
3.10 Cultural Resources

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3.10 CULTURAL RESOURCES

CULTURAL RESOURCES SYNOPSIS

The United States (U.S.) Department of the Navy (Navy) considered all potential stressors and analyzed the following for submerged cultural resources:

- Acoustic (underwater explosions and cratering from underwater explosions)
- Physical disturbance (in-water devices, use of seafloor devices, and deposition of military expended materials)

Preferred Alternative (Alternative 1)

- Acoustic and Physical Disturbance: Acoustic and physical stressors, as indicated above, would not adversely affect submerged historic resources within U.S. territorial waters in accordance with Section 106 of the National Historic Preservation Act (NHPA). The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties. The Washington State Historic Preservation Office concurred with these findings. In accordance with Section 402 of the NHPA, no World Heritage sites would be affected.

3.10.1 INTRODUCTION AND METHODS

3.10.1.1 Introduction

Cultural resources are found throughout the Northwest Training and Testing Study Area (hereafter referred to as the Study Area). The approach to assessing cultural resources includes defining the resource; presenting the regulatory requirements for identifying, evaluating, and treating the resource within established jurisdictional parameters; establishing the specific resource subtypes in the Study Area; identifying the data used to define the current conditions; and describing the method of impact analysis.

Cultural resources are defined as districts, landscapes, sites, structures, objects, and ethnographic resources, as well as other physical evidence of human activity, that are considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources include archaeological resources, historic architectural resources, and traditional cultural properties. Native American and Alaska Native traditional resources (i.e., traditional hunting or gathering areas and usual and accustomed tribal fishing grounds) are discussed in Section 3.11.

Archaeological resources include prehistoric and historic sites and artifacts. Archaeological resources can have a surface component, a subsurface component, or both. Prehistoric resources are physical properties resulting from human activities that predate written records; they include village sites, temporary camps, lithic scatters, roasting pits, hearths, milling features, petroglyphs, rock features, and burials. Historic resources postdate the advent of written records in a region; they include building foundations, refuse scatters, wells, cisterns, and privies. Submerged cultural resources include historic shipwrecks and other submerged historic materials, such as sunken airplanes and piers. Architectural resources are elements of the built environment consisting of standing buildings or structures from the historic period. These resources include existing buildings, dams, bridges, lighthouses, and forts.

Resources that are significant to Native American and Alaska Native tribes that may be considered traditional cultural properties include, but are not limited to, archaeological sites and artifacts, locations of historic and contemporary events, sacred areas, landscapes, and sources of raw materials used to produce tools and sacred objects. Many resources are also sacred places important to Native Americans and may include mountain peaks, springs, and burial sites. Traditional uses may prescribe the use of particular native plants, animals, or minerals from specific places. The community may consider these resources essential for the continuation of their traditional culture. Traditional cultural properties are those resources listed in or eligible for listing in the National Register of Historic Places and are afforded the same protection as other types of historic properties. Traditional cultural properties are not limited to Native Americans but can represent any ethnic group with strong ties to the property (National Park Service 1998).

3.10.1.2 Identification, Evaluation, and Treatment of Cultural Resources

For the purposes of Section 106, the Study Area defined in Chapter 2 (Description of Proposed Action and Alternatives) of this document also serves as the Area of Potential Effects. To summarize, the Study Area is composed of established maritime operating and warning areas in the eastern north Pacific Ocean region, including the Strait of Juan de Fuca, Puget Sound, and Western Behm Canal in southeastern Alaska. The area includes air and water space within Washington, as well as outside state waters of Oregon and Northern California. It includes four existing range complexes and facilities: the Northwest Training Range Complex (NWTRC); the Naval Undersea Warfare Center (NUWC) Division, Keyport; Carr Inlet Operating Area (OPAREA); and the Southeast Alaska Acoustic Measurement Facility (SEAFAC). In addition to these range complexes, the Study Area also includes United States (U.S.) Department of the Navy (Navy) pierside locations where sonar (sound navigation and ranging) maintenance and testing occurs as part of overhaul, modernization, maintenance, and repair activities at Navy piers at Naval Base (NAVBASE) Kitsap Bremerton, NAVBASE Kitsap Bangor, and Naval Station Everett.

Procedures for identifying, evaluating, and treating cultural resources within state territorial waters (within 3 nautical miles [nm] of the coast) and U.S. territorial waters (within 12 nm of the coast) are contained in a series of federal and state laws and regulations, as well as agency guidelines. Archaeological, architectural, and Native American resources are protected by various laws and their implementing regulations: the National Historic Preservation Act (NHPA) of 1966 as amended in 2006, the Archeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, the Native American Graves Protection and Repatriation Act of 1990, the Submerged Lands Act of 1953, the Abandoned Shipwreck Act of 1987, and the Sunken Military Craft Act of 2004. The Advisory Council on Historic Preservation (Advisory Council) further guides treatment of archaeological and architectural resources through the regulations, *Protection of Historic Properties* (36 Code of Federal Regulations [C.F.R.] Part 800). The category of “historic properties” is a subset of cultural resources defined in the NHPA (16 U.S. Code [U.S.C.] § 470w(5)) as any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion on, the National Register of Historic Places (National Register), including artifacts, records, and material remains related to such a property or resource.

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. The regulations implementing Section 106 (36 C.F.R. Part 800) specify a consultation process to assist in satisfying this requirement. Consultation with the appropriate State Historic Preservation Offices, the Advisory Council, Native American and Alaska Native tribes, the public, and state and federal agencies is required by Section 106

of the NHPA. Scoping letters for this Environmental Impact Statement (EIS)/Overseas EIS (OEIS) were sent to appropriate State Historic Preservation Offices.

Scoping letters for this EIS/OEIS were sent on 23 February 2012 to the following Native American and Alaska Native Tribes: Chinook Indian Nation, Confederated Tribes of the Chehalis Reservation, Cowlitz Indian Tribe, Hoh Tribe, Jamestown S'Klallam Tribe, Lower Elwha Klallam Tribe, Lummi Tribe, Makah Tribe, Muckleshoot Indian Tribe, Nisqually Indian Tribe, Nooksack Indian Tribe, Port Gamble S'Klallam Tribe, Puyallup Tribe, Quileute Tribe, Quinault Nation, Samish Indian Tribe, Sauk-Suiattle Indian Tribe, Shoalwater Bay Tribe, Skokomish Indian Tribe, Snoqualmie Tribe, Squaxin Island Tribe, Stillaguamish Tribe, Suquamish Tribe, Swinomish Tribe, Tulalip Tribe, Upper Skagit Tribe, Confederated Tribes of Coos, Lower Umpqua, and Suislaw Indians, Confederated Tribes of Grand Ronde Community of Oregon, Confederated Tribes of Siletz Indians, Confederated Tribes of the Warm Springs Reservation, Coquille Indian Tribe, Cow Creek Band of Umpqua Indians, Klamath Tribes, Cahto Indian Tribe of the Laytonville Rancheria, Cher-Ae Heights Indian Community of the Trinidad Rancheria, Coyote Valley Band of Pomo Indians, Elk Valley Rancheria, Hoopa Valley Tribe, Hopland Band of Pomo Indians of the Hopland Rancheria, Karuk Tribe, Pinoleville Pomo Nation, Potter Valley Tribe, Redwood Rancheria of Pomo Indians, Robinson Rancheria of Pomo Indians, Round Valley Indian Tribes, Scotts Valley Band of Pomo Indians, Sherwood Valley Rancheria of Pomo Indians, Smith River Rancheria, Tolowa Nation, Wiyot Tribe, Yurok Tribe, Ketchikan Indian Community, Metlakatla Indian Community, and Organized Village of Saxman. Scoping letters dated 23 February 2012 were also sent to the Northwestern Indian Fisheries Commission, Skagit River System Cooperative, the InterTribal Sinkyone Wilderness Council, Cape Fox Corporation, Central Council of the Tlingit and Haida Indian Tribes, and Sealaska.

Additional regulations and guidelines for submerged historic resources include 10 U.S.C. § 113, note for the Sunken Military Craft Act; the *Abandoned Shipwreck Guidelines* prepared by the National Park Service (National Park Service 2007); and, for conducting research or recovering Navy ship and aircraft wrecks, the *Guidelines for Archaeological Research Permit Applications on Ship and Aircraft Wrecks under the Jurisdiction of the Department of the Navy* (36 C.F.R. Part 767) overseen by the Naval History and Heritage Command. The Sunken Military Craft Act does not apply to actions taken by, or at the direction of, the United States. In addition, the federal archaeological program developed by the National Park Service pursuant to a presidential order includes an ensemble of historical and archaeological resource protection laws to which federal managers adhere.

The addendum to the NHPA (16 U.S.C. § 470a-2, International Federal Activities Affecting Historic Properties) requires an assessment by federal agencies of project effects on resources outside U.S. territorial waters that are identified on the World Heritage List or on the applicable country's equivalent of the National Register of Historic Places. Two World Heritage resources, the Redwood National and State Parks in northern California and the Olympic National Park in Washington, are adjacent to the Study Area; however, no resources identified on the World Heritage List occur in the Study Area.

No specific procedures for identifying and protecting cultural resources in the open ocean have been defined by the international community (Zander and Varmer 1996). No treaty offering comprehensive protection of submerged cultural resources has been developed. A few international conventions prepared by the United Nations Educational, Scientific, and Cultural Organization apply to submerged cultural resources, including the 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export, and Transfer of Ownership of Cultural Property; the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage; the 1982 Convention on the Law of the Sea; and

the 2001 Convention on the Protection of the Underwater Cultural Heritage. Only the 1970 and 1972 conventions have been fully ratified by the United States.

