DRAFT

Environmental Assessment
for
Maritime Environmental Data Sampling System

Science & Technology Directorate
Department of Homeland Security
Washington, DC

May 2024

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Project Proponent: Department of Homeland Security
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EXECUTIVE SUMMARY

This Draft Environmental Assessment (EA) was prepared to evaluate the potential environmental and socioeconomic impacts of the Proposed Action and alternative actions, including the No-Action Alternative, and to help in determining if an Environmental Impact Statement is needed. The Science and Technology Directorate (S&T), a Component within the U.S. Department of Homeland Security (DHS), proposes to deploy, operate, and recover, or continue operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern Border with Canada to assess the cable sensor system's capability to collect maritime environmental data (Proposed Action).

This EA complies with requirements of the National Environmental Policy Act of 1969, 42 United States Code [USC] §§ 4321 et seq. (NEPA); Council on Environmental Quality regulations *Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations Parts 1500–1508); other relevant federal and state laws and regulations; DHS Directive 023-01, Revision 01; and DHS Instruction Manual 023-01-001-01, Revision 01, *Implementing the National Environmental Policy Act*.

To facilitate public review of this EA, DHS S&T published this draft EA and supporting documents on the DHS website at https://www.dhs.gov/national-environmental-policy-act.

DHS is committed to using cutting-edge technologies and providing scientific expertise to enhance the safety of the United States. The mission of DHS S&T is to enable effective, efficient, and secure operations across all homeland security missions by applying scientific, engineering, analytic, and innovative approaches to deliver timely solutions for the Homeland Security Enterprise.

The Proposed Action includes activities relating to the deployment, operation, and potential recovery or continuation of operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State, near the Northern border with Canada. These activities include:

- cable deployment
- cable operation (including potential continued operations)
- cable recovery (cable abandonment in sensitive areas as required by state permitting)

DHS S&T requires technology assessments for maritime environmental monitoring capabilities. The ***purpose*** of the Proposed Action is to test the sensor technology to increase MDA. This requires deployment and operation of an underwater cable and includes potential recovery, abandonment in place, or continued operations, in submerged waters. The Proposed Action is ***needed*** to assess capability and performance of the cable system to evaluate applicability for the utilization within the rest of the United States. Without the implementation of the Proposed Action, DHS S&T would not be able to assess the performance of the system to meet mission needs for maritime environmental monitoring capabilities.

Table 1. Resource Areas Considered in this EA

Resource Area	Thresholds of Significance	Analyzed in this EA?	Rationale for Level of Assessment
Land Use	Significant impacts to land use would occur if cable laying, use, and removal operations led to permanent alteration or displacement of existing land uses deemed important to the community or individual property owners, or if the proposed activities would violate local zoning ordinances.	No	Although the Proposed Action will use existing infrastructure aboveground to route the cable underground, any impacts on existing infrastructure would be consistent with its use. The Proposed Action would not result in any alteration to existing, planned, or future land use. Therefore, the Proposed Action would have *no impact* to land use. Therefore, this resource was dismissed from analysis.
Visual Aesthetics	Significant impacts would occur if cable laying, use, and removal operations introduced permanent discordant elements or removed important (i.e., visually appealing) elements in the existing viewshed.	No	The Proposed Action occurs entirely underwater or using existing infrastructure and would not result in any changes to the existing viewshed of the Strait of Georgia or Semiahmoo Bay and would have *no impact* on visual aesthetics. Therefore, this resource was dismissed from analysis.
Air Quality and Climate Change	Significant impacts would occur if there were a change in the attainment status with the National Ambient Air Quality Standards (NAAQS) or if emissions were to exceed regulatory thresholds.	Yes	During operation and if portions of the cable are abandoned in place, the cable would emit no light, energy, or heat. Potential emissions would be limited to motor vehicles and vessels during cable laying and recovery operations. This resource is evaluated further in **Section 3.1**.
Noise	Significant noise impacts would occur if generated noise were permanently intrusive to nearby sensitive receptors; if it exceeded applicable noise limit thresholds; or if it would cause harm or injury to people or communities.	Yes	Noise generated by the Proposed Action would be limited to cable laying activities. The cable would not emit any noise during operation or if portions of the cable are abandoned in place. The level and duration of noise from cable recovery, if applicable, are anticipated to be similar to cable laying. This resource is evaluated further in **Section 3.2**.

Resource Area	Thresholds of Significance	Analyzed in this EA?	Rationale for Level of Assessment
Geology, Topography, and Soils	Significant impacts on geography, topography, and soils would occur if the Proposed Action exposed people or structures to seismic, landside, erosion, or subsidence hazards.	No	The Proposed Action would not alter or damage unique or recognized geologic features, adversely affect geologic conditions or processes, result in any increased exposure to seismic hazards, or result in any increased exposed to landslide, erosion, or subsidence hazards. Additionally, the shoreside cable landing would require no alterations to the existing topography or soil disturbance. The Proposed Action would have *no impact* to geology, topography, or soils Therefore, this resource was dismissed from analysis.
Cultural and Historic Resources	Significant impacts would occur if the integrity of a historic property or archaeological site is diminished, even with mitigation and avoidance measures in place, such that it would no longer be eligible for listing in the NRHP; if historic viewsheds would be substantially altered; or if Tribal concerns regarding impacts to sacred sites or sites of traditional and cultural significance are identified.	Yes	The Proposed Action APE is archaeologically and historically important, and it continues to be a place of cultural and religious importance to the Lummi Nation and other Salish Tribes. There are numerous eligible or potentially eligible historic properties within the Proposed Action APE. This resource is evaluated further in **Section 3.3**.
Water Resources	Significant impacts would occur if proposed activities induced flooding or impact a floodplain; if activities were inconsistent with applicable enforceable coastal zone policies; if there were impacts to the quantity and quality of the groundwater; if proposed activities result in an exceedance of water quality thresholds, impede navigability of surface waters, substantially increase the amount of stormwater entering surface waters, and do not comply with wetland protection regulations and permits.	Yes	There is no mechanism for the Proposed Action to impact floodplains, coastal zone management, groundwater, or wild and scenic rivers. Cable installation includes shallow burial of the cable into marine sediments of the seafloor. Cable recovery would involve removal of the buried cable from the seafloor (portions of the cable may also be left in place). These activities could affect water resources and are evaluated further in **Section 3.4**.

Resource Area	**Thresholds of Significance**	**Analyzed in this EA?**	**Rationale for Level of Assessment**
Biological Resources	Significant impacts would occur if cable laying, operation, and retrieval actions were to result in long-term loss, degradation, or loss of diversity within unique or high-quality submerged aquatic vegetation communities; unpermitted 'take' of federally-listed species and local extirpation of rare or sensitive species not currently listed under the ESA of 1973; unacceptable loss of critical habitat as determined by the USFWS; or violation of the MBTA of 1918 or the Bald and Golden Eagle Protection Act of 1940, as amended.	Yes	The direct impacts from the Proposed Action are limited to cable installation and removal activities only, as no impacts are expected during cable operation or if portions of the cable are abandoned in place. The Proposed Action-related direct impacts that could potentially affect listed species include the following: temporary increase in turbidity from cable laying, and temporary disturbance from vessel operation. This resource is evaluated further in **Section 3.5**.
Socioeconomics, Environmental Justice, and the Protection of Children	Significant impacts would occur if there would be substantial changes to the employment, population, or housing availability or if the Proposed Action would disrupt local traffic patterns of nearby communities; or if products or substances through contact, ingestion, exposure, use or other methods could disproportionately affect children's health and safety.	Yes	There is no mechanism for the Proposed Action to impact socioeconomics or protection of children. The Proposed Action area is not considered an EJ community of concern or disadvantaged, nor does it meet any burden thresholds or socioeconomic thresholds. As the Proposed Action area is located within various Tribes' usual and accustomed fishing areas, tribal consultations are ongoing. This resource is evaluated further in **Section 3.6**.
Recreation	Significant impacts would occur if cable laying or recovery activities permanently interfere with established recreational activities.	Yes	Temporary access restrictions would be placed on recreational boating, fishing, and diving in the immediate area surrounding active cable laying or removal activities as needed. This resource is evaluated further in **Section 3.7.**

Resource Area	Thresholds of Significance	Analyzed in this EA?	Rationale for Level of Assessment
Public Health & Safety	Significant impacts would occur if cable installation and removal activities would put the health and safety of the public at risk or violate applicable federal and/or state safety regulations.	No	The Proposed Action would not put the health and safety of the public at risk or violate any federal and/or state safety regulations. Reasonable measures are in place for protection of the crew responsible for installing the cable. The Proposed Action would have *no impact* on public health and safety. Therefore, this resource was dismissed from analysis.
Infrastructure	Significant impacts would occur if there were substantial impacts to existing facilities, damage to transportation assets, or permanent impairment or loss of utility service.	No	The shoreside landing has existing utilities for electric service, potable water, wastewater collection, stormwater, and communications; no changes to infrastructure are needed. The Proposed Action is anticipated to have a utility demand rate similar to existing conditions. The Proposed Action would have *no impact* on infrastructure. Therefore, this resource was dismissed from analysis.
Hazardous and Toxic Materials and Waste	Significant impacts would occur if proposed activities would result in an exceedance of regulatory thresholds of the total amount of HTMW or solid waste generated; permanently increase the risk of contamination; or create a new or substantial human or environmental health risk (e.g., soil or groundwater contamination).	No	The cable will be composed of non-hazardous materials. Once laid, the cable would not emit any heat, light, sound, or electromagnetic fields. The Proposed Action would not exceed regulatory thresholds for HTMW and the vessel will be equipped with spill containment and spill response kits. The Proposed Action would have *no impact* on HTMW. Therefore, this resource was dismissed from analysis.

The Proposed Action has no mechanism to impact the following environmental resources: Land Use; Visual Aesthetics; Geology, Topography, and Soils; Water Resources (Floodplains, Coastal Zone Management, Groundwater and Wetlands); Socioeconomics; Public Health and Safety; Infrastructure; and Hazardous and Toxic Materials and Waste. The seven environmental resources for which impacts are analyzed in greater detail are Air Quality and Climate Change; Noise; Cultural and Historic Resources; Water Resources (Surface Water); Biological Resources; Environmental Justice; and Recreation.

FINDINGS AND CONCLUSONS

Based upon the analyses for the EA and the best management practices to be implemented, the Proposed Action would not have a significant effect on the environment. Therefore, no further analysis or documentation (i.e., an Environmental Impact Statement) is warranted. However, project planning and design are ongoing. Should the final design ultimately include details that are outside the scope analyzed in this EA additional analysis may be required. DHS S&T, in implementing this decision, would employ all best management practices and mitigation measures analyzed in this EA to minimize the potential for adverse impacts on the human and natural environments.

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
APE	area of potential effects
BA	Biological Assessment
BMP	Best Management Practices
CAP	criteria air pollutant
CEJST	Climate and Economic Justice Screening Tool
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
cm	centimeters
CO	carbon monoxide
CO_2	carbon dioxide
CPS	coastal pelagic species
CZMP	Coastal Zone Management Program
DAHP	Department of Archaeology and Historic Preservation
dB	decibels
dBA	A-weighted decibels
DDT	dichloro-diphenyl-trichloroethane
DHS S&T	Department of Homeland Security Science and Technology Directorate
DNR	Department of Natural Resources
DPS	distinct population segment
EA	Environmental Assessment
EFH	essential fish habitat
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	evolutionarily significant unit
ft	feet
FMP	fishery management plan
g	grams
g/kW-hr	grams per kilowatt-hour
GHG	greenhouse gases
GPS	global positioning system
GWP	global warming potential
HAPC	habitat areas of particular concern
HTMW	hazardous toxic materials and waste
in	inches
kg	kilograms
km	kilometers

lb	pounds
m	meters
mi	miles
mm	millimeters
MBTA	Migratory Bird Treaty Act
MDA	maritime domain awareness
MLLW	mean lower low water
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fishery Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NO_X	nitric oxides
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PFMC	Pacific Fishery Management Council
RCW	Revised Code of Washington
SAV	submerged aquatic vegetation
SO_2	sulfur dioxide
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
WA	Washington
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology

1.0 INTRODUCTION

This Environmental Assessment (EA) was prepared to evaluate the potential environmental and socioeconomic impacts of the Proposed Action and alternative actions, including the No-Action Alternative, and to aid in determining whether an Environmental Impact Statement is needed. The U.S. Department of Homeland Security (DHS) Science and Technology Directorate (S&T) proposes to deploy, operate, and recover, or continue operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern border with Canada (Proposed Action). DHS S&T prepared this EA in compliance with the National Environmental Policy Act of 1969 (NEPA); 42 United States Code [USC] §§ 4321 *et seq*.); the White House Council on Environmental Quality (CEQ) *Regulations Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500–1508); DHS Management Directive 023-01, revision 01 *Implementation of the NEPA*, and DHS Instruction 023-01-002-01 rev. 01 *Implementation of the NEPA.*

1.1 BACKGROUND

DHS S&T, a research and development Component of DHS, conducts basic and applied research, development, demonstration, testing, and evaluation activities relevant to the DHS mission. The Homeland Security Act of 2002 (Public Law 107–296), which established DHS, created within DHS a Directorate of Science and Technology, headed by an Under Secretary. DHS S&T provides sound, evidence-based scientific and technical solutions to address a broad spectrum of current and emerging threats. DHS S&T applies scientific rigor to detect, protect against and counter major threats, and help speed response and recovery operations for intentional, accidental, or natural disasters. It also strives to strengthen U.S. preparedness and resilience through its mission-based portfolio. Under this purview, DHS S&T may conduct a variety of functions that contribute to DHS's homeland security mission, including basic research and training, facilitating technology transfer, and advisement on research priorities. This authority is paramount to the DHS mission to protect and secure the Homeland from evolving threats.

To achieve persistent awareness in the maritime domain, DHS S&T requires maritime environmental monitoring capabilities in the coastal and intercostal waterways under the jurisdiction of the United States and out to the limits of the Economic Enforcement Zone (up to 200 nautical miles [230 statute miles]) (DHS 2022). Maritime Domain Awareness (MDA) is the effective understanding of anything associated with the global maritime domain that could impact the security, safety, economy, or environment of the United States. MDA is a key component of an active, layered maritime defense. It is achieved by improving the ability to collect, fuse, analyze, display, and disseminate actionable information and intelligence to operational commanders.

The National Plan to Achieve MDA outlines the national priorities for achieving MDA, drawing on the insights and expertise of a range of federal agencies and departments that came together to create this plan (DHS 2005). It includes near-term and long-term objectives, required program and resource implications, and recommendations for organizational or policy changes. It is one of eight plans developed in support of the National Strategy for Maritime Security, as directed by National Security Presidential Directive-41/Homeland Security Presidential Directive-13. The plan advocates for enhanced and innovative collection of data, the integration of correlated open-source information, and the incorporation of automated algorithms to assist human analytic efforts. To maintain continuous awareness in the maritime domain, relying solely on Cold War era data collection methods is no longer adequate. The Nation needs to adapt by combining these traditional systems with modern technology such as unmanned aerial vehicles and acoustic sensors. New capabilities to support MDA must be developed through investments and testing of new technologies. By leveraging new and diverse technologies, the United States can enhance its ability to detect maritime threats in near real time.

DHS S&T's Maritime Environmental Data Sampling System Project (Proposed Action) proposes to deploy a cable on the seabed to assess new methods of conducting maritime environmental monitoring. The cable will allow information to be gathered in near real time. Critical to this effort is the coordination and collaboration of the federal, state, local, and tribal partners as well as the private sector.

The cable study is targeted for deployment in the Fall of 2024 in the Strait of Georgia, which is a narrow passage, averaging 27 kilometers (km) wide (17 miles [mi]), in the Pacific Northwest that is shared between Canada and the United States. The U.S. portion of the Strait extends from the Canadian border on the north and west, south to the San Juan Islands, and east to the Washington state mainland (see **Figure 1**). It covers an area of approximately 800 square km (308 square mi) with an average depth of 156 meters (m) (512 feet [ft]) and a maximum depth of 447 m (1,466 ft). Because of the presence of the port of Vancouver and its role as the southern entrance to the intracoastal route known as the Inside Passage, the Strait has become a major thoroughfare. The Strait is bordered by several shallower bays, including Semiahmoo Bay and Birch Bay.

The cable would be laid in U.S. waters south of the maritime border with Canada on the northeastern side of the Strait along the seafloor, depending on the bottom sediments (See **Figure 1**). Originating at a government owned facility, it will run for 10 to 30 km in the vicinity of the maritime border between the United States and Canada. Three potential cable routes exist: a preferred route and two alternative routes with the exact cable laying being determined after bathymetric (ocean depth) surveys identify any potential obstacles or submerged objects. Protective measures for the cable also may be required at the single shoreside landing point.

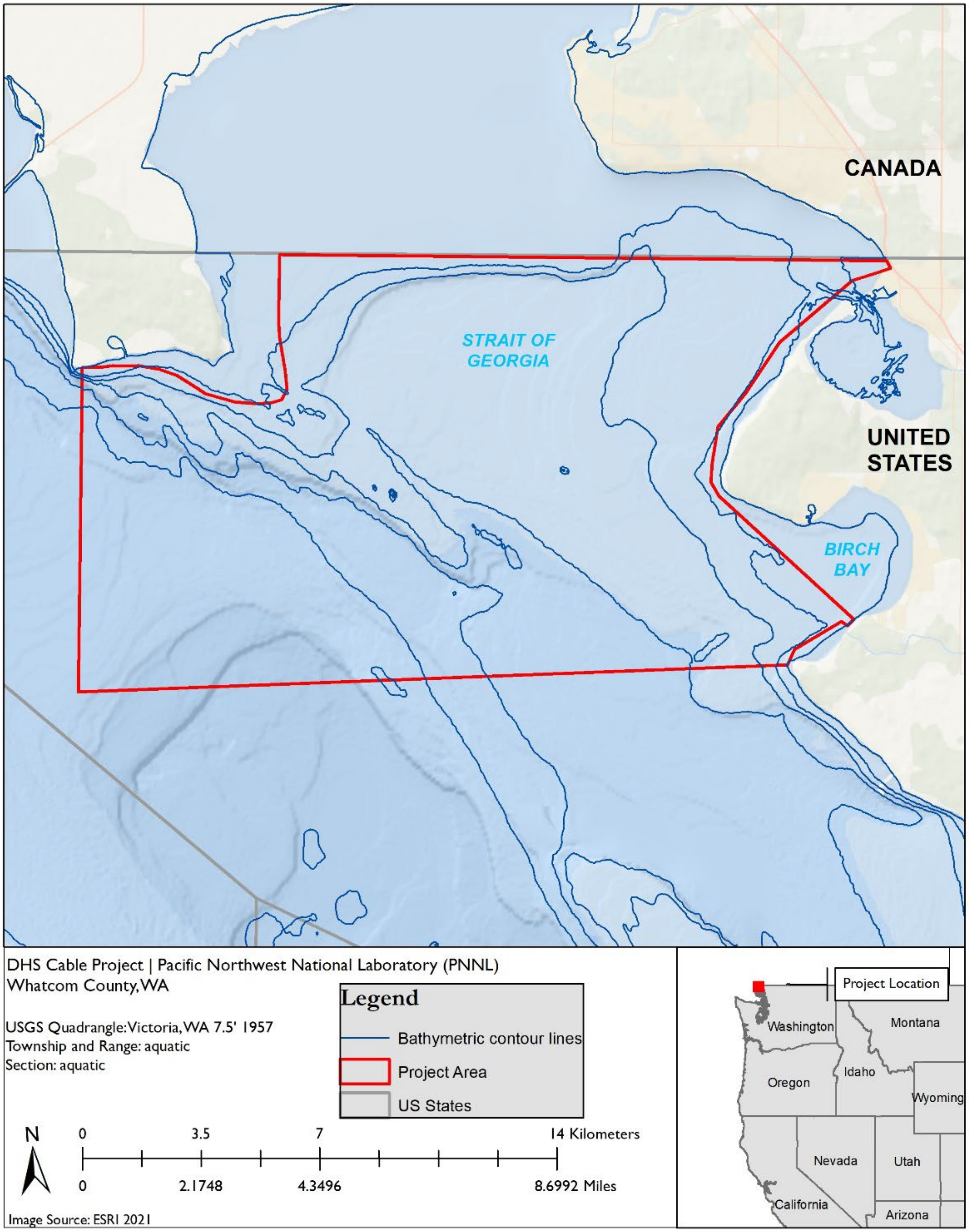

Figure 1. Proposed Action Area Location

1.2 PURPOSE AND NEED

DHS is committed to using cutting-edge technologies and providing scientific expertise to enhance the safety of the United States. The mission of DHS S&T is to enable effective, efficient, and secure operations across all homeland security missions by applying scientific, engineering, analytic, and innovative approaches to deliver timely solutions for the Homeland Security Enterprise.

DHS S&T requires technology assessments for maritime environmental monitoring capabilities. The Proposed Action is to deploy and operate, and potentially recover, or continue operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern Border with Canada. The ***purpose*** of the Proposed Action is to test the sensor technology to increase MDA. This requires deployment and operation of an underwater cable and includes potential recovery, abandonment in place, or continued operations, in submerged waters. The Proposed Action is ***needed*** to assess capability and performance of the cable system to evaluate applicability for the utilization within the rest of the United States.

1.3 ENVIRONMENTAL LAWS AND REGULATIONS

1.3.1 National Environmental Policy Act

This EA complies with NEPA requirements (42 USC §§ 4321 et seq.), CEQ *Regulations Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500–1508), other relevant federal and state laws and regulations, as well as DHS Directive 023-01, Revision 01 and DHS Instruction Manual 023-01-001-01, Revision 01, *Implementation of the National Environmental Policy Act*.

1.3.2 Integration of Other Environmental Laws and Statutes

A summary of the key environmental laws and regulations that may apply to the Proposed Action includes the Clean Air Act of 1970 (as amended), Clean Water Act of 1972, as amended); Toxic Substances Control Act (1976, as amended); Noise Control Act (1972); Endangered Species Act (ESA) (1973, as amended); Migratory Bird Treaty Act ([MBTA] – 16 U.S.C. 703-711); Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d); Coastal Zone Management Act (1972, as amended); National Historic Preservation Act (NHPA) (1966); Archaeological Resources Protection Act (1979); Resource Conservation and Recovery Act (1976); Executive Order (EO) 11593; *Protection and Enhancement of the Cultural Environment*, dated May 13, 1971; EO 11988, *Floodplain Management*, dated May 24, 1977; EO 11990, *Protection of Wetlands*, dated May 24, 1977; EO 12088, *Federal Compliance with Pollution Control Standards*, dated October 13, 1978; EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, dated February 11, 1994; EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, dated April 21, 1997; EO 13112, *Invasive Species*, dated February 3, 1999; and EO 13834, *Efficient Federal Operations*, dated May 17, 2018; EO 13834, *Efficient Federal Operations*, dated May 17, 2018; EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, dated January 20, 2021; EO 14008, *Tackling the Climate Crisis at Home and Abroad*, dated January 27, 2021; and EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, dated April 21, 2023. Note that this list is not all-inclusive and other federal, state, and local regulations may apply.

DHS S&T is required to comply with Section 7 of the ESA, as amended, Marine Mammal Protection Act, Essential Fisheries Habitat, and Section 106 of the NHPA. These statutes have been considered in the preparation of this EA. As part of the Proposed Action, DHS S&T would obtain any permits needed for laying, operating, and recovering (or abandoning portions of) the cable in the Strait of Georgia.

1.4 REGULATORY AGENCY AND PUBLIC ENGAGEMENT

Public participation opportunities with respect to this EA are guided by NEPA, CEQ's NEPA regulations, and DHS NEPA implementing procedures. In addition to public participation, interagency and intergovernmental coordination is a federally mandated process for informing and coordinating with other governmental agencies regarding federal proposed actions. This coordination also fulfills requirements under EO 12372, *Intergovernmental Review of Federal Programs* (superseded by EO 12416, and subsequently supplemented by EO 13132), which requires federal agencies to cooperate with and consider state and local views in implementing a federal proposal.

EO 13175, *Consultation and Coordination with Indian Tribal Governments (2000)*, requires federal agencies to invite federally recognized Native American tribes to participate in the NEPA and NHPA Section 106 processes as Sovereign Nations based on their potential ancestral ties to the Proposed Action area.

In addition to the public, S&T identified stakeholders with interest in this Proposed Action including federal, state, and local agencies, Native American tribes, federal and state elected officials, and law enforcement agencies. Through the NEPA process, the public and stakeholders were presented the opportunity to provide relevant information, express their concerns, and provide their inputs. The record of consultation with federally recognized tribes is included as Appendix A of this EA, and a complete list of agencies and individuals consulted during preparation of the EA is included in Appendix B with copies of relevant correspondence.

By publishing this draft EA on its website, the DHS has made it available for review and comment during a 30-day period provided to receive comments from the public, federal, state, and local agencies, and federally recognized tribes. The start of the review period was announced by a notice of availability (NOA) published on the DHS website (https://www.dhs.gov/national-environmental-policy-act) and the newspaper of record, *The Northern Light*, which serves the communities surrounding the Proposed Action area. The NOA also was distributed to federal, state, and local agencies, and federally recognized tribes with interests in the Proposed Action area to solicit comment during the 30-day review period. The NOA briefly described the Proposed Action, the NEPA process, how to view the EA, and how to submit comments to, or request additional information from, DHS S&T.

All comments received and accepted during the public review period will be considered and addressed in a final EA, as warranted. A record of comments received will be included in Appendix C of the Final EA. The final EA and Finding of No Significant Impact will be published on the DHS website. An NOA will be published and distributed to announce the availability of the Final EA and procedures for review.

1.5 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

This scope of this EA includes analysis of cable laying, operation, and recovery or continuation of operations activities on Air Quality and Climate Change; Noise; Cultural and Historic Resources; Water Resources; Biological Resources; Socioeconomics, Environmental Justice, and Protection of Children; Recreation. This EA describes the affected environment as it currently exists and the environmental consequences of the Proposed Action and compares the Proposed Action's potential impact with the No-Action Alternative and two alternative cable routes. This EA also presents DHS S&T's proposed best management practices. DHS S&T has developed and incorporated measures into this EA that would appropriately and reasonably avoid, minimize, or mitigate environmental impacts associated with the project activities.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action evaluated in this EA are activities relating to the deployment, operation, and recovery or continuation of operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State, near the Northern border with Canada (Proposed Action). The purpose of the cable is to assess the sensor system's capability to collect maritime environmental data. For the purposes of this analysis, tasks to facilitate the Proposed Action have been grouped into three primary components—Cable Installation, Cable Operation, and Cable Recovery —that are described in Section 2.1.2 through Section 2.1.4. Specific activities that would be conducted under each task also are summarized in those sections. No on-land disturbance, facility construction, or demolition is included in the Proposed Action.

2.1.1 Proposed Cable Pre-Deployment Activities

2.1.1.1 Proposed Cable Testing and Deployment Location

DHS S&T would conduct the project in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State, near the Northern border with Canada. The cable would be shallow buried along most of the route except in sensitive habitats (e.g. eelgrass beds) where the cable will be placed on the seafloor by divers (see Section 2.1.2.1). Its origin point would be a shoreside facility with space to house equipment and run for 10 to 30 km (6.2 to 18.6 mi) in the vicinity of the maritime border between the United States and Canada. The three possible cable routes that were surveyed are described in Section 2.3. The area of potential impact for this project is within the Strait of Georgia and bounded by the U.S./Canada border on the north, west to Point Roberts, south to the U.S./Canada border, and east to the Washington State mainland (see **Figure 1**).

2.1.1.2 Proposed Cable Deployment

DHS S&T intends to deploy a submerged cable along the seafloor to assess new methods of conducting maritime monitoring. It would remain in place for 3 to 24 months before being recovered or transferred to another Component of DHS for use for the life of the cable (~25 years). The cable, with an outside diameter of 4.42 millimeter (mm) (0.174 inches [in.]), would be approximately 10 to 30 km (6.2 to 18.6 mi) in length and be connected to a single shoreside facility. The cable would not emit energy, heat, or sound but rather would passively collect maritime environmental data from the surrounding waters (see Section 2.1.1.3). The cable study is targeted to be deployed in the second half of 2024.

DHS S&T would utilize experienced contractors for coordination and execution of the installation. The contractor would also obtain all applicable permits, permissions, and authorizations prior to starting installation activities, including but not limited to U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Washington Department of Natural Resources (DNR), Washington Department of Fish and Wildlife (WDFW), Washington Department of Ecology (WDOE), and Whatcom County Planning and Development Services.

No harbors or waterways would be closed under the Proposed Action; however, recreational boating, fishing, and diving may be temporarily restricted in the immediate area, with a 15 to 30 m (50 to 100 ft.) standoff, where the Proposed Action cable deployment activities are actively occurring. DHS S&T would maintain detailed records of the cable deployment process, including as-built drawings for regulatory compliance and future reference.

2.1.1.3 Cable Specifications

The cable to be deployed has a diameter of 4.42 mm (0.174 in.) and contains standard wires inside a small stainless-steel tube (see **Figure 2**). The tube is protected by a single layer of Inconel 625 armor wires and a thin (0.889 mm/.035 in.) Hytrel jacket. The weights per unit length of the cable are 41.75 kilograms (kg)/km (148.1 lbs/mi) in air and 25.72 kg/km (91.25 lbs/mi) in water, and 0.028 lb/ft in air, 0.01725 lb/ft in seawater. The cable's specific gravity is 2.6, objects with a specific gravity greater than 1.5 are unlikely to be moved around by currents.

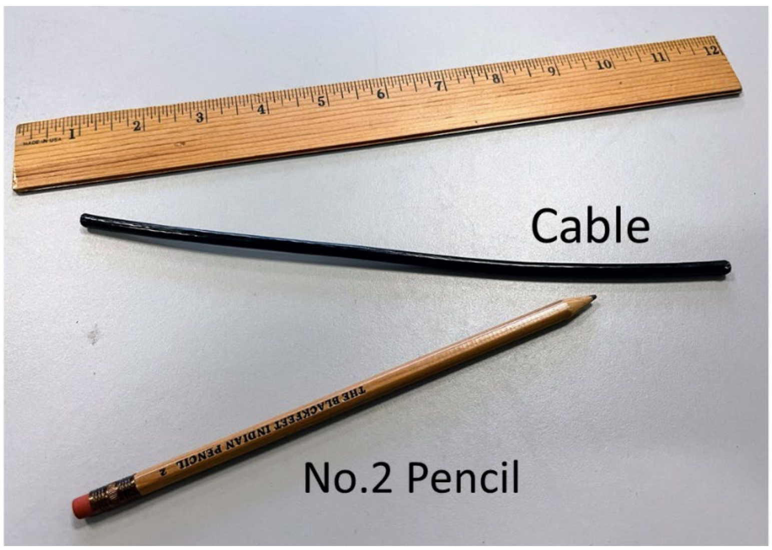

Figure 2. Cable Size Comparison

2.1.2 Cable Installation

Submarine cables are generally considered to have relatively minor environmental effects, but caution is necessary during trenching and laying activities (NOAA 2022). The primary negative impacts from cable laying could result from heightened vessel traffic and disturbance of the seafloor (NOAA 2022).

Cable installation can be broken into two phases—shoreside landing (shore landing segment) and cable laying (offshore segment). The shoreside landing phase involves using a small boat to lay the cable shoreward from a stationary ship located approximately 1.8 km (1.1 mi) offshore to a designated point on the shoreline. During the cable laying phase, the ship would move seaward and lay cable from the shore to the cable route end point. A detailed safety plan and hazard analysis have been developed and will be followed for the duration of cable installation to protect the cable laying crew.

2.1.2.1 Shoreside Landing Segment

During the shoreside landing phase, the cable laying vessel would hold station at a predetermined position while a small boat lays cable from the ship towards the shore, paying out cable from a reel on the small boat as it goes (see **Figure 3**). Divers would hand place the cable through any sensitive areas (e.g., eel grass). The cable would be laid on the sea floor to the beach. The cable would then be run through an existing stormwater drainage system and conduit to a climate-controlled building that would house the equipment to analyze data collected by sensors and transmitted by the cable. Because of the small size and high specific gravity of the cable, it will self-bury in the shoreside sediments. The shoreside landing process is anticipated to take 5 to 9 hours to complete. This estimate does not include dive operational or weather contingencies. The shoreside facility at which the cable terminates would be connected to existing infrastructure and take advantage of existing power and communications.

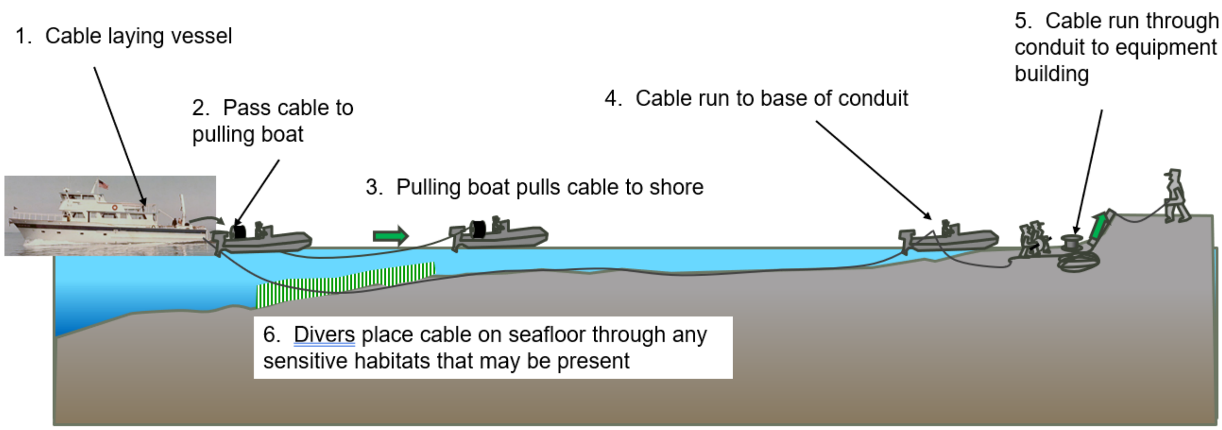

Figure 3. Example of Cable Laying Shoreside Landing Installation Plan

2.1.2.2 Cable Laying

The cable would then be laid from the installation vessel and buried a nominal 30.5 cm (12 inches) beneath the seafloor on the planned and surveyed route. The cable would be deployed from the stern of the installation vessel using a powered reel or winch. The vessel speed (nominally 2 to 3 knots) and cable payout rate would be coordinated to provide an appropriate amount of slack on the seafloor. The target amount of slack is termed "conformal slack," which is the amount of slack required to make sure the cable follows the seafloor contours. To protect the cable and keep it in place, the cable would be installed using a bury-while-lay procedure employing a small burial sled to place the cable beneath the seafloor.

The bury-while-lay process would use a towed burial sled with a 3-in. (7.6-cm)-wide plow to place the cable approximately 30.5 cm (12 in.) below the seafloor. The seafloor material then would be replaced over the cable as a scar-closure shoe at the end of the plow passes over the buried cable with a total estimated disturbance area of 125 square m (1,345 square ft) over the entire length of the route. **Figure 4** shows an example of a burial sled suitable for this project. The plow would be placed on board the vessel during mobilization, the cable would be fed through the guide cone, and placed on the seafloor. The plow would be towed by the installation vessel, with the cable paid out through the plow (see **Figure 4**). Use of a one-step burial plow sled is the least environmentally impactful approach (OSPAR 2012). The act of burying the cable serves the dual purpose of safeguarding the surrounding environment from potential cable displacement due to currents and mitigating the risk of damage to the cable (NOAA 2022). Burying the cable also serves to protect the cable from activities like commercial and recreational fishing or crabbing.

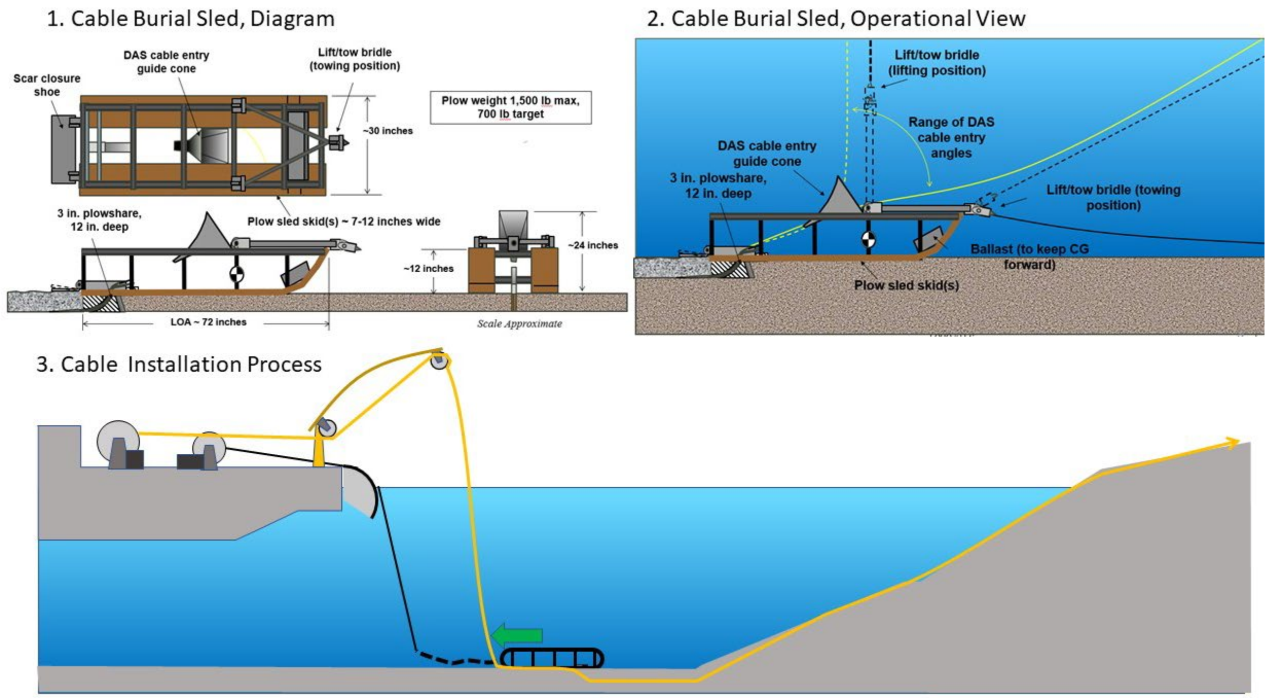

Figure 4. Depiction of Cable Burial Sled Use

Upon confirmation that the cable is functioning properly, the vessel would then proceed along the chosen cable laydown route to the endpoint. The planned deployment speed would be 2 to 3 knots (1.5 m/sec.) or less, and to assure proper installation the cable tension will be monitored using a cable tensiometer installed on the installation vessel. The end of the cable would be lowered to the seafloor with a small (15 × 15 cm [6 × 6 in.]) deadweight anchor, weighing approximately 11 kg (25 pounds (lbs). Based on this plan, cable laying operations would be expected to take approximately 8 hours (excluding weather issues or other contingencies) and when combined with laying of the shore ending (Section 2.1.2.1) would occur over the course of 2 to 6 days.

2.1.3 Cable Operation

To date, properly installed submarine cables have not demonstrated any significant adverse impacts on nearby marine environments (NOAA 2022). These cables are coated with a durable, abrasion-resistant, inert polyester material (in this case Hytrel), typically produce no emissions and, if correctly laid, remain stationary after placement (NOAA 2022).

The cable will be protected by a single layer of Inconel wires and a thin Hytrel jacket. Hytrel is a plasticizer-free, thermoplastic copolyester elastomer that is versatile, resilient, and durable. It is preferred by manufacturers for its resilience, heat, and chemical resistance, as well as its strength and durability. Once laid, the cable would not emit any heat, light, sound, or electromagnetic fields but rather would passively collect data from the surrounding waters. Because of the narrow diameter of the cable, it would take up a very small amount of space, thus minimizing any concerns about the introduction of artificial hard substrate. Once deployed, the cable will operate in a manner similar to any undersea data cable but would be much smaller in diameter than a telecommunication or transoceanic cable. The cable would remain in place for at least the test deployment period of 3 to 24 months.

2.1.4 Cable Recovery

The cable would be recovered or possibly transferred to another Component of DHS to continue operations after the test deployment period is finished. However, if recovered, because it would be placed in an active marine environment, some portions may be left in place to reduce disturbance to sensitive habitats (e.g., eelgrass habitats).

If the cable is recovered, its recovery would be conducted in reverse order in which it was laid beginning with the anchor. Recovery is anticipated to take less than 2 days to complete. If portions of the cable run through sensitive areas, those portions would be severed and left in place to prevent additional disturbance to the habitat. This approach may be reconsidered depending on recommendations obtained from ongoing discussions with state and federal permitting and natural resource agencies.

2.2 BEST MANAGEMENT PRACTICES

A series of best management practices (BMP) would be used during the installation, operation, and decommissioning of the Proposed Action. These BMPs are standard mitigation measures DHS S&T utilizes to minimize the risk of harm to the environment for the Proposed Action. All workers associated with the project, irrespective of their employment arrangement or affiliation (e.g., employee, contractor, etc.), would be fully briefed on these BMPs and the requirement to adhere to them for the duration of their involvement in this project (Sections 3.3.2 and 3.5.2).

2.3 ALTERNATIVES CONSIDERED

NEPA and CEQ regulations require all reasonable alternatives to be explored and objectively evaluated. Alternatives that are eliminated from detailed study must be identified along with a summary of the reasons for their dismissal. For this analysis, an alternative is considered “reasonable” if it would meet the Proposed Action’s purpose and need. “Unreasonable” alternatives that would not meet the Proposed Action’s purpose and need were dismissed from further consideration in this EA.

DHS S&T analyzed three alternative routes to evaluate potential options that would fulfill the purpose and need for the cable. Once identified, seafloor mapping and submerged aquatic vegetation (SAV) surveys of candidate shoreside landing sites and cable routes were conducted to assess alternatives based on operation, cost, and environmental impact.

The difference between the three alternative routes is the direction the cable route takes across the Strait of Georgia and the shoreside landing location. DHS S&T also identified and assessed a fourth alternative that forgoes laying a new cable. This alternative is identified as the No-Action Alternative and is described in Section 2.3.6.

2.3.1 Preliminary Route Selection and Survey

DHS S&T determined possible routes based on assessment goals, seafloor depth (bathymetry), bottom type, and cultural and biological resources. Three possible routes were identified, and seafloor mapping and SAV surveys of candidate shoreside landing sites and cable routes were conducted in the vicinity of the Strait of Georgia from November 1 through November 3, 2023. The survey vessel was equipped with multibeam and single-beam sonars and GPS navigation and was outfitted with a custom-built survey pole that held the multibeam sonar. The seafloor mapping survey characterized the depth and seafloor along potential cable routes, looking specifically for seafloor features that might represent hazards to the cable and to characterize the nature of the seafloor and its materials. The SAV survey was conducted using a BioSonics MX Aquatic Habitat Sonar to characterize the nature and extent of vegetation at the shoreside landing sites. Multibeam data were acquired between November 1 to 3, 2023 on all candidate cable routes with sufficient overlap from multiple runs to assure data quality.

In total, three potential cable routes and a total of approximately 50 km (31 mi) of seafloor were surveyed with a multibeam echosounder. The seafloor mapping survey found no major obstacles or shipwrecks along the potential cable routes.

The vegetation sonar survey mapped the three shoreside landing sites of the cable route options, which included Alternative Route 1 (the Preferred Route), Alternative Route 2, and Alternative Route 3. These surveys focused on mapping the presence of any vegetation along the routes at these potential shoreside landing sites. The survey data mapped dense eelgrass beds at the shoreside landing sites for both the preferred route and Alternative Route 2. The vegetation beds at these two shoreside landing sites contained eelgrass from about -0.6 to -2.4 m (-2 ft to -8 ft) mean lower low water (MLLW). No eelgrass was mapped at the Alternative Route 3 shoreside landing site.

2.3.2 Scientific Assessment

Once the qualitative route survey was conducted, it was reviewed by a Secretary of Interior qualified archaeologist and environmental scientists to determine if there were any sensitive resources that would be impacted by the Proposed Action. These reviewers made suggestions for route modifications to avoid cultural and biological resources.

2.3.3 Alternative Route 1, Preferred Route

Alternative Route 1 (Preferred Route) would run across the Strait of Georgia, have a shoreside landing, and is approximately 41.8 km (26 mi) in length. The surveyed Alternative Route 1 suggests a safe cable pathway. The only other noteworthy feature along Alternative Route 1 is a slope that goes from about -11 to 22 m (-36 ft to -72 ft) MLLW. This is the deepest depth both the Alternative Route 1 and Alternative Route 2 reaches. Much of these routes are in the -12 to -15 m (-40 to -50 ft) MLLW depth range.

In summary, no major obstacles were observed for a potential cable along Alternative Route 1, which avoids any sensitive habitat identified on the seafloor and SAV surveys except for dense eelgrass beds at the shoreside landing site that extend from about -0.6 to -2.4 m (-2 ft to -8 ft) MLLW (approximately 183 m [600 ft]). DHS S&T would work with NOAA Fisheries and the Washington DNR to determine the best route and cable laying procedures. This route would have a shoreside landing site at a location where there is access to existing infrastructure to run the cable from the beach through existing stormwater infrastructure and conduit to an existing building that is government owned where equipment would be housed. As a result, DHS S&T determined that Alternative Route 1 is the most reasonable alternative for this Proposed Action.

2.3.4 Alternative Route 2

Alternative Route 2 would zig-zag across the Strait of Georgia from southeast to northwest while avoiding any sensitive habitat identified on the seafloor and SAV surveys except for dense eelgrass beds at the shoreside landing site, which extend from about -0.6 to -2.4 m (-2 ft to -8 ft) MLLW. The deepest point this route reaches is -22 m (-72 feet) MLLW, with most of the route between the -12 to -15 m (-40 to -50 ft) MLLW range. There were no major obstacles observed along Alternative Route 2.

The survey and assessment determined that there is no existing infrastructure (e.g., conduit, drainage pipe, etc.) at this location to bring the cable ashore, but there is an existing government owned building onshore where equipment could be housed. Alternative Route 2 has low operational efficiency because it would require land disturbance to install a conduit or culvert at the shoreside landing site and would result in additional environmental disruptions. Therefore, Alternative Route 2 would not meet the Proposed Action's purpose and need and is therefore dismissed from further analysis in this EA.

2.3.5 Alternative Route 3

Alternative Route 3 would run across the Strait of Georgia into deeper waters to depths greater than 150 m (492 ft). The survey was not able to finish the full length of the proposed route, but it did cover approximately 10 km (6.2 mi) and reached to approximately the -152 m (-500 ft) MLLW depth contour line. This route would have a shoreside landing site on county-owned lands. There is no existing infrastructure to bring the cable ashore, nor is there an existing building onshore where the equipment could be housed.

Alternative Route 3 would require land disturbance to install a conduit or culvert at the shoreside landing site and construction of a temporary, powered, and climate-controlled infrastructure (trailer or shed) to house project equipment at the shoreside landing site. This would result in additional environmental disruptions. Therefore, Alternative Route 3 would not meet the Proposed Action's purpose and need and is therefore dismissed from further analysis in this EA.

2.3.6 No-Action Alternative

The No-Action Alternative does not meet the purpose and need for the Proposed Action but will be carried forward for analysis in the EA, as required by the CEQ NEPA implementing regulations (40 CFR 1502.14). Under the No-Action Alternative, the Proposed Action would not be implemented. The No-Action Alternative would maintain the existing conditions of the marine environment in its current state, and there would be no change in disturbance of submerged vegetative cover, soils, wildlife habitat, or water quality. However, under the No-Action Alternative, DHS S&T would be unable to fill existing capability gaps and meet critical mission needs to ensure effective, efficient, and secure operations across all DHS missions. By not addressing the identified need, this alternative would limit the ability of DHS S&T to meet mission requirements for maritime environmental monitoring capabilities in the future.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the natural and human environment that exists within areas subject to potential impacts of the Proposed Action and the No-Action Alternative outlined in Section 2.0 of this document.

Specific criteria for evaluating the potential environmental impacts of the Proposed Action and No-Action Alternative are described in the following sections. The significance of an action also is measured in terms of its context and intensity. The context and intensity of potential environmental impacts are described in terms of their duration, magnitude, whether they are direct or indirect, and whether they are adverse or beneficial, as summarized below:

- *Short-term or long-term.* In general, short-term impacts are those that would occur only for a limited, finite period of time with respect to a particular activity of the Proposed Action. Long- term impacts are those that are more likely to be persistent and chronic throughout the life of the Proposed Action or would last years after an impact-producing activity occurred.
- *Less-than-significant (negligible, minor, moderate), or significant.* These relative terms are used to characterize the magnitude or intensity of an impact. Negligible impacts would generally be perceptible but at the lower level of detection. A minor impact would be slight, but detectable. A moderate impact would be readily apparent. Significant impacts would be those that in their context and due to their magnitude (severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR 1501.3(b)) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the policies set forth in NEPA.
- *Direct or Indirect.* Direct impacts are those that would occur as a result of and at the same time and place as the Proposed Action. Indirect impacts are those that would be caused by the Proposed Action but would occur at a different time or place and involve dynamic variables.
- *Adverse or beneficial.* An adverse impact would cause unfavorable or undesirable outcomes on the human-made or natural environment. A beneficial impact would cause positive outcomes on the human-made or natural environment.
- *Cumulative.* A cumulative impact would be an additive impact when the effects of the Proposed Action are considered in the context of past, present, or reasonably foreseeable future project(s) impacts. Cumulative impacts could be negligible, minor, moderate, significant, and adverse or beneficial for a given environmental resource.

Resources that lack potential impact from the Proposed Action are discussed in Table 1, and also provided in a list below, where an explanation of their dismissal from further analysis is provided.; therefore, these resources are not carried forward for further analysis.

Land Use - Although the Proposed Action will use existing infrastructure aboveground to route the cable underground, any impacts on existing infrastructure would be consistent with its use. The Proposed Action would not result in any alteration to existing, planned, or future land use.

Therefore, the Proposed Action would have no impact to land use. Therefore, this resource was dismissed from analysis.

Visual Aesthetics - The Proposed Action occurs entirely underwater or using existing infrastructure and would not result in any changes to the existing viewshed of the Strait of Georgia or Semiahmoo Bay and would have no impact on visual aesthetics. Therefore, this resource was dismissed from analysis.

Geology, Topography, and Soils - The Proposed Action would not alter or damage unique or recognized geologic features, adversely affect geologic conditions or processes, result in any increased exposure to seismic hazards, or result in any increased exposed to landslide, erosion, or subsidence hazards. Additionally, the shoreside cable landing would require no alterations to the existing topography or soil disturbance. The Proposed Action would have no impact to geology, topography, or soils Therefore, this resource was dismissed from analysis.

Public Health & Safety - The Proposed Action would not put the health and safety of the public at risk or violate any federal and/or state safety regulations. Reasonable measures are in place for protection of the crew responsible for installing the cable. The Proposed Action would have no impact on public health and safety. Therefore, this resource was dismissed from analysis.

Infrastructure - The shoreside landing has existing utilities for electric service, potable water, wastewater collection, stormwater, and communications; no changes to infrastructure are needed. The Proposed Action is anticipated to have a utility demand rate similar to existing conditions. The Proposed Action would have no impact on infrastructure. Therefore, this resource was dismissed from analysis.

Hazardous and Toxic Materials and Waste - The cable will be composed of non-hazardous materials. Once laid, the cable would not emit any heat, light, sound, or electromagnetic fields. The Proposed Action would not exceed regulatory thresholds for HTMW and the vessel will be equipped with spill containment and spill response kits. The Proposed Action would have no impact on HTMW. Therefore, this resource was dismissed from analysis.

Resources that have the potential to be affected are described, per CEQ guidance (40 CFR 1501.9 [3]). Additionally, where appropriate, supporting tables, figures, and maps are provided in separate appendices for each resource area. Information presented in this section was obtained from publicly available sources, as referenced in Section 5.0.

3.1 AIR QUALITY AND CLIMATE CHANGE

The U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the public. Ambient air quality standards are classified as either primary or secondary. The major pollutants of concern, or criteria air pollutants (CAP), are carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter less than 10 microns, particulate matter less than 2.5 microns, and lead. NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare.

Areas that do not meet the NAAQS are called non-attainment areas, while areas that meet both primary and secondary standards are known as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria and requirements for conformity determinations of federal projects. The Federal Conformity Rule was first promulgated in 1993 by the EPA, following the passage of amendments to the Clean Air Act in 1990. The rule mandates that a conformity analysis be performed when a federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQSs.

3.1.1 Affected Environment

3.1.1.1 Ambient Air Quality

The Proposed Action is within the Olympic-Northwest Washington Interstate Air Quality Control Region 228 (40 CFR 81.187). This region is classified as attainment/unclassifiable for all CAPs except for sulfur dioxide (2010) (40 CFR § 81.348). The area in non-attainment for sulfur dioxide is a small portion of Whatcom County surrounding the Intalco aluminum smelter north of Neptune Beach, Washington. The non-attainment area is approximately 11 km (7 mi) south of the Proposed Action area.

3.1.1.2 Greenhouse Gases

Greenhouse gases (GHG) are gases that trap heat in the atmosphere. An accumulation of GHGs has been shown to contribute to global warming, which results in climate change. GHGs include carbon dioxide (CO_2), methane, nitrous oxide, ozone, hydrocarbons, and chlorofluorocarbons. The global warming potential (GWP) of a particular gas provides a relative basis for calculating the amount of CO_2 equivalent to the emissions of that gas. Carbon dioxide has a GWP of one; therefore, it is the standard by which all other GHGs are measured.

3.1.2 Environmental Consequences

Significant impacts would occur if there were a change in the attainment status with the NAAQS or if emissions were to exceed regulatory thresholds. Impacts to air quality and climate change were evaluated with respect to the extent, setting, and intensity of the impact in relation to relevant statutes, regulations, guidance, and scientific data.

3.1.2.1 Preferred Alternative

Air Quality

During installation, a motor vessel would be used to lay the cable, with a smaller boat (zodiac type) anticipated to be used for laying the shore landing segment of the cable and for access to the mudflat off the shoreside landing area. The motor vessel is a less than 23 m (75 ft) research vessel, equipped with two 350 horsepower diesel engines. The duration of the cable laying activities is estimated to be 2 to 6 days, including vessel mobilization, shore landing, cable installation, confirmation of operation, and vessel demobilization. If the cable is recovered, activities would be similar to installation.

During operation, the cable would emit no light, energy, or heat. Shoreside instrumentation would be connected to existing electricity mains at an existing, government owned building and no generator use is anticipated. Potential GHG emissions would be limited to motor vehicles traveling to and from shoreside instrumentation; however, these would be minimal, and typical of other roadway emissions in the surrounding area.

The emission factors[1] and subsequent estimated total emissions in grams and pounds for each CAP are presented in **Table 2**. Estimated emissions for GHGs in CO_2 equivalent tons are presented in **Table 2.** The emission values are conservative and assume the full six, 10-hour workdays aboard the vessel at 45% engine load factor[2] (EPA 2022 | Tables H.4 and H.7).

Table 2. Estimated Total Emissions for CAPs

Parameter	NOx	VOC	CO	PM_{10}	$PM_{2.5}$	SO_2
Emission Factor (g/kW-hr)	9.64	030	1.61	0.26	0.25	0.01
Emissions (g)[3]	273,358	8,381	45,644	7,340	7,120	177
Emissions (lb)	603	18.5	101	16.2	15.7	0.390
NAAQS Threshold (lb)	200,000	100,000	200,000	200,000	200,000	200,000

NOx= nitrogen oxides
VOC = volatile organic compounds
CO = carbon monoxide
PM10 = particulate matter smaller than 10 microns
PM2.5 = particulate matter smaller than 2.5 microns
SO2 = sulfur dioxide

[1] Emission factors are sourced from EPA guidance for estimating mobile source-port related emissions (EPA 2022 |Tables H.4 and H.7). Emission factors are representative of 15 parts per million by weight sulfur content in ultra-low sulfur diesel fuel.
[2] Based on "work boat" category for harbor craft per EPA 2022 | Table 4.4.
[3] Maximum emission values (and associated emission factors) based on emission calculations assuming either Tier 1 or Tier 2 engines are reported.

Table 3. Estimated Emissions for GHGs in CO_2 Equivalent

Parameter	CO_2	CH_4	N_2O
Emission Factor (g/kW-hr)	679	0.01	9.64
Global Warming Potential	1	25	298
CO_2e (tons)	90	0.004	21

CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide
CO_2e = CO_2 equivalent

Comparing the estimated GHG emissions from the vessel during cable installation to the 2021 total gross annual U.S. transportation sector for ships and boats, estimated GHG emissions from the Proposed Action equate to approximately 0.0002% of the 2021 GHG emissions from the U.S. transportation sector for ships and boats (EPA 2023).

Based on the analysis described above, *de minimus* effects are anticipated and therefore a non-conformity review is not required. *No impacts* on air quality are anticipated during operation or if sections are potentially abandoned in place.

