3.12 Socioeconomic Resources

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

This Page Intentionally Left Blank

3.12 SOCIOECONOMIC RESOURCES

SOCIOECONOMIC RESOURCES SYNOPSIS

The United States Department of the Navy (Navy) considered all potential stressors, and the following have been analyzed for socioeconomic resources:

- Accessibility (limiting access to the ocean and the air)
- Physical Disturbance and Interactions (aircraft, vessels and in-water devices, military expended materials)
- Airborne Acoustics (weapons firing, aircraft and vessel noise)
- Secondary Impacts (from changes to the availability of marine resources)

Preferred Alternative (Alternative 1)

- Impacts on socioeconomic resources are not expected because inaccessibility to areas of co-use would be localized and temporary, the Navy's strict standard operating procedures would minimize physical disturbance and interactions, the majority of airborne activities would occur well out to sea far from tourism and recreation locations, and impacts on marine species are not expected. Further, there are no disproportionately high impacts or adverse effects on any low-income or minority populations.

3.12.1 INTRODUCTION AND METHODS

This section provides an overview of the characteristics of socioeconomic resources in the Northwest Training and Testing (NWTT) Study Area (hereafter referred to as the Study Area) and describes, in general terms, the methods used to analyze the Proposed Action's potential impacts on these resources.

The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) state that when economic or social effects and natural or physical environmental effects are interrelated, the environmental impact statement will discuss these effects on the human environment (40 Code of Federal Regulations [C.F.R.] 1508.14). The CEQ regulations state that the "human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment." To the extent that the ongoing and proposed United States (U.S.) Department of the Navy (Navy) training and testing activities in the Study Area could affect the natural or physical environment, the socioeconomic analysis evaluates how elements of the human environment might be affected. The Navy identified three broad socioeconomic topics based on their association with human activities and livelihoods in the Study Area. Each of these socioeconomic resources is an aspect of the human environment that involves economics (e.g., employment, income, or revenue) and social conditions (e.g., enjoyment and quality of life) associated with the marine environment of the Study Area. Therefore, this evaluation considered potential impacts on the following three socioeconomic activities:

- Commercial transportation and shipping
- Commercial and recreational fishing (usual and accustomed fishing by Pacific Northwest Native American tribes and Alaska Natives is analyzed in Section 3.11, Native American and Alaska Native Traditional Resources)
- Tourism

The baseline for identifying the socioeconomic conditions in the Study Area was derived using relevant published information from sources that included federal, state, regional, and local government agencies and databases, academic institutions, conservation organizations, technical and professional organizations, and private groups. Previous environmental studies were also reviewed for relevant information.

The alternatives were evaluated based on the potential for and the degree to which training and testing activities could impact socioeconomic resources. The potential for impacts depends on the likelihood that the training and testing activities would interact with public activities or infrastructure. Factors considered in the analysis include whether there would be temporal or spatial interfaces between the public or infrastructure and Navy training and testing. If there is potential for this interaction, factors considered to estimate the degree to which an exposure could impact socioeconomic resources include whether there could be an impact on livelihood, quality of experience, resource availability, income, or employment. If there is no expected potential for the public to interface with an activity, the impacts would be considered negligible.

The alternatives were also reviewed for any disproportionately high and adverse effects on any low-income or minority populations in accordance with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions. The CEQ has emphasized the importance of incorporating environmental justice review in the analyses conducted by federal agencies under NEPA and of developing protective measures that avoid disproportionate environmental effects on minority and low-income populations.

3.12.2 AFFECTED ENVIRONMENT

The area of interest for assessing potential impacts on socioeconomic resources is composed of established military operations areas (MOAs) and warning areas in the eastern North Pacific Ocean region, adjacent to the Northwest coast of the United States (California, Oregon, and Washington), including the Strait of Juan de Fuca, Puget Sound (Washington state Inland Waters), and Western Behm Canal in southeastern Alaska (see Figure 2.1-1). In addition, the Study Area includes Navy piers at Naval Base (NAVBASE) Kitsap Bremerton, NAVBASE Kitsap Bangor, and Naval Station Everett. The area of interest for the environmental justice review associated with EO 12898 are the low-income and minority populations adjacent to the Study Area. This section describes the three socioeconomic resources (transportation and shipping, commercial and recreational fishing, and tourism) associated with human activities and livelihoods in the Study Area from shore seaward out to 12 nautical miles (nm) consistent with NEPA.

Areas of surface water within the Study Area may be designated as restricted areas, as described in the C.F.R., Title 33 (Navigation and Navigable Waters), Part 334 (Danger Zone and Restricted Area Regulations) and established by the U.S. Army Corps of Engineers. A restricted area is designated to prohibit or limit public access to an area. Restricted areas generally provide security for government property and protection of the public from risks of damage or injury arising from government activities in the area (33 C.F.R. 334.2). Restricted areas within 12 nm of shore in the Study Area have the potential to impact the three socioeconomic resources identified above.

All of the training and testing activities proposed in this Environmental Impact Statement (EIS)/Overseas EIS (OEIS) would occur in one or more of these three range subdivisions:

- Offshore Area (Pacific Northwest Operating Area [OPAREA], including the surf zone at Pacific Beach)
- Inland Waters (Washington state inland waters)
- Western Behm Canal (Southeast Alaska Acoustic Measurement Facility [SEAFAC])

The Offshore Area includes air, surface, and subsurface OPAREAs extending generally west from the coastline of Washington, Oregon, and Northern California for about 250 nm into international waters. In Washington, the eastern boundary of the Offshore Area abuts the coastline for 1 mile (mi.) of surf zone at Pacific Beach; while in Oregon and Northern California, the boundary lies 12 nm off the coastline. The Offshore Area also includes the Quinault Range Site. Further description of the Offshore Area can be found in Section 2.1.1 (Description of the Offshore Area).

The Inland Waters include air, sea, and undersea space inland of the coastline and eastward to include all waters of the Strait of Juan de Fuca, the Puget Sound, and the Strait of Georgia. None of this area extends into Oregon or California. Further description of the Inland Waters can be found in Section 2.1.2 (Description of the Inland Waters).

SEAFAC consists of three major functional components: (1) Back Island Operations Center and supporting facilities, (2) Underway Measurement Site, and (3) Static Site (see Figure 2.1-4). The three major functional components are within the five restricted areas in Western Behm Canal. The main purposes of the restricted areas are to lessen acoustic encroachment from nonparticipating vessels and prohibit certain activities that could damage SEAFAC's sensitive in-water acoustic instruments and associated cables. The perimeter of Restricted Area 5 constitutes the Study Area boundary, and the Study Area does not include land-based supporting facilities or operations. The sensors at SEAFAC are passive and measure radiated noise in the water, such as machinery on submarines and other underwater vessels. SEAFAC does not use tactical mid-frequency active sonar (sound navigation and ranging). Active acoustic sources are used for communications and range calibration, and to provide position information for units operating submerged on the range. Further description of the Western Behm Canal can be found in Section 2.1.3 (Description of the Western Behm Canal, Alaska).

3.12.2.1 Transportation and Shipping

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

3.12.2.1.1 Commercial Shipping

Ocean shipping is a significant component of the regional economy. Washington State handles 7 percent of the country's exports and 6 percent of its imports. The maritime Port of Seattle was the nation's 11th-busiest waterborne freight gateway for international merchandise trade by value of shipments in 2008. More than 1,000 vessels called at the Port of Seattle in 2008 (U.S. Department of Transportation 2009). Container vessels made the most calls at the port, accounting for 64 percent, while 28 percent of

the calls were by dry-bulk ships. Seattle and Tacoma were ranked 7th and 11th, respectively, among U.S. ports for total cargo imported and exported in 2011. Taken together, these two ports make up the nation's fourth-largest container load center in the United States (American Association of Port Authorities 2012). Other key ports in the region include:

- Bellingham (Whatcom County, Washington)
- Orcas, Friday Harbor, and Lopez (San Juan County, Washington)
- Anacortes and Skagit County (Skagit County, Washington)
- Coupeville and South Whidbey Island (Island County, Washington)
- Port Angeles (Clallam County, Washington)
- Port Townsend (Jefferson County, Washington)
- Everett and Edmonds (Snohomish County, Washington)
- Olympia (Thurston County, Washington)
- Shelton, Allyn, Grapeview, Dewatto, and Hoodsport (Mason County, Washington)
- Kingston, Indianola, Keyport, Poulsbo, Brownsville, Tracyton, Waterman, Bremerton, Silverdale, and Manchester (Kitsap County, Washington)
- Grays Harbor (Grays Harbor County, Washington)
- Port of Astoria (Clatsup County, Oregon)
- Port of Newport (Lincoln County, Oregon)
- Coos Bay (Coos County, Oregon)
- Port Orford (Curry County, Oregon)
- Eureka (Humboldt County, California)

3.12.2.1.1.1 Offshore Area

Ocean traffic is the transit of commercial, private, or military vessels at sea, including submarines. The ocean traffic flow in congested waters, especially near coastlines, is controlled by the use of directional shipping lanes for large vessels, including cargo, container ships, and tankers. Traffic flow controls are also implemented to ensure that harbors and ports of entry remain as uncongested as possible. There is less control on open-ocean traffic involving recreational boating, sport fishing, commercial fishing, and activity by naval vessels. In most cases, the factors that govern shipping or boating traffic include adequate depth of water, weather conditions (primarily affecting recreational vessels), availability of fish and other marine resources, and temperature.

Most vessels entering or leaving the Washington ports travel northwest, southwest, or south through the Study Area, particularly the Pacific Northwest OPAREA, without incident or delay. Shipping to and from the south typically follows the coastline of Washington, Oregon, and California. Ships traveling between Washington ports, Hawaii, and the Far East travel via the most direct route or great circle route (Figure 3.12-1).

3.12.2.1.1.2 Inland Waters

The Keyport Range Site, Dabob Bay Range Complex (DBRC) Site, Carr Inlet OPAREA, Navy 3 and Navy 7 OPAREAs, and pierside locations are all within Inland Waters of Washington State. The Keyport Range Site is charted on navigational charts as a restricted area. Although it is not a restricted area, the Navy limits or restricts access into Crescent Harbor as a safety protocol when mine warfare training is being conducted. Access to pierside locations is also restricted at all times.

Figure 3.12-1: Shipping Routes in Pacific Northwest United States

Navigational obstructions may occur in a small portion of Keyport Range Site tests; in these cases (as for current activities), an NTM is issued. In addition, the U.S. Coast Guard has published a final rule establishing protection zones extending 500 yards (yd.) (457 meters [m]) around all Navy vessels in navigable waters of the United States and within the boundaries of Coast Guard Pacific Area (32 C.F.R. Part 761). All vessels must proceed at a no-wake speed when within a protection zone. Nonmilitary vessels are not permitted to enter within 100 yd. (91 m) of a U.S. naval vessel, whether underway or moored, unless authorized by an official patrol.