3.10.1.3 Methods

3.10.1.3.1 Approach

3.10.1.3.1.1 Regulatory Requirements

Within the Pacific region, the approach for establishing current conditions is based on different regulatory parameters defined by geographical location. Within U.S. territorial waters (0–12 nm), the National Environmental Policy Act (NEPA) is applicable. The NHPA is applicable to state territorial waters and for any resources identified on the World Heritage List or on an applicable country's equivalent of the National Register of Historic Places beyond U.S. territorial waters in accordance with Section 402 (16 U.S.C. 470a-2, International Federal Activities Affecting Historic Properties). Executive Order (EO) 12114 mandates consideration of environmental effects of major federal actions located within the global commons, which are defined as geographical areas outside the jurisdiction of any nation, and include the oceans outside of the territorial limits (more than 12 nm from the coast). The order focuses on underwater acoustics, water quality, air quality, marine biology and essential fish habitat, and marine geology but also includes cultural resources. Specific cultural resources to be considered by EO 12114 include World Heritage Sites, submerged resources protected by international agreement, submerged resources entitled to sovereign immunity protected by the Sunken Military Craft Act, and submerged war graves also protected by the Sunken Military Craft Act.

The implementing regulations of Section 106 of the NHPA require federal agencies to take into account the effects that a proposed action would have on cultural resources included in or eligible for inclusion in the National Register. "Historic properties" is synonymous with National Register-eligible or -listed archaeological, architectural, or traditional resources. Cultural resources that have not been formally evaluated (e.g., a consensus determination in consultation with the State Historic Preservation Office) may be considered potentially eligible and thus are afforded the same regulatory consideration as resources listed in the National Register. Evaluations and determinations of historic properties within the Study Area are the responsibility of the federal agency, in consultation with State Historic Preservation Offices in Alaska and Washington. Consultations are not conducted with the State Historic Preservation Offices in Oregon or California because training and testing activities occur outside 12 nm from the coastline of these states, excluding the activities from state jurisdiction.

3.10.1.3.1.2 National Register of Historic Places Criteria

Properties are evaluated for nomination to the National Register and for National Register eligibility using the following criteria (36 C.F.R. § 60.4(a)-(d)):

- Criterion A: Associated with events that have made a significant contribution to the broad patterns of American history
- Criterion B: Associated with the lives of persons significant in the American past
- Criterion C: Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction
- Criterion D: Yield, or may be likely to yield, information important in prehistory or history

A historic property also must possess the aspects of integrity—location, design, setting, materials, workmanship, feeling, and association—to convey its significance and to qualify for the National

Register. These seven aspects, in various combinations, define integrity. To retain integrity, a property will always possess several, and usually most, of these aspects.

Cultural resources in U.S. territorial waters (within 12 nm of the coastline) are defined as follows:

- Resources listed in or eligible for listing in the National Register (Section 106 of the NHPA)
- Resources entitled to sovereign immunity (e.g., Russian brigs)

3.10.1.3.1.3 Previous Section 106 Consultation

The Navy previously conducted Section 106 consultations for the training and testing activities included in the No Action Alternative. These consultations were completed with activities at the NWTRC; the NUWC Division, Keyport; and SEAFAC. On 18 March 2009, the Washington State Historic Preservation Office concurred with the Navy's finding of No Historic Properties Affected for activities proposed in the NUWC Division, Keyport Range Complex Extension (Whitlam 2009a). On 5 November 2009, the Washington State Historic Preservation Office concurred with the Navy's finding of No Adverse Affect to Historic Properties for activities proposed in the NWTRC (Whitlam 2009b). In each letter, the Washington State Historic Preservation Office asked to receive any correspondence or comments from concerned tribes or other parties. It also stipulated that should archaeological or historic materials be discovered during project activities, work in the immediate vicinity would stop, the area would be secured, and concerned tribes and the State Historic Preservation Office would be notified. Section 106 consultation between the Alaska State Historic Preservation Office, the U.S. Forest Service, and the Advisory Council on Historic Preservation was conducted in 1989 for the construction of naval facilities on Back Island associated with SEAFAC. Submerged cultural resources within the Western Behm Canal were not included in the consultation.

In September 2003, the Navy sent scoping letters to associated Native American tribes regarding the NUWC Division, Keyport Range Complex Extension EIS/OEIS. The Navy solicited feedback on the Draft EIS/OEIS in September 2008, and government-to-government consultations occurred as part of Section 106 compliance for the NUWC Division, Keyport Range Complex Extension EIS/OEIS between October 2008 and March 2009. The following Native American tribes and nations were involved in these consultations (listed in alphabetical order): Hoh Tribe, Jamestown S'Klallam Tribe, Lower Elwha Klallam Tribe, Makah Tribe, Port Gamble S'Klallam Tribe, Quileute Tribe, Quinault Nation, Skokomish Indian Tribe, and Suquamish Tribe. In addition, the Point No Point Treaty Council was notified. The Navy responded to the tribes' comments and concerns on the NUWC Keyport Range Complex Extension Draft EIS/OEIS in the response to comments section of the Final EIS/OEIS, and edits were made to the text of the document as required.

In July 2007, the Navy sent scoping letters inviting associated Native American tribes to be involved in public participation efforts associated with the NWTRC EIS/OEIS. Comments were also solicited during public review of the Draft EIS/OEIS from December 2009 to April 2010. In fulfillment of Section 106 obligations for completion of the EIS/OEIS, the Navy considered comments from Native American tribes resulting from communications during the NEPA process. The following Washington tribes were invited to participate in government-to-government consultation (listed in alphabetical order): Hoh Indian Nation, Jamestown S'Klallam Tribe, Lower Elwha Klallam Tribe, Lummi Tribe, Makah Tribe, Nisqually, Nooksack, Northwestern Indian Fisheries Commission, Point No Point Treaty Council, Port Gamble S'Klallam Tribe, Puyallup, Quileute Tribe, Quinault Nation, Sauk-Suiattle, Skokomish Indian Tribe, Squaxin Island, Stillaguamish, Suquamish Tribe, Swinomish Tribe, Tulalip Tribe, and Upper Skagit Tribe. The following Oregon and California tribes were also invited to participate in government-to-

government consultations (listed in alphabetical order): Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians; Confederated Tribes of Grande Ronde; Confederated Tribes of Siletz; Confederated Tribes of the Umatilla Indian Reservation; Confederated Tribes of the Warm Springs Reservation; Coquille Tribe; Cow Creek Band of Umpqua Tribe; Klamath Tribes (Klamath, Modoc, Yahooskin); Tolowa Nation/Trinidad Rancheria; Upper Shoal Water Tribe; and Yurok Indian Reservation. No government-to-government consultation was requested, and all communication with the Navy was conducted through tribal staff. Comments expressing concern related to several topics, including impacts on usual and accustomed fishing rights, communication protocols between the Navy and tribes, and safety of tribal fishing vessels, were provided by the tribes. The Navy responded to the tribes' comments and concerns on the NWTRC Draft EIS/OEIS in the response to comments section of the Final EIS/OEIS, and revisions were made to the text of the document as required.

3.10.1.3.2 Data Sources

Cultural resources information relevant to this EIS/OEIS was derived from various sources, including previous environmental documents, shipwreck databases, the National Register Information System (managed by the National Park Service), online information repositories associated with State Historic Preservation Offices, online maps and data, and published sources, as cited. Previous environmental documents used for general information include the *Northwest Training Range Complex EIS/OEIS* (U.S. Department of the Navy 2010a) and the *NAVSEA NUWC Keyport Range Complex Extension EIS/OEIS* (U.S. Department of the Navy 2010b).

The online National Register Information System was reviewed to identify National Register-listed properties, historic districts, and National Historic Landmarks. Appropriate information associated with the State Historic Preservation Offices' repositories was obtained from previous documents, and their online databases were reviewed for information on submerged resources, types, and eligibility for listing in the National Register.

3.10.1.3.3 Cultural Context

Several types of historic properties may be present in the Study Area, including wrecks of ships, submarines, aircraft, and barges; sunken navigational equipment such as buoys; and man-made obstructions. The context within which these types of resources were formed provides an understanding of the overall development of the resource base and information on relative locations.

As the result of mechanical, chemical, and biological erosion and decay, historic shipwrecks exhibit differential preservation. Shipwrecks in high-energy zones, as in shallow waters along the coastlines, are generally less well preserved because they have been scoured by the abundant fluvial sediments driven by coastal currents and heavy wave action (Pearson et al. 2003). However, if portions of the shipwreck are buried in sediment and protected from scouring, preservation may be high. Ferrous metal oxidation is accelerated by elevated seawater temperature, and shipworms consume wooden ship members. Deep-water wrecks may be better preserved because the lower seawater temperatures at depth slow the oxidation of ferrous metals and reduce the number of wood-eating shipworms; however, preservation of deep-water shipwrecks does vary (Pearson et al. 2003).

In accordance with the Abandoned Shipwreck Act, abandoned shipwrecks in state waters on the Pacific coast are considered the property of the U.S. government (Barnette 2010). Warships or other vessels used for military purposes at the time of their sinking retain sovereign immunity (e.g., Russian brigs). According to the principle of sovereign immunity, foreign warships sunk in U.S. territorial waters are

protected by the U.S. government, which acts as custodian of the sites in the best interest of the sovereign nation (Neyland 2001).