The Proposed Action would not exceed NAAQS regulatory thresholds for CAPs however the Proposed Action would have *short-term negligible adverse impacts* on air quality during cable installation and potential recovery; therefore, both the short-term or long-term impacts on air quality are expected to be *less-than-significant*.

Climate Change

In 2021, two Presidential EOs regarding GHGs and climate change were issued: (1) EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, and (2) EO 14008, *Tackling the Climate Crisis at Home and Abroad*. EO 13990 directs the Federal Government to reduce GHG emissions, bolster resilience to the impacts of climate change, and immediately commence work to confront the climate crisis using the best science in federal decision-making.

EO 14008 requires climate considerations to be an essential element of U.S. foreign policy and national security. Under EO 14008, the Federal Government is directed to drive the assessment, disclosure, and mitigation of climate pollution and climate-related risks in all economic sectors, as well as to facilitate the organization and deployment of a government-wide approach to combat the climate crisis and facilitate planning and implementation of key federal actions to reduce climate pollution and increase resilience to the impacts of climate change. In furtherance of EO 14008, on September 21, 2023, the President directed federal agencies to consider the social cost of GHG in environmental reviews pursuant to NEPA, as appropriate. *No impacts* on climate change are anticipated during operation or if section are potentially abandoned in place.

The Proposed Action would not result in a change in the attainment status with the NAAQS and emissions would not exceed regulatory thresholds; however, there would be *short-term negligible adverse impacts* during installation and would *not be adversely impacted* by climate change over the long term.

3.1.2.2 No Action Alterative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* to air quality or climate change.

3.2 NOISE

This section considers the potential impacts of noise exposure on human receptors in work and residential settings. Sound is measured in decibels (dB). The National Institute for Occupational Safety and Health (NIOSH) recommends that individuals working in an environment of 85 A-weighted decibels (dBA) or louder for an 8-hour workday limit their exposure to this noise level and wear protective earwear to help manage and prevent hearing loss due to noise exposure (NIOSH 2024).

Further, because noise is more objectionable at certain times, day-night average sound levels (Ldn) have been developed. Ldn is a 24-hour average sound level recommendation. This measure is used to determine acceptable noise levels that are standardized by the EPA.

Table 4. Sound Levels from Common Sources and Effects

Sound Level (dBA)	Source	Effect
140	Jet engine	Painful
130	Near air-raid siren	Painful
120	Jet plane takeoff, siren	Painful
110	Chain saw, thunder, garbage truck	Extremely Loud
100	Hand drill	Extremely Loud
90	Subway, passing motorcycle	Extremely Loud
85	Backhoe, paver	Very Loud
80	Blow-dryer, kitchen blender, cement mixer, power saw	Very Loud
70	Busy traffic, vacuum cleaner, alarm clock	Loud
60	Typical conversation, dishwasher, clothes dryer	Moderate
50	Moderate rainfall	Moderate
40	Quiet room	Moderate
30	Whisper, quiet library	Faint

Ambient background noise levels in metropolitan, urbanized areas typically vary from 60 to 70 dBA and can be as high as 80 dBA or greater. Quiet suburban neighborhoods experience ambient noise levels of approximately 45 to 50 dBA, decreasing to 25 to 30 dBA at night (EPA 1982). In wilderness areas, the outdoor noise level may be as low as 30 to 40 dBA.

Many states and municipalities have promulgated ordinances designed to limit obtrusive and unwanted noises. Most ordinances have similar requirements that establish maximum prolonged sound levels that should not be exceeded at residential and commercial properties during day and night periods (NPC 2024).

3.2.1 Affected Environment

The soundscape in the vicinity of the generalized cable installation area is marine and includes both commercial and recreational vessel traffic with numerous marinas and harbors. This area of Washington does not have regulations that set community noise exposure criteria. The state does restrict environmental noise levels under Washington Administrative Code (WAC) 173-60, but there are exemptions for temporary noise. WAC 296-817 also limits worker exposure to noise levels above 85 dBA. Human perception of noise depends on several factors, including the overall level, number of events, the extent of audibility above the background ambient noise level, and frequency of occurrence.

3.2.2 Environmental Consequences

Significant noise impacts would occur if generated noise were permanently intrusive to nearby sensitive receptors, if it exceeded applicable noise limit thresholds, or if it would cause harm or injury to people or communities. Sensitive noise receptors are defined as properties where frequent human use occurs and where a lowered noise level would be of benefit. Hospitals, schools, convalescent facilities, religious institutions, libraries, recreation areas, and residential areas are considered to be sensitive receptors, particularly when located within 0.4 km (0.25 mi) of the noise source.

3.2.2.1 Preferred Alternative

The proposed cable is non-emitting, and no sound would be generated during operation or if sections are abandoned in place. The primary vessel used to lay and recover the cable is a less than 23 m (75 ft) wood and fiberglass vessel with two 350-horsepower Cummins diesel engines. With the high amount of vessel traffic present in the Strait of Georgia from commercial and recreation activities, the cable laying vessel or recovery vessel would not noticeably increase sound levels and sound levels remain similar with other vessels transiting the area. There are no sensitive receptors within 0.4 km (0.25 mi) of the cable installation area.

Noise generated by the Proposed Action would be limited to cable laying or recovery activities. The cable would not emit any noise during operation. The level and duration of noise from cable recovery, if applicable, are anticipated to be similar to cable laying. Use of the cable laying vessel for the Proposed Action would be temporary in duration (approximately 2 to 6 days) and similar to noise generated by existing vessel traffic.

Noise levels are not anticipated to exceed NIOSH limits for workers involved with implementation of the Proposed Action. Although there are no federal, state, or local noise ordinances or policies that would limit environmental noise from the Proposed Action to specific thresholds, noise generated or audible from onshore areas would be minimal and well below ambient noise levels at the shoreside landing that are dominated by the existing rail line, Interstate 5, and other traffic noise. Noise impacts to aquatic species are discussed in Section 3.5.2.

Given the temporary nature of cable laying and recovery activities, and low levels of noise that it would generate relative to other ambient sources, *short term, negligible adverse impacts* are anticipated from cable laying and potential recovery activities, and although there is potential for continued operation or sections to be abandoned in place, *no long-term impacts* to the overall noise environment are anticipated.

3.2.2.2 No-Action Alternative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* to noise.

3.3 CULTURAL AND HISTORIC RESOURCES

Cultural resources is a broad term that generally includes historic properties as defined by Section 106 of the NHPA, archaeological resources as defined by the Archaeological Resources Protection Act, cultural items as defined by the Native American Graves Protection and Repatriation Act, sacred sites as defined in EO 13007, *Indian Sacred Sites,* to which access is afforded under the American Indian Religious Freedom Act, and collections and associated records as defined in 36 CFR Part 79. Cultural resources include, but are not limited to, buildings, structures, prehistoric and historic archaeological sites, Native American sacred sites, and cemeteries.

The NHPA was enacted to prevent unnecessary harm to historic properties (54 U.S.C. 300101 et seq.). It pertains to all projects funded, permitted, or approved by any federal agency that has the potential to affect cultural resources. Provisions of the NHPA established a National Register of Historic Places (NRHP). The NRHP is maintained by the National Park Service, the Advisory Council on Historic Preservation, State Historic Preservation Officers (SHPO), Tribal Historic Preservation Officers, and federal grants-in-aid programs. The goal of the Section 106 process is to identify and avoid, minimize, or mitigate adverse effects on historic properties. The process has four steps: (1) establish the undertaking, (2) identify and evaluate historic properties, (3) assess effects to historic properties, and (4) resolve any adverse effects.

3.3.1 Affected Environment

3.3.1.1 Area of Potential Effect

The Proposed Action would consist of the deployment of a submerged cable along the seafloor to assess new methods of conducting maritime monitoring. In context of the NHPA, DHS S&T has defined the APE for the Proposed Action as the project's location: within the Strait of Georgia and bounded by the U.S./Canada border on the north, west to Point Roberts, south to the U.S./Canada border, and east to mainland Washington State (**Figure 1**). The APE in this EA is the same polygon being evaluated in the separate Section 106 report.

A separate NHPA Section 106 report and consultation effort is ongoing for the Proposed Action. DHS is consulting with the Washington State Department of Archaeology and Historic Preservation (DAHP) SHPO and consulting tribes (see below) as part of this process. Results and determinations of effect for the Proposed Action will be incorporated into this EA once the Section 106 process and consultation is complete.

3.3.1.2 Ethnographic and Historic Context

This section briefly documents the ethnographic and historic chronology of the region encompassing the APE. Portions of the following have been adapted from Field (2000), Mather (2011), Arthur and Mather (2013), and Osiensky (2022).

The Salish Sea is the traditional homelands of First Nations and Native American Tribes including, but not limited to, the *Lhaq'temish* (Lummi), Saanich, Tsawwassen, Semiahmoo, and *Nuxwsá7aq* (Nooksack) Tribes. The Proposed Action also would be within the traditional cultural territory of the Sauk-Suiattle, Snoqualmie, and Swinomish Tribes. Cultural areas overlap at the Canadian lower mainland, San Juan Islands, and Salish Sea (which includes the Gulf of Georgia) (Mather 2011). Historically, several Central Coast Salish languages were spoken, including *Hul'qumi'num* (Halkomelem) and Sen-c'ot'-en (Straits Salish) (Suttles 1990).

The Proposed Action is within the traditional homelands of the Lummi Nation. The Lummi, *Lhaq'temish* (People of the Sea), is the third largest tribe in Washington, totaling over 5,000 members (Lummi Nation 2024).

Prior to European contact, the Lummi lived near the sea and mountain areas, migrating seasonally to their longhouses at Point Roberts, Lummi Peninsula, Portage Island, and the San Juan Islands, including Sucia Island (Northwest Portland Area Indian Health Board 2024). Lummi diets traditionally consisted of smoke-dried seafood, camas bulbs, and land and sea resources such as shellfish, crab, salmon, trout, elk, and deer (Northwest Portland Area Indian Health Board 2024). These resources still are culturally important.

European explorers, fur traders, and missionaries began arriving in the Pacific Northwest around the late 1700s. Spanish explorer Juan Pantoja, a member of Francisco Elisa's 1791 expedition, first recorded Point Roberts as "Isla De Zepeda Galiano" (Suttles 1974). Further explorations of the area were conducted by the 1841 Wilkes expedition, sponsored by the United States (Meany 1907, 1926; Wilkes 1845, Osiensky 2022). European contact and settlement resulted in extensive changes to Indigenous communities across the Pacific Northwest. Diseases such as smallpox significantly reduced Native American populations (Lane 1973, 1974; Suttles 1990, Osiensky 2022).

Prior to statehood, Washington was considered part of the Oregon territory, a region that was occupied by the Americans and the British (Marino 1990). In 1846, the Oregon Treaty was signed, formalizing a border between Canada and the United States. Central Coast Salish country was split into British and American portions, subsequently establishing different governmental systems. In Canada, larger Indian villages were lumped into a band with one or more smaller reserves, while in the United States, villages were combined into tribes, some of which were given larger reservations while others were left landless (Suttles 1990).

Under the representation of Washington Territorial Governor Isaac I. Stevens, representatives from various tribes, including the Lummi, signed the Treaty of Point Elliott in 1855. Although it secured the right to fish at their usual and accustomed grounds, it forced tribes to relocate to reservations for the purpose of opening the remainder of the territory for European settlement (Arthur and Mather 2013, Marino 1990). The treaty initially established the 15,000-acre (6,070-hectare) Lummi Reservation. They were paid $150,000 for the ceded lands and received an additional

$15,000 to cover relocation costs and expenses. Today, the Lummi manage approximately 13,000 acres (5,521 hectare) of tidelands on their reservation (Lummi Nation 2024).

3.3.1.3 Previously Recorded Sites and Surveys

A recent summary of previous archaeological and ethnographic research identifies a large number of known historic properties located in the Central Salish Sea (Hutchings and Williams 2020). The Central Salish Sea region encompasses the APE. To specifically identify historic properties within the APE, a search was performed using the *Washington State DAHP Washington Information System for Architectural and Archaeological Records Data (WISAARD)* database (DAHP 2024). To gain a better understanding of the archaeological resources within the region, a 1.6 km (1 mi) radius was incorporated in the literature review search to identify all historic properties that could be potentially affected by the Proposed Action. The following section summarizes the general types and numbers of historic properties identified in the Proposed Action APE.

The Proposed Action APE contains a total of 41 previously recorded sites from over 320 surveys. The majority of all identified historic properties (n = 40/41) in the APE are affiliated with past Native American habitation and/or activities along the Salish Sea coast. Several historic properties are directly affiliated with the Lummi Nation. These precontact properties—and in two cases, precontact-to-historic period properties—are comprised of isolated artifacts (e.g., stone tools), shell midden sites and/or deposits, temporary camps, tool manufacturing or production areas, fishing villages, cemeteries, and culturally modified areas. One historic property is the artifact scatter of a late-19th and early-20th century Euro-American mill site. None of the identified historic properties in the Proposed Action APE are considered ineligible for the NRHP, but the majority (38 out of 41) of properties are currently unevaluated (or have undetermined eligibility). Three sites have been identified with potentially eligible or eligible determinations but only the eligible site closest to the APE is discussed below.

Chelh'tenem

Chelh'tenem is an NRHP-listed ancestral Lummi village site located on Lily Point, in the southeast portion of Point Roberts. The site was formally registered in 1984 but has been informally documented by various individuals since the late 1700s.

Historically, Lily Point was one of the most important traditional reef netting locations for the Lummi and other Coast Salish Tribes, mainly due to the large runs of Sockeye salmon passing through the area in the summer months on their return to the Fraser River (Suttles 1974, Johnny and Ross 1992, Boxberger 1989).

In the late 1800s, the Alaska Packers Association established a commercial fishing cannery and associated fishing traps at Lily Point. The area was continuously used by Salish Tribes until reef net fishing was outlawed and tribes were forced to stop fishing in the area. Today, *Chelh'tenem* continues to be of traditional and ceremonial importance to the Lummi.

3.3.1.4 Consultation

For the EA, DHS S&T invited the Lummi, Nooksack, Samish, Suquamish, and Swinomish Tribes to consult and provide any comments on the Proposed Action on November 15, 2023. The Lummi and the Suquamish accepted the invitation to consult on December 22, 2023, and they requested additional meetings to discuss the Proposed Action in detail.

Notification letters initiating Section 106 consultation and identifying the APE were sent to the above-mentioned tribes and the DAHP on February 21, 2024. The USACE also was informed as they were identified as an interested party under NEPA. The DAHP concurred with the APE on February 22, 2024. Consultation with DAHP and the Tribes is ongoing. Table 5 shows the correspondence sent and received.

Table 5. Initiation of Consultation and Responses Received

Notified Party	Form of Consultation	Date Sent	Date Response Received
Lummi Nation	NEPA EA: Scoping and invitation to consult	November 15, 2023	December 22, 2023
Nooksack Indian Tribe	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Samish Indian Nation	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Suquamish Tribe	NEPA EA: Scoping and invitation to consult	November 15, 2023	December 22, 2023
Swinomish Indian Tribal Community	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Northwest Indian Fisheries Commission	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Northwest Tribal Emergency Management Council	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
DAHP (SHPO)	Section 106: APE notification	February 21, 2024	February 22, 2024
Lummi Nation	Section 106: APE notification	February 21, 2024	N/A
Nooksack Indian Tribe	Section 106: APE notification	February 21, 2024	N/A
Samish Indian Nation	Section 106: APE notification	February 21, 2024	N/A
Suquamish Tribe	Section 106: APE notification	February 21, 2024	February 20, 2024 (DHS emailed separately during staff-to-staff conversations)
Swinomish Indian Tribal Community	Section 106: APE notification	February 21, 2024	N/A
US Army Corps of Engineers	Section 106: APE notification	February 21, 2024	N/A

3.3.2 Environmental Consequences

Significant impacts would occur if the integrity of a historic property or cultural resource is diminished, even with mitigation and avoidance measures in place, such that it would no longer be eligible for listing in the NRHP; if historic viewsheds would be substantially altered; or if Tribal concerns regarding impacts to sacred sites or sites of traditional and cultural significance are identified. A federal agency must complete the Section 106 process prior to making a decision to approve or fund a project pursuant to 36 CFR 800.1(c). DHS will continue consultation with the aforementioned groups in order to complete the Section 106 process. For the purposes of NEPA, DHS will implement Best Management Practices described in section 3.3.2.1 of this EA to ensure there are no significant effects to cultural resources.

3.3.2.1 Preferred Alternative

The APE is in the traditional homelands of the Lummi Nation. In addition to the area being archaeologically and historically important, it continues to be a place of cultural and religious importance to the Lummi Nation and other Salish Tribes. The area has natural and cultural resources that were and continue to be traditional use items important in cultural practices today.

The Proposed Action may have a range of impacts on natural and cultural resources depending on the route selected and the depths of the cable installation. The majority of all project activities would occur underwater, along the seafloor. For the area around the shoreside landing, there is a surface component that would include using existing stormwater drainage system and conduit to physically connect the cable infrastructure to an existing onshore terminal. Additional excavation may be required to protect the cable during low tide at this conduit access point. Although there are no previously recorded archaeological sites within that locale—and in subsurface, underwater areas along the proposed cable path—intact deposits may or may not be uncovered during installation either on land or in water. Because the cable would be underwater, there would be no direct or indirect impacts to viewsheds or soundscapes.

As identified in the Section 106 report, prepared to support the Proposed Action, there are numerous eligible or potentially eligible historic properties within the Proposed Action APE (Renaud & Conrad 2024, not publicly available). Section 106 consultation with Tribes and DAHP is ongoing. Project activities would avoid all known resources within the APE to minimize potential impacts and effects to historic properties.

Best Management Practices

A series of BMPs would be applied during the installation, operation, and decommissioning of the Proposed Action. These BMPs serve as mitigation measures to minimize the risk of harm to Cultural and Historic Resources from the Proposed Action. All workers associated with The Project, irrespective of their employment arrangement or affiliation (e.g., employee, contractor), would be fully briefed on these BMPs and the requirement to adhere to them for the duration of their involvement in this project. The BMPs that would be implemented include the following:

1. Revised the Proposed Action Area of Potential Effect (APE) to avoid any potential impacts to existing cultural resources that are within 1 mile of the APE (completed).

2. Established a buffer around known historic properties to avoid and minimize direct and indirect effects as much as reasonably possible (completed).

3. Implement any avoidance, minimization, or mitigation measures identified through Section 106 consultation pursuant to 36 CFR 800.6, should there be an adverse effect to historic properties determined through consultation.

4. Implement archaeological monitoring during the shoreside landing installation in case inadvertent discoveries of cultural material are uncovered. Workers will be directed to watch for cultural materials (e.g., stone tools, pier remnants, etc.) during work activities.

5. If any cultural materials are encountered, work in the vicinity of the discovery would pause until an archaeologist (if not present) has been notified, the significance of the find assessed, appropriate consulting parties notified, and, if necessary, arrangements made for mitigation of the discovery.

6. The Inadvertent Discovery Plan would dictate who would be contacted in the event that cultural material and/or human remains are encountered in the field (Plan prepared).

The Proposed Action would avoid all known cultural resources and historic properties to minimize effects to cultural and historic resources and therefore, would have *less-than-significant to no impact* on any cultural and historic resources within the Proposed Action area.

3.3.2.2 No-Action Alternative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* to cultural or historic resources.

3.4 WATER RESOURCES

Water resources include natural and human-made sources of water that are available for use by and for the benefit of humans and the environment. Hydrology concerns the distribution of water-to-water resources through the processes of evapotranspiration, atmospheric transport, precipitation, surface runoff and flow, and subsurface flow. Water resources can influence floodplains, coastal zone management, groundwater, surface water, and wetlands. Floodplains are belts of low, level ground on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by flood water. Coastal resources are protected by the federal Coastal Zone Management Act of 1972, which enables states and territories to implement federally approved coastal programs to protect coastal areas in conjunction with environmental, economic, and human health. Groundwater can be defined as subsurface water resources that are interlaid in layers of rock and soil and recharged by surface water seepage. Surface water consists of lakes, rivers, and streams, and bays. Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

3.4.1 Affected Environment

Floodplains: A floodplain is any lowland or relatively flat area adjoining inland and coastal waters that is subject to a 1% or greater chance of flooding in any given year. EO 11988, *Floodplain Management*, establishes requirements for federal agencies with respect to floodplain management and protection. If action is taken that encroaches within the floodplain and alters the flood hazards designated on a National Flood Insurance Rate Map (e.g., changes to the floodplain boundary), an analysis reflecting any changes must be submitted to the Federal Emergency Management Agency. The Proposed Action does not occur within the 100-year floodplain, nor does it involve constructing any permanent structures. Additionally, there would be no mechanism present to alter a floodplain.

Coastal Zone Management: Section 307 of the Coastal Zone Management Act requires that federal actions likely to affect any land or water use or natural resource within the coastal zone must be consistent to the maximum extent practicable with a state's Coastal Zone Management Program (CZMP). These actions must also go through a federal consistency review.

The generalized cable installation area is located within Washington's designated coastal zone and must comply with the enforceable policies established under Washington's CZMP.

Groundwater: The Proposed Action does not involve or require any interaction with groundwater, including withdrawals or injections of substances to aquifers underlying the shoreside landing area.

Surface Water and Wetlands: The USACE and the EPA define jurisdictional wetlands as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR § 328.3). The USACE regulates the discharge of dredged or fill material in jurisdictional wetlands pursuant to Section 404 of the Clean Water Act and regulations contained in 33 CFR §§ 320–330. Executive Order 11990, *Protection of Wetlands*, requires that federal agencies minimize any significant action that contributes to the loss or degradation of wetlands and that action be initiated to enhance their natural value.

The Washington State Shoreline Management Act (90.58 Revised Code of Washington [RCW]) intends to "prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." Whatcom County enforces the act through a Shoreline Master Program (Whatcom County 2019). Within Whatcom County the only City bordering the Proposed Action area with a Shoreline Master Program is Blaine (City of Blaine 2019) which applies to the construction or alteration of structures, dredging, drilling, dumping, filling, removal of sand, gravel, or minerals, bulkheading, driving or piling, placing of obstructions, or any activity which interferes with the normal public use of the shoreline. If substantial development, as defined in the Shoreline Management Plan, is proposed, a shoreline permit from the county or city would be obtained.

The generalized cable installation area includes surface waters and coastal zones within or near proposed cable laying or recovery activities in the Strait of Georgia and Semiahmoo Bay. Semiahmoo Bay encompasses the marine waters south of Canadian Boundary Bay, bordered by the Semiahmoo Peninsula. The bay is approximately 27 km^2 (10.4 mi^2) and is classified as a marine water of extraordinary quality (WDOE 2024). Common uses of the bay include shellfish harvesting, boating, and other recreational uses. The Campbell River flows into the Bay of Semiahmoo 1.8 km (1.1 mi) north of the U.S./Canada border.

USFWS National Wetlands Inventory data indicate that a wetland is present in the portion of Semiahmoo Bay extending from the northeast portion to the southeast portion of the Proposed Action area. The wetland is classified as a marine intertidal mudflat (unconsolidated shore) and is regularly flooded each day (USFWS 2024a). Intertidal wetlands also border the shoreline along the northwest portion of the Proposed Action area but are less extensive (approximately 90 m [295 ft] wide).

The Proposed Action would not include any activities within WDOE designated cleanup sites.

Wild and Scenic Rivers: The Wild and Scenic Rivers Act of 1968, as amended, was created to preserve certain rivers with cultural, natural, and recreational values for future generations. The U.S. Department of the Interior and the U.S. Department of Agriculture maintain a national inventory of river segments that appear to qualify for inclusion in the National Wild and Scenic River System.

There are no rivers or river systems included in, or eligible for inclusion, in the National Wild and Scenic River System within or adjacent to the Proposed Action area.

3.4.2 Environmental Consequences

Significant impacts would occur if proposed activities induced flooding or impacted a floodplain; were inconsistent with applicable enforceable coastal zone policies; would affect the quantity and quality of the groundwater; would exceed water quality thresholds for surface water and wetlands, impede navigability of surface waters, substantially increase the amount of stormwater entering surface waters, or fail to comply with wetland protection regulations and permits.

3.4.2.1 Preferred Alternative

Floodplains: The Proposed Action would not occur within the 100-year floodplain; therefore, *no impacts* on floodplains are anticipated.

Coastal Zone Management: The Proposed Action would not result in any changes to existing coastal zone policies for use; therefore, *no impacts* are anticipated. DHS S&T submitted a Federal Consistency Determination demonstrating that the Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the Washington's CZMP to the WDOE for review and concurrence (see Appendix B).

Groundwater: The Proposed Action does not involve or require any interaction with groundwater, including withdrawals or injections of substances to aquifers underlying the shoreside landing area. The Proposed Action would not result in any changes to the quantity or quality of groundwater; therefore, *no impacts* are anticipated.

Surface Water and Wetlands: Cable operation activities would have no mechanism to impact to wetlands. No servicing of the operational cable is anticipated. Cable installation, as described in Section 2.1.2 of this EA, includes shallow burial of the cable into marine sediments of the seafloor using a burial sled and self-burial within the intertidal mudflat near the shoreside landing area. No cable anchoring within the intertidal mudflat area will be conducted.

Impacts on surface water would be constrained to cable burial and recovery activities. Cable recovery (if required) is described in Section 2.1.4 of this EA. Turbidity may be increased during cable installation or recovery due to the displacement of marine sediments by the burial sled or by the action of unburying the cable (OSPAR 2012). Re-suspension of potential contaminants within disturbed sediments also may occur, although there are no known sources of contamination along the preferred route. Because of the relatively short timeframe allocated for cable installation (2 to 6 days total) and the shallow burial depth, suspension of sediments from installation or recovery would be temporary and minor in nature. Potential impacts of turbidity on aquatic species are discussed in Sections 3.5.2.1.

The potential for an accidental spill or leak from vessels is negligible as the vessels would be undergoing normal operation for up to 6 days, and would be refueled, as needed, in accordance with standard protocols at marine refueling stations. The potential for marine hazardous toxic materials and waste (HTMW) releases would be further minimized through applicable regulations and BMPs, including requiring vessels to be equipped with spill containment and spill response kits, having a Vessel Response Plan consistent with the provisions of 33 CFR Part 155, and controlling the discharge of operational wastes (see Section 2.2 and Section 3.13).

Components of cable installation, shoreside landing and cable laying and recovery, create the possibility of temporary suspended sediment, or turbidity. Impacts from turbidity on Biological Resources are further discussed in Section 3.5.2.

The Proposed Action would result in *short-term negligible adverse impacts* from turbidity during cable laying and recovery activities. S&T will comply with all regulations and permits; *no impacts* are anticipated to surface waters during cable operation or if portions of the cable are abandoned in place.

Wild and Scenic Rivers: There are no rivers or river systems included in, or eligible for inclusion, in the National Wild and Scenic River System within or adjacent to the Proposed Action area; therefore, *no impacts* are anticipated.

3.4.2.2 No-Action Alternative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* on water resources.

3.5 BIOLOGICAL RESOURCES

3.5.1 Affected Environment

Wildlife species common to the Proposed Action area include aquatic and avian animals that are native to the Proposed Action area and may also include migratory bird species. Impacts on wildlife would vary depending on the specific habitat requirements; however, no impacts on terrestrial vegetation or wildlife and habitats are anticipated; therefore, terrestrial resources are not discussed further. Potential impacts on aquatic wildlife species would be limited to cable laying and recovery impacts that are further discussed in Section 3.5.2. Maps and additional information for biological resources are presented in Appendix B.

3.5.1.1 Aquatic Vegetation

In early November 2023, aquatic vegetation surveys were conducted. The vegetation sonar survey mapped the landing zones for the cable. These surveys focused on mapping the presence of aquatic vegetation along the routes at the potential landing sites. The survey data mapped dense eelgrass (*Zostera marina*) beds (91 to 100 percent cover) at the landing site, with plant heights of 0.9 to 1 m (3 to 3.2 ft.) throughout a majority of the area near the landing site. The vegetation beds at the site contained eelgrass from about -2 ft. to -8 ft. (-0.61 to -2.4 m) MLLW. No eelgrass was mapped near the western point.

3.5.1.2 Fish and Wildlife

The Strait of Georgia and Semiahmoo Bay includes habitats for a variety of fishes and invertebrate species, including lingcod (*Ophiodon elongatus*), cabezon (*Scorpaenichthys marmoratus*), halibut (*Hippoglossus stenolepis*), in deeper underwater banks and sloping drop-offs, particularly in the Georgia Strait, Pacific cod (*Gadus macrocephalus*) (12-549 m [40-1,800 ft.]), Pacific hake [Strait of Georgia stock] (*Merluccius productus*), oysters, shrimp, littleneck clams (*Leukoma staminae*), butter clams (*Saxidomus gigantea*), Dungeness crab (*Metacarcinus magister*), and red rock crab (*Cancer productus*).

Other salmonids are documented to be, or are potentially, present, in Semiahmoo Bay, as they use an “unnamed” creek that goes through Blaine and empties in the waters of Marine Drive Park: resident coastal cutthroat trout (*Oncorhynchus clarkii clarkii*), winter steelhead (*O. mykiss*), fall chum (*O. keta*) and coho (*O. kisutch*). Those five species, and fall chinook salmon (*O. tshawytscha*), also use California Creek and/or Dakota Creek connect to nearby Drayton Harbor, to the southeast of Semiahmoo Bay, and therefore are likely to be present in the area.

3.5.1.3 Federally Listed Species and Critical Habitat

In accordance with Section 7(a)(2) of the ESA, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species and designated critical habitat. According to NOAA Fisheries and the USFWS, there are 11 ESA-listed, proposed, or candidate species and/or stocks, and critical habitats for four species that may occur within the Proposed Action area (**Table 6**). Also included in **Table 6** are two state species of greatest conservation need that are not federally listed. Because there are no terrestrial components to the Proposed Action except for the shoreside cable landing, no threatened or endangered terrestrial species (animal, plant, or insect) would be impacted.

Table 6. Listed Species with the Potential to Occur in Proposed Action Area

Common Name (Scientific Name)	ESA or State Status	Jurisdiction	Critical Habitat in Proposed Action Area?	Federal Register
Marine Mammals				
Killer Whale, Southern Resident DPS (*Orcinus orca*)	Endangered (federal and state)	NOAA Fisheries	Yes	**Effective**: Feb. 16, 2006 (70 FR 69903) **Critical Habitat**: Dec. 29, 2006 (71 FR 69054)
Humpback Whale, Central America DPS (*Megaptera novaeangliae*)	Endangered (federal and state)	NOAA Fisheries	No	**Effective**: Oct. 11, 2016 (81 FR 62259) **Critical Habitat**: May 21, 2021 (86 FR 21082)
Humpback Whale, Mexico DPS (*Megaptera novaeangliae*)	Threatened (federal)	NOAA Fisheries	No	**Effective**: Oct. 11, 2016 (81 FR 62259) **Critical Habitat**: May 21, 2021 (86 FR 21082)
Fishes				
Bocaccio, Puget Sound-Georgia Basin DPS (*Sebastes paucispinis*)	Endangered (state threatened)	NOAA Fisheries	Yes	**Effective**: Jul. 27, 2010 (75 FR 22276) **Re-affirmed**: Mar. 24, 2017 (82 FR 7711) **Critical Habitat**: Feb. 11, 2015 (79 FR 68041)
Yelloweye Rockfish, Puget Sound-Georgia Basin DPS (*Sebastes ruberrimus*)	Threatened (federal and state)	NOAA Fisheries	No[1]	**Effective**: Jul. 27, 2010 (75 FR 22276) **Re-affirmed**: Mar. 24, 2017 (82 FR 7711) **Critical Habitat**: Feb. 11, 2015 (79 FR 68041)
Chinook Salmon, Puget Sound ESU (*Oncorhynchus tshawytscha*)	Threatened (federal and state)	NOAA Fisheries	Yes	**Effective**: May 24, 1999 (64 FR 14308) **Re-affirmed**: Aug. 29, 2005 (70 FR 371159) **Critical Habitat**: Feb. 11, 2015 (79 FR 68041)
Steelhead, Puget Sound DPS (*O. mykiss*)	Threatened (federal and state)	NOAA Fisheries	No	**Effective**: June 11, 2007 (72 FR 26722) **Updated**: Apr. 14, 2014 (79 FR 20802) **Critical Habitat**: Mar. 25, 2016 (81 FR 9251)
Green Sturgeon, Southern DPS (*Acipenser medirostris)*	Threatened (federal)	NOAA Fisheries	No	**Effective**: June 6, 2006 (71 FR 17757) **Critical Habitat**: Nov. 9, 2009 (74 FR 52299)

Common Name (Scientific Name)	ESA or State Status	Jurisdiction	Critical Habitat in Proposed Action Area?	Federal Register
Bull Trout, Coterminous U.S. DPS (*Salvelinus confluentus*)	Threatened (federal and state)	USFWS	Yes	**Effective**: Dec. 1, 1999 (64 FR 58910) **Critical Habitat**: Oct. 26, 2005 (70 FR 56211) **Revised Critical Habitat:** Nov. 17, 2010 (75 FR 63897)
Birds				
Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened (state endangered)	USFWS	No	**Effective**: Sept. 28, 1992 (57 FR 45328) **Critical Habitat**: June 24, 1996 (61 FR 26256) **Revised Critical Habitat:** Nov. 4, 2011 (76 FR 61599)[2]
Common Loon (*Gavia immer*)	State Species of Greatest Conservation Need	WDFW	N/A	N/A
Peregrine Falcon (*Falco peregrinus*)	State Species of Greatest Conservation Need	WDFW	N/A	N/A
Invertebrates				
Sunflower Sea Star (*Pycnopodia helianthoides*)	Proposed Threatened (federal)	NOAA Fisheries	N/A	**Proposed**: Mar. 16, 2023 (88 FR 16212) **Critical Habitat**; N/A

Notes:

1. There is designated critical habitat for yelloweye rockfish located within the Proposed Action area (79 FR 68041). However, the proposed cable route would *not* be entering any of the deep-water critical habitat. This critical habitat is defined as "benthic habitats or sites deeper than 30 m (98 ft.) that possess or are adjacent to areas of complex bathymetry consisting of rock and or highly rugose habitat that are essential to conservation because these features support growth, survival, reproduction, and feeding opportunities by providing structure for rockfishes to avoid predation, seek food and persist for decades" (79 FR 68041).
2. The revised critical habitat for the marbled murrelet (76 FR 61599) was confirmed, and made effective, on August 4, 2016 (81 FR 51348).

Key:

DPS = Distinct Population Segment
ESA = Endangered Species Act
ESU = Evolutionarily Significant Unit
NOAA Fisheries = NOAA National Marine Fisheries Service (NMFS)
USFWS = U.S. Fish and Wildlife Service
WDFW = Washington Dept. of Fish & Wildlife
Source: NOAA 2023a, USFWS 2024b

Supporting database outputs and figures are provided in the separate appendices of this EA. Further discussion and analysis on biological resources including federally listed species impact determinations are available in Section 3.5.2.

Southern Resident Killer Whale DPS and Critical Habitat

Resident killer whales in U.S. waters are distributed from Alaska to California (NMFS 2024), with four distinct communities recognized: (1) Southern, (2) Northern, (3) Southern Alaska, and (4) Western Alaska. However, only southern resident DPS are present in the Proposed Action area. The southern resident DPS consists of three pods (J, K, and L) that reside for part of the year in the inland waterways of Washington and British Columbia (Strait of Georgia, Strait of Juan de Fuca, and Puget Sound), principally during the late spring, summer, and fall.

Critical habitat for the southern resident killer whale includes waters in the Strait of Juan de Fuca, Puget Sound, and Haro Strait, and waters around the San Juan Islands (71 FR 69054; 84 FR 49214; NMFS 2021a). The critical habitat overlaps the entirety of the Proposed Action area. While killer whales often are located in the pelagic areas of the open ocean, it is not uncommon for the species to forage in shallower coastal and inland marine waters (NMFS 2020). They are most likely to occur within the Proposed Action area during the spring, summer, and fall. Killer whale sightings have been reported within the Proposed Action area as recently as October 2023 (iNaturalist 2023). Additional information on killer whale life history and critical habitat can be found in Appendix B.

Humpback Whale, Mexico and Central America DPS

Humpback whales in the North Pacific feed in coastal waters from California to Russia and in the Bering Sea. During the summer months, humpbacks spend most of their time feeding and building up fat stores for the winter and mostly occur off Washington from July to September (NMFS 2014; WDFW 2012). Humpback whales are not expected to be routinely present in large numbers within the Proposed Action area because of the lack of appropriate habitat and food availability. However, according to the Canadian Pacific Humpback Collaboration, 2022 was a record-breaking year for humpback sightings (396) in the Salish Sea (up from 293 in 2017), peaking in the fall and indicating a regional feeding preference (CPHC 2022). Therefore, the presence of humpback whales is possible within the Proposed Action area. Additional information on the humpback whale life history and critical habitat can be found in Appendix B.

Bocaccio

Bocaccio are large Pacific coast rockfish that are most commonly found between 50 to 250 m (164 to 820 ft) depth but may reside as deep as 475 m (1558 ft) (Orr et al. 2000). Juveniles and subadults may be more common than adults in shallower water and are associated with rocky reefs, kelp canopies, and artificial structures, such as piers and oil platforms (MBC Applied Environmental Sciences 1987). Critical nearshore and deep-water habitat has been designated around and within portions of the Strait of Georgia and Semiahmoo Bay (79 FR 68041; NMFS 2021b). In the San Juan/Strait of Juan de Fuca Basin, adult bocaccio are found in benthic habitats or sites deeper than 30 m (98 ft) that possess or are adjacent to areas of complex bathymetry consisting of rock and/or highly rugose habitat. Juvenile settlement habitats are in nearshore areas (less than 30 m [98 ft]) with substrates such as sand, rock, and/or cobble compositions that also support kelp. However, in Puget Sound, most bocaccio are found south of the Tacoma Narrows and have always been rare in north Puget Sound (Drake et al. 2010). Prey items include small fishes and invertebrates (Good et al. 2010). Cable laying activities are not a management consideration for bocaccio occurring in the Proposed Action area, which is within the San Juan/Strait of Juan de Fuca Basin of the Puget Sound/Georgia Basin DPS (NMFS 2014). Authorized in-water work times in saltwater areas to reduce the risk of impacts to all juvenile rockfish for the Proposed Action area is September 30 to

March 15 for projects in or adjacent to juvenile rockfish settlement and nursery areas (WAC 220-660-330). Additional information on bocaccio life history and critical habitat can be found in Appendix B.

Yelloweye Rockfish

Yelloweye rockfish occur in waters 25 to 475 m (82 to 1,558 ft) deep but are most commonly found between 91 to 180 m (299 to 591 ft). Yelloweye rockfish range from northern Baja California to the Aleutian Islands, Alaska, but are most common from central California northward to the Gulf of Alaska (NMFS 2014). It is likely that yelloweye rockfish would be relatively scarce in the Proposed Action area because both juveniles and adults utilize waters deeper than 30 m (98 ft) (Studebaker et al. 2009; Yamanaka et al. 2006). Additionally, areas of floating and submerged kelp support the highest densities of most juvenile rockfish species (Hayden-Spear 2006; NMFS 2014). However, bathymetry surveys and other resources indicate that there is no floating or submerged kelp within the Proposed Action area. Critical deepwater habitat for the yelloweye rockfish has been designated in the Strait of Georgia (79 FR 68041) in waters deeper than 30 m (98 ft) in or around benthic habitats with high rugosity (NMFS 2021b). The Proposed Action's route is outside of, and would not enter into, any of the deepwater critical habitat for the Puget Sound–Georgia Basin DPS yelloweye rockfish. Therefore, critical habitat for the Puget Sound–Georgia Basin DPS yelloweye rockfish will not be discussed further in this EA. While possible, it is unlikely yelloweye rockfish would occur in the Proposed Action area. Additional information on yelloweye rockfish life history can be found in Appendix B.

Chinook Salmon

The threatened Puget Sound Chinook salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams flowing into Puget Sound including the Straits of Juan De Fuca from the Elwha River, eastward (70 FR 37160). The Strait of Georgia nearshore environment (from extreme high tide out to a depth of 30 m [98 ft]) is considered a primary constituent element for the ESU, as it generally encompasses photic zone habitats supporting plant cover (e.g., eelgrass and kelp) that is important for rearing, migrating, and maturing salmon and their prey. Deeper waters are occupied by subadult and maturing fish. Thus, juvenile Chinook salmon could occupy the nearshore, while subadult and maturing fish could occupy deeper water in the Proposed Action area. Fall chinook salmon have a documented presence within Dakota Creek, and potential presence in California Creek, both of which empty into Drayton Harbor (WDFW 2024a). Authorized work times in saltwater areas to reduce the risk of impacts to salmonids for the Proposed Action area is August 1 to February 15 (WAC 220-660-330). Additional information on Chinook salmon life history and critical habitat can be found in the biological assessment in Appendix B.

Steelhead

In Puget Sound, steelhead do not rear extensively in estuaries or nearshore habitats like other salmonids (NMFS 2019). Steelhead smolts follow a rapid migration pattern swiftly moving from their natal freshwater habitat to the ocean, spending only a few days to a couple of weeks in Puget Sound (Moore et al. 2015). Once they leave Puget Sound, steelhead typically spend 2 to 3 years at sea before returning through Puget Sound to their native rivers or streams to spawn (NMFS 2019). Winter run steelhead presence in the Proposed Action area is possible due to its documented presence in nearby freshwater streams that connect to Semiahmoo Bay and Drayton Harbor (WDFW 2024a). Summer run steelhead presence in the Proposed Action area is very unlikely because the Nooksack River to the south is the nearest river with documented summer run anadromous steelhead presence (WDFW 2024a). Anadromous fish are those that spawn in fresh water, migrate to the ocean to forage and mature, and return to fresh water to spawn and begin the cycle again. All critical habitat designated for steelhead is located in freshwater rivers and streams outside of the Proposed Action area (81 FR 9252). The Proposed Action area for this project does not overlap with designated critical habitat for Puget Sound DPS steelhead and will not be discussed further. Additional information on steelhead life history can be found in Appendix B.

Green Sturgeon

Green sturgeon is an anadromous fish that spawns and rears juveniles in rivers while adults migrate to saltwater to feed and grow. The southern DPS, which includes fish that spawn in the Sacramento, Feather, and Yuba River in California, is listed as threatened. In marine waters, the designated critical habitats are areas within the 60 fathom (110 m [360 ft]) depth isobath from Monterey Bay to the U.S.-Canada border excluding some estuaries like the Puget Sound (74 FR 52299). Moser and Lindley (2007) documented that green sturgeon frequent coastal waters of Washington and enter estuaries during summer when water temperatures are more than 2 degrees Celsius (°C) (35.6 degrees Fahrenheit [°F]) warmer than adjacent coastal waters. Moser et al. (2022) found via acoustic detection data that green sturgeon from both the northern and southern DPSs can occur in Puget Sound and at Admiralty Inlet but at low rates relative to their presence in the Strait of Juan de Fuca. Based on these studies, the southern DPS of green sturgeon is considered to occur outside the Proposed Action area and, if present, would likely be limited to summer months. Due to the apparent lack of spawning by green sturgeon in tributaries to Puget Sound, adult and subadult green sturgeon, if present, are the only life stages likely to be found in this area. Additional information on green sturgeon life history can be found in Appendix B.

Bull Trout and Dolly Varden

Compared to other salmonids, bull trout have more specific habitat requirements that appear to influence their distribution and abundance. An anadromous form of bull trout exists in the Coastal-Puget Sound population, which spawns in rivers and streams but rears young in the ocean (69 FR 35768). For this population, the critical habitat consists of streams, lakes, and 1,585 km (985 mi) of marine shoreline in Washington (75 FR 63898). According to WDFW, there is the potential for the Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout to be present in the Proposed Action area (WDFW 2024a). After migrating from their freshwater spawning and rearing habitats, some adult bull trout may move downstream into estuaries or marine areas to feed on prey such as Pacific herring and sand lance from late spring to early fall and then return to rivers to overwinter reducing the likelihood of overlapping with cable laying activities (WDFW 1997; Goetz et al. 2004; USFWS 2015). Bull trout currently are listed conterminously with Dolly Varden (*Salvelinus malma*) as a threatened species. Additional information on bull trout life history and critical habitat can be found in Appendix B.

Marbled Murrelet

Marbled murrelets were listed as threatened by the USFWS in 1992 and are currently listed as threatened with the WDFW. Marbled murrelets are year-round residents on Washington's marine waters. These birds forage in sheltered waterways and harbors generally within 1.9 km (1.2 mi) of shore. Marbled murrelets nest in mature and old-growth forests within 97 km (60 mi) of marine waters from Alaska to northern California. The breeding season extends from April 1 to September 15. While at-sea distribution varies over time and location, there is a general shift in winter abundance eastward from the Strait of Juan de Fuca to Puget Sound and the San Juan Islands, and in fall and winter, populations in British Columbia move southward to Puget Sound (DNR 2018). According to the USFWS (2024c), the range for marbled murrelets includes the Strait of Georgia and Semiahmoo Bay; however, WDFW Priority Habitats and Species maps indicate no marbled murrelet observations or nest sites near the Proposed Action area (WDFW 2024b). The Proposed Action area does not overlap with designated critical habitat for the marbled murrelet (81 FR 51348). Marbled murrelets could be present in the Proposed Action area, but due to their declining numbers, sparse and patchy distribution at sea, and high level of human activity in the nearshore, it is unlikely they would the present in nearshore habitat around the Proposed Action area during cable installation and recovery. Additional information on the marbled murrelet life history can be found in Appendix B.

Sunflower Sea Star

The sunflower sea star occurs throughout intertidal and subtidal coastal waters of the Northeast Pacific Ocean from the Aleutian Islands, Alaska, to at least northern Baja California, Mexico, but is most abundant off Alaska and British Columbia. They are found to a depth of at least 427 m (1,400 ft) on various substrate types, from rocky kelp forests to sand and mud flats (Gravem et al. 2021; Lowry et al. 2022). While sunflower sea stars are most abundant in shallower waters that comprise almost the entirety of the proposed cable route, they have been largely decimated in Washington inland waters making their presence within the Proposed Action area less likely. NOAA Fisheries has completed a status review of the sunflower sea star and is proposing to list the species as threatened throughout its range but has not yet designated critical habitats. Additional information on the sunflower sea star life history can be found in Appendix B.

3.5.1.4 Bald and Golden Eagles

The bald and golden eagles are not birds of conservation concern but remain protected under the Bald and Golden Eagle Protection Act of 1940, which prohibits the take, possession, transport, or sale of live or dead eagles and their parts, nests, or eggs unless authorized by permit, and under the MBTA. "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to taking are prohibited without a permit. "Disturb" is defined by regulation 50 CFR 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available:

- Injury to an eagle;
- Decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior;
- Nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

"Disturb" includes immediate impacts such as loud noises around the nest that may cause eagles to abandon their eggs or young chicks. A disturbance also may happen if humans change the landscape around the eagle nest. Even if these changes happen outside of the eagle nesting season, the eagle may have future decreased nest success or may abandon the nest if these changes are significant.

Although, the presence of bald eagles has been confirmed in the Proposed Action Area through publicly reported fly over observations (eBird 2023), and observations reported through iNaturalist to the WDFW (iNaturalist 2023), no known nesting sites are withing or adjacent to the Proposed Action area. Further, given the temporary nature of the noise generated during cable installation or recovery, the Proposed Action would not include any activities that would disturb eagles. Lastly, DHS S&T would adhere to the USFWS National Bald Eagle Guidelines (2007). Therefore, the Proposed Action would *not adversely impact* bald and golden eagles and no further discussion of bald and golden eagles is included in this EA.

3.5.1.5 Marine Mammals

Marine mammal species that may be in the Proposed Action area that are not protected under ESA, are still protected under the Marine Mammal Protection Act (1972). These species are listed in **Table 7** (NMFS 2019).

Table 7. Non-ESA Marine Mammals Likely to Occur in the Strait of Georgia.

Common Name	Scientific Name
Harbor seal	*Phoca vitulina richardsii*
California sea lion	*Zalophus californianus*
Eastern Steller sea lion DPS	*Eumetopius jubatus*
Short-beaked common dolphin	*Delphinus delphis*
Long-beaked common dolphin	*Delphinus capensis*
Risso’s dolphin	*Grampus griseus*
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*
Common bottlenose dolphin	*Tursiops truncatus*
Dall’s porpoise	*Phocoenoides dalli*
Northern right whale dolphin	*Lissodelphis borealis*
Gray whale, Eastern North Pacific Stock	*Eschrichtius robustus*

The seals and sea lions listed in **Table 7** breed and reproduce during specific seasons onshore either in coastal areas along the California coast or coastal islands, or along other coastal regions throughout the eastern Pacific range. These marine mammals may occur in the Proposed Action area during migration or feeding activities (Carreta et al. 2019). The dolphin and porpoise species listed in **Table 7** may occur broadly throughout the Proposed Action area and are commonly seen in shelf, slope, and offshore waters, with seasonal movements along the eastern Pacific (Carreta et al. 2019).

3.5.1.6 Essential Fish Habitat

While many fish species exist in Washington’s coastal waters, essential fish habitat (EFH) is identified only for those species managed under a federal Fishery Management Plan (FMP). Three federal FMPs and their associated EFH are applicable to projects and activities within Washington: (1) Pacific Coast Groundfish fishery; (2) the Coastal Pelagic Species (CPS) fishery; and (3) Pacific Coast Salmon fishery (Table 8).

Table 8. Fish Species with Designated Essential Fish Habitat Likely to Occur in the Strait of Georgia

Common Name	Scientific Name	Fishery Management Plan	EFH Designation	Life Stages
Flatfish	12 species[a]	Pacific Coast Groundfish	Pelagic, Substrate	All[c]
Rockfish	64 species[a]	Pacific Coast Groundfish	Pelagic, Substrate	Larvae, Juveniles, Adults
Roundfish	6 species[a]	Pacific Coast Groundfish	Pelagic, Substrate	All
Sharks/Skates/ Chimaeras	7 species[a]	Pacific Coast Groundfish	Pelagic, Substrate	All
Coastal pelagics	13 species[b]	Coastal Pelagic Species	Pelagic, Substrate	All

a Pacific Fishery Management Council (PFMC) 2023; b PFMC 2019; c All includes eggs, larvae, juveniles, and adults

The groundfish fishery includes 82 species: the CPS fishery includes four finfishes (Pacific sardine, Pacific [chub] mackerel, northern anchovy, and jack mackerel) and the invertebrate market squid; and the salmon fishery includes Chinook, coho, and Puget Sound Pink salmon. Important features for essential habitat for spawning, rearing, and migration include adequate substrate composition, water quality, temperature, depth, velocity, channel gradient and stability, food, cover, and habitat features (e.g., woody debris and aquatic vegetation), space, access and passage, and floodplain and habitat connectivity. Habitats associated with the Proposed Action area include the benthic substrate and waters necessary to support growth, feeding, breeding and spawning activities. No EFH species are expected to be exposed to continuous Proposed Action disturbance.

In addition to EFH designations, Habitat Areas of Particular Concern (HAPC) also are designated by the Councils. Designated HAPCs are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (50 CFR 600.805-600.815). These areas include estuaries, canopy kelp, seagrass, rocky reefs, and “areas of interest” for groundfish. There are designated HAPC within the Proposed Action area. A hydrographic survey performed in early November 2023 identified dense eelgrass beds (a type of seagrass HAPC) along the proposed cable route near the potential shoreside landings. Eelgrass is an identified HAPC for Pacific Coast Groundfish (PFMC 2023).

Pacific Coast Groundfish
There are over 80 species of fish in the Pacific Coast Groundfish FMP, and all are considered to have EFH within the Proposed Action area. Information on the life histories and habitats for each of these species varies, but assemblages share common habitat requirements and are considered as such. EFH for the Proposed Action area include waters and substrates at depths less than 3,500 m (11,483 ft) (PFMC 2023).

There are four groups of groundfish with species that potentially occur in the Proposed Action area based on their occurrence per Appendix B of the groundfish FMP (PFMC 2005): flatfishes; rockfishes; roundfish; and sharks/skates, in addition to 3 other fish species listed in **Table** 6.

Flatfishes such as dover sole (*Microstomus pacificus*) and rex sole (*Glyptocephalus zachirus*) that may occur in the Proposed Action area are broadcast spawners, and pelagic eggs and larvae can be found at varying depths. Juveniles and adults are demersal with preferred substrate habitat occurring over a range of depths (PFMC 2005). Rockfishes such as the canary rockfish (*S. pinniger*) may potentially occur in the Proposed Action area where the substrate is soft or rocky. Most rockfishes are viviparous, releasing fertilized eggs with yolk and developing embryos. Larvae and juveniles are pelagic across a wide range of depths, and adults are demersal (PFMC 2005). Roundfish such as the Pacific grenadier (*Coryphaenoides acrolepis*) and the Sablefish (*Anoplopoma fimbria*) may be in the Proposed Action area. All have external fertilization where eggs and larvae are present in the water column over varying depths. While many roundfish are found in more estuarine or subtidal regions, some such as the Pacific grenadier and sablefish are found in deeper waters where spawning and maturation of juveniles may occur, and where eggs and larvae may be associated with the water column (PFMC 2005). The sharks and skates that are part of the Pacific Coast Groundfish FMP are either sharks (leopard shark [*Triakis semifasciata*], soupfin shark [*Galeorhinus zyopterus*], spiny dogfish [*Squalus acanthias*], skates [big skate, *Raja binoculata*], California skate [*R. inornata*], longnose skate [*R. rhina*)], or a chimaera [spotted ratfish, *Hydrolagus colliei*]). The sharks are primarily found in bays and estuaries, although the adults could range further offshore. Live-bearing species move to more estuarine water for birth, and juveniles stay close to similar habitats for growth and feeding (PFMC 2005). The skates and the ratfish lay eggs in shallower habitats where hatched embryos, juveniles, and adults spend the majority of their time in nearby bay or inshore waters, with the exception of the longnose skate, which can be found at all life stages in deeper water habitats not associated with the Proposed Action area (PFMC 2005).

<u>*Coastal Pelagic Species*</u>

The CPS fishery includes four finfish species, market squid, and species of krill or Euphausiids (eight dominant species) (PFMC 2019). Species managed under the CPS FMP include Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), market squid (*Loligo opalescens*), and krill (*Euphausiid spp.* (PFMC 2019). While the finfish predominantly inhabit the water column, market squid inhabit both the water column and are associated with bottom substrate during spawning events and egg development. The EFH boundary for each individual CPS finfish and market squid is defined to be all marine and estuarine waters from the shoreline along the coasts of California, Oregon, and Washington offshore to the limits of the exclusive economic zone (about 322 km [200 mi]). Larvae, juvenile and adult krill species EFH designation extends the length of the West Coast from the shoreline to the 1,000 fathom (1,829 m [6,000 ft]) isobath and to a depth of 400 m (1,312 ft) (PFMC 2019).

3.5.1.7 State-listed Species

WDFW environmental databases also were searched to identify state listed species and their habitats within the Proposed Action area. Two species, common loon and peregrine falcon, were identified as potentially in the Proposed Action area (**Table 6)**. In addition, the Washington State Legislature has authorized work times for saltwater areas to reduce the risk of impacts on fish life (WAC 220-660-330). The Proposed Action area is located in tidal reference area 9 (USACE 2013). In water, work is only authorized in this area between August 1 and January 31, and additional authorization is needed from the state due to year-round spawning of surf smelt (*Hypomesus* *pretiosus*) (WAC 220-660-330). Impacts on state-listed species are discussed in Section 3.5.2. Consultation and permitting information from WDFW can be found in Appendix B.

3.5.1.8 Recreational and Commercial Fisheries

The Proposed Action area is located within Washington State Marine Area 7 which offers both recreational and commercial fishing opportunities, including Tribal fishing (WDFW 2024c). Recreational (sport) fishing opportunities include lingcod, cabezon, halibut, salmon, and shrimping, crabbing, or shellfish harvesting during open season. Commercial fisheries in the region include Dungeness crab, salmon, herring, smelt, sea urchin, sea cucumber, shrimp, Pacific sardine, and squid (WDFW 2024d). The Washington Department of Fish and Wildlife works with Tribal and federal fishery managers to manage the state's fisheries. Many of Washington's fisheries are co-managed including salmon and steelhead. An annual list of agreed fisheries document lists details of fishing seasons and fishery agreements for treaty and non-treaty fisheries in the Puget Sound (WDFW 2024f). Tribal, recreational, and commercial fishery seasons have been considered and cable laying and recovery activities will occur outside relevant open fishing seasons. See Section 3.7 for further discussion on impacts to recreational resources.

3.5.2 Environmental Consequences

The Proposed Action would not involve land disturbance and would not affect terrestrial vegetation, terrestrial wildlife habitat, or nesting birds; thus, this EA does not include assessments of the impacts on these resources. Impacts on biological resources would be considered significant if cable laying, operation, and recovery actions were to result in:

- long-term loss, degradation, or loss of diversity within unique or high-quality SAV communities;
- unpermitted 'take' of federally listed species and local extirpation of rare or sensitive species not currently listed under the ESA;
- unacceptable loss of critical habitat as determined by the USFWS; or
- violation of the MBTA of 1918 or the Bald and Golden Eagle Protection Act of 1940, as amended.

