clearance and the training with UAS. The use of remote-operated vehicles would be included with UAVs. Building clearance activities would not have an impact on air quality. Although emissions would be produced from the use of the ScanEagle UAS, this machine consumes only around 250 grams of fuel per hour. In addition, the UAS would be used throughout the Study Area and any emissions it produces would be largely dispersed. Therefore, the negligible amount of emissions being produced by this UAS is not considered further in this air quality analysis.

Under Alternative 1, the increase in training blocks and potential training locations when compared to the No Action Alternative would be similar as presented above under the No Action Alternative. Table 3.5-5 summarizes the annual emissions associated with Alternative 1.

Table 3.5-5: Annual Emissions under Alternative 1

Equipment Type	Annual Emissions (tpy)					
	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Watercraft	48	1318	1807	2	2	2
Ground Transportation	15	1	13	0	0	0
Total	63	1,319	1,820	2	2	2
<i>De Minimis</i> Thresholds	100	100	100	100	100	100
Difference from Baseline	22	659	674	0	1	1

Notes: tpy = tons per year, CO = carbon monoxide, VOC = Volatile Organic Compound, NO_x = nitrogen oxide, SO₂ = sulfur dioxide, PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter, UAS = unmanned aircraft system(s)

Although the total amount of criteria pollutants being emitted throughout Region 1 would exceed the *de minimis* levels for certain pollutants, the *de minimis* levels only apply to areas that are designated as being a nonattainment or maintenance area. Additionally, the only maintenance area that is in Region 1

is in Pierce County. Activities that would take place within the Pierce County maintenance area would occur at the Chambers Creek Regional Wastewater Treatment Plant and in waterways within the Port of Tacoma. Only one event per year would occur at each of these locations. Events at the wastewater treatment plant would involve the use of a jet ski, three pick-up trucks, and one passenger van. Events within the Port of Tacoma would involve a jet ski and two rigid inflatable boats. In total, these two events would only produce 0.53, 0.03, 0.001 and 1.31 tons per year of VOC, NO_x, PM₁₀, and CO respectively, which is well below the *de minimis* thresholds of 100 tons for maintenance areas. All other emissions would occur within nonattainment areas and would be highly dispersed across Region 1.

3.5.3.2.1 Greenhouse Gases

Implementation of Alternative 1 would contribute directly to emissions of GHGs from the combustion of fossil fuels. Training activities would generate approximately 1755 tons (1592 metric tons) of CO₂e each year. These estimated annual GHG emissions account for 0.00002 percent of the United States' contribution to GHGs. This limited amount of emissions would not likely contribute to global warming to any discernible extent. Therefore, no significant impacts on air quality would occur with implementation of Alternative 1.

3.5.3.3 Alternative 2

Under Alternative 2, the locations, training activities, number of training blocks per year, and site usage per year are the exact same as those identified in Alternative 1 for Region 1. However, Alternative 2 adds two new training regions, Regions 2 and 3. Regions 2 and 3 would have one training block every other year with an individual site being used no more than three times every other year in each region. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and Simulated Building Clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at R6701. Also, one new proposed training activity, high-angle climbing, would occur at Deception Pass State Park in Region 3. High-angle climbing activities would not contribute to air quality impacts. Emissions from UAS use are once again dismissed for the same reasons as stated in Alternative 1 above. Table 3.5-6: summarizes the annual emissions associated with Alternative 2.

Table 3.5-6: Annual Emissions under Alternative 2

Equipment Type	Annual Emissions (tpy)					
	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Watercraft	48	1318	1807	2	2	2
Ground Transportation	16	1	13	0	0	0
Total	64	1,319	1,820	2	2	2
<i>De Minimis</i> Thresholds	100	100	100	100	100	100
Difference from Baseline	23	659	674	0	1	1

Notes: tpy = tons per year, CO = carbon monoxide, VOC = Volatile Organic Compound, NO_x = nitrogen oxide, SO₂ = sulfur dioxide, PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter, UAS = unmanned aircraft system(s)

Similar to Alternative 1, the total amount of criteria pollutants being emitted throughout Regions 1, 2, and 3 under Alternative 2 would exceed the *de minimis* levels for certain pollutants; the *de minimis* levels only apply to areas that are designated as being a nonattainment or maintenance area. The only

maintenance area is found in Region 1 at Pierce County. The same activities and tempo described in Alternative 1 would still be the only activities that occur within the maintenance area in Pierce County. As in Alternative 1, these emissions would be below the *de minimis* levels. All other emissions would occur within nonattainment areas and would be highly dispersed across Regions 1, 2, and 3.

3.5.3.3.1 Greenhouse Gases

Implementation of Alternative 2 would contribute directly to emissions of GHGs from the combustion of fossil fuels. Training activities would generate approximately 1755 tons (1592 metric tons) of CO₂e each year. These estimated annual GHG emissions account for 0.00002 percent of the United States' contribution to GHGs. This limited amount of emissions would not likely contribute to global warming to any discernible extent. Therefore, no significant impacts on air quality would occur with implementation of Alternative 2.

3.5.3.4 Alternative 3 (Preferred Alternative)

As with Alternative 2, Alternative 3 would include the same proposed training activities and areas within Regions 1, 2, and 3. The only difference is Alternative 3 would increase the training blocks in Region 1 to 6 times per year and an individual site would be used no more than 36 times. Table 3.5-7 summarizes the annual emissions associated with Alternative 3.

Table 3.5-7: Annual Emissions under Alternative 3

Equipment Type	Annual Emissions (tpy)					
	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Watercraft	69	1,977	2,475	3	2	2
Ground Transportation	24	2	19	0	0	0
Total	93	1,979	2,494	3	2	2
<i>De Minimis</i> Thresholds	100	100	100	100	100	100
Difference from Baseline	52	1,319	1,348	1	1	1

Notes: tpy = tons per year, CO = carbon monoxide, VOC = Volatile Organic Compound, NO_x = nitrogen oxide, SO₂ = sulfur dioxide, PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter

Similar to Alternative 2, the total amount of criteria pollutants being emitted throughout Regions 1, 2, and 3 under Alternative 3 would exceed the *de minimis* levels for certain pollutants; the *de minimis* levels only apply to areas that are designated as being a nonattainment or maintenance area. The only maintenance area is found in Region 1 at Pierce County. The same activities and tempo described in Alternative 2 would still be the only activities that occur within the maintenance area in Pierce County. As in Alternative 2, these emissions would be below the *de minimis* levels. Since all pollutants would fall below the *de minimis* threshold, a Record of Non-Applicability will be prepared. All other emissions would occur within nonattainment areas and would be highly dispersed across Regions 1, 2, and 3.

3.5.3.4.1 Greenhouse Gases

Implementation of Alternative 3 would contribute directly to emissions of GHGs from the combustion of fossil fuels. Training activities would generate approximately 2587 tons (2346 metric tons) of CO₂e each year. These estimated annual GHG emissions account for 0.00004 percent of the U.S. contribution to GHGs. This limited amount of emissions would not likely contribute to global warming to any discernible

extent. Therefore, no significant impacts on air quality would occur with implementation of Alternative 3.

3.6 Noise

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment. Noise in relation to biological resources and wildlife species is discussed in the Biological Resources section (Section 3.3) and noise in relation to diver safety is discussed in the Public Health and Safety section (Section 3.4). Noise is also discussed in Socioeconomics (Section 3.1) and Cultural Resources (Section 3.2).

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. Sounds that will be analyzed in this document will be based on intensity—the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB).

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual. However, the principal human response to noise is annoyance.

3.6.1 Basics of Sound and A-weighted Sound Level

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. This vast range means that using a linear scale to represent sound intensity is not feasible. The dB is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels.

Figure 3.6-1 provides a chart of A-weighted typical noise sources (Cowan, 1994). Some noise sources (e.g., air conditioner, vacuum cleaner) are continuous sounds that maintain a constant sound level for some period of time. Other sources (e.g., automobile, heavy truck) are the maximum sound produced during an event like a vehicle pass-by. Other sounds (e.g., urban daytime, urban nighttime) are averages taken over extended periods of time. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.

3.6.2 Affected Environment

3.6.2.1 Sensitive Receptors

A noise-sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some domestic animals, or certain wildlife species.

The training study area and contiguous nearshore waters (Figure 1.3-1) encompass a broad spectrum of populations and landownership types, including DoD facilities, private lands, public parks, harbors, golf courses, and recreation areas. Commercial, institutional, recreational, and military activities take place

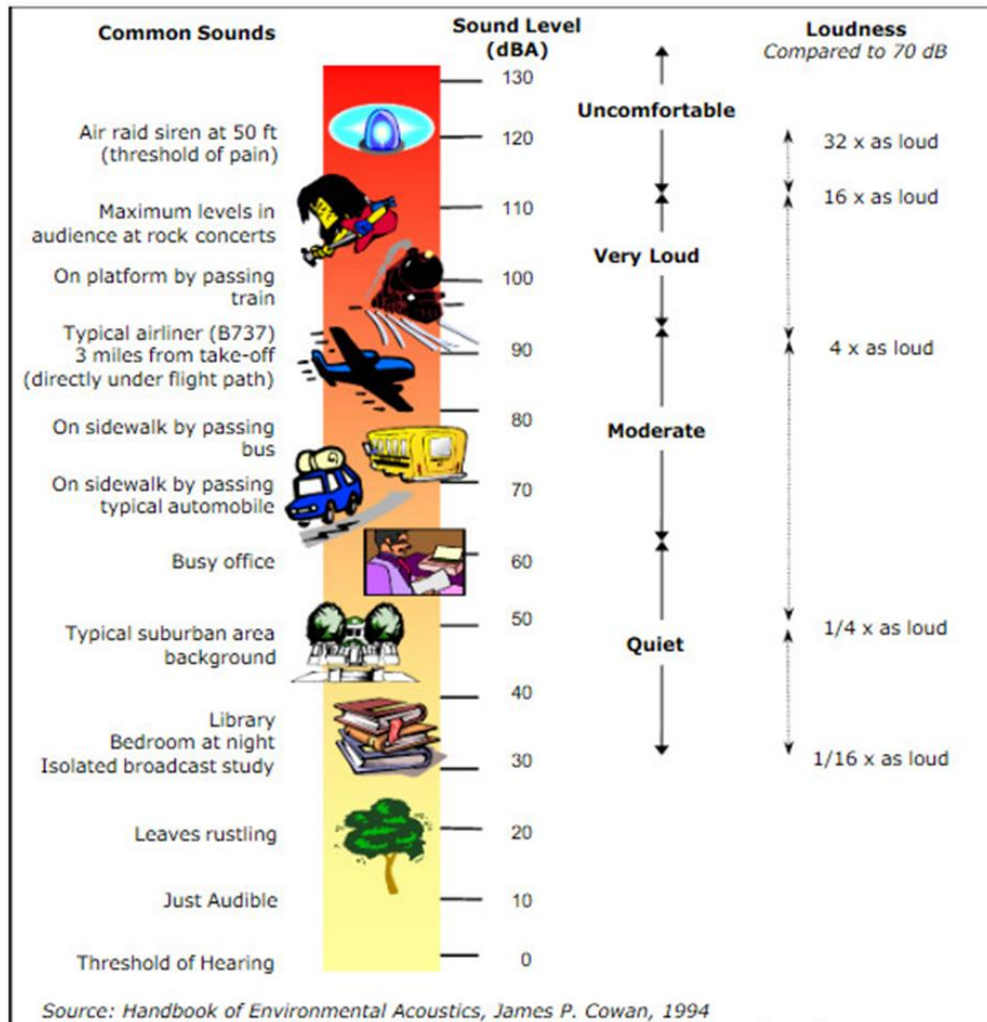


Figure 3.6-1: A-Weighted Sound Levels from Typical Sources

simultaneously within this area. The affected environment includes portions of Skagit, Island, Jefferson, Kitsap, Pierce, Clallam, Pacific, and Grays Harbor Counties.

3.6.2.2 Ambient Noise Conditions

Ambient sound levels would likely vary by location. Ambient background noise in urbanized areas typically varies from 60 to 70 dBA. Typical residential noise has been measured at 65 dBA (Cavanaugh & Tocci, 1998).

While Mt. Baker-Snoqualmie National Forest is not within the training study area, it is an appropriate surrogate for noise levels in state parks. A study on the Mt. Baker-Snoqualmie National Forest listed forested ambient levels between 52 and 60 dBA (U.S. Forest Service 1996, as cited in Washington Department of Transportation, 2013).