Estimated numbers of historic submerged resources used in this EIS/OEIS are compiled from various information sources. Data changes are made yearly as exploration systems become more sophisticated and additional discoveries are made. Because no comprehensive survey or evaluation of submerged historic resources has occurred for the entire Study Area, discoveries of additional submerged historic resources may occur. Additionally, some existing and unrecorded submerged historic resources could be considered eligible for the National Register.

3.10.1.3.3.1 Offshore Area

The Offshore Area contains submerged historic resources primarily associated with maritime trade, transport, and military activities, and it includes many shipwrecks. In particular, the Olympic coast of Washington is a ship graveyard as a result of the isolated, rocky shores, heavy ship traffic, and ferocious weather and wave action. These conditions have resulted in numerous foundering, collisions, and groundings. Some ships simply disappeared, with a last known location recorded by a lighthouse tender.

3.10.1.3.3.2 Inland Waters

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. Before and during the glacial period, active volcanoes contributed to formation of some of the existing landforms (Blukis Onat 1994). Present-day shorelines and islands resulted from both the erosion and deposition of natural materials.

Continuing human occupation and use of the northern Puget Sound region dates to perhaps 8,000 years ago. Prehistoric northwest coast peoples lived in an area with a relatively mild climate, temperate rain forest, and rich marine life. Cultural adaptations to this environment varied somewhat among tribes, but generally these groups were nonhorticultural peoples whose 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, 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, including cockles, clams, saltwater snails, oysters, barnacles, crab, chitons, and mussels (U.S. Department of the Navy 1997).

With a few exceptions, northwest coast peoples occupied permanent villages in winter, and many had permanent structures for other seasons (Suttles 1990). 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.

3.10.1.3.3.3 Western Behm Canal, Alaska

The following cultural history is adapted and excerpted from the National Park Service (2012):

The southeastern region of Alaska, also known as the Alaska Panhandle, stretches from the Copper River delta and the Malaspina Forelands, past the Alexander Archipelago south to the northern end of the Queen Charlotte Islands (at the Dixon Entrance to Hecate Strait) in a narrow arc extending along the North Pacific coast. Sharply bounded on the inland side by mountain ranges, this zone is radically different in climate, vegetation, and fauna from the regions beyond the mountains. The coastal strip features a relatively mild climate, temperate rain forest, and rich marine life. There are two coastal environments in the zone: outer coast and inner coast. The famed Inside Passage of Alaska, a sheltered coastline separated from the open ocean by the islands of the Alexander Archipelago, provided a protected marine environment for exploitation. Areas north of this region were exposed to the open Pacific and Gulf of Alaska, a much more difficult ecological zone that experienced less of a classic Northwest Coast cultural development.

The “classic” views of the Pacific Northwest as a culture have been modified over the years, but the basic perception of cultural unity with many cultural traits shared up and down the coast has persisted. This culture is characterized by a nonhorticultural subsistence style based on hunting and gathering. Because of the richness and predictability of such resources (e.g., fishing for salmon and halibut, sea mammal hunting, shellfish, plants, berries), surpluses were generated, and a complex sociocultural system developed along with an elaborate and distinctive art style. Material culture was distinctive in its highly developed and elaborate woodworking technology that produced plank houses, bowls, canoes, monuments, boxes, and many other tools and utensils. A highly developed twined basketry was also notable, as were textiles of wool and vegetable fiber. Permanent winter villages or towns were a standard settlement pattern.

The evolution of the historic, “classic” Northwest Coast culture, with its coastal subsistence focus and stratified, complex social organization, has been attributed to the differential access of groups to the major and stable resources of the area such as streams with major salmon runs. The ability to harvest and accumulate surpluses of these resources led to more wealth and power for some groups than others—with property, increased population, and influence. A highly developed art and oral culture, warfare, slavery, extensive trading relationships, sophisticated technology, and institutions such as the potlatch became widespread up and down the coast.

Beginning in 1741, with Bering's second expedition that touched on the northwest coast, European contact continued and increased. Russian exploitation of sea otter fueled continued expansion and settlement from the Aleutians. Russians made solid contact with the Eyak and Tlingit by 1780. By 1779, Spanish explorers had reached as far north as southeastern Alaska. James Cook's third voyage, in 1778, reached Nootka Sound and the Gulf of Alaska. Lituya Bay was explored by the French under LaPerouse in 1786. A Spanish scientific expedition under the leadership of Malaspina reached Yakutat Bay in 1791. Sitka was founded by the Russians in 1799 and destroyed by the Tlingit in 1802. The Tlingit fort was destroyed in 1804 by the Russians, and the first permanent European base on the Northwest Coast was built at Novo-Arkhangel'sk. American purchase of Alaska in 1867 led to further settlement and

exploitation of the region. The Klondike Gold Rush of 1898, followed by a series of other gold rushes, led to the opening of Alaska, which has continued to this day (National Park Service 2012).

3.10.2 AFFECTED ENVIRONMENT

The affected environment is discussed relative to known wrecks, obstructions, occurrences, or unknowns; cultural resources eligible for or listed in the National Register of Historic Places; and cultural resources eligible for or listed in state registers. Within these categories, the Study Area is divided into three distinct regions for cultural resources evaluation: the Offshore Area, the Inland Waters, and Western Behm Canal, Alaska. In accordance with an addendum to the NHPA, only potential impacts on World Heritage sites will be addressed in areas beyond 12 nm; however, no resources identified on the World Heritage List occur in the Study Area.

3.10.2.1 Known Wrecks, Obstructions, Occurrences, or Unknowns

3.10.2.1.1 Offshore Area

At Washington, the eastern boundary of the Offshore Area abuts the coastline and includes a 1-mile-wide surf zone of Quinault Range Site. This portion of the study area contains many known shipwrecks. As shown in Figure 3.10-1, more than 150 wrecks have been documented near the Olympic Coast National Marine Sanctuary (National Oceanic and Atmospheric Administration 2008). Along the shorelines of the sanctuary are memorials to crews and passengers who died in nearby shipwrecks. These include the wrecks of the *Prince Arthur* in 1903, the *P.J. Pirrie* in 1920, nine ships wrecked between Quillayute Rocks and Cape Alava, five at Destruction Island, and four near Hoh Head (National Oceanic and Atmospheric Administration 1993).

At Oregon and in Northern California, the Study Area boundary is 12 nm off the coastline. At this distance, states and their associated State Historic Preservation Offices do not have jurisdiction. If cultural resources were discovered, these resources would not be listed on either the state registers or the National Register of Historic Places because they are beyond state and U.S. territorial waters.

3.10.2.1.2 Inland Waters

The Strait of Juan de Fuca and Puget Sound contain an extensive collection of wrecks (Figure 3.10-2) (Northern Maritime Research 2007). For example, six known shipwrecks are in waters adjacent to NAVBASE Kitsap Bangor, while 105 are in the Crescent Harbor area.

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). Those that have been identified date from the early 1800s (including the Hudson Bay supply ship *Isabella*, which sank around 1830) to modern fishing boats, barges, cabin cruisers, and tugs. Some of the vessels were cargo ships and freighters damaged during World War II. A mine sweeper, the *USS Crow*, was sunk by an erratic-running aircraft torpedo in the Puget Sound in 1943 (Naval Historical Center 2004). Some ships were deliberately sunk to create artificial habitats or reefs.