The DBRC Site contains Dabob Bay and Hood Canal MOAs, which are charted as naval OPAREAs on navigational charts. During any activities within Dabob Bay, the NUWC Keyport-maintained yellow, white, and red warning lights at Sylopash Point, Pulali Point, Whitney Point, Zelatched Point, and the southeast end of Bolton Peninsula warn nonmilitary craft of the status of range use. Descriptions of these lights are posted at local boat ramps and marinas. Yellow or alternating white and yellow lights indicate to nonmilitary vessels that (1) they should proceed with caution; (2) range activities are in progress, but no noise-sensitive acoustic measurement tests are in progress; or (3) vessels should be prepared to shut down engines when lights change to red. Red or alternating white and red lights indicate (1) range activities involving critical measurements are in progress; (2) engines should be stopped until red beacons have been shut off, indicating the test is completed; and (3) advice of Navy personnel on guard boats should be followed when in or near the range site. Typically, boat passage is permitted between tests when the yellow beacons are operating.

The Carr Inlet OPAREA contains a restricted area (33 C.F.R. 334.1250); it was once used as an acoustic range but has been inactive since 2008. No special use airspace is associated with the Carr Inlet OPAREA.

Pierside sonar maintenance testing within the Study Area is conducted within the Puget Sound at NAVBASE Kitsap Bremerton, NAVBASE Kitsap Bangor Waterfront, and Naval Station Everett. Activities at these pierside locations (Bremerton, Bangor, and Everett) are conducted in the established waterfront restricted areas for those installations.

3.12.2.1.1.3 Western Behm Canal, Alaska

Western Behm Canal includes five restricted areas (see Figure 2.1-4). During operations, the Navy can close the restricted area to all vessel traffic, although normally such closures will not exceed 20 minutes. Small craft may operate within 500 yd. (457 m) of the shoreline at speeds no greater than 5 knots during closures. The purpose of these transitory restrictions is to minimize ambient underwater sound levels to ensure integrity of the testing for accomplishing SEAFAC's mission; these restrictions also help protect public safety during testing. On average, 10 transitory restrictions occur annually for a total of 40 days per year. In some restricted areas, no vessel may anchor, tow a drag of any kind, deploy a net, or dump any material at any time.

From May 1 through September 15 annually, the Navy conducts acoustic measurement tests that will result in only transitory restrictions in Area 5 (see Figure 2.1-4) for a total of no more than 15 days. This falls within the cruise ship season, when visitation and recreational use of Western Behm Canal is highest and when vessel traffic associated with commercial fishing is most likely. This provision ensures that at least 89 percent of the days during this important time would be free of transit restrictions.

Public notification that the Navy will conduct operations in Western Behm Canal is given at least 72 hours in advance to the following Ketchikan contacts: U.S. Coast Guard, Ketchikan Gateway Borough

Planning Department, Harbor Master, Alaska Department of Fish and Game, KRBD radio, KTKN radio, and the *Ketchikan Daily News*.

3.12.2.1.2 Air Traffic

Air traffic refers to movements of aircraft through airspace. Safety and security factors dictate that use of airspace and control of air traffic be closely regulated. Accordingly, regulations applicable to all aircraft are promulgated by the Federal Aviation Administration to define permissible uses of designated airspace and to control that use. These regulations are intended to accommodate the various categories of aviation, whether military, commercial, or general. Common air routes over the Study Area are depicted in Figure 3.12-2.

The system of airspace designation uses various definitions and classifications to facilitate control. Airspace is categorized generally as either "controlled" or "uncontrolled." Controlled airspace is further organized into several different classes distinguished by altitude, range, use (e.g., commercial or military), and proximity to a major airport. Controlled airspace means that services supporting aircraft flying under instrument flight rules are available. Such services include air-to-ground radio communication, navigational aids, and air traffic control services for maintaining separation between aircraft. Controlled airspace does not mean that all flights are controlled by air traffic control.

Special use airspace consists of both controlled and uncontrolled airspace and has defined dimensions where flight and other activities are confined because of their nature and the need to restrict or prohibit nonparticipating aircraft for safety reasons. Special use airspace is established under procedures outlined in 14 C.F.R. Part 73 The primary purpose of special use airspace is to establish or designate airspace in the interest of national defense, security and/or welfare. Restricted areas, warning areas, and MOAs are used for military training. One type of special use airspace of particular relevance to the Study Area is a warning area, defined in 14 C.F.R. Part 1 as follows:

> "A warning area is airspace of defined dimensions, extending from 3 nm outward from the coast of the United States that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both."

A restricted area is airspace designated under 14 C.F.R. Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction. The military returns special use airspace to the Federal Aviation Administration when the airspace is not employed for its designated military use.

3.12.2.1.2.1 Offshore Area

Jet routes are the network of airways serving commercial aviation operations from flight level (FL) 180 up to but not including FL 450 (flight levels are the specified heights, in hundreds of feet above sea level). The routes in the Study Area are primarily managed by the Seattle Air Route Traffic Control Center. Victor routes are the network of airways serving commercial aviation operations up to but not including 18,000 feet (ft.) (5,486 m) above mean sea level (MSL). Seattle Terminal Radar Approach Control coordinates approach services for the Seattle-Tacoma International Airport and has over 450,000 operations per year for southern and central Puget Sound.

The special use airspace in the Offshore Area (Figure 3.12-2), included in this analysis, consists of

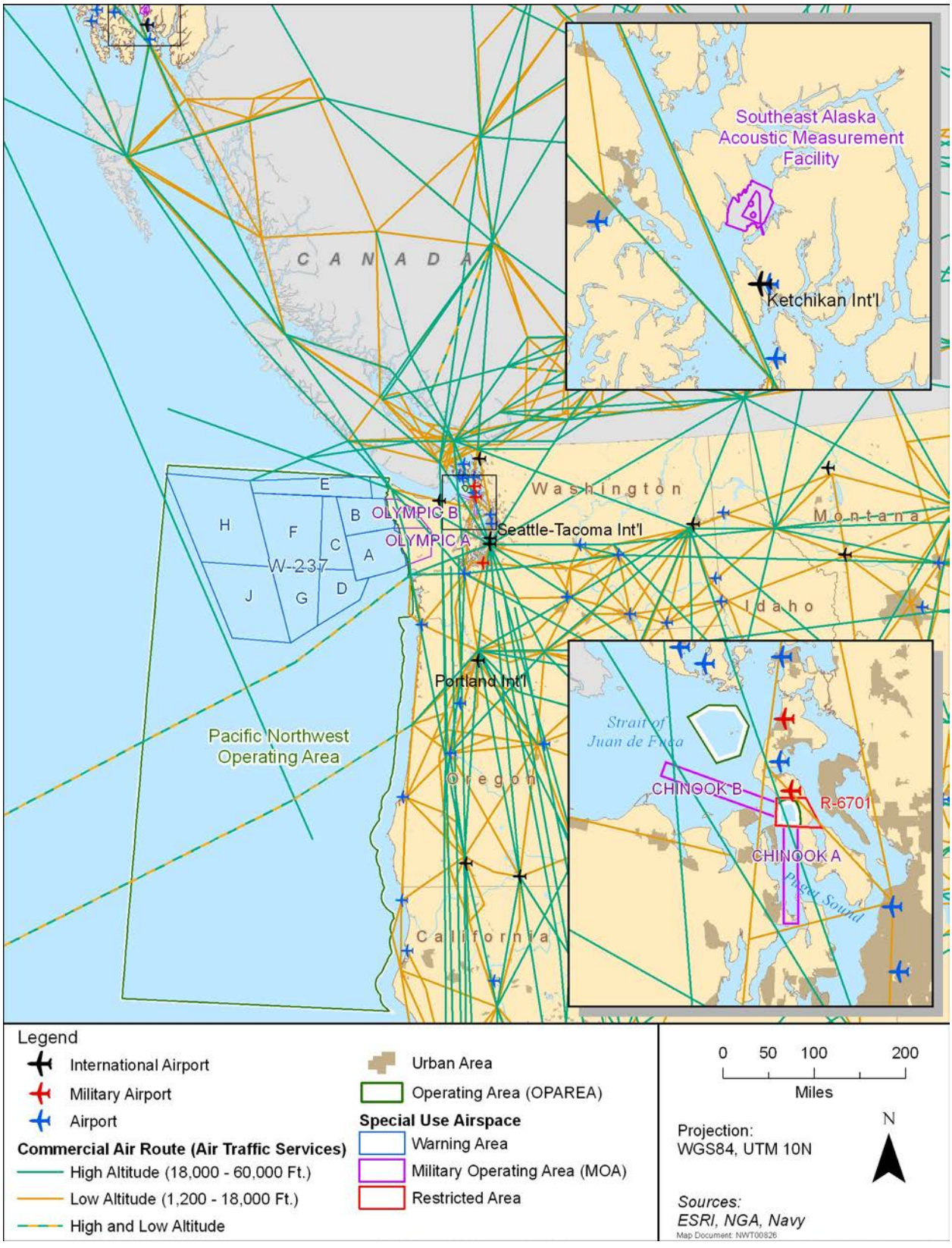

Figure 3.12-2: Commercial Air Routes in Pacific Northwest United States

Warning Area 237 (W-237) and the Olympic MOA. W-237 extends westward from the coast of Washington, covering 24,989 square nautical miles (nm^2).

The Olympic A and B MOAs are airspace over the Olympic Peninsula of the Washington coast encompassing 1,619 nm^2. Access restrictions are released to the aviation community through NOTAMs, published by local airports, and included on their Automated Terminal Information System broadcasts. Other special use airspace in the Northwest Training Range Complex (NWTRC) is covered by the NWTRC EIS/OEIS (U.S. Department of the Navy 2010a) and will not be addressed in this EIS/OEIS.

3.12.2.1.2.2 Inland Waters

The special use airspace in the Puget Sound portion of the Study Area (Figure 3.12-2), included in this analysis, consists of Restricted Area 6701 (R-6701) and Chinook MOAs. R-6701 is over Admiralty Bay and is activated when necessary to support safe range operations. Chinook A and B MOAs are approach corridors leading into R-6701; they cover 23 and 33 nm^2 of airspace, respectively. Access restrictions are released to the aviation community through NOTAMs, published by local airports, and included on their Automated Terminal Information System broadcasts. Other special use airspace in the NWTRC is covered by the NWTRC EIS/OEIS (U.S. Department of the Navy 2010a) and will not be addressed in this EIS/OEIS.

3.12.2.1.2.3 Western Behm Canal, Alaska

Controlled airspace similar to a temporary flight restriction exists over the SEAFAC area in Western Behm Canal during acoustic trials. The restriction is released to the aviation community through a NOTAM, published by local airports, and included on their Automated Terminal Information System broadcast. The temporary flight restriction extends up to 3,000 ft. (914 m) and has a radius of 1 nm. It is intended to keep floatplanes with tourists or fishermen at a distance when SEAFAC is conducting acoustic tests.