3.6.3 Environmental Consequences

Analysis of potential noise impacts includes estimating likely noise levels from the Proposed Action and determining potential effects to sensitive receptors. As part of the rigorous training, the trainees learn skills needed to avoid detection. It is unlikely that the general public would hear the training and, if they

did, it would be similar to a passing boat that frequents the area, or recreational UAS use.

3.6.3.1 No Action Alternative

Under the No Action Alternative, training activities conducted in western Washington State over the past 30 years would continue in Region 1 training study area with two training blocks per year as identified in Chapter 2.

Under the No Action Alternative, systems used during training activities include small submersible craft such as manned or UUVs. Vessels such as small ships or small boats are used in conjunction with training systems during certain training scenarios. The same vessels, as well as jet skis, are used for safety and training support. On land, support vehicles are on standby for safety; however, the support vehicles stay on established roads.

Sources of in-air noise include the marine support vessels and surface vehicles that accompany trainees on land, or provide transport to trainees. Airborne noise emissions were modeled for a multipurpose ship and a fishing research vessel and compared with field measurements (Badino et al., 2012). At 25 meters from the operating vessels, the modeled received noise level was approximately 60 dBA for the fisheries vessel, and 70 dBA for the multipurpose vessel. At distances of 100 meters, these received levels would drop to approximately 48 and 58 dBA, respectively, due to propagation loss. Surface support vessels would likely be at or greater than 100 m from shore during training activities. Further, vessel operation associated with training activities are intermittent, and not at a fixed position. Similarly, a jet ski typically creates received noise levels approximately 80 dBA at a distance of 20 ft. (Komanoff & Shaw, 2000). At a distance of approximately 100 ft. (30.5 m), the received noise from a jet ski would be approximately 65 dBA and, by 200 ft. (61 m), the received noise would generally be below 60 dBA, nearing typical ambient levels. As such, sensitive receptors along the shoreline and further inland would not be impacted from sounds emitting from surface vessels and is consistent with the status quo of the environment.

The main noise sources on land are not from the training activities, but from vehicles used to transport trainees via public roads or provide training support. Typical sound levels from a single diesel truck driving by is approximately 88 dBA at 50 ft. (U.S. Department of Transportation, 2006). There is minimal travel of personnel and equipment from the staging areas on federal property to the individual training sites. Personnel utilize government and public waterways and roads, and travel includes military support vehicles towing small boats as well as the movement of safety and maintenance equipment. Transportation also includes military personnel involved in the safety and training phases of the event. The noise contribution from vehicles would be intermittent. Additionally, intermittent trips by Navy vehicles on public roads would only incrementally add to the existing road noise since their contribution to the overall usage of the road would be minimal.

Independent of location, the amount of noise created by the proposed training activities would not be sufficient enough to affect community noise levels. Any disturbances would be expected to be short term and infrequent and any impacts to sensitive receptors would be minimal and short term based on the (1) relatively low intensity of the impacts, (2) localized nature of the impacts, (3) infrequent nature of the impacts, and (4) brief duration of the activities. Therefore, no significant impacts on the noise environment would occur with the continuation of training under the No Action Alternative.

3.6.3.2 Alternative 1

Under Alternative 1, proposed training activities would be conducted in western Washington State in

Region 1 and would include an increased tempo above the No Action Alternative from two to four training blocks per year. Within Region 1, an individual site would be used no more than 20 times per year. The same training activities in the No Action Alternative would occur. The following training activities would be added: simulated building clearance and training with unmanned aircraft systems.

The majority of simulate building clearance activities using simulated munitions would occur within enclosed spaces (buildings). For those activities that would occur outside, the noise generated from firing the simulated munition would be similar to that of firing an air rifle or a car door slamming and significantly less than the noise produced from firing actual live rounds.

UAS would be utilized 10 percent of the time concurrent with other water-based or land-based training activities. Small hand-held UASs and the ScanEagle (or similar type of UAS) are the most commonly used UASs during training activities. UASs are allowed in FAA designated restricted airspace (R6701) and normally operate below 2,000 feet above ground level. For reference, at a distance of 28 ft. (8.5 m), the received level from a Shadow UAS is approximately 108 dBA; at 204 ft. (62.2 m), the received level drops to 85 dBA. Once the UAS reaches approximately 3,000 ft. (914.4 m) AGL, the Shadow would no longer be heard on the ground (National Guard Bureau and U.S. Army Corps of Engineers, 2008). The hand-held UASs and the ScanEagle are designed to be quieter models than the Shadow and, thus, noise levels would be inaudible at a lower altitude than that of the Shadow, though it would be expected to be audible at operating elevations (between 65 and 85dBA depending on elevation).

Under Alternative 1, with the exception of UASs, the increase in training blocks and potential training locations when compared to the No Action Alternative would result in the same parameters and considerations as described above. Noise-generating events from proposed training activities would remain intermittent and the contribution of noise from training activities would be low. Training activities would have the same goals, requirements, and safety restrictions as the No Action Alternative. Alternative 1 would not have a substantially greater impact on the noise environment compared to the No Action Alternative. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 1.

3.6.3.3 Alternative 2

Under Alternative 2, proposed training activities would be conducted in western Washington State in Region 1 as identified in Alternative 1. In addition, under Alternative 2, Regions 2 and 3 would be added as training venues with one training block every other year. The same training activities as identified in Alternative 1 would occur under Alternative 2, with the exception that UAS and simulated building clearance training activities would not occur in Region 3. Additional UAS training would occur in Region 2 at R6701. Also, one new proposed training activity, High-Angle Climbing, would occur at Deception Pass State Park in Region 2, but the training activity is not expected to produce any additional noise.

Under Alternative 2, the increase in training blocks and potential training locations when compared to Alternative 1 would result in the same parameters and considerations as described above. Noise-generating events from proposed training activities would remain intermittent and the contribution of noise from training activities would be low. Training activities would have the same goals, requirements, and safety restrictions as Alternative 1. Alternative 2 would not have a substantially greater impact on the noise environment compared to Alternative 1. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 2.

3.6.3.4 Alternative 3 (Preferred Alternative)

Under Alternative 3, proposed training activities would be conducted in Region 1, 2, and 3 as identified in Alternative 2. In addition, under Alternative 3, there would be an increase in training tempo in Region 1 from four training blocks to six training blocks per year.

Under Alternative 3, the increase in training blocks when compared to Alternative 2 would result in the same parameters and considerations as described above. Noise-generating events from proposed training activities would remain intermittent and the contribution of noise from training activities would be low. Training activities would have the same goals, requirements, and safety restrictions as Alternative 2. Alternative 3 would not have a substantially greater impact on the noise environment compared to Alternative 2. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 3.

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3.7 Summary of Potential Impacts to Resources

Table 3.7-1 provides a summary of potential environmental consequences of the action alternatives. Below is a summary for ESA conclusions.

There is no designated critical habitat for the golden paintbrush, water howellia, marsh sandwort, and humpback whale. Additionally, the proposed training activities would not overlap with the following critical habitats: Oregon silverspot butterfly and marbled murrelet.

3.7.1 No Action Alternative

The No-Action Alternative relies upon the ESA consultations conducted under the 2015 NWTT EIS/OEIS and the 2010 NWTRC EIS/OEIS.

3.7.2 Alternative 1

3.7.2.1 ESA-Listed Species

Proposed training would have no effect on the water howellia or marsh sandwort as these species are believed to be extirpated from the training study area. Based on the analysis in Section 3.3, the proposed training activities may affect, not likely to adversely affect Puget Sound Chinook salmon, Hood Canal summer run chum salmon, Puget Sound Steelhead, Puget Sound/Georgia Basin bocaccio and yelloweye rockfishes, North American green sturgeon, bull trout, humpback whale, southern resident killer whale, and the marbled murrelet.

3.7.2.2 Critical Habitat

As described in Section 3.3, the proposed training activities would not have an effect on critical habitat in Region 1 for Puget Sound Chinook Salmon ESU, Hood Canal summer run chum, Puget Sound Steelhead, Puget Sound/Georgia Basin DPS bocaccio, yelloweye rockfish, bull trout, and southern resident killer whale because essential physical and biological features described in that section would not be modified, either temporarily or permanently.

3.7.3 Alternative 2

3.7.3.1 ESA-Listed Species

Alternative 2 species will be the same as Alternative 1. The difference is, golden paintbrush, Taylor's checkerspot butterfly, and the Oregon silverspot butterfly all occur in Region 2. Region 3 adds the western snowy plover, streaked-horned lark, leatherback sea turtle, Columbia River Chum Salmon, and the Pacific Eulachon. Proposed training would have no effect on the golden paintbrush, because known locations would be avoided. Proposed training activities would have no effect on Taylor's checkerspot butterfly and the Oregon silverspot butterfly because activities would not overlap with existing populations of those species. Based on the analysis in Section 3.3, the proposed training activities may affect the western snowy plover, streaked-horned lark, leatherback sea turtle, Columbia River Chum Salmon, and the Pacific Eulachon.

3.7.3.2 Critical Habitat

Alternative 2 critical habitat would be the same as Alternative 1. The difference is the addition of designated critical habitat for the following species: Taylor's checkerspot butterfly (only at Deception Pass State Park), western snowy plover, streaked-horned lark, Columbia River chum salmon, Pacific eulachon, North American green sturgeon, and the leatherback sea turtle. Based on the analysis in Section 3.3, the proposed training activities would not have an effect on critical habitat for these species

in Regions 1, 2, and 3 because essential physical and biological features described in that section would not be modified, either temporarily or permanently.

3.7.4 Alternative 3

3.7.4.1 ESA-listed Species and Critical Habitats

Alternative 3 species and habitats would be the same as Alternative 2. The only difference is Alternative 3 would increase the training blocks in Region 1 to six times per year and an individual site would be used no more than 36 times. Training activities associated with the proposed action are low impact and activities would occur at infrequent intervals and for a brief duration of time. Because the goal of training is for the trainees to be in the field undetected, the environment tends to be minimally disturbed and materials (e.g., gear and trash) are not left behind. In addition, identical travel routes would be rarely used; the level of foot traffic associated with each group would not wear paths in the training study area. Therefore, the increase in the number of training blocks and site usage is not expected to change the impacts, analysis, and determinations as described in Alternative 2.

Table 3.7-1: Summary of Potential Impacts on Resource Areas

Resource Area: Socioeconomics			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. The continuation of training under the No Action Alternative would not increase or decrease the regional population demographics, as personnel (up to 70) are temporarily in Western Washington for a duration of time associated with the training. Training activities do not restrict transportation and shipping patterns, commercial and recreational fishing activities, or the ability of individuals to use or access recreational activities within the training study area. Right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed. Minimization measures employed during training activities limit encounters with the public during training events. Therefore, no significant impacts to socioeconomics would occur with the continuation of training under the No Action Alternative.</p>	<p>Impacts would be similar to the No Action Alternative. The difference would be the increases in the training blocks (10/year) and individual site usage (20 times/year); addition of simulated building clearance, UASs at Navy installations, and remote operated vehicles. UASs and simulated building clearance would be used away from the public. All would have similar impacts as those described in the No Action Alternative. Minimization measures for interaction with the public would be the same as described under the No Action Alternative and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed.</p> <p>The aggregate impact on socioeconomic and recreation resources would not observably differ from current conditions, and impacts are negligible.</p> <p>Therefore, no significant impacts on socioeconomics would occur with implementation of Alternative 1.</p>	<p>Impacts would be similar to Alternative 1. The difference is the addition of training in Regions 2 and 3 (three training blocks every other year), individual site usage in Regions 2 and 3 (3 times/every other year each); and in Region 2 - UAS training at R6701 and high-angle climbing at Deception Pass State Park. All would have similar impacts as those described in Alternative 1. Minimization measures for interaction with the public would be the same as described under Alternative 1 and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed.</p> <p>The aggregate impact on socioeconomic and recreation resources would not observably differ from current conditions, and impacts are negligible.</p> <p>Therefore, no significant impacts on socioeconomics would occur with implementation of Alternative 2.</p>	<p>Impacts would be similar to Alternative 2. The difference is the increase of personnel (up to 84) and in Region 1 the training blocks (6/year) and individual site usage (36 times/year) would increase. All would have similar impacts as those described in Alternative 2. Minimization measures for interaction with the public would be the same as described under Alternative 1 and right-of-entry permits would continue to be obtained prior to conducting training in areas where consent is needed.</p> <p>The aggregate impact on socioeconomic and recreation resources would not observably differ from current conditions, and impacts are negligible.</p> <p>Therefore, no significant impacts on socioeconomics would occur with implementation of Alternative 3.</p>