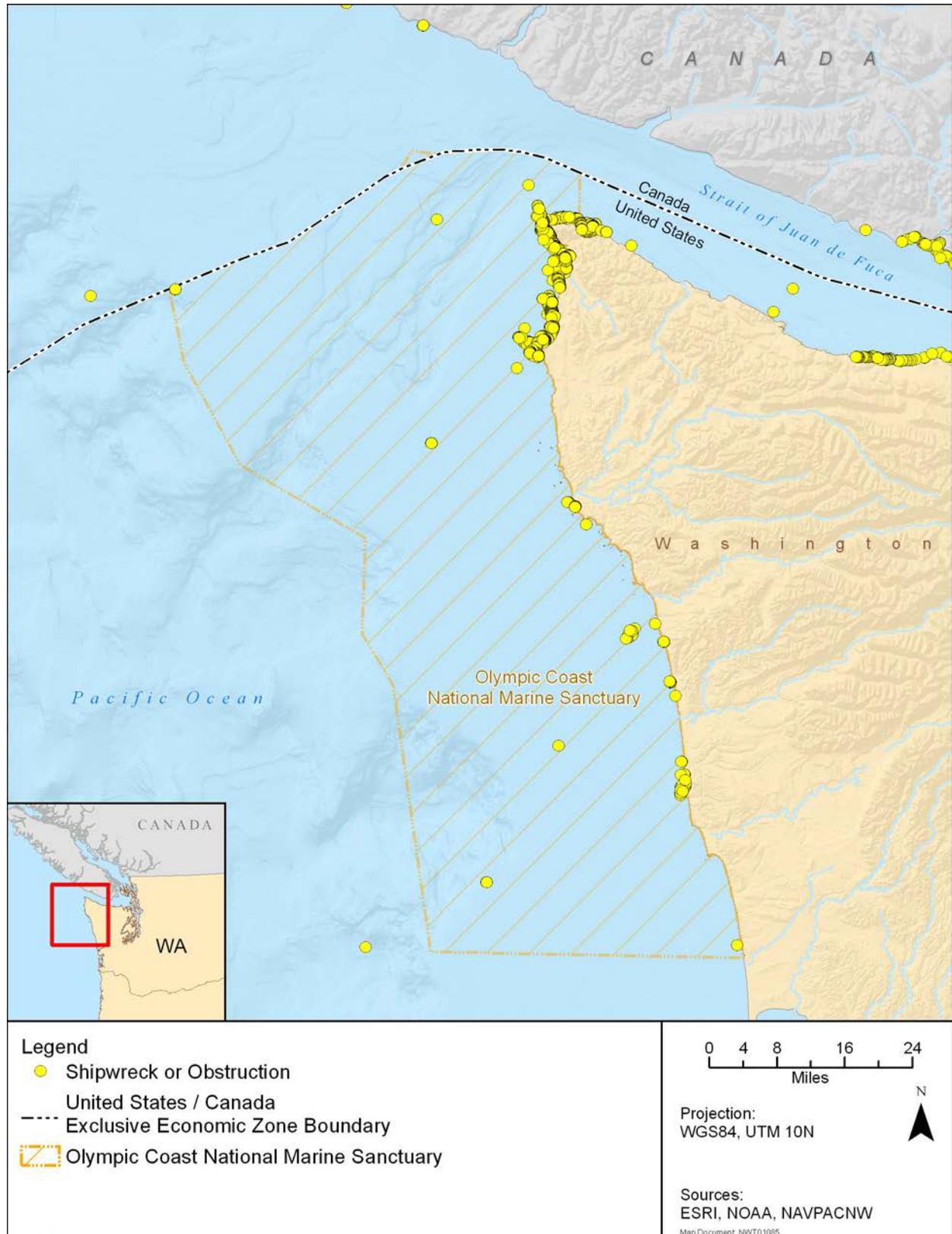


Figure 3.10-1: Known Shipwrecks and Obstructions in the Northern Portion of the Offshore Area

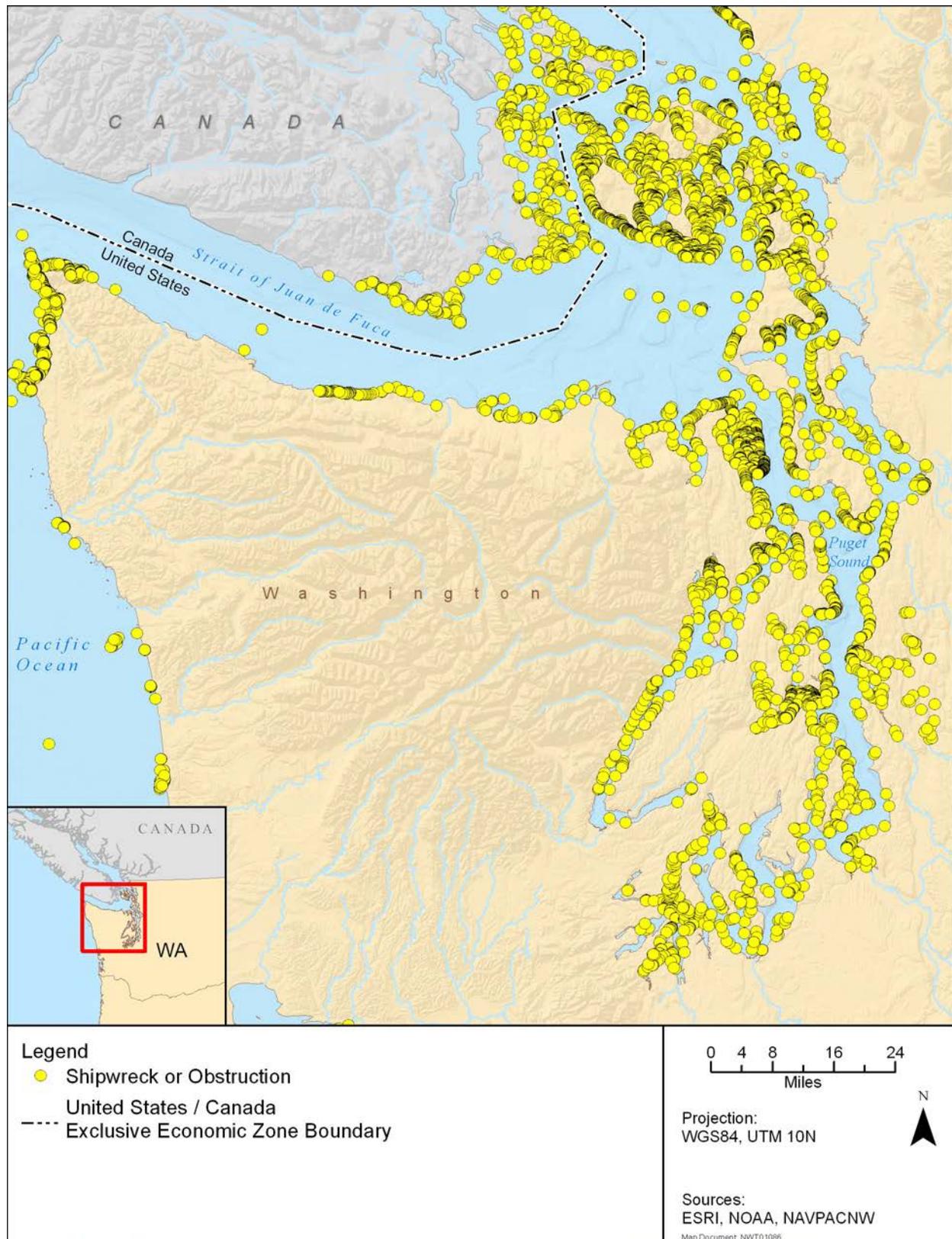


Figure 3.10-2: Known Shipwrecks and Obstructions within the Inland Waters

The numerous shipwrecks reflect a wide variety of ship types and countries of origin, including:

- A three-masted square-rigger, later riggered as a bark to make her more suitable for trade among Pacific coast ports
- An iron barkentine-riggered steam sloop
- An iron, three-masted bark
- A clipper ship used in the guano trade
- A merchant marine ship
- A wooden sailing vessel
- A side-wheeler
- A steam schooner
- A passenger steamer
- An 1808 Russian sailing brig (for the fur trade)
- A British freighter
- An iron-hulled, four-masted bark refitted as a schooner-barge

Ten shipwrecks are within or near the NUWC Division, Keyport (U.S. Department of the Navy 2003, Northern Maritime Research 2007): the *Laurel*, the *Elk*, the *A.R. Robinson*, the *R.M. Hasty*, the *Orion*, the *B.C. Company No. 4*, the *Union*, the *Curlew*, the *Nokomis*, and an unnamed vessel.

3.10.2.1.3 Western Behm Canal, Alaska

The Bureau of Ocean Energy Management's Alaskan shipwreck inventory was used to identify existing records of shipwrecks near the Study Area. The agency provides the most comprehensive compilation of Alaska shipwrecks to date. The database lists shipwrecks in Alaska from earliest Russian times (1741) to the present, as compiled from an extensive literature search. The electronic database was updated in May 2011 (Bureau of Ocean Energy Management 2012). Queries were completed for Behm Canal and other named areas in the immediate vicinity of the SEAFAC Restricted Area, including Clover Passage, Clover Pass, Naha Bay, Bond Bay, Helm Bay, Wading Cove, and Raymond Cove. The results of the search indicated the presence of 29 shipwrecks within or near the Study Area (Figure 3.10-3). These included steamers, a skiff, a ferry, a salmon troller, and numerous gas screws.

3.10.2.2 Cultural Resources Eligible for or Listed in the National Register of Historic Places

3.10.2.2.1 Offshore Area

To determine the potential presence of cultural resources in the Study Area eligible for or listed in the National Register, the National Register Information System online database was searched by county, and prior compliance documents were reviewed. No cultural resources or traditional cultural properties were identified.

3.10.2.2.2 Inland Waters

To determine the potential presence of cultural resources in the Study Area eligible for or listed in the National Register, the National Register Information System online database was searched by county, and prior compliance documents were reviewed. No cultural resources or traditional cultural properties were identified.

3.10.2.2.3 Western Behm Canal, Alaska

To determine the potential presence of cultural resources in the Study Area eligible for or listed in the National Register, the National Register Information System online database was searched by county, and prior compliance documents were reviewed. No cultural resources or traditional cultural properties were identified.