3.12.2.2 Commercial and Recreational Fishing

3.12.2.2.1 Offshore Area

The commercial fishing sector provides approximately 10,000 jobs in the greater Seattle area and accounts for gross annual sales of more than $3.5 billion (Washington State 2007). Recreational fishing is extremely limited due to the distance from shore and the capabilities of recreational fishing vessels. Less than 10 percent of recreational fishing takes place in federal waters, which are beyond 3 nm from shore. Commercial fishing gear used in the Study Area includes drift gillnets, longline gear, troll gear, trawls, seining, and traps or pots. The National Marine Fisheries Service (NMFS) has reported commercial fishing landings in Washington State of over 210 million pounds of fish and shellfish in 2011, worth over $329 million (National Marine Fisheries Service 2013).

Commercial fishing takes place throughout the Offshore Area, from nearshore waters adjacent to the mainland to the offshore fishing grounds. The Pacific Fishery Management Council is one of eight regional fishery management councils established by the Magnuson Fishery Conservation and Management Act of 1976 to manage fisheries of the U.S. coastline (including the coasts of California, Oregon, and Washington). The council has defined four main fisheries: groundfish (e.g., flounder, sole), highly migratory species (e.g., tuna), coastal pelagic species (e.g., anchovy, mackerel, herring, sardines), and salmon. Pacific Fisheries Information Network maintains commercial catch block data for ocean areas off the coasts of Washington, Oregon, California, Alaska, and British Columbia. For 2011, the most

commonly harvested commercial species in Washington State waters were groundfish species, tuna (albacore), crab, and salmon (Pacific Fisheries Information Network 2012) (Table 3.12-1).

Table 3.12-1: Annual Commercially Landed Catch and Value within Washington Waters (2011)

PFMC-Managed Species by Management Plan	RWT-MTONS	Revenue
Coastal Pelagic Species		
Northern anchovy	191.0	$68,129
Pacific herring	217.2	$169,353
Total	**408.2**	**$237,482**
Crab		
Dungeness crab	12,307.0	$83,582,330
Total	**12,307.0**	**$83,582,330**
Pacific Coast Groundfish Species		
Arrowtooth flounder	568.8	$129,470
Dover sole	660.0	$500,424
English sole	64.9	$49,101
Lingcod	149.7	$259,674
Pacific cod	353.8	$393,122
Pacific whiting	34,481.0	$7,190,224
Petrale sole	234.0	$707,929
Rex sole	43.0	$33,046
Rock sole	3.7	$2,889
Rockfish	1,071.5	$1,190,485
Sablefish	1,556.1	$12,439,343
Spiny dogfish	214.0	$140,125
Starry flounder	31.4	$23,796
Unspecified flatfish	1.2	$810
Unspecified sanddabs	26.3	$20,947
Unspecified skate	44.3	$20,128
Walleye pollock	1.1	$381
Total	**39,504.8**	**$23,101,894**
Highly Migratory Species		
Albacore tuna	6,012.4	$22,244,246
Total	**6,012.4**	**$22,244,246**
Other		
Miscellaneous fish/animals	6.2	$1,471
Sea urchins	52.7	$119,347
Pacific halibut	588.1	$6,503,204
Red sea urchin	32.4	$48,212
Unspecified octopus	1.6	$2,537
Unspecified sea cucumbers	418.4	$3,869,702
Unspecified shark	1.7	$0
Unspecified melt	37.5	$42,903
Unspecified squid	2.6	$280

Table 3.12-1: Annual Commercially Landed Catch and Value within Washington Waters (2011) (continued)

PFMC-Managed Species by Management Plan	RWT-MTONS	Revenue
Other (continued)		
Unspecified hagfish	700.8	$1,299,501
Unspecified shad	8.0	$3,888
White sturgeon	62.4	$333,226
Total	**1,912.4**	**$12,217,278**
Pacific Salmon Species		
Chinook salmon	2,494.5	$13,366,085
Chinook roe	0.5	$4,467
Chum salmon	3,843.1	$9,997,926
Chum roe	0.3	$2,199
Coho salmon	1,142.6	$3,878,366
Coho roe	0.9	$7,994
Pink salmon	8633.0	$9,077,354
Sockeye salmon	816.9	$3,040,523
Steelhead salmon	188.8	$882,081
Total	**17,704.5**	**$42,428,279**
Shrimp		
Other shrimp	37.9	$99,394
Pink shrimp	4,342.4	$4,610,336
Spotted prawn	192.1	$2,293,275
Unspecified bait shrimp	57.0	$152,593
Total	**4,629.4**	**$7,155,598**
Other Species[1]		
Other species	16,572.0	$100,049,385
Total	**16,572.0**	**$100,049,385**
Grand total	**99,248.0**	**$291,015,131**

[1] Other Species category includes species not displayable in this report because of confidentiality restrictions.
Notes: PFMC = Pacific Fishery Management Council; RWT-MTONS = round metric weight equivalent in metric tons
Source: Pacific Fishery Management Council 2012

Within the Offshore Area, groundfish species make up most of the commercial catch. In 2011, groundfish accounted for 49 percent and salmon accounted for 18 percent of the commercial harvest. The overall 2011 annual catch in Washington State totaled 99,248 metric tons, worth $291,015,131 (Pacific Fisheries Information Network 2012).

In 2006, the NMFS completed an assessment for the Pacific Fishery Management Council of West Coast fishing communities for their engagement in and dependence on commercial and recreational fisheries income, as well as their resilience and vulnerability to changes in income from those fisheries (Pacific Fishery Management Council 2006). Based on this assessment, the communities that access fishery resources within the Offshore Area tend to have small populations, are geographically isolated, and are heavily dependent on tourism and natural resource extraction industries, including fishing.

Of the commercial fishing communities most dependent on fishing income, the following communities heavily depend on the groundfish resource and support fishing fleets that may access waters within the Study Area: Astoria, Oregon; Bellingham, Washington; Brookings, Oregon; Coos Bay, Oregon; Newport, Oregon; and Port Orford, Oregon. In addition, the Oregon ports of Newport, Garibaldi, Brookings, and Charleston are the most heavily engaged Northwest ports in chartered recreational fishing. The west coast's five fishing communities, least economically resilient to change in access to commercial and recreational fishery resources, all depend on income from fishery resources within the Offshore Area: Netarts and Copalis Beach, Oregon; Neah Bay and La Push, Washington; and Moss Landing, California. Three of the four least resilient west coast fishing counties also depend on income from fishery resources within the Offshore Area: Hood River and Lincoln Counties, Oregon, and Grays Harbor County, Washington. Additionally, the NMFS assessment characterized Ilwaco, Washington, as one of the west coast's two "most vulnerable" communities to changes in engagement in commercial fishing activities, meaning that it scored highest in terms of its engagement in and dependence on fishing income and lowest in terms of its resilience to economic change. Although these communities are not in the Study Area, they could potentially be affected by the Proposed Action because they fish in the Study Area.

3.12.2.2.2 Inland Waters

Few commercial fisheries remain in Puget Sound because of overfishing and urbanization and, as a result, the Puget Sound-based fishing fleets depend largely on offshore saltwater resources (Sommers and Canzoneri 1996). Puget Sound supports several industry sectors that are integrally linked to the marine environment. These include commercial fishing, sportfishing, and recreational activities that involve sailing and power boating. Washington's commercial fishing industry is the second-largest seafood producer in the United States following Alaska; Washington fishermen catch more than 60 percent of the edible seafood harvested in the United States (Washington State Department of Commerce 2012). The state is the largest producer of farmed shellfish in the nation and is a leading producer of naturally growing shellfish, most of which come from Puget Sound. Salmon also support a variety of fisheries in the Puget Sound region. These include sport, commercial, and tribal usual and accustomed fisheries (Pacific Fishery Management Council 2012). Commercial and tribal usual and accustomed fisheries are conducted with purse seine or gill nets, primarily in the open waterways of Puget Sound and Hood Canal (Washington Department of Fish and Wildlife 2012a). Native American and Alaska Native tribal and subsistence fishing is analyzed in Section 3.11 (Native American and Alaska Native Traditional Resources).

Commercial geoduck clam (*Panopea generosa*) harvest is managed by the Washington Department of Fish and Wildlife (Washington Department Fish and Wildlife 2012b). Geoduck harvest areas occur throughout the Puget Sound on soft bottom substrates. The Pacific Fishery Management Council has not reported geoduck harvests since 2007, but in that year, the harvest was valued at $28,000. Of the 2011 commercial catch of crustaceans, over 73 percent was attributable to Dungeness crabs (*Metacarcinus magister*) (about 12,307 metric tons). The remaining percent were various shrimp (4,629 metric tons). The catch of crustaceans was worth approximately $91,000,000 in 2011. In comparison, the annual catch of squid and octopus was worth $2,817; urchins were worth $167,559, and other invertebrates (e.g., snails, sea cucumbers) were worth approximately $3,869,702 (Table 3.12-1).

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

and Wildlife published the catch totals for 2007–2008 recreational sportfishing, including steelhead, salmon, shellfish, and other marine fish (Table 3.12-2).

Table 3.12-2: Recreational Sportfishing Catch for 2007–2008

Sportfishing Activity	Total Pounds in 2007–2008	Total Number of Catches, 2007–2008
Sturgeon		17,962
Salmon		545,737
Steelhead		9,066
Marine fish		103,273
Oysters	483,816	
Clams	305,397	
Dungeness crab	1,141,977	

Source: Kraig 2011

3.12.2.2.3 Western Behm Canal, Alaska

Commercial fishing of salmon in the state waters near Ketchikan represents a large portion of the harvest for Ketchikan residents (Ketchikan Gateway Borough 2007). While hand and power-troll efforts for salmon harvest have declined, purse-seine and drift-gillnet efforts are stable in state waters. Other important commercial fisheries in the area include sea cucumber and sea urchin, herring spawn, and shrimp. The Ketchikan Coastal Management Program Plan (Ketchikan Gateway Borough 2007) identifies several open water areas near SEAFAC as heavy or moderate recreational fishing areas. These waters include portions of Behm Canal around Betton and Back Islands, Clover Passage, Clover Pass, Smuggler's Cove, and Helm Bay.

Navy activities that have the potential to conflict with other uses of Behm Canal, including commercial and recreational fishing, are minimized through specific provisions in 33 C.F.R. § 334, including short-duration closures and advanced public notification through NTMs. Navy activities have occurred in Behm Canal for approximately 20 years while minimizing conflicts with and impacts on other users.

3.12.2.3 Tourism

Coastal tourism and recreation can be defined as the full range of tourism, leisure, and recreation activities that take place in the coastal zone and the offshore coastal waters. These activities include coastal tourism development (e.g., hotels, resorts, restaurants, food industry, vacation homes, second homes) and the infrastructure supporting coastal development (e.g., retail businesses, marinas, fishing tackle stores, dive shops, fishing piers, recreational boating harbors, beaches, recreational fishing facilities). Also included is ecotourism (e.g., whale watching) and recreational activities such as recreational boating, cruises, swimming, recreational fishing, surfing, snorkeling, and self-contained underwater breathing apparatus (SCUBA) diving.