3.5.2.1 Preferred Alternative

DHS S&T has prepared a draft Biological Assessment and is consulting with NOAA NMFS and USFWS regarding federally listed species, including essential fisheries habitat. Consultation is ongoing.

The direct impacts from the Proposed Action are limited to cable installation and recovery activities only, as no impacts are expected while the cable is in place during cable operation or if portions are abandoned in place. Direct impacts related to the Proposed Action that could potentially affect listed species include temporary increase in turbidity from cable laying or recovery; and temporary disturbance from vessel operation e.g. visual impacts and noise on wildlife. An assessment of other potential stressors is provided in the Biological Assessment which is included in Appendix B.

Cable Laying

During cable deployment, which is expected to last 2 to 6 days, species that associate with the benthos as primary habitat or foraging habitat in the shallower areas of the Proposed Action area (e.g., rockfish, salmon, flatfish, roundfish, etc.) within the Strait of Georgia and Semiahmoo Bay may be temporarily affected by cable deployment. Methods to shallow bury the cable along the seafloor would be conducted in a manner to minimize sedimentation. In addition, the overall footprint of the cable, which is 4.42 mm (1.74 in.) in diameter (burial sled is 76 cm [30 in.] wide) and 10 to 30 km (6.2 to18.6 mi) in length, would minimize the disturbed area and ensure an abundance of nearby unaffected habitat. Species that may forage or migrate through the Proposed Action area (e.g., killer whales, humpbacks, marbled murrelets, etc.) could be affected temporarily by deployment activities through disruption of access to habitat near the deployment work. For additional information see Appendix B.

<u>Turbidity</u>

Components of cable installation, shoreside landing and cable laying and recovery, create the possibility of temporary suspended sediment, or turbidity. During the shoreside landing, there is the possibility that temporary and localized small turbidity plumes would be created during the process of laying or burying the cable in soft sediment. Additionally, if divers need to walk along the seafloor while gently placing the cable (e.g., if installation occurs at low tide), it may create additional temporary and localized turbidity plumes from footprints. However, these increases in turbidity are expected to dissipate within seconds or minutes after placement due to the dynamic currents and tides within the Proposed Action area.

If any species are in the vicinity of shoreside cable landing operations, they would most likely relocate to a more suitable location and resume their previous activities. The species in the shoreside landing area would likely be limited to fish, as the depth in this location is too shallow for whales. Of note, the entire cable shoreside landing process is estimated to take 1 day, with divers gently placing the cable through any sensitive habitats for only a portion of that time. Afterwards, the cable, which has a very small diameter (4.42 mm [1.74 in.]), would not result in any further sediment disturbances until cable recovery, if applicable.

For the shallow cable burial (30.5 cm [12 in.]) within the Strait of Georgia and Semiahmoo Bay, much of the proposed cable route would be along water depths between about 12.2 to 15.2 m (40 to 50 ft), with the deepest location being a 10:1 slope that goes from about 11 to 22 m (36 to 72 ft) depth, MLLW. The cable would be buried using the one-step ‘bury-while-lay’ process (see Section 2.1.2.2). Burying the cable would serve the dual purpose of safeguarding the surrounding environment from potential cable displacement due to currents and mitigating the risk of damage caused by the cable (NOAA 2022). Burial in shallower waters also helps to protect the cable itself from anchoring and bottom trawl fishing, crabbing, and recreational fishing (Kordahi et al. 2007; Burnett and Carter 2017).

No information is available on the impacts of small plumes of turbidity on whales. While the increase in temporary suspended sediment in the water column may cause whales to alter their normal movements, these minor movements would be too small to be meaningfully measured or detected. Whales would be able to easily swim away from the turbidity plume and would not be adversely affected by passing through it. Temporary turbidity plumes may affect the movement whales' prey through the water for a very short period. However, mobile organisms, such as fish, would likely vacate the area upon detection of any small sediment disturbance created by the plow sled and cable burial. The cable laying and burial process occurs very slowly—with the research vessel operating at less than 3 knots—and movement would not outpace any species' natural faculties to respond and avoid the disturbance.

Turbidity and sedimentation are primary contributors to the degradation of salmonid habitat (Bash et al. 2001). Excess sediment and turbidity levels can clog the gills of fish, smother eggs, embed spawning gravels, and disrupt feeding and growth patterns of juveniles (Bruton 1985). Long-term exposure to high levels of turbidity could cause ESA-listed fish to avoid the Proposed Action area, impede or discourage free movement within localized areas of the Proposed Action area, prevent individuals from exploiting preferred habitats, and/or expose individuals to less favorable conditions. However, turbidity associated with the Proposed Action would be very short term in nature considering that the entire cable installation process is planned over the course of 2 to 6 days. Therefore, these impacts are likely transitory and localized at the cable burial location. The turbidity impacts would likely be even less impactful within the Proposed Action area given the dynamic and strong currents and tides that exist. See Section specific impact determinations below.

Although sunflower sea stars, if present, would be exposed to increased turbidity, they are habitat generalists that are adaptable and tolerant of a range of environmental conditions (Mauzey et al. 1968; Lambert 2000; Hemery et al. 2016; Gravem et al. 2021). They are not expected to be significantly affected by the minor increase in turbidity as it will dissipate quickly.

Because turbidity would be increased for only a short period of time, across a very narrow path, and would dissipate quickly, this *may affect, but is not likely to adversely affect* ESA-listed species in the area near cable installation and recovery. For more information on the impacts of turbidity, See Appendix B.

<u>State listed:</u>

- Common Loon – *May Affect, Not Likely to Adversely Affect*
- Peregrine Falcon – *May Affect, Not Likely to Adversely Affect*

<u>State and federally listed:</u>

- Killer Whale, Southern Resident DPS – *May Affect, Not Likely to Adversely Affect*
- Humpback whale, Central America DPS – *May Affect, Not Likely to Adversely Affect*
- Bocaccio, Puget Sound-Georgia Basin DPS – *May Affect, Not Likely to Adversely Affect*
- Yelloweye Rockfish, Puget Sound-Georgia Basin DPS – *May Affect, Not Likely to Adversely Affect*
- Chinook Salmon, Puget Sound ESU – *May Affect, Not Likely to Adversely Affect*
- Steelhead, Puget Sound DPS – *May Affect, Not Likely to Adversely Affect*

<u>Federally listed:</u>

- Humpback whale, Mexico DPS – *May Affect, Not Likely to Adversely Affect*
- Green Sturgeon, Southern DPS – *May Affect, Not Likely to Adversely Affect*
- Sunflower Sea Star – *May Affect, Not Likely to Adversely Affect*

<u>Vessel Presence and Noise</u>

The Proposed Action area already contains high levels of vessel traffic and human activity, particularly near Blaine, Washington, in the Blaine Marine Park and Point Roberts Marina (AccessAIS 2022). The commercial Dungeness crab fishery has a large harvest near Blaine and Point Roberts (Ecology 2021). The Port of Bellingham operates a large marina where there is a variety of recreational and commercial craft involved in fishing, sailing cruises, and whale watching tours. There are no Washington State Department of Transportation passenger ferry routes in the area, and no major cruise ships traverse the area. Outside of the vessel activity listed above, much of the cable laying route is not a major commercial vessel traffic area.

The cable laying vessel would operate for 2 to 6 days (including contingencies) for the Proposed Action. The cable laying operation would not increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed species for foraging or resting. There is the potential for underwater noise generated by the vessel itself, as well as the plow sled and plowshare burying the cable beneath the seafloor. Underwater noise generated by the vessel and plow sled may be higher than ambient in-water noise levels. However, due to the currents within the Proposed Action area and background ambient water noise, the subsequent sound pressure levels are not expected to result in significant impacts to ESA-listed species that may be present in the immediate vicinity at the time of cable installation. Potential cable recovery activities are expected to generate similar impacts as cable laying. For additional information on acoustic disturbance see Appendix B.

Reactions of marine mammals to vessel disturbance may include approach or deflection from the noise source, low-level avoidance or short-term vigilance behavior, or short-term masking of echolocation (used to navigate underwater) and acoustic communication among individuals. Behavioral reactions to vessels can vary depending on the type and speed of the vessel, the spatial relationship between the animal and the vessel, the species, and the behavior of the animal prior to exposure. Response also varies between individuals of the same species exposed to the same sound, depending on age and individual whales' past experiences. Vessels moving at slow speeds (e.g., less than 3 knots) and avoiding rapid changes in direction or engine speed may be tolerated by some whales. Other individuals may deflect around the vessel and continue their migratory path. These behaviors are not likely to result in significant disruption of normal behavioral patterns. Whales have been known to tolerate slow moving vessels within several hundred meters, especially when the vessel is not directed toward the animal and when there are no sudden changes in direction or engine speed (Wartzok et al. 1989; Richardson et al. 1995; Heide-Jørgensen et al. 2003).

Marine mammals are mobile species and agile within their medium (i.e., underwater). Mobile species can navigate highly trafficked waters and avoid disturbances; therefore, the cable laying vessel (moving less than 3 knots during cable installation and recovery procedures) would not result in any significant alterations in behavior by ESA-listed species.

Spills and leaks of hazardous materials, such as fuels and oils necessary for vessel operation could adversely affect marine fish and wildlife. The potential for an accidental spill or leak from vessels is negligible as the vessels would be undergoing normal operation for up to 6 days, and would be refueled, as needed, in accordance with standard protocols at marine refueling stations. The potential for marine HTMW releases would be further minimized through applicable regulations and BMPs, including requiring vessels to be equipped with spill containment and spill response kits, having a Vessel Response Plan consistent with the provisions of 33 CFR Part 155, and controlling the discharge of operational wastes (see Section 3.5.2.1 Best Management Practices).

Based on the possible presence of these species in the Proposed Action area, and in consideration of the potential vessel presence and acoustic disturbance, the determined impact of the Proposed Action on the ESA-listed species in the area are listed below:

State listed:

- Common Loon – *May Affect, Not Likely to Adversely Affect*

State and federally listed:

- Killer Whale, Southern Resident DPS – *May Affect, Not Likely to Adversely Affect*
- Humpback whale, Central America DPS – *May Affect, Not Likely to Adversely Affect*
- Bocaccio, Puget Sound-Georgia Basin DPS – *May Affect, Not Likely to Adversely Affect*
- Yelloweye Rockfish, Puget Sound-Georgia Basin DPS – *May Affect, Not Likely to Adversely Affect*
- Chinook Salmon, Puget Sound ESU – *May Affect, Not Likely to Adversely Affect*
- Steelhead, Puget Sound DPS – *May Affect, Not Likely to Adversely Affect*

Federally listed:

- Humpback whale, Mexico DPS – *May Affect, Not Likely to Adversely Affect*
- Green Sturgeon, Southern DPS – *May Affect, Not Likely to Adversely Affect*
- Sunflower Sea Star – *May Affect, Not Likely to Adversely Affect*

Additional information and discussion addressing impacts to ESA-listed species are provided in Appendix B.

Critical Habitat

Cable placement on the seafloor through potentially sensitive habitats (e.g., eelgrass) and cable burial along the proposed cable route would result in a temporary and localized increase in turbidity. Additionally, cable laying vessel operations would temporarily (for approximately 2 to 6 days) increase presence and noise levels. For additional discussion addressing specific critical habitat and the associated assessment for each element see Appendix B. The area in which the

Proposed Action would occur is designated critical habitat for southern resident killer whales, bocaccio, and chinook salmon. The project would not degrade water quality or alter long-term habitat conditions in the marine environment. As such, it is determined that the impacts of the Proposed Action on critical habitat would be:

- Killer Whale, Southern Resident DPS – *May Affect, Not Likely to Adversely Affect*
- Bocaccio, Puget Sound-Georgia Basin DPS – *May Affect, Not Likely to Adversely Affect*
- Chinook Salmon, Puget Sound ESU – *May Affect, Not Likely to Adversely Affect*

The Proposed Action is not likely to result in any adverse impact to these critical habitats and is not expected, either directly or indirectly, to appreciably reduce the likelihood of survival and recovery of these species in the wild by reducing the reproduction, numbers, or distribution of these species.

<u>Essential Fish Habitat</u>

Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual or cumulative consequences of actions (50 CFR 600.810). For this project, all the impacts of the Proposed Action have already been discussed in the ESA effects analysis and would also apply to EFH.

BMPs would be implemented to reduce or otherwise mitigate potential impacts. Once the cable is laid and operational, no impacts are expected, as the cable would not emit an electromagnetic field or present any triggers for behavior changes. As such, potential impacts from the Proposed Action would include habitat disturbance and a temporary increase in turbidity.

Project activities were assessed for impacts on EFH. Based on the Proposed Action and the associated minor and localized effects, the Proposed Action may impact designated EFH, but impacts would be temporary. The affected area is small, and the Proposed Action is not anticipated to prohibit movement of EFH species or to adversely affect their prey species in any measurable way.

The direct impacts on marine EFH from the installation and recovery of the cable would include a minor and temporary increase in turbidity where the cable contacts the seafloor substrate. The cable would be laid and buried in one step, which further minimizes environmental impacts (OSPAR 2012). A vast majority of the seafloor along the cable route is comprised primarily of soft sediment, avoiding rocky shoals and any deep-water habitat, and therefore mostly does not represent high-quality habitat. There is sensitive habitat present from about -0.6 to -2.4 m (-2 to -8 ft) below MLLW at the shoreside landing point. This HAPC could serve as habitat for Pacific Groundfish. For this segment of the cable installation, divers would very carefully move eelgrass to place the cable on the seafloor, taking care not to disturb the eelgrass beyond what is necessary for cable placement. Once in place, the cable is not anticipated to further disturb the sensitive habitat. For additional discussion addressing EFH see Appendix B.

Because the project installation and potential recovery activities are anticipated to be low impact and short in duration (approximately 2 to 6 days total), benthic communities of fish and other mobile organisms, if affected at all, are anticipated to quickly recolonize the area upon completion of installation and recovery. No impacts are anticipated for conitued operation or if portions of the cable are abandoned in place. Based on the small and narrow overall project footprint, implementation of BMPs to limit disturbance to species and habitat, as well as a lack of permanent impacts on EFH, it is concluded that the Project "*will not adversely affect"* EFH for Pacific Coast Groundfish or CPS and "*will adversely affect"* seagrass habitat, albeit only for a temporary and short time, during cable installation an potential recovery activities.

Commercial, Recreational, and Tribal Fishing and Fishery Management

The Proposed Action area is open to commercial, recreational, and tribal fishing throughout the year with various seasons and catch limitations. The Proposed Action area is located in Tidal reference area 9, marine area 7 (or 7A), and catch area 20A. In addition to managing or co-managing fisheries the state also applies certain work windows for saltwater areas to reduce the risk of impacts to fish life at sensitive life stages (WAC 220-660-330). In-water work is not allowed during critical periods of the year. For the Proposed Project in-water work windows will need to be followed for salmonids, bull trout, Pacific herring spawning, and potentially surf smelt and will be based on permits issued by the state, permitting is ongoing. There are also various commercial and subsistence tribal fishing windows for species including, but not limited to, sea urchin, sea cucumber, crab, salmon, and halibut. These fishing windows vary by year and DHS S&T is working with tribal fishing commissions to work around sensitive fishery openings to schedule cable installation and potential recovery activities.

Cable Operation

Once deployed, the cable is passive and would not emit heat, lights, sounds, or electromagnetic fields but rather would passively collect data from the surrounding waters. Because of the small diameter of the cable, it would take up a very small amount of area, less than 125 square m (410 square ft), thus minimizing any concerns about the introduction of an artificial hard substrate. There have been no reports of whale entanglement with submarine telegraphic cables since 1959 (Wood and Carter 2008). Any impacts on the surrounding environment would be considered negligible.

A common concern regarding cables is the potential sensitivity of elasmobranchs and other fishes, marine mammals, sea turtles, and invertebrates to anthropogenic EMF (Normandeau et al. 2011; CSA Ocean Sciences, Inc. and Exponent 2019). The cable system is unrepeatered, which means that it does not have repeaters or other electronics equipped on the cable to boost the transmission signal, requiring power to do so. The unrepeatered DHS S&T cable would have no power running through it; therefore, no EMF will be generated.

Cable Recovery

As described under cable laying, species that associate with the benthos as primary or foraging habitat or that migrate through the Proposed Action area may be affected temporarily by recovery activities through disruption of access to habitat near the recovery work caused by a temporary increase in turbidity and temporary disturbance as well as the potential for accidental spills of hazardous materials from vessel operations.

Best Management Practices

A series of BMP would be applied during the installation, operation, and decommissioning of the Proposed Action. These BMPs serve as mitigation measures to minimize the risk of harm to ESA-listed species for the Proposed Action. All workers associated with The Project, irrespective of their employment arrangement or affiliation (e.g., employee, contractor), would be fully briefed on these BMPs and the requirement to adhere to them for the duration of their involvement in this project. The BMPs that would be implemented include the following:

Vessel Operations

1. The cable laying vessel speed would be limited to 9 knots (4.6 m/sec.) or less during transit. Note, the vessel has a maximum speed of 10 knots (5.1 m/sec).

2. During cable laying operations, vessel speed would be reduced further to less than 2 to 3 knots (1.5 m/sec.).

3. To the extent it is practicable and safe, vessel operators would operate their vessel thrusters (both main drive and dynamic positioning) at the minimum power necessary to accomplish the work.

4. The only source of hazardous materials would be petroleum-based fuel and lubricating oil used in the operation of the cable ship during cable laying activities. The cable laying ship would have proper spill response materials and follow protocols for petroleum product spills or leaks.

5. Project-associated staff would properly secure all ropes, nets, and other materials that could blow or wash overboard.

6. Project-associated staff would cut all materials that form closed loops (e.g., plastic packing bands, rubber bands, and all other loops) prior to proper disposal in a closed and secured trash bin. All trash would be immediately placed in trash bins and trash bins would be properly secured with locked or secured lids that cannot blow open, preventing trash from entering the environment, thus reducing the risk of entanglement if waste enters marine waters.

Cable-Laying Operations

1. Placement of the cable would minimize impacts by avoiding protected areas and other ecologically important, valuable, and sensitive areas (e.g., avoidance of rocky outcrops, eelgrass beds, and macroalgae, per the marine survey) whenever possible.

2. The cable would be lowered to the seafloor in a slow and controlled manner. Procedures to bury the cable on the seafloor would be conducted in a manner to minimize sediment disturbance.

3. Where the cable laying operations occur within sensitive habitats, a team of divers would carefully guide the cable through. No cutting of eelgrass or kelp would occur.

4. Known anchorages would be avoided along the cable route.

Cable Operations

1. When the cable is recovered, some portions may be left in place to reduce disturbance to sensitive habitats (e.g., eelgrasses).

2. Personnel on the cable laying vessel would be instructed to observe wildlife. The following actions should be taken if marine mammals are sighted:

3. Vessels should maintain a minimum distance of approximately 100 m (330 ft) from the sighting location, when feasible.

4. Vessels would not be permitted to cross directly in front of, or intersect the path of, any sighted marine mammals.

5. If a large marine mammal (e.g., a whale) passes along the ship, the vessel operator would maintain a steady heading and constant speed that is not faster than the sighted individual's speed.

6. If sighted marine mammals demonstrate defensive or disturbed actions, the vessel would slow or be taken out of gear until the animal calms and/or moves a safe distance away from the vessel.

7. If an ESA-listed pinniped comes within approximately 100 m (330 ft) of the vessel during cable installation, onboard personnel may modify vessel operations until the animal moves safely out of the area and remains unobserved for 30 minutes.

8. If an ESA-listed whale comes within approximately 2.15 m (7 ft) of the vessel during cable installation, onboard personnel may modify vessel operations until the animal moves safely out of the area and remains unobserved for 30 minutes.

9. In the highly unlikely event of a vessel strike with a marine mammal, the vessel operator would follow the project's incident reporting procedures (see Appendix B).

Therefore, the Proposed Action would have *direct, short-term, negligible, adverse impacts* to federally listed species during cable installation; *direct, short-term, negligible, adverse impacts* to critical habitat during cable installation; *direct, short-term, negligible, adverse impacts* to Pacific Coast Groundfish and CPS, and would have *direct, short-term, minor, adverse impacts* to seagrass habitat during cable installation; *less than significant to no impact* on fishing and fishery management. Overall, during cable installation and recovery activities, the Proposed Action would have a *direct, short-term, minor, adverse impact* on Biological Resources, and *no impact* during cable operations.

3.5.2.2 No-Action Alternative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* to Biological Resources.

3.6 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Socioeconomics refers to the basic attributes and resources associated with the human environment, particularly the demographic and economic characteristics of an area and its population. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these socioeconomic indicators typically result in changes to additional indicators, such as housing availability and the provision of public services. Socioeconomic data at local, county, regional, and state levels enable characterization of baseline local conditions in the context of regional and state trends. The U.S. Census Bureau's American Community Survey provides a variety of demographic data, including population numbers, employment, labor characteristics, income, and race and ethnicity.

Environmental Justice (EJ) is a term used to describe the fair and equitable treatment of minority communities and low-income communities with regard to federally funded projects and activities. Fair treatment means that no population should be forced to shoulder a disproportionately adverse and high share of negative environmental effects. Fair treatment also includes meaningful involvement and opportunities for communities to participate in the decision-making process.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* was enacted in 1994 to focus federal agencies' attention on the environmental and human health conditions in minority communities and low-income communities with the goal of achieving environmental protection for all. In April 2023, President Biden issued EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, which established additional requirements for federal agencies related to EJ. Under this EO, federal agencies must identify, analyze, and address disproportionate and adverse human health and environmental effects (including risks) and hazards of federal activities on communities with EJ concerns. Identification of EJ communities includes characteristics such as income, race, color, national origin, tribal affiliation, or disability for populations in the vicinity of a proposed action.

3.6.1 Affected Environment

Socioeconomics: The Proposed Action involves a temporary 2 to 6-day event (including weather windows). Expenditures for DHS staff or contractors on-site during cable installation or recovery may be for amenities (food, lodging, fuel) in the local area and would likely be less than $25,000. This expenditure level would not impact economic trends at local or regional levels. The cable installation, operation, and recovery would not require relocation of populations into or from the area and, therefore, would not induce changes in populations, housing, or demands for public services at local or regional levels.

Environmental Justice: The EPA Environmental Justice data (EJScreen) Demographic Index, which is a combination of percent low-income and percent minority, the two demographic factors that were explicitly named in EO 12898 on Environmental Justice, was used to identify EJ communities in the vicinity. The block group including the potential shoreside landing portion of the cable route has a demographic index of less than 60%. The next closest block group has a demographic index of 62%.

DHS S&T also used the Climate and Economic Justice Screening Tool (CEJST) which shows information about the burdens that communities experience. It uses datasets to identify indicators of burdens. The tool shows these burdens in census tracts. A community is considered to be disadvantaged if they are located within a census tract that meets the tool's methodology or are on land within the boundaries of federally recognized tribes.

A review of the CEJST defines this tract as not disadvantaged. It does not meet any burden thresholds or socioeconomic thresholds.

Protection of Children: EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997; as amended by EO 13296), directs federal agencies, to the extent permitted by law and appropriate, to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks. Children (youths) are defined as populations 16 years of age or younger.

3.6.2 Environmental Consequences

Significant impacts would occur if there would be substantial changes to the employment, population, or housing availability; if EJ communities would be subject to disproportionate and adverse impacts; or if products or substances through contact, ingestion, exposure, use or other methods could disproportionately affect children's health and safety.

The Proposed Action would not result in any changes to employment, population, or housing availability; therefore, there would be no potential for adverse impacts to socioeconomic conditions in local communities. Therefore, socioeconomics is dismissed from further analysis.

The installation or presence of the cable would not present a hazard to children because temporary access restrictions would be placed on recreational boating, fishing, and diving in the immediate area surrounding active cable deployment activities as needed. The cable would be inert—not emit any heat, light, sound, or electromagnetic fields—and would not present a hazard to children during operation. Therefore, protection of children is dismissed from further analysis.

3.6.2.1 Preferred Alternative

Environmental Justice: The Proposed Action area is not considered an EJ community of concern or disadvantaged, nor does it meet any burden thresholds or socioeconomic thresholds. As the Proposed Action area is located within various Tribes' usual and accustomed fishing areas, Tribal consultations are ongoing. At this time, both the *short-term or long-term impacts* on Environmental Justice are anticipated to be *less-than-significant*. Once tribal consultations have been completed, a final impact determination will be made.

3.6.2.2 No Action Alternative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* to socioeconomics, EJ, or protection of children.

3.7 RECREATION

This section describes existing recreational resources within or adjacent to the Proposed Action area and evaluates impacts of the Proposed Action on recreational resources. Recreational resources include national, state, and local parks, beaches or trails that could be affected by the Proposed Action. Factors to be considered include changes in the demand for, or availability or quality of, the recreational resources potentially affected by the Proposed Action. Recreational resources include areas within or adjacent to the Proposed Action area.

3.7.1 Affected Environment

The recreational resources within the Proposed Action area include the waters of the Strait of Georgia and Semiahmoo Bay. Two state parks—Birch Bay State Park and Peace Arch Historical State Park—are located near (but not within) the Proposed Action area although no recreational activities will be impacted in either. The primary source of recreational activities is the water, including boating and fishing. There are several marinas around the Proposed Action area, boat traffic provides access to recreational boating, diving, or sport fishing.

3.7.2 Environmental Consequences

A significant adverse impact on recreation would occur if cable laying or recovery activities permanently interfere with established recreational opportunities.

3.7.2.1 Preferred Alternative

Temporary access restrictions would be placed on recreational boating, fishing, and diving in the immediate area surrounding active cable laying or removal activities as needed. Within the vicinity of cable-laying activities, a suitable buffer zone around the cable-laying operations would be enforced for up to six days during which this activity is anticipated to occur. However, this impact would be negligible in the context of Puget Sound as other vessel traffic would be expected to easily avoid or maneuver around the buffer zone. The quality of recreational resources may slightly decrease, primarily due to potential noise disturbance; however, it would return to existing conditions following the completion of cable installation or recovery activities. Any limitation or restrictions to recreational activities would not exceed six days in duration; therefore, there would be *short-term, negligible adverse impacts* to recreational activities during cable laying and recovery operations, and *no long-term or ongoing impacts*.

3.7.2.2 No-Action Alternative

Under the No-Action Alternative, the proposed project would not proceed; therefore, there would be *no impact* to recreation.

4.0 CUMULATIVE IMPACTS

This section analyzes the impact to the human environment which results from the incremental impact of the Proposed Action and No-Action Alternative when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. These cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

4.1 PREFERRED ALTERNATIVE

The impacts on the environment that would result from the incremental impact of the Proposed Action, when added to other past, present, and reasonably foreseeable future actions, have been considered. No significant direct or indirect effects were identified on the resources discussed in Chapter 3.0. Proposed activities would be short-term and less than significant. Given the type and duration of the Proposed Action activities and based on the information presented in this EA, the Proposed Action would not result in significant cumulative effects when considered with other recent past, ongoing, or reasonably foreseeable future actions.

Submarine communication cables have been used successfully throughout the Salish Sea and Puget Sound for at least the past 25 years, including the AmeriCan-1 that was laid in 1999 (TeleGeography 2024). AmeriCan-1 originates in Point Roberts, Washington, and runs south for 140 km (87 mi) with landings in Canada (Cordova Bay and Esquimalt, British Columbia) and the United States (Oak Harbor and Seattle, Washington). The AmeriCan-1 cable was still in service as of May 2023 (NASCA 2023). In the summer of 2023, a grant was awarded by the National Telecommunications and Information Administration to Whidbey Telephone Company. This grant will support the Point Roberts Middle Mile Infrastructure project providing funding for the construction, improvement, and acquisition of broadband infrastructure (NTIA 2023). The project includes 101.5 km (63.1 mi) of undersea cable that will run south from Point Roberts, Washington, and then southeast. Impacts to the environment from these cables are expected to be similar to those described for the Proposed Action. However, cumulative impacts from cable operations and the Proposed Action would be temporary and negligible in the context of the Puget Sound.

Development patterns in the Proposed Action area have the potential to impact Biological Resources, as natural wildlife habitat area decreases or becomes fragmented over time. NOAA Fisheries analyzed activities that are expected to occur within the Proposed Action area in its Salish Sea Programmatic Biological Opinion (2022). While, this Biological Opinion does not cover the activities proposed, it does describe the current environmental status of species that would also be affected by the Proposed Action and provides measures that would be beneficial to the conservation of the federally listed species in the area. Most of these activities would have also been analyzed using similar environmental review and permitting processes as the subject Project, such as NEPA, ESA, and EFH. DHS S&T would implement measures to minimize impacts on biological resources, and the other activities in Proposed Action area are also expected to implement measures that would be beneficial to the conservation of species in the area.

Wildlife requiring specific habitat resources may experience continued stress as suitable habitat becomes harder to find. However, such pressures are independent of the Proposed Action and therefore will likely continue over time. The Proposed Action may increase such pressure slightly during the installation process on aquatic wildlife. However, as noted in this EA, the impacts from the Proposed Action are short term and less than significant. Further, the Proposed Action does not require development, land disturbance, or loss of habitat. Accordingly, the Proposed Action would not contribute to cumulative adverse impacts on Biological Resources.

4.2 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the Proposed Action would not occur; therefore, there would be *no cumulative impacts*.

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6.0 LIST OF PREPARERS

Department of Homeland Security

Name & Affiliation	Education/Experience	Function or Expertise
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Pacific Northwest National Laboratory

Name & Affiliation	Education/Experience	Function or Expertise
Rebecka Bence	M.S. Hydrogeology and Water Management B.S. Earth and Environmental Science 6+ years of relevant experience	Air Quality and Climate Change Geology, Topography, Soils Water Resources
Ioana Bociu	M.S. Chemical Oceanography B.S. Environmental Science B.S. International Affairs 14 years of relevant experience	Agency Biological Consultations Biological Assessments Environmental Permits
Cyler Conrad	Ph.D. Anthropology (Archaeology) M.A. Anthropology (Archaeology) B.A. Anthropology 13 years of relevant experience	Cultural and Historic Resources
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Hayley McClendon	B.S. Environmental Science 8 years of relevant experience	References
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Name & Affiliation	Education/Experience	Function or Expertise
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APPENDIX A: SECTION 106 CONSULTATION AND CONSULTATION WITH TRIBAL NATIONS

Consultation with DAHP and the Tribes is ongoing, and communications will be included in the Final EA as appropriate.

Section 106 Consultation and Responses Received

Notified Party	Form of Consultation	Date Sent	Initial Response Received
Lummi Nation	NEPA EA: Scoping and invitation to consult	November 15, 2023	December 22, 2023
Nooksack Indian Tribe	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Samish Indian Nation	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Suquamish Tribe	NEPA EA: Scoping and invitation to consult	November 15, 2023	December 22, 2023
Swinomish Indian Tribal Community	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Northwest Indian Fisheries Commission	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
Northwest Tribal Emergency Management Council	NEPA EA: Scoping and invitation to consult	November 15, 2023	N/A
DAHP (SHPO)	Section 106: APE notification	February 21, 2024	February 22, 2024
Lummi Nation	Section 106: APE notification	February 21, 2024	N/A
Nooksack Indian Tribe	Section 106: APE notification	February 21, 2024	N/A
Samish Indian Nation	Section 106: APE notification	February 21, 2024	N/A
Suquamish Tribe	Section 106: APE notification	February 21, 2024	February 20, 2024 (DHS emailed separately during staff-to-staff conversations)
Swinomish Indian Tribal Community	Section 106: APE notification	February 21, 2024	N/A
US Army Corps of Engineers	Section 106: APE notification	February 21, 2024	N/A
DAHP (SHPO)	Draft Section 106 Report notification	Expected May 8, 2024	-
Lummi Nation	Draft Section 106 Report notification	Expected May 8, 2024	-
Nooksack Indian Tribe	Draft Section 106 Report notification	Expected May 8, 2024	-
Samish Indian Nation	Draft Section 106 Report notification	Expected May 8, 2024	-
Suquamish Tribe	Draft Section 106 Report notification	Expected May 8, 2024	-
Swinomish Indian Tribal Community	Draft Section 106 Report notification	Expected May 8, 2024	-
Sauk-Suiattle Indian Tribe	Draft Section 106 Report notification	Expected May 8, 2024	-
Snoqualmie Indian Tribe	Draft Section 106 Report notification	Expected May 8, 2024	-
Upper Skagit Indian Tribe	Draft Section 106 Report notification	Expected May 8, 2024	-
US Army Corps of Engineers	Draft Section 106 Report notification	Expected May 8, 2024	-

* The DAHP concurred with the APE on February 22, 2024

EXAMPLE NEPA EA: Scoping and Invitation to Consult Letter

U.S. Department of Homeland Security
Washington, DC

Science and Technology

[Address Block]

Dear Sir or Madam:

The U.S. Department of Homeland Security (DHS) is committed to using cutting-edge technologies and providing scientific expertise in its quest to make America safer. As such, the Science & Technology Directorate (S&T) is proposing to deploy a submerged cable in the Strait of Georgia and Semiahmoo Bay in Washington State, near the Northern Border with Canada. (Proposed Action) This activity will be completed under a project titled Maritime Environmental Data Sampling System (MEDSS). The area of this project is located on several Tribes' historic usual and accustomed fishing areas. We recognize the sovereignty of Tribal Nations and support the nation-to-nation relationship between sovereign Indian Tribes and the United States.

DHS S&T would like to offer the opportunity to consult with the Swinomish Indian Tribal Community on this project. I invite your responses by December 22, 2023.

Project Overview:

DHS S&T's mission is to enable effective, efficient, and secure operations across all homeland security missions by applying scientific, engineering, analytic, and innovative approaches to deliver timely solutions for the Homeland Security Enterprise.

DHS S&T requires maritime environmental monitoring capabilities in the coastal and intercostal waterways under the jurisdiction of the United States, and out to the limits of our Economic Enforcement Zone (up to 200 nautical miles). S&T intends to emplace a cable on the seabed to assess new methods of conducting maritime monitoring. It will remain in place for 3-24 months before being retrieved, disconnected and abandoned in place, or transferred to a Component of DHS. The cable, with an outside diameter of 20 to 50 millimeter (mm), will be approximately 10 to 30 kilometers (km) in length and be connected to a shoreside facility to be determined. The cable will not emit energy, heat, or sound but rather will passively collect data from the surrounding waters. The cable study is targeted to be deployed in the second half of 2024.

Therefore, the purpose of the Proposed Action is to assess the advances of sensor technology to increase maritime domain awareness capabilities that may be applicable to rest of the United States. The Proposed Action is needed to assess the capability of the cable sensor system.
Without the implementation of the Proposed Action (i.e., No Action Alternative), S&T would not be able to assess the performance of the system to meet mission needs for maritime environmental monitoring capabilities.

Project Area:

The cable will be laid along the seafloor or slightly buried, depending on the bottom sediments. It will originate at a facility to be determined and run for 10 to 30 km in the vicinity of the United States and Canada maritime border. The exact cable route will be determined after bathymetric (ocean depth) surveys identify any potential obstacles or submerged objects. There may also be a need for protective measures at the point of the shoreside landing.

Invitation to Consult:

We value your history, culture, and experience in this area and would appreciate any input to help us identify any potential Tribal treaty impacts this project may have. DHS S&T wishes to invite you to formally consult for the Proposed Action, in accordance with 36 Code of Federal Regulations (CFR) 800.3, Section 106 of the National Historic Preservation Act of 1966 (NHPA), and Executive Order 13175, Consultation and Coordination with Indian Tribal Governments. Email responses are preferred.

The lead Tribal Consultation Official for this project is Joe Campillo. You can contact him at MEDSS_EA@hq.dhs.gov for additional information and to schedule the initial consultation meeting, if needed.

Sincerely,

Joe Campillo
Project Manager / General Engineer

EXAMPLE LETTER: Area of Potential Effect Notification of DHS S&T Proposed Undertaking – Maritime Environmental Data Sampling System (MEDSS), Blaine, WA

Science and Technology

[Address Block]

SUBJECT: Area of Potential Effect Notification of DHS S&T Proposed Undertaking – Maritime Environmental Data Sampling System (MEDSS), Blaine, WA

Dear Sir or Madam:

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is initiating consultation with the Washington Department of Archaeology and Historic Preservation (DAHP) in accordance with 36 C.F.R. § 800 regarding the deployment of a submerged cable west of Blaine, WA in Whatcom County, WA. This letter serves as the Area of Potential Effect (APE) notification for the undertaking.

Description of the Undertaking

DHS S&T requires technology assessments for maritime environmental monitoring capabilities. DHS S&T is proposing to deploy, operate, and retrieve a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern border with Canada, under a research project titled Maritime Environmental Data Sampling System (MEDSS). The purpose of the undertaking is to assess the advances of sensor technology to increase maritime domain awareness and emergency response capabilities that may be applicable to rest of United States. The undertaking is needed to assess the capability and performance of the cable sensor system.

DHS S&T would conduct the pilot project in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State, near the northern border with Canada. The cable, with an outside diameter of 4.42 millimeter (mm, 0.174 inches), would originate at the Blaine Port of Entry facility in Blaine, WA in existing space to house equipment and run for 10 to 30 kilometers (km) in the Strait of Georgia, west of Blaine and east of Point Roberts (Figures 1 and 2). The cable would be shallow buried (no more than six inches) along most of the route except in sensitive habitats (e.g., eelgrass beds) where the cable will be placed on the seafloor by divers. A deadweight anchor will be used at the end of the cable to secure it in place. The cable will not emit energy, heat, or sound but rather will passively collect maritime environmental data from the surrounding waters.

The cable pilot study is targeted for deployment in the second half of 2024. The cable will remain in place for 3-24 months before being either retrieved, disconnected and abandoned in place, or transferred to another Component of DHS to use for the life of the cable (~25 years).

Project Location

The project will be implemented at the Strait of Georgia and Semiahmoo Bay, west of Blaine and east of Point Roberts in Whatcom County, WA. The project is closest to Townships 39, 40, and 41N, Range 1E, and Sections 2, 15, 18, 21, and 36 in Blaine and Townships 40N, Range 3W, Sections 9-12 for Point Roberts. A site location map is included as Attachments 1 and 2.

Area of Potential Effect

Per NHPA Sections § 800.4(a)(1) and § 800.16(d), DHS S&T has defined the APE for the undertaking as the proposed location: within the Strait of Georgia and bounded by the U.S. / Canada border on the north, west to Point Roberts, south to the U.S. / Canada border, and east to Blaine, WA. The total acreage for the APE is 57,785 acres (23, 384 hectares).

Preliminary Identification of Historic Resources

Archaeologist Lindsey Y. Renaud, MA, RPA, who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology conducted a review of the Washington Information System for Architectural and Archaeological Records Data (WISAARD) database for information on historic properties within the proposed APE. Approximately 92 previously recorded historic buildings and 41 archaeological sites are within one mile of the APE. This includes two National Register of Historic Places (NRHP)-listed properties, *Si'ke Village within the historic area called Tsi'lich* and *Chelhtenem.* A more detailed discussion of previous surveys and associated archaeological sites/historic properties identified will be discussed in the forthcoming Section 106 review.

The project is on WISAARD under #2024-02-00966. Results from the Section 106 review will also be incorporated into the National Environmental Policy Act (NEPA) Environmental Assessment (EA) DHS is preparing for the same project. Representatives from DHS S&T will be in Blaine the week of February 26th to visit the project area. Should you need additional information or would like to attend the site visit, please do not hesitate to contact me via email at MEDSS_EA@hq.dhs.gov.

Joe Campillo
Project Manager / General Engineer

Enclosures
Figure 1. Topographic map of APE location
Figure 2. Aerial map of APE location

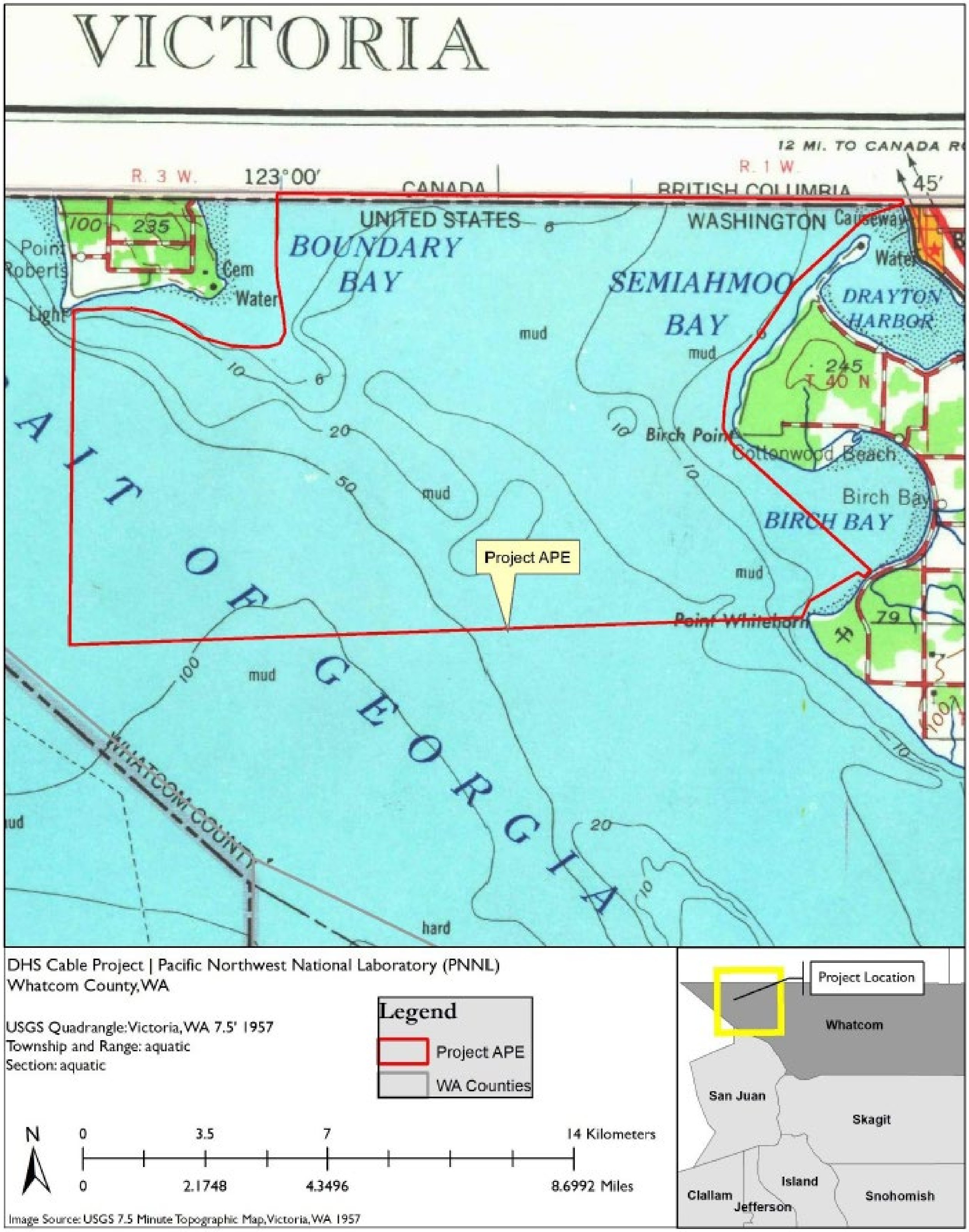

Figure 1. Project location-USGS topographic map.

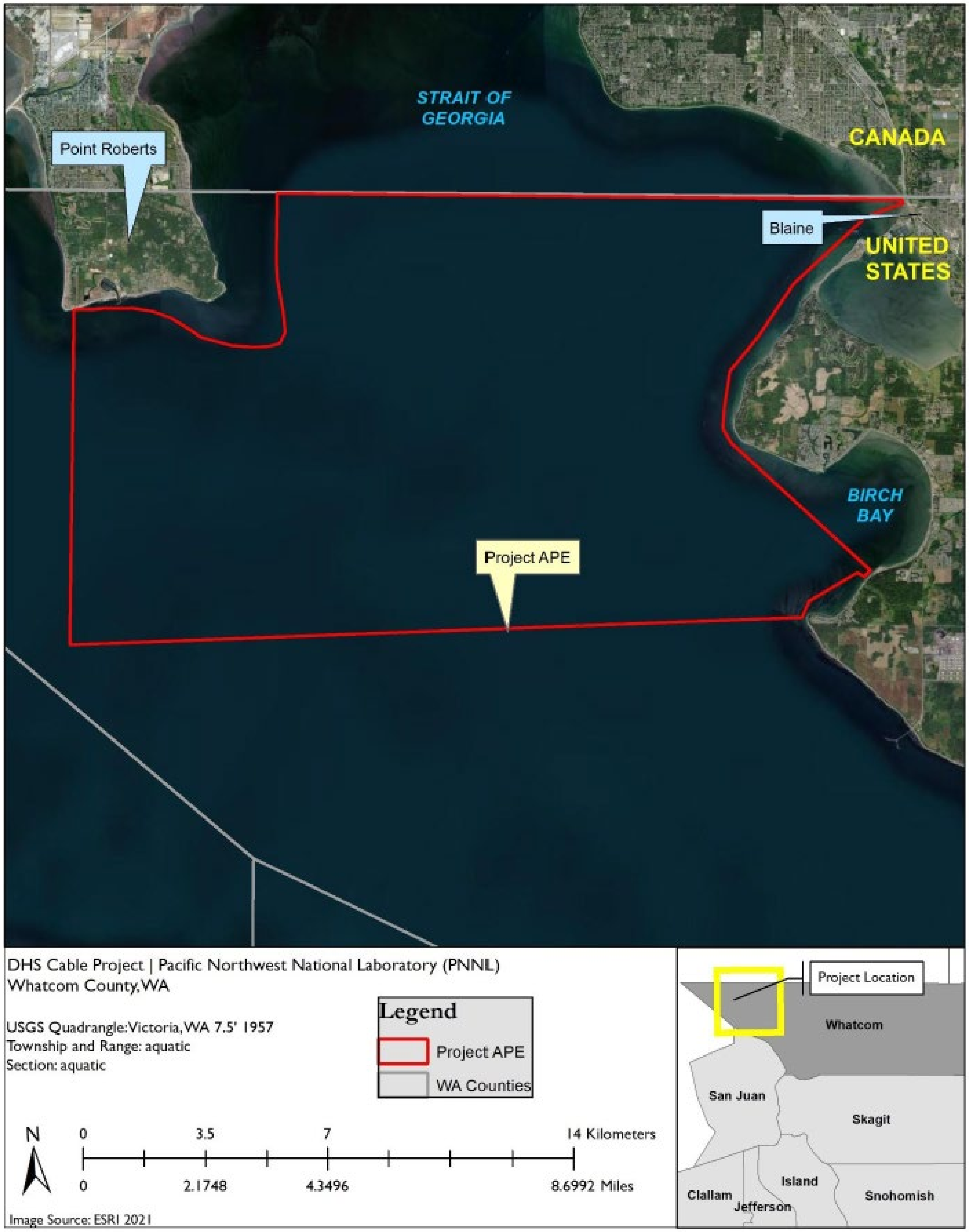

Figure 2. Project location-aerial map.

EXAMPLE LETTER: DHS S&T Proposed Undertaking – transmittal of Draft Section 106 Report, Maritime Environmental Data Sampling System (MEDSS), Blaine, WA

U.S. Department of Homeland Security
Washington, DC

Science and Technology

[Address Block]

SUBJECT: DHS S&T Proposed Undertaking – transmittal of Draft Section 106 Report, Maritime Environmental Data Sampling System (MEDSS), Blaine, WA

Dear Sir or Madam:
The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is notifying your office that the draft Section 106 report for the proposed undertaking, Maritime Environmental Data Sampling System (MEDSS), has been uploaded to WISAARD under project # 2024-02-00966.

DHS S&T is proposing to deploy, operate, and retrieve a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern border with Canada, under the research project MEDDS. The purpose of the undertaking is to assess the advances of sensor technology to increase maritime domain awareness and emergency response capabilities that may be applicable to rest of United States. The undertaking is needed to assess the capability and performance of the cable sensor system.

The DHS S&T has determined that the proposed undertaking would result in a finding of No Historic Properties Affected, as defined in 36 CFR 800.4 (d)(1). Preliminary results from the Section 106 review have been incorporated into the National Environmental Policy Act (NEPA) Environmental Assessment (EA) DHS is preparing for the same project. The draft EA will be published around May 8, 2024.

DHS S&T appreciates receiving comments that you may have about the draft report within the next 30 calendar days following the date of this letter. Should you need additional information, please do not hesitate to contact me via email at MEDSS_EA@hq.dhs.gov.

Sincerely,

Joe Campillo
Project Manager / General Engineer

APPENDIX B: REGULATORY CORRESPONDENCE

B.1 COASTAL ZONE MANAGEMENT ACT FEDERAL CONSISTENCY DETERMINATION

Consultation with Washington State Department of Ecology is ongoing and communications will be included in the FINAL EA, as appropriate.

AGENCY USE ONLY

Date Received:
Aquatics ID#:
County:
Team:

Certification of Consistency with the Washington State Coastal Zone Management Program for Activities Requiring a Federal License or Permit

Washington State Department of Ecology
Email: fedconsistency@ecy.wa.gov

Why is this Certification of Consistency Required?
The federal Coastal Zone Management Act (CZMA) authorizes states to review federal actions for consistency with the federally approved enforceable policies of state coastal management programs. The issuance of federal licenses and permits are federal actions that are subject to state review where those licenses and permits have been listed by the state as subject to review. Listed federal license or permit activities under Washington's Coastal Zone Management (CZM) Program are found on the Office for Coastal Management's website. Applicants for listed authorizations in the State's coastal zone[1] must show that the proposed activity is consistent with the enforceable policies found in four state laws and their implementing regulations (the Shoreline Management Act, Clean Air Act, Water Pollution Control Act, and Ocean Resources Management Act (ORMA)), and in the Marine Spatial Plan for Washington's Pacific Coast (MSP). Examples of federal permits and licenses include U.S. Army Corps of Engineers (Corps) permits, Federal Energy Regulatory Commission (FERC) licenses, and U.S. Coast Guard bridge permits. A federal agency cannot issue a permit or license unless the Department of Ecology (Ecology) concurs that the project is consistent with Washington's enforceable policies. If the state issues a CZMA objection to a proposed federal license or permit activity, the federal agency cannot authorize the activity unless the state removes its objection or the U.S. Secretary of Commerce overrides the state objection in an appeal filed by the applicant.

The requirements for CZMA federal consistency reviews are found at 16 U.S.C. § 1456 (Section 307 of the CZMA) and the Federal Consistency regulations at 15 CFR part 930. The specific rules for the review of federal licenses and permits are found at 15 CFR part 930, subpart D. Ecology has prepared this form to help applicants demonstrate consistency with the State's CZM Program.

Next Steps:
For projects that need a Corps permit, please submit the form and supporting materials as described below to the Corps at NWS-PermitApp@usace.army.mil and it will be forwarded to Ecology for review. For projects that need other types of federal permits or licenses, please submit the form and supporting materials to fedconsistency@ecy.wa.gov.

Along with this form, please submit the following:

- A copy of the application for federal permit or license,
- Project location map,
- Site plans, and
- Supporting documentation as identified below under the enforceable policies.

Note: For projects on Washington's Pacific Coast, if ORMA and/or the MSP apply, an ORMA analysis or MSP Effects Evaluation must be included with your consistency certification; this may take considerable time to prepare.

[1] The Coastal Zone includes all areas of the following counties: Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum, and Whatcom.

Ecology will then:

- Review your Certification of Consistency to make a Federal Consistency decision for the project.
- Publish a public notice (or this may be published by the applicable federal agency).
- Contact you if further information is needed.

Ecology has six months from receipt of the consistency certification package to issue a decision (concurrence, concurrence with conditions, or objection). If Ecology does not act within six months, the activity is presumed to be consistent with the CZM program. If additional time is needed, Ecology may contact you regarding a 'stay' of this date.

Note: Ecology cannot issue a concurrence until all of the applicable permits/authorizations are received.

For More Information:
Ecology's Federal Consistency Webpage: Coastal zone management federal consistency review

I. Identify the Applicable Federal License or Permit

Federal Agency: ☐ Corps ☐ USCG ☐ FERC ☐ Other	Federal Permit/License Number (if known): Federal Agency Point of Contact:

II. Project Information

Project Name:		
Project Location (Note: Please attach a project location map and site plans with this form)		
Address: (If there is no address, provide other location information)	City:	County:
Land ownership (check all that apply): ☐ Private ☐ State ☐ Federal ☐ Tribal ☐ Other:		
Waterbody that the project is in or has the potential to affect:		WRIA Number:
Detailed description of the proposed activity, its associated facilities, and effects to coastal resources and uses:		
Has tribal consultation been initiated?	☐ Yes ☐ No	
Has local government review or consultation been initiated?	☐ Yes ☐ No	

III. Enforceable Policies

State Shoreline Management Act (SMA)	
Is the proposed project within shoreline jurisdiction? ☐ Yes ☐ No (**If unknown**, check with the local jurisdiction. **If no**, then skip the remainder of this section.)	
Does the proposed project require a shoreline permit/authorization? ☐ Yes ☐ No (**If no**, then skip the remainder of this section)	

Name of local jurisdiction(s) processing shoreline permit/authorization:	
Applied for or received permit/authorization: ☐ Shoreline permit exemption ☐ Shoreline Substantial Development Permit (SDP) ☐ Shoreline Conditional Use Permit (CUP) ☐ Shoreline Variance	Local jurisdiction permit number(s): Local jurisdiction issuance date(s): Ecology permit filing number: Ecology date of filing (SDP/CUP/Variance):
State Clean Air Act (CAA)	
Did you contact the local air agency to determine whether a CAA permit is required? ☐ Yes ☐ No	
Does the proposed project require a CAA permit? ☐ Yes ☐ No (**If unknown**, check with the local clean air agency. **If no**, then skip the remainder of this section.)	
Name of local air authority processing CAA permit:	
☐ Applied for air permit - Date submitted: (please attach copy of application package)	Notice of Construction (NOC) number:
☐ Received air permit - Date issued:	Permit number:
State Water Pollution Control Act (WPCA)	
Section 401 Water Quality Certification (WQC)	
Does the proposed project require a WQC? ☐ Yes ☐ No (**If unknown**, see Ecology's 401 web page. **If no**, then skip the remainder of this section.)	
☐ Applied for WQC - Date submitted:	☐ Ecology ☐ Tribe: ☐ U.S. Environmental Protection Agency (EPA)
☐ Received WQC - Date issued:	WQC number:
Section 402 National Pollutant Discharge Elimination System (NPDES) Permit	
Does the project proposal require an NPDES permit? ☐ Yes ☐ No (**If unknown**, see Ecology's Stormwater Permit web page. **If no**, then skip the remainder of this section.)	
Applied for NPDES permit: ☐ General Permit: ☐ Construction Stormwater General Permit ☐ Industrial Stormwater General Permit ☐ Other: ☐ Individual Permit:	☐ Ecology ☐ EPA Notice of Intent (NOI) number: Date submitted:
☐ Received NPDES permit coverage	Permit number: Date issued:
Ocean Resources Management Act (ORMA)	
Does ORMA apply? ☐ Yes ☐ No (**If unknown**, see ORMA Guidance. **If no**, then skip the remainder of this section.)	
If ORMA applies, then attach an analysis demonstrating consistency with ORMA's enforceable policies as suggested in the ORMA Guidance. ☐ Analysis is attached Note: This analysis must be attached to the Consistency Certification unless the MSP applies.	
Marine Spatial Plan (MSP) for Washington's Pacific Coast	
Does ORMA apply? (see above) ☐ Yes ☐ No (**If no**, then MSP does not apply; skip the remainder of this section)	
Does MSP apply? (see) ☐ Yes ☐ No (**If unknown**, see MSP Guidance. **If no**, then skip the remainder of this section.)	
If MSP applies, has an MSP Effects Evaluation as described in the MSP Guidance been completed? ☐ MSP Effects Evaluation is attached Note: If an MSP Effects Evaluation has not been completed, it must be submitted early in the review process in order for the state to concur with the proposed action. Failure to do so may result in the issuance of an objection to the project for lack of information. The MSP Effects Evaluation may be submitted in lieu of the ORMA analysis.	

IV. Applicant & Agent Information

Applicant Name:			
Organization:			
Mailing Address:	City:	State:	Zip:
Phone #:	E-Mail:		
Agent Name:			
Organization:			
Mailing Address:	City:	State:	Zip:
Phone #:	E-Mail:		

V. Certification Statement:

By digitally signing below, I certify that the proposed activity complies with the enforceable policies of Washington's approved management program and will be conducted in a manner consistent with such program.