Table 3.7-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Cultural Resources			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. The proposed training activities would continue to be non-invasive in nature, trainees intending to leave no trace of their presence during or after training activities.</p> <p>Where applicable, training would continue to follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with the continuation of training under the No Action Alternative.</p>	<p>The increase in proposed training blocks and locations in Region 1 would result in the same parameters, considerations, and impacts as the No Action Alternative. The proposed training would be non-invasive in nature and would follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with implementation of Alternative 1.</p>	<p>The increase in proposed training blocks and locations in Region 1, 2, and 3 would result in the same parameters, considerations, and impacts as Alternative 1. The proposed training would be non-invasive in nature and would follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with implementation of Alternative 2.</p>	<p>The increase in proposed training blocks in Region 1 would result in the same parameters, considerations, and impacts as Alternative 2. The proposed training would be non-invasive in nature and would follow protocols to minimize the potential for impacts on archeological resources, architectural resources, and traditional cultural properties.</p> <p>Therefore, no significant impacts on cultural resources would occur with implementation of Alternative 3.</p>

Table 3.7-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Biological Resources			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area.</p> <p>As described in the NWTTC EIS/OEIS, NWTRC EIS/OEIS, and Categorical Exclusion documentation, the non-invasive nature of the naval special operations training activities (no live-fire, no digging, no cutting of vegetation, no fires, no human waste, etc.) would not impact terrestrial and marine biological resources.</p> <p>Therefore, the continuation of training under the No Action Alternative may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p>	<p>Proposed training activities and the associated disturbances would have minimal effects on terrestrial and marine biological resources because of the short duration, infrequency of occurrence, and low intensity of the proposed training activities.</p> <p>The Navy has determined the training activities under Alternative 1 may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p> <p>Impacts from the activities under Alternative 1 would not result in a significant adverse effect on migratory bird populations. In accordance with BGEPA, no eagles would be taken by the proposed training activities, nor would the activities limit use of nesting locations in the future.</p> <p>No take, as defined by the MMPA, of marine mammals would occur. There would be no adverse effect on Essential Fish Habitat (EFH) under Alternative 1.</p> <p>Therefore, no significant impacts on biological resources would occur with implementation of Alternative 1.</p>	<p>The types of impacts would be the same as under Alternative 1, even with the additional biological resources present in Regions 2 and 3.</p> <p>As with Alternative 1, the Navy has determined the training activities under Alternative 2 may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p> <p>Impacts from the activities under Alternative 2 would not result in a significant adverse effect on migratory bird populations. In accordance with BGEPA, no eagles would be taken by the proposed training activities, nor would the activities limit use of nesting locations in the future.</p> <p>No take, as defined by the MMPA, of marine mammals would occur. There would be no adverse effect on EFH under Alternative 2.</p> <p>Therefore, no significant impacts on biological resources would occur with implementation of Alternative 2.</p>	<p>The types of impacts would be the same as under Alternative 2, with an increase in tempo of training activities in Region 1.</p> <p>As with Alternatives 2, Alternative 3 may affect, not likely to adversely affect ESA-listed species and a no effect for critical habitat.</p> <p>The potential impacts on MBTA-protected species, eagles protected under BGEPA, MMPA-protected marine mammals, and EFH would be the same under Alternative 3 as with Alternative 2.</p> <p>Therefore, no significant impacts on biological resources would occur with implementation of Alternative 3.</p>

Table 3.7-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Public Health and Safety			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area.</p> <p>Navy policy requires that training activities ensure the safety and health of personnel and the public. Under the No Action Alternative, trainees do not carry loaded weapons or explosives during training events. All personnel transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. Unmanned Aircraft Systems (UAS) carry non-hazardous payloads and are operated within Federal Aviation Administration (FAA) safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors are conducted in accordance with real estate agreements and approvals. A safety buffer is established around maritime training areas, and the NSWC dedicates a vehicle for emergency response during training events.</p> <p>Therefore, no significant impacts on public health and safety would occur with the continuation of training under the No Action Alternative.</p>	<p>The same safety parameters, considerations, and impacts as the No Action Alternative would take place. Navy policy requires that training activities ensure the safety and health of personnel and the public. Trainees would not carry loaded weapons or explosives during training events. All personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. UAS would carry non-hazardous payloads and be operated within FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors would be conducted in accordance with real estate agreements and approvals. A safety buffer would be established around maritime training areas, and NSWC would have a vehicle dedicated for emergency response during training events. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 1.</p>	<p>The same parameters, considerations, and impacts as Alternative 1 would take place under Alternative 2, but with the additional locations of Regions 2 and 3.</p> <p>Navy policy requires that training activities ensure the safety and health of personnel and the public. Trainees would not carry loaded weapons or explosives during training events. All personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. UAS would carry non-hazardous payloads and be operated within FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors would be conducted in accordance with real estate agreements and approvals. A safety buffer would be established around maritime training areas, and NSWC would have a vehicle dedicated for emergency response during training events. Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 2.</p> <p>Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 2.</p>	<p>The same parameters, considerations, and impacts as Alternative 2 would take place under Alternative 3, with an increased training tempo in Region 1.</p> <p>Navy policy requires that training activities ensure the safety and health of personnel and the public. Trainees would not carry loaded weapons or explosives during training events. All personnel would transit to and from training areas using existing roads, and waterways in compliance with all applicable safety regulations. UAS would carry non-hazardous payloads and be operated within FAA safety regulations and the Department of Defense's memorandum of agreement with the FAA.</p> <p>All training events on land areas and within state-owned harbors would be conducted in accordance with real estate agreements and approvals. A safety buffer would be established around maritime training areas, and NSWC would have a vehicle dedicated for emergency response during training events.</p> <p>Therefore, no significant impacts on public health and safety would occur with implementation of Alternative 3.</p>

Table 3.7-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Air Quality			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would be below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality would occur with the continuation of training under the No Action Alternative.</p>	<p>The same considerations and impacts as the No Action Alternative would take place. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would be below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality or air resources would occur with implementation of Alternative 1.</p>	<p>Alternative 2 would be the same as Alternative 1, with emissions dispersed throughout Regions 1, 2 and 3. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would remain below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality or air resources would occur with implementation of Alternative 2.</p>	<p>Alternative 3 would be the same as Alternative 2, with an increase in emissions due to the increased tempo of training in Region 1. Watercraft, ground transportation vehicles, and training equipment associated with proposed training activities would generate emissions; however, the levels would remain below <i>de minimis</i> thresholds. In addition, the dispersive nature of the project would prevent pollutants from concentrating in a single location. Therefore, no significant impacts on air quality or air resources would occur with implementation of Alternative 3.</p>

Table 3.7-1: Summary of Potential Impacts on Resource Areas (continued)

Resource Area: Noise			
No Action Alternative	Alternative 1	Alternative 2	Alternative 3
<p>Training activities conducted in western Washington State over the past 30 years would continue in the Region 1 training study area. Training events would continue to be performed with the training objective that the activities be undetected. Independent of location, the amount of noise created by these activities would likely be similar to ambient noise levels or, if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts on the noise environment would occur with continuation of training under the No Action Alternative.</p>	<p>The increase in tempo and location proposed in Region 1 under Alternative 1 would result in the same parameters, consideration and impacts as presented under the No Action Alternative. The amount of noise created would be similar to ambient noise levels, or if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts to the noise environment would occur with implementation of Alternative 1.</p>	<p>The increase in tempo and location proposed in Regions 1, 2, and 3 under Alternative 2 would result in the same parameters, considerations, and impacts as Alternative 1. The amount of noise created would be similar to ambient noise levels, or if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 2.</p>	<p>The increase in tempo proposed in Regions 1 under Alternative 3 would result in the same parameters, considerations, and impacts as Alternative 2. The amount of noise created would be similar to ambient noise levels, or if above ambient, similar to a general public user of the area and not sufficient enough to affect the community noise levels. Therefore, no significant impacts on the noise environment would occur with implementation of Alternative 3.</p>

Notes: BGEPA = Bald and Golden Eagle Protection Act, EFH =Essential Fish Habitat, ESA = Endangered Species Act, FAA = Federal Aviation Administration; MBTA=Migratory Bird Treaty Act, MMPA=Marine Mammal Protection Act, NWTT EIS/OEIS=Northwest Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement, NWTRC=Northwest Training Range Complex, UAS = Unmanned Aircraft System, U.S. = United States

4 Cumulative Impacts

This chapter (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 Code of Federal Regulations section 1508.7 as “the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and United States (U.S.) Environmental Protection Agency have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (Council on Environmental Quality, 2005) and Consideration of Cumulative Impacts in Environmental Protection Agency Review of NEPA Documents (U.S. Environmental Protection Agency, 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (1997) states that cumulative impact analyses should

“...determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts...[and]...focus on truly meaningful impacts.”

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this Environmental Assessment (EA), the training study area delimits the geographic extent of the cumulative impacts analysis. In general, the training study area will include those areas previously identified in Chapter 3 (Affected Environment and Environmental Consequences) for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of “reasonably foreseeable” to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for Environmental Impact Statements (EISs) and EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (Council on Environmental Quality, 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed in Table 4-1 and briefly described in the following subsections.

Table 4-1: Cumulative Action Evaluation

Project	Project Description	Project Timeframe		
		Past	Present	Future
Electronic Attack Squadron Expeditionary Wing	The Navy retained 3 expeditionary squadrons that operated Prowlers, and their transition to Growler, in addition to relocating a reserve squadron to Naval Air Station (NAS) Whidbey Island.	X	X	X
Encroachment Protection Partnering Agreement Transactions-Hood Canal	Under the Readiness and Environmental Protection Integration Program, the Navy has established a multi-year agreement with The Trust for Public Lands, Washington Department of Natural Resources and Jefferson Land Trust. To date, the Navy and its partners have purchased protective easements on 5,149 ac. of upland and shoreline properties around Hood Canal including protection of approximately two miles of the riparian corridor along the Dosewallips River. These areas provide protection for designated critical habitat for Endangered Species Act (ESA)-listed salmonid species. Additional Readiness and Environmental Protection Initiative transactions are underway within the agreement area around Hood Canal.	X	X	X
Hood Canal Bedlands Encroachment Protection Easement	The Navy and Washington Department of Natural Resources signed a restrictive easement that covers 4,804 acres (ac.) of aquatic land on July 7, 2014, and precludes construction in the easement area. It does not affect public access, privately owned lands, recreational uses, aquaculture, or geoduck harvest. All 4,804 ac. overlays designated critical habitat for ESA-listed salmonid species. The restrictive easement area also protects large tracts of wild stock geoduck and extensive Eelgrass habitat. The easement will protect the area for 55 years. The Department of Natural Resources will continue to manage the land under its aquatic lands program	X	X	X
Hood Canal Coordinating Council (HCCC) Projects	The HCCC is a council of governments formed in 1985 in response to community concerns about water quality problems and related natural resource issues in the Hood Canal watershed. Completed, ongoing and future projects include salmon recovery efforts, habitat enhancement and restoration, water quality protection, and climate adaptation.	X	X	X
Hood Canal In-Lieu Fee Mitigation Program	The Hood Canal In-Lieu Fee Mitigation Program is a voluntary program sponsored by the HCCC, where entities can purchase mitigation credits to offset unavoidable adverse impacts to aquatic resources within the Hood Canal watershed. The service area is divided into two components for the In-Lieu Fee Program: Freshwater Environment, which generally includes areas landward of the marine riparian zone including freshwater and estuarine wetlands and streams up to and excluding any National Park or National Forest Lands; and Marine/Nearshore Environment, which extends from the marine riparian area at the top of the coastal bluffs to the adjacent aquatic intertidal and subtidal zones. The mitigation strategy selected for each permitted impact will be based on an assessment of type and degree of disturbance to the landscape or drift cell.	X	X	X

Table 4-1: Cumulative Action Evaluation (continued)