3.12.2.3.1 Offshore Area

Tourism within the Study Area occurs primarily within Puget Sound. Offshore tourism includes whale watching, which occurs March through November with peak tourism activity in the summer. Whale watching by boat primarily occurs along the Oregon coast (Newport and Depoe Bay) and Northern California (Ft. Bragg). Whale watching off the Washington coast occurs from boat- and land-based operations (O'Conner et al. 2009).

3.12.2.3.2 Inland Waters

Puget Sound is a body of water east of Admiralty Inlet through which ocean waters reach inland approximately 50 mi. (80 km) from the Pacific coast to provide all-weather ports for oceangoing ships at Seattle, Tacoma, and Olympia. The waterway is a complex and intricate system of channels, inlets, estuaries, embayments, and islands. Because of these beneficial waterways, the Puget Sound region is home to most Washington State citizens. An estimated 390,000 people participate in recreational activities in the waters and on the beaches of Puget Sound at least once a year (Washington Department of Ecology 2012). Most Puget Sound communities lie on either side of the north-south Interstate Highway 5 corridor that serves as the major traffic thoroughfare of the state.

Hood Canal is a natural glacier-carved fjord and the only true saltwater fjord in the lower United States; its clear deep waters provide world-class recreation opportunities. Dabob Bay is the largest of several internal bays of Hood Canal, which stretches more than 70 mi. (112 km) through Washington's pristine forestlands. Vendors along the shoreline offer a wide variety of boat rentals for recreational activities; services include recreational tours and group events. State parks on the shores of Hood Canal include Belfair, Twanoh, Potlatch, Triton Cove, Scenic Beach, Dosewallips, Kitsap Memorial, and Shine Tidelands (Figure 3.12-3). Hood Canal is a primary destination for tourism in south Puget Sound; camping is prevalent at private, national forest, and state park campgrounds. Near Carr Inlet, Penrose Point State Park provides camping on the shores of south Puget Sound.

The Olympic National Park and Olympic National Forest are adjacent to the Study Area. Tourism activities include, but are not limited to, backpacking, hiking, camping, fishing, flora gazing, horseback riding, mountaineering, photography, skiing, snowshoeing, stargazing, and wildlife watching. Almost three million people visited the area in 2010, and visitors contributed $103 million to the economy of the Olympic Peninsula (Stynes 2011).

The inland areas of Washington, many of which are adjacent to the Study Area, accommodate many outdoor activities, including backpacking, bird watching, boating, canoeing, fishing, golf, camping, hunting, kayaking, offroading, mountain biking, hiking and nature walks, swimming, tubing, and wildlife viewing and photography (U.S. Department of the Navy 2010a). Tourism is especially important for the towns of Coupeville and Langley, and Penn Cove Mussel Farm exports large quantities of its highly renowned Penn Cove Mussels. This aquaculture facility, along with many small farms, reflects the rural, agricultural nature of most of central Whidbey Island.

Sport fishing, sailing, power boating, kayaking, diving, whale watching, and other watersports are all activities popular in the Puget Sound marine areas (U.S. Department of the Navy 2010a). Recreational boating and ocean-related tourism activities contribute millions of dollars to the regional economy. Puget Sound has 244 marinas with 39,400 moorage slips and another 331 launch sites for smaller boats. Statewide, approximately 180,000 boats are registered, not counting thousands more small boats and watercraft that do not require registration. An estimated $464 million in combined boat, motor, and related purchases ranks Washington 10th highest in the nation for boating-related expenditures (Washington Department of Ecology 2012).

Areas that contribute to recreational activity within Puget Sound include Cama Beach and Camano Island State Parks on Camano Island; Ft. Worden, Miller Peninsula, Anderson Lake, Shine Tidelands, and Sequim Bay State Parks on the Olympic Peninsula; and Mystery Bay and Ft. Flagler State Parks on Indian Island. To the south, near the DBRC Site, the Kitsap Memorial State Park and other regional parks on the Kitsap peninsula also allow beach and water access (Figure 3.12-3). Puget Sound’s good underwater

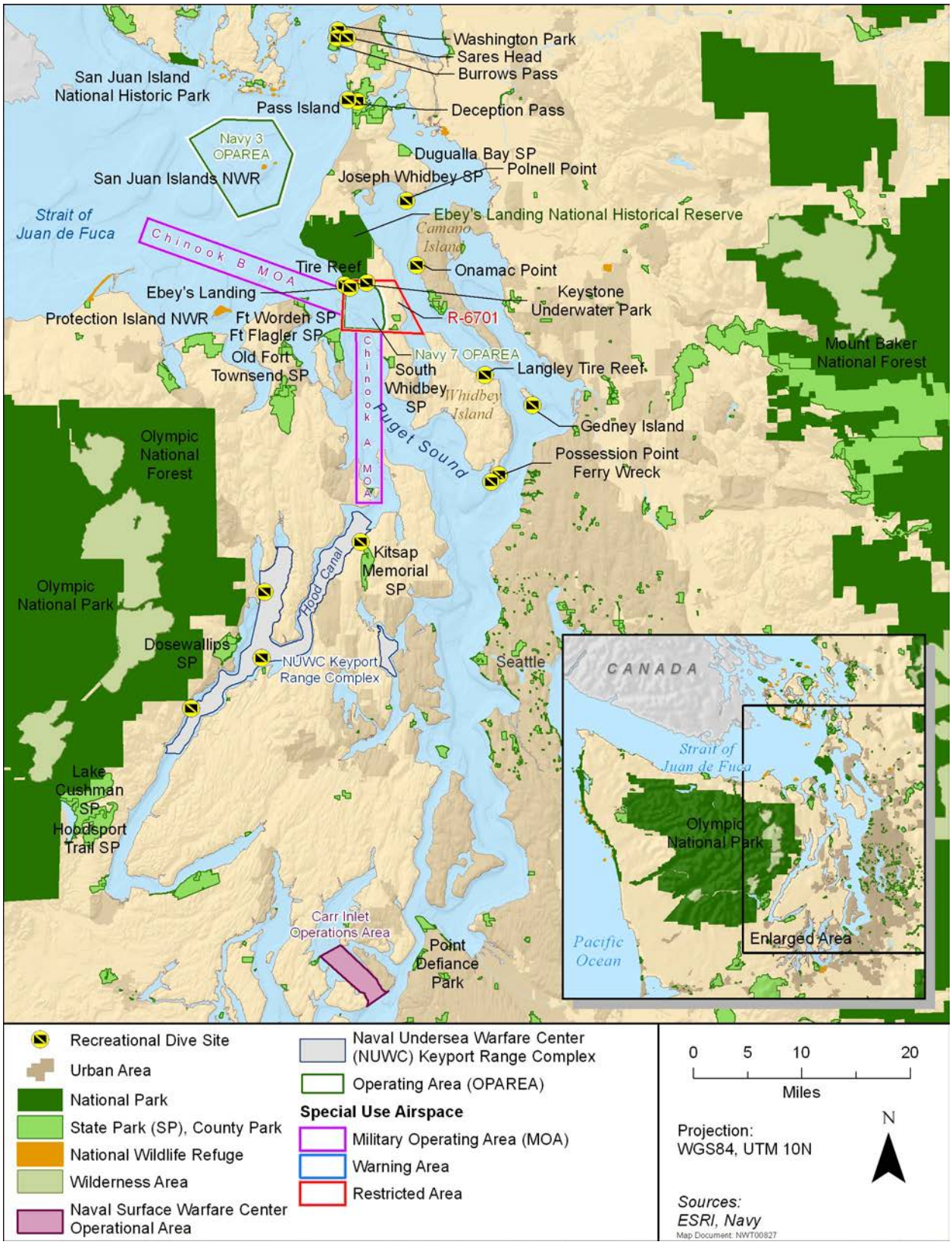

Figure 3.12-3: Recreational Areas in Puget Sound

visibility, rich sea life, and largely pristine diving conditions make it a popular destination for divers in the northwest. Charter dive trips to specific sites (Figure 3.12-3) are often published and booked as many as six months in advance. Most dive charters are scheduled for weekends. Diving occurs year-round, though the number of trips to popular dive sites peak during the summer. To facilitate such interests, many boat ramps have been placed in sheltered areas of the Puget Sound to allow access from different points around the bays, straights, and canals of the Study Area. These are maintained and controlled by the local, state, or federal ownership of the location. Boat licenses are controlled by the state, and permits for launching are controlled by the jurisdiction where the site is located. These launch points see increased activity on the weekends and during the summer.

3.12.2.3.3 Western Behm Canal, Alaska

In general, tourism has increased in Southeast Alaska in the last two decades, but statewide declines were observed in 2009 (McDowell Group 2010). Tourism generates substantial income for Ketchikan and creates employment in a variety of industries, such as transportation, retail trade, and services. Many of the visitors to Ketchikan arrive via cruise ship. Eleven cruise lines provide approximately 20 cruise ships per week to dock in Ketchikan from May through September 2012 (Experience Ketchikan 2013).

Many visitors and Ketchikan residents participate in outdoor recreational activities, including water-based activities such as fishing, boating, kayaking, wildlife viewing, SCUBA diving, and snorkeling. Numerous designated recreation areas are in the area, including several near the SEAFAC. The Ketchikan Coastal Management Program Plan (Ketchikan Gateway Borough 2007) identifies several open-water areas near the SEAFAC as heavy or moderate recreational boating and fishing areas. These waters include portions of Western Behm Canal around Betton and Back Islands, Clover Passage, Clover Pass, Smuggler's Cove, and Helm Bay. Clover Pass, which is immediately west of the SEAFAC, is one of the borough's main boating and sport fishing areas and is highly regarded for its scenic value. With its three marinas and three resorts, the area is also very popular with sport fishermen for nearshore and open-water fishing, as well as for diving (Ketchikan Gateway Borough 2007). Some of the popular recreational areas in the immediate vicinity of the SEAFAC include the following:

- Betton Island State Marine Park consists of 280 acres (ac.) (113 hectares [ha]) of undeveloped land with no facilities and 408 ac. (165 ha) of tidelands and marine waters on the southeastern shoreline of Betton Island. Uses include kayaking, boating, beachcombing, SCUBA diving, camping, fishing, hunting, wildlife viewing, and commercial guide activity (Ketchikan Gateway Borough 2007).
- Grant and Joe Islands State Marine Park has approximately 592 ac. (240 ha) of undeveloped uplands on the islands and surrounding tidelands. It is well known as a kayak resting area and for picnicking and camping. This park is accessible by boat and float plane only (Ketchikan Gateway Borough 2007).

Settler's Cove State Recreation Area consists of 275 ac. (111 ha), including a sandy beach, Clover Passage. It is accessible by road or boat and has developed campsites, a picnic area, and a waterfall (Ketchikan Gateway Borough 2007).