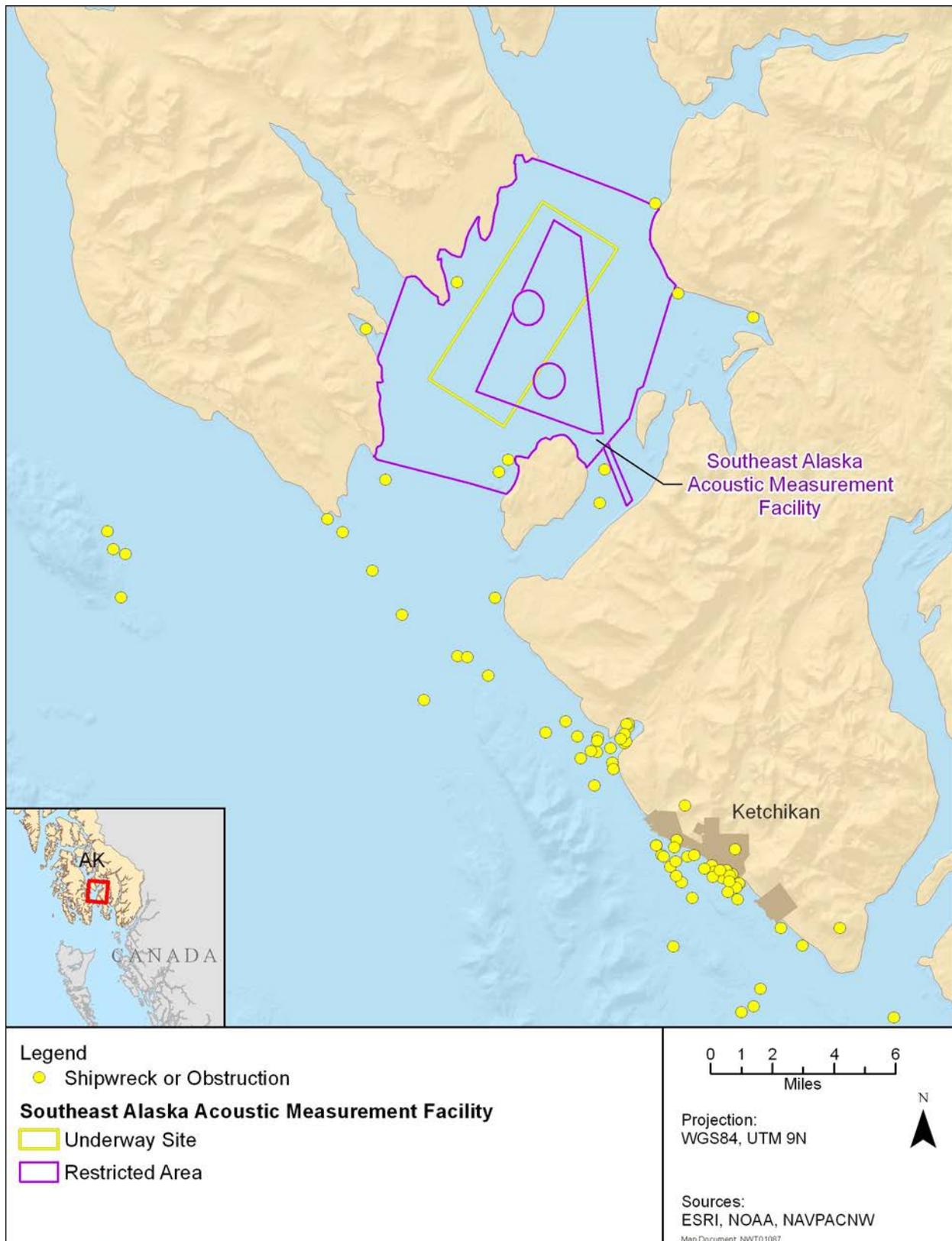


Figure 3.10-3: Known Shipwrecks and Obstructions in the Southeast Alaska Acoustic Measurement Facility Area

3.10.2.3 Cultural Resources Eligible for or Listed in State Registers

3.10.2.3.1 Offshore Area

To determine the potential presence of cultural resources in the Study Area eligible for or listed in state registers, state online databases were searched and prior compliance documents were reviewed. No cultural resources were identified.

3.10.2.3.2 Inland Waters

To determine the potential presence of cultural resources in the Study Area eligible for or listed in state registers, state online databases were searched and prior compliance documents were reviewed. No cultural resources were identified.

3.10.2.3.3 Western Behm Canal, Alaska

To determine the potential presence of cultural resources in the Study Area eligible for or listed in state registers, state online databases were searched and prior compliance documents were reviewed. No cultural resources were identified.

3.10.2.4 Current Practices

The Navy has established protective measures to reduce potential effects on cultural resources from training and testing exercises. The Navy routinely avoids known submerged obstructions, including submerged cultural resources such as historic shipwrecks. Known obstructions are avoided to prevent damage to sensitive Navy equipment and vessels and to ensure the accuracy of training and testing exercises.

3.10.3 ENVIRONMENTAL CONSEQUENCES

This section evaluates how and to what degree the activities described in Chapter 2 (Description of Proposed Action and Alternatives) could impact cultural resources of the Study Area. Tables 2.8-1 through 2.8-3 present the baseline and proposed training and testing activity locations for each alternative (including numbers of events and ordnance expended). Appendix A describes the warfare areas and associated stressors that were considered for analysis of cultural resources. The stressors vary in intensity, frequency, duration, and location within the Study Area. The stressors applicable to cultural resources include:

- Acoustic Stressors
 - Impacts from underwater explosions – shock (pressure) waves
 - Impacts from underwater explosions – cratering
- Physical Stressors
 - Impacts from in-water device strikes
 - Impacts from seafloor devices
 - Impacts from deposition of military expended materials

Sonar and other non-impulse sources do not affect the structural elements of historic shipwrecks and, therefore, an in-depth analysis of sonar impacts will not be included in this section. Archaeologists regularly use multibeam sonar and sidescan sonar to explore shipwrecks without disturbing them. Based on the physics of underwater sound, the shipwreck would need to be very close (< 22 feet [ft.] [< 6.7 meters {m}]) to the sonar sound source for the shipwreck to experience even slight oscillations from the induced pressure waves. Any oscillations experienced at a depth of less than 22 ft. (6.7 m)

would be negligible up to within a few yards from the sonar source. This distance is smaller than the typical safe navigation and operating depth for most sonar sources; therefore, sonar sources are not expected to impact historic shipwrecks.

Based on an initial screening of potential impacts of sonar maintenance and testing, pierside locations have been eliminated from detailed consideration in the analysis of impacts on cultural resources based on the extremely limited potential for active sonar to damage adjacent historic properties.

Table 3.10-1 presents quantitative data (number of components or activities) for the analysis of each stressor applicable to cultural resources. The specific analysis of the training and testing activities presented in this section considers relevant components and associated data with the geographic location of the activity and the resource. Training activities are not proposed in the Western Behm Canal; therefore, only the Offshore Area and the Inland Waters will be analyzed under Training Activities.

Table 3.10-1: Stressors Applicable to Cultural Resources for Training and Testing Activities

Components	Area	Number of Components or Activities					
		No Action Alternative		Alternative 1		Alternative 2	
		Training	Testing	Training	Testing	Training	Testing
Acoustic Stressors							
Underwater explosions – IEER and SUS buoys	Offshore Area	150	0	150	142	150	156
	Inland Waters	0	0	0	0	0	0
	W. Behm Canal	0	0	0	0	0	0
Underwater explosions – EOD	Offshore Area	0	0	0	0	0	0
	Inland Waters	4	0	42	0	42	0
	W. Behm Canal	0	0	0	0	0	0
Physical Disturbance and Strike Stressors							
Activities including in-water devices	Offshore Area	429	40	484	154	484	183
	Inland Waters	0	379	1	648	1	716
	W. Behm Canal	0	0	0	0	0	0
Military expended materials	Offshore Area	189,668	621	196,888	2,511	196,888	2,764
	Inland Waters	8	446	85	517	85	568
	W. Behm Canal	0	0	0	0	0	0
Activities including seafloor devices	Offshore Area	0	5	0	6	0	7
	Inland Waters	2	210	16	225	16	239
	W. Behm Canal	0	0	0	5	0	15

Notes: (1) The values presented include the entire Offshore Area for training activities; however, only 3 percent of Warning Area 237 occurs within the 3–12 nm limit. Therefore, the number of activities analyzed is limited to this portion of the Offshore Area.

(2) IEER = Improved Extended Echo Ranging; SUS = Signal, Underwater Sound; EOD = Explosive Ordnance Disposal; nm = nautical miles

3.10.3.1 Acoustic Stressors

Acoustic stressors that could impact cultural resources are vibration and shock (pressure) waves from underwater explosions, as well as cratering created by underwater explosions. A shock wave and oscillating bubble pulses resulting from underwater explosions associated with the use of torpedoes,

missiles, bombs, projectiles, mines, and improved extended echo ranging sonobuoys could impact the exposed portions of nearby submerged historic resources. Shock waves (pressure) generated by underwater explosions would be periodic rather than continuous and could create overall structural instability and eventual collapse of architectural features of submerged historic resources. The amount of damage would depend on factors such as the size of the charge, the distance from the historic shipwreck, the water depth, and the topography of the ocean floor.

3.10.3.1.1 Impacts from Explosive Shock (Pressure) Waves from Underwater Explosions

Anti-surface missiles and projectiles explode at or within 3 ft. (1 m) below the ocean surface. Shockwaves (pressure) from these types of explosions within the water column would not reach historic resources on the ocean floor. Underwater detonations of improved extended echo ranging sonobuoys or other types of explosive rounds would occur well below the surface and on or near the ocean bottom. Shock waves from nearby underwater detonations may damage the exposed portions of historic shipwrecks because water rapidly transmits shock waves. The amount of damage from an underwater explosion would depend on factors such as the size of the explosive charge, the distance from the historic shipwreck, and the topography of the seafloor.

3.10.3.1.1.1 No Action Alternative

Training Activities

Offshore Area

Under the No Action Alternative, training activities would continue at current levels within existing designated areas in the Offshore Area (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Consequently, no impacts on cultural resources are expected from shock waves created by underwater detonations.