Project	Project Description	Project Timeframe		
		Past	Present	Future
Integrated Natural Resources Management Plan (INRMP), Manchester Fuel Department	The revised INRMP would update existing INRMP that is consistent with the military use of the property and would meet the goals and objectives established in the Sikes Act Improvement Act. The INRMP would implement an ecosystem-based conservation program.	X	X	X
INRMP, NAS Whidbey Island	The Navy adopted and is implementing a revised INRMP in a manner that is consistent with the military use of the property to ensure no net loss of military capabilities and meet the goals and objectives established in the Sikes Act Improvement Act. The INRMP implements an ecosystem-based conservation program.	X	X	X
INRMP, Naval Magazine (NAVMAG) Indian Island	The revised INRMP would update existing INRMP that is consistent with the military use of the property and would meet the goals and objectives established in the Sikes Act Improvement Act. The INRMP would implement an ecosystem-based conservation program.	X	X	X
Northwest Training and Testing (NWTT)	The Navy's Proposed Action is to conduct training and testing activities primarily within existing range complexes, including the NWTRC, operating areas, testing ranges, and select Navy pier side locations in the Pacific Northwest. Two types of naval special warfare training were included in the analysis: (1) personnel insertion/extraction using submersibles; and (2) personnel insertion/extraction non-submersibles using rotary wing aircraft, fixed-wing aircraft, or small boats. On land training was not included in the document.	X	X	X
Olympic View Marina	In January 2010, Olympic View Marina, LLC began replacing the abandoned Seabeck Marina located on Seabeck Bay approximately 7 miles (mi.) south of Naval Base (NAVBASE) Kitsap Bangor on the east side of Hood Canal. Removal of concrete debris from the beach was completed in October 2010. A 600-ft. breakwater was installed in 2014. Additional moorage slips may be added as demand increases.	X	X	X

Table 4-1: Cumulative Action Evaluation (continued)

Project	Project Description	Project Timeframe		
		Past	Present	Future
P-8A Multi-Mission Aircraft Supplemental EIS	The Navy decided in 2008 to provide facilities and functions to support homebasing twelve P-8A Multi Mission Maritime Aircraft (MMA) squadrons and one Fleet Replacement Squadron into the U.S. Navy Fleet. The introduction of the MMA squadrons in the U.S. Navy Fleet was analyzed in an EIS. Since the completion of the original EIS, the Navy prepared a Supplemental EIS. The change in aircraft stationed at NAS Whidbey Island has been incorporated into the Action. Informal consultation with the U.S. Fish and Wildlife Service in accordance with section 7(a)(2) of the ESA for the proposed action concluded with a letter of concurrence from the U.S. Fish and Wildlife Service on May 13, 2013. The Record of Decision (ROD) was signed in June 2014, and the transition to the P-8A aircraft is currently underway. Based on the ROD, there will be an overall increase of 18 aircraft at the base by 2020.	X	X	X
Port Gamble Bay Cleanup	The Port Gamble Bay and Mill Site consists of the fill on which the former sawmill was located, the adjacent uplands and most of Port Gamble Bay. Historical operations on this property resulted in the release of pollutants from wood waste and pilings. Some of these contaminants have been found in soil surrounding the mill and in sediments and shellfish tissue in Port Gamble Bay. The Port Gamble Bay cleanup is complete (Sullivan, 2017). Cleanup construction in the bay began in September 2015 and was completed in January 2017. Within the first year, cleanup crews: removed 3,312 pilings; excavated 19,098 cubic yards of intertidal sediments; dredged 22,360 cubic yards; removed and recycled 3,063 tons of steel, concrete and other debris; delivered 69,051 tons of clean capping and habitat materials. Also underway are efforts to improve marine and shoreline habitat and restore native species such as oysters.	X		
Replacement of EA-18G Aircraft at NAS Whidbey Island	The Navy analyzed the replacement of Prowler (EA-6B) aircraft with Growler (EA-18G) aircraft, including the dis-establishment of three expeditionary squadrons. Existing facilities and functions were modified to accommodate the replacement airframe. Additionally, implementation of replacement resulted in a decrease in the number of aircraft and personnel associated with the Airborne Electronic Attack squadrons and a reduction in flight training operations.	X	X	X
Swimmer Interdiction Security System In-water Structure and Support Facilities, NAVBASE Kitsap Bangor	The Navy has implemented a Swimmer Interdiction Security System to meet special U.S. Government security requirements for military installations in response to the terrorist attacks of September 11, 2001. The system protects waterside Navy assets and sailors, and would remain in operation as long as valuable naval assets were located on NAVBASE Kitsap Bangor. Specially trained marine mammals and their human handlers respond rapidly to security alerts by detecting, classifying, and marking the location of underwater objects or intruders. Humans work aboard small power boats, and marine mammals would be in enclosures.	X	X	X

Table 4-1: Cumulative Action Evaluation (continued)

Project	Project Description	Project Timeframe		
		Past	Present	Future
TRIDENT Second Explosives Handling Wharf (EHW-2)	Construction and operation of a second EHW adjacent to the existing EHW would include an operations support building and facility support equipment such as heavy duty cranes, power utility booms, six lightning protection towers, and camels. Pile supported entrance and exit trestles connecting the wharf to shore were constructed. In-water construction began in 2012 and concluded in 2015; other construction is ongoing. To compensate for unavoidable impacts on aquatic resources and ensure no net loss of these resources, the Navy purchased credits from the Hood Canal in-Lieu Fee Program, revegetated laydown areas, funded research studies, and funded improvements to fish hatcheries and beach substrate. In addition, the Navy funded acquisition and preservation of upland habitat at Port Gamble.	X	X	X
USCG Training	The USCG conducts training throughout the Study Area. The District 13 Coast Guard unit is located in the Pacific Northwest along the coasts of Oregon and Washington. District 13 conducts the same operational duties as the units in District 11 and covers more than 460,000 square miles of the Pacific Ocean.	X	X	X
INRMP, NAVBASE Kitsap	The INRMP would combine and update existing individual natural resource management plans for NAVBASE Kitsap properties in Washington State into a comprehensive, coordinated INRMP that is consistent with the military use of the property and would meet the goals and objectives established in the Sikes Act Improvement Act. The INRMP would implement an ecosystem-based conservation program.		X	X
Land-Water Interface, NAVBASE Kitsap Bangor	The objective is to provide security upgrades for the Naval Restricted Area by constructing two Land-Water Interface barriers, which would connect both ends of the onshore Restricted Area enclave to the existing floating barriers. The Land-Water Interface barriers would extend from the high water mark to the terminations of the Port Security Barriers. Construction would occur from August 2016 to August 2018.		X	X
Pleasant Harbor Marina and Golf Resort	The Statesman Group of Companies is upgrading facilities and constructing a new master planned development at Pleasant Harbor south of Brinnon. The project would be located on the west side of Hood Canal approximately 9 mi. southwest of NAVBASE Kitsap Bangor. An existing 300-slip boat marina has been refurbished and resort facilities have been developed including parking lots, retail, and paved roads (Jefferson County Department of Community Development, 2015). The 256-acre development, when complete, would include resort housing, a hotel, a restaurant, a spa, a clubhouse, a 9-hole golf course and 3-hole practice course, and other resort-type facilities.		X	X

Table 4-1: Cumulative Action Evaluation (continued)

Project	Project Description	Project Timeframe		
		Past	Present	Future
Bangor Transit Protection Program Pier and Support Facilities, NAVBASE Kitsap Bangor	This project consists of a new floating pier with finger piers, connected to the shore by a trestle and ramp. Total overwater area is approximately 1.6 acres. On-land facilities would include a new operations and headquarters building with a footprint of 9,000 ft. ² , and parking lots totaling 22,000 ft. ²			X
Construct Magazines, NAVMAG Indian Island	The project would construct three new magazines and demolish several existing magazines.			X
EA-18G Growler Airfield Operations	The Navy is proposing to continue and increase the existing electronic attack squadron (VAQ) operations at NAS Whidbey Island's Ault Field and Outlying Field Coupeville; increase VAQ capabilities and augment the training squadron by adding up to 36 aircraft to support an expanded Department of Defense mission for identifying, tracking, and targeting in a complex electronic warfare environment; construct and renovate facilities at Ault Field to accommodate additional aircraft; and station additional personnel at, and relocate family members to, NAS Whidbey Island and the surrounding community.			X
Electromagnetic Measurement Range, NAVBASE Kitsap Bangor	The proposed Electromagnetic Measurement Range Sensor System equipment project includes installation of sensor equipment, including an underwater instrument array, data/power cables, a pile-supported platform, an in-water navigation aid, and an upland monitoring system.			X
Manchester Fuel Tank Replacement, Manchester Fuel Department.	The Navy is proposing to construct six new 125,000 barrel (5.25 million gallons) aboveground storage tanks that will replace 1940s and 1950s vintage field constructed underground storage tanks (UST). Up to 34 of the existing field constructed USTs will be permanently closed in place by filling with inert material in accordance with Washington State UST Regulations.			X
Marine Structure Maintenance and Pile Replacement Activities, Navy Region Northwest	This project will cover repair, maintenance, and replacement of piles during projects at Navy Region Northwest installations for 2018–2022.			X

Table 4-1: Cumulative Action Evaluation (continued)

Project	Project Description	Project Timeframe		
		Past	Present	Future
Port Gamble Dock	The Olympic Property Group has applied for a permit for a dock at a former mill site in Port Gamble. The proposed dock would be 365 ft. (111 m) in length with an area of about 4,800 ft. ² (446 square meters), and would include an abutment, pier, truss, and gangway, as well as a primary float, seaplane float, and kayak launching float. The dock would accommodate up to nine boats.			X
Port Gamble Sewage Treatment Plant	The old treatment plant discharges its effluent into Hood Canal and would be replaced with a new treatment plant that discharges to groundwater through an upland drain field. The new plant would have a membrane bioreactor, a type of filtering system capable of producing effluent close to the quality of drinking water. The new plant would treat up to 100,000 gallons of sewage per day and would be built and operated by Kitsap Public Utility District.			X
Service Pier Extension, NAVBASE Kitsap Bangor	Construction of an extension to the Service Pier (33,000 ft. ²), a new Pier Services and Compressor Building (2,100 ft. ²) on the existing pier, upland Maintenance Support Facility (50,000 ft. ²), and an approximately 420-car parking lot with associated outdoor storage (4,000 ft. ²).			X
Supplement to the NWTT EIS/OEIS	The Supplement to the Final 2015 NWTT EIS/OEIS's Proposed Action is to conduct at-sea training and testing activities within the Study Area. To achieve and maintain military readiness, the Navy proposes to conduct at-sea training and testing activities at levels required to support military readiness requirements beyond 2020; and accommodate evolving mission requirements, including those resulting from the development, testing, and introduction of new vessels, aircraft, and weapons systems into the fleet.			X

Notes: EIS = Environmental Impact Statement

4.3.1 Other Ongoing Activities

4.3.1.1 Coastal and Marine Spatial Planning

Coastal and Marine Spatial Planning is a comprehensive, transparent, adaptive, and science-based process to analyze and allocate the spatial and temporal distribution of human activities in marine areas. In 2009, President Obama signed a memorandum establishing the Interagency Ocean Policy Task Force; in 2010, the task force released a set of final recommendations known as the National Policy for the Stewardship of Our Oceans, Coasts, and Great Lakes. The policy adopted an ecosystem-based approach to management and an overarching framework of regional-scale coastal marine special planning. In the Pacific Northwest, efforts in coastal and marine spatial planning include the creation of the West Coast Governor's Agreement in 2006 to cohesively manage and protect the West Coast's ocean and coastal resources. Specific projects include the updating of the Territorial Sea Plan and the passing of a law in Washington to create a state Marine Spatial Planning plan.

Current projects in Washington State include the Baseline Characterization of Coastal and Ocean Recreational Use Patterns and Mapping Marine Mammals and Identifying Ecologically Important Areas. The Recreational Use Patterns project is being launched by the Surfrider Foundation and is an Internet

survey for coastal and ocean recreational users to summarize the intensity with which certain coastal areas are used for recreational activities, and the specific recreational activities they participate in along the Washington coast. The Washington Department of Fish and Wildlife is continuing a forage fish survey along the Washington coast, creating a bird and mammal geodatabase while conducting marine mammal aerial surveys, and using existing data to identify Ecologically Important Areas off of the Washington Coast for the Mapping Project.

4.3.1.2 Coastal Land Development and Tourism

Coastal land development adjacent to the training study area is both intensive and extensive. Development has impacted and continues to impact coastal resources through point and nonpoint source pollution; concentrated recreational use; and intensive ship traffic using major port facilities. Coastal development also includes extensive coastal tourism development (hotels, resorts, restaurants, food industry, residential homes, etc.) and the infrastructure supporting coastal development (retail businesses, marinas, fishing tackle stores, dive shops, fishing piers, recreational boating harbors, beaches, recreational fishing facilities, etc.). Increased population densities as a result of this development creates a more difficult environment to conduct undected training. Coastal development intensifies use of coastal resources, resulting in potential impacts on water quality, marine habitat, and air quality. Coastal development is therefore closely regulated by Washington through the Coastal Zone Management Act.