3.12.3 Environmental Consequences

This section evaluates how and to what degree the activities described in Chapter 2 (Description of Proposed Action and Alternatives) could impact socioeconomic 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 number of events and ordnance expended). Each socioeconomic resource stressor is introduced and, within the Offshore Area, Inland Waters, and Southeast Alaska areas, analyzed by alternative for training and testing activities. Table F-3 in Appendix F shows the warfare areas and associated stressors that were considered for analysis of socioeconomic resources. The stressors vary in intensity, frequency, duration, and location within the Study Area. Table 3.12-3 shows the number of components or activities for each stressor with respect to location and changes among the alternatives. The analysis of training and testing activities presented in this section considers relevant components and data associated with the geographic location of the activity and the resource. Training activities are not proposed in the Western Behm Canal; therefore, only activities in the Offshore Area and the Inland Waters will be analyzed under training activities. The primary stressors applicable to socioeconomic resources in the Study Area and that are analyzed include the following:

- Accessibility
- Physical disturbances and interactions
- Airborne acoustics
- Secondary impacts from changes to the availability of marine resources

Secondary stressors resulting in indirect impacts on socioeconomic resources are discussed in Section 3.12.3.4 (Secondary Impacts). Analysis of economic impacts evaluates the impacts of the alternatives on the economy of the region of influence, while analysis of social impacts considers the change to human populations and how the action alters the way individuals live, work, play, relate to one another, and function as members of society. Because proposed NWTT activities are predominantly offshore and within inland waters, socioeconomic impacts would be associated with economic activity, employment, income, and social conditions (e.g., livelihoods) of industries or operations that use the ocean and inland waterways (Puget Sound and Western Behm Canal) within the Study Area. Although no permanent population centers are within the region of influence and the typical socioeconomic considerations such as population, housing, and employment are not applicable, this section will analyze the potential for fiscal impacts on marine-based activities and coastal communities. When considering impacts on recreational activities such as fishing, boating, and tourism, both the economic impact associated with revenue from recreational tourism and public enjoyment of recreational activities are considered.

The proposed NWTT activities were evaluated to identify specific components that could act as stressors by having direct or indirect effects on sources of commercial transportation and shipping, commercial and recreational fishing, and tourism. For each stressor, a discussion of impacts on these sources is included for each alternative.

Inland portions of the Study Area also include Navy pierside locations, where sonar maintenance and testing occur, at NAVBASE Kitsap Bremerton, NAVBASE Kitsap Bangor, and Naval Station Everett. The Navy has specific locations in the Inland Waters that are used for both training and testing. The primary activities within the Inland Waters are testing. The Navy piers, known as waterfront restricted areas, are restricted for physical security and law enforcement. The overarching requirements for safety and security at the Navy piers minimize the potential for socioeconomic impacts from Navy activities. Therefore, the potential socioeconomic impacts of training and testing activities at Navy piers are not analyzed further.

3.12.3.1 Accessibility

Navy training and testing activities have the potential to temporarily limit access to areas of the ocean for a variety of human activities associated with commercial transportation and shipping, commercial and recreational fishing, subsistence use, and tourism in the Study Area.

Table 3.12-3: Stressor Table for Socioeconomic Resources

Components	Area	Number of Components or Activities					
		No Action Alternative		Alternative 1		Alternative 2	
		Training	Testing	Training	Testing	Training	Testing
Accessibility							
Activities including vessels	Offshore Area	996	37	1,088	138	1,088	162
	Inland Waters	4	337	31	582	31	640
	W. Behm Canal	0	28	0	60	0	83
Activities including aircraft	Offshore Area	3,826	2	6,471	74	6,471	84
	Inland Waters	124	2	127	20	127	25
	W. Behm Canal	0	0	0	0	0	0
Airborne Acoustics							
Activities including aircraft	Offshore Area	3,826	2	6,471	74	6,471	84
	Inland Waters	124	2	127	20	127	25
	W. Behm Canal	0	0	0	0	0	0
Physical Disturbance and Interactions							
Activities including vessels	Offshore Area	996	37	1,096	138	1,096	162
	Inland Waters	4	337	53	582	53	640
	W. Behm Canal	0	28	0	60	0	83
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	186,584	621	191,664	2,511	191,664	2,764
	Inland Waters	8	446	85	517	85	568
	W. Behm Canal	0	0	0	0	0	0
Secondary Impacts							
Availability of resources	Offshore Area	Qualitative					
	Inland Waters						
	W. Behm Canal						

The purpose of halting marine traffic in some instances is to eliminate acoustic interference during noise-sensitive testing. Typically, marine traffic is allowed to pass during the interval between test activities. When training or testing activities are scheduled that require specific areas to be free of nonparticipating vessels because of possible hazards to navigation, the Navy may request that the U.S. Coast Guard issue NTMs to warn the public of upcoming Navy activities. Training and testing activities occur in established restricted or danger areas, as published on navigation charts. For most testing activities, halting marine traffic is typically not required because activities run at sufficient depth and have no live warheads that would present a risk to surface vessels. The DBRC Site has unique fixed

warning lights that warn nonmilitary craft of the status of Navy activities. The descriptions of the lights are posted at local boat ramps and marinas and are clearly indicated on standard National Oceanic and Atmospheric Administration charts (e.g., National Oceanic and Atmospheric Administration Nautical Chart No. 18458). In accordance with 32 C.F.R. Part 761, a 500 yd. (457 m) protection zone is established around all U.S. Navy vessels in navigable waters of the United States and within the boundaries of U.S. Coast Guard Pacific Area. All vessels must proceed at a no-wake speed within a protection zone. Nonmilitary vessels are not permitted to enter within 100 yd. (91 m) of a U.S. naval vessel, whether underway or moored, unless authorized by an official patrol. The changes in accessibility to human activities in the ocean or inland waterways would be an impact if it directly contributed to loss of income, revenue, or employment. Disturbance to human activities that result in impacts on payrolls, revenue, or employment is quantified by the amount of time the activity may be halted or rerouted or the ability to move to another location.

3.12.3.1.1 No Action Alternative

3.12.3.1.1.1 Training

Offshore Area

Under the No Action Alternative, potential accessibility impacts would be associated primarily with anti-air warfare, anti-surface warfare, and anti-submarine warfare. Training activities would continue at current levels and within Pacific Northwest OPAREA. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Inland Waters

Under the No Action Alternative, potential accessibility impacts would be associated primarily with mine warfare, naval special warfare, and search and rescue. Training activities would continue at current levels and within established ranges and training locations. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.1.1.2 Testing

Offshore Area

Under the No Action Alternative, active sonar testing activities such as unmanned underwater vehicles and countermeasure testing would continue at current levels in the Quinault Range Site and surf zone off Pacific Beach. Systems and subsystems testing would continue to occur in the Quinault Range Site. No testing activities involving underwater explosions, such as anti-submarine warfare, would be conducted under the No Action Alternative. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring)

and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Inland Waters

Under the No Action Alternative, potential accessibility impacts would be associated primarily with torpedo testing and anti-surface warfare/anti-submarine warfare. Torpedo testing, unmanned aircraft system testing, unmanned underwater vehicle testing, and miscellaneous testing in the DBRC Site and Keyport Range Site could cause temporary delays in access to these areas. Navy procedures for limiting access during testing events are described in Section 3.13.2.2 (Safety and Inspection Procedures). There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Western Behm Canal

Acoustic measurements would be conducted at current levels (28 events per year) at SEAFAC under the No Action Alternative. Proposed activities include surface vessel acoustic measurement, underwater vessel acoustic measurement, underwater vessel hydrodynamic performance measurement, component system testing, and measurement system repair and replacement.

The restricted areas provide for vessel and public safety, lessen acoustic encroachment from nonparticipating vessels, and prohibit certain activities that could damage SEAFAC's sensitive in-water acoustic instruments and associated cables. The restrictions during testing potentially conflict with other uses of Western Behm Canal, including commercial and recreational fishing, marine transportation, pleasure boating, and touring. Potential accessibility impacts are minimized through specific provisions in 33 C.F.R. § 334, including the following:

- Each closure of the area by the Navy will normally not exceed 20 minutes. This provision minimizes the effects of the temporary restrictions to a minor inconvenience. Also, small craft may operate within 500 yd. (457 m) of the shoreline at speeds no greater than 5 knots. This greatly reduces the potential for conflicts with users such as recreational fishermen, charter fishing guides, kayakers, and other small craft users that normally transit the area close to the shoreline.
- From May 1 through September 15 annually, the Navy conducts acoustic measurement tests that result in transitory restrictions in Area 5 for a total of no more than 15 days. This falls within the cruise ship season, when visitation and recreational use of Western Behm Canal is highest and when vessel traffic associated with commercial fishing is most likely. This provision ensures that at least 89 percent of the days during this important time would be free of transit restrictions.
- Public notification that the Navy will conduct operations in Western Behm Canal is given at least 72 hours in advance to the following Ketchikan contacts: U.S. Coast Guard, Ketchikan Gateway Borough Planning Department, Harbor Master, Alaska Department of Fish and Game, KRBD radio, KTKN radio, and the *Ketchikan Daily News*. Public notification may also be obtained by monitoring very high frequency channel 16.

- Vessels are allowed to transit Restricted Area 5 within 20 minutes of marine radio or telephone notification to the Navy range operations officer.

The restricted area requirements outlined above have allowed the Navy to conduct acoustic testing in Western Behm Canal for about 20 years while minimizing conflicts with and impacts on other users. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.1.2 Alternative 1

3.12.3.1.2.1 Training

Offshore Area

Under Alternative 1, air combat maneuvers, missile exercises, helicopter tracking exercises, electronic warfare exercises, submarine mine exercises, and ship sonar maintenance would increase but would continue within established locations. The number of activities involving aircraft or vessels that may impact accessibility increases from 4,822 under the No Action Alternative to 7,559 under Alternative 1 (see Table 3.12-3). Half of the increase would be for air combat maneuvers and electronic warfare operations. The remainder of the training activities would remain the same as the No Action Alternative. As with the No Action Alternative, potential accessibility impacts would be associated primarily with anti-air warfare, anti-surface warfare, and anti-submarine warfare. No sinking exercises would be performed under Alternative 1. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Inland Waters

The proposed adjustments to baseline training activities include anti-surface warfare activities, mine warfare activities, and civilian port defense. Alternative 1 includes the addition of small-boat attack events. Training events in Inland Waters would increase compared to the No Action Alternative. The number of activities involving aircraft or vessels that may impact accessibility increases from 128 under the No Action Alternative to 158 under Alternative 1. The naval special warfare activities would not change from the No Action Alternative. While Alternative 1 would adjust the location and frequency of training activities, the Navy would continue to implement strict standard operating procedures. Despite the increase in frequency of training activities, there would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.1.2.2 Testing

Offshore Area

Under Alternative 1, the number of testing activities would increase; half of the events would be anti-submarine warfare testing conducted by Naval Air Systems Command (NAVAIR) in the Pacific Northwest OPAREA. The number of activities involving aircraft or vessels that may impact accessibility increases from 39 under the No Action Alternative to 212 under Alternative 1 (see Table 3.12-3). Despite the increase in testing, there would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Inland Waters