Applicant Signature Date

Print Name

B.2 ENDANGERED SPECIES ACT SECTION 7 CONSULTATIONS

U.S. Department of Homeland Security
Washington, DC

May 3, 2024

Science and Technology

Mr. Curtis D. Tanner
U.S. Fish and Wildlife Service
Coastal, Lowland Aquatic, and Marine Zone
Lacey, WA 98503
washingtonfwo@fws.gov

Dear Mr. Tanner:

Enclosed for your review is a Biological Assessment (BA) for the U.S. Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) proposal to deploy, operate, and recover a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern border with Canada, under a research project titled Maritime Environmental Data Sampling System (MEDSS). The purpose of the project is to assess the advances of sensor technology to increase maritime domain awareness that may be applicable to rest of United States.

In accordance with Section 7(a)(2) of the Endangered Species Act (ESA), DHS requests informal consultation with the enclosed BA for the project. For all listed species under ESA, DHS has determined that the proposed activities as a whole **may affect but are not likely to adversely affect** ESA listed species and Critical Habitat in the Action Area. The BA outlines management and conservation measures that would be enacted to minimize any potential adverse impacts.

If you or your staff have any questions or concerns, please contact Holly Bisbee, DHS NEPA Program Lead, holly.bisbee@hq.dhs.gov. If your staff have technical questions regarding the project scope or the evaluation of potential impacts on protected species and/or habitats, please contact Ioana Bociu, PNNL Environmental Management Professional (360) 582-2564.

Respectfully,

JOE A CAMPILLO

Digitally signed by JOE A CAMPILLO
Date: 2024.05.03 12:52:18 -04'00'

Joe Campillo
Project Manager / General Engineer

CC: MEDSS_EA <MEDSS_EA@hq.dhs.gov>

BCC:Ioana.bociu@pnnl.gov

Department of Homeland Security Maritime Cable Installation in Northern Washington State

Biological Assessment

03 May 2024

Prepared for:

Science & Technology

Prepared by:

48 North Solutions, Inc.

Local Technical Support by:

Pacific Northwest National Laboratory

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Acronyms and Abbreviations

BA	Biological Assessment
BC	British Columbia
BMP	Best Management Practice
CFR	Code of Federal Regulations
CHU	critical habitat unit
Councils	regional fishery management councils
CPHC	Canadian Pacific Humpback Association
dB	decibel
DGPS	Differential Global Positioning System
DHS	U.S. Department of Homeland Security
DNR	Washington State Department of Natural Resources
DP	Dynamic Positioning
EEZ	Exclusive Economic Zone
EMF	electromagnetic field
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
ft.	foot/feet
hp	horsepower
HPAH	high molecular weight polycyclic aromatic hydrocarbons
HUC6	Hydrologic Unit Boundary, 6th Level
Hz	Hertz
in.	inch(es)
khz	kilohertz
km	kilometer(s)
kW	kilowatt
m	meter(s)
mm	millimeter(s)
mi.	mile(s)
MBES	Multi-beam Echosounder
MLLW	Mean Lower Low Water
NLTAA	Not Likely to Adversely Affect
NM	nautical mile(s)
NMFS	National Oceanic and Atmospheric Administration's Nation Marine Fisheries Service; also, *NOAA Fisheries*
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service; also, *NMFS*
OSPAR	Oslo and Paris Conventions Commission
PBF	physical or biological features; also, *PCE*
PCE	Primary Constituent Element

S&T	Science and Technology Directorate
VAC	Volts Alternating Current
WA	Washington State
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Executive Summary

This Biological Assessment (BA) was prepared in accordance with Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code 1531-1544, as amended). The BA evaluates potential impacts from the proposed installation, operation and potential recovery of a passive submerged cable in the Salish Sea, near the Canadian border, on ESA protected species. Additionally, a BA and an Essential Fish Habitat (EFH) Assessment were prepared for the National Marine Fisheries Service (NMFS; *also*, NOAA Fisheries) for the undertaking.

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is proposing to conduct a research project in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State (WA). The Proposed Action includes installation, operation, and potential recovery of a passive submerged 4.42-millimeter (mm; 0.174 inches [in.]) diameter cable between a shoreside connection to landing endpoint (Proposed Action). At the conclusion of the S&T project period, the cable would ultimately be recovered, abandoned in place, or would continue operating in place. The cable would be buried for the majority of the proposed route, but would be laid on the seafloor within sensitive habitats (e.g., eelgrass). The purpose of the Proposed Action is to assess the sensor system's capability to collect maritime environmental data.

The Proposed Action (The Project) begins with the cable installation procedure, which can be broken into two portions: (1) shoreside landing (shore landing segment) and (2) cable laying (offshore segment). The shoreside landing is the installation of the 4.42 mm (0.174 in.) diameter cable from a stationary ship approximately 1.5 kilometers (km; 0.93 miles [mi.]) offshore to a designated point on the shoreline by plow sled. The cable laying vessel would hold station or be moored at a predetermined position offshore while the shore landing segment of the cable is laid on the seafloor from a reel on a small craft towards the shore. The shore landing segment is brought ashore through an existing conduit.

The Project is currently being scheduled to occur during the second half of 2024 (Q3/Q4), and last for a duration of 3 to 24 months. At the conclusion of operations, the cable would be recovered, disconnected and abandoned in place, or transferred to another Component (i.e. division) of DHS for use for the remainder of the cable's approximately 25-year lifespan.

The U.S. Fish and Wildlife Service's (USFWS) Environmental Conservation Online System indicates several federally listed aquatic species may occur within the action area. ESA-listed species addressed in this BA include the federally threatened bull trout (Coterminous U.S. DPS [Coastal Recovery Unit]) and federally threatened marbled murrelet. Critical habitat is designated within the action area for the bull trout (Table ES-1). According to the USFWS (2024a), species lists, and information gathered from existing wildlife resource agency databases, the following species, do occur or may occur within portions of the action area: the threatened North American Wolverine (*Gulo gulo luscus*) and candidate Monarch Butterfly (*Danaus plexippus*) (USFWS 2024a). However, the species are omitted from the consultation as their determination is "No Effect".

Stressors resulting from the Proposed Action include temporary localized increase in turbidity and disturbance due to vessel operations (presence and noise). For the shoreside cable connection, the cable will be placed on the seafloor (i.e., the cable will not be buried) through sensitive eelgrass beds proximate to the shore landing infrastructure. Divers will gently place the cable on the substrate to the maximum extent practicable to avoid disturbing more eelgrass than is necessary for cable placement. Depending on tides during the time of cable placement, divers may need to step through portions of the eelgrass patch if the water depth is too shallow to allow them to stay suspended above.

Cable laying and burial activities are expected to produce temporary and localized increases in turbidity in the nearshore environment. Due to the highly dynamic marine environment, turbidity would be dispersed, and sediments would settle back to the seafloor or be diluted to background levels within minutes, depending on the currents at the time of cable installation. Nevertheless, turbidity would be increased for only a short period of time, across a small area, and would dissipate quickly. The effects of the Proposed Action from increases in turbidity are expected to have minimal, if any, effects on listed species. The small-scale nature of the Proposed Action in the marine environment would not impact the migration or movement patterns of highly mobile species in any meaningful way.

Vessel operation during cable installation would have potential impacts based on physical presence (including the plow sled) and generated noise that includes acoustic disturbance. The Action area already contains high levels of vessel traffic and human activity in the marine waters within the Strait of Georgia and Semiahmoo Bay, particularly near Blaine and the Blaine Marine Park. The cable laying operation would not notably increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed species for foraging or resting due to the short, approximately 2-day deployment and 2-day potential recovery. Underwater noise will be generated by the vessel itself, as well as minimally by the plow sled and plowshare burying the cable into the seafloor. Underwater noise generated by the vessel and plow sled may be elevated above ambient in-water noise levels; however, due to the currents of northern Puget Sound and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts on ESA-listed species which may be present in the immediate vicinity at the time of cable installation or potential recovery.

The Proposed Action would not cause any permanent degradation of marine habitat. The Proposed Action is not likely to jeopardize the continued existence of ESA-listed species found within the Action area (**Table ES-1**).

Table ES-1. Effects Determination for ESA-listed Species and Critical Habitat in the Action area

Common Name (*Scientific Name*)	Federal Status	Critical Habitat in Action area	Jurisdiction	Effects Determination
Fish				
Bull Trout, Coterminous U.S. DPS (*Salvelinus confluentus*)	Threatened	Yes	USFWS	NLAA
Birds				
Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened	No	USFWS	NLAA

Key:

DPS = Distinct Population Segment

ESA = Endangered Species Act

ESU = Evolutionarily Significant Unit

NLAA = May Effect, Not Likely to Adversely Affect

USFWS = U.S. Fish and Wildlife Service

Source: USFWS 2024a

1. Introduction

1.1 Background

This Biological Assessment (BA) analyzes the installation and operation, potential recovery or abandonment in place of a DHS passive maritime cable in the Strait of Georgia and Semiahmoo Bay with a landing in Washington State (WA) (**Figure 1**).

The purpose of the BA is to determine whether the Proposed Action may affect federally threatened and endangered species and whether the Proposed Action would degrade or adversely modify designated critical habitat. The best available scientific and commercial information was used to assess the risks posed to listed species and/or critical habitat(s) that would result from the Proposed Action. This BA was prepared in accordance with Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code 1531-1544, as amended).

Section 7(a)(2) of the ESA's implementing regulation requires federal agencies to consult with USFWS and NOAA Fisheries regarding species protected under this act. The USFWS has jurisdiction over the bull trout (*Salvelinus confluentus*) and all listed wildlife and terrestrial plant species, while NOAA Fisheries oversees listed marine mammals, marine fish species, and several anadromous salmonid species. A separate BA and EFH assessment has been prepared to address ESA-species and EFH in accordance with the Magnuson-Stevens Fisheries Conservation and Management Act of 1976, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297).

Many marine and freshwater habitats are critical to the productivity and sustainability of marine fisheries. On November 1-3, 2023, DHS S&T contractors performed a hydrographic survey and identified dense eelgrass beds (a type of seagrass HAPC) along the proposed cable route.

1.2 ESA Consultation History

DHS S&T provided Project information to USFWS Interior Region 9 in February and March 2024. S&T has not received any comments on the Project from USFWS to date.

In early November 2023, seafloor mapping and submerged aquatic vegetation surveys of candidate shoreside landing sites and cable routes—Alternative 1 (preferred) and Alternatives 2 and 3—were conducted within the Strait of Georgia. Subsequently, a more detailed survey was conducted to better define and avoid rocky areas along Alternative Routes 1 and 2.

1.3 Project Location

DHS S&T would conduct the research project in the waters of the Strait of Georgia and Semiahmoo Bay in WA, near the Northern maritime border with Canada. The project would be located entirely within on the U.S. side of the Strait of Georgia (also Georgia Strait. No portion of the proposed cable would cross into Canadian waters; it would remain entirely within U.S. waters.

The submerged cable would be approximately 10 to 30 kilometers (km; 5.4 to 16.2 nautical miles [NM]) in length, originating at an existing shoreside facility, then runs west. The cable would be shallow buried to approximately 30.5 centimeters (cm; 12 inches [in.]) below the seafloor in the Strait of Georgia and Semiahmoo Bay, except in sensitive habitats (e.g., eelgrass beds) where the cable would be placed on the seafloor by divers. The proposed project would occur within the Nooksack watershed, Water Resource Inventory Area (WRIA) 1, and 'Puget Sound 2' Hydrologic Unit Boundary, 6th level (HUC6). The Township, Range, and Section are all aquatic. A more specific location (e.g., coordinates and driving directions) cannot be provided, as this information is law enforcement sensitive.

1.4 Proposed Action

DHS S&T requires maritime environmental monitoring capabilities for technology assessments and proposes to deploy and operate a submerged cable in the waters of Georgia Strait, near the Northern Border with Canada (**Figure 1**). This is intended to remain in place for 3 to 24 months before being either recovered, disconnected and abandoned in place, or transferred to another Component of DHS for use for the life of the cable (approximately 25 years). The cable would be approximately 10 to 30 km (5.4 to 16.2 NM) in length and be connected to a single existing shoreside facility. The cable would not emit energy, heat, or sound but rather would passively collect maritime environmental data from the surrounding waters. The cable is targeted to be deployed in the second half (Q3/Q4) of 2024.

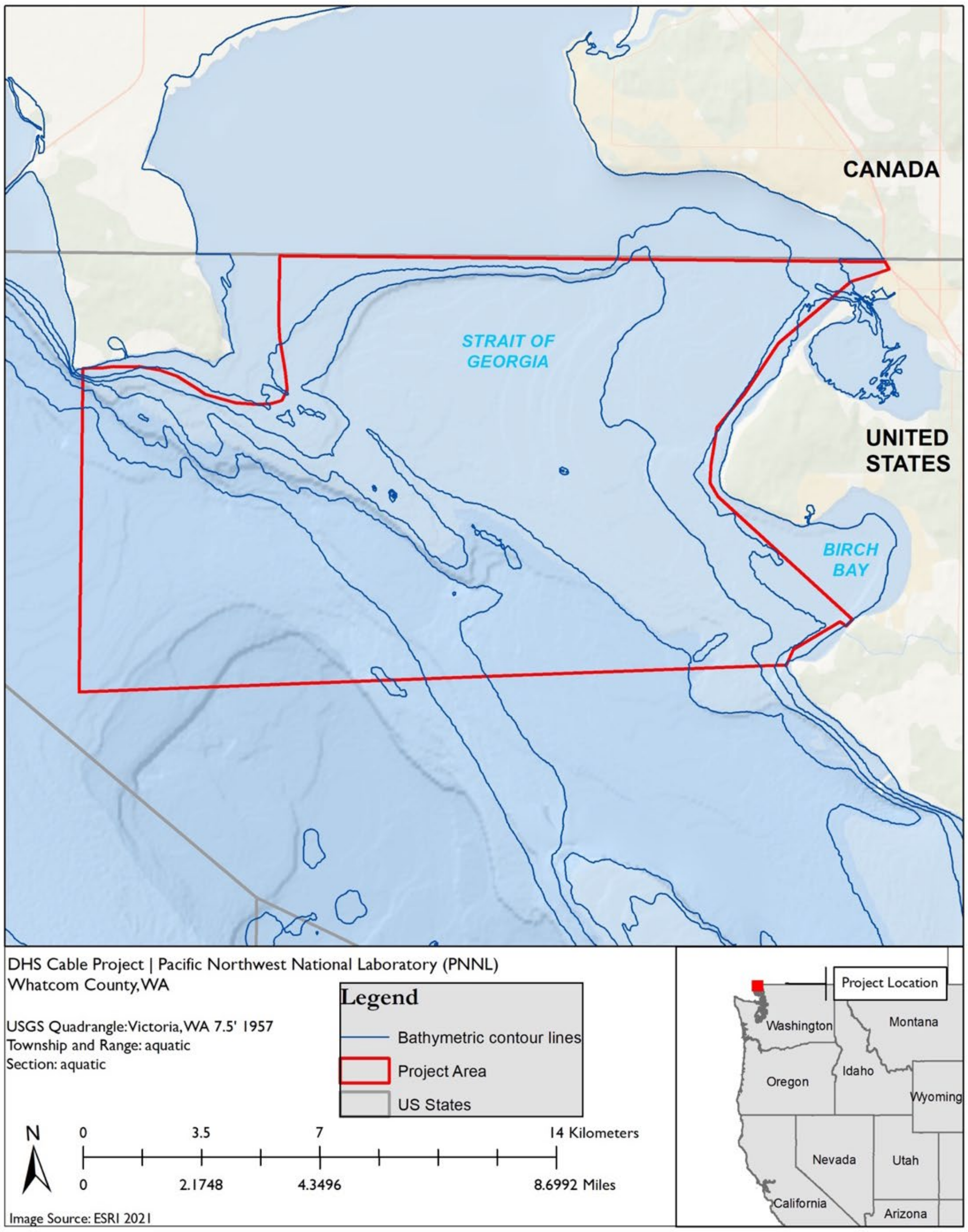

Figure 1. Vicinity Map

The Proposed Action evaluated in this BA includes the activities relating to the deployment, operation, and one of the following: recovery, abandonment in place, or potential continuation of operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay in WA, near the Northern border with Canada (Proposed Action). The purpose of the Proposed Action is to assess the advances of sensor technology and to evaluate the capability and performance of the cable sensor system.

No harbors or waterways would be closed under the Proposed Action; however, recreational boating, fishing, and diving may be temporarily restricted in the immediate area, with a 15 to 30 m (49.2 to 98.4 ft.) standoff, where the Proposed Action cable installation and potential recovery activities are actively occurring.

1.5 Proposed Action Components

The Proposed Action has been grouped into three primary components: (1) cable installation; (2) cable operation; and (3) potential cable recovery. Cable installation will utilize already existing landing infrastructure, with no new shoreside facility being constructed as part of this proposed Project. The cable laying vessel will operate for approximately two days: one 5- to 9-hour day for the shoreside cable installation and connection (Day 1) and one 8-hour day for traversing the cable route while laying and burying the cable (Day 2).

1.5.1 Cable Installation

Cables have relatively minor environmental effects, but caution is necessary during burial and laying activities (NOAA 2024). Direct impacts are expected during installation activities, due to heightened vessel traffic and disturbance of the seafloor (NOAA 2024).

Cable

Cables carry telecommunication signals across stretches of land and water. Cables have been used successfully throughout the Salish Sea and Puget Sound for at least the past 25 years, including a landing at Point Roberts—AmeriCan-1—that has been ready for service since 1999 (TeleGeography 2024). The cable to be deployed has a diameter of 4.42 mm (0.174 in.) and contains wires inside a small stainless-steel tube. The tube is protected by a single layer of Inconel 625 armor wires and a thin (0.889 mm [0.035 in.]) Hytrel jacket. The weight of the cable in air is 41.75 kg/km [0.0281 lbs/ft.], and the specific gravity is 2.6. The cable would not emit electromagnetic fields (EMF), energy, heat, or sound, but rather would passively collect maritime environmental data from the surrounding waters.

The cable installation procedure is analyzed in two parts: (1) shoreside landing (shore segment) and (2) cable laying (offshore segment). The shoreside landing is the installation of the cable from a stationary 75 ft research vessel approximately 1.5 km (0.93 mi.) offshore to a designated point on the shoreline. During the cable laying operation, the ship would move seaward and lay and bury cable from the shore to the cable route end position. A detailed safety plan and hazard analysis have been developed and would be followed for the duration of the cable installation to protect the cable laying crew.

1.5.1.1 Shoreside Landing

The shoreside landing is the installation of the 4.42 mm (0.174 inch [in.]) diameter cable from a stationary ship approximately 1.5 km (0.93 mi.) offshore to a designated point on the shoreline. The cable laying vessel— (Section 1.7)—would hold station or be moored at a predetermined position while a small craft lays the cable from a reel on the small craft to the beach (**Figure 2**). Divers will hand-place the cable through sensitive areas (e.g., eel grass). Some hand burial within the gravel beach area may be required. When the cable has been landed at the beach, it would then be fed through an existing stormwater drainage system and conduit to a climate-controlled building that would house the equipment to analyze the data collected by the cable. The shoreside landing process is anticipated to take approximately 5 to 9 hours to complete, this estimate does not include specific dive operations or weather contingencies. The cable termination point on land would connect to existing infrastructure and take advantage of existing power and communications.

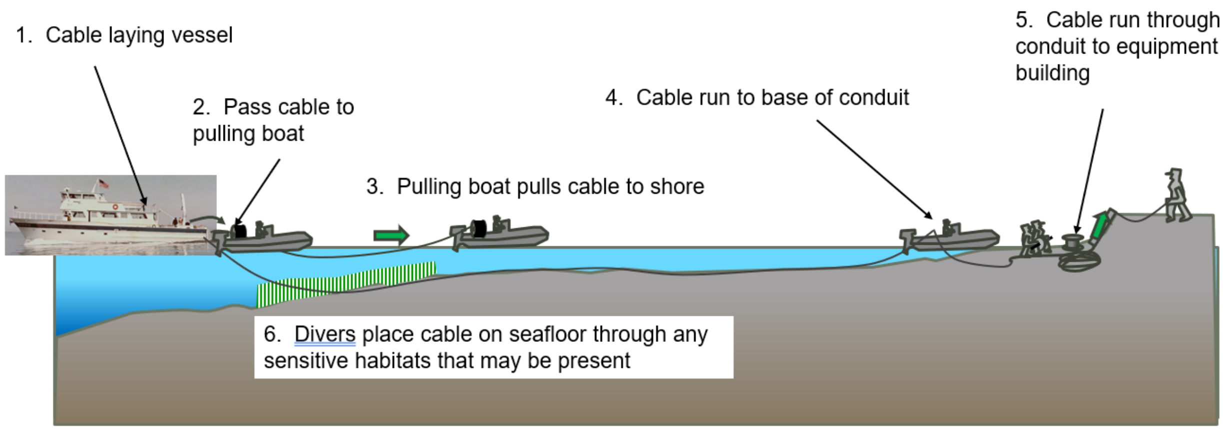

Figure 2. Example of Cable Laying Shoreside Landing Installation Plan

1.5.1.2 Cable Laying

From the seaward extent of the shoreside landing (approximately 1.5 km [0.93 mi.] offshore), the installation vessel would bury the 4.42 mm (0.174 in.) diameter cable in the seafloor to a depth of approximately 30.5 cm (12 in.) underneath the seafloor. The cable would be deployed from the stern of the installation vessel using a powered reel or winch. The vessel speed and cable payout rate would be coordinated to provide an appropriate amount of slack on the seafloor. The target amount of slack is termed "*conformal slack*," which is the amount of slack the cable requires to ensure that it follows the seafloor contours. To provide the cable protection and keep it in place, the cable would be installed using a bury-while-lay procedure employing a small burial sled to place the cable beneath the seafloor.

In shallower waters (i.e., less than 2,000 m [1.24 mi.; 65,61.7 ft.]), cables are typically buried beneath the substrate (Carter et. al. 2014). While typical burial depth is between 0.6 and 1.5 m (1.97 and 4.92 ft.), due to the cable's small diameter (4.42 mm [0.174 in.], high specific gravity (2.73), and lack of man-made threats in the area, a shallower burial depth would still hold the cable in place and be less environmentally disruptive. The bury-while-lay process would utilize a towed burial sled with a 7.62 cm (3-in.)-wide plow to place the cable approximately 30.5 cm (12 in.) below the seafloor, the seafloor would then backfill over the cable as the scar closure shoe at the end of the plow passes over the emplaced cable (**Figure 3**).

The plow would be over boarded into the waterway, and the cable would be fed through the guide cone and placed on the seafloor. The plow would be towed by the installation vessel, with the cable paid out through the plow (see **Figure 3**). Use of a one-step burial plow sled involves the lowest environmental impacts (OSPAR 2012). The act of burying the cable serves the dual purpose of safeguarding the surrounding environment from potential cable displacement due to currents and mitigating the risk of damage caused by the cable (NOAA 2024). Burying the cable also serves to protect the cable from activities like commercial and recreational fishing or crabbing.

On confirmation of a well-functioning cable, the vessel would then proceed along the surveyed cable laydown route to the end of the cable. Planned deployment speed is 3 knots or less and to ensure proper installation, cable tension would be monitored using a cable tensiometer from the installation vessel. The end of the cable would be lowered to the seafloor with a small (30.5 cm x 30.5 cm [6 in. x 6 in.]) deadweight anchor, weighing approximately 11.3 kg (25 pounds [lbs.]), using a tag line and releasable hook. Based on this plan, cable laying operations would be expected to take approximately eight hours (excluding weather issues or other contingencies) and when combined with laying of the shore ending, would occur over the course of approximately two days.

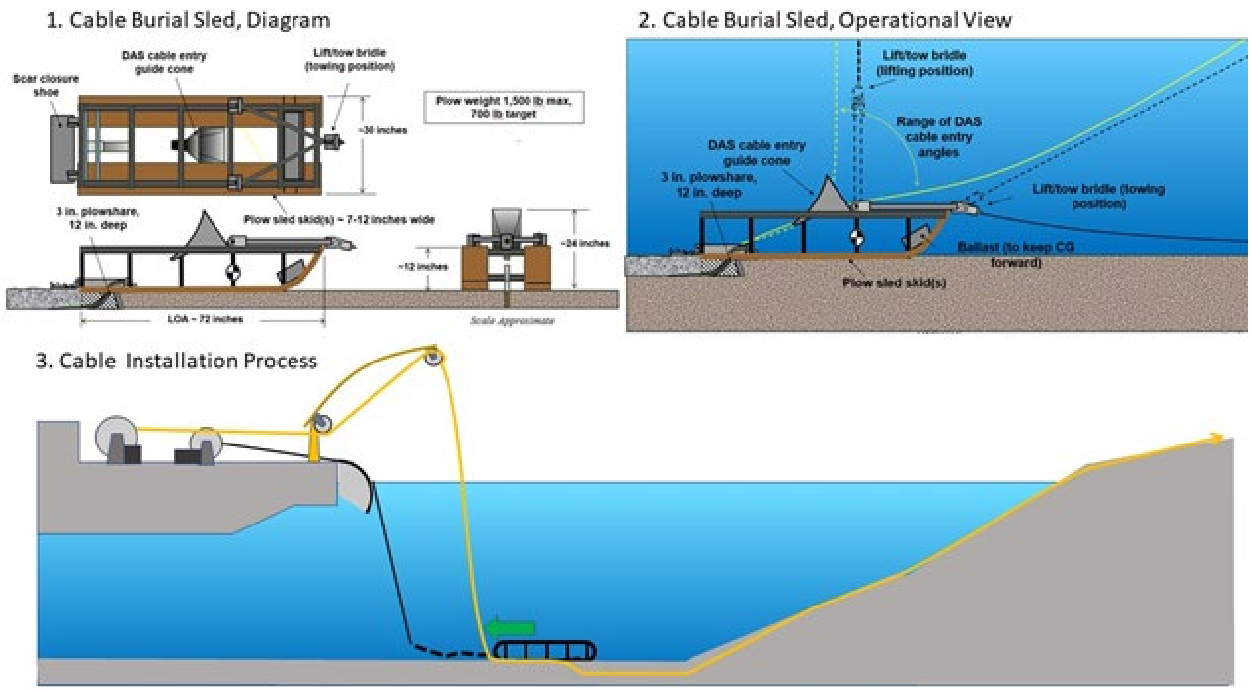

Figure 3. Schematic of Cable Burial Sled

DHS S&T would utilize experienced contractors for the coordination and execution of the installation. DHS will obtain all applicable permits, permissions, and authorizations prior to starting cable installation activities, including but not limited to, the U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Washington State Department of Natural Resources (DNR), Washington Department of Fish and Wildlife (WDFW), Washington State Department of Ecology (Ecology), and Whatcom County Planning and Development Services.

1.5.1.3 Cable Laying Vessel

The cable laying operations would be conducted using a hired research vessel (**Figure 4**). The research vessel is a 1967 Drake Craft, equipped for hydrographic survey, fisheries research, and/or transporting live fish in circulating sea water tanks. It is a 22.7-m (75-ft.) wood/fiberglass vessel, with a 6.9-m (22.5 ft.) beam, 2.0-m (6.5-ft.) draft, with a cruising speed of 10 knots. It draws its main power from two outboard engines, each with 350 horsepower (hp).

The research vessel would mobilize at its homeport. Once project equipment is installed and checked out, it would transit to the operation area in the Strait of Georgia and install the cable. When the installation is complete, the vessel would transit back to its homeport to demobilize, completing the charter. Vessel track would be recorded digitally and displayed on the Nobeltec and a chart plotter. Water depth along the track line would be measured by a Furuno FCV1900 50/200 kilohertz (khz) 3-kilowatt kW echo sounder.

Differential Global Positioning System (DGPS) navigation would be used during installation of the subsea cable. DHS S&T would maintain detailed records of the cable deployment process, including as-built drawings for regulatory compliance and future reference.

Figure 4. Example of a Research Vessel

1.5.2 Cable Operation

Properly installed cables have never demonstrated significant adverse effects on the nearby marine environment (NOAA 2024). Cables typically remain stationary after placement, if correctly laid. The cable would be coated with a durable, abrasion resistant, inert polyester called Hytrel (NOAA 2024).

The cable will be protected by a single layer of Inconel wires and a thin Hytrel jacket. Hytrel is a plasticizer-free, thermoplastic copolyester elastomer that is versatile, resilient, and durable. It is preferred by manufacturers for its resilience, heat, and chemical resistance, as well as its strength and durability. Once laid, the cable would not emit any heat, light, sound, or electromagnetic fields (EMF), but rather would passively collect data from the surrounding waters. Due to the narrow diameter of the cable (4.42 mm [0.174 in.]), it occupies a very small cross-sectional area minimizing concerns about introducing an artificial hard substrate. Once deployed, the cable would operate like any undersea data cable but with a smaller diameter than a telecommunication or transoceanic cable.

1.5.3 Cable Recovery

The cable would be recovered, abandoned in place, or transferred to another Operational and Support Component of DHS to continue operations after the initial deployment period is finished. When the cable is recovered, some portions may be left in place to reduce disturbance to sensitive habitats (e.g., eelgrass). Cable recovery would be conducted in the reverse manner it was laid, beginning with the anchor tag line. Recovery is anticipated to take less than one day to complete. When portions of the cable run through sensitive areas, they would be severed and left in place to prevent additional disturbance to the habitat. This method may be adjusted depending on recommendations from ongoing discussions with state and federal regulators and natural resource agencies.

1.6 Project Timing

The preferred timeline for cable deployment is the second half (Q3/Q4) of 2024. Once deployed, the cable would remain in place for the duration of the research project period, approximately 3 to 24 months.

1.7 Impact Avoidance and Minimization Measures

A series of Best Management Practices (BMP) would be applied during the installation, operation, and decommissioning of the Proposed Action. These BMPs serve as mitigation measures to minimize the risk of harm to ESA-listed species for the Proposed Action. All workers associated with the Project, irrespective of their employment arrangement or affiliation (e.g., employee, contractor), would be fully briefed on these BMPs and the requirement to adhere to them for the duration of their involvement in this project. The BMPs that would be implemented include the following:

<u>Vessel Operations</u>

- The cable laying vessel speed would be limited to 9 knots or less during transit. Note, the vessel has a maximum speed of 10 knots.
- During cable laying operations, vessel speed would be reduced further to less than 3 knots, reducing turbidity.
- To the extent it is practicable and safe, vessel operators would operate their vessel thrusters (both main drive and dynamic positioning) at the minimum power necessary to accomplish the work.
- The only source of hazardous materials would be petroleum-based fuel and lubricating oil used in the operation of the cable ship during cable-laying activities. The cable laying ship would have proper spill response materials and follow protocols for petroleum product spills or leaks.
- Additionally, the following waste reduction strategies would be implemented:
    - Project-associated staff would properly secure all ropes, nets, and other materials that could blow or wash overboard.
    - Project-associated staff would cut all materials that form closed loops (e.g., plastic packing bands, rubber bands, and all other loops) prior to proper disposal in a closed and secured trash bin. Trash bins would be properly secured with locked or secured lids that cannot blow open, preventing trash from entering the environment, thus reducing the risk of entanglement if waste enters marine waters.
    - All trash would be immediately placed in trash bins and bins would be properly secured with locked or secured lids that cannot blow open and disperse trash into the environment.

<u>Cable Laying Operations</u>

- Placement of cable would minimize impacts by avoiding protected areas and other ecologically important, valuable, and sensitive areas (e.g., avoidance of rocky outcrops, eelgrass beds, and macroalgae, per the marine survey) to the maximum extent practicable.
- The cable would be lowered to the seafloor in a slow and controlled manner and methods to place cable on the seafloor would be conducted in a manner to minimize sediment disturbance.

- Where the cable laying operations occur within eelgrass beds, a team of divers would carefully guide the cable through the eelgrass by moving it out of the way. No cutting of eelgrass would occur.
- Known anchorages would be avoided along the cable route.

Cable Extraction Operations

- When the cable is recovered, some portions may be left in place to reduce disturbance to sensitive habitats (e.g., eelgrasses).

Protected Species Monitoring Requirements

Personnel on the cable laying vessel would be instructed to observe wildlife. If marine mammals are sighted:

- Vessels should maintain a minimum distance of approximately 100.6 m (330 ft.) from the sighting location, when feasible.
- Vessels would not be permitted to cross directly in front of or intersect the path of any sighted marine mammals.
- If a large marine mammal (e.g., whale) passes along the ship, the vessel operator would maintain a steady heading and constant speed that is not faster than the sighted individual's speed.
- If sighted marine mammals demonstrate defensive or disturbed actions, the vessel would slow or be taken out of gear until the animal calms and/or moves a safe distance away from the vessel.
- If an ESA-listed pinniped comes within approximately 100.6 m (330 ft.) of the vessel during cable installation or recovery, onboard personnel may modify vessel operations until the animal moves safely out of the area and remains unobserved for 30 minutes.
- If an ESA-listed whale comes within approximately 2.15 m (7.067 ft.) of the vessel during cable installation or recovery, onboard personnel may modify vessel operations until the animal moves safely out of the area and remains unobserved for 30 minutes.
- In the highly unlikely event of a vessel strike with a marine mammal, the vessel operator would follow the Project's incident reporting procedures, outlined below (Section 1.7.1).

1.7.1 Incident Reporting Procedures

In the highly unlikely event of a marbled murrelet sighting in distress during installation activities or vessel transit, the vessel operator must document the conditions at the time of the incident, including the following:

A. Latitude and longitude of the vessel at the incident location.
B. Date and time of the incident.
C. Speed and bearing of the vessel at the time of the incident.
D. Approximate size of the animal (length) and **take a photo** if possible.
E. Condition of the animal (alive, dead, wounded, bleeding, etc.)
F. Environmental conditions at the time of the incident, including wind speed and direction, swell height, visibility in miles, percent cloud cover, and presence or absence of precipitation or fog.
G. The names of the vessel, vessel operator, vessel owner, and captain or officer in charge of the vessel at the time of the incident.
H. FWS will be contacted to document the incident.

1.8 Action Area

The "*action area*" is defined by the ESA as "*all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action*" (50 CFR § 402.02). Each project has just one action area, which is distinct from and larger than the Project footprint because some elements of the Project may affect ESA-listed species beyond the Project footprint. The single action area for the Project encompasses the geographic extent of all direct and indirect effects (physical, biological, and chemical) related to the Proposed Action affecting the environment. The action area, therefore, extends out to a point where no measurable effects from the Project are expected to occur.

For the purposes of this BA, the action area is within the Strait of Georgia and bounded by the U.S. / Canada border on the north, west towards Point Roberts, south to the U.S. / Canada border, and east to WA (**Figure 1**). Within the action area is the approximately 26 km (16 mi.) proposed cable route between the shoreside facility, crossing the Strait of Georgia and Semiahmoo Bay. This route includes laying the 4.42-mm (0.174-in.) diameter cable on the seafloor for approximately 1.5 km (0.93 mi.) from the vessel to the cable landing infrastructure using a combination of a pulling boat and divers (**Figure 2**), and shallow burial 30.5 cm (12 in.) along the rest of the route (**Figure 3**). Considerations within the action area also include the seafloor affected by the plow sled 182.9 cm x 76.2 cm (72 in. x 30 in.; length x width) with the internal 7.62 cm (3 in.) plowshare that would bury the cable along the seafloor and the resulting temporary and localized suspended sediment in the water column, and effects from the cable-laying vessel operations (presence and noise).

Additionally, the action area includes the ensonified area within marine waters in which Project-related noise levels are greater than or equal to 120 dB_{rms} 1µPa or approaching ambient noise levels (i.e., the point where Project-related sound attenuates to levels below non-anthropogenic sound). Additionally, the action area includes the esonified area within marine waters in which Project-related noise levels are greater than or equal to 120 dBrms 1µPa or approaching ambient noise levels (i.e., the point where Project-related sound attenuates to levels below non-anthropogenic sound). Unlike large scale cable laying operations where dynamic positioning (DP) and large motors can increase noise within the water column to over ambient noise levels (Hartin et al. 2011; Green et al. 2018), the vessel being used will only esonify waters at most a few meters away from the vessel, if any. The approximately 45-ft. shallow draft vessel is powered by two outboards motors, laying cable at approximately 2 knots, controlled by the skipper with a joystick. Noise will not rise above typical recreational vessel traffic noise levels in the area.

2. Environmental Setting

2.1 Habitat Conditions in Action Area

2.1.1 Strait of Georgia and Semiahmoo Bay

Characteristics and Environmental Elements

The Strait of Georgia is the body of water located between Vancouver Island, Canada, and the northwest corner of WA, U.S., the Strait of Georgia is approximately 220 to 240 km (135 to 150 mi.) in length, with varying widths between 20-58 km (12-36 mi.) (Georgia Strait Alliance 2024). The Strait of Georgia has a mean depth of approximately 156 m [512 ft.] and surface area of 6,800 square km (2,600 mi^2), with a maximum depth of approximately 420 to 447 m (1,380 to 1,467 ft.) at the Ballenas Basin in its center (Picard 2006; Georgia Strait Alliance 2024).

The Strait of Georgia is connected to the Strait of Juan de Fuca to the south through the Boundary Pass, Haro Strait, and Rosario Strait, and is a major navigation channel due to the proximity of the port of Vancouver, BC. The strait also acts as the southern entrance to the intracoastal Inside Passage, which weaves through western BC islands between southeastern Alaska and northwest WA. Semiahmoo Bay is part of the eastern Strait of Georgia.

Approximately 80 percent of the fresh water that enters the Strait of Georgia comes from the Fraser River, which has its delta around Vancouver, BC. In the inland sea of the Strait of Georgia, there is strong estuarine circulation related to seasonal input of particulates, freshwater, and organic carbon from the Fraser River (Hill et al. 2008; Burd et al. 2008). The highest sediment accumulation rates and organic fluxes occur along the eastern margin of the Strait, off the Fraser River (Hill et al. 2008). Sandy silt from the Fraser River is transported outward from the delta along the bottom northward and downslope (Pharo and Barnes 1976; Burd et al. 2008).

Sediment in Semiahmoo Bay can be characterized as mostly silt and clay, with minimal sand. Grain size distribution for Semiahmoo Bay (in fractional percent) consists of the following: 87.3 to 96.1 percent fines (silt + clay); 72.4 to 79.2 percent silt; 13.0 to 17.7 percent clay; and 3.1 to 8.7 percent total sand (ER Long 1999). The total sand can be further broken down to 2.2 to 7.3 percent very fine sand; 0.7 to 1.1 percent fine sand; 0 to 0.6 percent medium sand; and 0.1 percent coarse sand (ER Long 1999). Dense eelgrass beds are also located at the cable landing spot, within Semiahmoo Bay (Section 2.2.1).

According to Ecology, areas of the project within the Strait of Georgia and Semiahmoo Bay are listed as a 303(d) impaired waterbody with fecal coliform bacteria (water) and high molecular weight polycyclic aromatic hydrocarbons [HPAH] (Ecology 2023). The impaired waterbody areas are currently listed as Category 5 ("polluted waters that require a water improvement project") with confirmed violations of water quality criteria due to significant levels of harmful bacteria (Ecology 2024).

Fish and Wildlife

The Strait of Georgia and Semiahmoo Bay includes habitats for a variety of fish and invertebrate species, including lingcod (*Ophiodon elongatus*), cabezon (*Scorpaenichthys marmoratus*), halibut (*Hippoglossus stenolepis*), in deeper underwater banks and sloping drop-offs, particularly in the Georgia Strait, Pacific cod (*Gadus macrocephalus*) (12-549 m [40-1,800 ft.]), Pacific hake [Strait of Georgia stock] (*Merluccius productus*), oysters, shrimp, littleneck clams (*Leukoma staminae*), butter clams (*Saxidomus gigantea*), Dungeness crab (*Metacarcinus magister*), and red rock crab (*Cancer productus*).

Other salmonids are documented to be, or are potentially, present, in Semiahmoo Bay, as they use an "unnamed" creek that goes through Blaine and empties in the waters of Marine Drive Park including bull trout (*S. confluentus*).

2.1.2 Bathymetry

In early November 2023, Gravity Marine, LLC. (contracted by Sound & Sea Systems (S3) performed a hydrographic survey in the action area to investigate route feasibility. The goals of the survey were to survey the potential cable route using high resolution multi-beam echosounder (MBES), identify potential hazards or obstructions and investigate the presence or abundance of any aquatic vegetation at the possible landing sites. The MBES sonar system collected swath bathymetry at varying angles and distances based upon survey depth. Multibeam sonar surveys were conducted on a 7.9-m (26-ft.) aluminum survey vessel.

Along Alternative 1 and 2 is a slope (1:6) that goes as deep as 27.4 m (90 ft.) below mean lower low water (MLLW). However, the slope stays shallower just to the north and only reaches depths of 21.3 to 24.4 m (70 ft. to 80 ft.) MLLW. Also along Alternative 1 and 2 are rocky shoals. The planned cable route will avoid rocks, shoals, and other obstacles offshore. The only other noteworthy feature is a slope on the eastern side of the Project area that goes from about 11 to 22 m (36 ft. to 72 ft.) MLLW.

2.2 Aquatic Habitat

2.2.1 Aquatic Vegetation

In early November 2023, vegetation surveys were also conducted by Gravity Marine, LLC. using the research vessel. The vegetation sonar survey mapped the landing zones for the cable. These surveys focused on mapping the presence of aquatic vegetation along the routes at the potential landing sites. The survey data mapped dense eelgrass beds (91 to 100 percent cover) at the landing site (**Figure 5**), with plant heights of 0.9 to 1 m (3 to 3.2 ft.) throughout a majority of the area near the landing site (**Figure 6**). The vegetation beds at the site contained eelgrass from about -2 ft. to -8 ft. (-0.61 to -2.4 m) MLLW. No eelgrass was mapped near the western point (**Figure 7**).

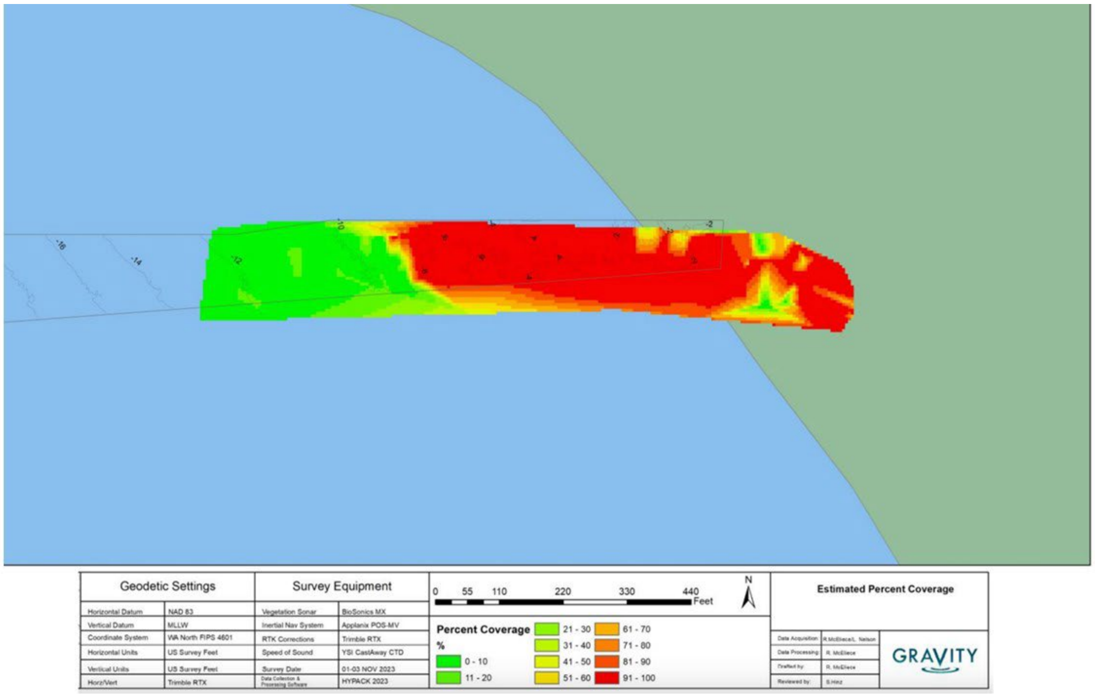

Figure 5. Estimated Percent Vegetation Coverage

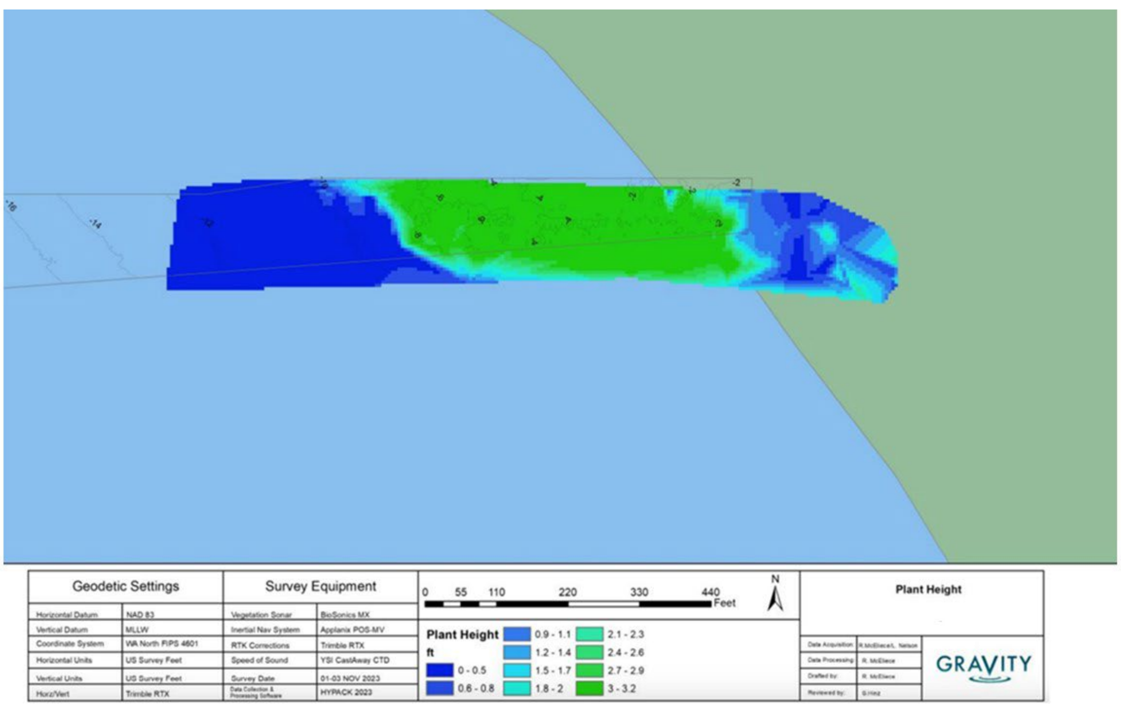

Figure 6. Plant Height of Vegetation

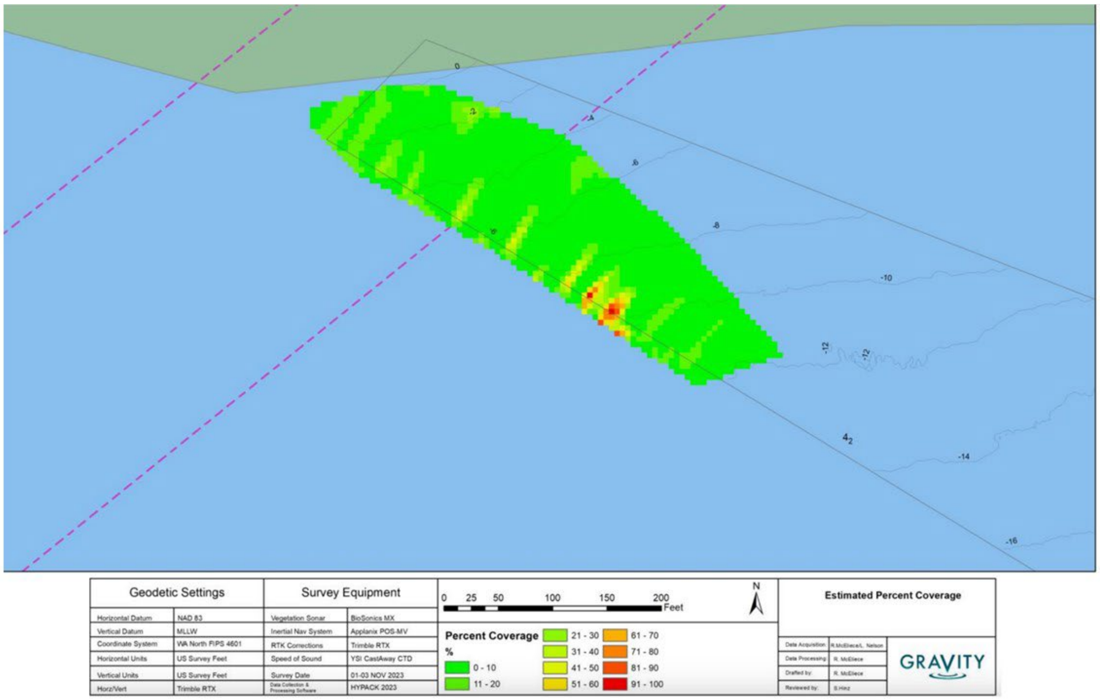

Figure 7. Estimated Percent Vegetation Coverage

3. Federally Listed Species and Designated Critical Habitat in the Action Area

3.1 Species and Critical Habitat(s) within Action Area

In accordance with Section 7(a)(2) of the ESA, federally funded, constructed, permitted, or licensed projects must take into consideration impacts on federally listed and proposed threatened or endangered species and designated critical habitat. According to USFWS (2024a), there are two (2) ESA-listed or proposed species and/or stocks and critical habitats for one (1) species that may occur within the action area (**Table 1**). Except for the cable shoreside connection, there are no terrestrial components to the proposed Project. Therefore, there are no threatened or endangered terrestrial species (animal, plant, or insect) included within the action area.

Table 1: Species and Designated Critical Habitat That May Occur in the Action area

Common Name (*Scientific Name*)	ESA Status	Jurisdiction	Critical Habitat in Action area?	Federal Register
Fish				
Bull Trout, Coterminous U.S. DPS (*Salvelinus confluentus*)	Threatened	USFWS	Yes	**Effective**: Dec. 1, 1999 (64 FR 58910) **Critical Habitat**: Oct. 26, 2005 (70 FR 56211) **Revised Critical Habitat:** Nov. 17, 2010 (75 FR 63897)
Birds				
Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened	USFWS	No	**Effective**: Sept. 28, 1992 (57 FR 45328) **Critical Habitat**: June 24, 1996 (61 FR 26256) **Revised Critical Habitat:** Nov. 4, 2011 (76 FR 61599)[1]

Notes:

1. The revised critical habitat for the marbled murrelet (76 FR 61599) was confirmed on, and made effective, August 4, 2016 (81 FR 51348).

Key:

DPS = Distinct Population Segment

ESA = Endangered Species Act

ESU = Evolutionarily Significant Unit

USFWS = U.S. Fish and Wildlife Service

Source: USFWS 2024a

According to the USFWS (2024a), species lists, and information gathered from existing wildlife resource agency databases, the following species, do occur or may occur within portions of the action area: the threatened North American Wolverine (*Gulo gulo luscus*) and candidate Monarch Butterfly (*Danaus plexippus*) (USFWS 2024a). The literature research, however, indicates that these species are **extremely unlikely** to be present within the action area and are, therefore, unlikely to be affected by the Proposed Action. Based on the lack of suitable habitat for these species, given that there are no terrestrial portions for the proposed Project except shoreside cable connection, it is determined that the proposed project will have **no effect** on them, and they are not addressed further in this BA.

3.2 Fish

3.2.1 Bull Trout, Coterminous U.S. DPS (Coastal Recovery Unit)

Status

On November 1, 1999, the USFWS listed the Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout (*Salvelinus confluentus*) as threatened, effective December 1, 1999 (64 FR 58910). The Coastal-Puget Sound DPS is significant to the species because it currently contains the only anadromous forms of bull trout in the coterminous United States, thus, occurring in a unique ecological setting (USFWS 2004). This DPS encompasses all Pacific Coast drainages within the U.S. north of the Columbia River in WA, including those flowing into Puget Sound. As described in the Recovery Plan (USFWS 2015), the Coastal Recovery Unit of bull trout is further divided geographically. The Puget Sound geographic region contains eight core areas. Bull trout core areas within WA support anadromous, fluvial, adfluvial, and resident life history forms.

Life History

Bull trout exhibit resident and migratory life history strategies throughout much of their range, variously using small streams, large rivers, lakes, and marine waters to rear, mature, and spawn (Rieman and McIntyre 1993; USFWS 2015). Migratory bull trout spawn in tributary streams where juveniles stay from 1 to 4 years before migrating to either a lake (adfluvial) (Downs et al. 2006), river (fluvial form) (Fraley and Shepard 1989), or in certain coastal areas, to saltwater where maturity is reached (Cavender 1978; WDFW 1997; Goetz et al. 2004; Brenkman et al. 2007; USFWS 2015) (63 FR 31647). Resident and migratory forms of bull trout may be found together, with either form giving rise to offspring that exhibit either resident or migratory behavior (Rieman and McIntyre 1993; Brenkman et al. 2007; Homel et al. 2008; USFWS 2015). The amphidromous life form of bull trout is specific to the Coastal-Puget Sound DPS (64 FR 58921), often returning seasonally to fresh water as sub-adults (sometimes for several years) before returning to spawn (Wilson 1997; Brenkman and Corbett 2005).

Bull trout size and age at maturity depends on habitat capacity and subsequent life history strategy (USFWS 2015). Resident fish tend to be smaller than migratory fish at maturity and produce fewer eggs (Fraley and Shepard 1989; Al-Chokhachy and Budy 2008). Bull trout normally reach sexual maturity in 4 to 7 years (Johnston et al. 2007), and frequently live for 10 years, but occasionally for 20 years or more (McPhail and Baxter 1996; Al-Chokhachy and Budy 2008).

Bull trout are opportunistic feeders. Resident and juvenile migratory bull trout in freshwater systems prey on terrestrial and aquatic insects, macro-zooplankton, and small fish (Goetz 1994; Donald and Alger 1993). Adult fluvial migratory bull trout feed in western WA's coastal areas feed on Pacific herring (*Clupea pallasi*), Pacific sand lance (*Ammodytes hexapterus*), and surf smelt (*Hypomesus pretiosus*) (WDFW 1997; Goetz et al. 2004; USFWS 2015).

Habitat and Migration

Bull trout is a char native to western North America with a geographic range that includes the Puget Sound watershed in WA, Oregon, Idaho, Montana, extending northward into Canada (USFWS 2015). For their habitat, bull trout require stable stream channels, clean spawning and rearing gravel, complex and diverse cover, and unblocked migratory corridors (USFWS 2008).

In freshwater systems, the specific habitat requirements of bull trout have been described as the "*Four Cs*": cold, clean, complex, and connected habitat (USFWS 2015). Bull trout need cold water to survive and are seldom found in waters with temperatures exceeding 15 to 18°C (59 to 64°F) and are often found in waters less than 12°C (54°F; USFWS 2015). Requirements for freshwater spawning habitat are variable, but generally include streams with deep pools, riffles, undercut banks, and numerous large logs. All life stages of bull trout in freshwater require some type of cover, such as overhanging vegetation or undercut banks that form ledges (USFWS 2015).

Puget Sound anadromous bull trout enter marine waters in early spring, with residence time in saltwater averaging two months and not exceeding four months (Goetz 2016). Tagged bull trout have been documented migrating up a river system before migrating back to the marine environment and migrating up a different river system to forage and spawn. Bull trout have been documented as being most abundant in Puget Sound waters during spring and late summer, with relatively few captured during winter months (Goetz et al. 2004).

Adult and subadult bull trout may use the marine waters of Puget Sound for foraging and overwintering, however, the extent is poorly understood. Bull trout's use of marine habitats in Puget Sound is likely limited to nearshore areas with lower salinity levels. However, because bull trout are primarily a freshwater species, the importance and extent to which they utilize nearshore marine habitats in Puget Sound for feeding and sheltering opportunities is not well understood.

Occurrence in Action Area

According to WDFW, there is the potential for the Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout to be present in the action area (WDFW, 2024a). Therefore, there is suitable habitat for bull trout in the action area. After migrating from their freshwater spawning and rearing habitats, some adult bull trout may move downstream into estuaries or marine areas to feed on prey such as Pacific herring, sand lance, and smelt (WDFW 1997; Goetz et al. 2004; USFWS 2015).

Bull trout have a presumed presence in an unnamed creek (LLID 1227531489972) that connects to Semiahmoo Bay near the Blaine Marine Park. While outside of the action area, Drayton Habor is adjacent to Semiahmoo Bay to the southeast, and is predominantly an estuary with patches of eelgrass. Several creeks empty in the Drayton Harbor that have presumed bull trout presence including Dakota Creek, California Creek, and several unnamed creeks which are also gradient accessible (LLIDs: 1227585489612, 1227469489576, 1227310489624, 1227289489584, and 1227320489682).