In 2015, visitors to Washington spent \$20.7 billion, which was an increase of 5.4 percent over 2014 (Washington Tourism Alliance, 2016). Washington attracts tourists through water trails, the Cascadia Marine Trail, and other ocean tourism ventures that are based on conservation, environmental impact, visitor management, and community relations and education (Labor, 1999). Rapid expansion of tourism could increase pressure for additional coastal and urban development which would result in potential indirect and cumulative effects on marine resources (Harriott, 2002). The Marine Institute found that the issues relating to tourism included visitor pressures on coastal ecology; carrying capacity; information gap (i.e., insufficient data to assess impacts of tourism); anthropogenic impacts (i.e., displacement of seabirds, habitat and roosting opportunities, conflicts with users and wildlife, altering food sources); threats to ecology; development pressure; infrastructural support; user conflicts; and motorized crafts (Connolly et al., 2001).

4.3.1.3 Commercial and Recreational Fishing

Commercial and recreational fishing constitutes an important and widespread use of the southwestern coast of Washington and Puget Sound. Fishing can adversely affect fish populations, other species, and habitats. Potential impacts of fishing include overfishing of targeted species, bycatch, entanglement, and habitat destruction, all of which negatively affect fish stocks and other marine resources. Bycatch is the capture of fish, marine mammals, sea turtles, seabirds, and other nontargeted species that occur incidentally to normal fishing operations. Use of mobile fishing gear such as bottom trawls disturbs the seafloor and reduces habitat structural complexity. Indirect impacts of trawls include increased turbidity, alteration of surface sediment, removal of prey (leading to declines in predator abundance), removal of predators, ghost fishing (i.e., lost fishing gear continuing to ensnare fish and other marine animals), habitat destruction, and the generation of marine debris. Lost gill nets, purse seines, and long-lines may foul and disrupt bottom habitats and have the potential to entangle or be ingested by marine animals.

4.3.1.4 Maritime Traffic

Portions of the training study area are heavily traveled by commercial, recreational, and government marine vessels, with several commercial ports occurring near the training study area. Several U.S. Navy harbors are located in the Puget Sound: Naval Station Everett, Naval Base (NAVBASE) Kitsap Bremerton, NAVBASE Kitsap Bangor, Naval Undersea Warfare Center Keyport, and Naval Magazine Indian Island. Maritime traffic on the Puget Sound is heavy, many large commercial vessels use the Ports of Everett, Seattle, Tacoma, and others in the area, and they enter and depart Puget Sound each day. Additional traffic on the Sound is created by the frequent runs of large Washington State vehicle and passenger ferries as they cross the Sound on generally east-west traffic routes that are perpendicular to normal inbound and outbound maritime traffic channels. Additionally, many recreational and commercial small craft operate throughout the Puget Sound and adjacent waters.

Ocean shipping is a significant component of the regional economy. Washington State handles 7 percent of the country's exports and 6 percent of its imports. Container vessels made the most calls at the Port of Seattle, accounting for 64 percent, while 28 percent of the calls were by dry-bulk ships. Seattle and Tacoma were ranked 7th and 11th, respectively, among U.S. ports for total cargo imported and exported in 2011. Taken together, these two ports make up the nation's fourth-largest container load center in the United States (American Association of Port Authorities, 2012). The United States has grown increasingly dependent on international trade over the past 50 years. Section 3.1 (Socioeconomics) provides additional information for marine vessel traffic in the training study area. Primary concerns for the cumulative impacts analysis include vessels striking marine mammals and sea turtles, introduction of non-native species through hull fouling and ballast water, and underwater sound from ships and other vessels.

4.3.1.5 Ocean Pollution

Pollution is the introduction of harmful contaminants that are outside the norm for a given ecosystem. Ocean pollution has and will continue to have serious impacts on marine ecosystem. Common ocean pollutants include toxic compounds such as metals, pesticides, and other organic chemicals; excess nutrients from fertilizers and sewage; detergents; oil; plastics; and other solids. Pollutants enter oceans from non-point sources (i.e., storm water runoff from watersheds), point sources (i.e., wastewater treatment plant discharges), other land-based sources (i.e., windblown debris), spills, dumping, vessels, and atmospheric deposition. In the Puget Sound, specific pollution problems include polluted stormwater runoff, fossil fuel transport, agricultural pollution, vessel pollution, marine debris, toxic clean up of historic sites, and wastewater pollution (Puget Soundkeeper, 2018). On the Washington Coast, oil pollution remains a risk as billions of liters of oil are transported off the coast yearly. The most visible impacts of oil pollution are oiled shores and wildlife, but oil spills also result in mortality of a great number of coastal seabirds in the affected area. Pollution and biotoxin levels are monitored for fish and shellfish harvests on the Southwestern Washington Coast (Skewgar & Pearson, 2011).

4.3.1.6 Academic Research

Wide-scale academic research is conducted in the region of influence by federal entities, such as both the Navy and National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NMFS), as well as state and private entities and other partnerships, such as the Northwest Association of Networked Ocean Observing Systems.

Although academic research aims to capture data without disturbing the ambient conditions of the ocean environment, vessels contribute traffic, noise, and strike hazard; seismic activity contributes

noise; and various other collection methods, such as trawling, could be disruptive to the ecosystems under observation. Impacts from academic research operations can be similar to the impacts expected from oil and gas air gun survey activities.

4.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Chapter 3 (Affected Environment and Environmental Consequences), which was used to determine potential impacts on the various resources analyzed in this document, was also used to determine cumulative impacts.

4.4.1 Socioeconomics

4.4.1.1 Description of Geographic Study Area

The region of influence (ROI) for socioeconomics includes the training study area and characteristics of socioeconomic resources found in and around it.

4.4.1.2 Relevant Past, Present, and Future Actions

Actions that may interact with the affected socioeconomic resource areas of the training study area include present and foreseeably future actions such as the Northwest Training and Testing (NWTT) EIS/Overseas EIS (OEIS) and Supplemental EIS/OEIS, Hood Canal In-Lieu Fee Mitigation Program, P-8A Multi-Mission Aircraft and EA-18G Growler home basing, coastal land development and tourism, commercial and recreational fishing, and maritime traffic.

4.4.1.3 Cumulative Impact Analysis

Cumulative socioeconomic impacts from past, present, and future actions within the ROI would be less than significant because training activities that result from the Proposed Action's aggregate impact on socioeconomic resources would not be observably different from existing conditions and impacts would be negligible. When analyzed with present and future actions, impacts to socioeconomics from construction activities and temporary duty assignment of a small number of personnel would have negligible impacts on the socioeconomic resources in the ROI. Therefore, implementation of the Proposed Action, combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

4.4.2 Cultural Resources

4.4.2.1 Description of Geographic Study Area

The ROI for cultural resources is the Area of Potential Effect, which consists of the terrestrial portions of the training study area and submerged wrecks.

4.4.2.2 Relevant Past, Present, and Future Actions

Actions that are relevant to the cumulative impacts on cultural resources in the ROI include the NWTT EIS/OEIS and Supplemental EIS/OEIS, Waterfront Restricted Area Land-Water Interface at NAVBASE Kitsap Bangor, the Waterfront Restricted Area Service Pier Extension at NAVBASE Kitsap Bangor, the Marine Structure Maintenance and Pile Replacement Activities, and coastal land development and tourism.

4.4.2.3 Cumulative Impact Analysis

Cumulative impacts on cultural resources from past, present, and future actions within the ROI would be less than significant because cultural resources are avoided as standard protocol for all actions in the ROI. The Proposed Action does not involve construction, digging, or other practices that would affect cultural resources. If there was an unintentional discovery of new cultural resources, the Navy would reinitiate the section 106 process. If, in the process of meeting Section 106 procedures, it is determined that the items discovered fall under the Native American Graves Protection and Repatriation Act, then the Navy would follow the necessary procedures to meet its Native American Graves Protection and Repatriation Act responsibilities. Therefore, implementation of the proposed training activities under Alternative 1, Alternative 2, or Alternative 3, combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

4.4.3 Biological Resources

4.4.3.1 Description of Geographic Study Area

The ROI for biological resources contains both the terrestrial and marine portions of the training study area.

4.4.3.2 Relevant Past, Present, and Future Actions

Actions that are relevant to the cumulative impacts on biological resources in the ROI include NWTTEIS/OEIS and Supplemental EIS/OEIS, which includes U.S. Coast Guard (USCG) activities Swimmer Interdiction Security System EIS, NAVBASE Kitsap Bangor, construction and maintenance projects such as Pile Replacement Activities, Waterfront Restricted Area Land-Water Interface, NAVBASE Kitsap Bangor, Waterfront Restricted Area Service Pier Extension, NAVBASE Kitsap Bangor, homebasing activities such as the Proposed Action for the EA-18G Growler Airfield Operations Environmental Impact Statement, and P-8A MMA Supplemental EIS. Other relevant actions include coastal and marine spatial planning, coastal land development and tourism, commercial and recreational fishing, maritime traffic, and ocean pollution.

4.4.3.3 Cumulative Impact Analysis

Impacts from actions listed in Section 4.4.3.2 (Relevant Past, Present, and Future Actions) on biological resources are discussed in this section. Biological resources analyzed in Section 3.3 (Biological Resources) include terrestrial and aquatic biological resources within the training study area, along with species protected under federal and state regulatory frameworks. Projects that may potentially impact biological resources analyzed in this EA are summarized below. Where appropriate, the Navy is consulting or has consulted on Endangered Species Act (ESA)-listed species and critical habitats pursuant to Section 7(a)(2) of the ESA.

The NWTTEIS/OEIS and Supplemental EIS/OEIS covers training and testing activities in the Offshore area of Washington State and Oregon, as well as the Inland Waters in the Puget Sound and activities at the Southeast Alaska Acoustic Measurement Facility in Alaska. These activities are ongoing and proposed to occur into the foreseeable future and include acoustic (i.e., sonar and explosives) and in-water physical disturbance and strike stressors, entanglement stressors, ingestion stressors, and secondary stressors. These stressors could impact biological resources in the ROI. The Navy has consulted and coordinated with NMFS and the U.S. Fish and Wildlife Service regarding the Proposed Action for the EIS/OEIS and Supplemental EIS/OEIS and biological resources. The Navy has a Letter of Authorization and will need to obtain another Letter of Authorization from the NMFS for takes of marine mammals under the Marine

Mammal Protection Act (MMPA) as a result of the training and testing activities in the NWTT EIS/OEIS and Supplemental EIS/OEIS. The Navy's standard operating procedures, minimization measures, and mitigation measures resulting from these consultations reduce impacts to biological resources in the ROI to the maximum extent practicable.

USCG training activities contribute vessel noise and could result in collisions with marine mammals and sea turtles. Sonar detection systems could have impacts on marine mammals, including toothed whales and pinnipeds, but only short-term, minor, adverse effects would be expected as the high frequency is not unlike common commercial fish finder systems. As such, the underwater sound from the Proposed Action would not be contributing to the overall sound in the ocean or Puget Sound.

Construction activities associated with the Land-Water Interface, NAVBASE Kitsap Bangor action include in-water and upland construction activities that are anticipated to take two years. No pile driving would be required. This activity could also impact other marine biological resources in the training study area including species that are listed under the ESA. The Service Pier Extension, NAVBASE Kitsap Bangor would also include construction on both the water and the land, including pile driving which would require an IHA under the MMPA.

Under the Marine Structure Maintenance and Pile Replacement Activities Program, the Navy plans to repair or replace structurally unsound piles at various Navy Region Northwest installations over a five-year period beginning in 2018. These activities would require pile driving or removal and the Navy has applied for a letter of authorization under the MMPA.

The homebasing of twelve P-8A MMA squadrons and one fleet replacement squadron at NAS Whidbey Island would have no significant impact to biological resources in the training study area. The homebasing action for the EA-18G Growler Airfield Operations would increase noise in the terrestrial environment. However, these increases would be short-term, intermittent, and would not cause long-term impacts.

Proper siting and design and other mitigation measures would minimize potential impacts on coastal sediment transport processes, marine navigation, commercial shipping, fishing activities, seafloor habitats, marine mammals, sea turtles, areas of special concern, archaeological sites, and U.S. Department of Defense training and exercise activities.