Testing events in the Washington state Inland Waters would increase under Alternative 1 over the No Action Alternative. The number of activities involving aircraft or vessels that may impact accessibility increases from 339 under the No Action Alternative to 602 under Alternative 1. The increase would allow for future testing requirements. Despite the increase, there would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Western Behm Canal

Under Alternative 1, acoustic measurements would increase. The number of activities involving vessels that may impact accessibility increases from 28 under the No Action Alternative to 60 under Alternative 1. Despite the increase, there would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.1.3 Alternative 2

3.12.3.1.3.1 Training

Offshore Area

The proposed numbers of events for training activities for Alternative 2 would increase compared to the No Action Alternative and are identical to the numbers proposed under Alternative 1 (Table 3.12-3). Therefore, the impacts from Alternative 2 compared to the No Action Alternative would be the same as described under Alternative 1. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the

large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Inland Waters

The only proposed adjustment to training activities that could impact accessibility of the public to training areas in Inland Waters is an increase from three exercises per 5-year period to annually for civilian port defense. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.1.3.2 Testing

Offshore Area

The number of testing events would increase under Alternative 2 compared to the No Action Alternative and Alternative 1. The number of activities involving aircraft or vessels that may impact accessibility increases from 39 under the No Action Alternative to 246 under Alternative 2 (see Table 3.12-3). Despite the increase in testing, there would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Inland Waters

Testing activities would increase under Alternative 2. The increase would allow for future testing requirements. The number of activities involving aircraft or vessels that may impact accessibility increases from 339 under the No Action Alternative to 665 under Alternative 2. Despite the increase, there would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

Western Behm Canal

Under Alternative 2, the number of testing events would increase compared with the No Action Alternative and Alternative 1 to allow for future testing requirements. The number of activities involving aircraft or vessels that may impact accessibility increases from 28 under the No Action Alternative to 83 under Alternative 2. The restricted area requirements and measures that minimize conflicts would continue to be implemented. There would be no anticipated impacts on commercial transportation and shipping, commercial and recreational fishing, subsistence use, or tourism because inaccessibility to areas of co-use would be infrequent and of short duration (hours). Based on the Navy's standard

operating procedures (Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring) and the large expanse area, accessibility impacts would remain negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.2 Physical Disturbance and Interactions

The evaluation of impacts on socioeconomic resources from physical disturbance and interaction stressors focuses on direct physical encounters or collisions with objects moving through the water or air (e.g., vessels, aircraft, unmanned devices, and towed devices), dropped or fired into the water (e.g., non-explosive practice munitions, other military expended materials, and ocean bottom deployed devices), or resting on the ocean floor (e.g., anchors, mines, and targets) that may damage or encounter civilian equipment. Because of the nature of vessel movements during SEAFAC testing, the lack of military expended materials, and the remote likelihood of physical disturbance or interaction, it will not be analyzed.

Physical disturbances that damage equipment and infrastructure could disrupt the collection and transport of products, which may impact industry revenue or operating costs. Interactions may involve training or testing activities that do not physically interact with socioeconomic resources but may interact in a way that affects the resources. Included in this category of stressors is the use of sonar. For sonar to affect socioeconomic resources, the underwater acoustic sound would have to alter commercial transportation, commercial or recreational fishing, or tourism in a way that causes an economic impact. Most recreational fishing in the Study Area takes place in state waters, where the Navy conducts very limited training. Less than 10 percent of recreational fishing takes place in federal waters, which are beyond 3 nm from shore. Recreational fishing typically occurs within 3 nm of shore. Therefore, most recreational fishing in the Offshore Area would occur away from physical disturbances and interactions associated with training and testing activities. Most commercial fishing occurs beyond 3 nm in Navy training and testing areas and could be affected by proposed activities if those activities were to alter fish population levels in those areas to such an extent that commercial fishers could no longer find their target species. As described in Section 3.9.3 (Fish – Environmental Consequences), the behavioral responses that could occur from various types of physical stressors associated with training and testing activities would not compromise the general health or condition of fish and, therefore, commercial or recreational fishing resources.

Commercial fishing activities have the potential to interact with equipment placed in the ocean or on the ocean floor for use during proposed Navy training and testing activities. This equipment could include ship anchors, moored or bottom-mounted targets, mines and mine shapes, tripods, and towed-system and attachment cables. Many different types of commercial fishing gear are used in the Study Area, including gillnets, longline gear, troll gear, trawls, seines, and traps or pots. Commercial bottom-fishing activities that use these types of gear have a greater potential to be affected by interaction with Navy training and testing equipment, resulting in the loss of or damage to both the Navy equipment and the commercial fishing gear. The Navy recovers many of the targets (e.g., mines and mine shapes) and target fragments used in training and testing activities, and it would continue to do so to minimize the potential for interaction with fishing gear and fishing vessels.

Unrecoverable items are typically small, constructed of soft materials (such as target cardboard boxes or tethered target balloons), or intentionally designed to sink to the bottom after serving their purpose (such as expended 55-gallon steel drums), so they would not represent a collision risk to vessels, including commercial fishing vessels. Commercial fishing activities that drag gear along the bottom could

snag unrecoverable items such as expended 55-gallon steel drums and damage their gear. As discussed in Section 3.1 (Sediments and Water Quality), a west coast study categorized types of marine debris collected by a trawler during a groundfish survey. Military expended materials categorized as plastic, metal, fabric and fiber, and rubber accounted for 7.4, 6.2, 13.2, and 4.7 percent, respectively, of the total count of items collected. The footprint of military expended materials in the Study Area is discussed in Section 3.3 (Marine Habitats), which concludes that if all military expended materials were placed side by side in the Study Area, the footprint would be approximately 0.04 nm^2. Because this footprint is so small relative to the size of the Study Area, recreational and commercial fishers probably would not encounter military expended materials. Damage to fishing gear from Navy mine and submarine warfare activities in the Offshore Area is rare. When damage does occur to commercial fishing gear due to Navy actions (e.g., net entanglement, destructions of buoys), the fishermen (or the owner of the property damaged) can file a claim with the Department of the Navy under the Federal Tort Claims Act under the provisions of 28 U.S. Code Section 2671, et seq. and request reimbursement. Forms for filing a claim under the act can be obtained from any Naval Legal Service Office. Reimbursement requests must be made within 2 years of incurring damage.

Military expended materials can physically interact with civilian equipment and infrastructure. Almost all training and testing activities produce military expended materials such as chaff, flares, projectiles, casings, target fragments, missile fragments, rocket fragments, and ballast weights. There would be a remote chance that fishermen using nets could recover military expended materials. No military expended materials would be associated with activities at the SEAFAC.

While Navy training and testing activities can occur throughout the Study Area, most (especially hazardous) activities occur well out to sea. Most civilian recreational activities engaged in by tourists and residents take place within a few miles of land. Snorkeling and diving take place primarily at known recreational sites, including shipwrecks and reefs. Temporary range clearance procedures in these areas do not adversely affect tourism activities because displacement is of short duration (typically less than 24 hours) and is in areas where tourism activities are not as prevalent. The Navy temporarily limits public access to areas where there is a risk of injury or property damage by using NTMs. Published notices allow recreational users to adjust their routes to avoid temporary restricted areas. If civilian vessels are within a testing or training area at the time of a scheduled operation, Navy personnel continue operations and avoid them if it is safe and possible to do so. If avoidance is not safe or possible, the operation may relocate or be delayed. In some instances when safety requires exclusive use of a specific area, nonparticipants in the area are asked to relocate to a safer area for the duration of the operation. Because Navy training and testing activities vary in location and are primarily short term in duration, impacts on tourism activities from rerouting or postponing activities would be negligible.

Other commercial tourism activities such as whale watching tours occur around the San Juan Islands and within Puget Sound by boat or aircraft. These activities would be conducted with boats that are typically well marked and visible to Navy ships conducting training and testing activities. Individual boaters engaged in tourism activities, such as whale watching, plan and monitor navigational information to avoid Navy training and testing areas. Vessels are responsible for being aware of designated danger areas in surface waters and any NTMs that are in effect. Operators of recreational or commercial vessels have a duty to abide by maritime requirements as administered by the U.S. Coast Guard. At the same time, Navy vessels ensure that an area is clear of nonparticipants before training and testing exercises. As a result, conflicts between Navy training and testing activities in the Offshore Area and whale watching or other offshore recreational use would not occur. Changes to current offshore tourism

activities in the Study Area would not be expected from proposed training and testing activities. Therefore, loss of revenue or employment associated with tourism would not occur.

Navy training and testing equipment and vessels moving through the water could collide with non-Navy vessels and equipment. Training and testing activities that involve equipment and vessel movement operate under Navy standard operating procedures as described in Section 3.13.2.2 (Safety and Inspection Procedures). The likelihood that Navy equipment or vessels would collide with a non-Navy vessel is remote because of the prevalent use of navigational aids or buoys separating vessel traffic, shipboard Lookouts, radar, and marine band radio communications by both Navy and civilians. Therefore, the potential to impact commercial transportation and shipping by physical disturbance or interaction is negligible and requires no further analysis.

Aircraft conducting training or testing activities in the Study Area operate in designated military special use airspace (e.g., warning areas, restricted areas). All aircraft (military and civilian) are subject to Federal Aviation Administration regulations, which define permissible uses of designated airspace and are implemented to control those uses. These regulations are intended to accommodate the various categories of aviation, whether military, commercial, or general aviation. By adhering to these regulations, the likelihood of civilian aircraft encountering military aircraft or ordnance is remote. In addition, Navy aircraft follow procedures outlined in Navy and Federal Aviation Administration Instructions, which are specific to a warning area or other special use airspace and which describe procedures for operating safely when civilian aircraft are in the vicinity.