Bull trout have been observed in nearshore marine habitats such as shallow bays, tidal flats, and rocky shorelines, habitat which occurs within the action area. These areas may provide important feeding and sheltering opportunities for adult bull trout during certain times of the year; however, their use of these marine habitats may be limited to specific individuals or populations, and it is unclear how important these habitats are to the overall survival and health of the species.

Threats

The most significant threats that bull trout face are historical habitat loss and fragmentation, interaction with nonnative species, and fish passage issues (USFWS 2008; 2015). The order of those threats and their potential synergistic effects vary greatly by core area and among local populations, with some core areas experiencing no major threats and maintain a healthy population and others experiencing severe and systemic threats (USWFS 2015).

Critical Habitat

The Project's action area overlaps with designated critical habitat for Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout in the nearshore area near the landing.

On September 26, 2005, critical habitat was designated for the Coterminous U.S. DPS of bull trout, which came into effect October 26, 2005 (70 FR 56211). On October 18, 2010, the USFWS revised the 2005 critical habitat designation, effective November 17, 2010 (75 FR 63897). In the marine nearshore areas, the inshore extent of critical habitat is the mean higher high-water (MHHW) line, including the uppermost reach of the saltwater wedge within tidally influenced, freshwater heads of estuaries. Critical habitat extends offshore to a depth of 10 m (33 ft.) relative to the MLLW line (75 FR 63897).

Designated critical habitat is divided into 32 different units (critical habitat unit; CHU), with Unit 2 being the 'Puget Sound Unit', where this proposed project would be located. The Puget Sound CHU includes approximately 684.0 km (442.5 mi.) of marine shoreline designated as critical habitat. This CHU is bordered by the Cascade Range to the east, Puget Sound to the west, Lower Columbia River Basin, and Olympic Peninsula CHUs to the south, the U.S.—Canada border to the north, and extends across Whatcom County (75 FR 63897).

Based on the biological needs of the species, there are nine specific Primary Constituent Elements (PCEs) required for bull trout:

1. Water quality – springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
2. Migration habitat – habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3. Food availability – an abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4. Instream habitat – complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.
5. Water temperature – Water temperatures ranging from 2 to 15°C (36 to 59°F), with adequate thermal refugia available for temperatures that exceed the upper end of this range.
6. Substrate characteristics – In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwintering survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment (generally, from silt to coarse sand) embedded in larger substrates is characteristic of these conditions.
7. Stream flow – A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.
8. Water quantity – Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Nonnative species – Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from trout.

3.3 Birds

3.3.1 Marbled Murrelet

Status

The USFWS listed the marbled murrelet (*Brachyramphus marmoratus*) as threatened in WA, Oregon, and California on October 1, 1992, effective as of September 28, 1992 (57 FR 45328). The largest portion of the population occurs in Alaska and BC. According to WDFW (2023b), surveys indicate highest nesting presence is on the Olympic Peninsula, the northern Cascades and in limited remaining habitat in southwest WA. At-sea population monitoring from 2001 to 2015 indicated an annual 4.4% decline in the murrelet population—representing a 44% reduction since 2001—with the 2015 WA population at about 7,500 birds (WDFW 2023b).

Life History

Marbled murrelets are long-lived seabirds with lifespans up to 15 years. They reach maturity at the age of 2-3 years, and their breeding season occurs from early April through late September. The 2015 population estimate in WA was approximately 7,500 individuals, concentrated near the Strait of Juan de Fuca and northern Puget Sound (Desimone 2016). They spend most of the non-breeding season on the ocean.

Most of the marbled murrelet's biological and physical interactions occur at sea, usually within 2 km (1.2 mi.) of the shoreline where they spend time foraging, loafing, molting, preening, and exhibiting courtship behavior (USFWS 1997; McShane et al. 2004). They prefer sheltered foraging grounds within 1.6-4.8 km (1-3 mi.) from shore, diving to feed on small fish (e.g., surf smelt, sand lance, herring) and invertebrates (e.g., mysids, euphausiids, amphipods) which have higher densities in northern Puget Sound (Burkett 1995; Desimone 2016; Pearson et al. 2022). They appear to forage at all times of the day, and in some cases during night hours, presumably when there is enough ambient light to capture prey (Ralph et al. 1995). Diving depth appears to vary and may depend on where the prey species is located, but typically in waters less than 30 m (98.4 ft.) deep (McShane et al. 2004; Desimone 2016; WDFW 2023b). Murrelets usually forage in areas sheltered from the prevailing winds and that are relatively shallow (less than 30 m [98.4 ft] in depth; Sealy 1974).

Habitat and Migration

Marbled murrelets are small diving seabirds that spend most of their life in the marine environment but come inland to nest in forest stands with late-successional and old-growth forest characteristics. These dense shady forests are generally characterized by large trees with large branches or deformities for use as nesting platforms (Ralph et al. 1995; McShane et al. 2004; Piatt et al. 2007; USFWS 2024b). Large and unfragmented stands of old growth appear to be the highest quality habitat for marbled murrelet nesting. Nesting stands are dominated by Douglas fir in Oregon and WA.

In WA, marbled murrelets have been seen up to 80.5 km (50 mi.) from marine waters, but primarily use suitable habitat within 64.4 km (40 mi.) of the coast (DNR 2018). Marbled murrelet abundance in WA, Oregon, and northern California has declined by nearly 30% between 2000 and 2010, with downward trends in western WA coinciding with reductions in the amount of nesting habitat (Miller et al. 2012). In WA, the current and historical marine distribution of marbled murrelets includes northern Puget Sound, the Strait of Juan de Fuca, and along the northern outer coast (Desimone 2016; DNR 2018). While at-sea distribution varies over time and location, there is a general shift in winter abundance eastward from the Strait of Juan de Fuca to Puget Sound and the San Juan Islands, and in fall and winter, BC's populations move southward to Puget Sound (DNR 2018).

Occurrence in Action Area

In WA, marbled murrelets are considered an uncommon resident (WDFW 2023b) and have been shown to occur in Puget Sound marine habitats in relatively low numbers (Speich and Wahl 1995). As of 2021, WDFW surveys have estimated approximately 3,100 murrelets in the Strait of Juan de Fuca, San Juan Islands, and Puget Sound (McIver et al. 2021). WDFW surveys indicate that the highest nesting presence for marbled murrelets is on the Olympic Peninsula, the Northern Cascades and in limited remaining habitat in southwest WA (WDFW 2023b). Surveys also show that there has been an observed 55 to 56 percent decline in the fall and early winter, with breeding season density of murrelets declining by over half (and over 80 percent in high-density areas) between 2002 and 2018 (Pearson et al. 2022).

According to USFWS (2024b), the range for marbled murrelets includes the Strait of Georgia and Semiahmoo Bay; however, WDFW Priority Habitats and Species (PHS) maps indicate no marbled murrelet observations or nest sites near the action area (WDFW 2024c). The action area is near relatively urbanized areas, with high levels of vessel traffic. Additionally, the known nesting habitats nearest to the action area are at least 32 km (20 mi.) east. There are no known nesting sites on near the eastern vicinity.

Lastly, the action area does not overlap with designated critical habitat for the marbled murrelet (81 FR 51348). Marbled murrelets could be present in the action area, but due to their declining numbers, sparse and patchy distribution at sea, and high level of human activity in the nearshore, it is unlikely they would utilize nearshore habitat around the action area during the time of cable installation and potential recovery.

Threats

Continued threats to marbled murrelet recovery include forest fragmentation (particularly due to commercial timber harvest and wildfires), loss, and degradation of nesting habitat; climate change impacts on marine and forest habitats (e.g., warmer sea surface temperatures and increased fire risk); pollutants (e.g., oil spills and bioaccumulation in prey species); and mortality from commercial fishing nets (Desimone 2016; USFWS 2024b).

Critical Habitat

The USFWS designated critical habitat for the marbled murrelet on May 24, 1996, effective June 24, 1996 (61 FR 26256), revised it on October 5, 2011 (effective November 4, 2011) (76 FR 61599), and then on August 4, 2016, confirmed the effective date of November 4, 2011 (81 FR 51348). There is no designated critical habitat for the marbled murrelet within the action area, and thus it will not be discussed further.

4. Analysis of Effects of the Action on ESA-Listed Species

This section discusses potential direct effects and delayed consequences, interdependent and interrelated actions, and actions unrelated to the Proposed Action that may result in cumulative effects because of the Proposed Action per ESA implementing regulations at 50 CFR § 402.02 (see also § 402.17) (84 FR 44976).

Factors considered when evaluating whether activities caused by the Proposed Action (but not part of the Proposed Action) or activities reviewed under cumulative effects are reasonably certain to occur include, but are not limited to: (1) Past experiences with activities that have resulted from actions that are similar in scope, nature, and magnitude to the proposed action; (2) existing plans for the activity; and (3) any remaining economic, administrative, and legal requirements necessary for the activity to go forward [50 CFR § 402.17(a)].

In order to be considered *"an effect of a proposed action"*, *"a consequence must be caused by the proposed action (i.e., the consequence would not occur but for the proposed action and is reasonably certain to occur). A conclusion of reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available"* [50 CFR § 402.17(b)]. Considerations for determining that a consequence to the species or critical habitat is not caused by the proposed action include, but are not limited to: (1) the consequence is so remote in time from the action under consultation that it is not reasonably certain to occur; or (2) the consequence is so geographically remote from the immediate area involved in the action that it is not reasonably certain to occur; or (3) the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur [50 CFR § 402.17(b)].

4.1 Determination of Effects

The effects assessment is based on the following factors:

- the dependency of the species on specific habitat components;
- habitat abundance;
- population levels of the species;
- degree of habitat impact; and,
- potential for conservation measures to reduce or eliminate adverse effects.

Each of these factors were considered during analysis for ESA-listed species, to determine whether the Proposed Action-related impact stressors, including vessel presence and noise and temporary and localized suspended sediment and turbidity, could result in significant effects to the species.

4.2 Direct Effects

The direct effects from the Project are limited to cable installation and removal activities only, as no effects are expected while the cable is operational or abandoned in place. The cable's operation and abandonment in place, would not create additional impacts as it is inert and would become part of the seafloor. The Proposed Action-related direct effects that could potentially affect listed species include the following:

- Temporary increase in turbidity
- Temporary disturbance vessel operation

EMF exposure, hazardous materials, and habitat alteration were assessed but are not considered Proposed Action-related impact stressors because they are not considered reasonably likely to adversely affect ESA-listed species.

An explanation for excluding an effects assessment for each potential stressor is provided below.

EMF exposure

A common concern regarding cables is the potential sensitivity of elasmobranchs and other fish to anthropogenic EMF (Normandeau et al. 2011; CSA Ocean Sciences, Inc. and Exponent 2019). The temporary cable system is unrepeatered, which means that it does not have repeaters or other electronics equipped on the cable to boost the transmission signal, requiring power to do so. The unrepeatered temporary DHS S&T cable would have no power running through it; therefore, no EMF will be generated.

Habitat alteration

Cables are thought to have relatively minor environmental effects, but caution is necessary during trenching and laying activities (NOAA 2024). Cable laying and potential recovery has the potential to affect benthic habitats, flora, and fauna, however, such effects are generally limited to a very small area. This project would utilize a very narrow cable that is 4.42 mm (0.174 in.) in diameter. The cable burial method employed would be a one-step 'bury-while-lay' process that utilizes a 182.9 cm by 76.2 cm (length x width) (72 in. by 30 in.) plow sled with a 7.62 cm (3 in.) wide plowshare that would bury the cable 30.5 cm (12 in.) below the seafloor. Therefore, the cable installation would result in a very small footprint. Furthermore, the cable route design is based on avoidance of hard substrates, macroalgae, kelp beds, and critical habitats to the maximum extent possible. Properly installed cables, to date, have not demonstrated any significant adverse effects on the nearby marine environment (NOAA 2024). Once in place, the cable would not emit energy, heat, or sound but would passively collect maritime environmental data. Therefore, alterations of the seafloor, habitat, and benthic communities resulting from the cable laying operations and potential recovery, or abandonment in place are expected to have a negligible impact on ESA-listed species.

4.2.1 Turbidity

Both components of cable installation–shoreside connection and cable laying and burial under the seafloor–and potential recovery create the possibility of temporary suspended sediment, or turbidity.

During shoreside cable laying and removal on the seafloor, there is the possibility that temporary and localized small turbidity plumes will be created by cable touching soft sediment in the eelgrass area. Additionally, if divers need to walk in the eelgrass area while gently placing the cable (e.g., if installation occurs at low tide), it may create additional temporary and localized turbidity plumes from footprints. However, these increases in turbidity are expected to dissipate within seconds or minutes after placement due to the slow speed of laying, dynamic currents, and tides within the action area.

If any ESA-listed species are in the vicinity of shoreside cable connecting operations and potential removal, they would most likely relocate to a more suitable location and resume their previous activities. The species in the nearshore shoreside connection area will likely be limited to fish. Of note, the entire cable shore landing process is estimated to take approximately 5 to 9 hours, with the divers gently placing the cable through the eelgrass for only a portion of that time. Afterwards, the cable—which itself has a very small diameter (4.42 mm [0.174 in.])—would be a benign system in place on the substrate with no other sediment disturbances taking place until its potential recovery.

For the shallow cable burial (30.5 cm [12 in.]) within the Strait of Georgia and Semiahmoo Bay, much of the proposed cable route would be along water depths between about 12.2 to 15.2 m (40 to 50 ft.), with the deepest location being a 10:1 slope that goes from about 11 to 22 m (36 to 72 ft.) depth (MLLW). These water depths are significantly shallower than those at which a cable is laid on the seafloor (approximately 2,000 m [1.24 mi.]) (Carter et al. 2014). Therefore, burying the cable would serve the dual purpose of safeguarding the surrounding environment from potential cable displacement due to currents and mitigating risk of damage caused by the cable (NOAA 2024). Burial in shallower waters also helps to protect the cable itself from other ships' anchoring and bottom trawl fishing, crabbing, and recreational fishing (Kordahi et al. 2007; Burnett and Carter 2017).

The cable burial method employed will be a one-step 'bury-while-lay' process that utilizes a 182.9 cm x 76.2 cm (72 in. by 30 in.; length x width) plow sled with a 7.62 cm (3 in.) wide plowshare that creates a trench to bury the cable 12 in. below the seafloor using backfilled sediment. The plow sled (76.2 cm [30 in.] width) would temporarily disrupt the seafloor by being dragged along it, while the plowshare (7.62 cm [3 in.] width) would create a very narrow trench to bury the cable. Given the small width of the plow sled (76.2 cm [30 in.]) and plowshare (7.62 cm [3 in.]), the movement and backfill of sediment into the cable burial area is anticipated to result in a small and temporary localized increase in turbidity that is expected to dissipate within seconds to minutes via the currents of the action area. Temporary turbidity may also occur with recovery of the cable when the Project is concluded.

Sedimentation and turbidity are primary contributors to the degradation of salmonid habitat (Bash et al. 2001). Excess sediment loading and turbidity levels can clog the gills of fish, smother eggs, embed spawning gravels, disrupt feeding and growth patterns of juveniles (Bruton 1985). Long-term exposure to high levels of turbidity could cause ESA-listed fish to avoid the action area, impede or discourage free movement within localized areas of the action area, prevent individuals from exploiting preferred habitats, and/or expose individuals to less favorable conditions. However, the turbidity associated with the Project would be very short term in nature considering that the entire Project is planned over the course of only two (2) days, eight (8) hours of which will be taken to shallow bury the cable under the seafloor. Therefore, these effects are likely transitory and localized at the cable burial location. The turbidity effects from installation and potential recovery, or abandonment in place would likely be even less impactful within the action area given the dynamic and strong currents and tides that exist.

4.2.2 Vessel Operation

Vessel operation during cable installation and recovery, would have potential impacts based on physical presence (including the plow sled) and generated noise from its two diesel engines (each 350 hp).

4.2.3 Vessel Presence

The action area already contains high levels of vessel traffic and human activity, particularly near Blaine in the Blaine Marine Park (AccessAIS 2022). The Commercial Dungeness crab fishery has a large harvest near the action area (Ecology 2021). The Port of Bellingham operates a large marina in Blaine, where there is a variety of pleasure craft and fishing vessels, including sailing cruises. There also exist some whale watching tour businesses that operate in the area, including Semiahmoo Whale Watching. There are no WSDOT passenger ferry routes in the area, nor are there any major cruise lines that traverse the area. Outside of the vessel activity listed above, much of the cable laying route is not a major vessel traffic area.

The cable laying vessel would only operate for approximately two days for this project: (1) one 5- to 9-hour day for the shoreside cable connection (Day 1) and one 8-hour day for traversing the cable route (Day 2). The cable laying operation would not notably increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed species for foraging or resting. There is the potential for underwater noise generated by the vessel itself, as well as the plow sled and plowshare burying the cable underneath the seafloor and potential 2 day recovery. Underwater noise generated by the vessel, its two (2) diesel engines (350 hp each) and plow sled may be elevated above ambient in-water noise levels, however, due to the currents within the action area and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to ESA-listed species which may be present in the immediate vicinity at the time of cable installation.

Mobile species can navigate highly trafficked waters and avoid disturbances, and the addition of one more slow-moving vessel (less than 3 knots during cable installation procedures) in the area for an 8-hour event for installation and potential recovery, would not result in any significant alterations in behavior by ESA-listed species.

4.2.3.1 Acoustic Disturbance

Vessel activity during cable laying could result in temporary and minor disruptions in behavior of ESA-listed fish, and bird species. Potential responses to project activities could include temporary disruption of a species' current behavioral state and/or temporary avoidance of the action area due to vessel noise.

The noise field varies with frequency and angle about a vessel (Arveson and Vendittis 2000; Trevorrow et al. 2008; Gassmann et al. 2017). The strongest noise source is typically the propeller when it cavitates, forming bubble clouds behind the propeller creating a broadband noise spectrum ranging from a few Hz to over 100 kHz (Ross 1976) which could be within the known hearing ranges of fish (~ 0.8 - 1 kHz) (Popper et al. 2019) and diving marbled murrelets (10 - 11.5 kHz) (USFWS 2016a). Traveling at low speed and/or great depth can reduce and avoid propeller cavitation noise.

Given that ships operate at the water surface and the propeller sits, at maximum, a few meters below the surface, emitted noise reflects at the water surface leading to a strongly downward-directed noise emission pattern (e.g., Gassmann et al. 2017). In physical terms, a watercraft noise radiates very well to great depth in the ocean. Noise in the horizontal plane near the sea surface is greatly reduced because of mirror effect of the surface. In addition, a hull may shield sound propagation from the propeller in the forward direction.

The sound source levels for cable laying vessels are typically 155 to 170 dB re 1μPa m at 10 m. Ship noise increases as the ship's speed increases (McKenna et al. 2012). For comparison, large commercial ships (e.g., tankers, bulk carriers, container ships) typically generate sound levels ~180 dB re 1μPa m at 10 m at their normal working speed (Richardson et al. 1995).

The duration of the exposure would be temporary (i.e., a few minutes) because the vessel would be in transit. The project vessel would travel at very low speeds (i.e., less than 3 knots during cable laying operations), and the noise from the vessel would be continuous, alerting fish of its presence before the received level of sound exceeds 120 dB. Therefore, a startle response is not expected. Rather, deflection and avoidance are expected to be common responses in those instances where there is any response at all.

Acoustic disturbance associated with cable installation would be due to the noise produced by the vessel during operations and trenching by the plow sled for cable burial. Cable segments laid on the seafloor (e.g., in ecologically sensitive areas) would not generate any underwater sound. Cable recovery activities would have similar noise impacts as discussed for cable installation.

With implementation of BMPs, vessel transit and cable laying operations are not expected to significantly disrupt normal fish patterns (e.g., breeding, feeding, sheltering, resting, migrating), making impacts to ESA-listed fish very unlikely. As marbled murrelet densities are low within the action are, impacts to ESA-listed marbled murrelet are also very unlikely.

4.3 Delayed Consequences

Delayed consequences are those effects that are caused by the action and occur later in time (after the action is completed) but are still reasonably certain to occur (50 CFR 402.02). Since the research project is intended to be temporary (3 to 24 months), cable recovery is the only identified delayed consequence, as the cable would be a benign system once installed and buried, unless regulators require recovery of the cable.

By installing or recovering the cable over a very short period (approximately two days) and approximately 2 days for potential recovery, the Proposed Action would not alter the ecological connectivity of aquatic resources, would not result in altered predator-prey relationships, changes in human activities, nor in long-term degradation of habitat through additional construction activities. Therefore, it would have no effects on ESA-listed species beyond what is described in Section 4.2 (Direct Effects). The cable has a very small diameter (4.42 mm [0.174 in.]) and would be buried in one step, with sediment immediately backfilling during installation to cover the cable. Therefore, the cable would be a benign system once installed and buried, have no continuing impact on the seafloor after installation. There would be no moving parts, no oil-filled systems, and no other contaminants associated with the cable. For the segment of cable laid within the dense eelgrass beds, once the cable has been laid there will be no continued effects on aquatic resources or habitat, unless the cable is removed at the end of its life span. The cable would not emit energy, heat, or sound but rather would passively collect maritime environmental data from the surrounding waters. No land disturbance, facility construction, or demolition is included in the Proposed Action.

Currently the cable placement is a planned temporary research project to only last from 3 to 24 months, with potential cable recovery occurring afterwards. If the cable is recovered instead of being left in place, cable recovery would be conducted in the reverse manner it was laid beginning with the anchor tag line and is anticipated to take less than one day to complete. The portions of the cable that run through sensitive areas, such as the dense eelgrass at a shoreside landing, would be severed and left in place to prevent additional disturbance to the habitat. This method may be adjusted depending on recommendations from ongoing discussion with state and federal permitting and natural resource agencies.

5. Effects Determination

5.1 ESA-Listed Species

Potential impacts to ESA-listed species associated with the Proposed Action may include temporary increased turbidity due to cable burial and vessel disturbance, including heightened vessel traffic and vessel noise. Effect determinations for ESA-listed are provided below.

5.1.1 Bull Trout, Coterminous U.S. DPS (Coastal Recovery Unit)

The Project determination is "***May Affect, Not Likely to Adversely Affect***" bull trout for the following reasons:

- The Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout are well documented in the marine waters of WA. Bull trout have the potential to be present in the waters of the action area, as Blaine's nearshore area is included in their critical habitat that supports foraging and migration. The amphidromous life form of bull trout is specific to the Coastal-Puget Sound DPS (64 FR 58921), and they often return seasonally to fresh water as sub-adults (sometimes for several years) before returning to spawn (Wilson 1997; Brenkman and Corbett 2005). Blaine contains an entrance to an unnamed creek (LLID 1227531489972) near the Blaine Marine Park with presumed bull trout presence, and they may return seasonally to migrate and forage in the area. The action area avoids the estuaries present in Drayton Harbor that provide bull trout entrance to Dakota Creek, California Creek, and several other unnamed creeks that connect to the harbor. However, given the proximity of Drayton Harbor to the action area, it is possible that migrating bull trout would go through the action area to reach the entrance to the harbor and connecting creeks. Regardless of bull trout presence, proposed Project Activities would not degrade water quality in any streams or creeks in the area that they may use for foraging and migration.
- The Proposed Actions occurring within the action area include the shoreside connection to the cable landing infrastructure and cable laying and burial along the proposed route. The shoreside connection requires divers to gently place the 4.42 mm (0.174 in.) diameter cable on dense eelgrass, while the cable laying process involves shallow burial (30.5 cm [12 in.]) using a 76.2 cm (30 in.) wide plow sled with 7.62 cm (3 in.) plowshare along the proposed cable route. Only when cable burial is occurring would the proposed project potentially affect bull trout habitat, due to a temporary increase in turbidity near the seafloor. However, turbidity would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment. The Proposed Action is not anticipated to affect bull trout spawning or rearing, as the nearest river with documented bull trout rearing is the Nooksack River, which connects to Bellingham Bay, south of the action area (WDFW 2024a).

5.1.2 Marbled Murrelet

The Project determination is "***May Affect, Not Likely to Adversely Affect***" marbled murrelet for the following reasons:

- Marbled murrelets are documented in the marine waters of WA. The Proposed Action occurring within the action area includes the shoreside connection of the 4.42 mm (0.174 in.) cable to existing landing infrastructure and cable laying and burial along the proposed route. Only when the shoreside cable connection or cable laying and burial is occurring would the proposed project potentially affect marbled murrelets. Although unlikely, if a marbled murrelet foraging is disturbed by Proposed Action-related activities, the individuals would likely relocate to a more suitable location and resume their previous activities.

- There are no old-growth stands or late-successional forests meeting the terrestrial habitat criteria of the marbled murrelet within or near the action area. The closest designated critical habitat is located within the North Cascades, at least 32.2 km (20 mi.) east of the action area. If a marbled murrelet were foraging for prey species within the nearshore areas during the 5-to-9-hour window in which the cable is being connected to the shoreside landing, it may be alerted to the activity occurring in the area by the presence of the cable laying vessel, pulling boat, and personnel onshore. Any airborne acoustic noise would not reach or exceed the harass or harm thresholds for any marbled murrelet that may fly over the area (WSDOT 2020). If any marbled murrelet is flying overhead and foraging while the cable vessel is shallow burying the cable it is not anticipated that the effect on the murrelet would be different than the presence of any other small watercraft that would also be in the area. It is likely that they would relocate to a more suitable location and resume previous activities.

5.2 Critical Habitat

Potential impacts to critical habitat for bull trout (Coterminous U.S. DPS [Coastal Recovery Unit]) with the Proposed Action may include temporary turbidity increases from divers placing the cable on the substrate within eelgrass areas during shoreside landing operations and shallow cable burial (30.5 cm [12 in.] depth) between the shoreside connection. Additional potential impacts for SRKW include increased vessel traffic due to cable laying vessel presence.

5.2.1 Bull Trout, Coterminous U.S. DPS (Coastal Recovery Unit)

The proposed Project determination is "***May Affect, Not Likely to Adversely Affect***" critical habitat for the Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout for the following reasons:

- Proposed activities within the action area are limited to gentle cable placement within eelgrass beds near the shoreside connection and cable laying and burial. Cable burial would be shallow, occurring 30.5 cm (12 in.) below the seafloor.
- Where the Project would affect the seafloor during cable burial, potential impacts would be temporary and would not permanently alter the composition of the substrate or the habitat in any substantial way.
- The shallow cable burial (12 in.) would only temporarily displace sediment during burial since sediment backfill would bury the very narrow (4.42 mm [0.174] diameter) cable. There is the potential for temporary turbidity from the cable burial process; however, this would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment.

The following discussion addresses specific critical habitat PCEs essential for the conservation of the Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout, and the associated assessment for each element.

1. *"Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia."*

   Action area: Springs, seeps, groundwater sources, and hyporheic flows are not found within the action area. Therefore, this PCE would not be affected by the proposed project activities.

2. *"Habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers."*

   Action area: The nearshore waters may be used as a migratory corridor for the Coterminous U.S. DPS (Coastal Recovery Unit) of bull trout. No barriers would be created or influenced from cable laying and burial associated with the proposed Project. Any existing migratory corridors would remain intact. The Proposed Action would not result in water quality impediments to bull trout migration during cable laying and burial. Project components and their potential impacts would not preclude bull trout from migrating through the area. Therefore, effects to this PCE are not anticipated from the Proposed Action.

3. *"An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish."*

   Action area: The proposed Project would not impact food sources within the action area. Cable placement by divers would occur within the eelgrass habitat near the shoreside connection could provide habitat for macroinvertebrates and forage fish. Cable installation may produce temporary and localized turbidity impacts. These turbidity plumes would also not impact the water quality, as they would very quickly dissipate due to currents and tides in the Action area. Measurable effects to this PCE are not anticipated from the Proposed Action.

4. *"Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure."*

   Action area: The Proposed Action would occur within marine shoreline aquatic environments and include divers gently placing the cable within the eelgrass habitat near the shoreside cable connection. The Proposed Action would not, however, impact adjacent streams, rivers, lakes, or reservoirs, or overall complexity of the marine environment. Any displaced substrate from cable placement would settle quickly via the Salish Sea's tides and currents. The Project would not impact the quality of environment for bull trout.

5. *"Water temperatures ranging from 2 to 15°C [36 to 59°F], with adequate thermal refugia available for temperatures that exceed the upper end of this range."*

   Action area: The proposed Project would not impact water temperatures; therefore, this PCE would not be affected by proposed project activities.

6. *"In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwintering survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment (generally, from silt to coarse sand) embedded in larger substrates is characteristic of these conditions."*

   Action area: Bull trout spawning and juvenile rearing is not anticipated to occur in the action area during project activities. Therefore, this PCE would not be affected.

7. *"A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph."*

   Action area: The proposed project activities would not affect the natural hydrograph within the action area. Therefore, this PCE would not be affected.

8. *"Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited."*

   Action area: Impacts to marine water quality due to the Proposed Action would be limited to temporary and localized turbidity increase during cable laying and burial procedures. Shortly after cable burial, sediment is expected to backfill and cover the cable. Any impacts to water quality would be temporary and localized and would not cause any long-term impact to this PCE.

9. *"Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from trout."*

   Action area: There are no non-native predatory species documented in the action area. There would be no change to the fish species that may inhabit the areas where the cable is installed. Proposed project activities would not make any portion of the area more hospitable for non-native species. The proposed Project is not anticipated to affect the occurrence of non-native predatory, interbreeding, or competing species. Therefore, the Project would have no effect on this PCE.

5.3 Findings

The Proposed Action ***May Affect, Not Likely to Adversely Affect*** the ESA-listed bull trout and marbled murrelet discussed in this document (**Table 2**). The Proposed Action is not likely to result in any other adverse impact to these listed species and is not expected, either directly or indirectly, to appreciably reduce the likelihood of survival and recovery of these species in the wild by reducing the reproduction, numbers, or distribution of these species.

Table 2: Effects Determination for ESA-listed Species and Critical Habitat in the action area

Common Name (*Scientific Name*)	Federal Status	Critical Habitat in Action area	Effects Determination
Fish			
Bull Trout, Coterminous U.S. DPS (*Salvelinus confluentus*)	Threatened	Yes	NLAA
Birds			
Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened	No	NLAA

Key:

DPS = Distinct Population Segment
ESA = Endangered Species Act
ESU = Evolutionarily Significant Unit
NLAA = May Effect, Not Likely to Adversely Affect
USFWS = U.S. Fish and Wildlife Service

Source: USFWS 2024a

6. Conclusions

6.1 Project Summary

This BA analyzes the marine environment modifications associated with the installation of a temporary cable installation through the Strait of Georgia and Semiahmoo Bay. The proposed Project would include the installation of approximately 6.2 to 18.6 mi. (10 to 30 km) of seafloor cable. The cable would be shallow buried (30.5 cm [12 in.]) under the seafloor by a surface vessel and would cover approximately 16 mi. [26 km]. Once installed, the cable would temporarily be in operation for approximately 3 to 24 months, before it would be recovered from the seafloor. Alternatively, the cable may be abandoned in place, or transferred to another component of DHS to continue operations after the pilot deployment period is finished. There would be no need for alteration or maintenance of the cable during normal operations.

6.2 ESA Conclusion

The potential stressors to ESA-listed species include a temporary and localized increase in turbidity levels and vessel operations, to include presence and noise.

Turbidity

A small and localized increase in turbidity would occur for each of the two planned portions of cable installation: (1) shoreside connection and (2) cable laying and burial along the Strait of Georgia and Semiahmoo Bay, WA. Divers gently placing the cable through eelgrass, and the movement of the plow sled and shallow trenching and burial of the cable to a 12 in. depth below the seafloor using a plowshare, will temporarily increase sediment suspension in the vicinity of cable installation. Temporary localized increase in turbidity may also occur with recovery activities. The sediment would be quickly dispersed via northern Puget Sound current transport and would settle on the seafloor quickly. Because turbidity would be increased for only a short period of time and across a very narrow path, and would dissipate quickly in a dynamic environment, it is assumed that this may impact, but is not likely to impact ESA-listed species in the area near cable installation. Upon completion of cable installation, the cable would be a benign system as it would passively collect data. Since it would be buried, the cable would not continue to move along the seafloor and would therefore not continue to contribute elevated turbidity in its vicinity. Based on the possible presence of species in the action area, and in consideration of the *de minimis* increase in turbidity, DHS S&T has determined that the effects of the Proposed Action on the ESA-listed species are:

- Bull Trout, Coterminous U.S. DPS (Coastal Recovery Unit) – ***May Effect, Not Likely to Adversely Affect***
- Marbled Murrelet – ***May Effect, Not Likely to Adversely Affect***

Vessel Operations

General vessel operations associated with cable installation procedures at the shoreside connection would temporarily increase vessel presence in the waters near installation, as well as noise associated with vessel operations and the plow sled shallow burying the cable on the seafloor. The cable laying vessel will only operate for two days for this proposed project, including one 5- to 9-hour day for the shoreside cable connection (Day 1) and one 8-hour day for traversing the cable route (Day 2). Potential recovery operations would occur over 2 days. The cable laying and potential recovery operations would not notably increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed for foraging or resting. There is the potential for underwater noise generated by the vessel as well as the plow sled and plowshare burying the cable underneath the seafloor. Underwater noise generated by the vessel and plow sled may be elevated above ambient in-water noise levels, however, due to the currents of northern Puget Sound and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to ESA-listed species which may be present in the immediate vicinity at the time of cable installation and potential recovery.

Based on the possible presence of these species in the action area, and in consideration of the potential in acoustic disturbance, the determined effects of the Proposed Action on the ESA-listed species in the area are:

- Bull Trout, Coterminous U.S. DPS (Coastal Recovery Unit) – **May Effect, Not Likely to Adversely Affect**
- Marbled Murrelet – **May Effect, Not Likely to Adversely Affect**

Critical Habitat

Cable placement on the seafloor through sensitive habitat (e.g., eelgrass) and cable burial along the proposed cable route causing temporary displacement of backfill sediment (to cover the cable) would both result in a temporary and localized increase in turbidity. Additionally, cable laying vessel operations would temporarily (for approximately two days for deployment and an additional 2 days for recovery) increase presence and noise levels. The area in which these Project Actions will occur is designated critical habitat for bull trout. The project would not degrade water quality or alter long-term habitat conditions in the marine environment. As such, it is also determined that the effects of the Proposed Action on critical habitat would be:

- Bull Trout, Coterminous U.S. DPS (Coastal Recovery Unit) – **May Effect, Not Likely to Adversely Affect**

7. References

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B.3 ESSENTIAL FISH HABITAT CONSULTATION

May 3, 2024

Science and Technology

Ms. Elizabeth Babcock
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
West Coast Regional Office
Lacey, WA 98503
owco.section7info@noaa.gov

Dear Ms. Babcock:

Enclosed for your review is a Biological Assessment (BA) and Essential Fish Habitat Assessment for the U.S. Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) proposal to deploy, operate, and possibly recover a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern border with Canada, under a research project titled Maritime Environmental Data Sampling System (MEDSS). The purpose of the project is to assess the advances of sensor technology to increase maritime domain awareness that may be applicable to rest of United States.

In accordance with Section 7(a)(2) of the Endangered Species Act (ESA), DHS requests informal consultation with the enclosed BA for the project. For all listed species under ESA or Marine Mammal Protection Act (MMPA), DHS has determined that the proposed activities as a whole **may affect but are not likely to adversely affect** ESA listed species, and non-ESA listed marine mammals protected under the MMPA. This proposed Project **may adversely affect** Pacific Groundfish EFH, Pacific CPS EFH, and seagrass (i.e., eelgrass) HAPC. The BA outlines management and conservation measures that would be enacted to minimize any potential adverse impacts.

If you or your staff have any questions or concerns, please contact Holly Bisbee, DHS NEPA Program Lead, holly.bisbee@hq.dhs.gov. If your staff have technical questions regarding the project scope or the evaluation of potential impacts on protected species and/or habitats, please contact Ioana Bociu, PNNL Environmental Management Professional (360) 582-2564.

Respectfully,

JOE A CAMPILLO

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Date: 2024.05.03 12:51:29 -04'00'

Joe Campillo
Project Manager / General Engineer

CC: MEDSS_EA <MEDSS_EA@hq.dhs.gov>

BCC: Ioana.bociu@pnnl.gov

Department of Homeland Security Maritime Cable Installation in Northern Washington State

Biological Assessment and Essential Fish Habitat Assessment

03 May 2024

Prepared for:

Science & Technology

Prepared by:

48 North Solutions, Inc.

Editorial Technical Support by:

Pacific Northwest National Laboratory

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Acronyms and Abbreviations

BA	Biological Assessment
BC	British Columbia
BMP	Best Management Practice
CFR	Code of Federal Regulations
CHU	critical habitat unit
Councils	regional fishery management councils
CPHC	Canadian Pacific Humpback Association
CPS	Coastal Pelagic Species
dB	decibel
DGPS	Differential Global Positioning System
DHS	U.S. Department of Homeland Security
DNR	Washington State Department of Natural Resources
DP	Dynamic Positioning
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EMF	electromagnetic field
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FMP	Fishery Management Plan
ft.	foot/feet
hp	horsepower
HPAH	high molecular weight polycyclic aromatic hydrocarbons
HUC6	Hydrologic Unit Boundary, 6^{th} Level
Hz	Hertz
in.	inch(es)
khz	kilohertz
km	kilometer(s)
kW	kilowatt
m	meter(s)
mm	millimeter(s)
mi.	mile(s)
MBES	Multi-beam Echosounder
MLLW	Mean Lower Low Water
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NLTAA	Not Likely to Adversely Affect
NM	nautical mile(s)
NMFS	National Oceanic and Atmospheric Administration’s Nation Marine Fisheries Service; also, *NOAA Fisheries*
NOAA	National Oceanic and Atmospheric Administration

NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service; also, *NMFS*
OSPAR	Oslo and Paris Conventions Commission
PBF	physical or biological features; also, *PCE*
PCE	Primary Constituent Element
PFMC	Pacific Fishery Management Council
RHA	Rockfish Hot Spot Areas
S&T	Science and Technology Directorate
SRKW	Southern Resident Killer Whale
SSWD	sea star wasting disease
VAC	Volts Alternating Current
WA	Washington State
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Executive Summary

This Biological Assessment (BA) and Essential Fish Habitat (EFH) Assessment were prepared in accordance with Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code 1531-1544, as amended). The BA evaluates potential impacts from the proposed installation, operation and potential recovery of a passive submerged cable in the Salish Sea, near the Canadian border, on ESA protected species. Additionally, a BA was prepared for the U.S. Fish and Wildlife Service for the undertaking.

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is proposing to conduct a research project in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State (WA). The Proposed Action includes installation, operation, and potential recovery of a passive submerged 4.42-millimeter (mm; 0.174 inches [in.]) diameter cable between a shoreside connection to landing endpoint (Proposed Action). At the conclusion of the S&T project period, the cable would ultimately be recovered, abandoned in place, or would continue operating in place. The cable would be buried for the majority of the proposed route, but would be laid on the seafloor within sensitive habitats (e.g., eelgrass). The purpose of the Proposed Action is to assess the sensor system's capability to collect maritime environmental data.

The Proposed Action (The Project) begins with the cable installation procedure which can be broken into two portions: (1) shoreside landing (shore landing segment) and (2) cable laying (offshore segment). The shoreside landing is the installation of the 4.42 mm (0.174 in.) diameter cable from a stationary ship approximately 1.5 kilometers (km; 0.93 miles [mi.]) offshore to a designated point on the shoreline by plow sled. The cable laying vessel would hold station or be moored at a predetermined position offshore while the shore landing segment of the cable is laid on the seafloor from a reel on a small craft towards the shore. The shore landing segment is brought ashore through an existing conduit.

The Project is currently being scheduled to occur during the second half of 2024 (Q3/Q4), and last for a duration of 3 to 24 months. At the conclusion of operations, the cable would be recovered, disconnected and abandoned in place, or transferred to another Component (i.e. division) of DHS for use for the remainder of the cable's approximately 25-year lifespan.

The current listing for species from National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife (USFWS) indicate that several federally listed aquatic species may occur within the action area. ESA-listed NMFS species addressed in this BA include the killer whale (Southern Resident Distinct Population Segment [DPS]), humpback whale (Mexico and Central America DPSs), bocaccio (Puget Sound-Georgia Basin DPS), yelloweye rockfish (Puget Sound-Georgia Basin DPS), chinook salmon (Puget Sound Evolutionarily Significant Unit [ESU]), steelhead (Puget Sound DPS), green sturgeon (Southern DPS) and proposed threatened sunflower sea star. Critical habitat is designated within the action area for the killer whale, bocaccio, and chinook salmon Table ES-). According to the Pacific Fishery Management Council (PFMC), the action area also includes Essential Fish Habitat (EFH) for Pacific Groundfish, Pacific Coastal Pelagic Species (CPS), and a Habitat of Particular Concern (HAPC) for Pacific Groundfish.

Stressors resulting from the Proposed Action include temporary localized increase in turbidity and disturbance due to vessel operations (presence and noise). No marine or aquatic species are anticipated to be adversely impacted by the Project. For the shoreside cable connection, the cable will be placed on the seafloor (i.e., the cable will not be buried) through sensitive eelgrass beds proximate to the shore landing infrastructure. Divers will gently place the cable on the substrate to the maximum extent practicable to avoid disturbing more eelgrass than is necessary for cable placement. Depending on tides during the time of cable placement, divers may need to step through portions of the eelgrass patch if the water depth is too shallow to allow them to stay suspended above.

Cable laying and burial activities are expected to produce temporary and localized increases in turbidity in the nearshore environment. Due to the highly dynamic marine environment, turbidity would be dispersed, and sediments would settle back to the seafloor or be diluted to background levels within minutes, depending on the currents at the time of cable installation. Nevertheless, turbidity would be increased for only a short period of time, across a small area, and would dissipate quickly. The effects of the Proposed Action from increases in turbidity are expected to have minimal, if any, effects on listed species. The small-scale nature of the Proposed Action in the marine environment would not impact the migration or movement patterns of highly mobile species in any meaningful way.

Vessel operation during cable installation and potential removal would have potential impacts based on physical presence (including the plow sled) and generated noise. The Action area already contains high levels of vessel traffic and human activity in the marine waters within the Strait of Georgia and Semiahmoo Bay, particularly near Blaine and the Blaine Marine Park. The cable laying operation should not notably increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed species for foraging or resting due to the short, approximately 2-day, deployment and 2-day potential recovery. Underwater noise will be generated by the vessel itself, as well as minimally by the plow sled and plowshare burying the cable into the seafloor. Underwater noise generated by the vessel and plow sled may be elevated above ambient in-water noise levels; however, due to the currents of northern Puget Sound and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to ESA-listed species which may be present in the immediate vicinity at the time of cable installation or potential recovery.

The Proposed Action would not cause any permanent degradation of marine habitat. The project would not cause any temporary or permanent change or degradation to EFH, and the small increase in turbidity would be temporary, as sediment would quickly dissipate via ocean current transport before settling back on the seafloor. The cable laying vessel presence and noise would also only be temporary, as the entire cable installation process is planned to take approximately 2 days and an additional 2 days for potential recovery. As such, this proposed Project **may adversely affect** Pacific Groundfish EFH, Pacific CPS EFH, and seagrass (i.e., eelgrass) HAPC.

Overall, the Proposed Action is not likely to jeopardize the continued existence of ESA-listed species or EFH found within the Action area (**Table ES-1**).

Table ES-1. Effects Determination for ESA-listed Species and Critical Habitat in the Action area

Common Name (*Scientific Name*)	Federal Status	Critical Habitat in Action area	Jurisdiction	Effects Determination
Marine Mammals				
Killer Whale, Southern Resident DPS (*Orcinus orca*)	Endangered	Yes	NOAA Fisheries	NLAA
Humpback Whale, Central America DPS (*Megaptera novaeangliae*)	Endangered	No	NOAA Fisheries	NLAA

Common Name (*Scientific Name*)	Federal Status	Critical Habitat in Action area	Jurisdiction	Effects Determination
Humpback Whale, Mexico DPS (*Megaptera novaeangliae*)	Threatened	No	NOAA Fisheries	NLAA
Fishes				
Bocaccio, Puget Sound-Georgia Basin DPS (*Sebastes paucispinis*)	Endangered	Yes	NOAA Fisheries	NLAA
Yelloweye Rockfish, Puget Sound-Georgia Basin DPS (*Sebastes ruberrimus*)	Threatened	No[1]	NOAA Fisheries	NLAA
Chinook Salmon, Puget Sound ESU (*Oncorhynchus tshawytscha*)	Threatened	Yes	NOAA Fisheries	NLAA
Steelhead, Puget Sound DPS (*O. mykiss*)	Threatened	No	NOAA Fisheries	NLA
Green Sturgeon, Southern DPS (*Acipenser medirostris)*	Threatened	No	NOAA Fisheries	NLAA
Echinoderms				
Sunflower Sea Star (*Pycnopodia helianthoides*)	Proposed Threatened	N/A	NOAA Fisheries	NLAA

Note:

1. The is designated critical habitat is located within the action area (79 FR 68041). However, the proposed cable route will avoid entering any deep-water critical habitat. This critical habitat is defined as “benthic habitats or sites deeper than 30 m (98 ft.) that possess or are adjacent to areas of complex bathymetry consisting of rock and or highly rugose habitat that are essential to conservation because these features support growth, survival, reproduction, and feeding opportunities by providing structure for rockfishes to avoid predation, seek food and persist for decades” (79 FR 68041).

Key:

DPS = Distinct Population Segment

ESA = Endangered Species Act

ESU = Evolutionarily Significant Unit

NLAA = May Effect, Not Likely to Adversely Affect

NOAA Fisheries = NOAA National Marine Fisheries Service (i.e., NMFS)

Source: NOAA Fisheries 2023a

1. Introduction

1.1 Background

This Biological Assessment (BA) and Essential Fish Habitat (EFH) assessment analyzes the installation, operation, potential recovery or abandonment in place of a DHS passive maritime cable in the Strait of Georgia and Semiahmoo Bay with a landing in Washington State (WA) (**Figure 1**).

The purpose of the BA is to determine whether the Proposed Action may affect federally threatened and endangered species and whether the Proposed Action would degrade or adversely modify designated critical habitat. The best available scientific and commercial information was used to assess the risks posed to listed species and/or critical habitat(s) that would result from the Proposed Action. This BA was prepared in accordance with Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code 1531-1544, as amended) and EFH assessment in accordance with the Magnuson-Stevens Fisheries Conservation and Management Act (MSA) of 1976, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297).

Section 7(a)(2) of the ESA's implementing regulation requires federal agencies to consult with USFWS and NOAA Fisheries regarding species protected under this act. The USFWS has jurisdiction over the bull trout (*Salvelinus confluentus*) and all listed wildlife and terrestrial plant species, while NOAA Fisheries oversees listed marine mammals, marine fish species, and several anadromous salmonid species. A separate BA has been prepared to address ESA species under USFWS' jurisdiction.

Many marine and freshwater habitats are critical to the productivity and sustainability of marine fisheries. The 1996 amendments to the MSA set forth EFH provisions to identify and protect important habitats of federally managed marine and anadromous fish species. Section 305(b)(2) of the amended MSA directs each federal agency to consult with NOAA Fisheries with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by such agency that may adversely affect any EFH identified under MSA. Implementing regulations for this requirement are at 50 Code of Federal Regulations (CFR) 600 of the MSA. The Pacific Fishery Management Council (PFMC) has designated all marine waters within the action area for one or more regulated species of Pacific Groundfish and Coastal Pelagic Species (CPS).

In addition to EFH designations, Habitat Areas of Particular Concern (HAPC) are also designated by the regional Fishery Management Councils. Designated HAPC are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (50 CFR § 600.805-600.815). On November 1-3, 2023, S&T contractors performed a hydrographic survey and identified dense eelgrass beds (a type of seagrass HAPC) along the proposed cable route.

1.2 ESA Consultation History

S&T provided Project information to NMFS North Puget Sound Branch in February and March 2024. S&T has not received any comments on the Project from NOAA to date.

In early November 2023, seafloor mapping and submerged aquatic vegetation surveys of candidate shoreside landing sites and cable routes—Alternative 1 (preferred) and Alternatives 2 and 3—were conducted within the Strait of Georgia. Subsequently, a more detailed survey was conducted to better define and avoid potential culturally sensitive areas along Alternative Routes 1 and 2.

1.3 Project Location

DHS S&T would conduct the research project in the waters of the Strait of Georgia and Semiahmoo Bay in WA, near the Northern maritime border with Canada. The project would be located entirely within the U.S. side of the Strait of Georgia (also Georgia Strait). No portion of the proposed cable would cross into Canadian waters; it would remain entirely within U.S. waters.

The submerged cable would be approximately 10 to 30 kilometers (km; 5.4 to 16.2 nautical miles [NM]) in length. The cable would be shallow buried to approximately 30.5 centimeters (cm; 12 inches [in.]) below the seafloor in the Strait of Georgia and Semiahmoo Bay, except in sensitive habitats (e.g., eelgrass beds) where the cable would be placed on the seafloor by divers. The proposed project would occur within the Nooksack watershed, Water Resource Inventory Area (WRIA) 1, and 'Puget Sound 2' Hydrologic Unit Boundary, 6th level (HUC6). The Township, Range, and Section are all aquatic. A more specific location (e.g., coordinates and driving directions) cannot be provided, as this information is law enforcement sensitive.

1.4 Proposed Action

DHS S&T requires maritime environmental monitoring capabilities for technology assessments and proposes to deploy and operate a submerged cable in the waters of Georgia Strait, near the Northern Border with Canada (**Figure 1**). This is intended to remain in place for 3 to 24 months before being either recovered, disconnected and abandoned in place, or transferred to another Component of DHS for use for the life of the cable (approximately 25 years). The cable would be approximately 10 to 30 km (5.4 to 16.2 NM) in length and be connected to a single existing shoreside facility. The cable would not emit energy, heat, or sound but would passively collect maritime environmental data from the surrounding waters. The cable is targeted to be deployed in the second half (Q3/Q4) of 2024.

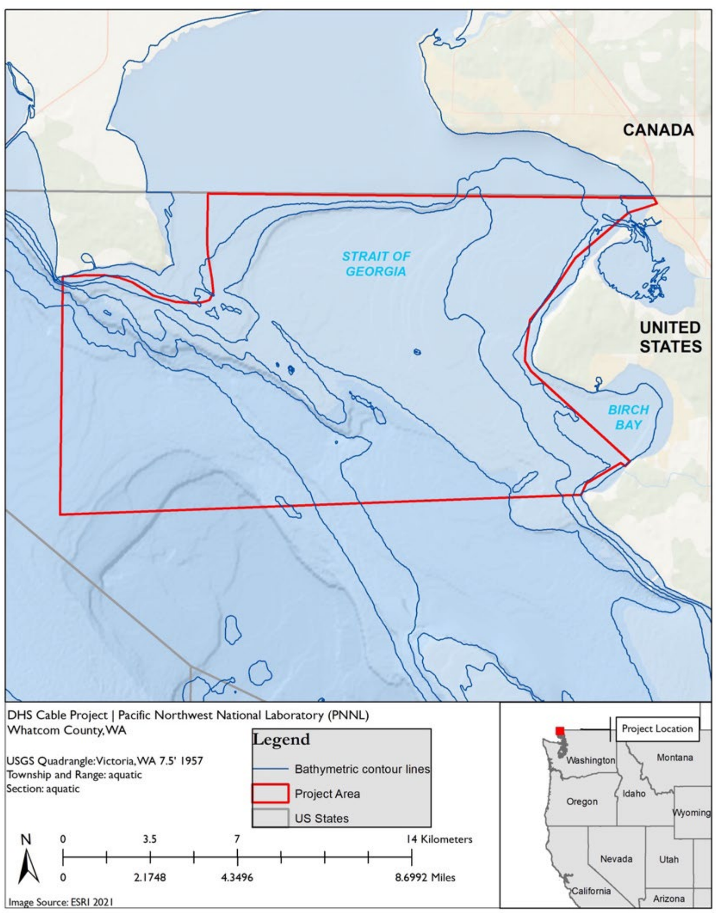

Figure 1. Vicinity Map

The Proposed Action evaluated in this BA and EFH Assessment includes the activities relating to the deployment, operation, and one of the following: recovery, abandonment in place, or continuation of operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay in WA, near the Northern border with Canada (Proposed Action). The purpose of the Proposed Action is to assess the advances of sensor technology and to evaluate the capability and performance of the cable sensor system.

No harbors or waterways would be closed under the Proposed Action; however, recreational boating, fishing, and diving may be temporarily restricted in the immediate area, with a 15 to 30 m (49.2 to 98.4 ft.) standoff, where the Proposed Action cable installation and potential recovery activities are actively occurring.

1.5 Proposed Action Components

The Proposed Action has been grouped into three primary components: (1) cable installation; (2) cable operation; and (3) potential cable recovery. Cable installation will utilize already existing landing infrastructure, with no new shoreside facility being constructed as part of this proposed Project. The cable laying vessel will operate for approximately two days: one 5- to 9-hour day for the shoreside cable installation and connection (Day 1) and one 8-hour day for traversing the cable route while laying and burying the cable (Day 2).

1.5.1 Cable Installation

Cables have relatively minor environmental effects, but caution is necessary during burial and laying activities (NOAA 2024). Direct impacts are expected during installation activities, due to heightened vessel traffic and disturbance of the seafloor (NOAA 2024).

Cable

Cables carry telecommunication signals across stretches of land and water. Cables have been used successfully throughout the Salish Sea and Puget Sound for at least the past 25 years, including a landing at Point Roberts—AmeriCan-1—that has been ready for service since 1999 (TeleGeography 2024). The cable to be deployed has a diameter of 4.42 mm (0.174 in.) and contains wires inside a small stainless-steel tube. The tube is protected by a single layer of Inconel 625 armor wires and a thin (0.889 mm [0.035 in.]) Hytrel jacket. The weight of the cable in air is 41.75 kg/km [0.0281 lbs/ft.], and the specific gravity of 2.6. The cable would not emit electromagnetic fields (EMF), energy, heat, or sound, but rather would passively collect maritime environmental data from the surrounding waters.

The cable installation procedure is analyzed in two parts: (1) shoreside landing (shore segment) and (2) cable laying (offshore segment). The shoreside landing is the installation of the cable from a stationary 75 ft research vessel —approximately 1.5 km (0.93 mi.) offshore to a designated point on the shoreline. During the cable laying operation, the ship would move seaward and lay and bury cable from the shore to the cable route end position. A detailed safety plan and hazard analysis have been developed and would be followed for the duration of the cable installation to protect the cable laying crew.

1.5.1.1 Shoreside Landing

The shoreside landing is the installation of the 4.42 mm (0.174 inch [in.]) diameter cable from a stationary ship approximately 1.5 km (0.93 mi.) offshore to a designated point on the shoreline. The cable laying vessel— (Section 1.7)—would hold station or be moored at a predetermined position while a small craft lays the cable from a reel on the small craft to the beach (**Figure 2**). Divers will hand-place the cable through sensitive areas (e.g., eel grass). Some hand burial within the gravel beach area may be required. When the cable has been landed at the beach, it would then be fed through an existing stormwater drainage system and conduit to a climate-controlled building that would house the equipment to analyze the data collected by the cable. The shoreside landing process is anticipated to take approximately 5 to 9 hours to complete, this estimate does not include specific dive operations or weather contingencies. The cable termination point on land would connect to existing infrastructure and take advantage of existing power and communications.

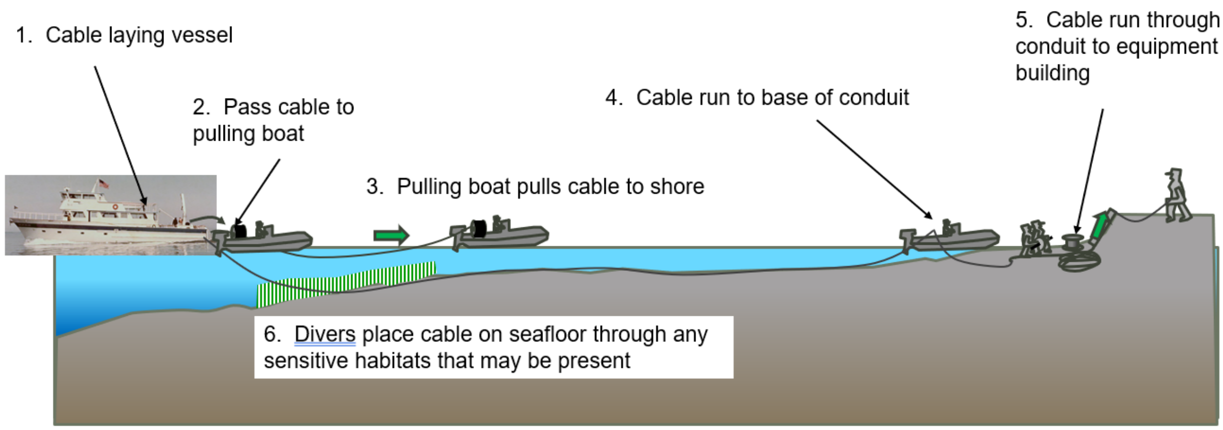

Figure 2. Example of Cable Laying Shoreside Landing Installation Plan

1.5.1.2 Cable Laying

From the seaward extent of the shoreside landing (approximately 1.5 km [0.93 mi.] offshore), the installation vessel would bury the 4.42 mm (0.174 in.) diameter cable in the seafloor to a depth of approximately 30.5 cm (12 in.) underneath the seafloor. The cable would be deployed from the stern of the installation vessel using a powered reel or winch. The vessel speed and cable payout rate would be coordinated to provide an appropriate amount of slack on the seafloor. The target amount of slack is termed "*conformal slack*," which is the amount of slack the cable requires to ensure that it follows the seafloor contours. To provide the cable protection and keep it in place, the cable would be installed using a bury-while-lay procedure employing a small burial sled to place the cable beneath the seafloor.