Recreational fishing includes impacts from vessel traffic (strike, noise, water pollution, marine debris) and can compound impacts on fish stocks already experiencing exploitation. Commercial fishing can adversely affect fish populations, non-target species, and habitats. Bycatch includes the unintentional capture of fish, marine mammals, sea turtles, seabirds, and other non-targeted species that occur incidental to normal fishing operations. Primary environmental concerns regarding increased maritime traffic include vessels striking marine mammals and sea turtles, introduction of non-native species through ballast water, and underwater sound from ships and other vessels. Coastal development intensifies use of coastal resources through dune and nearshore habitat loss and disturbance, point and nonpoint source water pollution, entrainment in outflows and other structures, and air quality degradation. Tourism has the potential to impact marine biological resources, for example, collisions between whale watching ships and whales are common.

Training activities, under the Proposed Action, would be in compliance with existing installation management plans that restrict aircraft operations to certain times of year and certain locations. Training activities that would occur on state park lands would be in compliance with state park management plans. These plans identify special conservation and heritage areas where special

ecological resources occur (e.g., special plant communities, bald eagle nests, species reintroduction sites). Training would not occur in special conservation and heritage areas identified in state park management plans or sensitive areas identified through coordination with the Washington State Parks Commission. For these reasons, long-term consequences to individuals or populations of wildlife species in the terrestrial environment are not expected to result from the activities. Therefore, there would be no significant impact to terrestrial biological resources including birds and vegetation.

Marine species would likely respond to the physical presence of trainees by temporarily stopping normal activities (e.g., feeding, resting) to move away from the activity. This type of impact is anticipated to be short-term (where normal activities would resume after training events cease or move through the area) and minor (minor behavioral changes). Potential effects to the species overall would be insignificant, as effects on individuals would be temporary and effects to habitat discountable because of the stealthy nature (i.e., leave no trace) of the training activities. Movement of watercraft in the training area of Puget Sound could possibly disturb listed marine mammals and fish, but that is not likely due to the short lengths of the trainings and the low disturbance of the training watercraft relative to other watercraft disturbances in the vicinity.

Because of the low impact nature of Naval Surface Warfare Center training activities, would not cause a measureable impact to the biological resources when added to the other projects discussed in this section. For that reason, Naval Surface Warfare Center proposed training activities would not cumulatively add to the overall impact on species and habitats within the training study area.

Cumulative biological resource impacts from past, present, and future actions within the ROI would be less than significant because of the reasons stated in the paragraphs above. Therefore, implementation of the Proposed Action, combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

Cumulative biological resource impacts that would occur with implementation of the alternatives include a “may affect” determination for the ESA-listed Southern Resident killer whale Evolutionary Significant Unit (ESU), humpback whales, leatherback sea turtle, Bull trout, Chinook salmon (Puget Sound Chinook Salmon ESU), Chum salmon (Hood-Canal Summer Run Chum Salmon ESU), Pacific eulachon, Puget Sound/Georgia Basin DPS bocaccio and yelloweye rockfishes, Green sturgeon, marbled murrelet and the western snowy plover. The Navy will be consulting with U.S. Fish and Wildlife Service and NMFS informally, pursuant with section 7 (a)(2) of the ESA for ESA-listed species.

4.4.4 Public Health and Safety

4.4.4.1 Description of Geographic Study Area

The public health and safety ROI contains the training study area.

4.4.4.2 Relevant Past, Present, and Future Actions

Past, present, and reasonably foreseeable future actions that could add to impacts on public health and safety are those actions that contribute further to maritime traffic. Recreational and commercial fishing activities, Northwest Training and Testing EIS/OEIS and Supplemental EIS/OEIS, the Swimmer Interdiction Security System at Naval Base Kitsap Bangor, and USCG Training activities would increase the number of vessels in the water, which would increase the chance of hazardous spills or discharges. No current or foreseeable projects would require the use of local police for traffic control and therefore would not cumulatively impact emergency services.

4.4.4.3 Cumulative Impact Analysis

Cumulative public health and safety impacts from past, present, and future actions within the ROI would be less than significant because increases in vessel traffic associated with the proposed training activities under Alternative 1, Alternative 2, and Alternative 3 are negligible and any spills or discharges that take place during training events would be cleaned up in accordance with Navy protocols. Activities are coordinated with local and tribal law enforcement, park rangers, and property owners. All training events would be conducted in accordance with military training procedures, approved standard operating procedures, and protective measures, including Chief of Naval Operations Instruction 5100.23G, *Navy Safety and Occupational Health Program Manual* (2011) and Federal Aviation Administration safety regulations when UAS or when naval special operations training activities are conducted in conjunction with other Department of Defense service aircraft assets. To further maintain safety during training activities, the Navy would coordinate with USCG to inform mariners on safety of navigation. Therefore, implementation of the Proposed Action, combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

4.4.5 Air Quality

4.4.5.1 Description of Geographic Study Area

The ROI refers to the region around the training study area for which cumulative air quality impacts must be accounted for. For this project, the ROI is considered to be these counties that include: Grays Harbor County, Island County, Jefferson County, King County, Kitsap County, Mason County, Pierce County, Skagit County, and Snohomish County. While construction involved with other projects in the ROI may produce large amounts of emissions, these emissions are often short lived.

4.4.5.2 Relevant Past, Present, and Future Actions

Actions that are relevant to the cumulative impacts to air quality in the ROI include: Barge Mooring Project Environmental Assessment, Environmental Assessment for Replacement of EA-6B Aircraft with EA-18G Aircraft, VAQ Electronic Attack Squadron Expeditionary Wing Environmental Assessment, USCG Air Station/Sector Field Office Port Angeles, NWTT EIS/OEIS and Supplemental EIS/OEIS, Waterfront Restricted Area Land-Water Interface and Service Pier Extension, Environmental Impact Statement for the EA-18G Growler Airfield Operations, USCG Training, Marine Structure Maintenance and Pile Replacement Activities, P-8A Multi-Mission Aircraft, coastal land development and tourism, commercial and recreational fishing, and maritime traffic.

4.4.5.3 Cumulative Impact Analysis

Cumulative air quality impacts from past, present, and future actions within the ROI would be less than significant because all of the projects within the ROI for which NEPA analysis was completed have projected emissions below *de minimis* thresholds and, when their emissions were projected above *de minimis* thresholds, consultation with Washington State ensures that emissions are within the National Ambient Air Quality Standards. Therefore, implementation of the Proposed Action, combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

4.4.6 Noise

4.4.6.1 Description of Geographic Study Area

The noise ROI is the training study area and contiguous nearshore waters. This area encompasses a broad spectrum of populations and landownership types, including private lands, public parks, harbors,

golf courses, and recreation areas. Commercial, institutional, recreational, and military activities take place simultaneously within this area.

4.4.6.2 Relevant Past, Present, and Future Actions

Actions that may interact with the affected noise areas of the training study area include present and future activities such as the Northwest Training and Testing EIS/OEIS and Supplemental EIS/OEIS, EA-18G Growler Airfield Operations, USCG Training, the Marine Structure Maintenance and Pile Replacement Activities, the P-8A Multi-Mission Aircraft, and Maritime Traffic.

4.4.6.3 Cumulative Impact Analysis

There are sensitive receptors, including schools and churches, throughout the training study area. Generally, training activities would occur away from areas where people are congregating or have concentrations of people in nearshore areas and on public or federal lands, in natural settings. Cumulative noise impacts from past, present, and future actions within the ROI would be less than significant because the primary purpose of training activities would be to remain undetected and be silent or quiet as possible as to avoid detection. Therefore, implementation of the Proposed Action, combined with the past, present, and reasonably foreseeable future projects, would not result in significant noise impacts within the ROI.

5 Other Considerations Required by NEPA

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies and Requisitions

In accordance with 40 Code of Federal Regulations section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 5-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

Table 5-1: Executive Orders and Principal Federal and State Laws Applicable to the Proposed Action

Federal Laws, Regulations, and Policies and Executive Orders	Status of Compliance
National Environmental Policy Act (NEPA) (42 U.S.C. section 4321 et seq.); CEQ NEPA implementing regulations (40 CFR parts 1500-1508); Navy procedures for Implementing NEPA (32 CFR part 775)	This Environmental Assessment (EA) has been prepared in accordance with NEPA, CEQ regulations implementing NEPA, and Navy NEPA procedures. Public participation and review are being conducted in compliance with NEPA.
Antiquities Act (16 U.S.C. sections 431–433)	In accordance with Navy procedures, the Proposed Action is consistent with the Act’s objectives for protection of archaeological and historical sites and objects, preservation of cultural resources, and the public’s access to them. On 26 April 2017, Executive Order (EO) 13792, <i>Review of Designations Under the Antiquities Act</i> , was issued and directed the Secretary of the Interior to review designations of national monuments made since 1996. See Section 3.2 (Cultural Resources) for the assessment.
Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.)	This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. Implementation of the Proposed Action would not result in an adverse effect on Bald or Golden Eagles as their protection is defined in the Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act is discussed in detail in regards to the Proposed Action in Section 3.3 (Biological Resources).
Clean Air Act (CAA) (42 U.S.C. section 7401 et seq.) CAA General Conformity Rule (40 CFR section 93[B]) State Implementation Plan (SIP)	Criteria pollutant emissions do not exceed the <i>de minimis</i> levels for any pollutants. A conformity evaluation was required for ozone, carbon monoxide, and PM ₁₀ since these pollutants are classified as being in maintenance. However, since all pollutants fell below the <i>de minimis</i> threshold, a Record of Non-Applicability will be prepared. See Section 3.5 (Air Quality).
Clean Water Act (CWA) (33 U.S.C. 1251 et seq.)	The Proposed Action does not require a permit pursuant to sections 401, 402, or 404 of the Clean Water Act, as the Proposed Action does not include construction or demolition activities.
Rivers and Harbors Act (33 U.S.C. section 407)	No permit is required under the Rivers and Harbors Act as no construction in navigable waterways is proposed.
Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)	The Navy will comply and submit the appropriate document(s) to the Washington State Department of Ecology in compliance with the Coastal Zone Management Act.

Table 5-1: Principal Federal and State Laws Applicable to the Proposed Action (continued)

Federal Laws, Regulations, and Policies and Executive Orders	Status of Compliance
National Historic Preservation Act (54 U.S.C. section 306108 et seq.)	The Proposed Action is consistent with the national policy for the preservation of historic sites, buildings, and objects of national significance. The Navy has initiated the Section 106 consultation process with the SHPO and key stakeholders. See Appendix B for correspondence between the Navy and key stakeholders.
Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.)	In the event human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered, the Navy would consult with Native American organizations.
Endangered Species Act (16 U.S.C. section 1531 et seq.)	In accordance with Section 7 of the ESA, the Navy is preparing a Biological Assessment. Preliminary analysis indicates the Proposed Action may affect, but is not likely to adversely affect, ESA listed species. The Navy will consult with USFWS and NMFS regarding potential effects of the Proposed Action. The Navy has concluded that there are no effects to ESA critical habitats that overlap the training study area (see Section 3.3).
Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (16 U.S.C. section 1801 et seq.)	The Navy concluded the Proposed Action would not adversely affect EFH. For more information, see Section 3.3.
Marine Mammal Protection Act (MMPA) (16 U.S.C. section 1361 et seq.)	The Proposed Action is not expected to result in injury or harassment of any marine mammal as defined by the MMPA.
Migratory Bird Treaty Act (16 U.S.C. section 703–712)	The Proposed Action is not anticipated to result in adverse effects on migratory bird populations and would be in compliance with the MBTA.
Comprehensive Environmental Response and Liability Act (CERCLA) (42 U.S.C. section 9601 et seq.)	There are CERCLA sites within the training study area, both on and off Navy property. The Navy is not disturbing sites where the contamination is and the Navy will abide by the land use restrictions that apply to off-base sites. For on-base sites, the Navy is allowed to walk across the sites but will not be digging. The Navy would report any spill or release of hazardous substance of a quantity equal to or greater than the reportable quantity.
Farmland Protection Policy Act (7 U.S.C. sections 4201–4209)	No impacts on farmlands would occur as a result of the implementation of the Proposed Action because no farmland would be irreversibly converted to non-agricultural uses.
Submerged Lands Act of 1953 (43 U.S.C. sections 1301–1315)	The Proposed Action is consistent with regulations concerning the Submerged Lands Act.
Sunken Military Craft Act (Public Law 108–375, 10 U.S.C. section 113 Note and 118 Stat. 2094–2098)	The Sunken Military Craft Act does not apply to actions taken by, or at the direction of, the United States. See Section 3.2 (Cultural Resources) for the assessment.
EO 12088, <i>Federal Compliance with Pollution Control Standards</i>	All necessary actions would be taken for the prevention, control, and abatement of environmental pollution.
EO 12898, <i>Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations</i>	The Proposed Action would not result in any disproportionately high and adverse human health or environmental effects on minority or low-income populations.