3.12.3.2.1 No Action Alternative

3.12.3.2.1.1 Training

Offshore Area

Weapons firing exercises and ordnance use in the Pacific Northwest OPAREA would generally be conducted beyond 12 nm of shore (outside U.S. territorial waters) under the No Action Alternative. Under this alternative, active sonar training activities such as anti-submarine warfare and mine warfare would continue at current levels and within the established NWTRC. Most of the active sonar activities are conducted in the Pacific Northwest OPAREA. The Navy's implementation of strict operating procedures protects public health and safety from any training activities that would occur within U.S. territorial waters. These operating procedures include ensuring clearance of the area before commencing training activities involving physical interactions. Because of the Navy's strict operating procedures, the potential for impacts on the public from physical disturbances or interactions because of Navy training activities under the No Action Alternative is negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

Inland Waters

Mine warfare activities, as well as naval special warfare activities, could impact socioeconomic resources by direct physical disturbances or interactions. However, the Navy's implementation of strict operating procedures would protect the public from direct physical disturbances or interactions with Navy training activities. Prior public notification of hazardous Navy activities, use of known training areas, avoidance of nonmilitary vessels and personnel, maintenance of minimum separation distances between nonmilitary vessels and Navy vessels, use of standard operating procedures for clearance of ranges, and use of restricted access areas reduce the potential for interaction between the public and Navy activities. With the implementation of the Navy's strict operating procedures, the potential for training

activities to increase the public's physical disturbances or interactions with Navy training activities under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.2.1.2 Testing

Offshore Area

Under the No Action Alternative, active sonar testing activities such as unmanned underwater vehicles and countermeasure testing would continue at current levels (see Table 3.12-3). The Navy's implementation of strict operating procedures protects public interactions with any Navy testing activities that would occur within U.S. territorial waters. These operating procedures include ensuring clearance of the area before commencing with testing activities. Because of the Navy's strict operating procedures, the potential for impacts from physical disturbances or interactions for the public because of Navy testing activities under the No Action Alternative is negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Inland Waters

Testing activities could impact socioeconomic resources by direct physical disturbances or interactions. Countermeasure materials expended during testing are sought for recovery and test evaluation. Torpedoes used for testing do not contain explosives and are recovered for reuse and for performance evaluation. However, materials such as decelerator/parachutes, guidance wires, and ballast weights are expended. Targets may be temporarily deployed and then recovered. Stationary targets may be either floating suspended or anchored in the water column. If there is a navigational hazard, then an NTM is issued for advisory notice to the public. Because of the Navy's strict operating procedures, the potential for testing activities to increase the public's physical disturbances or interactions with Navy testing activities under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Western Behm Canal

Acoustic measurements would be conducted at current levels (28 events per year) at SEAFAC. Proposed activities include surface vessel acoustic measurement, underwater vessel acoustic measurement, underwater vessel hydrodynamic performance measurement, component system testing, and measurement system repair and replacement. The Navy's implementation of strict operating procedures protects public health and safety from any training activities that would occur within U.S. territorial waters. These operating procedures include ensuring clearance of the area before commencing training activities involving physical interactions. Because of the Navy's strict operating procedures, the potential for impacts on the public from physical disturbances or interactions because of Navy training activities under the No Action Alternative is negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.2.2 Alternative 1

3.12.3.2.2.1 Training

Offshore Area

Under Alternative 1, the number of training events would increase but would continue within established locations. The number of activities involving vessels, in-water devices, or military expended materials that have potential for physical disturbance or interaction would increase from 188,009 under the No Action Alternative to 193,244 under Alternative 1 (see Table 3.12-3). However, the increased number of aircraft and vessel movements and the use of targets and expended materials would be conducted under the same safety and inspection procedures as under the No Action Alternative. Under Alternative 1, training activities in the Pacific Northwest OPAREA that could increase risk of physical disturbances or interactions with the public would likely be conducted outside U.S. territorial waters. Active sonar training would continue at current locations as described under the No Action Alternative. While Alternative 1 would adjust the frequency of training activities, the Navy would continue to implement strict standard operating procedures. Therefore, the potential for impacts of physical interactions with Navy training activities beyond those identified under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

Inland Waters

The proposed adjustments to baseline training activities would increase Inland Waters training and include anti-surface warfare activities, mine warfare activities, and civilian port defense. Alternative 1 also includes the addition of small boat attack events, which will occur in areas where restrictions are in place to avoid encounters with nonparticipants. Activities involving vessels, in-water devices, and military expended materials with the potential for physical disturbance and interaction would increase from 12 under the No Action Alternative to 139 under Alternative 1. While Alternative 1 would adjust the frequency of training activities, the Navy would continue to implement strict standard operating procedures (U.S. Department of the Navy 2009b). Therefore, the potential for training activities under Alternative 1 to increase the public's physical disturbances or interactions with Navy training beyond those identified under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.2.2.2 Testing

Offshore Area

The frequency of testing activities would increase under Alternative 1; half of the increase would be for anti-submarine warfare activities in the Pacific Northwest OPAREA. The frequency of active sonar testing activities would increase over the No Action Alternative, allowing for future testing requirements by Naval Sea Systems Command and NAVAIR. The number of activities involving vessels, in-water devices, or military expended materials that have potential for physical disturbance or interaction would increase from 698 under the No Action Alternative to 2,803 under Alternative 1 (see Table 3.12-3). Because of the Navy's strict operating procedures, the potential for testing activities to increase the public's risk of physical disturbances or interactions with Navy testing activities under Alternative 1 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Inland Waters

Testing activities would increase under Alternative 1 and would occur in new locations such as Carr Inlet and within the restricted pierside area. Sonar use for testing activities and miscellaneous testing activities would be similar to that described under the No Action Alternative. The increase would allow for future testing requirements. Activities involving vessels, in-water devices, and military expended materials with the potential for physical disturbance and interaction would increase from 1,162 under the No Action Alternative to 1,747 under Alternative 1. Despite the increase in the number of testing events, the potential for direct physical interaction between the public and aircraft, vessels, targets, or expended materials would be similar to the No Action Alternative due to the continued implementation of strict operating procedures that ensure that these areas are clear of nonparticipants (U.S. Department of the Navy 2009b). Therefore, the potential for testing activities under Alternative 1 to increase the public's risk of physical disturbances or interactions with Navy testing activities beyond those identified under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Western Behm Canal

Under Alternative 1, acoustic measurements would be conducted at SEAFAC in the five restricted areas within Western Behm Canal. Activities involving vessels with the potential for physical disturbance and interaction would increase from 28 under the No Action Alternative to 60 under Alternative 1. The restricted areas provide for vessel and public safety, lessen acoustic encroachment from nonparticipating vessels, and prohibit certain activities that could damage SEAFAC's sensitive in-water acoustic instruments and associated cables. Because of the Navy's strict operating procedures, the potential for physical disturbance or interactions with commercial or recreational vessels would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

3.12.3.2.3 Alternative 2

3.12.3.2.3.1 Training

Offshore Area

The proposed numbers of events for training activities for Alternative 2 would increase compared to the No Action Alternative and are identical to the numbers proposed under Alternative 1 (see Table 3.12-3). Therefore, the impacts from Alternative 2 compared to the No Action Alternative would be the same as described under Alternative 1. The potential for a direct physical interaction between the public and aircraft, vessels, targets, or expended materials would be similar under Alternative 2 to those under Alternative 1. The Navy would continue to implement strict standard operating procedures. Therefore, the potential for impacts under Alternative 2 due to physical disturbances or interactions with the public beyond those identified under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

Inland Waters

The only proposed adjustment to training activities that could increase the risk of physical disturbances or interactions is an increase from three exercises per 5-year period to annually for civilian port defense. The Navy would continue to implement strict standard operating procedures. The potential for training activities under Alternative 2 to increase the public's physical interactions with Navy training beyond those identified under the No Action Alternative would be negligible. Therefore, implementation of

Alternative 2 would have negligible impacts on socioeconomic resources. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.2.3.2 Testing

Offshore Area

The frequency of testing activities would increase under Alternative 2. The number of activities involving vessels, in-water devices, or military expended materials that have potential for physical disturbance or interaction would increase from 698 under the No Action Alternative to 3,109 under Alternative 2 (see Table 3.12-3). The increase would allow for future testing requirements. Because of the Navy's strict operating procedures, the potential for impacts under Alternative 2 due to physical disturbances or interactions with the public beyond those identified under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Inland Waters

Testing activities would increase under Alternative 2 and would occur in the same locations in the Inland Waters to allow for future testing requirements. Activities involving vessels, in-water devices, and military expended materials with the potential for physical disturbance and interaction would increase from 1,162 under the No Action Alternative to 1,924 under Alternative 2. The potential for direct physical interaction between the public and aircraft, vessels, targets, or expended materials would be similar to the No Action Alternative due to the continued implementation of strict operating procedures that ensure that these areas are clear of nonparticipants (U.S. Department of the Navy 2009b). Therefore, the potential for testing activities under Alternative 2 to increase the public's physical interactions with Navy testing beyond those identified under the No Action Alternative would be negligible and would have negligible impacts on socioeconomic resources. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Western Behm Canal

The proposed adjustment to Alternative 2 testing activities includes an increased frequency of operations to allow for future testing requirements. Activities involving vessels with the potential for physical disturbance and interaction would increase from 28 under the No Action Alternative to 83 under Alternative 2. While Alternative 2 would increase the number of events, the Navy would continue to implement strict standard operating procedures. The potential for physical disturbance or interactions with commercial or recreational vessels would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

3.12.3.3 Airborne Acoustics

As a stressor, loud noises, sonic booms, and vibrations generated from Navy training and testing activities such as aircraft transiting have the potential to disrupt wildlife and humans in the Study Area. Airborne noise is not anticipated to impact commercial transportation and shipping, commercial fishing, and subsistence fishing within the Study Area; therefore, no further analysis is needed.

Noise interference could decrease public enjoyment of recreational activities. The public would hear noise from aircraft overflights and other training and testing activities if they are in the vicinity of an

event, but there would be no impact on public enjoyment of recreational activities leading to a loss of revenue because of the infrequency and duration of events. These effects would occur on a temporary basis and only when Navy activities are occurring. Most Navy training and testing activities require the area to be clear of nonparticipants, reducing the potential that noise from these activities would disturb tourists. Further, most naval training would occur well out to sea, while tourism and civilian recreational activities are largely conducted within a few miles of shore.

3.12.3.3.1 No Action Alternative

3.12.3.3.1.1 Training

Offshore Area

Under the No Action Alternative, potential airborne noise impacts would be associated primarily with anti-air warfare, anti-surface warfare, anti-submarine warfare, and mine warfare. Training activities would continue at current levels and within established ranges and training locations. There would be no anticipated impacts on tourism because most Navy training occurs well out to sea, while most tourism and recreational activities occur near shore, and Navy training activities producing airborne noise are normally short term and infrequent. Therefore, airborne noise impacts on tourism under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

Inland Waters

Mine warfare activities, as well as naval special warfare activities, could cause temporary increases in airborne noise from helicopters. The airborne noise would be for short duration, localized, and away from areas where tourists are located.

In accordance with the *Pacific Northwest Training Range Complex Manual* (U.S. Department of the Navy 2010b), supersonic flights are not conducted in the Olympic MOA. In accordance with Navy Instruction 3710.7T, *NATOPS General Flight and Operating Instructions*, noise sensitive areas, including national parks and national recreational areas, shall be avoided when at altitudes of less than 3,000 ft. (914.4 m) above ground level (U.S. Department of the Navy 2009a).

Air combat maneuvers, electronic warfare operations, and search and rescue activities would continue at current levels in the Olympic MOA. Approximately 120 events were conducted in the Olympic MOA between August 2011 and August 2012, which represents approximately 3 percent of the proposed activities for air combat maneuvers, electronic warfare operations, and search and rescue activities. Tourism access to the Olympic National Park and Olympic National Forest underneath the Olympic A and B MOA was not restricted because of airspace activities. Because airborne noise generated from the activities is intermittent, mostly high-altitude overflights; occurs in remote areas; and does not involve high noise levels (i.e., flights are greater than 3,000 ft. above ground level and no supersonic flights occur), it is unlikely that sensitive human receptors would be adversely exposed to airborne noise from military activities.