Inland Waters

Under the No Action Alternative, training activities would continue at current levels within existing designated areas within the Inland Waters (see Table 3.10-1), specifically Crescent Harbor and Hood Canal Explosive Ordnance Disposal (EOD) Ranges. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Consequently, no impacts on cultural resources are expected from shock waves created by underwater detonations.

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives during training activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under the No Action Alternative, there are no testing activities in the Offshore Area that include underwater explosions (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions at depth to affect submerged historic resources.

Inland Waters

Under the No Action Alternative, no testing activities in the Inland Waters include underwater detonations (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions to affect submerged historic resources.

Western Behm Canal, Alaska

No testing activities in the Western Behm Canal include underwater detonations under any alternative (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions to affect submerged historic resources.

The Navy does not propose to use underwater explosives during testing activities under the No Action Alternative. Therefore, in regard to Section 106 of the National Historic Preservation Act, there is no potential for shock waves from underwater explosions to adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.1.1.2 Alternative 1**Training Activities****Offshore Area**

Under Alternative 1, the use of improved extended echo ranging sonobuoy or other explosive-round detonations in the Offshore Area would continue at current levels as in the No Action Alternative (see Table 3.10-1). Training would continue at existing ranges where the Navy currently trains. Therefore, effects from training in the Offshore Area would be the same as described in Section 3.10.3.1.1.1 (No Action Alternative).

Inland Waters

Under Alternative 1, the number and type of underwater detonations associated with mine neutralization in the Inland Waters would increase from the No Action Alternative (see Table 3.10-1). The Navy previously analyzed impacts that could result from the same or relatively similar underwater detonations at these sites and concluded there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). In Alternative 1, explosives training would increase from two 2.5-pound (lb.) and two 1.5 lb. underwater detonations at Crescent Harbor and Hood Canal, respectively, to three 2.5 lb. underwater detonations at each location. Additionally, under Alternative 1, six annual events would take place (three each at Crescent Harbor and Hood Canal) in which up to six shock wave action generators (SWAG) would be used per event. Each SWAG consists of a small explosive charge of less than 0.5 ounce. Of the increase in underwater detonations from the No Action Alternative to Alternative 1, 36 of the 42 would be these much smaller SWAG detonations. Furthermore, known historic shipwrecks, obstructions, and archaeological sites are avoided during training exercises. As a result, no effects on cultural resources from shock waves created by underwater detonations at depth are expected.

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives during training activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities**Offshore Area**

Under Alternative 1, underwater explosions would be introduced in the Offshore Area (see Table 3.10-1). However, the No Action Alternative includes testing activities that involve this stressor, which were previously analyzed by the Navy and concluded to result in no adverse effects on historic properties. The Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, known historic shipwrecks, obstructions, and archaeological sites are avoided during testing. As a result, no effects on cultural resources from shock waves created by underwater detonations are expected.

Inland Waters

Under Alternative 1, no testing activities in the Inland Waters include underwater detonations (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions to affect submerged historic resources.

Western Behm Canal, Alaska

No testing activities in the Western Behm Canal include underwater detonations under any alternative (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions to affect submerged historic resources.

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives during testing activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.1.1.3 Alternative 2**Training Activities****Offshore Area**

Under Alternative 2, the use of improved extended echo ranging sonobuoy or other explosive-round detonations in the Offshore Area would continue at current levels as in the No Action Alternative (see Table 3.10-1). Training would continue at existing ranges where the Navy currently trains. Therefore, effects from training in the Offshore Area would be the same as described in Section 3.10.3.1.1.1 (No Action Alternative).

Inland Waters

Under Alternative 2, the number and type of underwater detonations associated with mine neutralization in the Inland Waters would increase from the No Action Alternative as described under Alternative 1 (see Table 3.10-1). However, effects from training in the Inland Waters would be similar as described in Section 3.10.3.1.1.2 (Alternative 1).

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives during training activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities**Offshore Area**

Under Alternative 2, underwater explosions would be introduced in the Offshore Area and conducted at a slightly higher frequency than under Alternative 1 (see Table 3.10-1). However, the No Action

Alternative includes testing activities that involve this stressor, which were previously analyzed by the Navy and concluded to result in no adverse effects on historic properties. The Washington State Historic Preservation Office concurred with this finding. Furthermore, known historic shipwrecks, obstructions, and archaeological sites are avoided during testing. As a result, no effects on cultural resources from shock waves created by underwater detonations are expected.

Inland Waters

Under Alternative 2, no testing activities in the Inland Waters include underwater detonations (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions to affect submerged historic resources.

Western Behm Canal, Alaska

No testing activities in the Western Behm Canal include underwater detonations under any alternative (see Table 3.10-1). Therefore, there is no potential for shock waves from underwater explosions to affect submerged historic resources.

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives during testing activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.1.2 Impacts from Explosives – Cratering

Underwater explosions at depth or on or near the ocean bottom could displace sediment and leave a crater. Cratering could affect submerged historic resources (e.g., shipwrecks) at or near the point of detonation. Cratering of unconsolidated, soft-bottom habitats would result from mine neutralization charges set on or near the bottom. These relatively small (no greater than 2.5 lb.) charges are set by Navy divers in shallow waters. Cratering could disrupt or destroy features of unidentified historic shipwrecks and unrecorded historic resources and could destroy those characteristics that would make them eligible for listing in the National Register of Historic Places.

3.10.3.1.2.1 No Action Alternative

Training Activities

Offshore Area

Under the No Action Alternative, no training activities in Offshore Area include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Inland Waters

Under the No Action Alternative, training activities in the Inland Waters that include underwater explosions would continue at current levels within existing designated areas (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Consequently, no impacts on cultural resources are expected by cratering caused by underwater explosions.

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives at or near the ocean bottom during training activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under the No Action Alternative, no testing activities in Offshore Area include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Inland Waters

Under the No Action Alternative, no testing activities in the Inland Waters include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Western Behm Canal, Alaska

No testing activities in the Western Behm Canal include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

The Navy does not propose to use underwater explosives at or near the ocean bottom during testing activities under the No Action Alternative. Therefore, with regard to Section 106 of the National Historic Preservation Act, there is no potential for cratering from underwater explosions to adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.1.2.2 Alternative 1

Training Activities

Offshore Area

Under Alternative 1, no training activities in Offshore Area include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Inland Waters

Under Alternative 1, the number of detonations in the Inland Waters associated with mine warfare exercises would increase from the No Action Alternative (see Table 3.10-1). Training would continue at the existing Crescent Harbor and Hood Canal EOD Ranges, where the Navy currently trains. The Navy previously analyzed impacts that could result from these activities and concluded that there would either be no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources are expected by cratering caused by underwater explosions.

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives at or near the ocean bottom during training activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities**Offshore Area**

Under Alternative 1, no testing activities in Offshore Area include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Inland Waters

Under Alternative 1, no testing activities in the Inland Waters include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Western Behm Canal, Alaska

No testing activities in the Western Behm Canal include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

The Navy does not propose to use underwater explosives at or near the ocean bottom during testing activities under Alternative 1. Therefore, in accordance with Section 106 of the National Historic Preservation Act, there is no potential for cratering from underwater explosions to adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.1.2.3 Alternative 2**Training Activities****Offshore Area**

Under Alternative 2, no training activities in Offshore Area include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Inland Waters

Under Alternative 2, the number of detonations in the Inland Waters associated with mine warfare exercises would increase from the No Action Alternative as described under Alternative 1 (see Table 3.10-1). Therefore, impacts from training in the Inland Waters would be similar as described in Section 3.10.3.1.2.2 (Alternative 1).

In accordance with Section 106 of the National Historic Preservation Act, the use of underwater explosives at or near the ocean bottom during training activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities**Offshore Area**

Under Alternative 2, no testing activities in Offshore Area include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Inland Waters

Under Alternative 2, no testing activities in the Inland Waters include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

Western Behm Canal, Alaska

No testing activities in the Western Behm Canal include underwater explosions at depth or on or near the ocean bottom (see Table 3.10-1). Therefore, there is no potential for cratering from underwater explosions to affect submerged historic resources.

The Navy does not propose to use underwater explosives at or near the ocean bottom during testing activities under Alternative 2. Therefore, in regard to Section 106 of the National Historic Preservation Act, there is no potential for cratering from underwater explosions to adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2 Physical Disturbance and Strike Stressors

Any physical disturbance on the continental shelf and seafloor, such as targets or mines resting on the seafloor, moored mines, bottom-mounted tripods, unmanned underwater vehicles, or bottom crawlers, could inadvertently damage or destroy submerged historic resources. Use of a towed system and attachment cable could inadvertently encounter, snag, damage, and/or destroy unknown historic resources in shallow water if such resources are within the training and testing areas. Expended materials such as chaff, flares, projectiles, casings, target or missile fragments, non-explosive practice munitions, rocket fragments, ballast weights, sonobuoys, torpedo launcher accessories, or mine shapes could be deposited on the ocean bottom on or near submerged historic resources. Heavier expended materials could damage intact fragile shipwreck features if they landed with sufficient velocity on a resource.