Table 5-1: Principal Federal and State Laws Applicable to the Proposed Action (continued)

Federal Laws, Regulations, and Policies and Executive Orders	Status of Compliance
EO 13045, <i>Protection of Children from Environmental Health Risks and Safety Risks</i>	The Proposed Action would not result in environmental health risks and safety risks that may disproportionately affect children.
EO 13175, <i>Consultation and Coordination with Indian Tribal Governments</i>	The Navy provided early notification and solicited input from sixteen Tribes that have usual and accustomed fishing grounds and stations in the training study area. See Section 5.1.2 and Appendix B for more information.
EO 13693, <i>Planning for Federal Sustainability in the Next Decade</i>	The Proposed Action is consistent with the federal government's greenhouse gas emissions reductions and sustainability goals of this Executive Order. See Chapter 3.5, Air Quality.
Executive Order 13783, <i>On Promoting Energy Independence and Economic Growth</i>	The Proposed Action is consistent with the policy and immediate review of all agency actions that potentially burden the safe, efficient development of domestic energy resources. This Executive Order revokes Executive Order 13653, <i>Preparing the United States for the Impacts of Climate Change</i> .

Notes: CEQ = Council on Environmental Quality, CFR = Code of Federal Regulations, EA = Environmental Assessment, EO = Executive Order, ESA = Endangered Species Act, NEPA = National Environmental Policy Act, NMFS = National Marine Fisheries Service, USFWS = U.S. Fish and Wildlife Service, U.S.C. = United States Code

5.1.1 Coastal Zone Management Act

Through the Coastal Zone Management Act of 1972 (CZMA), Congress established national policy to preserve, protect, develop, restore, or enhance resources in the coastal zone. This Act encourages coastal states to properly manage use of their coasts and coastal resources, prepare and implement coastal management programs, and provide for public and governmental participation in decisions affecting the coastal zone. To this end, CZMA imparts an obligation upon federal agencies whose actions or activities affect any land or water use or natural resource of the coastal zone to be carried out in a manner consistent to the maximum extent practicable with the enforceable policies of federally approved state coastal management programs. However, Federal lands, which are “lands the use of which is by law subject solely to the discretion of the Federal Government, its officers, or agents,” are statutorily excluded from the State's “coastal uses or resources.” If, however, the proposed federal activity affects coastal uses or resources beyond the boundaries of the federal property (i.e., has spillover effects), the CZMA Section 307 federal consistency requirement applies. The Navy will comply and submit the appropriate document(s) to the Washington State Department of Ecology in compliance with the CZMA.

5.1.2 American Indian Traditional Resources

On October 21, 1998, the Department of Defense (DoD) promulgated its American Indian and Alaska Native Policy, emphasizing the importance of respecting and consulting with tribal governments on a government-to-government basis (explanatory text was added on November 21, 1999). The policy requires an assessment, through consultation, of the effects of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian Lands before decisions are made by the DoD services.

In 2005, the Navy updated its policy for consultation with federally recognized Indian tribes. Secretary of the Navy Instruction 11010, Department of the Navy Policy for Consultation with Federally Recognized

Indian Tribes, implements DoD policy within the Department of the Navy and encourages ongoing consultation. Subsequent updates to Secretary of the Navy Instruction 5090.8a (Policy for Environmental Protection, Natural Resources, and Cultural Resources Programs, 2006) also mandates American Indian and Alaska Native tribal consultation.

In 2009, Commander, Navy Region Northwest issued its Policy for Consultation with Federally Recognized American Indian and Alaska Native Tribes (Instruction 11010.14 of November 10, 2009) which sets forth policy, procedures, and responsibilities for consultations with federally recognized American Indian and Alaska Native tribes in the Navy Region Northwest area of responsibility. The goal of the policy is to establish permanent working relationships built upon respect, trust, and openness with tribal governments.

Under these policies, the Navy is required to consider tribal comments and concerns prior to making a final Navy decision on proposed action. However, reaching formal agreement with a tribe or obtaining tribal approval prior to a Navy final decision is not required.

In accordance with DoD policy and Navy instructions, the Navy invites government-to-government consultation with federally recognized tribal governments when a proposed action may have the potential to significantly affect tribal rights, protected tribal resources, or Indian lands. The Navy's analysis is that the Proposed Action would not have the potential to significantly affect tribal rights, protected tribal resources or Indian Lands. The Proposed Action would not have the potential to significantly affect tribal rights, protected tribal resources or Indians lands. The Proposed Action would have no effect to protected tribal resources because it would not impede access to adjudicated treaty usual and accustomed fishing grounds and stations in co-use marine waterways, it would not impede access to tribal hunting rights areas and it would not reduce or degrade harvestable marine resources. Training activities are localized, infrequent in nature, and brief in duration. Therefore, no significant impacts on American Indian traditional resources would occur with implementation of any of the alternatives.

In April 2017, the Navy, on behalf of the Naval Surface Warfare Center, provided early notification and solicited input from sixteen Tribes that have usual and accustomed fishing grounds and stations in the training study area (see Appendix B (Agency Correspondence for tribal correspondence to date)). In January 2018, the Navy provided the Draft Environmental Assessment to these same tribes. Additionally, the Navy has provided information about the Proposed Action to Tribal Leaders and staff upon request.

5.2 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

For the Proposed Action, most resource commitments would be neither irreversible nor irretrievable. Most impacts are short term and temporary, or long lasting but negligible. Since there would be no building or facility construction, the consumption of materials typically associated with construction (e.g., concrete, metal, sand) would not occur. Energy usage typically associated with construction activities would not be expended and irreversibly lost. However, fuel expended by vehicles, vessels, and

aircraft during training activities would be irreversibly lost.

The Proposed Action would not result in loss of habitat for plants or animals. The Proposed Action may affect, but is not likely to adversely affect, threatened or endangered species. The intent of the proposed training is to build trainees skills, experience, and confidence by challenging them in a location with dynamic weather and land/cold-water conditions. As part of the rigorous training, the trainees learn skills needed to avoid detection along with the goal of leaving no trace of their presence during or after training activities, which diminishes the likelihood of any physical disturbance to biological resources. This would also be true for cultural resources. Proposed training activities do not change any tribe's access to Traditional Cultural Properties. Nor do they reduce or degrade harvestable terrestrial or marine resources. Therefore, there would be no significant impacts on protected tribal resources from implementation of the Proposed Action. Moreover, there would be no changes in land use within the training study area.

The amount of materials required for any training-related activities and energy used during the Proposed Action would be small. Although the proposed activities would result in some irreversible or irretrievable commitment of resources such as various metallic materials, minerals, and labor, this commitment of resources is not significantly different from that necessary for many other Navy training activities carried out over the past several years. Proposed activities would not commit natural resources in significant quantities.

5.3 Relationship between Short-Term Use of the Environment and Long-Term Productivity

The National Environmental Policy Act requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short term, effects to the human environment with implementation of the proposed training activities under the Proposed Action would be minimal. Naval special operations training activities under the Proposed Action would be consistent with the existing land use of the area for federal, state, and private lands, with trainees swimming in the water, moving across the beach, and walking on and off trails. The Proposed Action does not include construction on undeveloped lands or permanent ground-disturbing activities over an undisturbed area. In addition, as part of the rigorous training, the trainees learn skills needed to avoid detection along with the goal of leaving no trace of their presence during or after training activities. Implementation of the Proposed Action would result in less than significant impacts on sensitive resources. Thus, the Proposed Action would not significantly impact the long-term natural resource productivity of the area. The Proposed Action would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

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There are no references in this chapter.

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5 Other Considerations Required By NEPA

There are no references in this chapter.

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Appendix A: Biological Assessment for Naval Special Operations Training in Western Washington State

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A. BIOLOGICAL ASSESSMENT

Biological assessment appendix to be included in the Final Environmental Assessment.

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Appendix B: Correspondence for Naval Special Operations Training in Western Washington State

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APPENDIX B. AGENCY CORRESPONDENCE

B.1 NAVY TRIBAL CORRESPONDENCE



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Frances G. Charles
Lower Elwha S'Klallam Tribe
2851 Lower Elwha Road
Port Angeles, WA 98363

Dear Chairwoman Charles,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

Enclosed is a fact sheet which describes the proposed training with a location map. The proposed training would consist of diving and swimming; inserting and extracting trainees and/or equipment using small watercraft; launching and recovering small watercraft; using unmanned underwater vehicles; moving on foot over the beach; hiking to an observation point and using observation techniques while remaining hidden; clearing areas/structures using paint pellets as simulated munitions (used only in limited locations); conducting high-angle climbing; and using small unmanned aircraft systems on military installations, designated warning areas, or restricted airspace.

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5090
Ser N45/17-189
12 Apr 2017

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If you have questions or concerns, please contact Ms. Renee Wallis, Navy Region Northwest Tribal Liaison, at (360)315-5400 or by email, renee.wallis@navy.mil.

Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Mr. William S. White, Cultural Resources Archaeologist
Mr. Doug Morrill, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable W. Ron Allen
Jamestown S'Klallam Tribe
1033 Old Blyn Highway
Sequim, WA 98382

Dear Chairman Allen,

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Ser N45/17-189
12 Apr 2017

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T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Zickie Carroll, Cultural Resources Director
Mr. Scott Chitwood, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Virginia Cross
Muckleshoot Indian Tribe of the Muckleshoot Reservation
39015 172nd Ave SE
Auburn, WA 98092

Dear Chairwoman Cross,

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5090
Ser N45/17-189
12 Apr 2017

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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Laura Murphy, Archaeologist, Cultural Resources
Ms. Melissa Calvert, Wildlife Dept. General Services Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Farron McCloud
Nisqually Indian Tribe of the Nisqually Reservation
4820 She-Nah-Num Dr SE
Olympia, WA 98513-9199

Dear Chairman McCloud,

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Ser N45/17-189
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T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Jacqueline Wall, Tribal Historic Preservation Officer
Mr. David Troutt, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Bob Kelly
Nooksack Indian Tribe of Washington
P.O. Box 157
Deming, WA 98244

Dear Chairman Kelly,

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5090
Ser N45/17-189
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T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Mr. George D. Swanaset, Jr., Tribal Historic Preservation Officer
Mr. Gary MacWilliams, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Jeromy Sullivan
Port Gamble S'Klallam Tribe
31912 Little Boston Road, NE
Kingston, WA 98346

Dear Chairman Sullivan,

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5090
Ser N45/17-189
12 Apr 2017

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T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Stormy Purser, Tribal Historic Preservation Officer
Mr. Paul McCollum, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
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The Honorable Bill Sterud
Puyallup Tribe of the Puyallup Reservation
3009 E Portland Avenue
Tacoma, WA 98404

Dear Chairman Sterud,

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Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Mr. Brandon Reynon, Cultural Resources
Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Thomas Wooten
Samish Indian Nation
P.O. Box 217
Anacortes, WA 98221

Dear Chairman Wooten,

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Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Jackie Ferry, Tribal Historic Preservation Officer/Cultural Director
Mr. Todd Woodard, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
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The Honorable Charlene Nelson
Shoalwater Bay Tribe of the Shoalwater Bay Reservation
P.O. Box 130
Tokeland, WA 98590

Dear Chairman Nelson,

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If you have questions or concerns, please contact Ms. Renee Wallis, Navy Region Northwest Tribal Liaison, at (360)315-5400 or by email, renee.wallis@navy.mil.

Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Mr. Earl Davis, Cultural Resources Specialist
Mr. Steve Spencer, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Charles "Guy" Miller
Skokomish Indian Tribe
80 N Tribal Center Road
Skokomish Nation, WA 98584

Dear Chairman Miller,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

Enclosed is a fact sheet which describes the proposed training with a location map. The proposed training would consist of diving and swimming; inserting and extracting trainees and/or equipment using small watercraft; launching and recovering small watercraft; using unmanned underwater vehicles; moving on foot over the beach; hiking to an observation point and using observation techniques while remaining hidden; clearing areas/structures using paint pellets as simulated munitions (used only in limited locations); conducting high-angle climbing; and using small unmanned aircraft systems on military installations, designated warning areas, or restricted airspace.

The proposed training does not include the use of live-fire ammunition, explosive demolitions, manned air operations, off-road driving, vegetation cutting, digging, tree climbing, or the building of camp fires or infrastructure. The Navy would not build training devices or structures at any site during the proposed training activities. Access to areas would not be impacted by the proposed training and most training would be conducted during the night.

The intent of the proposed training is to: 1) teach trainees the skills needed to avoid detection and 2) not leave any trace of their presence during or after training activities. It is needed to meet training and readiness requirements, and to ensure that naval special operations personnel are prepared for worldwide deployment.