The potential for training activities under the No Action Alternative to impact tourism is negligible. Therefore, the potential impacts of airborne noise under the No Action Alternative are negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.3.1.2 Testing

Offshore Area

The majority of offshore testing under the No Action Alternative would be within the Quinault Range Site. Testing activities would not produce high levels of airborne noise due to the nature of the tests, which primarily occur underwater. Helicopters or surface vessels would be used in many of the tests. Airborne noise from these tests is not expected to impact tourism because the testing would not be near areas of tourism, the noise is not substantially loud, and the tests are infrequent. Further, noise from these activities is similar to sounds generated from non-Navy helicopters and vessels generally found in the area. Therefore, airborne noise impacts on tourism under the No Action Alternative would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Inland Waters

Torpedo testing and miscellaneous testing would be conducted at current levels. The airborne noise produced from surface vessels would be for short durations, localized, and away from tourist areas. The potential for testing activities under the No Action Alternative to impact tourism is negligible. Therefore, the potential impacts of airborne noise under the No Action Alternative are negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Western Behm Canal

There are no activities including aircraft that produce airborne noise in the Western Behm Canal.

3.12.3.3.2 Alternative 1

3.12.3.3.2.1 Training

Offshore Area

Compared to the No Action Alternative, offshore training activities proposed under Alternative 1 that may cause an increase in airborne noise would include air combat maneuvers and electronic warfare operations. These activities would increase from 3,826 under the No Action Alternative to 6,471 under Alternative 1 (see Table 3.12-3). Generally, these training flights are at high altitudes and offshore. Airborne noise is attenuated substantially before reaching the surface. Therefore, airborne noise impacts on tourism under Alternative 1 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

Inland Waters

Alternative 1 would increase the number of mine warfare training activities in the underwater training ranges, Crescent Harbor, or Hood Canal. Activities that include aircraft generating airborne noise with the potential to impact tourism would increase from 124 under the No Action Alternative to 127 under Alternative 1. Rotary-wing aircraft may be used during these training activities, which would increase airborne noise in these ranges. The airborne noise would be for short duration, localized, and away from areas where tourists occur. For these reasons, the potential for training activities to impact tourism under Alternative 1 would be negligible.

The increased frequency of operations could result in greater airborne noise exposure of tourists visiting the Olympic National Park and Olympic National Forest. However, overflights would be conducted at greater than 3,000 ft. above ground level, and no supersonic flights would occur within the Olympic

MOA. It is unlikely that sensitive receptors would be adversely exposed to airborne noise from military activities; therefore, airborne noise under Alternative 1 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.3.2.2 Testing

Offshore Area

Activities that include aircraft generating airborne noise with the potential to impact tourism increase from two under the No Action Alternative to 74 under Alternative 1. Most of the increased number of events would be conducted more than 3 nm offshore and at high altitudes. These testing activities would not cause substantial increases in airborne noise. Therefore, airborne noise impacts on tourism under Alternative 1 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Inland Waters

Activities that include aircraft generating airborne noise with the potential to impact tourism increase from two under the No Action Alternative to 20 under Alternative 1. Most of the increased number of events would be conducted more than 3 nm offshore and at high altitudes. These testing activities would not cause substantial increases in airborne noise. Therefore, airborne noise impacts on tourism under Alternative 1 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Western Behm Canal

There are no activities including aircraft that produce airborne noise in the Western Behm Canal.

3.12.3.3.3 Alternative 2

3.12.3.3.3.1 Training

Offshore Area

The proposed numbers of events for Alternative 2 would increase compared to the No Action Alternative and are the same as the numbers proposed under Alternative 1 (see Table 3.12-3). Impacts from Alternative 2 compared to the No Action Alternative would be the same as described under Alternative 1. Therefore, airborne noise impacts on tourism under Alternative 2 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

Inland Waters

The proposed numbers of events for Alternative 2 would increase compared to the No Action Alternative and are the same as the numbers proposed under Alternative 1. Impacts from Alternative 2 compared to the No Action Alternative would be the same as described under Alternative 1. The airborne noise resulting from surface vessels would be for short durations, localized, and away from tourist areas. For these reasons, the potential for training activities to impact tourism under Alternative 2 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of training activities.

3.12.3.3.3.2 Testing

Offshore Area

The proposed numbers of events for Alternative 2 would increase compared to the No Action Alternative and would increase from the numbers proposed under Alternative 1 (see Table 3.12-3). Impacts from Alternative 2 compared to the No Action Alternative would be the same as described under Alternative 1. Airborne noise from these testing activities would not cause substantial increases in airborne noise. Therefore, airborne noise impacts on tourism under Alternative 2 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Inland Waters

The proposed numbers of events for Alternative 2 would increase compared to the No Action Alternative and would increase from the numbers proposed under Alternative 1. Impacts from Alternative 2 compared to the No Action Alternative would be the same as described under Alternative 1. The airborne noise resulting from surface vessels would be for short durations, localized, and away from tourist areas. For these reasons, the potential for testing activities to impact tourism under Alternative 2 would be negligible. Because impacts are negligible, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of testing activities.

Western Behm Canal

There are no activities including aircraft that produce airborne noise in the Western Behm Canal.

3.12.3.4 Secondary Impacts

Socioeconomic resources could be impacted if proposed activities led to changes to physical and biological resources and if these activities acted as secondary stressors to the extent that they would alter the way industries can use those resources. The secondary impacts on marine resource availability pertain to the potential for loss of fisheries resources within the Study Area.

Commercial transportation and shipping would not be affected by changes to physical or biological resources. Fishing, subsistence use, and tourism could be impacted if proposed activities altered fish and other marine species population levels to such an extent that these activities could no longer find their target species. Similarly, disturbances to marine mammal populations could impact the whale watching industry. Analyses in Sections 3.4 (Marine Mammals), 3.8 (Marine Invertebrates), and 3.9 (Fish) concluded that impacts on marine species from training and testing activities are not anticipated. Based on these conclusions, secondary impacts on commercial transportation or shipping, commercial or recreational fishing, subsistence use, or tourism are not anticipated. Because impacts are not anticipated, no disproportionately high and adverse effects on any low-income or minority populations would occur as a result of implementation of these activities.

3.12.3.5 Summary of Potential Impacts of All Stressors on Socioeconomic Resources

Stressors described in this EIS/OEIS that could result in potential impacts on socioeconomic resources include accessibility to areas within the Study Area, physical disturbances and interactions, airborne acoustics, and secondary impacts resulting from effects on marine species populations. Under the No Action Alternative, Alternative 1, and Alternative 2, these activities would be widely dispersed throughout the Study Area. These activities are also dispersed temporally (i.e., few stressors would occur in the same location at the same time). Therefore, no greater impacts from the combined operation of more than one stressor are expected. The aggregate impact on socioeconomic resources would not observably differ from existing conditions.

REFERENCES

American Association of Port Authorities. (2012). North American container traffic: 2011 port rankings. Retrieved from www.aapa-ports.org/Industry/content/cfm, as accessed on 2012, June 6.

Experience Ketchikan. (2013). Retrieved from www.experienceketchikan.com/Ketchikan-cruise.html as accessed on 2013, February 14.

Ketchikan Gateway Borough. (2007). *Ketchikan Coastal Management Program final plan amendment*. *Volume 1: Goals, objectives, and policies for use of Ketchikan's coastal resources* and *Volume 2: Resource inventory and analysis*. Ketchikan Gateway Borough, Department of Planning and Community Development.

Kraig, E. (2011). *Washington State sport catch report 2007*. Washington Department of Fish and Wildlife, Fish Program Science Division. September.

Kraig, E., & Smith, S. (2011). *Washington State sport catch report 2004*. Washington Department of Fish and Wildlife, Fish Program Science Division. July.

McDowell Group. (2010). *The Economic impacts of the cruise industry in southeast Alaska*. Prepared for Southeast Conference. Juneau and Anchorage, AK.

National Marine Fisheries Service. (2013). Annual commercial landing statistics. NOAA Office of Science and Technology. Retrieved from http://www.st.nmfs.noaa.gov/pls/webpls/MF_ANNUAL_LANDINGS.RESULTS as accessed on 2013, April 17.

O'Conner, S., Campbell, R, Cortez, H., & Knowles, T. (2009). *Whale watching worldwide: Tourism numbers, expenditures, and economic benefits*. A special report from International Fund for Animal Welfare, Yarmouth, MA. Prepared by Economists at Large.

Pacific Fisheries Information Network. (2012). "Pacific Fishery Management Council." www.pcouncil.org.

Pacific Fishery Management Council. (2006). Appendix A of the draft environmental impact statement on proposed acceptable biological catch and optimum yield specifications and management measures for the 2007–2008 groundfish fishery. July.

Pacific Fishery Management Council. (2012). Who we are and what we do. Retrieved from www.pcouncil.org as accessed on 2012, June 8.

Sommers, P., & Canzoneri, D. (1996). *The sound economy: Puget Sound region's industries and their relationship to the sound*. Prepared for People for Puget Sound. August.

Stynes, D. J. (2011). *Economic benefits to local communities from national park visitation and payroll, 2010*. Natural Resource Report NPS/NRSS/EQD/NRR—2011/481. National Park Service, Fort Collins, CO.

U.S. Department of the Navy. (2009a). *NATOPS general flight and operating instructions*. OPNAV Instruction 3710.7U. November 23.

U.S. Department of the Navy. (2009b). *Active sonar transmission operations* (PSNS&IMFINST 10552.1A). Commander, Puget Sound Naval Shipyard and Intermediate Maintenance Facility. September.

U.S. Department of the Navy. (2010a). *Northwest Training Range Complex final environmental impact statement/overseas environmental impact statement*.

U.S. Department of the Navy. (2010b). *Pacific Northwest Training Range Complex manual* (NASWHIDBEY INST 3770.1E). July.

U.S. Department of Transportation. (2009). *America's freight transportation gateways, November 2009*. Research and Innovative Technology Administration, Bureau of Transportation Statistics. Washington, D.C.

Washington Department of Ecology. (2012). Puget Sound. Retrieved from http://www.ecy.wa.gov/ as accessed on 2012, July 5.

Washington Department of Fish and Wildlife. (2012a). Fisheries for Puget Sound chum salmon. Retrieved from http://wdfw.wa.gov/fishing/salmon/chum/pugetsound/fiishery.html as accessed on 2012, July 5.

Washington Department of Fish and Wildlife. (2012b). Wild stock commercial geoduck fishery. Retrieved from http://wdfw.wa.gov/commercial/geoduck as accessed on 2012, June 7.

Washington State. (2007).Marine Services, Department of Community, Trade and Economic Development. Retrieved from http://old.exportwashington.com/portal/alias__UK/lang__en-US/tabid__3930/DesktopDefault.aspx as accessed on 2012, July 5.

Washington State Department of Commerce. (2012). Marine technology. Retrieved from www.choosewashington.com/industries/marine/pages/default.aspx as accessed on 2012, June 8.