3.10.3.2.1 Impacts from In-Water Devices

Activities including in-water devices as discussed in this analysis employ unmanned vehicles such as remotely operated vehicles, unmanned surface and undersea vehicles, and towed devices. These devices are self-propelled and unmanned or towed through the water from a variety of platforms, including helicopters and surface ships. Towed systems and attachment cables could inadvertently encounter, snag, damage, or destroy historic resources in relatively shallow water, especially during low tide, if such resources are within the Study Area. Before deploying an in-water device, it is standard operating procedure to search the intended path of the device for any floating debris (e.g., driftwood) or other potential surface obstructions because they have the potential to damage the device.

3.10.3.2.1.1 No Action Alternative

Training Activities

Offshore Area

Under the No Action Alternative, training activities with the potential for impacts from activities including in-water devices would continue at current levels in existing designated areas within the Offshore Area (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources are expected by activities including in-water devices.

Inland Waters

Under the No Action Alternative, no training activities with the potential for impacts from activities including in-water devices occur within the Inland Waters (see Table 3.10-1).

In accordance with Section 106 of the National Historic Preservation Act, the use of in-water devices during training activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under the No Action Alternative, testing activities with the potential for impacts from activities including in-water devices would continue at current levels in existing designated areas within the Offshore Area (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. Therefore, submerged historic resources would not be affected by testing included in the No Action Alternative.

Inland Waters

Under the No Action Alternative, testing activities with the potential for impacts from activities including in-water devices would continue at current levels in existing designated areas within the Inland Waters (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources from activities including in-water devices are expected.

Western Behm Canal, Alaska

There are no testing activities in the Western Behm Canal with the potential for impacts from activities including in-water devices (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the use of in-water devices during testing activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.1.2 Alternative 1

Training Activities

Offshore Area

Under Alternative 1, the number of anti-submarine warfare and mine warfare training activities with potential for impacts from activities including in-water devices would increase from the No Action Alternative (see Table 3.10-1). In-water devices would be deployed in areas currently used for training. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources by activities including in-water devices are expected.

Inland Waters

Under Alternative 1, the Navy proposes to conduct one activity (Maritime Homeland Defense/Security Mine Countermeasures Integrated Exercise, conducted once every 2 years) that would have the potential for impacts from activities including in-water devices (see Table 3.10-1). In-water devices would be deployed in areas currently used for training but would also be deployed in additional areas. The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources from activities including in-water devices are expected.

In accordance with Section 106 of the National Historic Preservation Act, the use of in-water devices during training activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities**Offshore Area**

Under Alternative 1, testing activities in the Offshore Area with the potential for impacts from the use of in-water devices would increase from the No Action Alternative (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. Therefore, submerged historic resources would not be affected by testing included in Alternative 1.

Inland Waters

Under Alternative 1, testing involving activities using in-water devices would increase (see Table 3.10-1), and additional testing would also be introduced in the Inland Waters, representing additional activity compared to the No Action Alternative. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources by activities including in-water devices are expected.

Western Behm Canal, Alaska

There are no testing activities in the Western Behm Canal with the potential for impacts from activities including in-water devices (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the use of in-water devices during testing activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.1.3 Alternative 2

Training Activities

Offshore Area

Under Alternative 2, the number of anti-submarine warfare and mine warfare training activities would increase from the No Action Alternative as described under Alternative 1 (see Table 3.10-1). In-water devices would be deployed in areas currently used for training. Therefore, impacts from training in the Offshore Area would be the same as described in Section 3.10.3.2.1.2 (Alternative 1).

Inland Waters

Under Alternative 2, the Navy proposes to conduct one activity (Maritime Homeland Defense/Security Mine Countermeasures Integrated Exercise, conducted once every year) that would have the potential for impacts from activities including in-water devices as described under Alternative 1 (see Table 3.10-1). In-water devices would be deployed in areas currently used for training but would also be deployed in additional areas. Therefore, impacts from training in the Inland Waters would be the same as described in Section 3.10.3.2.1.2 (Alternative 1).

In accordance with Section 106 of the National Historic Preservation Act, the use of in-water devices during training activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under Alternative 2, testing activities in the Offshore Area with the potential for impacts from the use of in-water devices would increase from the No Action Alternative (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. Therefore, submerged historic resources would not be affected by testing included in Alternative 2.

Inland Waters

Under Alternative 2, testing involving activities using in-water devices would increase (see Table 3.10-1), and additional testing would also be introduced in the Inland Waters, representing additional activity compared to the No Action Alternative. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts on cultural resources from activities including in-water devices are expected.

Western Behm Canal, Alaska

There are no testing activities under any alternative in the Western Behm Canal with the potential for impacts from activities including in-water devices (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the use of in-water devices during testing activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.2 Impacts from Activities Including Seafloor Devices

Seafloor devices include moored mine shapes, anchors, bottom-placed instruments, and unmanned underwater vehicles that crawl across the ocean floor. Seafloor devices are either stationary or move very slowly along the bottom. Physical disturbances on the continental shelf and seafloor such as precision anchoring, targets or mines resting on the ocean floor, moored mines, bottom-mounted tripods, or autonomous or nonautonomous vehicles could damage or destroy submerged historic resources. Precision anchoring could crush or snag structural elements of historic resources; however, this is highly unlikely. Divers are used to set bottom and moored mine anchors (blocks of concrete weighing several hundred pounds) in waters less than 150 ft. (46 m) deep and routinely avoid known obstructions, which include historic resources and any unrecorded obstructions they might encounter. Seafloor devices could disrupt the horizontal patterning and vertical stratigraphy of submerged historic resources or could damage structural elements of the historic resources through crushing and snagging. However, it is unlikely these resources could be disturbed by the use of seafloor devices because the Navy routinely avoids locations of known obstructions, which includes submerged historic resources.

3.10.3.2.2.1 No Action Alternative

Training Activities

Offshore Area

No training activities using seafloor devices in the Offshore Area are included in the No Action Alternative (see Table 3.10-1). Therefore, submerged historic resources would not be affected by training activities in the No Action Alternative.

Inland Waters

Under the No Action Alternative, training activities using seafloor devices would continue at current levels (see Table 3.10-1). With the exception of precision anchoring exercises, the Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). With regard to precision anchoring activities, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from activities including seafloor devices are expected.

In accordance with Section 106 of the National Historic Preservation Act, the use of seafloor devices during training activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under the No Action Alternative, testing activities using seafloor devices would continue at current levels (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from activities including seafloor devices are expected.

Inland Waters

Under the No Action Alternative, testing activities using seafloor devices would continue at current levels (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities

and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from activities including seafloor devices are expected.

Western Behm Canal, Alaska

No testing activities including or requiring the installation of additional seafloor devices in the Western Behm Canal would occur under any alternative (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the use of seafloor devices during testing activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.2 Alternative 1

Training Activities

Offshore Area

No training activities using seafloor devices in the Offshore Area are included in Alternative 1 (see Table 3.10-1). Therefore, submerged historic resources would not be affected by training activities in Alternative 1.

Inland Waters

Under Alternative 1, training activities using seafloor devices would increase in the Inland Waters (see Table 3.10-1). With the exception of precision anchoring exercises, the Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). With regard to precision anchoring activities, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from activities including seafloor devices are expected.

In accordance with Section 106 of the National Historic Preservation Act, the use of seafloor devices during training activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under Alternative 1, testing activities using seafloor devices would increase in the Offshore Area (Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from activities including seafloor devices are expected.

Inland Waters

Under Alternative 1, testing activities using seafloor devices would increase from the No Action Alternative (see Table 3.10-1) and would involve additional testing areas. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no historic properties

affected; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009a). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from activities including seafloor devices are expected.

Western Behm Canal, Alaska

Testing activities including or requiring the installation of seafloor devices would be introduced in the Western Behm Canal (see Table 3.10-1). The Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts from testing activities including seafloor devices are expected.

In accordance with Section 106 of the National Historic Preservation Act, the use of seafloor devices during testing activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.2.3 Alternative 2

Training Activities

Offshore Area

No training activities using seafloor devices in the Offshore Area are included in Alternative 2 (see Table 3.10-1). Therefore, submerged historic resources would not be affected by training activities in Alternative 2.

Inland Waters

Under Alternative 2, training activities using seafloor devices would increase in the Offshore Area as described in Alternative 1 (see Table 3.10-1). Therefore, impacts from training in the Offshore Area would be the same as described in Section 3.10.3.2.2.2 (Alternative 1).

In accordance with Section 106 of the National Historic Preservation Act, the use of seafloor devices during training activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under Alternative 2, testing activities using seafloor devices would increase in the Offshore Area (see Table 3.10-1). However, impacts from testing activities using seafloor devices in the Offshore Area would be similar as described in Section 3.10.3.2.2.2 (Alternative 1).

Inland Waters

Under Alternative 2, testing activities using seafloor devices would increase from the No Action Alternative (see Table 3.10-1) and would involve additional testing areas. However, impacts from testing activities using seafloor devices in the Inland Waters would be similar as described in Section 3.10.3.2.2.2 (Alternative 1).

Western Behm Canal, Alaska

Under Alternative 2, testing activities including or requiring the installation of seafloor devices would be introduced in the Western Behm Canal as described under Alternative 1 (see Table 3.10-1). The Navy routinely avoids locations of known obstructions, which include submerged historic resources.

Therefore, impacts from testing in the Offshore Area would be the same as described in Section 3.10.3.2.2.2 (Alternative 1).