Puget Sound, including Hood Canal, and the southwestern Washington coast offer unique conditions which create opportunities for realistic and challenging special operations training in a safe, sheltered, cold-water environment. Sites have been identified to support the

5090
Ser N45/17-189
12 Apr 2017

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The Navy will be conducting open house outreach meetings for interested parties from 5 to 8 p.m. on: Tuesday, May 2, 2017 at North Kitsap High School Commons, Poulsbo, WA; Wednesday, May 3, 2017 at Blue Heron School Commons, Port Townsend, WA, and; Thursday, May 4, 2017 at Oak Harbor School District ASC Board Room, Oak Harbor, WA. Or see our website at <https://navfac.navy.mil/NSOEA>.

Pursuant to the Navy's policies for consultation with federally recognized American Indian tribes, I ask you to consider whether implementation of the proposed action as described has the potential to significantly affect tribal treaty rights of protected resources. If you determine there may be a potential for significant affects, please specify which tribal rights and resources will be affected and how they will be significantly affected.

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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Kris Miller, Tribal Historic Preservation Officer
Mr. Joseph Pavel, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Carolyn Lubenau
Snoqualmie Indian Tribe
P.O. Box 969
Snoqualmie, WA 98065

Dear Chairwoman Lubenau,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

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5090
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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Lora Pennington, Cultural Resources Director/Tribal Historic Preservation Officer
Ms. Cindy Spiry, Environment and Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable David Lopeman
Squaxin Island Tribe of the Squaxin Island Indian Reservation
10 SE Squaxin Lane
Shelton, WA 98584

Dear Chairman Lopeman,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

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5090
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12 Apr 2017

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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Rhonda Foster, Cultural Resources Director
Mr. Andy Whitener, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Shawn Yanity
Stillaguamish Tribe of Indians of Washington
P.O. Box 277
Arlington, WA 98223

Dear Chairman Yanity,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

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5090
Ser N45/17-189
12 Apr 2017

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Sincerely,



T. H. Lazo, P.E.

Environmental Business Line

Coordinator

By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Tara Boser, Cultural Resources Director
Ms. Gina Gray, Natural Resources Director



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Leonard Forsman
Suquamish Tribe
PO Box 498
Suquamish, WA 98392

Dear Chairman Forsman,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

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Ser N45/17-189
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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Mr. Wayne George, Executive Director
Mr. Dennis Lewarch, THPO Cultural Resources
Mr. Steve Todd, Ecologist



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Brian Cladoosby
Swinomish Indians of the Swinomish Reservation of Washington
11404 Moorage Way
La Conner, WA 98257

Dear Chairman Cladoosby,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

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Ser N45/17-189
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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Ms. Josephine Jefferson, Cultural Resources Technician
Mr. Todd Mitchell, Environmental Protection



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-189
12 Apr 2017

The Honorable Melvin Sheldon, Jr.
Tulalip Tribes of Washington
6406 Marine Dr. NW
Tulalip, WA 98271

Dear Chairman Sheldon, Jr.,

The U.S. Navy (Navy) is proposing to conduct small-unit land and maritime training activities for naval special operations personnel on selected nearshore lands and in the inland waters of Puget Sound, including Hood Canal, as well as the southwestern Washington coast. Our preliminary assessment is that this proposed action does not have the potential to significantly affect tribal treaty rights and protected tribal resources.

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5090
Ser N45/17-189
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Sincerely,



T. H. Lazo, P.E.
Environmental Business Line
Coordinator
By Direction of the Commanding Officer

Enclosure: 1. Proposed Naval Special Operations Training in Western Washington State

Copy to: Mr. Terry Williams, Treaty Rights Program Manager
Mr. Richard Young, Cultural Preservation Officer
Mr. Ray Fryberg, Natural Resources Executive Director

B.2 NAVY SHPO CORRESPONDENCE



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND NORTHWEST
1101 TAUTOG CIRCLE
SILVERDALE, WASHINGTON 98315-1101

5090
Ser N45/17-200
24 Apr 2017

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Washington Department of Archaeology & Historic Preservation
PO Box 48343
Olympia, WA 98504-8343

Dear Dr. Brooks:

In accordance with 36 CFR Part 800, this letter is to initiate Section 106 consultation on the proposed undertaking; Naval Special Operations Training in Western Washington State. The Navy proposes to conduct small-unit land and maritime training activities for naval special operations personnel. Proposed training would occur on selected nearshore lands and in the inland waters of Puget Sound, including the Hood Canal, as well as southwestern Washington Coast (Enclosure 1).

The training involves small-units of personnel. The intent of the proposed training is to: 1) teach trainees the skills needed to avoid detection, and 2) not leave any trace of their presence during or after the training activities. The undertaking does not include the use of live-fire ammunition, explosive demolitions, manned air operations, off-road driving, vegetation cutting, digging, tree climbing, the building of camp fires, or the building of infrastructure. The two regions identified in Enclosure (1) offer unique conditions, which create opportunities for realistic and challenging special operations training in a safe, sheltered, cold-water environment. The combination of military presence in proximity to sites with diverse shoreline terrain, hydrography, and bathymetry is vital to the progressive improvement of skill sets and readiness requirements. Additionally, the close proximity to several existing Navy installations maximizes logistics, safety, and security. As specific training objectives are identified and scheduled, compatible sites within the two regions would be selected to support the activity.

The purpose of the proposed undertaking is to support small-unit training activities of Navy Special Operations personnel in maritime and land training environments. The need for the undertaking is to provide capabilities for training and equipping combat-capable special operations personnel ready to deploy worldwide.

5090
Ser N45/17-200
24 Apr 2017

Training will consist of both water-based and land-based training. For certain events, the activity will be a combination of the two. Training events will typically be between 2 and 72 hours in duration. For short-duration events, it is possible that multiple iterations of the same activity will be conducted to maximize the periodic use of an individual training site and for trainee throughput. The training activities may include: Diving and Swimming, Insertion and Extraction, Launch and Recovery, Unmanned Underwater Vehicle, Over-the-Beach, Special Reconnaissance, High-Angle Climbing, Simulated Building Clearance, and Unmanned Aircraft Systems (Enclosure 2).

The Navy looks forward to consulting with you on the proposed Naval Special Operations Training. Open House Outreach Meetings with the public have been scheduled to provide further information on this undertaking. These meetings are scheduled as follows:

- May 2: 5-8pm, North Kitsap High School, 1780 NE Hostmark Street, Poulsbo, WA.
- May 3: 5-8pm, Blue Heron Elementary School, 3939 San Juan Avenue, Port Townsend, WA.; and
- May 4: 5-8pm, Oak Harbor School District Boardroom, 350 S Oak Harbor Street, Oak Harbor, WA

If you require additional information or have questions regarding this project, my point of contact is Russell Sackett, NAVFAC NW Historical Architect. Mr. Sackett can be reached at (360)396-0927 or by email at russell.h.sackett1@navy.mil.

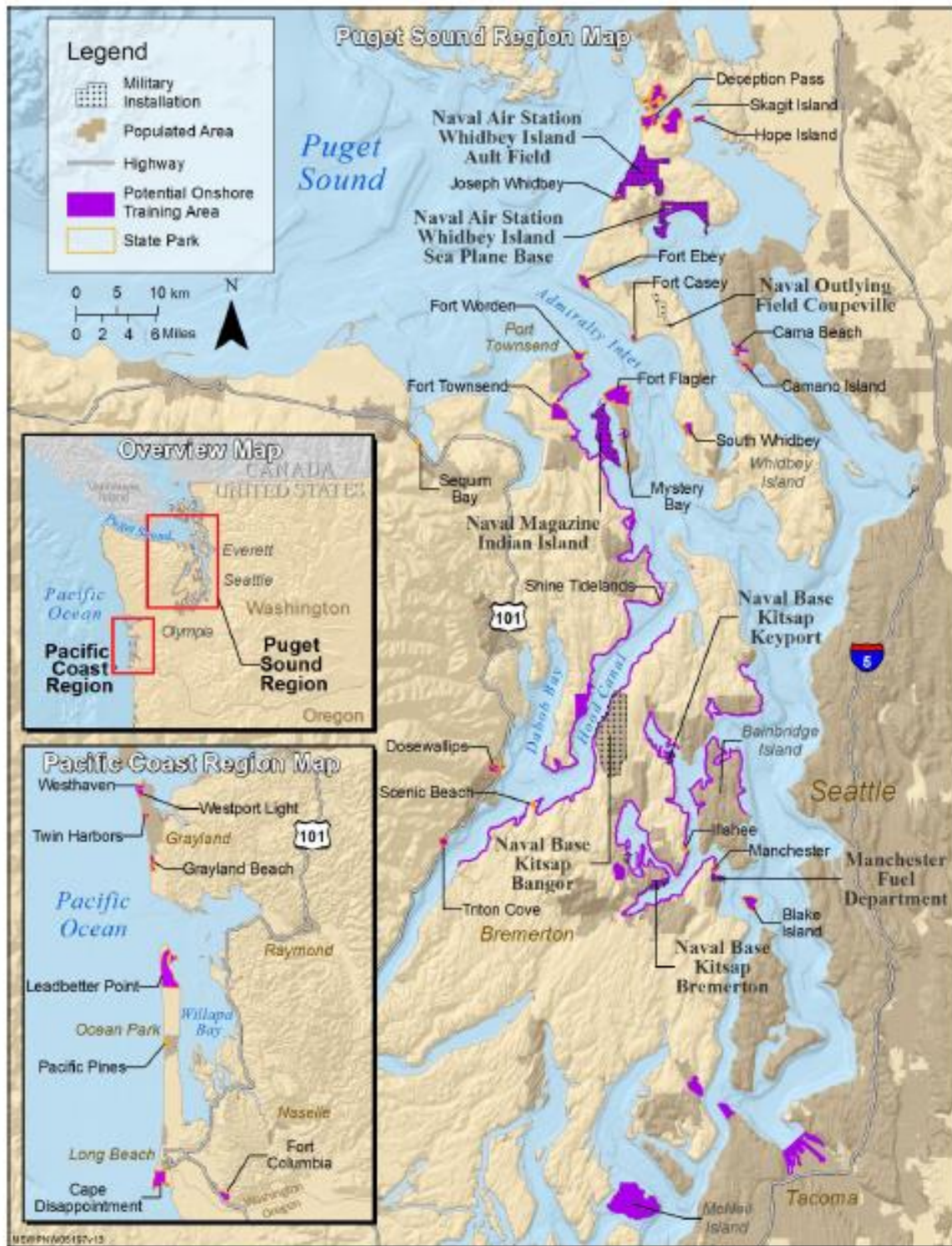
Sincerely,



T. H. Lazo, P.E.
Environmental Business Line Leader,
Northwest Region
By Direction of the Commanding Officer

Enclosures: 1. Proposed Naval Special Operations Training Areas
2. Training Activities Defined

ENCLOSURE 1: PROPOSED NAVAL SPECIAL OPERATIONS TRAINING AREAS



ENCLOSURE 2: TRAINING ACTIVITIES DEFINED

Diver and Swimmer Training: Trainees would maneuver to an objective area, such as a beach, harbor, or moored vessel, and conduct a variety of water-based activities.

Insertion and Extraction Training: Trainees would approach or depart an objective area using small watercraft. This activity trains personnel to effectively insert and extract swimmers, divers, and/or equipment during the day or night.

Launch and Recovery Training: Trainees would launch and recover up to two watercraft from a boat ramp or vessel.

Unmanned Underwater Vehicle Training: Trainees would hand-launch and recover a battery-powered watercraft.

Over-the-Beach Training: Trainees would exit the water, quietly move into upland areas, and remain hidden.

Special Reconnaissance Training: Trainees would hike to an observation point while remaining hidden, use observation techniques, follow procedures, and report back on a scenario involving role-play with military instructors or support staff.

High-Angle Climbing Training: Trainees would use climbing gear to navigate cliffs, rock faces, and other vertical structures to develop infiltration rescue and recover techniques.

Simulated Building Clearance Training: Trainees would conduct area/structure clearance activities at a secure site or engage in role-play threat scenarios. Training would include the use of simulated munitions, which are specialized plastic or paint capsules that are water soluble.

Unmanned Aircraft Systems Training: Unmanned aircraft systems would be used on military installations, designated warning areas, or restricted airspace and operated in accordance with the Federal Aviation Administration's Small Unmanned Aircraft Rule (Part 107). Trainees would hand-launch and recover lightweight, battery-powered systems for low-altitude training.