In shallower waters (i.e., less than 2,000 m [1.24 mi.; 65,61.7 ft.]), cables are typically buried beneath the substrate (Carter et. al. 2014). While typical burial depth is between 0.6 and 1.5 m (1.97 and 4.92 ft.), due to the cable's small diameter (4.42 mm [0.174 in.], high specific gravity (2.73), and lack of man-made threats in the area, a shallower burial depth would still hold the cable in place and be less environmentally disruptive. The bury-while-lay process would utilize a towed burial sled with a 7.62 cm (3-in.)-wide plow to place the cable approximately 30.5 cm (12 in.) below the seafloor, the seafloor would then backfill over the cable as the scar closure shoe at the end of the plow passes over the emplaced cable (**Figure 3**).

The plow would be over boarded into the waterway, and the cable would be fed through the guide cone and placed on the seafloor. The plow would be towed by the installation vessel, with the cable paid out through the plow (see **Figure 3**). Use of a one-step burial plow sled involves the lowest environmental impacts (OSPAR 2012). The act of burying the cable serves the dual purpose of safeguarding the surrounding environment from potential cable displacement due to currents and mitigating the risk of damage caused by the cable (NOAA 2024). Burying the cable also serves to protect the cable from activities like commercial and recreational fishing or crabbing.

On confirmation of a well-functioning cable, the vessel would then proceed along the surveyed cable laydown route to the end of the cable. Planned deployment speed is 3 knots or less and to ensure proper installation, cable tension would be monitored using a cable tensiometer from the installation vessel. The end of the cable would be lowered to the seafloor with a small (30.5 cm x 30.5 cm [6 in. x 6 in.]) deadweight anchor, weighing approximately 11.3 kg (25 pounds [lbs.]), using a tag line and releasable hook. Based on this plan, cable laying operations would be expected to take approximately eight hours (excluding weather issues or other contingencies) and when combined with laying of the shore ending, would occur over the course of approximately two days.

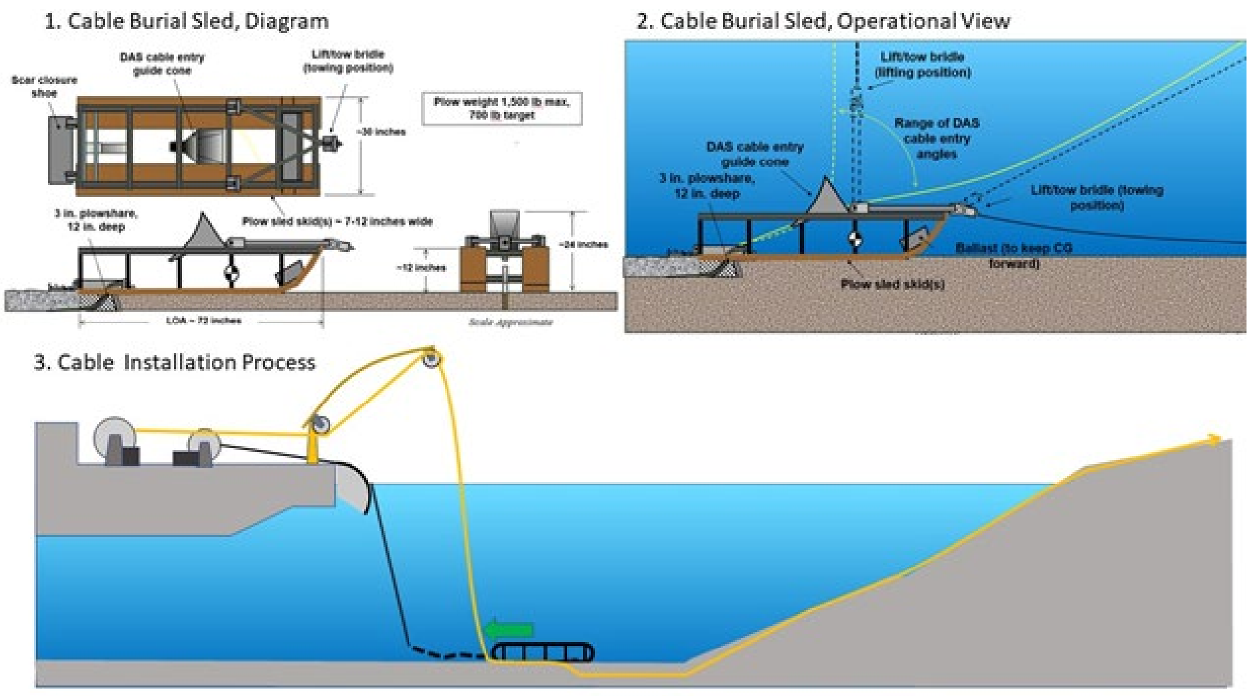

Figure 3. Schematic of Cable Burial Sled

DHS S&T would utilize experienced contractors for the coordination and execution of the installation. DHS will obtain all applicable permits, permissions, and authorizations prior to starting cable installation activities, including but not limited to the U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Washington State Department of Natural Resources (DNR), Washington Department of Fish and Wildlife (WDFW), Washington State Department of Ecology (Ecology), and Whatcom County Planning and Development Services.

1.5.1.3 Cable Laying Vessel

The cable laying operations would be conducted using a research vessel (**Figure 4**). The research vessel is a 1967 Drake Craft, equipped for hydrographic survey, fisheries research, and/or transporting live fish in circulating sea water tanks. It is a 22.7-m (75-ft.) wood/fiberglass vessel, with a 6.9-m (22.5 ft.) beam, 2.0-m (6.5-ft.) draft, with a cruising speed of 10 knots. It draws its main power from two outboard engines, each with 350 horsepower (hp).

The research vessel would mobilize at its homeport. Once project equipment is installed and checked out, it would transit to the operation area in the Strait of Georgia and install the cable. When the installation is complete, the vessel would transit back to its homeport to demobilize, completing the charter. Vessel track would be recorded digitally and displayed on the Nobeltec and a chart plotter. Water depth along the track line would be measured by a Furuno FCV1900 50/200 kilohertz (khz) 3-kilowatt kW echo sounder.

Differential Global Positioning System (DGPS) navigation would be used during installation of the cable. DHS S&T would maintain detailed records of the cable deployment process, including as-built drawings for regulatory compliance and future reference.

Figure 4. Example of a Research Vessel

1.5.2 Cable Operation

Properly installed cables have never demonstrated significant adverse effects on the nearby marine environment (NOAA 2024). Cables typically remain stationary after placement, if correctly laid. The cable would be coated with a durable, abrasion resistant, inert polyester called Hytrel (NOAA 2024).

The cable will be protected by a single layer of Inconel wires and a thin Hytrel jacket. Hytrel is a plasticizer-free, thermoplastic copolyester elastomer that is versatile, resilient, and durable. It is preferred by manufacturers for its resilience, heat, and chemical resistance, as well as its strength and durability. Once laid, the cable would not emit any heat, light, sound, or electromagnetic fields (EMF), but rather would passively collect data from the surrounding waters. Due to the narrow diameter of the cable (4.42 mm [0.174 in.]), it occupies a very small cross-sectional area minimizing concerns about introducing an artificial hard substrate. Once deployed, the cable would operate like any undersea data cable but with a smaller diameter than a telecommunication or transoceanic cable.

1.5.3 Cable Recovery

The cable would be recovered, abandoned in place, or transferred to another Operational and Support Component of DHS to continue operations after the initial deployment period is finished. If the cable is recovered, some portions may be left in place to reduce disturbance to sensitive habitats (e.g., eelgrass). Cable recovery would be conducted in the reverse manner it was laid, beginning with the anchor tag line. Recovery would be anticipated to take less than one day to complete. If portions of the cable run through sensitive areas, they would be severed and left in place to prevent additional disturbance to the habitat. This method may be adjusted depending on recommendations from ongoing discussions with state and federal regulators and natural resource agencies.

1.6 Project Timing

The preferred timeline for cable deployment is the second half (Q3/Q4) of 2024. Once deployed, the cable would remain in place for the duration of the research project period, approximately 3 to 24 months.

1.7 Impact Avoidance and Minimization Measures

A series of Best Management Practices (BMP) would be applied during the installation, operation, and decommissioning of the Proposed Action. These BMPs serve as mitigation measures to minimize the risk of harm to ESA-listed species for the Proposed Action. All workers associated with The Project, irrespective of their employment arrangement or affiliation (e.g., employee, contractor), would be fully briefed on these BMPs and the requirement to adhere to them for the duration of their involvement in this project. The BMPs that would be implemented include the following:

Vessel Operations

- The cable laying vessel speed would be limited to 9 knots or less during transit. Note, the vessel has a maximum speed of 10 knots.
- During cable laying operations, vessel speed would be reduced further to less than 3 knots, reducing turbidity.
- To the extent it is practicable and safe, vessel operators would operate their vessel thrusters (both main drive and dynamic positioning) at the minimum power necessary to accomplish the work.
- The only source of hazardous materials would be petroleum-based fuel and lubricating oil used in the operation of the cable ship during cable-laying activities. The cable laying ship would have proper spill response materials and follow protocols for petroleum product spills or leaks.
- Additionally, the following waste reduction strategies would be implemented:
    - Project-associated staff would properly secure all ropes, nets, and other materials that could blow or wash overboard.
    - Project-associated staff would cut all materials that form closed loops (e.g., plastic packing bands, rubber bands, and all other loops) prior to proper disposal in a closed and secured trash bin. Trash bins would be properly secured with locked or secured lids that cannot blow open, preventing trash from entering the environment, thus reducing the risk of entanglement if waste enters marine waters.
    - All trash would be immediately placed in trash bins and bins would be properly secured with locked or secured lids that cannot blow open and disperse trash into the environment.

Cable Laying Operations

- Placement of cable would minimize impacts by avoiding protected areas and other ecologically important, valuable, and sensitive areas (e.g., avoidance of rocky outcrops, eelgrass beds, and macroalgae, per the marine survey) to the maximum extent practicable.
- The cable would be lowered to the seafloor in a slow and controlled manner and methods to place cable on the seafloor would be conducted in a manner to minimize sediment disturbance.
- Where the cable laying operations occur within eelgrass beds, a team of divers would carefully guide the cable through the eelgrass by moving it out of the way. No cutting of eelgrass would occur.

- Known anchorages would be avoided along the cable route.

Cable Extraction Operations

- When the cable is recovered, some portions may be left in place to reduce disturbance to sensitive habitats (e.g., eelgrasses).

Protected Species Monitoring Requirements

Personnel on the cable laying vessel would be instructed to observe wildlife. If marine mammals are sighted:

- Vessels should maintain a minimum distance of approximately 100.6 m (330 ft.) from the sighting location, when feasible.
- Vessels would not be permitted to cross directly in front of or intersect the path of any sighted marine mammals.
- If a large marine mammal (e.g., whale) passes along the ship, the vessel operator would maintain a steady heading and constant speed that is not faster than the sighted mammal 's speed.
- If sighted marine mammal(s) demonstrate defensive or disturbed actions, the vessel would slow or be taken out of gear until the animal calms and/or moves a safe distance away from the vessel.
- If an ESA-listed pinniped comes within approximately 100.6 m (330 ft.) of the vessel during cable installation or potential recovery, onboard personnel may modify vessel operations until the animal moves safely out of the area and remains unobserved for 30 minutes.
- If an ESA-listed whale comes within approximately 2.15 m (7.067 ft.) of the vessel during cable installation or potential recovery, onboard personnel may modify vessel operations until the animal moves safely out of the area and remains unobserved for 30 minutes.
- In the highly unlikely event of a vessel strike with a marine mammal, the vessel operator would follow the Project's incident reporting procedures, outlined below (Section 1.7.1).

1.7.1 Incident Reporting Procedures

In the highly unlikely event of a vessel strike with a marine mammal during installation, recovery activities or vessel transit, the vessel operator must document the conditions at the time of the incident, including the following:

A. Latitude and longitude of the vessel at the incident location.
B. Date and time of the incident.
C. Speed and bearing of the vessel at the time of the incident.
D. Approximate size of the animal (length) and **take a photo** if possible.
E. Condition of the animal (alive, dead, wounded, bleeding, etc.)
F. Environmental conditions at the time of the incident, including wind speed and direction, swell height, visibility in miles, percent cloud cover, and presence or absence of precipitation or fog.
G. The names of the vessel, vessel operator, vessel owner, and captain or officer in charge of the vessel at the time of the incident.

If a collision takes place, the vessel must stop, if it is safe to do so, and attempt to evaluate the condition of the animal for reporting purposes. In the event that installation or recovery activities involve a collision with or harassment of a federally listed species, the incident must be reported in a timely manner. Reporting should be directed to the following parties:

1) All vessel strikes will be reported immediately by telephone communications to NOAA's West Coast Region Marine Mammal Stranding Network: West Coast Region Marine Mammal Stranding Hotline: 1 (866) 767-6114
2) DHS S&T, Environment, Safety, Health, and Energy Branch for attention to NEPA Program Lead at [INSERT]
3) DHS Headquarters, Environmental Planning and Historic Preservation at sepephp@hq.dhs.gov

Vessel operators are not permitted to aid injured marine mammals or recover a carcass unless specifically asked to do so by the Stranding Coordinator. DHS S&T would coordinate with the appropriate NOAA and FWS field office as applicable.

1.8 Action Area

The "*action area*" is defined by the ESA as "*all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action*" (50 CFR § 402.02). Each project has just one action area, which is distinct from and larger than the Project footprint because some elements of the Project may affect ESA-listed species beyond the Project footprint. The single action area for The Project encompasses the geographic extent of all direct and indirect effects (physical, biological, and chemical) related to the Proposed Action affecting the environment. The action area, therefore, extends out to a point where no measurable effects from The Project are expected to occur. For marine mammals, the distances that potentially disturbing sounds can carry underwater are an important component of the action area.

For the purposes of this BA, the action area is within the Strait of Georgia and bounded by the U.S. / Canada border on the north, west, south to the U.S. / Canada border, and east to WA (**Figure 1**). Within the action area is the approximately 26 km (16 mi.) proposed cable route between the shoreside facility and a western point, crossing the Strait of Georgia and Semiahmoo Bay. This route includes laying the 4.42-mm (0.174-in.) diameter cable on the seafloor for approximately 1.5 km (0.93 mi.) from the vessel to the cable landing infrastructure using a combination of a pulling boat and divers (**Figure 2**), and shallow burial 30.5 cm (12 in.) along the rest of the route (**Figure 3**). Considerations within the action area also include the seafloor affected by the plow sled 182.9 cm x 76.2 cm (72 in. x 30 in.; length x width) with the internal 7.62 cm (3 in.) plowshare that would bury the cable along the seafloor and the resulting temporary and localized suspended sediment in the water column, and effects from the cable-laying vessel operations (presence and noise).

Additionally, the action area includes the ensonified area within marine waters in which Project-related noise levels are greater than or equal to 120 dB_{rms} 1µPa or approaching ambient noise levels (i.e., the point where Project-related sound attenuates to levels below non-anthropogenic sound). Additionally, the action area includes the esonified area within marine waters in which Project-related noise levels are greater than or equal to 120 dBrms 1µPa or approaching ambient noise levels (i.e., the point where Project-related sound attenuates to levels below non-anthropogenic sound). Unlike large scale cable laying operations where dynamic positioning (DP) and large motors can increase noise within the water column to over ambient noise levels (Hartin et al. 2011; Green et al. 2018), the vessel being used will only esonify waters at most a few meters away from the vessel, if any. The approximately 45-ft. shallow draft vessel is powered by two outboards motors, laying cable at approximately 2 knots, controlled by the skipper with a joystick. Noise will not rise above typical recreational vessel traffic noise levels in the area.

2. Environmental Setting

2.1 Habitat Conditions in Action Area

2.1.1 Strait of Georgia and Semiahmoo Bay

Characteristics and Environmental Elements

The Strait of Georgia is the body of water located between Vancouver Island, Canada, and the northwest corner of WA, U.S., the Strait of Georgia is approximately 220 to 240 km (135 to 150 mi.) in length, with varying widths between 20-58 km (12-36 mi.) (Georgia Strait Alliance 2024). The Strait of Georgia has a mean depth of approximately 156 m [512 ft.] and surface area of 6,800 square km (2,600 mi^2), with a maximum depth of approximately 420 to 447 m (1,380 to 1,467 ft.) at the Ballenas Basin in its center (Picard 2006; Georgia Strait Alliance 2024).

The Strait of Georgia is connected to the Strait of Juan de Fuca to the south through the Boundary Pass, Haro Strait, and Rosario Strait, and is a major navigation channel due to the proximity of the port of Vancouver, BC. The strait also acts as the southern entrance to the intracoastal Inside Passage, which weaves through western BC islands between southeastern Alaska and northwest WA. Semiahmoo Bay is part of the eastern Strait of Georgia.

Approximately 80 percent of the fresh water that enters the Strait of Georgia comes from the Fraser River, which has its delta around Vancouver, BC. In the inland sea of the Strait of Georgia, there is strong estuarine circulation related to seasonal input of particulates, freshwater, and organic carbon from the Fraser River (Hill et al. 2008; Burd et al. 2008). The highest sediment accumulation rates and organic fluxes occur along the eastern margin of the Strait, off the Fraser River (Hill et al. 2008). Sandy silt from the Fraser River is transported outward from the delta along the bottom northward and downslope (Pharo and Barnes 1976; Burd et al. 2008).

Sediment in Semiahmoo Bay can be characterized as mostly silt and clay, with minimal sand. Grain size distribution for Semiahmoo Bay (in fractional percent) consists of the following: 87.3 to 96.1 percent fines (silt + clay); 72.4 to 79.2 percent silt; 13.0 to 17.7 percent clay; and 3.1 to 8.7 percent total sand (ER Long 1999). The total sand can be further broken down to 2.2 to 7.3 percent very fine sand; 0.7 to 1.1 percent fine sand; 0 to 0.6 percent medium sand; and 0.1 percent coarse sand (ER Long 1999). Dense eelgrass beds are also located within Semiahmoo Bay (Section 2.2.1).

According to Ecology, areas of the project within the Strait of Georgia and Semiahmoo Bay are listed as a 303(d) impaired waterbody with fecal coliform bacteria (water) and high molecular weight polycyclic aromatic hydrocarbons [HPAH] (Ecology 2023). The impaired waterbody areas are currently listed as Category 5 (“polluted waters that require a water improvement project”) with confirmed violations of water quality criteria due to significant levels of harmful bacteria (Ecology 2024).

Fish and Wildlife

The Strait of Georgia and Semiahmoo Bay includes habitats for a variety of fishes and invertebrate species, including lingcod (*Ophiodon elongatus*), cabezon (*Scorpaenichthys marmoratus*), halibut (*Hippoglossus stenolepis*), in deeper underwater banks and sloping drop-offs, particularly in the Georgia Strait, Pacific cod (*Gadus macrocephalus*) (12-549 m [40-1,800 ft.]), Pacific hake [Strait of Georgia stock] (*Merluccius productus*), oysters, shrimp, littleneck clams (*Leukoma staminae*), butter clams (*Saxidomus gigantea*), Dungeness crab (*Metacarcinus magister*), and red rock crab (*Cancer productus*).

Other salmonids are documented to be, or are potentially, present, in Semiahmoo Bay, as they use an “unnamed” creek that goes through Blaine and empties in the waters of Marine Drive Park:

resident coastal cutthroat trout (*Oncorhynchus clarkii clarkii*), winter steelhead (*O. mykiss*), fall chum (*O. keta*) and coho (*O. kisutch*). Those five species, and fall chinook salmon (*O. tshawytscha*), also use California Creek and/or Dakota Creek connect to nearby Drayton Harbor, to the southeast of Semiahmoo Bay, and therefore are likely to be present in the area.

2.1.2 Bathymetry

In early November 2023, Gravity Marine, LLC. (contracted by Sound & Sea Systems [S3]) performed a hydrographic survey in the action area to investigate route feasibility. The goals of the survey were to survey the potential cable route using high resolution multi-beam echosounder (MBES), identify potential hazards or obstructions and investigate the presence or abundance of any aquatic vegetation at the possible landing sites. The MBES sonar system collected swath bathymetry at varying angles and distances based upon survey depth. Multibeam sonar surveys were conducted on a 7.9-m (26-ft.) aluminum survey vessel.

Along Alternative 1 and 2 is a slope (1:6) that goes as deep as 27.4 m (90 ft.) below mean lower low water (MLLW). However, the slope stays shallower just to the north and only reaches depths of 21.3 to 24.4 m (70 ft. to 80 ft.) MLLW. Also along Alternative 1 and 2 are rocky shoals. The planned survey cable route will avoid rocks, shoals, and other obstacles offshore. The only other noteworthy feature is a slope on the eastern side of The Project area that goes from about 11 to 22 m (36 ft. to 72 ft.) MLLW.

2.2 Aquatic Habitat

2.2.1 Aquatic Vegetation

In early November 2023, vegetation surveys were also conducted by Gravity Marine, LLC. using the research vessel. The vegetation sonar survey mapped the landing zones for the cable. These surveys focused on mapping the presence of aquatic vegetation along the routes at the potential landing sites. The survey data mapped dense eelgrass beds (91 to 100 percent cover) at the landing site (**Figure 5**), with plant heights of 0.9 to 1 m (3 to 3.2 ft.) throughout a majority of the area near the landing site (**Figure 6**). The vegetation beds at the site contained eelgrass from about -2 ft. to -8 ft. (-0.61 to -2.4 m) MLLW. No eelgrass was mapped near the western point (**Figure 7**).

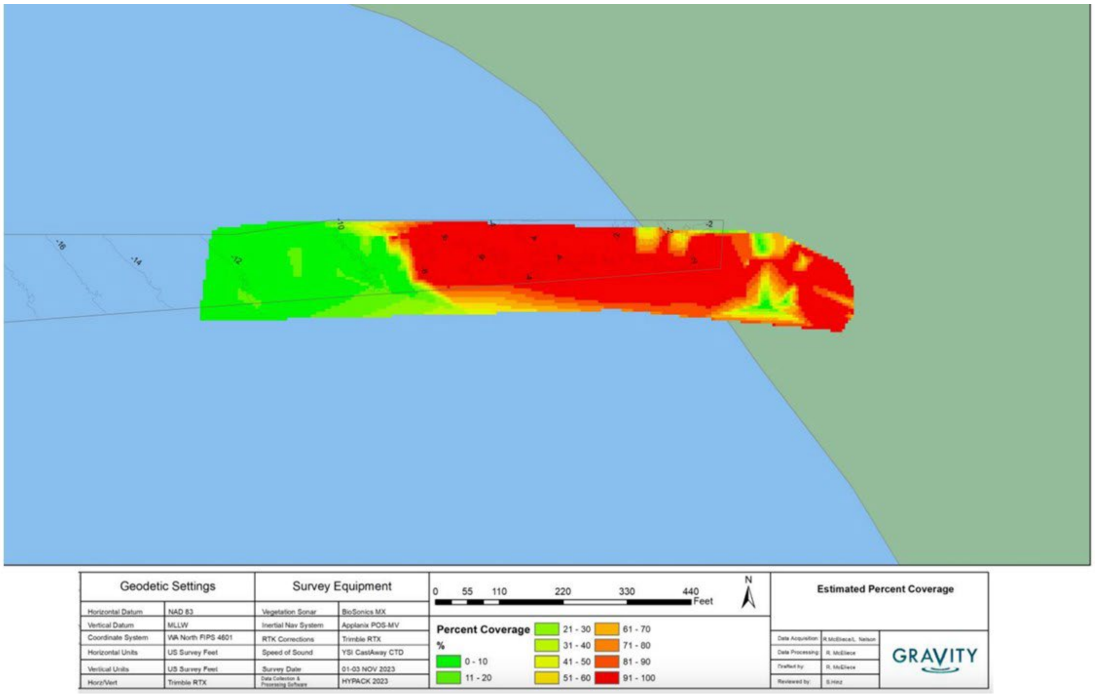

Figure 5. Estimated Percent Vegetation Coverage

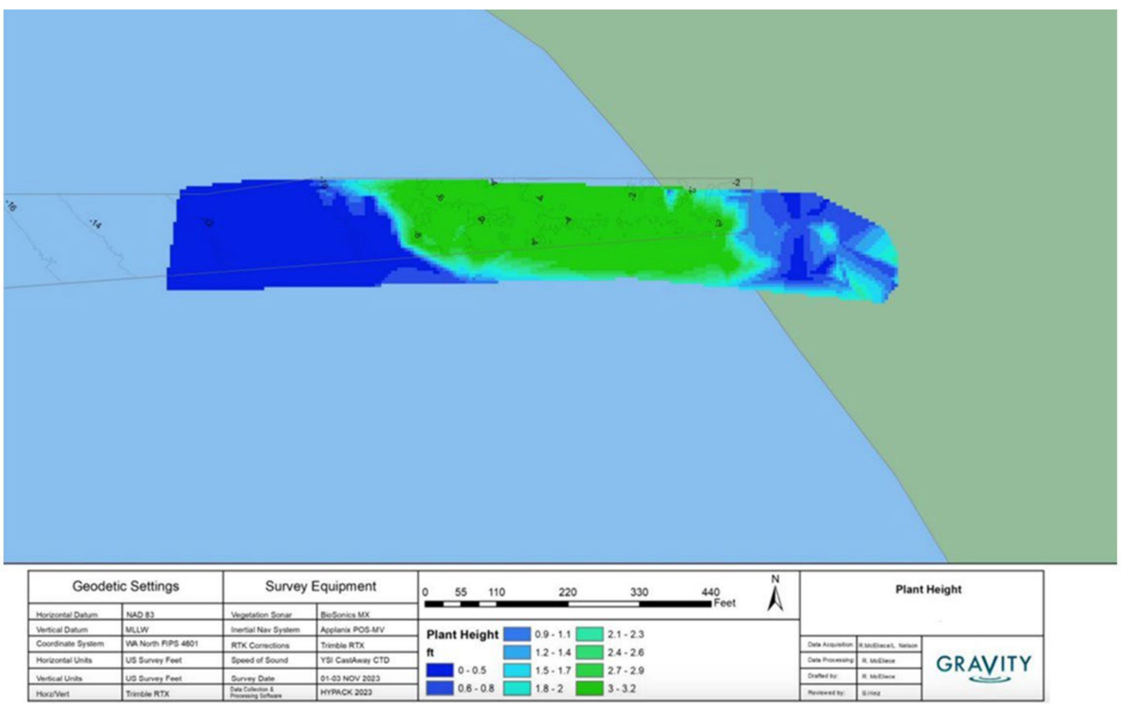

Figure 6. Plant Height of Vegetation

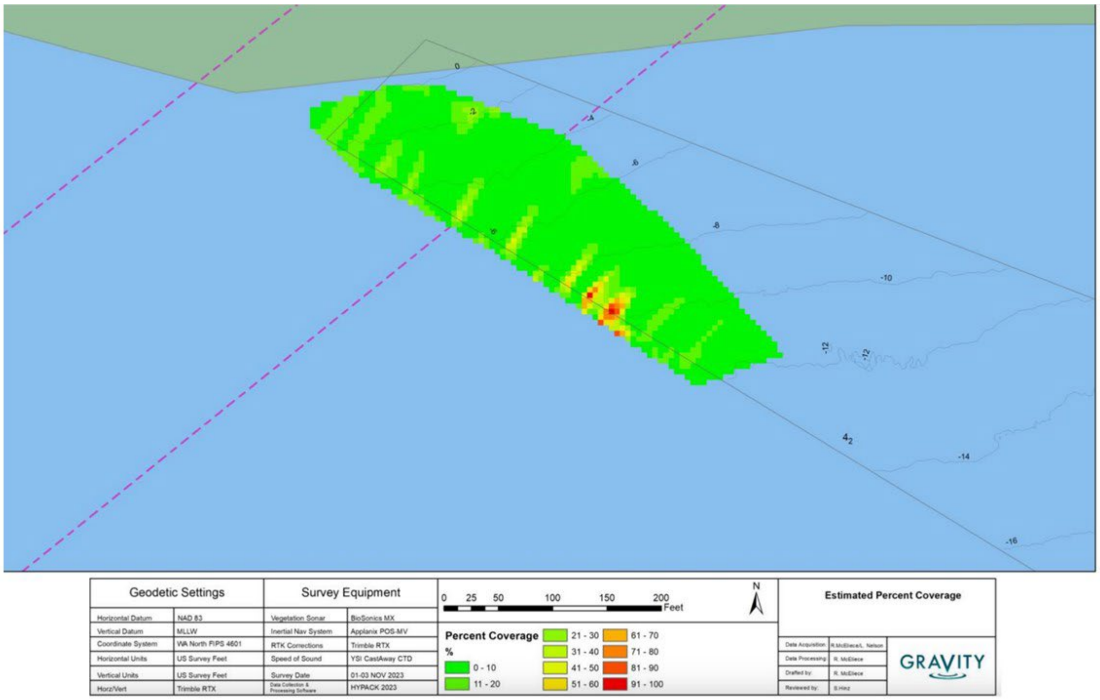

Figure 7. Estimated Percent Vegetation Coverage

3. Federally Listed Species and Designated Critical Habitat in the Action Area

3.1 Species and Critical Habitat(s) within Action Area

In accordance with Section 7(a)(2) of the ESA, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species and designated critical habitat. According to NOAA Fisheries (2024a), there are eleven (11) ESA-listed or proposed species and/or stocks and critical habitats for four (4) species that may occur within the action area (**Table 1**).

Table 1: Species and Designated Critical Habitat That May Occur in the Action area

Common Name (*Scientific Name*)	ESA Status	Jurisdiction	Critical Habitat in Action area?	Federal Register
Marine Mammals				
Killer Whale, Southern Resident DPS (*Orcinus orca*)	Endangered	NOAA Fisheries	Yes	**Effective**: Feb. 16, 2006 (70 FR 69903) **Critical Habitat**: Dec. 29, 2006 (71 FR 69054)
Humpback Whale, Central America DPS (*Megaptera novaeangliae*)	Endangered	NOAA Fisheries	No	**Effective**: Oct. 11, 2016 (81 FR 62259) **Critical Habitat**: May 21, 2021 (86 FR 21082)
Humpback Whale, Mexico DPS (*Megaptera novaeangliae*)	Threatened	NOAA Fisheries	No	**Effective**: Oct. 11, 2016 (81 FR 62259) **Critical Habitat**: May 21, 2021 (86 FR 21082)
Fishes				
Bocaccio, Puget Sound-Georgia Basin DPS (*Sebastes paucispinis*)	Endangered	NOAA Fisheries	Yes	**Effective**: Jul. 27, 2010 (75 FR 22276) **Re-affirmed**: Mar. 24, 2017 (82 FR 7711) **Critical Habitat**: Feb. 11, 2015 (79 FR 68041)
Yelloweye Rockfish, Puget Sound-Georgia Basin DPS (*Sebastes ruberrimus*)	Threatened	NOAA Fisheries	No[1]	**Effective**: Jul. 27, 2010 (75 FR 22276) **Re-affirmed**: Mar. 24, 2017 (82 FR 7711) **Critical Habitat**: Feb. 11, 2015 (79 FR 68041)
Chinook Salmon, Puget Sound ESU (*Oncorhynchus tshawytscha*)	Threatened	NOAA Fisheries	Yes	**Effective**: May 24, 1999 (64 FR 14308) **Re-affirmed**: Aug. 29, 2005 (70 FR 371159) **Critical Habitat**: Feb. 11, 2015 (79 FR 68041)

Common Name (*Scientific Name*)	ESA Status	Jurisdiction	Critical Habitat in Action area?	Federal Register
Steelhead, Puget Sound DPS (*O. mykiss*)	Threatened	NOAA Fisheries	No	**Effective**: June 11, 2007 (72 FR 26722) **Updated**: Apr. 14, 2014 (79 FR 20802) **Critical Habitat**: Mar. 25, 2016 (81 FR 9251)
Green Sturgeon, Southern DPS (*Acipenser medirostris)*	Threatened	NOAA Fisheries	No	**Effective**: June 6, 2006 (71 FR 17757) **Critical Habitat**: Nov. 9, 2009 (74 FR 52299)
Echinoderms				
Sunflower Sea Star (*Pycnopodia helianthoides*)	Proposed Threatened	NOAA Fisheries	N/A	**Proposed**: Mar. 16, 2023 (88 FR 16212) **Critical Habitat**; N/A

Notes:

1. There are designated critical habitats located within the Action area (79 FR 68041). However, the proposed cable route will ***not*** be entering any of the deep-water critical habitats . This critical habitat is defined as “benthic habitats or sites deeper than 30 m [98 ft.] that possess or are adjacent to areas of complex bathymetry consisting of rock and or highly rugose habitat that are essential to conservation because these features support growth, survival, reproduction, and feeding opportunities by providing structure for rockfishes to avoid predation, seek food and persist for decades” (79 FR 68041).

Key:

DPS = Distinct Population Segment

ESA = Endangered Species Act

ESU = Evolutionarily Significant Unit

NOAA Fisheries = NOAA National Marine Fisheries Service (i.e., NMFS)

Source: NOAA Fisheries 2023a

3.2 Marine Mammals

3.2.1 Killer Whale, Southern Resident DPS

Status

The Southern Resident DPS of killer whales (*Orcinus orca*; Southern Resident Killer Whale; SRKW) was listed by NOAA Fisheries as endangered on November 15, 2005, effective February 16, 2006 (70 FR 69903), and updated on April 4, 2014 (79 FR 20802). The SRKW is one of four distinct and recognized communities of resident killer whales in the northeastern Pacific (NOAA Fisheries, 2018). This DPS consists of three pods (one or more matriline groups traveling together), designated J, K, and L pods. A 5-year review under the ESA completed in December 2021 indicates that despite coordinated implementation of long-term efforts—intensified during the five years preceding publication—the SRKW DPS has not grown in population (NOAA Fisheries 2021a).

Life History

Killer whales are the largest extant members of the dolphin family and are distributed worldwide. Populations are isolated by region and ecotype (resident, transient, and offshore), and resident killer whales have been divided into four communities: Southern, Northern, Southern Alaska, and Western Alaska (NOAA Fisheries 2021b). The SRKW range extends from southeastern Alaska to central California, with population members commonly found throughout the coastal waters of southern BC and WA.

SRKWs have a lifespan of approximately 30-90 years, reaching maturity in their mid-teens. Mating and calving seasons often span several months, with a long gestational period of 17-18 months (Krahn et al. 2002). In WA waters (Northern and Southern Resident stocks), most births occur between October and March, indicating a mating season from May to September (Olesiuk et al. 1990). Killer whales are polygamous, with most males mating with females outside their home pod. SRKWs usually give birth to a single calf every 3-10 years.

SRKWs are salmon specialists, in particular chinook salmon (Ford et al. 1998; Ford and Ellis 2006; Hanson et al. 2010; Ford et al. 2016; PFMC 2020), which they feed on year-round, averaging 50 percent of their diet in the fall, increasing to 70–80 percent in the mid-winter/early spring, and increasing to nearly 100 percent in the spring (Hanson et al. 2021). Steelhead are known to make up only a very small portion of their diet, even during winter months when preferred prey such as chinook salmon are less prevalent (Hanson et al. 2021).

The three SRKW pods (J, K, and L pods) are frequently sighted in the Salish Sea and Puget Sound (Olsen et al. 2018). As of the July 1, 2023, summer census, the SRKW orca population was 75 individuals (CWR 2023), marking the lowest L pod numbers since 1976, with 34 individuals (2 births since July 1, 2022, census). K pod sits at its lowest number in the last two decades, at 16 individuals. With no mortalities and a single birth, J pod now totals 25 individuals (CWR 2023). Because of their declining population size and small numbers, they are facing imminent threats to their survival and recovery.

Habitat and Migration

SRKW spend a significant portion of the year in WA's inland waterways in the Salish Sea and Puget Sound, particularly during the spring, summer, and fall, when all three pods regularly occur in the Georgia Strait, San Juan Islands, and Strait of Juan de Fuca (Felleman et al. 1991; Heimlich-Boran 1988; Olson 1998; Osborne 1999). The K and L pods typically arrive in May or June and remain in this core area until October or November, although both pods make frequent trips lasting a few days to the outer coasts of WA and southern Vancouver Island (Ford et al. 2000). The J pod occurs intermittently in the Georgia Basin and Puget Sound during late fall, winter, and early spring. During the warmer months, all three pods concentrate their activities in Haro Strait, Boundary Passage, the southern Gulf Islands, the eastern end of the Strait of Juan de Fuca, and several localities in the southern Georgia Strait (Felleman et al. 1991; Ford et al. 2000; Heimlich-Boran 1988; Olson 1998).

SRKWs are highly mobile and can travel up to 160 km in a 24-hour period to rapidly move between areas (Baird and Whitehead 2000). They require open waterways that are free from obstruction (e.g., vessels or in-water structures) to move between important habitat areas, find prey, and fulfill other life history requirements (NOAA Fisheries 2006). Individual knowledge of productive feeding areas and other special habitats is likely an important determinant in selecting locations visited and most likely a learned tradition passed from one generation to the next (Ford et al. 1998).

One of the most important habitat features for SRKWs is the availability of salmon prey, with the occurrence of SRKW in inland waters of the Pacific Northwest being strongly correlated with salmon migration (Heimlich-Boran 1988; Felleman et al. 1991; Bubac et al. 2021). Areas that are major corridors for migrating salmon surrounding the action area, and therefore, for SRKW, include Haro Strait and Boundary Pass just south of the action area, the southern tip of Vancouver Island, Swanson Channel off North Pender Island, and the mouth of the Fraser River delta just south of Vancouver, BC and immediately north of Point Roberts, which is visited by all three pods in September and October (Felleman et al. 1991; Ford et al. 2000).

Threats

SRKWs face a number of threats, but three main causes of their decline have been identified as (1) reduced prey quantity and quality leading to poor body conditions (Durban et al. 2009, Fearnbach et al. 2011, NOAA Fisheries 2016a; Wasser et al. 2017; Matkin et al. 2017, Fearnbach et al. 2018); (2) persistent organic pollutants (POPs, or “legacy contaminants”) and contaminants that could cause immune or reproductive system dysfunction (NOAA Fisheries 2021b); and (3) vessel noise and disturbance (NOAA Fisheries 2014a; 2021a).

SRKWs have been shown to respond to proximity vessels with short-term behavioral changes, including faster swimming speeds, less directed swimming paths, and less time foraging (Williams *et al.* 2002, Bain *et al.* 2006, Williams *et al.* 2006, Lusseau *et al.* 2009, Williams *et al.* 2009, Senigaglia *et al.* 2016, NOAA Fisheries 2021b). Vessels in the path of the whales can also interfere with important social behaviors such as prey sharing (Ford & Ellis 2006) or nursing (Kriete 2007). Puget Sound is a highly trafficked area with hundreds of vessels transiting its waters daily for both commercial and recreational purposes.

Occurrence in Action Area

SRKW reside in the greater Salish Sea waters of BC from late spring through the fall (Ecology 2024). Opportunistic sightings of SRKWs in the Salish Sea from 1976 to 2014 show a pattern of consistent presence during the summer months—especially J, K, and L pods in August—and in Puget Sound proper during the fall and early winter months (Olson et al. 2018). The action area is considered a “summer core” area for SRKW (86 FR 41668). A shift in SRKW presence in Puget Sound was documented in the late 1990s, possibly driven by increased foraging on fall chum salmon by K and L pods (Olson et al. 2018). In the Salish Sea, J and K pods, and to a lesser extent L pods, have also been sighted throughout the winter months (e.g., December through February) (Olson et al. 2018). Of the sightings recorded between 1976 and 2014, the lowest density occurred within the action area [1-250 sightings] (Olson et al. 2018) (**Figure 9**).

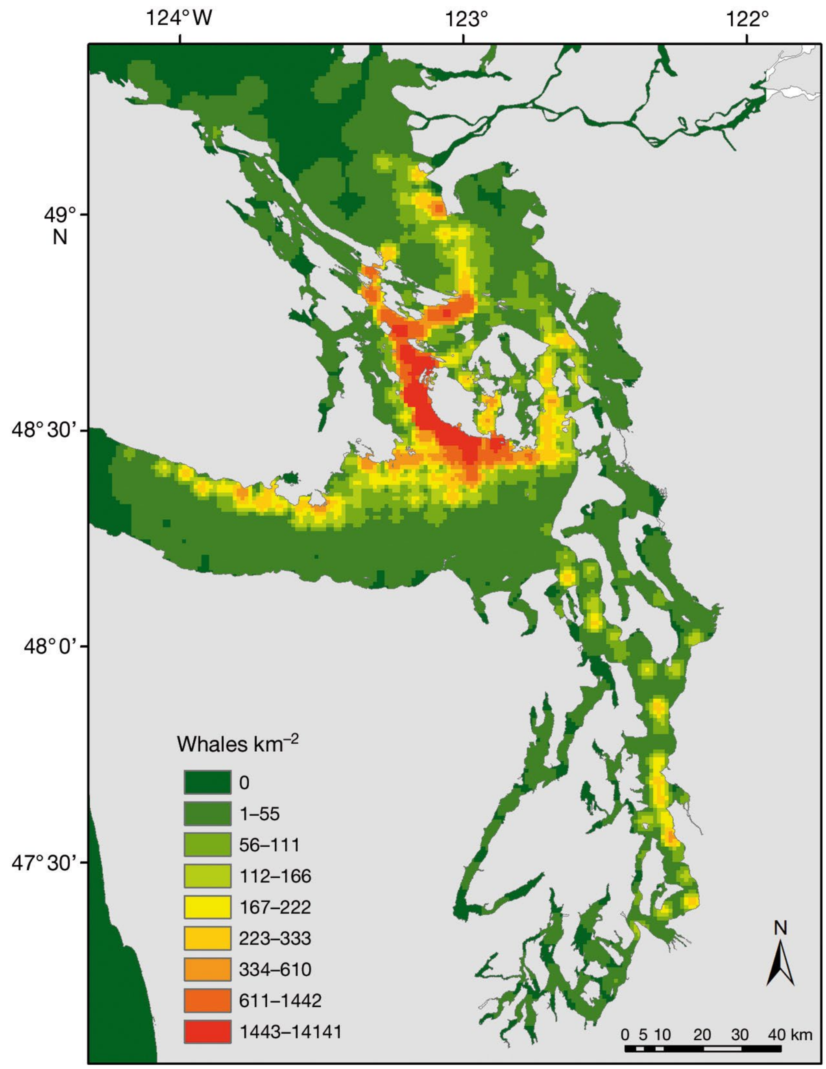

Figure 8. Southern Resident Killer Whale Density Based on Effort-Corrected Data in the Salish Sea from 1976-2014.

Source: Olson et al. 2018

Puget Sound is an important habitat for SRKWs, as it provides a source of food and a sheltered area for the whales to rest and socialize (Heimlich-Boran 1988). It is a migratory corridor and home for its prey species, where SRKWs follow the salmon runs and hunt using echolocation (Schevill and Watkins 1966; Heimlich-Boran 1988; Wright et al. 2021). They are often observed foraging near the surface of the water when traveling through Puget Sound, moving between their local feeding areas and other spawning areas (Noren and Hauser 2016; Bubac et al. 2021).

Critical Habitat

Critical habitat was designated on November 29, 2006, effective December 29, 2006 (71 FR 69054), and was expanded on August 2, 2021, effective September 1, 2021 (86 FR 41668). Designated critical habitat includes the marine waters of WA, including the action area, which falls within the summer core area (Haro Strait and San Juan Islands) and includes "*waters relative to a contiguous shoreline delineated by the line at a depth of 6.5 m relative to extreme high water*." The "essential features" (previously referred to as "primary constituent elements" (PCEs), or "physical or biological features" [PBFs]) for conservation of the SRKW are (86 FR 41668):

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

3.2.2 Humpback Whale – Mexico and Central America DPSs

Status

On September 8, 2016, NOAA Fisheries published the listing status of the humpback whale (*Megaptera novaeangliae*), designating four DPS as either threatened or endangered, effective October 11, 2016 (81 FR 62259). This determination designated the humpback whale Mexico DPS as threatened and the Central America DPS as endangered.

On December 12, 2016, NOAA Fisheries, Alaska Region, published a document providing Section 7 guidance for humpback whale consultations, updated on August 6, 2021 (NOAA Fisheries 2021b). Within the guidance, NOAA Fisheries lists the probability of encountering humpback whale DPS' in the Southern BC and inland WA waters (including Puget Sound, Strait of Juan de Fuca, and San Juan Islands) summer feeding area: Hawaii DPS (not listed) at 69 percent; Mexico DPS (threatened) at 25 percent; and Central America DPS (endangered) at 6 percent (Wade 2021; NOAA Fisheries 2021b). Therefore, NOAA Fisheries states that federal actions should undergo consultation under section 7 of the ESA if they may affect humpback whales to consider potential effects to ESA-listed DPSs (NOAA Fisheries 2021b).

Life History

Humpback whales can live up to 80-90 years, grow to a length of 18 m (60 ft.), and weigh up to approximately 40 tons (NOAA Fisheries 2023b). Humpback whales' bodies are primarily black, but individuals have different amounts of white on their pectoral fins, bellies, and the undersides of their flukes. Their flukes can be up to 18ft wide and are serrated along the trailing edge and pointed at the tips. Fluke pigmentation patterns, in combination with varying shapes, sizes, and scars, are unique and can be used to "fingerprint" individuals.

Female humpback whales mature and begin to reproduce between approximately 5 and 11 years of age (Chittleborough 1955; Gabriele et al. 2017). On average, mature female humpbacks produce a single calf every 2 to 3 years (Clapham et al. 2003), but yearly calving has been documented in some individuals (Robbins 2007; Gabriele et al. 2017). Calves are born after an 11-month gestation and measure about 4 to 4.9 m (13 to 16 ft.) in length (Chittleborough 1958). Mothers are protective of their calves, which stay near them for up to 1 year before weaning. While calves are not believed to maintain long-term associations with their mothers, they are more likely to be found in the same feeding and breeding areas together (NOAA Fisheries 2023b).

Humpback whales forage either at or below the water surface. Humpback whales feed on benthic and pelagic organisms including euphausiids, copepods, and other crustacean zooplankton; small schooling fish such as sand lance and herring; and salmonids, pollock, capelin, and some cephalopod mollusks (Perry et al. 1999). In the inland waters surrounding southern Vancouver Island and Strait of Georgia, humpback whales were found to primarily predate on Pacific herring, hake, euchalon, and to a lesser extent walleye pollock and sablefish (Reidy et al. 2022).

Habitat and Migration

Humpback whales frequently congregate along the continental shelf in coastal habitats because they are highly productive areas that provide prey availability. The WA coast is a corridor for humpback whale annual migration north to feeding grounds and south to breeding grounds. The Mexican DPS population breeds along the Pacific Coast of Mexico and the Revillagigedo Islands

(Alaska), transits the Baja California Peninsula, and feeds across a broad range from California to the Aleutian Islands in Alaska (81 FR 62259; NOAA Fisheries, 2023a). The Central American DPS population breeds along the Pacific coast of Central America and primarily feeds off the coast of California and Oregon, with a few in northern WA and southern BC (81 FR 62259; NOAA Fisheries, 2023a).

Sightings of humpbacks in the Salish Sea and Puget Sound were historically very rare. Two sightings were reported in Puget Sound in May 1976 and June 1978, with a third in June 1986 (Everitt et al. 1980; Osborne et al. 1988; Falcone et al. 2005). However, reported sightings have increased since the late 1990s, and since 2001 there have been several Puget Sound humpback whale sightings reported through the Orca Network annually. A total of 13 unique individual humpback whales were sighted in 2003 and 2004, 11 of which could be identified in inside waters of BC or WA (Strait of Juan de Fuca and Georgia Strait), including a juvenile in the San Juan Islands (Falcone et al. 2005).

In both 2014 and 2015, there were over 500 sighting reports of humpback whales in the Salish Sea (Calambokidis et al. 2017). Along the U.S. West Coast, humpback whale population increased at about 7-8% per year through about 2010 and then stabilized suggesting a recovery to pre-whaling numbers and becoming more common within the Salish Sea (Calambokidis and Barlow 2004, 2017; Calambokidis et al. 2004, 2017, 2018). 2022 was a record-breaking year for humpback sightings, including the Salish Sea (396 total, up from 293 in 2017), peaking in fall (CPHC 2022).

Threats

Increased vessel strikes and fishing gear entanglement are the primary threats to the Central America DPS, especially in areas with large vessel traffic (Carretta et al. 2010, 2018; Douglas et al. 2008; Bettridge et al. 2015; 81 FR 62259). The Mexican DPS face the same threats while feeding off the WA coast and within shipping lanes between Alaska and BC (Carretta et al. 2010, 2018; Neilson et al. 2012; 81 FR 62259). However, the number of vessel strikes attributable to each breeding ground DPS (Mexico and Central America) is unknown (Carretta et al. 2018).

Vessel noise from whale watching activities has been shown to be a driver of behavioral changes in humpback whales, resulting in decreased resting time (up to 30 percent in mother whales), increased respiration rate (up to doubling), increased swim speed (up to 37 percent), and altered group cohesiveness (Senigaglia et al. 2016; Machernis et al. 2018; Sporgis et al. 2020).

Occurrence in Action Area

Humpback whales frequently congregate along the continental shelf in coastal habitats because they are highly productive areas that provide prey availability. They are not expected to be routinely present in large numbers within the area because of the lack of appropriate habitat and food availability. However, according to the Canadian Pacific Humpback Collaboration (CPHC), 2022 was a record-breaking year for humpback sightings (396) in the Salish Sea (up from 293 in 2017), peaking in the fall and indicating a regional feeding preference (CPHC 2022). Therefore, humpback whale presence is possible within the action area.

While reported humpback sightings have been increasing throughout the Salish Sea (Calambokidis et al. 2017; CPHC 2022), most sightings of humpback whales still occur off the coast of WA from July through September, peaking in fall before the whales migrate to their breeding grounds in warmer waters (WDFW 2023a). Additionally, most of the sightings have occurred within the Strait of Juan de Fuca, Haro Strait, Moresby Passage, and Southern Puget Sound, and fewer near the action area (Calambokidis et al. 2017). Humpback whale occurrence in the Salish Sea is still expected to be rare, and their presence in the action area during project activities is expected to be highly unlikely.

Critical Habitat

On October 9, 2019, NOAA Fisheries proposed designated critical habitat for the endangered Central America DPS and threatened Mexico DPS of humpback whales (84 FR 54354), publishing their final rule on April 21, 2021, effective May 21, 2021 (86 FR 21082). This critical habitat designation is primarily off the outer coast of WA, Oregon, and California and extends into the Strait of Juan de Fuca, but does not include the Salish Sea. Therefore, the designated critical habitat for the Central America DPS and Mexico DPS does not overlap with the action area.

3.3 Fishes

3.3.1 Bocaccio, Puget Sound-Georgia Basin DPS

Status

NOAA Fisheries listed the Puget Sound-Georgia Basin DPS (Coastal Recovery Unit) of bocaccio (*Sebastes paucispinis*) as endangered on April 28, 2010, effective July 27, 2010 (75 FR 22276). On January 23, 2017, after completing a five-year review (NOAA Fisheries, 2016a), NOAA Fisheries re-affirmed that the Puget Sound-Georgia Basin DPS of bocaccio remain listed as endangered, effective March 24, 2017 (82 FR 7711).

The listed bocaccio Puget Sound-Georgia Basin DPS includes fish residing within (updated from “originating from”) the Puget Sound-Georgia Basin to the Northern Boundary of the Northern Strait of Georgia along the southern contours of Quadra Island, Maurelle Island and Sonora Island, all of Bute Inlet. The Western Boundary of the U.S. side in the Strait of Juan de Fuca is N 48 7’16”, W123 17’15” in a straight line to the Canadian side at N 48 24’40”, 123 17’38”.

Life History

Bocaccio are elongate, laterally compressed fish with very large mouths (Love et al. 2002). They are large Pacific coast rockfish that reach up to 1 m (3.3 ft) in length, having a distinctively long jaw extending to at least the eye socket. Their appearance varies among individuals, ranging in color from olive to burnt orange or brown as adults. Bocaccio are difficult to age but are suspected to live up to 54 years (Drake et al. 2010).

Copulation and fertilization occur in the fall, generally between August and November, with embryonic development taking one month. Larvae have relatively high dispersal potential, with a pelagic larval duration of approximately 155 days (Shanks and Eckert 2005) and fecundity ranging from 20,000 to over 2 million eggs, considerably more than other rockfish species (Love et al. 2002; 74 FR 18516). In WA, the females release the larvae beginning in January through April, peaking in February (Drake et al. 2010). Chinook salmon, terns, and harbor seals are known predators of smaller bocaccio (Love et al. 2002), but the main predators of adult bocaccio are marine mammals (74 FR 18516).

Bocaccio occurring in the Georgia Basin are discrete from other members of their species based on marked separation evidence by the following: (1) Bocaccio exhibit similar larval and juvenile life history as all other rockfish species that demonstrate significant genetic differences between populations inhabiting coastal waters and inland marine waters of the Pacific Northwest; (2) the differences in age structure between coastal and inland stocks indicates that the two are demographically independent; and (3) given the unique habitat conditions and retentive circulation patterns of Puget Sound, a significant fraction of larvae released by bocaccio could be retained within the sound (75 FR 22276).

Bocaccio larvae are planktivores that feed on larval krill, diatoms, and dinoflagellates (Drake et al. 2010). Pelagic juveniles are opportunistic feeders, taking fish larvae, copepods, krill, and other prey, while larger juveniles and adults are primarily piscivores, eating other rockfishes, hake, sablefish, anchovies, lanternfishes, and squid (Love et al. 2002; Drake et al. 2010).

Habitat and Migration

Bocaccio range from Punta Blanca, Baja California, to the Gulf of Alaska, but are most common from Oregon to northern Baja California (Love et al. 2002). Large adult bocaccio has more movement potential than smaller, more sedentary species of rockfishes, but their occurrence in the Georgia Basin appears to be limited to certain areas. Although the relationship between bocaccio habitat preference and distribution in the Georgia Basin is not fully understood, available information indicates bocaccio are frequently found in areas lacking hard substrate, potentially due to their pelagic behavior or prey availability (74 FR 18516).

Larvae are found throughout the water column and the highest densities of pelagic juveniles tend to be found close to the surface in areas with floating kelp mats and submerged kelp habitat (Love et al. 2002; 74 FR 18516). Most bocaccio remain pelagic for 3.5 months prior to settling in shallow, intertidal, nearshore waters in rocky, cobble and sand substrates with or without kelp (Love et al. 2001; Love et al. 2002), although some may remain pelagic for as long as 5.5 months (74 FR 18516). Several weeks after settlement, fish move to deeper waters in the range of 18 to 30 m (60-100 ft.), where they are found on rocky reefs (Carr 1983; Feder et al. 1974; Johnson 2006; Love and Yoklavich 2008), sand substrates, kelp forest habitat, and artificial structures (e.g., piers and oil platforms) (Love et al. 2002; 74 FR 18516).

Adults inhabit deeper waters as they increase in size, ranging from 12 to 478 m (40 to 1570 ft.) depth but are most common at water depths of 50 to 250 m (164 to 821 ft.) (Feder et al. 1974; Love et al. 2002). Adults will usually exhibit strong site fidelity to rocky bottoms and outcrops but will occasionally wander from hard substrata into mud flats (74 FR 18516).

Occurrence in the Action Area

Bocaccio rockfish may occur in the action area, as their nearshore designated critical habitat (extreme high tide to a depth of 30 m [98 ft.]) for bocaccio includes almost the entirety of the waters between landing sites (79 FR 68042, NRC 2016). However, in Puget Sound, most bocaccio are found south of the Tacoma Narrows and have always been rare in north Puget Sound (Drake et al. 2010). Rockfish Hot Spot Areas (RHA) analysis has shown that bocaccio hot spots occur in southern Puget Sound near Whidbey and Camano Islands, and general rockfish hotspots occur surrounding Patos Island, Sucia Island Marine State Park, and San Juan Islands National Wildlife Refuge (NRC 2016). RHA analysis shows no bocaccio hot spots between landing sites (NRC 2016).

Adult bocaccio inhabit submerged, rocky reef habitats and are not typically netted at nearshore sites in Puget Sound (Wild Fish Conservancy Northwest 2011). Adult bocaccio tend to occur in waters that are between 39 to 300 m (160 to 820 ft.) in depth, but they may be found as deep as 425 m (1,400 ft.). Juveniles prefer nearshore habitats characterized by rocky substrates and kelp or sandy bottoms with eelgrass (78 FR 47635).