In accordance with Section 106 of the National Historic Preservation Act, the use of seafloor devices during testing activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.3 Impacts from Military Expended Materials

The deposition of non-explosive practice munitions, sonobuoys, and military expended materials other than ordnance could impact submerged cultural resources through possible sudden impact of resources on the seafloor or the simple settling of military expended materials on top of submerged cultural resources. The likelihood of these materials either impacting or landing on submerged cultural resources is very low because of the size of the Study Area.

Most of the anticipated expended munitions (e.g., large-caliber, non-explosive practice munitions) would be small objects and fragments that would slowly drift to the sea floor after striking the ocean surface. Larger and heavier objects (e.g., targets, bombs, or missiles) could strike the ocean surface with sufficient velocity, but they would slow down as they moved through the water. These larger and heavier objects could affect a submerged cultural resource by creating sediment and artifact displacement. A historic resource could be affected by damaging structural elements and artifacts in the regions with higher cultural resources density.

If expended materials should sink near or on a submerged cultural resource, the expended materials would not affect the historic characteristics of the submerged historic resource that contribute to its eligibility for the National Register. The presence of expended materials on submerged sites would reflect post-depositional processes.

3.10.3.2.3.1 No Action Alternative

Training Activities

Offshore Area

Under the No Action Alternative, training activities would continue at current levels in the Offshore Area (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

Inland Waters

Under the No Action Alternative, training activities associated with mine warfare would continue at current levels in the Inland Waters (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

In accordance with Section 106 of the National Historic Preservation Act, the deposition of military expended materials during training activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under the No Action Alternative, testing activities would continue at current levels within existing OPAREAs in the Offshore Area (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

Inland Waters

Under the No Action Alternative, testing activities would continue at current levels in the Inland Waters (see Table 3.10-1). The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

Western Behm Canal, Alaska

No testing activities resulting in deposition of expended materials on the ocean bottom in the Western Behm Canal would occur (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the deposition of military expended materials during testing activities under the No Action Alternative would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.3.2 Alternative 1

Training Activities

Offshore Area

Under Alternative 1, the number of expended items from training activities associated with anti-submarine and mine warfare would increase from the No Action Alternative within the Offshore Area (see Table 3.10-1). Expended materials could be deposited on the ocean bottom on or near known and previously unidentified submerged historic resources. However, these materials likely would not contact a submerged historic resource. If they sink near this type of cultural resource, the expended materials would not affect the historic characteristics of the submerged historic resource. The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

Inland Waters

Under Alternative 1, the number of expended items from training activities associated with anti-surface and mine warfare would increase from the No Action Alternative in the Inland Waters (see Table 3.10-1) with the introduction of anti-surface warfare and maritime homeland defense activities and an increase in mine warfare activities. These training activities would occur in areas currently used but would also take place in additional areas. Expended materials could be deposited on the ocean bottom on or near known and previously unidentified submerged historic resources. However, these materials likely would not contact a submerged historic resource. If they sink near this type of cultural resource, the expended materials would not affect the historic characteristics of the submerged historic resource. The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

In accordance with Section 106 of the National Historic Preservation Act, the deposition of military expended materials during training activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities

Offshore Area

Under Alternative 1, expended items from testing activities would increase from the No Action Alternative in the Offshore Area (see Table 3.10-1). Expended materials could be deposited on the ocean bottom on or near known and previously unidentified submerged historic resources. However, these materials likely would not contact a submerged historic resource. If they should sink near this type of cultural resource, the expended materials would not affect the historic characteristics of the submerged historic resource. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with this finding (Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

Inland Waters

Under Alternative 1, the number of expended items from testing activities would increase from the No Action Alternative within the Inland Waters (see Table 3.10-1). Expended materials could be deposited on the ocean bottom on or near known and previously unidentified submerged historic resources. However, these materials likely would not contact a submerged historic resource. If they sink near this type of cultural resource, the expended materials would not affect the historic characteristics of the submerged historic resource. The Navy previously analyzed impacts that could result from these activities and concluded that there would be either no historic properties affected or no adverse effects on historic properties; the Washington State Historic Preservation Office concurred with these findings (Whitlam 2009a, Whitlam 2009b). Furthermore, the Navy routinely avoids locations of known obstructions, which include submerged historic resources. As a result, no impacts by military expended materials are expected.

Western Behm Canal, Alaska

No testing activities resulting in deposition of expended materials on the ocean bottom in the Western Behm Canal would occur (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the deposition of military expended materials during testing activities under Alternative 1 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.2.3.3 Alternative 2**Training Activities****Offshore Area**

Under Alternative 2, the number of expended items from training activities associated with mine warfare would increase within the Offshore Area from the No Action Alternative as described in Alternative 1 (see Table 3.10-1). These training activities would occur in areas currently used for training. Therefore, impacts from training in the Offshore Area would be the same as described in Section 3.10.3.2.3.2 (Alternative 1).

Inland Waters

Under Alternative 2, the number of expended items from training activities associated with mine warfare would increase from the No Action Alternative within the Inland Waters as described in Alternative 1 (see Table 3.10-1). However, impacts from training in the Inland Waters would be the same as described in Section 3.10.3.2.3.2 (Alternative 1).

In accordance with Section 106 of the National Historic Preservation Act, the deposition of military expended materials during training activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

Testing Activities**Offshore Area**

Under Alternative 2, expended items from testing activities would increase from the No Action Alternative within the Offshore Area (see Table 3.10-1). However, impacts from testing in the Offshore Area would be similar as described in Section 3.10.3.2.3.2 (Alternative 1).

Inland Waters

Under Alternative 2, expended items from testing activities within the Inland Waters would increase from the No Action Alternative (see Table 3.10-1). However, impacts from testing in the Inland Waters would be similar as described in Section 3.10.3.2.3.2 (Alternative 1).

Western Behm Canal, Alaska

No testing activities resulting in deposition of expended materials on the ocean bottom in the Western Behm Canal would occur (see Table 3.10-1). Therefore, submerged historic resources would not be affected by testing activities.

In accordance with Section 106 of the National Historic Preservation Act, the deposition of military expended materials during testing activities under Alternative 2 would not adversely affect submerged historic resources within U.S. territorial waters.

3.10.3.3 Summary of Potential Impacts of All Stressors on Cultural Resources

Stressors described in this EIS/OEIS would not result in potential impacts on cultural resources under the No Action Alternative, Alternative 1, or Alternative 2 within U.S. territorial waters because measures discussed in 3.10.2.4 have been previously implemented to protect these resources. In addition, impacts that could result from the stressors associated with the training and testing activities and geographic areas included in this document have been addressed in previous compliance submittals to state and tribal agencies, who concurred with this finding. Accordingly, the Navy does not intend to consult with the Alaska, Washington, Oregon, or California State Historic Preservation Offices. Consultation could be required in the future under Section 106 of the NHPA, however, to resolve any adverse effects on cultural resources anticipated to occur within state territorial waters (within 3 nm).

Table 3.10-2 discusses the Section 106 effects applicable to cultural resources resulting from the training and testing activities that would occur under the proposed alternatives.

Table 3.10-2: Summary of Section 106 Effects of Training and Testing Activities on Cultural Resources

Alternative and Stressor	Section 106 Effects of Training and Testing Activities
No Action Alternative	
Acoustic Stressors	Acoustic stressors resulting from underwater explosions creating shock (pressure) waves and cratering of the seafloor during training and testing activities would not adversely affect submerged historic resources within United States (U.S.) territorial waters because measures have been previously implemented to protect these resources.
Physical Stressors	Physical stressors resulting from vessel strikes and use of in-water devices, use of seafloor devices, or deposition of expended materials would not adversely affect submerged historic resources within U.S. territorial waters.
Alternative 1 (Preferred Alternative)	
Acoustic Stressors	Acoustic stressors resulting from underwater explosions creating shock (pressure) waves and cratering of the seafloor during training and testing activities would not adversely affect submerged historic resources within U.S. territorial waters because measures have been previously implemented to protect these resources.
Physical Stressors	Physical stressors resulting from vessel strikes and use of in-water devices, use of seafloor devices, and deposition of expended materials during training and testing activities would not adversely affect submerged historic resources within U.S. territorial waters because measures have been previously implemented to protect these resources.
Regulatory Determination	Alternative 1 increases the number of training and testing activities and introduces these activities in additional areas. Acoustic and physical stressors, as indicated above, would not adversely affect submerged historic resources within U.S. territorial waters in accordance with Section 106 of the National Historic Preservation Act (NHPA). The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties. The Washington State Historic Preservation Office concurred with these findings. In accordance with Section 402 of the NHPA, no World Heritage sites would be affected.
Alternative 2	
Acoustic Stressors	Acoustic stressors resulting from underwater explosions creating shock (pressure) waves and cratering of the seafloor during training and testing activities would not adversely affect submerged historic resources within U.S. territorial waters because measures have been previously implemented to protect these resources.
Physical Stressors	Physical stressors resulting from vessel strikes and use of in-water devices, use of seafloor devices, and deposition of expended materials during training and testing activities would not adversely affect submerged historic resources within U.S. territorial waters because measures have been previously implemented to protect these resources.
Regulatory Determination	Alternative 2 increases the number of training and testing activities, and introduces these activities in additional areas. Acoustic and physical stressors, as indicated above, would not adversely affect submerged historic resources within U.S. territorial waters in accordance with Section 106 of the NHPA. The Navy previously analyzed impacts that could result from these activities and concluded that there would be no adverse effects on historic properties. The Washington State Historic Preservation Office concurred with these findings. In accordance with Section 402 of the NHPA, no World Heritage sites would be affected.

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