Bocaccio larvae may be found year-round throughout Puget Sound, as they are widely dispersed with the surface water currents, making their concentration or potential presence in any location extremely small (75 FR 22276). Juvenile bocaccio are potentially in the action area due to the existence of nearshore rocky substrates and 91 to 100 percent cover eelgrass beds near the landing (depth of -0.6 to -2.4 m [-2 to -8 ft.]). Adult bocaccio are less likely to be in the action area due to a lack of sufficiently deep water, based on bathymetry survey data showing the two deepest points along the route being (1) approximately 27.4 m [90 ft.] and (2) approximately 11 to 22 m [36 to 72 ft.]. These depths are shallower than the 39 - 300 m [160 - 820 ft.] water depth that bocaccio tend to occur in, or the deeper range of their habitat reaching 425 m [1,400 ft.].

Threats

The primary factors responsible for the decline of the bocaccio Puget Sound-Georgia Basin DPS are overutilization for commercial and recreational purposes, rocky habitat degradation, water quality problems, and inadequate existing regulatory mechanisms (75 FR 22276).

Degradation of rocky habitat, loss of eelgrass (*Zostera marina*) and kelp, introduction of non-native species that modify habitat, and degradation of water quality were identified as specific threats to bocaccio Puget Sound-Georgia Basin DPS. It is also very likely that densities of rockfish species near rocky habitats are threatened (or have been impacted) by derelict fishing gear, construction and cable laying, and other man-made infrastructure (Palsson at el. 2009). Juvenile bocaccio utilize these nearshore waters with substrates of rock or cobble compositions, and/or kelp species (Love et al. 1991; Love et al. 2002).

Critical Habitat

NOAA Fisheries initially proposed critical habitat designation for the Puget Sound-Georgia Basin DPS of bocaccio on August 6, 2013 (78 FR 47635). On November 13, 2014, NOAA Fisheries designated critical habitat for bocaccio, (reduced 15.2 percent [467 km^2/180.3 mi^2] from their original proposal), effective February 11, 2015 (79 FR 68041).

NOAA Fisheries does not currently have sufficient information regarding the habitat requirements of larval Bocaccio to determine which features are essential for conservation, thus, they do not identify critical habitat specifically for this life-stage.

PBFs of deepwater sites, or benthic habitats or sites deeper than 30 m (98 ft.), consist of those that possess or are adjacent to areas of complex bathymetry consisting of rock and or highly rugose habitat are essential to conservation because these features support growth, survival, reproduction, and feeding opportunities by providing the structure for rockfishes to avoid predation, seek food and persist for decades. Specific PBFs essential to the conservation of this DPS include sites and habitat components that support the adult lifestage, including:

1. Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities,
2. Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities, and
3. The type and amount of structure and rugosity that supports feeding opportunities and predator avoidance.

Nearshore (extreme high tide to a depth of 30 m [98 ft.]) juvenile settlement habitats located in the nearshore with substrates such as sand, rock and/or cobble compositions that also support kelp (families Chordaceae, Alariaceae, Lessoniacea, Costariaceae, and Laminaricea) are essential for conservation because these features enable forage opportunities and refuge from predators and enable behavioral and physiological changes needed for juveniles to occupy deeper adult habitats. Specific PBFs essential to the conservation of this DPS include sites and habitat components that support the juvenile lifestage, including:

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

3.3.2 Yelloweye Rockfish, Puget Sound-Georgia Basin DPS

Status

The Puget Sound-Georgia Basin DPS (Coastal Recovery Unit) of yelloweye rockfish (*Sebastes ruberrimus*) was listed as threatened by NOAA Fisheries on April 28, 2010, effective July 27, 2010 (75 FR 22276). On January 23, 2017, after completing a five-year review (NOAA Fisheries 2016a), NOAA Fisheries updated and amended the Puget Sound-Georgia Basin DPS yelloweye rockfish, reaffirming its status as threatened, effective March 24, 2017 (82 FR 7711).

The updated yelloweye rockfish Puget Sound-Georgia Basin DPS listing description includes fish residing within (updated from "originating from") the Puget Sound-Georgia Basin, inclusive of the Queen Charlotte Channel to Malcom Island, in a straight line between the western shores of Numas and Malcom Islands—N 50 50'46", W 127 5'55" and N 50 36'49", W 127 10'17". The Western Boundary of the U.S. side in the Strait of Juan de Fuca is N 48 7'16", W123 17'15" in a straight line to the Canadian side at N 48 24'40", 123 17'38" (Figure 1, 82 FR 7711).

Life History

The yelloweye rockfish is one of the largest and most noticeable rockfish, weighing up to 18 kilograms (kg; 40 lbs.). They are orange red to orange yellow in color, with bright yellow eyes, and can reach up to 1 m (3.3 ft.) in length (NOAA Fisheries 2023c). They are among the longest-lived rockfish living up to at least 118 years (potentially 150 years), are slow growing, and late to mature beginning to reproduce at 5 to 20 years of age (Love 1996; Love et al. 2002; NOAA Fisheries 2023c). Rockfish fertilization and embryo development are internal, and females give birth to live larval young (Love et al. 2002). After parturition, larvae are pelagic for several months prior to settling to a demersal habitat (Drake et al. 2010).

Yelloweye rockfish within the Georgia Basin are discrete from other members of their species based on the following: (1) there are significant genetic differences between rockfish species populations inhabiting coastal waters and inland marine waters of the Pacific Northwest; (2) yelloweye rockfish generally remain sedentary as adults, limiting gene flow between populations and regions; and (3) given the unique habitat conditions and retentive circulation patterns of Puget Sound, a significant fraction of larvae released by yelloweye rockfish could be retained within Puget Sound (75 FR 22276).

Yelloweye rockfish are opportunistic feeders, targeting different food sources during different life-history phases. Larval rockfish feed on diatoms, dinoflagellates, tintinnids, and cladocerans, and juveniles consume copepods and euphausiids of all life stages (Sumida and Moser 1984; 74 FR 18516). Larger adult yelloweye rockfish consume larger prey, with a typical diet including bottom and mid-water dwelling invertebrates and small fishes including sand lance, gadids, flatfishes, shrimps, crabs, gastropods, and other rockfish species associated with kelp beds, rocky reefs, pinnacles, and sharp drop-offs (Love 1996; Sumida and Moser 1984; Love et al. 2002; Yamanaka et al. 2006; NOAA Fisheries 2008). Larval and juvenile rockfish are susceptible to predation by killer whales (Ford et al. 1998; NOAA Fisheries 2008).

Habitat and Migration

Yelloweye rockfish range from northern Baja California to the Aleutian Islands, Alaska, but are most common from central California northward to the Gulf of Alaska (Clemens and Wilby 1961; Hart 1973; Eschmeyer et al. 1983; Love 1996; 74 FR 18516). They are distributed throughout the Strait of Georgia in northern Georgia Basin in areas most frequently coinciding with high relief, complex rocky habitats (Yamanaka et al. 2006). Yelloweye rockfish are consistently observed throughout the Georgia Basin but are observed in higher frequencies in north Puget Sound and the Georgia Strait

(Miller and Borton 1980, unpublished WDFW data, as cited in 74 FR 18516; Yamanaka et al. 2006), likely due to rocky habitat in North Puget Sound (74 FR 18516).

Larvae are found in surface waters and may be distributed over a wide area that includes several hundred miles offshore (Love et al. 2002). Larvae can occupy the full water column, but generally are in the upper 80 m (262 ft.) and have been observed under free-floating algae, seagrass, and detached kelp (Shaffer et al. 1995; Love et al. 2002; Weis 2004). Juvenile and subadult yelloweye rockfish are generally found in shallower waters, being associated with rocky reefs, kelp canopies, and artificial structures (e.g., piers and oil platforms) (Love et al. 2002; 74 FR 18516).

Adults generally move into deeper waters at 24 to 475 m (80 to 1,560 ft.) depth but are most common in depths ranging from 91 to 180 m (300 to 590 ft) (Garrison and Miller 1982; Love 1996; 74 FR 18516). Adults have smaller home ranges, generally being site-attached to areas such as caves, crevices, bases of rocky pinnacles, and boulder fields (Richards 1986). In Puget Sound, adult yelloweye rockfish have been documented in areas with non-rocky substrates such as sand, mud, and other unconsolidated sediments (Haw and Buckley 1971; Washington 1977; Miller and Borton 1980; Reum 2006). Many adults exhibit strong site fidelity to rocky bottoms and outcrops, and some may live their entire life on a single rock pile (Yoklavich et al. 2000; 74 FR 18516).

Threats

The primary factors responsible for the decline of the yelloweye rockfish Puget Sound-Georgia Basin DPS are overutilization for commercial and recreational purposes, rocky habitat degradation that includes loss of eelgrass and kelp, water quality problems and elevated contaminant levels, and inadequate existing regulatory mechanisms (75 FR 22276). Anthropogenic noise from increased vessel traffic may also impact pelagic habitat suitability for larval rockfish, but direct effects are unclear (Bassett et al. 2012; Nikolich et al. 2021).

Occurrence in the Action Area

Like bocaccio, yelloweye rockfish may be present within the action area. Yelloweye rockfish larvae are widely dispersed with surface water currents, all depths of the water column, and on free-floating algae and seagrass, making the concentration or potential presence of larvae in any location extremely small (NOAA Fisheries 2011a, 2011b, 2017). The action area includes high density of eelgrass (a seagrass) nearshore to the landing.

Juvenile yelloweye rockfish have been only rarely documented in Puget Sound (Palsson et al. 2009; NOAA Fisheries 2014b) and do not typically occupy intertidal waters (Love et al. 1991; Studebaker et al. 2009). A few juveniles have been documented in shallow nearshore waters (Love et al. 2002; Palsson et al. 2009; Cloutier 2011), but most settle in habitats along a shallow range of adult habitats in areas of complex bathymetry, rocky/boulder habitats, and cloud sponges in waters greater than 30 m (98 ft.) (Richards 1986; Yamanaka et al. 2006). The mean observed depth for juvenile yelloweye rockfish is 73 m (239 ft.; Yamanaka et al. 2006), which is much deeper than bathymetry surveys indicate for the action area (see also Section 2.1.2 [Bathymetry] and Section 3.3.1 [Bocaccio, Puget Sound-Georgia Basin DPS]). Additionally, areas of floating and submerged kelp support the highest densities of most juvenile rockfish species (Hayden-Spear 2006; NOAA Fisheries 2014b), however, bathymetry surveys and other resources indicate that there is no floating or submerged kelp within the action area.

Adults inhabit submerged, rocky reef habitats and are not typically netted at nearshore sites within Puget Sound (Wild Fish Conservancy Northwest, 2011), and are most commonly present at depths beginning at 40 m (130 ft.) and range to as deep as 140 m (460 ft.) (Richards 1986; Murie et al. 1994). According to the bathymetry surveys, the water depths that juvenile and adult yelloweye rockfish inhabit exceed those found in the action area. Therefore, due to shallower water and lack of kelp in the action area, there is a low likelihood that yelloweye fish will be present in the action area.

Critical Habitat

On November 13, 2014, NOAA Fisheries issued their final rule designating critical habitat for the Puget Sound-Georgia Basin DPS yelloweye rockfish, effective February 11, 2015 (79 FR 68041). The Project's proposed route is outside, and would not enter, any of the deepwater critical habitat for the Puget Sound-Georgia Basin DPS yelloweye rockfish. Therefore, critical habitat for the Puget Sound-Georgia Basin DPS yelloweye rockfish will not be discussed any further.

3.3.3 Chinook Salmon, Puget Sound ESU

Status

On March 24, 1999, NOAA Fisheries listed the Puget Sound evolutionary significant unit (ESU) of chinook salmon (*O. tshawytscha*) as threatened (effective May 24, 1999 [64 FR 14308]), reaffirmed on June 28, 2005, and effective August 29, 2005 (70 FR 37159). Their listing was subsequently reaffirmed again, effective April 14, 2014 (79 FR 20802). The Puget Sound ESU of chinook salmon includes naturally spawned chinook salmon originating from rivers flowing into Puget Sound from the Elwha River (inclusive) eastward, including rivers in Hood Canal, South Sound, North Sound, the Strait of Georgia, and Chinook salmon from 26 artificial propagation programs (NOAA Fisheries 2016b; 79 FR 20802).

Life History

Chinook salmon are anadromous, incubating, hatching, and emerging in freshwater streams and rivers before migrating out to the oceanic saltwater environment to feed and grow, before returning to freshwater to complete maturation and spawning (Myers et al. 1998). Their most significant lifestage is smoltification, the physiological and morphological transition from freshwater to the marine environment (Myers et al. 1998).

In the ocean, chinook appear blue-green on the back and top of their head, with silvery flanks and white bellies and have small black spots on both lobes of their tail, as well as black pigment along the base of their teeth (Healey 1991; Shared Strategy for Puget Sound 2007; NOAA Fisheries 2023d). In freshwater when they are about to spawn, they change colors to olive brown, red, or purplish, which is especially evident in males (NOAA Fisheries 2023d). Spawning adult males can be distinguished by a hooked upper jaw, and females by their torpedo-shaped body, robust mid-section, and blunt nose, while freshwater juveniles (i.e., fry) have well-developed parr marks on their sides that they lose when migrating out to sea, gaining a dark back and light belly characteristic of fish living in open water (Healey 1991; NOAA Fisheries 2023d).

Chinook are the largest of the Pacific salmon (i.e., "*king salmon*") (Netboy 1958), with mature fish having a typical length and weight of approximately 0.9 m (3 ft.) and 13.6 kg (30 lbs.), but they can grow as long as 1.5 m (4.9 ft.) (NOAA Fisheries 2023d). They regularly weigh over 18 kg (40 lbs.) but can exceed 45.4 kg (100 lbs.) and weigh up to 58.5 kg (129 lbs.) (Shared Strategy for Puget Sound 2007; NOAA Fisheries 2023d). The Puget Sound ESU of chinook salmon tend to reach maturity at 3 or 4 years when they return to freshwater to spawn (Myers et al. 1998). Chinook salmon dig out gravel nests (i.e., "*redds*") on stream bottoms where they lay their eggs (63 FR 11482). All chinook die after spawning, with their carcasses providing a valuable source of energy and nutrients (e.g., nitrogen, phosphorous) to river ecosystems, leading to improved newly hatched salmon growth and survival (NOAA Fisheries 2023d).

Chinook fry feed on forage fish eggs in large aggregations along protected shorelines, generating a base of prey for the migrating fry. Young chinook salmon feed on terrestrial and aquatic insects (larvae, pupae, and adult forms), amphipods, crustaceans, as well as annelids, arachnids, playhelminthes, gastropoda, rotifera, and osteichytes (Levy et al. 1979; Levings et al. 1991). Older chinook primarily feed on other fish, such as bocaccio and other forage fishes like herring, anchovy, and sardines (Love et al. 2002). Salmon are the primary year-round prey of SRKW, comprising approximately 50 percent of SRKW diet in the fall, 70 to 80 percent in mid-winter/early spring, and approaching nearly 100 percent in the spring (Hanson et al. 2021). They are also eaten by other marine mammals such as sea lions and sharks, fish (e.g., whiting, mackerel), and birds (NOAA Fisheries 2023d).

Habitat and Migration

In North America, chinook range from Monterey Bay, California to the Chukchi Sea region of Alaska (Myers et al. 1998) but have diverse migration patterns due to a complex blend of environmental and genetic factors (Healey 1991; Quinn 2005). Chinook salmon also exhibit two distinct juvenile life history patterns—ocean-type and freshwater stream-type—with ocean-type being the most common in the southern portion of their range (WA, Oregon, and California) (Gilbert 1912; Healey 1983; Taylor 1990). The ocean-type chinook salmon tend to stay in protected inland and coastal areas, including nearshore estuaries found in WA (Healey 1983; Sharma 2009; 63 FR 11482).

Puget Sound is a migratory corridor for adult chinook and provides habitat for out-migrating juvenile chinook from rivers before their eventual oceanic phase as adults. Adults typically spawn in the mainstems and larger tributaries of Puget Sound, with spawning preferences being clean gravel riffles with moderate water velocity and mainstem and lower reaches of tributaries (WDF 1992). Early timed chinook salmon tend to enter freshwater as immature fish in the spring, migrate far up-river, and finally spawn in the late summer and early autumn. Late-timed chinook enter freshwater in the fall at an advanced stage of maturity, move rapidly to their spawning areas on the mainstem or lower tributaries of the rivers, and spawn within a few days or weeks of freshwater entry (Myers et al. 1998).

The return of adult chinook salmon to freshwater in the Puget Sound region occurs from late March to early December and varies considerably across and within major river basins. Fall run chinook salmon are the most common group of chinook on the US West Coast, spending 3 to 4 years in the ocean prior to migrating to their spawning grounds, with the journey to their spawning grounds beginning in late July, peaking in September, and ending in December (NOAA Fisheries 2022).

Occurrence in the Action Area

Fall run chinook salmon [Puget Sound ESU] are likely be present within the action area. The action area lies within the Nooksack River Basin (WRIA 1), which contains fall run chinook salmon migratory waterways, namely Dakota Creek and California Creek. Fall chinook salmon have a documented presence within Dakota Creek, and potential presence in California Creek, both of which empty into Drayton Bay, immediately southeast of Semiahmoo Bay (WDFW 2024a). Drayton Bay has estuaries within it, which could serve as a protected habitat for ocean-type chinook salmon in the area.

Threats

Factors that threaten naturally spawned chinook salmon are numerous and varied. Identified threats included the adverse effects of climate and natural environmental variability (e.g., drought, floods, poor ocean conditions); human-induced factors (e.g., habitat degradation, water diversions, harvest, artificial propagation, and dam construction) (ONRC and Nawa 1995; Campbell and Moyle 1990); urban development (e.g., increased roads, buildings, parking lots, nearshore habitat shoreline armoring); and degraded water quality (NOAA Fisheries 1998, 2016b). Human activities have degraded extensive chinook salmon spawning and rearing habitat in the Salish Sea, limiting their access to historical spawning grounds and altering downstream flows and thermal conditions (NOAA Fisheries 1998).

Critical Habitat

On September 2, 2005, NOAA Fisheries issued a final rule designating critical habitat for 12 ESUs of West Coast salmon, including the chinook salmon Puget Sound ESU, effective January 2, 2006 (70 FR 52629). Designated critical habitat for the chinook salmon Puget Sound ESU includes approximately 3,824 km (2,376 mi.) of nearshore marine areas. In nearshore marine areas, critical habitat includes areas contiguous with the shoreline from the line of extreme high tide out to a depth no greater than 30 m (98 ft.) relative to the MLLW (70 FR 52629). Almost the entirety of the action area includes the critical habitat for chinook salmon Puget Sound ESU, including Semiahmoo Bay.

Specific critical habitat PBFs, cited in the 2005 FR as PCEs essential for conservation of the chinook salmon Puget Sound ESU, are those sites and habitat components that support one or more life stages, including:

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development
2. Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks
3. Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natura cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival
4. Estuarine areas free of obstruction and excessive predation with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation
5. Nearshore marine areas free of obstruction and excessive predation with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels
6. Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation

3.3.4 Steelhead, Puget Sound DPS

Status

On May 11, 2007, NMFS listed the Puget Sound DPS of Steelhead (*O. mykiss*) as threatened, effective June 11, 2007 (72 FR 26722), updated and effective on April 14, 2014 (79 FR 20802). The Puget Sound steelhead DPS includes more than 50 stocks of summer-and winter-run fish, the latter being the most widespread and numerous of the two run types (WDFW 2002; 72 FR 26722). This DPS includes naturally spawned anadromous *O. mykiss* originating below natural and manmade impassable barriers from rivers flowing into Puget Sound from the Elwha River (inclusive) eastward, including rivers in the Strait of Georgia (NOAA Fisheries 2024b). Most hatchery stocks are not considered part of the Puget Sound DPS because they are more than moderately diverged from local native populations (72 FR 26722). Additionally, resident steelhead may occur within the range of

Puget Sound steelhead but are not part of the DPS due to differences in physical, physiological, ecological, and behavioral characteristics (71 FR 15666).

Life History

Steelhead are in the salmon family (i.e., salmonid). Steelhead can weigh up to 13.6 kg (30 lbs.) or more, and average between 3.6 to 5 kg (8 to 11 lbs.) and have dark spots scattered over their entire body, including the tail, with slight to pronounced rainbow coloring (WDFW 2024b). They have a life span of approximately 4 to 6 years in the wild. Steelhead have a varied diet, eating zooplankton when young, then fish eggs, small fish, crustaceans, mollusks, and insects when they mature.

Steelhead distribution extends from Kamchatka in Asia, east to Alaska, and south along the Pacific coast to the U.S.-Mexico border (Busby et al. 1996; 67 FR 21586). *O. mykiss* exhibit the most complex life history of any Pacific salmonid and can be either anadromous ("steelhead") or freshwater residents ("rainbow" or "red band" trout) and can yield offspring of the alternate life history form (72 FR 26722). Anadromous *O. mykiss* may spend up to seven years in fresh water prior to smoltification and spend up to three years in salt water prior to migrating back to their natal streams to spawn and may spawn more than once in their lifetime (i.e., "iteroparous") (72 FR 26722).

Steelhead are iteroparous, spawning and returning to the ocean and migrating back upstream to spawn several times. Steelhead can be divided into two basic reproductive ecotypes—summer or winter run—based on the state of sexual maturity at the time of river entry and duration of spawning migration (Burgner et al. 1992). The summer run or "stream-maturing" type enters fresh water in a sexually immature condition between May and October and requires several months to mature and spawn (72 FR 26722). The winter run or "ocean-maturing" type enters fresh water between November and April with well-developed gonads and spawns shortly thereafter (72 FR 26722). In basins with both summer and winter steelhead runs, the summer run generally occurs where habitat is not fully utilized by the winter run, or where an ephemeral hydrologic barrier separates them, such as a seasonal velocity barrier at a waterfall. Summer steelhead usually spawn farther upstream than winter steelhead (Withler, 1966; Roelofs, 1983; Behnke 1992). When spawning, females dig out a depression (i.e., a "redd") in the gravelly bottom of a stream riffle and the male fertilizes them. The redd is covered by gravel, until the eggs hatch.

Habitat and Migration

Within the range of West Coast steelhead, spawning migrations occur throughout the year, with seasonal peaks of activity (72 FR 26722). In each river basin there may be one or more peaks in migration activity, and the runs are usually named for the season in which the peak occurs (e.g., winter, spring, summer, or fall steelhead) (72 FR 26722). In WA, steelhead have two runs, a summer and winter run. Most summer runs occur east of the Cascade Mountains, entering streams in the summer to reach spawning grounds by the following spring (WDFW 2024). A few western WA rivers also have established runs of steelhead, such as the Nooksack River. Winter runs spawn close to the ocean, requiring less travel time, and prefer fast water in small-to-large mainstem rivers and medium-to-large tributaries (WDFW 2024).

Occurrence in the Action Area

It is possible that Puget Sound DPS steelhead could be present within the action area. Winter run steelhead presence in the action area is possible due to its documented presence in nearby freshwater streams that connect to Semiahmoo Bay and Drayton Harbor immediately to the southeast. An unnamed creek (LLID 1227531489972) in Blaine connects to Semiahmoo Bay at the Blaine Marine Park and is gradient accessible with winter run steelhead presence (WDFW 2024a). California Creek, part of steelhead designated critical habitat (81 FR 9251), connects to Drayton

Harbor, and has documented presence of winter run steelhead (WDFW 2024a). Dakota Creek, also a part of steelhead designated critical habitat (81 FR 9251), has documented presence of winter run steelhead. Three (3) more additional unnamed creeks (LLID 1227289489584, 1227310489624, and 1227320489682) between Dakota Creek and California Creek are gradient accessible with winter run steelhead presence (WDFW 2024a).

Summer run steelhead presence in the action area is very unlikely because the Nooksack River is the nearest river with documented summer run anadromous steelhead presence. The Nooksack River connects Bellingham Bay to the southeast, approximately 32 km (20 mi.) away from the action area (WDFW 2024a).

Threats

Factors leading to the decline of Puget Sound DPS steelhead and limiting the species' recovery include the following: habitat destruction and modification; reduced habitat quality through changes in river hydrology, temperature profile, downstream gravel recruitment, and reduced movement of large woody debris; continued urban development in the lower reaches of many Puget Sound rivers and tributaries, causing increased flood frequency and peak flows during storms, and reduced groundwater-driven summer flows; altered stream hydrology resulting in gravel scour, bank erosion, and sediment deposition; and dikes, hardening of banks with riprap, and channelization, reduced river braiding and sinuosity, and increased the likelihood of gravel scour and dislocation of rearing juveniles because of dikes, hardening of banks with riprap and channelization (NOAA Fisheries 2016b).

Critical Habitat

On February 24, 2016, NMFS issues a final rule designating critical habitat for Puget Sound DPS steelhead, effective March 25, 2016 (81 FR 9251). The specific areas designated for Puget Sound steelhead include approximately 3,269 km (2,031 mi.) of freshwater and estuarine habitat in the Puget Sound (81 FR 9251). The action area for this proposed project does not overlap with designated critical habitat for Puget Sound DPS steelhead and will not be discussed further.

3.3.5 Green Sturgeon, Southern DPS

Status

There are two DPS' of North American green sturgeon (*Acipenser medirostris*): Northern DPS and Southern DPS. The Southern DPS has been listed as a threatened species under the ESA, whereas the Northern DPS of green sturgeon remains a federal Species of Concern. NOAA Fisheries published a final rule on April 7, 2006, listing the Southern DPS as threatened, effective June 6, 2006 (71 FR 17757).

Life History

North American green sturgeon has a green back with yellowish green-white belly and 8 to 11 sharp dorsal scutes, a green stripe on each side and on their belly and pointed snout with barbels midway between the tip of the snout and mouth (NOAA Fisheries 2024c). They are anadromous fish with a relatively complex life history that includes spawning and juvenile rearing in rivers followed by migrating to saltwater to feed, grow, and mature before returning to freshwater to spawn.

Males range from 1.4 to 2 m (4.5 to 6.5 ft) fork length and mature at 15 years and older; females range from 1.6 to 2.2 m (5.2 to 7.2) fork length and begin to mature at 17 years (NOAA Fisheries 2024c). Green sturgeon are long-lived at 60 to 70 year), slow-growing fish and the most marine-oriented of the sturgeon species (NOAA Fisheries 2024c).

Green sturgeon reach sexual maturity at about 15 years of age or a length of 150 to 155 cm (59.1 to 61 in.) for Southern DPS individuals (Van Eenennaam et al. 2006). Southern DPS green sturgeon typically spawn every 3 to 5 years and spawning occurs primarily in the Sacramento River and its tributaries in CA (Brown 2007; Mora et al. 2018; NOAA Fisheries 2024c). Green sturgeon prey includes benthic invertebrates and fish, such as shrimp, mollusks, amphipods, crabs, anchovies, and sand lances (Moser and Lindley 2007; Dumbauld et al. 2008).

Habitat and Migration

Green sturgeon typically occupy depths of 20 to 70 m (66 to 230 ft.) while in marine habitats (Erickson and Hightower 2007; Huff et al. 2011) and make rapid vertical ascents while in marine environments, often at night (Erickson and Hightower 2007). Southern DPS green sturgeon are found in high concentrations in coastal bays and estuaries along the west coast of North America during the summer and autumn, particularly in Willapa Bay, Grays Harbor, and the Columbia River estuary (Lindley et al. 2008; Moser et al. 2016; Schreier et al. 2016). Tagged individual green sturgeon released in the Sacramento River have been captured as far north as Willapa Bay, WA, and tagged individuals released in the Columbia River have been captured as far north as Vancouver Island, BC, and as far south as the Sacramento River (ODFW 2005; Moser and Lindley 2007).

The green sturgeon ranges from Mexico to Alaska in marine waters, and forages in estuaries and bays ranging from San Francisco Bay to BC (Houston 1988; Moyle et al. 1992; NOAA Fisheries 2024c). Green sturgeon utilizes both freshwater and saltwater habitat, utilizing the open ocean to travel vast distances between freshwater rivers. Southern green sturgeon spawn in the Sacramento River, California, while northern green sturgeon spawn in the Klamath and Rogue Rivers. Adult Southern DPS green sturgeon enter San Francisco Bay in late winter through early spring, migrate upstream, and spawn from April through early July, with peaks of activity influenced by factors including water flow and temperature (Heublein et al. 2009; Poytress et al. 2015; Miller et al. 2020). Green sturgeon spawn in deep pools, or "*holes*", in large, turbulent, freshwater river mainstems, with their eggs primarily adhering to gravel/cobble substrates or settling into crevices (Van Eenennaam et al. 2001). Upon hatching, they move downstream as they transition from larvae and young-of-year into juveniles.

Occurrence in Action Area

Moser and Lindley (2007) documented that green sturgeon frequent coastal waters of WA and enter estuaries during summer when water temperatures are more than 2 degrees Celsius (°C; 35.6 degrees Fahrenheit [°F]) warmer than adjacent coastal waters. Moser et al. (2022) found via acoustic detection data that green sturgeon from both the northern and Southern DPS' can occur in Puget Sound and at Admiralty Inlet, but at low rates relative to their presence in the Strait of Juan de Fuca. They were also detected off Lime Kiln State Park in the San Juan Islands, south of this project's action area (Moser et al. 2022).

Based on these studies, the Southern DPS of green sturgeon is considered to occur outside the action area, and if present, would likely be limited to summer months. Due to the apparent lack of spawning by green sturgeon in tributaries to Puget Sound, adult and subadult green sturgeon, if present, are the only life stages likely to be found in this area.

Threats

The main threats to this species are dams and other impassible barriers, altered flows, and entrapment in water diversions that impede or inhibit their migration (NOAA Fisheries 2024c). Other threats include insufficient freshwater flow rates in spawning areas, contaminants, fisheries bycatch, poaching, invasive species, and unfavorable water conditions (NOAA Fisheries 2021d; 2024c).

Most threats to the species are highly ranked, especially barriers to migration. In addition, climate change-driven threats, including warm water events, sea level rise, and ocean acidification, may negatively affect the population and/or their habitat and the ecosystem upon which they depend in the future directly, or indirectly through trophic cascade (NOAA Fisheries 2021d).

Critical Habitat

Critical habitat for the Southern DPS of green sturgeon was designated by NOAA Fisheries on October 9, 2009, effective November 9, 2009 (74 FR 52299). The Project's proposed route is outside, and would not enter, any of the designated critical habitat for the Southern DPS of green sturgeon. Therefore, critical habitat for the Southern DPS of green sturgeon will not be discussed any further.

3.4 Echinoderms

3.4.1 Sunflower Sea Star

Status

A petition to list the sunflower sea star (*Pycnopodia helianthoides*) under the ESA was submitted on August 18, 2021. On March 16, 2023, NOAA Fisheries proposed to list the sunflower sea star as a threatened species under the ESA throughout its range (88 FR 16212). Sunflower sea stars are native to marine waters along the Pacific Coast, from northern Baja California to the central Aleutian Islands, including the Salish Sea and Puget Sound. The species is most abundant in the waters off eastern Alaska and BC (Lowry et al. 2022).

Life History

Adult sunflower sea stars have 24 arms and range in color from purple to brown, orange, or yellow. Using their 15,000 individual tube feet, they can move up to 1 m (40 in.) per minute, helping their ability to be a predator (Monterey Bay Aquarium 2024). The sunflower sea star is an opportunistic predator and generalist feeder, varying its diet according to locality and available prey (Shivji et al. 1983). Their diet includes benthic and mobile epibenthic invertebrates (e.g., sea urchins, snails, crab, sea cucumbers, sea stars), sessile invertebrates (e.g., barnacles, bivalves), and dead or dying fish, seabirds, and octopus (Mauzey et al. 1968; Lowry et al. 2022).

Sunflower sea stars are broadcast spawners that require close proximity to mates for successful fertilization (86 FR 73230). Though reproductive seasonality is largely undocumented, localized studies have documented breeding from December through June (Feder and Christiensen 1966; Morris et al. 1980; Gravem et al. 2021), and broad geographic variation linked with water temperature and other environmental factors is likely (86 FR 73230). Egg fertilization is followed by a free-floating larval period that can last 50-146 days (Strathmann 1978; Gravem et al. 2021), during which considerable wind- and current-driven dispersion may occur. Individuals then settle and metamorphose into juveniles, which continue to feed and grow (86 FR 73230). The longevity of sunflower sea stars in the wild is unknown, as is their age at first reproduction and the period over which mature individuals can start reproducing (88 FR 16212).

Habitat and Migration

Sunflower sea stars are considered habitat generalists, occurring on many different types of marine habitats including mud, sand, shell, gravel, rocky bottoms, kelp forests, and the lower rocky intertidal (Mauzey et al. 1968; Lambert 2000). Although sunflower sea stars can live in waters ranging from a few feet deep to greater than 427 m (1,400 ft.) deep, they are most abundant in waters shallower than 25 m (82 ft.) deep and rare in waters deeper than 120 m (394 ft) (Lambert 2000; Hemery et al. 2016; Gravem et al. 2021); however, this result may be due to under sampling deeper waters (88 FR 16212). While confidence is relatively high in estimates from more southerly, nearshore areas that are well-sampled via SCUBA, most of the species' range consists of deep, cold, and/or northern waters which have been sampled less (88 FR 16212).

Occurrence in Action area

The sunflower sea star may occur within the action area; however, their abundance in the Salish Sea and Puget Sound is generally considered low. Since the outbreak of sea star wasting syndrome (SSWS) in 2013, through 2020 there has been an estimated decline in density of approximately 91.9 to 92.4 percent in the Salish Sea, even with recent settlements having been recorded (Hamilton et al. 2021; Gravem et al. 2021; Lowry et al. 2022). While anecdotal evidence indicates sunflower sea star recruitment continues in the Salish Sea, few juveniles appear to survive until adulthood (Lowry et al. 2022). Despite substantial population declines from 2013 to 2017, sunflower sea stars still occupy the whole of their range from Alaska to northern Mexico, including the Salish Sea (88 FR 16212).

Sunflower sea stars can live in waters as deep as 427 m (1,400 ft.), they are generally encountered in waters shallower than 36 m (120 ft.) deep and most abundant in waters shallower than 25 m (82 ft.) deep (Gravem et al. 2021; NOAA Fisheries 2023). Bathymetry surveys across the Strait of Georgia and Semiahmoo Bay measured shallower waters—approximately 12.2 to 15.2 m (40 to 50 ft.) and 11 to 22 m (36 to 72 ft.) at its deepest—indicating the potential for a higher density of sunflower sea stars within the action area. While sunflower sea stars are most abundant in shallower waters that will be part of the proposed cable route, they have been largely decimated in WA's inland waters making their presence within the action area less likely.

Threats

The primary threat to sunflower sea stars is a lethal pathogen that caused an outbreak of SSWS. Beginning in 2013, an outbreak of SSWS caused approximately72 to 100% declines in locally monitored populations of sunflower sea stars across its range (Lowry et al. 2022). Not only has population size decreased, but area of occupancy has also declined by an estimated 58% since the SSWS outbreak, and sunflower sea stars have not been detected in several surveys where they were once common components of the catch (Gravem et al. 2021). The causative agent of SSWS is currently unknown, but ocean warming has been linked to outbreaks, hastening disease progression and severity (Harvell et al. 2019; Aalto et al. 2020).

Critical Habitat

NOAA Fisheries has not proposed to designate critical habitat currently because it is not currently determinable (88 FR 16212).

4. Analysis of Effects of the Action on ESA-Listed Species

This section discusses potential direct effects and delayed consequences, interdependent and interrelated actions, and actions unrelated to the Proposed Action that may result in cumulative effects because of the Proposed Action per ESA implementing regulations at 50 CFR § 402.02 (see also § 402.17) (84 FR 44976).

Factors to consider when evaluating whether activities caused by the Proposed Action (but not part of the Proposed Action) or activities reviewed under cumulative effects are reasonably certain to occur include, but are not limited to: (1) Past experiences with activities that have resulted from actions that are similar in scope, nature, and magnitude to the proposed action; (2) existing plans for the activity; and (3) any remaining economic, administrative, and legal requirements necessary for the activity to go forward [50 CFR § 402.17(a)].

In order to be considered *"an effect of a proposed action"*, *"a consequence must be caused by the proposed action (i.e., the consequence would not occur but for the proposed action and is reasonably certain to occur). A conclusion of reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available"* [50 CFR § 402.17(b)]. Considerations for determining that a consequence to the species or critical habitat is not caused by the proposed action include, but are not limited to: (1) the consequence is so remote in time from the action under consultation that it is not reasonably certain to occur; or (2) the consequence is so geographically remote from the immediate area involved in the action that it is not reasonably certain to occur; or (3) the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur [50 CFR § 402.17(b)].

4.1 Determination of Effects

The effects assessment is based on the following factors:

- the dependency of the species on specific habitat components;
- habitat abundance;
- population levels of the species;
- degree of habitat impact; and,
- potential for conservation measures to reduce or eliminate adverse effects.

Each of these factors were considered during analysis for ESA-listed species, to determine whether the Proposed Action-related impact stressors, including vessel presence and noise and temporary and localized suspended sediment and turbidity, could result in significant effects to the species.

4.2 Direct Effects

The direct effects from the Project are limited to cable installation and removal activities only, as no effects are expected while the cable is operational. The cable's operation and abandonment in place, would not create additional impacts as it is inert and would become part of the seafloor. The Proposed Action-related direct effects that could potentially affect listed species include the following:

- Temporary increase in turbidity
- Temporary disturbance vessel operation

Vessel strike, entanglement, EMF exposure, hazardous materials, and habitat alteration were assessed but are not considered Proposed Action-related impact stressors because they are not considered reasonably likely to adversely affect ESA-listed species.

An explanation for excluding an effects assessment for each potential stressor is provided below.

Vessel Strike

Increased potential for a vessel strike is not anticipated for The Project. Additionally, according to Taormina et al. (2018), vessel strikes are not recognized as a potential impact caused by Cable operation and installation/decommissioning phases. Studies show that the probability of a lethal injury to whales increases with vessel speed, while there is a substantial decrease in lethality as a vessel speed falls below 15 knots (Vanderlaan and Taggart 2007). The cable installation activities would take place at such a slow rate that the probability of impact to any marine mammal is extremely remote. During transit to and from the action area, the cable laying vessel would travel less than 9 knots. During cable laying and burial operations, the vessel would travel at speeds less than 3 knots, which greatly reduces the likelihood of the vessel striking marine mammals. Furthermore, vessel presence would be limited to one cable laying vessel (and pull boat nearshore) over approximately two days: 5 to 9 hours to complete the shoreside landing process (Day 1) and 8 hours to complete cable laying operations (Day 2). The Project would also employ a variety of mitigation measures to avoid vessel strikes, such as instructing vessel personnel to monitor for ESA-listed species (Section 1.7). Therefore, vessel traffic associated with the Proposed Action is not expected to increase chances of vessel collision with protected marine mammals and overall, the chance of collision with ESA-listed species is considered discountable.

Entanglement

Due to advances in cable design, marine surveying, and cable laying techniques, there have been no recorded marine mammal entanglements with cables since 1959 (Wood and Carter 2008). Due to these advances, entanglement risks only concern dynamic power cables that are deployed through the water column between the surface and the seafloor (Taormina et al. 2018). The Project would not utilize any dynamic cables, but instead feature surface-laid cables that pose no entanglement risk to marine mammal species.

EMF exposure

A common concern regarding cables is the potential sensitivity of elasmobranchs and other fishes, marine mammals, sea turtles, and invertebrates to anthropogenic EMF (Normandeau et al. 2011; CSA Ocean Sciences, Inc. and Exponent 2019). The temporary cable system is unrepeatered, which means that it does not have repeaters or other electronics equipped on the cable to boost the transmission signal, requiring power to do so. The unrepeatered temporary DHS S&T cable would have no power running through it; therefore, no EMF will be generated.

Habitat alteration

Cables are thought to have relatively minor environmental effects, but caution is necessary during trenching and laying activities (NOAA 2024). Cable laying and potential recovery has the potential to affect benthic habitats, flora, and fauna, however, such effects are generally limited to a very small area. This project would utilize a very narrow cable that is 4.42 mm (0.174 in.) in diameter. The cable burial method employed would be a one-step ‘bury-while-lay’ process that utilizes a 182.9 cm by 76.2 cm (length x width) (72 in. by 30 in.) plow sled with a 7.62 cm (3 in.) wide plowshare that would bury the cable 30.5 cm (12 in.) below the seafloor. Therefore, the cable installation would result in a very small footprint. Furthermore, the cable route design will avoid hard substrates, macroalgae, kelp beds, and critical habitats to the maximum extent possible. Properly installed cables, to date, have not demonstrated any significant adverse effects on the nearby marine environment (NOAA 2024). Once in place, the cable would not emit energy, heat, or sound but would rather passively collect maritime environmental data. Therefore, alterations of the seafloor, habitat, and benthic communities resulting from the cable laying operations, potential recovery or abandonment in place are expected to have a negligible impact on ESA-listed species.

4.2.1 Turbidity

Both components of cable installation–shoreside connection and cable laying and burial under the seafloor–and potential recovery create the possibility of temporary suspended sediment, or turbidity.

During shoreside cable laying and removal on the seafloor, there is the possibility that temporary and localized small turbidity plumes will be created by cable touching soft sediment in the eelgrass area. Additionally, if divers need to walk in the eelgrass area while gently placing the cable (e.g., if installation occurs at low tide), it may create additional temporary and localized turbidity plumes from footprints. However, these increases in turbidity are expected to dissipate within seconds or minutes after placement due to the slow speed of laying, dynamic currents, and tides within the action area.

If any ESA-listed species are in the vicinity of shoreside cable connecting operations and potential removal, they would most likely relocate to a more suitable location and resume their previous activities. The species in the nearshore shoreside connection area will likely be limited to fishes, as the depth in this location is too shallow for whales. Of note, the entire cable shore landing process is estimated to take approximately 5 to 9 hours, with the divers gently placing the cable through the eelgrass for only a portion of that time. Afterwards, the cable—which itself has a very small diameter (4.42 mm [0.174 in.])—would be a benign system in place on the substrate with no other sediment disturbances taking place until its potential recovery.

For the shallow cable burial (30.5 cm [12 in.]) within the Strait of Georgia and Semiahmoo Bay, the proposed cable route would be along water depths between about 12.2 to 15.2 m (40 to 50 ft.), with the deepest locations being a 10:1 slope that goes from about 11 to 22 m (36 to 72 ft.) depth (MLLW). These water depths are significantly shallower than those at which a cable is laid on the seafloor (approximately 2,000 m [1.24 mi.]) (Carter et al. 2014). Therefore, burying the cable would serve the dual purpose of safeguarding the surrounding environment from potential cable displacement due to currents and mitigating risk of damage caused by the cable (NOAA 2024). Burial in shallower waters also helps to protect the cable itself from other ships' anchoring and bottom trawl fishing, crabbing, and recreational fishing (Kordahi et al. 2007; Burnett and Carter 2017).

The cable burial method employed will be a one-step 'bury-while-lay' process that utilizes a 182.9 cm x 76.2 cm (72 in. by 30 in.; length x width) plow sled with a 7.62 cm (3 in.) wide plowshare that creates a trench to bury the cable 12 in. below the seafloor using backfilled sediment. The plow sled (76.2 cm [30 in.] width) would temporarily disrupt the seafloor by being dragged along it, while the plowshare (7.62 cm [3 in.] width) would create a very narrow trench to bury the cable. Given the small width of the plow sled (76.2 cm [30 in.]) and plowshare (7.62 cm [3 in.]), the movement and backfill of sediment into the cable burial area is anticipated to result in a small and temporary localized increase in turbidity that is expected to dissipate within seconds to minutes via the currents of the action area. Temporary turbidity may also occur with recovery of the cable when the Project is concluded.

No Information is available on the effects of small plumes of turbidity on whales. While the increase in temporary suspended sediment in the water column may cause whales to alter their normal movements, these minor movements would be too small to be meaningfully measured or detected. Whales would be able to easily swim away from the turbidity plume and would not be adversely affected by passing through it. Temporary turbidity plumes may impact whales' prey movement through the water for a very short period. However, mobile organisms, such as fish, would likely vacate the area upon detection of any small sediment disturbance created by the plow sled and cable burial. The cable laying and burial process occurs very slowly—with the cable laying vessel operating at less than 3 knots—and movement would not outpace any species' natural faculties to respond and avoid the disturbance.

Sedimentation and turbidity are primary contributors to the degradation of salmonid habitat (Bash et al. 2001). Excess sediment loading and turbidity levels can clog the gills of fish, smother eggs, embed spawning gravels, disrupt feeding and growth patterns of juveniles (Bruton 1985). Long-term exposure to high levels of turbidity could cause ESA-listed fish to avoid the action area, impede or discourage free movement within localized areas of the action area, prevent individuals from exploiting preferred habitats, and/or expose individuals to less favorable conditions. However, the turbidity associated with The Project would be very short term in nature considering that the entire Project is planned over the course of only two (2) days, eight (8) hours of which will be taken to shallow bury the cable under the seafloor. Therefore, these effects are likely transitory and localized at the cable burial location. The turbidity effects from installation and recovery, or abandonment in place would likely be even less impactful within the action area given the dynamic and strong currents and tides that exist.

Although sunflower sea stars, if present, would be exposed to increased turbidity, being habitat generalists, they are adaptable and tolerant of a range of environmental conditions (Mauzey et al. 1968; Lambert 2000; Hemery et al. 2016; Gravem et al. 2021). They are not expected to be significantly affected by the minor increase in turbidity that is expected to dissipate quickly.

4.2.2 Vessel Operation

Vessel operation during cable installation and recovery would have potential impacts based on physical presence (including the plow sled) and generated noise from its two diesel engines (each 350 hp).

4.2.2.1 Vessel Presence

The action area already contains high levels of vessel traffic and human activity, particularly near Blaine in the Blaine Marine Park (AccessAIS 2022). The Commercial Dungeness crab fishery has a large harvest near the action area (Ecology 2021). The Port of Bellingham operates a large marina in Blaine, where there is a variety of pleasure craft and fishing vessels, including sailing cruises. There also exist some whale watching tour businesses that operate in the area, including Semiahmoo Whale Watching. There are no WSDOT passenger ferry routes in the area, nor are there any major cruise lines that traverse the area. Outside of the vessel activity listed above, much of the cable laying route is not a major vessel traffic area.

The cable laying vessel would only operate for approximately two days for this project: (1) one 5- to 9-hour day for the shoreside cable connection (Day 1) and one 8-hour day for traversing the cable route (Day 2). The cable laying operation would not notably increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed species for foraging or resting. There is the potential for underwater noise generated by the vessel itself, as well as the plow sled and plowshare burying the cable underneath the seafloor and potential 2 day recovery. Underwater noise generated by the vessel, its two (2) diesel engines (350 hp each) and plow sled may be elevated above ambient in-water noise levels, however, due to the currents within the action area and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to ESA-listed species which may be present in the immediate vicinity at the time of cable installation and potential recovery.

Marine mammals' reactions to vessel disturbance may include approach or deflection from the noise source, low level avoidance or short-term vigilance behavior, or short-term masking of echolocation or acoustic communication among individuals. Behavioral reactions to vessels can vary depending on the type and speed of the vessel, the spatial relationship between the animal and the vessel, the species, and the behavior of the animal prior to exposure. Response also varies between individuals of the same species exposed to the same sound, depending on age and individual whales' past experiences. Vessels moving at slow speeds (e.g., less than 3 knots) and avoiding rapid changes in direction or engine speed may be tolerated by some whales. Other individuals may deflect around vessel and continue their migratory path. These behaviors are not likely to result in significant disruption of normal behavioral patterns. Whales have been known to tolerate slow moving vessels within several hundred meters, especially when the vessel is not directed toward the animal and when there are no sudden changes in direction or engine speed (Wartzok et al. 1989; Richardson et al. 1995; Heide-Jørgensen et al. 2003).

A study in Juneau analyzed humpback whale movements and behavior in response to whale-watching vessels and found that feeding and traveling humpback whales were likely to maintain their behavioral state regardless of vessel presence, while surface active humpback whales were likely to transition traveling in the presence of vessels (Schuler et al. 2019). Although the research vessel is larger than typical whale watching vessels, the presence of one vessel over a short period of time (cable laying for one (1) day) is likely to produce similar responses, including very short-term and minor changes in movement and behavior if a whale is encountered.

Marine mammals are mobile species and agile within their medium (i.e., underwater). Mobile species can navigate highly trafficked waters and avoid disturbances, and the addition of one more slow-moving vessel (less than 3 knots during cable installation and potential recovery procedures) in the area for an 8-hour event for installation and potential recovery should not result in any significant alterations in behavior by ESA-listed species.

4.2.2.2 Acoustic Disturbance

Auditory disturbance to ESA-listed marine mammals could potentially occur along the proposed cable-laying route. The primary underwater noise associated with the proposed vessel operation is the continuous noise produced from propellers, including propeller harmonics (Gray and Greeley 1980) and cavitation. Vessel activity during cable laying could result in temporary and minor disruptions in behavior of ESA-listed marine mammals, fish, and bird species. Potential responses to project activities could include temporary disruption of a species' current behavioral state and/or temporary avoidance of the action area due to vessel noise.

The available data on hearing sensitivities of mysticetes (e.g., humpback whales) indicates that these whales have hearing sensitivities between approximately 7 Hertz (Hz) to 24 kilohertz (kHz) (Richardson et al. 1995; Au et al. 2006; Southall et al. 2007). For odonotcetes (e.g., SRKWs), the data indicates hearing sensitivities of 2.5 to 60 kHz (Carder and Ridgway 1990).

The noise field varies with frequency and angle about a vessel (Arveson and Vendittis 2000; Trevorrow et al. 2008; Gassmann et al. 2017). The strongest noise source is typically the propeller when it cavitates, forming bubble clouds behind the propeller creating a broadband noise spectrum ranging from a few Hz to over 100 kHz (Ross 1976). Traveling at low speed and/or great depth can reduce and avoid propeller cavitation noise.

Given that ships operate at the water surface and the propeller sits, at maximum, a few meters below the surface, emitted noise reflects at the water surface leading to a strongly downward-directed noise emission pattern (e.g., Gassmann et al. 2017). In physical terms, a watercraft noise radiates very well to great depth in the ocean. Noise in the horizontal plane near the sea surface is greatly reduced because of mirror effect of the surface. In addition, a hull may shield sound propagation from the propeller in the forward direction. These may explain why marine mammals that spend a lot of time at the water surface are prone to vessel strike are not disturbed by the vessel's noise (Gerstein et al. 2005).

The sound source levels for cable laying vessels are typically 155 to 170 dB re 1µPa m at 10 m. Ship noise increases as the ship's speed increases (McKenna et al. 2012). For comparison, large commercial ships (e.g., tankers, bulk carriers, container ships) typically generate sound levels ~180 dB re 1µPa m at 10 m at their normal working speed (Richardson et al. 1995).

Although the two listed marine mammals (SRKWs and humpbacks) could receive sound levels in exceedance of the acoustic threshold of 120 dB from the vessels during this proposed project, take is unlikely to occur. Vessel transit for this proposed project is not likely to acoustically harass listed species, per the steps to assess harassment in the Interim Guidance on the ESA Term "Harass" (Wieting 2016). While the listed marine mammals would likely be exposed to vessel noise from this proposed project, the noise would be low frequency, with much of the acoustic energy occurring below frequencies associated with best hearing for the marine mammals expected to occur in the area. The duration of the exposure would be temporary (i.e., a few minutes) because the vessel would be in transit. The project vessel would travel at very low speeds (i.e., less than 3 knots during cable laying operations), and the noise from the vessel would be continuous, alerting marine mammals of its presence before the received level of sound exceeds 120 dB. Therefore, a startle response is not expected. Rather, deflection and avoidance are expected to be common responses in those instances where there is any response at all.

Acoustic disturbance associated with cable installation and potential recovery would be due to the noise produced by the vessel during operations and trenching by the plow sled for cable burial. Cable segments laid on the seafloor (e.g., in ecologically sensitive areas) would not generate any underwater sound. Cable recovery activities would have similar noise impacts as discussed for cable installation. There is a potential for vessel noise to overlap with vocalization of marine mammals. Depending on how close an ESA-listed species is to the cable laying vessel (e.g., within 100 m [330 ft] of the vessel) and how many other vessels are in the action area during the cable laying operation, a species may increase their vocalization rate (Dahlheim and Castellote 2016). According to Taormina et al. (2018), there is no clear evidence that non-impulsive underwater noises emitted during cable installation and potential recovery affects marine mammals or any other marine animal. Compared with other anthropogenic (impulsive) sources of noise—such as sonar, piling, or explosions—underwater noise linked to undersea cables remains relatively low.

The lack of adverse effects to marine mammals from cable-laying vessels is supported by relatively recent marine mammal observations in the Arctic. In 2016, NOAA Fisheries conducted a formal consultation for Quintillion Subsea Operations, a similar cable-laying project in the arctic. Final marine mammal monitoring reports (2016 and 2017) for the Quintillion project as cited in the 2019 Letter of Concurrence #AKRO-2019-00892 provided the following information:

- Reactionary behaviors were documented in only 3% and 2.5% of all cetacean observations in the 2016 and 2017 reports, respectively. These behaviors were limited to changing direction and increasing swimming speed. The remaining 97% (557) and 97.5% (112) of whales observed in 2016 and 2017, respectively, did not react to the presence of the cable ship.

The information from these reports provides substantiation that marine mammal response, if any, to cable-laying vessels is not expected to significantly disrupt normal marine mammal behavior patterns. Overall, the addition of the research vessel would not significantly increase the baseline of vessel traffic in the nearby waters in a meaningful way due to the vessels involved with project already operating in the action area, thus the anticipated effects to marine mammals from vessel noise would be considered insignificant.

With implementation of BMPs, vessel transit and cable laying operations are not expected to significantly disrupt normal marine mammal behavioral patterns (e.g., breeding, feeding, sheltering, resting, migrating), making harassment of ESA-listed marine mammals very unlikely.

4.3 Delayed Consequences

Delayed consequences are those effects that are caused by the action and occur later in time (after the action is completed) but are still reasonably certain to occur (50 CFR 402.02). Since the research project is intended to be temporary (3 to 24 months), cable recovery is the only identified delayed consequence, as the cable would be a benign system once installed and buried, unless regulators require recovery of the cable.

By installing or recovering the cable over a very short period (approximately two days) and approximately two days for potential recovery, the Proposed Action would not alter the ecological connectivity of aquatic resources, would not result in altered predator-prey relationships, changes in human activities, nor in long-term degradation of habitat through additional construction activities. Therefore, it would have no effects on ESA-listed species beyond what is described in Section 4.2 (Direct Effects). The cable has a very small diameter (4.42 mm [0.174 in.]) and would be buried in one step, with sediment immediately backfilling during installation to cover the cable. Therefore, the cable would be a benign system once installed and buried, have no continuing impact on the seafloor after installation. There would be no moving parts, no oil-filled systems, and no other contaminants associated with the cable. For the segment of cable laid within the dense eelgrass beds, once the cable has been laid there will be no continued effects on aquatic resources or habitat, unless the cable is removed at the end of its life span. The cable would not emit energy, heat, or sound but rather would passively collect maritime environmental data from the surrounding waters. No land disturbance, facility construction, or demolition is included in the Proposed Action.

Currently the cable placement is a planned temporary research project to only last from 3 to 24 months, with cable recovery occurring afterwards. If the cable is recovered instead of being left in place, cable recovery would be conducted in the reverse manner it was laid beginning with the anchor tag line and is anticipated to take less than one day to complete. The portions of the cable that run through sensitive areas, such as the dense eelgrass at the shoreside landing, would be severed and left in place to prevent additional disturbance to the habitat. This method may be adjusted depending on recommendations from ongoing discussion with state and federal permitting and natural resource agencies.

5. Effects Determination

5.1 ESA-Listed Species

Potential impacts to ESA-listed species associated with the Proposed Action may include temporary increased turbidity due to cable burial and vessel disturbance, including heightened vessel traffic and vessel noise. Effect determinations for ESA-listed are provided below.

5.1.1 Killer Whale, Southern Resident DPS

The Project determination is "**May Affect, Not Likely to Adversely Affect**" SRKWs for the following reason:

- SRKWs are well documented in Salish Sea waters of WA and may transit or forage near the action area. Previous studies have documented SRKW sightings in the action area, thought they have been sighted at much lower densities than other major transit routes through the Salish Sea (Olson et al. 2018). The Proposed Action that would occur in the Strait of Georgia and Semiahmoo Bay are limited to vessel operations (presence and noise) and cable laying and burial operations that would result in temporary and localized turbidity. These activities would take place over the course of approximately two days.
- Elevated underwater noise is expected due to cable laying vessel operations due to the vessel's two diesel engines (each 350 hp) and plow sled operations along the seafloor. Underwater noise produced by the engines may be detectable near the engines but is not anticipated to significantly contribute to ambient noise levels. Because of the small size of the 76.2 cm (30 in.) wide plow sled, the underwater noise generated by sled operations is expected to be minimal and lower than existing ambient noise levels in the action area. Due to the currents of the action area and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to SRKWs. It is unlikely that SRKWs would be in the vicinity of the noise during the two-day operation; however, if they are in the area, they would likely relocate to a more suitable location and resume their previous activities.
- While the increase in suspended sediment due to cable laying and burial could, in theory, cause SRKWs to alter their normal movements, these minor movements would be too small to be meaningfully measured or detected. SRKWs would be able to easily swim away from the turbidity plume and would not be adversely affected by passing through it. SRKWs are highly mobile and would not be temporarily or permanently displaced by the potential temporary increase in turbidity, as their mobility would likely enable them to avoid any potential deleterious impact. It is likely that if any SRKWs are in the vicinity of the cable laying vessel during installation and potential recovery, they would likely relocate to a more suitable location and resume their previous activities.

5.1.2 Humpback Whale – Mexico and Central America DPS

The Project determination is "**May Affect, Not Likely to Adversely Affect**" humpback whales of Mexico and Central America DPSs for the following reasons:

- Humpback whales typically do not utilize the waters within action area and are not anticipated to be present near the Proposed Action. Humpback whale sightings primarily occur offshore from WA's outer coast, mostly from July through September before whales migrate to their breeding grounds in warmer waters (WDFW 2023a). Humpback whale presence is still considered to be rare in Puget Sound, and when it does happen, primarily occurs within the Strait of Juan de Fuca, Haro Strait, Moresby Passage, and Southern Puget Sound (Calambokidis et al. 2017). The Proposed Action occurring in the Strait of Georgia and Semiahmoo Bay—where there is a very low likelihood of humpback presence—are limited to vessel operations (presence and noise) and cable laying and burial operations over the course of approximately two days. These activities would result in increased vessel presence and noise, as well as creating temporary and localized turbidity.

- Elevated ambient underwater noise may occur due to cable laying vessel operations, including the vessel's use of two diesel engines (each 350 hp) and plow sled operations along the seafloor. Underwater noise produced by the engines may be detectable near the engines but is not anticipated nor expected to significantly contribute to ambient noise levels. Because of the small size of the plow sled (76.2 cm [30 in.]) and depth of the trench for cable burial (30.5 cm [12 in.]), the underwater noise generated by sled operations is expected to be minimal and lower than existing ambient noise levels in the action area. Due to the currents of the action area and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to humpbacks which may be present in the immediate vicinity at the time of cable installation and potential recovery. It is likely that if any humpbacks are in the vicinity of the noise, they would likely relocate to a more suitable location and resume their previous activities.
- While the increase in suspended sediment due to cable laying and burial may cause humpbacks to alter their normal movements, these minor movements would be too small to be meaningfully measured or detected. Humpbacks would be able to easily swim away from the turbidity plume and would not be adversely affected by passing through it. Humpback whales are highly mobile and would not be temporarily or permanently displaced by the potential temporary increase in turbidity, as their mobility would likely enable them to avoid any potential deleterious impact. It is likely that if any humpbacks are in the vicinity of the cable laying vessel during installation and potential recovery, they would likely relocate to a more suitable location and resume their previous activities.

5.1.3 Bocaccio, Puget Sound-Georgia Basin DPS

The Project determination is "**May Affect, Not Likely to Adversely Affect**" the Puget Sound-Georgia Basin DPS of bocaccio for the following reasons:

- Juvenile bocaccio have the potential to be present within the action area, because they prefer nearshore habitats, such as those with a depth of 30 m (98 ft.) and are characterized by rocky substrates or sandy bottoms with eelgrass (78 FR 47635). Within the action area, there is nearshore rocky substrate and there are 91 to 100 percent cover eelgrass beds near the shoreside landing area. These eelgrass beds may be used by juvenile bocaccio for forage opportunities and refuge from predators. The shoreside cable connection requires divers to gently place the 4.42 mm (0.174 in.) diameter cable on dense eelgrass. Away from the eelgrass beds and for the rest of the proposed route, the cable burial method employed would be a one-step 'bury-while-lay' process that utilizes the plow sled that would bury the cable. Both the shoreside cable connection and cable burial actions would result in the potential for temporary turbidity; however, this would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment. For the shoreside cable connection, divers would take care to place the cable within the eelgrass by gently placing it on the substrate (i.e., no cutting or clearing of eelgrass will occur). Therefore, turbidity is anticipated to be minimized even further than if a vessel were laying the cable in this location. If any juvenile bocaccio are in the vicinity of the cable laying procedure, either shoreside or during burial further from shore, and are disturbed by Project-related impacts (e.g., turbidity), they would likely relocate to a more suitable location and resume their previous activities.
- Adult bocaccio are even more less likely to be present than juveniles within the action area, as they typically inhabit water depths much deeper—39 to 300 m (160 to 820 ft.), and down to 425 m (1,400 ft.)—than those found along the proposed cable route which are

approximately 12.2 to 15.52 m (40 to 50 ft.) and 11 to 22 m (36 to 72 ft.) at the deepest part. RHA analysis shows no bocaccio hot spots between within the action area (NRC 2016). If any adult bocaccio are in the vicinity of the cable laying procedure, either shoreside or during burial further from shore, they would likely temporarily relocate locations and resume their previous activities.

5.1.4 Yelloweye Rockfish, Puget Sound-Georgia Basin DPS

The Project determination is "**May Affect, Not Likely to Adversely Affect**" the Puget Sound-Georgia Basin DPS of yelloweye rockfish for the following reasons:

- Yelloweye rockfish have the potential to be present in the action area, although their presence is very unlikely. Even with a high density of eelgrass nearshore to the landing point, there should be a very low potential for the concentration or presence of yelloweye larvae residing within them. Rockfish hot spot area analysis (RHA) indicates no juvenile spatial distribution within the action area, and that juveniles do not typically occupy intertidal waters, instead preferring deeper habitats (mean depth of 100.9 m [331 ft.]; NRC 2016). A few juveniles have been documented in shallow nearshore waters, but most settle in habitats along a shallow range of adult habitats in areas of complex bathymetry, rocky/boulder habitats, and cloud sponges in waters greater than 30 m (98 ft.), with a mean depth of 73 m (239 ft.; Yamanaka et al. 2006). Adults inhabit submerged, rocky reef habitats and are not typically netted at nearshore sites within Puget Sound, being most commonly present at depths beginning at 40 m (130 ft.) and as deep as 140 m (460 ft.; Richards 1986; Murie et al. 1994). According to the bathymetry surveys, the water depths that juvenile and adult yelloweye rockfish inhabit exceed those found in the action area.
- The Proposed Action occurring in nearshore and shallow waters include the shoreside cable connection to the existing landing infrastructure, and cable laying and shallow burial (30.5 cm [12 in.]) along the proposed route. Only when the cable burial is occurring would the proposed project potentially affect yelloweye rockfish habitat, creating a temporary disturbance on the seafloor approximately 76.2 cm (30 in.) wide due to the width of the plow sled, including the 7.62 (3 in.) wide plowshare. If any yelloweye rockfish in the vicinity of cable laying operations are present and were to be disturbed by the Proposed Action-related impacts (e.g., turbidity), they would likely relocate to a more suitable location and resume previous activities.

5.1.5 Chinook Salmon, Puget Sound ESU

The Project determination is "**May Affect, Not Likely to Adversely Affect**" the Puget Sound ESU of chinook salmon for the following reasons:

- Chinook salmon presence is well documented in the marine waters of WA, including the Strait of Georgia. There are no spring or summer chinook salmon streams in the action area, but there are fall run chinook salmon streams that empty into nearby Drayton Harbor outside of the action area. Fall chinook salmon have a documented presence in Dakota Creek and potential presence in California Creek, both of which empty into Drayton Harbor (WDFW 2024b). It is possible that migrating fall chinook salmon would be present within the action area in their attempt to reach Dakota Creek and California Creek through Drayton Harbor. Their journey to spawning grounds would likely begin in late July, peak in September, and end in December, potentially coinciding with the proposed project (currently planned for the second half of 2024 [Q3/Q4]).
- The Proposed Action occurring in nearshore waters for chinook salmon include the shoreside connection of the 4.42 mm (0.174 in.) diameter cable to existing landing infrastructure and cable laying and shallow burial (30.5 cm [12 in.]) using a 76.2 cm (30 in.) wide plow sled with 7.62 cm (3 in.) wide plowshare along the proposed route. Only when cable burial is

occurring would the proposed project create a temporary turbidity plume from the seafloor due to the 76.2 cm (30 in.) wide plow sled laying and burying the cable. Temporary and localized sediment disturbances are not expected to degrade nearby water quality, nor would cable installation and potential recovery limit chinook migratory access to any historical spawning grounds in the area. If any Puget Sound ESU of chinook salmon is in the vicinity of cable laying and burial, they would likely relocate to a more suitable location and resume previous activities.

5.1.6 Steelhead, Puget Sound DPS

The Project determination is "**May Affect, Not Likely to Adversely Affect**" the Puget Sound DPS of steelhead for the following reasons:

- The action area may support foraging and migration for the Puget Sound DPS of steelhead. An unnamed creek (LLID 1227531489972) that runs through Blaine and empties into Semiahmoo Bay at the Blaine Marine Park is gradient accessible for the presence of winter run steelhead and may support migration (WDFW 2024a). While outside of the action area, nearby Drayton Harbor to the southeast of Semiahmoo Bay supports winter run steelhead. Both Dakota Creek and California Creek have documented presence of winter run steelhead, as well as three (3) other unnamed creeks that empty into Drayton Harbor (LLID 1227289489584, 1227310489624, and 1227320489682). Winter run steelhead may migrate through the action area to enter Drayton Harbor. No suitable stream habitat would be impacted be because of this project as the Proposed Action occurs exclusively in marine waters.
- Both summer and winter run steelhead are well documented in the marine waters of WA, but winter run steelhead are more likely to be present within the proposed action area than summer run steelhead. Summer run steelhead presence in the action area is highly unlikely, as the Nooksack River is the nearest river with documented summer steelhead presence, and it empties into Bellingham Bay, south of the Proposed Action area.
- The Proposed Action occurring in the nearshore waters includes the shoreside connection of the 4.42 mm (0.174 in.) cable to existing landing infrastructure and cable laying and shallow burial 30.5 cm (12 in.) using a 76.2 cm (30 in.) wide plow sled with 7.6 cm (3 in.) wide plowshare along the proposed route. Only when cable burial is occurring would the proposed project potentially create a temporary sediment disturbance and localized turbidity plume from the seafloor due to the approximately 76.2 cm (30 in.) wide due to plow sled burying the cable. If any steelhead, winter and/or summer run, are present in the vicinity of shoreside cable connection or cable laying and burial activities and exposed to the turbidity generated by the project, they would likely relocate to a more suitable location and resume previous activities.

5.1.7 Green Sturgeon, Southern DPS

The Project determination is "**May Affect, Not Likely to Adversely Affect**" the Southern DPS of green sturgeon for the following reasons:

- Green sturgeon is documented within the marine waters of WA. While Southern DPS green sturgeon are found in high concentrations in coastal bays and estuaries, in WA they are primarily found during the summer and autumn, particularly in Willapa Bay, Grays Harbor, and the Columbia River estuary which are all well outside of the action area (Lindley et al. 2008; Moser et al. 2016; Schreier et al. 2016). Adult and subadult winter/spring green sturgeon may be present in the action area given their range (NOAA Fisheries 2014c). Green sturgeon are benthic feeders (Dumbauld et al. 2008) and typically occupy depths of 20-70 m (66-230 ft.) while in marine habitats (Erickson and Hightower 2007; Huff et al. 2011), but it is highly unlikely any green sturgeon would be in the action area and impacted by the Proposed Action.

- The Proposed Action occurring within the action area includes the shoreside connection of the 4.42 mm (0.174 in.) cable to existing landing infrastructure and cable laying and burial along the proposed route. Only when cable burial is occurring would the proposed project potentially create a temporary sediment disturbance and localized turbidity plume from the seafloor due to the approximately 76.2 cm (30 in.) wide due to plow sled burying the cable. However, the shoreside connection is outside of the green sturgeon range, as is the proposed cable laying route through Semiahmoo Bay and the Strait of Georgia. Only when cable burial is occurring would the proposed project potentially affect green sturgeon, by creating a temporary sediment disturbance and turbidity plume from the seafloor due to the approximately 76.2 cm (30 in.) wide plow sled burying the cable. However, this increased turbidity would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment. If any green sturgeon is in the vicinity of elevated turbidity, they would likely relocate to a more suitable location and resume previous activities.

5.1.8 Sunflower Sea Star (Proposed)

The Project determination is "**May Affect, Not Likely to Adversely Affect**" the sunflower sea star for the following reasons:

- While historically abundant, the number of sunflower sea stars in the Salish Sea has drastically declined and is now considered rare in nearshore WA areas (88 FR 16212). Since the outbreak of SSWS in 2013, through 2020 there was a decline in density of approximately 91.9 to 92.4 percent in the Salish Sea. While sunflower sea stars are more abundant in shallower waters, such as those within the action area, they have been largely decimated in WA's inland waters, thus making their presence within the action area even less likely. The Proposed Action occurring within the action area includes the shoreside connection to the cable landing infrastructure and cable laying and burial along the proposed route. The shoreside connection requires divers to gently place the 4.42 mm (0.174 in.) diameter cable on dense eelgrass, while the cable laying process involves shallow burial 30.5 cm (12 in.) using a 76.2 cm (30 in.) wide plow sled with 7.62 cm (3 in.) wide plowshare along the proposed cable route. Only when cable burial is occurring would the proposed project potentially affect sunflower sea stars by increasing turbidity. While slower moving than mobile species, such as marine mammals or migratory fish, benthic sunflower sea stars can move up to 1 m (40 in.) per minute. If any sunflower sea stars are in the vicinity of cable laying and burial were to be disturbed by the Proposed Action-related impacts (e.g., turbidity), they may not be able to relocate to a more suitable location and resume previous activities with enough time. However, given the decimation of their population numbers and inconsistent spatial distribution and connectivity within their range (88 FR 16212), it is very unlikely that they would be present within the action area during cable installation.

5.2 Critical Habitat

Potential impacts to critical habitat for bocaccio (Puget Sound-Georgia Basin DPS), chinook salmon (Puget Sound ESU) and SRKWs associated with the Proposed Action may include temporary turbidity increases from divers placing the cable on the substrate within eelgrass areas during shoreside landing operations and shallow cable burial (30.5 cm [12 in.] depth) between the shoreside connection in the nearshore. Additional potential impacts for SRKW include increased vessel traffic due to cable laying vessel presence.

5.2.1 Bocaccio, Puget Sound-Georgia Basin DPS

The proposed Project determination is "**May Affect, Not Likely to Adversely Affect**" critical habitat for the Puget Sound-Georgia Basin DPS of bocaccio for the following reasons:

- Proposed activities in the action area include procedures for cable shoreside connection and cable laying and burial. The total time for cable installation is planned to take two (2) days total to complete: 5 to 9 hours for shoreside connection (Day 1) and 8 hours for cable laying and burial (Day 2). After completion of proposed activities, the cable would remain in place and not emit EMF or present any triggers for behavior changes.
- The cable laying process through eelgrass areas would utilize divers that would gently move seagrass out of the way to lay the cable, which itself has a very narrow width at 4.42 mm (0.174 in.), on the seafloor substrate. The cable burial processes will be a one-step 'bury-while-lay' process that utilizes a 72 in. by 30. (length x width) plow sled with a 3 in. wide plowshare that would bury the cable 30.5 cm (12 in.) below the seafloor. There is the potential for a temporary increase in turbidity from laying the cable on soft sediment; however, this would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment.
- Where the Project affects the seafloor during cable laying in eelgrass areas and shallow cable burial, the actions would only temporarily and not permanently alter the composition of the substrate or the habitat in any substantial way.
- The proposed Project is intended to only be a temporary pilot project lasting 3 to 24 months. Any segments of the cable installed in sensitive habitat, such as eelgrass, would be left in place to minimize any further environmental disturbances.

The following discussion addresses the essential PCEs/PBFs for bocaccio critical habitat and the associated assessment for each element.

1. *"Quantity, quality, and availability of prey species to support individual growth, survival, reproduction, and feeding opportunities."*

   Action area: Potential impacts in the benthic marine environment of the action area associated with this project (i.e., turbidity) would not be of sufficient magnitude or duration to impact fish species. Therefore, the Proposed Action would not produce any measurable effects to bocaccio's prey abundance.

2. *"Water quality and sufficient levels of dissolved oxygen to support growth, survival, reproduction, and feeding opportunities."*

   Action area: Potential increases in turbidity associated with the Project would be temporary and minor and would not decrease photosynthesis by submerged aquatic vegetation (e.g., eelgrass) in the Action area. The project would not affect dissolved oxygen levels or introduce contaminants to the marine environment.

3. *"The type and amount of structure and rugosity that supports feeding opportunities and predator avoidance."*

   Action area: This PCE is applicable only to the adult lifestage of bocaccio (i.e., not juveniles). The Proposed Action would not impact the structure and rugosity of habitats that support feeding opportunities and predator avoidance for adult bocaccio, as these types of habitats exist at much deeper depths than those within the action area. Therefore, this PCE would not be affected.

5.2.2 Chinook Salmon, Puget Sound ESU

The proposed Project determination is "**May Affect, Not Likely to Adversely Affect**" critical habitat for the Puget Sound ESU of chinook salmon for the following reasons:

- Proposed activities in the action area include procedures for cable shoreside connection and cable laying and burial. The total time for cable installation is planned to take approximately two days total to complete: 5 to 9 hours for shoreside connection (Day 1) and 8 hours for cable laying and burial (Day 2). After completion of proposed activities, the cable would remain in place and not emit EMF or present any triggers for behavior changes.
- Where the Project affects the seafloor during cable laying in eelgrass areas and shallow cable burial, the actions would only temporarily and not permanently alter the composition of the substrate or the habitat in any substantial way.
- The cable laying process through eelgrass areas would utilize divers that would gently move seagrass out of the way to lay the cable, which itself has a very narrow width at 4.42 mm (0.174 in.), on the seafloor substrate. There is the potential for a temporary increase in turbidity from laying the cable on soft sediment; however, this would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment.
- The proposed Project is intended to only be a temporary pilot project lasting 3 to 24 months. Any segments of the cable installed in sensitive habitat, such as eelgrass, will be left in place to minimize any further environmental disturbances.

The following discussion addresses specific critical habitat PBFs, cited in the 2005 FR as PCEs essential for conservation of the chinook salmon Puget Sound ESU, and the associated assessment for each element.

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

   Action area: The proposed Project would not go through any freshwater spawning sites; therefore, this PBF would not be affected by proposed project activities.

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

   Action area: The proposed Project would not go through or affect any freshwater rearing sites for chinook salmon; therefore, this PBF would not be affected by proposed project activities.

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

   Action area: The proposed Project would not go through or affect any freshwater migration corridors; therefore, this PBF would not be affected by proposed project activities.

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

Action area: The entire action area is part of the Salish Sea, which is a large estuary system, increases in localized turbidity in estuarine areas associated with the Project Action would be temporary and minor, including areas of known aquatic vegetation, such as the eelgrass sites near the shoreside cable connection. Once laid, cable presence in the eelgrass areas would not obstruct any estuarine areas given the fact it has a very small diameter (4.42 mm [0.174 in.]) and would lay on the substrate. Given the very narrow cable diameter, cable presence would also not obstruct any natural cover within aquatic vegetation (i.e., eelgrass) in estuarine areas. In estuarine areas where shallow cable burial (30.5 cm [12 in.]) is proposed—along the proposed cable route and outside of eelgrass areas—the Proposed Action would result in only temporary localized turbidity plumes. The temporary turbidity plumes from the Proposed Action would not impact the water quality, water quantity, or salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater, as they would very quickly dissipate due to currents and tides in the area.

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

   Action area: Increases in localized turbidity in nearshore areas associated with the Project Action would be temporary and minor, including within areas of known aquatic vegetation, such as the eelgrass sites near the shoreside cable connection. These temporary localized turbidity plumes would not impact the water quality, as they would very quickly dissipate due to currents and tides in the area. Once laid, cable presence in the eelgrass areas would not obstruct any nearshore marine areas given the fact it has a very small diameter (4.42 mm [0.174 in.]) and would lay on the substrate. Given the very narrow cable diameter, cable presence would also not obstruct any natural cover within aquatic vegetation (i.e., eelgrass), nor would it impact local water conditions for chinook foraging for aquatic invertebrates and fishes. In nearshore areas where shallow cable burial (12 in.) is proposed—along the proposed cable route and outside of eelgrass areas—the Proposed Action would result in only temporary and localized increases in turbidity. These turbidity plumes would also not impact the water quality, as they would very quickly dissipate due to currents and tides in Puget Sound.

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

   Action area: No project components or impacts are in offshore marine areas. Therefore, this PBF would not be affected by proposed project activities.

5.2.3 Killer Whale, Southern Resident DPS

As critical habitat encompasses the entirety of the Salish Sea, critical habitat is present in the action area. The proposed Project determination is "**May Affect, Not Likely to Adversely Affect**" the critical habitat for the SRKW for the following reasons:

- The entirety of the cable shoreside connection and cable laying and burial process is anticipated to take approximately two days total: 5 to 9 hours for shoreside connection (Day 1) and 8 hours for cable laying and burial (Day 2). After completion of proposed activities, the cable would remain in place and not emit EMF or present any triggers for behavior changes. The cable laying vessel would contribute to increased vessel traffic within the action area.

- Any increase in suspended sediment or turbidity in the water column due to project activities is expected to be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment. There are no anticipated long-term changes to water quality expected from project activities.

The following discussion addresses the PBFs (or, as previously referred to, PCEs) for SRKW critical habitat and the associated assessment for each element.

1. *“Water quality to support growth and development.”*

   Action area: The Proposed Action would create temporary and localized turbidity plumes extending into the water column. However, given the strength of the currents and tides within the Salish Sea, it is anticipated that the project activities would not affect the water quality within the action area with any measurable impact that would adversely affect the growth and development of SRKWs. Vessel presence is not anticipated to affect water quality in a manner that would have any effect on the growth and development of SRKW. Therefore, this PCE would not be affected.

2. *“Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth.”*

   Action area: The proposed project activities have the potential to result in a temporary increase in turbidity from cable installation; however, this would be *de minimis*, dissipate quickly, and would not degrade water quality or alter long-term habitat conditions in the marine environment. These short-lived suspended sediments have the potential affect SRKW’s prey species during the short time in which there is increased turbidity. However, if any prey species are in the vicinity of the vessel during cable laying and burial operations, they would most likely relocate to a more suitable location and resume their previous activities SRKW presence in WA’s inland waters are strongly correlated with salmon migration, and the proposed project activities are not expected to alter or affect salmon populations’ migration capabilities. Vessel presence would not affect the sufficient quantity, quality, and availability of prey species (such as salmon) for SRKW. Therefore, this PCE would not be affected.

3. *“Passage conditions to allow for migration, resting, and foraging.”*

   Action area: The Proposed Action would contribute to increased vessel traffic within the action area for the 1 day (approximately 8 hours) in which the vessel installs cable westward through Semiahmoo Bay and the Strait of Georgia. This cable route goes through one of the least SRKW dense migration routes throughout the Salish Sea (Olsen et al. 2018). Additionally, for the day in which cable is installed, the cable laying vessel will be operating at speeds less than 3 knots. This speed is slow enough to ensure SRKWs could be seen and avoided with enough forewarning to maintain at least 100.6 m (330 ft.) distance, if SRKWs are present at all. Therefore, vessel presence may affect, but is not likely to affect passage conditions that would allow SRKWs to migrate, rest, and forage.

5.3 Findings

The Proposed Action determination is “**May Affect Not Likely to Adversely Affect** the ESA-listed marine mammals, fish species, birds, and invertebrate discussed in this document (**Table 2**). The Proposed Action is not likely to result in any other adverse impact to these listed species and is not expected, either directly or indirectly, to appreciably reduce the likelihood of survival and recovery of these species in the wild by reducing the reproduction, numbers, or distribution of these species.

Table 2: Effects Determination for ESA-listed Species and Critical Habitat in the action area

Common Name (*Scientific Name*)	Federal Status	Critical Habitat in Action area	Effects Determination
Marine Mammals			
Killer Whale, Southern Resident DPS (*Orcinus orca*)	Endangered	Yes	NLAA
Humpback Whale, Central America DPS (*Megaptera novaeangliae*)	Endangered	No	NLAA
Humpback Whale, Mexico DPS (*Megaptera novaeangliae*)	Threatened	No	NLAA
Fishes			
Bocaccio, Puget Sound-Georgia Basin DPS (*Sebastes paucispinis*)	Endangered	Yes	NLAA
Yelloweye Rockfish, Puget Sound-Georgia Basin DPS (*Sebastes ruberrimus*)	Threatened	No	NLAA
Chinook Salmon, Puget Sound ESU (*Oncorhynchus tshawytscha*)	Threatened	Yes	NLAA
Green Sturgeon, Southern DPS (*Acipenser medirostris*)	Threatened	No	NLAA
Echinoderms			
Sunflower Sea Star (*Pycnopodia helianthoides*)	Proposed Threatened	N/A	NLAA

Key:

DPS = Distinct Population Segment

ESA = Endangered Species Act

ESU = Evolutionarily Significant Unit

NLAA = May Effect, Not Likely to Adversely Affect

NOAA Fisheries = NOAA National Marine Fisheries Service (i.e., NMFS)

Source: NOAA Fisheries 2023a

6. Essential Fish Habitat Assessment

The objective of assessing EFH is to determine whether the Proposed Action "*may adversely affect*" designated EFH for relevant commercially, federally managed fisheries species within the proposed action area. It also describes measures proposed to avoid, minimize, or otherwise offset potential adverse effects on designated EFH resulting from the Proposed Action 50 Code of Federal Regulations (CFR) § 600.905(b).

6.1 Magnuson-Stevens Fishery Conservation and Management Act

Many marine and freshwater habitats are critical to the productivity and sustainability of marine fisheries. The 1996 amendments to the MSA set forth several new mandates for NOAA Fisheries, eight regional fishery management councils (Councils), and other Federal agencies to identify and protect important habitats of Federally managed marine and anadromous fish species. The Councils, with assistance from NOAA Fisheries, are required to delineate EFH for all managed species within the 200 NM U.S. Exclusive Economic Zone (EEZ).

Section 305(b)(2) of the amended MSA directs each federal agency to consult with NOAA Fisheries with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by such agency that may adversely affect any EFH. Implementing regulations for this requirement are at 50 CFR § 600 of the MSA.

6.2 Definition of Essential Fish Habitat and Jurisdiction

The MSA (Section 3) defines EFH as "*those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity*" (50 CFR § 600.10). For the purposes of this definition:

- "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate.
- "Substrate" includes sediment, hard bottom, structure underlying the waters, and associated biological communities.
- "necessary" means the habitat required to support a sustainable fishery and the managed species contribution to a healthy ecosystem.
- "Spawning, feeding, and breeding" is meant to encompass the complete life cycle of a species (50 CFR § 600.10).

EFH is determined by identifying spatial habitat and habitat characteristics that are required for each federally managed species through a cooperative effort by NOAA Fisheries, Councils, and Federal and State agencies. These descriptions provide the basis for assessing development and other activities in specified marine areas. Further, EFH is designated based on best available scientific information and the levels defined by the MSA:

- Level 1 information corresponds to distribution;
- Level 2 information corresponds to density or relative abundance;
- Level 3 information corresponds to growth, reproduction, or survival rates; and
- Level 4 information corresponds to production rates.

The Pacific Fishery Management Council (PFMC) has jurisdiction over federal waters off the coasts of California, Oregon, and WA. Specifically, the PFMC has jurisdiction over the management of fisheries for species such as groundfish, salmon, coastal pelagic species, and highly migratory species like tunas and sharks. Section 305(b)(2) of the amended MSA directs each Federal agency to consult with NOAA Fisheries with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by such agency that may adversely affect any EFH. Implementing regulations for this requirement are at 50 Code of Federal Regulations (CFR) 600 of the MSA.

6.3 Essential Fish Habitat in the Project Area

While many fish species exist in WA's coastal waters, EFH is identified only for those species managed under a federal fishery management plan (FMP). Three federal FMPs and their associated EFH are applicable to projects and activities within WA: (1) Pacific Coast Groundfish fishery; (2) the Coastal Pelagic Species (CPS) fishery; and (3) Pacific Coast Salmon fishery. The groundfish fishery includes 82 species: the CPS fishery includes four (4) fin fishes (Pacific sardine, Pacific [chub] mackerel, northern anchovy, and jack mackerel) and the invertebrate market squid; and the salmon fishery includes Chinook, coho, and Puget Sound Pink salmon.

The action area is within the Strait of Georgia and bounded by the U.S. / Canada border on the north, west towards, north to the U.S. / Canada border, and east, within the EFH for Pacific Groundfish and Pacific CPS. The action area includes the approximately 26 km (16 mi.) proposed cable route, crossing the Strait of Georgia and Semiahmoo Bay (**Figure 1**). This route includes laying the 4.42 mm (0.174 in.) diameter cable on the seafloor for approximately 1.5 km (0.93 mi.) from the vessel to the cable landing infrastructure using a combination of a pulling boat and divers (**Figure 2**), and shallow burial (30.5 cm [12 in.]) using a plow sled along the rest of the route (**Figure 3**). Considerations within the action area also include the seafloor affected by the plow sled (182.9 cm x 76.2 cm [72 in. x 30 in.]; length x width) with the internal 7.62 cm (3 in.) plowshare that will bury the cable along the seafloor.

Additionally, the action area includes the ensonified area within marine waters in which Project-related noise levels are greater than or equal to 120 dB_{rms} 1μPa or approaching ambient noise levels (i.e., the point where Project-related sound attenuates to levels below non-anthropogenic sound). Therefore, the action area for this Project includes all marine waters within 1.25 mi. (2,000 m) of the cable laying vessel during cable installation (Hartin et al. 2011; Green et al. 2018).

Important features for essential habitat for spawning, rearing, and migration include adequate substrate composition, water quality, temperature, depth, velocity, channel gradient and stability, food, cover, and habitat features (e.g., woody debris and aquatic vegetation), space, access and passage, and floodplain and habitat connectivity.

No EFH species are expected to be exposed to continuous Project disturbance. Effects of the Proposed Action are discussed in detail in Section 6.4.

6.3.1 Habitat Areas of Particular Concern

In addition to EFH designations, Habitat Areas of Particular Concern (HAPC) are also designated by the Councils. Designated HAPCs are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (50 CFR § 600.805-600.815). These areas include estuaries, canopy kelp, seagrass, rocky reefs, and "*areas of interest*" for groundfish. Councils may designate a specific habitat area as a HAPC based on one or more of the following reasons:

1) Importance of the ecological function(s) provided by the habitat.
2) The extent to which the habitat is sensitive to human-induced environmental degradation.
3) Whether, and to what extent, development activities are, or will, stress the habitat type.
4) Rarity of the habitat type.

Of note, categorization of an area as an HAPC does not confer additional protection or restriction to the designated area.

There are designated HAPCs within the action area of this Project. A hydrographic survey performed in early November 2023 identified dense eelgrass beds (a type of seagrass HAPC) along the proposed cable route. Eelgrass is an identified HAPC for Pacific Coast Groundfish (PFMC 2023a).

6.3.2 Pacific Coast Groundfish

The management unit in the Pacific Coast Groundfish FMP includes over 90 groundfish species over the entire U.S. West Coast's EEZ. Groundfish include may species of rockfish, sablefish, flatfish, and Pacific whiting that are often, but not exclusively, found on or near the ocean floor or other structures. Information on the life histories and habitats of these species varies in completeness, so while some species are well-studied, there is relatively little information on other species. Therefore, the FMP does not include descriptions identifying EFH for each life stage of the managed species, but rather includes a description of the overall area identified as groundfish EFH.

The Pacific Coast Groundfish EFH consists of the aquatic habitat necessary to allow for groundfish production to support long-term sustainable fisheries for groundfish and for groundfish contributions to a healthy ecosystem. The PFMC identifies the overall area designated as groundfish EFH for all species covered in the FMP as all waters and substrates within the following areas: depths less than or equal to 3,500 m (1,914 fathoms [fm]; approximately 11,500 ft.) to MHHW level, or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per trillion (ppt) during the period of average annual low flow; seamounts in depths greater than 3,500 m (1,914 fm; approximately 11,500 ft.); and areas designated as HAPCs not identified by the above criteria (PFMC 2023a). HAPCs include estuaries, canopy kelp, seagrass (see Section 6.3.4), rocky reefs, and "areas of interest" (PFMC 2023a). In WA, areas of interest refer to all waters and sea bottom in state waters from the 3 NM boundary of the territorial sea shoreward to the MHHW.

This PFMC groundfish EFH identification follows a precautionary approach because uncertainty still exists about the relative value of different habitats to individual groundfish species/life stages, and thus the actual extent of groundfish EFH (PFMC 2023a). The primary habitats designated as EFH for groundfish include: the epipelagic zone of the water column, including macrophyte canopies and drift algae; unconsolidated sediments consisting of mud, sand, or mixed mud/sand; hard bottom habitats composed of boulder, bedrock, cobble, gravel, or mixed cobble/gravel; mixed sediments composed of sand and rocks; vegetated bottoms consisting of algal beds, macrophytes, or rooted vascular plants.

6.3.3 Pacific Coastal Pelagic Species

CPS have value to commercial fisheries and are also important as food to other fish, marine mammals, and birds. The CPS FMP specifies a management framework for four finfish (northern anchovy, Pacific sardine, Pacific [chub] mackerel, and jack mackerel), the invertebrate market squid, and all euphausiid (krill) species in the West Coast EEZ (*Euphasia pacifica*, *Thysanoessa spinifera*, *Nyctiphanes simplex*, *Nematocelis difficilis*, *T. greagaria*, *E. recurve*, *E. gibboide*s, and *E. eximia*.). CPS finfish are pelagic (in the water column near the surface and not associated with substrate), because they generally occur, or are harvested, above the thermocline in the upper mixed layer. CPS are addressed as a single species complex due to similarities in life history, habitat requirements, or overfishing pressures.

The PFMC defines the EFH for CPS finfish based on thermal range bordered by the geographic area where finfish occur at any life stage, where CPS have historically occurred during periods of similar environmental conditions, or where environmental conditions do not preclude colonization by CPS (PFMC 2023b). The identification of EFH for CPS accommodates the fact that the geographic range of CPS varies widely over time in response to the temperature of the upper mixed layer of the ocean (PFMC 2023b).

According to the PFMC (2023b), the east-west geographic boundary of EFH for CPS is defined to be all marine and estuarine waters from the shoreline along the coasts of California, Oregon, and WA offshore to the limits of the EEZ and above the thermocline where sea surface temperatures range between 10°C to 26°C (50°F to 78.8°F). The southern boundary is the U.S.-Mexico maritime boundary. The northern boundary is more dynamic and is defined as the position of the 10°C isotherm, which varies seasonally and annually (PFMC 2023b).

The EFH designation for krill extends the length of the West Coast from the shoreline to the 1,000 fm isobath and to a depth of 400 m (1,312 ft.) and is based on information for the two principal species, *Euphausia pacifica* and *Thysanoessa spinifera* (PFMC 2023b). CPS are considered sensitive to overfishing, loss of habitat, reduction in water and sediment quality, and changes in marine hydrology (PFMC 2023b). Of note, no HAPCs were identified (PFMC 2023b).

Based on these definitions, Pacific CPS EFH exists in the proposed project's action area.

6.3.4 Seagrass

Seagrass is an identified HAPC for the Pacific Groundfish fishery (PFMC 2023a). Seagrass species found on the West Coast of the U.S. include eelgrass species (*Zostera* spp.), widgeongrass (*Ruppia maritima*), and surfgrass (*Phyllospadix* spp.). These grasses are vascular plants, not seaweeds, forming dense beds of leafy shoots year-round in the lower intertidal and subtidal areas (PFMC 2023a). Eelgrass is found on soft-bottom substrates in intertidal and shallow subtidal areas of estuaries and occasionally in other nearshore areas. Studies have shown seagrass beds to be among the areas of highest primary productivity in the world (Herke and Rogers 1993; Hoss and Thayer 1993). Defining characteristics of the seagrass HAPC includes those waters, substrate, and other biogenic features associated with eelgrass species, widgeongrass, or surfgrass (PFMC 2023a).

Eelgrass, a type of seagrass, is found within the proposed project's action area. Vegetation sonar survey mapping was conducted by a 26-ft. (7.9 m) aluminum survey vessel in early November 2023. Survey results revealed dense eelgrass beds at the cable landing site. The vegetation beds at the site contain eelgrass from about -2 ft. to -8 ft. (-0.6 to 2.4 m) MLLW level, with approximately 91-100 percent eelgrass bed cover extending seaward from the landing point (**Figure 5**), with plant heights of 0.9 to 1 m (3 to 3.2 ft.) throughout a majority of the area near the landing site (**Figure 6**). The vegetation beds at the site contained eelgrass from about -2 ft. to -8 ft. (-0.61 to -2.4 m) MLLW. No eelgrass was mapped in the vicinity of the project on the west side of the action area (**Figure 7**).

Because crossing the dense eelgrass beds is unavoidable at the cable landing location, as a best practice, a team of divers would guide the cable to the seafloor in a manner that avoids eelgrass to the maximum extent possible, gently moving the eelgrass out of the way as necessary to place the cable. No cutting of eelgrass would occur.

6.3.5 Kelp

Kelp supports high biodiversity and provides important habitat for a great diversity of species. Many juvenile lifestages of commercially important species associate with kelp habitat in summer, including flatfish, Pacific cod, Pacific herring, rockfish, salmon, and walleye pollock.

The geophysical surveys, completed in early November 2023, indicated no kelp presence for the cable landing site. Additionally, WA DNR's Floating Kelp Forest Indicator for WA State (2024) and

NOAA Fisheries' EFH Mapper (2024) indicate that there is no kelp presence at the landing point. Therefore, it is not anticipated that kelp beds will be encountered along the cable laying route.

It is worth noting that vegetation at landing sites may vary seasonally, and the observations from the November 2023 survey may differ from conditions observed during other times or seasons. If kelp is encountered during cable installation activities, a route around the kelp would be sought. However, if kelp is encountered along the cable laying route and crossing kelp is unavoidable, a team of divers would carefully guide the cable through the kelp by moving it out of the way. No cutting of kelp would occur.

6.4 Effects of the Proposed Action

Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR § 600.810). For this project, all the effects of the action have already been discussed in the ESA effects analysis (Section 4) and would apply to the EFH.

6.4.1 Effects Analysis

The footprint of the Proposed Action is within the boundaries of EFH and HAPCs. The Proposed Action would involve disturbing the portion of the seafloor where the cable would be shallow buried using a bury-while-lay process. The bury-while-lay process that would be employed utilizes a towed 182.9 cm x 76.2 cm (72 in. x 30 in.; length x width) plow sled with a 7.62 cm (3 in.) wide plowshare to bury the cable approximately 12 in. below the seafloor, with the seafloor then backfilling over the cable as the scar closure shoe at the end of the plow passes over the emplaced cable. The plow would be over boarded, and the cable would be fed though the guide cone and placed on the seafloor. The plow would be towed by the installation vessel, with the cable paid out through the plow. Using the plow method produces a lower level of sediment disturbance compared to jetting, and a one-step burial plow sled involves the lowest environmental impacts (OSPAR 2012).

Cable installation would not require crossing or disturbing any freshwater streams, as the proposed pilot project will be entirely within the marine waters of the Strait of Georgia and Semiahmoo Bay. Therefore, no freshwater EFH would be affected, so impacts to EFH are analyzed exclusively for marine environments.

For this Project, the effects of the action are discussed below. BMPs would be implemented to reduce or otherwise mitigate potential impacts (Section 1.7). Once the cable is laid and operational, no effects are expected, as the cable would not emit an EMF or present any triggers for behavior changes. As such, the Proposed Action-related impact stressors would include:

- Temporary increase in turbidity

6.4.1.1 Habitat Disturbance

The cable route design is based on marine survey results and targets soft sediment, avoiding hard substrates, macroalgae, and critical habitat whenever possible. Cable laying, burial and potential removal has the potential to affect benthic habitats, flora, and fauna, however, such effects are limited to a very small area given the very small diameter of the cable (4.42 mm [0.174 in.]). For the proposed cable route west of the eelgrass beds, the cable would be shallow buried 30.5 cm (12 in.) in one step using a plow installation method described in Section 1.5.1 (Cable Installation) and above. The plow sled has dimensions of 182.9 cm x 76.2 cm (72 in. x 30 in.; length x width) with a 7.62 cm (3 in.) wide plowshare that would trench and guide the cable for burial along the proposed route. Given the relatively narrow plow sled (76.2 cm [30 in.]), the resulting footprint is considered small and is not expected to result in significant direct effects to EFH, the benthic communities, or benthic habitat. The placement and burial of the cable in the seafloor may result in the cover, disturbance, injury, or death of sessile or slow-moving benthic organisms. However, benthic organisms, if affected, are expected to quickly re-colonize the affected area. Notably, mobile organisms, such as most fish, are anticipated to easily relocate to avoid project installation activities. Bottom-dwelling fish and other mobile organisms would likely avoid the area during installation activities.

Based on the survey findings, there exist dense eelgrass beds (91 to 100 percent cover) near the landing point (**Figure 5**). In this sensitive habitat area, BMPs would be used to minimize any effects on the eelgrass, such as having divers gently weave the narrow 4.42 mm (0.174 in.) cable through the grass to place it on the substrate. The moved eelgrass is anticipated to quickly return to its previous position within seconds to minutes after cable placement. No cutting or removal of eelgrass would occur. Project activities could potentially affect the eelgrass beds, but the impacts would be temporary, *de minimis* on relative abundance, and would not have a permanent adverse effect on EFH, EFH species, or their prey.

Also based on survey findings, kelp is not expected in cable laying areas. However, if kelp is encountered and is unavoidable, project activities could potentially affect kelp, although like eelgrass, impacts would be temporary, *de minimis* on relative abundance, and would not have a permanent adverse effect on EFH, EFH species, or their prey.

With the notable exception of the dense eelgrass beds near the landing site, the cable route within the Project area does not provide other notable or high-quality habitat for the represented species, and the presence of the Project would not likely prohibit movement of EFH species through the area or affect their prey species. It is anticipated that any effects of the Project on EFH would be minor and temporary. Any habitat disturbance or local increases in turbidity levels would be temporary, rapidly returning to pre-installation conditions. BMPs, such as laying cable in a slow and controlled manner (e.g., the vessel speeds of less than 3 knots during cable laying and burial activities) and use of divers in the eelgrass beds—would be employed during installation to further minimize the impact on fish and their habitat to the maximum extent possible. Based on these factors, the Project would not permanently reduce the quality and/or quantity of EFH for Pacific Groundfish or CPS, nor would it permanently reduce the quality and/or quantity of eelgrass.

Temporary Elevated Turbidity

The Project has the potential to create temporary and localized elevated turbidity levels in the project area at the sites of the shoreside cable connection, and along the proposed cable route in which the cable will be shallow buried using a plow sled. Although a variety of EFH species occur in the marine waters of the Project area, the likelihood of any species being present during cable installation is largely contingent on said species' habitat needs. The lack of complex seafloor structure on site likely reduces the concentration and frequency of species present.

Activities involved in bringing the cable to the shoreside connection would involve divers gently weaving the narrow cable through the seagrass and placing it on the substrate, which would temporarily create a localized increase in turbidity from suspended sediment. For cable laying operations, the cable would be shallow buried (30.5 cm [12 in.]) beneath the seafloor from the installation vessel on the planned survey route using a bury-while-lay procedure that utilizes a 182.9 cm x 76.2 cm (72 in. x 30 in.; length x width) towed burial plow sled with a 7.62 cm (3 in.) wide plowshare. Use of a plow method produces a lower level of sediment disturbance compared to jetting, and using a one-step burial plow sled involves the lowest environmental impacts (OSPAR 2012). Therefore, the installation of cable may result in the minor modification and displacement of seafloor sediment in the marine environment, causing some resuspension of bottom sediment. This could temporarily create elevated turbidity levels in the project area at the site of the seafloor cable installation; however, the turbidity plume would be localized, short-lived and of very low intensity.

Depending on currents and sediment type, turbidity would be dispersed, and sediments would settle back to the seafloor or be diluted to background levels within minutes to hours of installation. Coarse sediments (e.g., sand and larger) would likely resettle within seconds in the immediate area, whereas fine sediments (e.g., silt to clay) tend to drift and remain in suspension for minutes to hours (Mineral Management Service 1999). The nearshore waters of the action area are a dynamic system and substrate displaced into the water column is likely to dissipate quickly via tidal current transport and be deposited back on the seafloor. Due to the very small size of the cable (4.42 mm [0.174 in.] in diameter), it is expected that the turbulence would create a very temporary and localized plume of suspended sediment that would quickly dissipate due to currents and tides within the action area.

Although no study has focused on the impact of particle resuspension induced by cable installation on marine communities, it should generally have negligible impacts on marine ecosystems (Taormina et al. 2018). Increases in turbidity due to cable installation operations would be dependent on location, active currents, sediment type, geological disturbances, and other variables. However, due to the small size of the cable and short-term operations, there would be no permanent or long-term impacts on marine water quality due to suspended sediments. Once installed, the cable would not result in any subsequent alterations in suspended sediments or turbidity levels.

The small area impacted, and brief duration of increased turbidity is not likely to impact the habitat for Pacific CPS. CPS are in the water column near the surface and are not associated with being near the substrate. They generally occur, or are harvested, above the thermocline in the upper mixed layer. CPS are sensitive to loss of habitat and reduction in water and sediment quality (PFMC 2023b), but the increase in turbidity is expected to only be short-live and only of *de minimis* intensity. There are no long-term anticipated increases in turbidity in the water column. Additionally, eelgrass habitats are not a HAPC associated with EFH for CPS; therefore, any disturbance to the sediment in eelgrass habitat during shoreside cable connection is anticipated to have minor, or negligible impacts on EFH for CPS.

The EFH for Pacific Groundfish is broad and precautionary, encompassing waters and substrate from the high tide line to approximately 3505 m (11,500 ft.) in depth. The action area includes dense eelgrass (91 to 100 percent cover) near the shoreside connection (**Figure 5**), which is of high ecological value to groundfishes and groundfish species. The eelgrass presence within the action area could increase the potential for groundfish to be present in a higher concentration in this sensitive area. If groundfish are present during the brief shoreside cable connection activities, the small and temporary increase in turbidity is not expected to alter their behavior. Therefore, the temporary nature of increased turbidity associated with the project is not anticipated to impact the EFH for Pacific Groundfish species.

All the EFH species are mobile and/or migratory and would not be permanently displaced by the temporary increase in turbidity, as their mobility would likely enable them to avoid any potential deleterious impact. Due to the limited duration of the Project, the few species that may occur in the Project area, and the minor and temporary increase in turbidity, it is concluded that turbidity resulting from installation will not adversely affect organisms at the species level.

With the notable exception of the sensitive eelgrass habitat area, the project area does not provide any otherwise notable or high-quality habitat for the represented species, and the presence of the project would not likely prohibit movement of EFH species through the area or affect their prey species. It is anticipated that any effects of the project on EFH would be minor and temporary. Any increases in turbidity levels would rapidly return to pre-installation conditions. Ultimately, the Project could result in the modification and replacement of seafloor sediment with a width of approximately 7.62 cm (3 in.), coinciding with the width of the plow share that will bury the 4.42 mm (0.174 in.) cable 30.5 cm (12 in.) below the seafloor, as the sediment will backfill and cover the cable. BMPs, such as using divers to gently weave the narrow 4.42 mm (0.174 in.) diameter cable through eelgrass (i.e., not buried), or laying cable in a slow and controlled manner to reduce sediment disturbance, would be employed during cable installation to minimize the impact on fish and their habitat, including the eelgrass itself. Based on these factors, the project would not reduce the quality and/or quantity of EFH for Pacific Groundfish or CPS, nor would it have long-term impacts on the eelgrass beds.

6.4.2 Effects Not Considered

EMF exposure and hazardous material were assessed but are not considered Project-related impact stressors because they are not considered reasonably likely to adversely affect EFH, EFH species, or prey. An explanation for excluding an affects assessment for each is provided below.

EMF Exposure

A common concern regarding cables is the potential sensitivity of elasmobranchs and other fishes, marine mammals, sea turtles, and invertebrates to anthropogenic EMF (Normandeau et al. 2011, CSA Ocean Sciences, Inc. and Exponent 2019). For example, anthropogenic EMF from transmission cables could affect exploratory/foraging behavior in some benthic and demersal marine species (Hutchison et al. 2020); however, unlike power cables, passive cables do not emit any EMF, no matter how high the frequency of transmission is. Therefore, installation of a passive cable does not carry any risk in terms of EMF radiation and there is no evidence of its impact on marine species.

Hazardous Materials

As with any motorized vessel at sea, there is a potential for accidental oil or fuel releases to occur during operations, which could introduce pollutants into marine water that may affect fish species. The only source of hazardous materials would be petroleum-based fuel and oil used in the operation of the cable ship during cable-laying activities. The cable ship would have proper spill response materials and follow protocols for fuel spills or leaks. Should a fuel or oil spill occur, it would be cleaned immediately using onboard spill kits.

6.5 Effect Determinations

All project activities were assessed for impacts to EFH. Based on the Proposed Action and the associated potential minor and localized effects, DHS submits that the Project may impact designated EFH, but that effects would be temporary and largely mitigated. The affected area is small, and the pilot Project is not anticipated to prohibit movement of EFH species through the project area or to adversely affect their prey species in any measurable way.

The direct impacts to marine EFH from the temporary installation of the cable would include a minor and temporary increase in turbidity where the cable contacts the seafloor substrate. The cable will be laid and buried in one step, which further minimizes environmental impacts (OSPAR 2012). A vast majority of the seafloor along the cable route is comprised primarily of soft sediment, avoiding rocky shoals and any deepwater habitat, and therefore mostly does not represent high quality habitat. There are eelgrass beds present from about 0.6 m to 2.4 m (-2 ft. to -8 ft.) below MLLW at the landing point offshore a HAPC that could serve as habitat for Pacific Groundfish. For this segment of the cable installation, divers would very carefully move eelgrass to place the cable on the seafloor, taking the utmost care not to disturb the eelgrass beyond what is necessary for cable placement. Once in place, the cable is not anticipated to further disturb the eelgrass habitat.

Because the project installation activities are anticipated to be low impact and short in duration (approximately two days total), benthic communities of fish and other mobile organisms, if affected at all, are anticipated to quickly recolonize the area upon completion of installation. Based on the small and narrow overall project footprint, implementation of minimization and avoidance measures to limit disturbance to species and habitat, as well as a lack of permanent impacts to EFH, it is concluded that the Project **will not adversely affect** EFH for Pacific Coast Groundfish, Coastal Pelagic Species (CPS), and **will adversely affect** Seagrass habitat:

- Pacific Coast Groundfish EFH – **Will Not Adversely Affect**
- Coastal Pelagic Species EFH – **Will Not Adversely Affect**
- Seagrass HAPC - **Will Adversely Affect**

7. Conclusions

7.1 Project Summary

This BA analyzes the marine environment modifications associated with the installation of a temporary cable installation through the Strait of Georgia and Semiahmoo Bay. The proposed Project would include the installation of approximately 6.2 to 18.6 mi. (10 to 30 km) of seafloor cable. The cable would be shallow buried (30.5 cm [12 in.]) under the seafloor by a surface vessel and would cover approximately 16 mi. [26 km]. Once installed, the cable would temporarily be in operation for approximately 3 to 24 months, before it would be recovered from the seafloor. Alternatively, the cable may be abandoned in place, or transferred to another component of DHS to continue operations after the pilot deployment period is finished. There would be no need for alteration or maintenance of the cable during normal operations.

7.2 ESA Conclusion

The potential stressors to ESA-listed species include a temporary and localized increase in turbidity levels and vessel operations, to include presence and noise.

Turbidity

A small and localized increase in turbidity would occur for each of the two (2) planned portions of cable installation: (1) shoreside connection and (2) cable laying and burial along the Strait of Georgia and Semiahmoo Bay, WA. Divers gently placing the cable through eelgrass, and the movement of the plow sled and shallow trenching and burial of the cable to a 12 in. depth below the seafloor using a plowshare, will temporarily increase sediment suspension in the vicinity of cable installation. The sediment would be quickly dispersed via northern Puget Sound current transport and would settle on the seafloor quickly. Because turbidity would be increased for only a short period of time and across a very narrow path, and would dissipate quickly in a dynamic environment, it is assumed that this may impact, but is not likely to impact ESA-listed species in the area near cable installation. Upon completion of cable installation, the cable would be a benign system as it would passively collect data. Since it would be buried, the cable would not continue to move along the seafloor and would therefore not continue to contribute elevated turbidity in its vicinity. Based on the possible presence of species in the action area, and in consideration of the *de minimis* increase in turbidity, DHS S&T has determined that the effects of the Proposed Action on the ESA-listed species are:

- Killer Whale, Southern Resident DPS – **May Effect, Not Likely to Adversely Affect**
- Humpback whale, Mexico DPS – **May Effect, Not Likely to Adversely Affect**
- Humpback whale, Central America DPS – **May Effect, Not Likely to Adversely Affect**
- Bocaccio, Puget Sound-Georgia Basin DPS – **May Effect, Not Likely to Adversely Affect**
- Yelloweye Rockfish, Puget Sound-Georgia Basin DPS – **May Effect, Not Likely to Adversely Affect**
- Chinook Salmon, Puget Sound ESU – **May Effect, Not Likely to Adversely Affect**
- Steelhead, Puget Sound DPS – **May Effect, Not Likely to Adversely Affect**
- Green Sturgeon, Southern DPS – **May Effect, Not Likely to Adversely Affect**
- Sunflower Sea Star – **May Effect, Not Likely to Adversely Affect**

Vessel Operations

General vessel operations associated with cable installation and potential recovery procedures at the shoreside connection would temporarily increase vessel presence in the waters near installation, as well as noise associated with vessel operations and the plow sled shallow burying the cable on the seafloor. The cable laying vessel will only operate for two (2) days for this proposed project, including one 5- to 9-hour day for the shoreside cable connection (Day 1) and one 8-hour day for traversing the cable route (Day 2). Additionally, 2 vessel days may be needed for cable recovery. The cable laying and potential recovery operations would not notably increase vessel traffic in the area or pose any significant additional risk to marine species, including meaningfully altering any migration routes of ESA-listed for foraging or resting. There is the potential for underwater noise generated by the vessel itself, as well as the plow sled and plowshare burying the cable underneath the seafloor. Underwater noise generated by the vessel and plow sled may be elevated above ambient in-water noise levels, however, due to the currents of northern Puget Sound and background ambient water noise, the subsequent sound pressure levels are not expected to result in impacts to ESA-listed species which may be present in the immediate vicinity at the time of cable installation and potential recovery.

Based on the possible presence of these species in the action area, and in consideration of the potential in acoustic disturbance, the determined effects of the Proposed Action on the ESA-listed species in the area are:

- Killer Whale, Southern Resident DPS – **May Effect, Not Likely to Adversely Affect**
- Humpback whale, Mexico DPS – **May Effect, Not Likely to Adversely Affect**
- Humpback whale, Central America DPS – **May Effect, Not Likely to Adversely Affect**
- Bocaccio, Puget Sound-Georgia Basin DPS – **May Effect, Not Likely to Adversely Affect**
- Yelloweye Rockfish, Puget Sound-Georgia Basin DPS – **May Effect, Not Likely to Adversely Affect**
- Chinook Salmon, Puget Sound ESU – **May Effect, Not Likely to Adversely Affect**
- Steelhead, Puget Sound DPS – **May Effect, Not Likely to Adversely Affect**
- Green Sturgeon, Southern DPS – **May Effect, Not Likely to Adversely Affect**
- Sunflower Sea Star – **May Effect, Not Likely to Adversely Affect**

Critical Habitat

Cable placement on the seafloor through sensitive habitat (e.g., eelgrass) and cable burial along the proposed cable route causing temporary displacement of backfill sediment (to cover the cable) would both result in a temporary and localized increase in turbidity. Additionally, cable laying vessel operations would temporarily (for approximately two [2] days) increase presence and noise levels. The area in which these Project Actions will occur is designated critical habitat for SRKW, bocaccio and chinook salmon. The project would not degrade water quality or alter long-term habitat conditions in the marine environment. As such, it is also determined that the effects of the Proposed Action on critical habitat would be:

- Killer Whale, Southern Resident DPS – **May Effect, Not Likely to Adversely Affect**
- Bocaccio, Puget Sound-Georgia Basin DPS – **May Effect, Not Likely to Adversely Affect**
- Chinook Salmon, Puget Sound ESU – **May Effect, Not Likely to Adversely Affect**

7.3 EFH Conclusion

The potential stressors to EFH include temporary elevated turbidity associated with cable laying and burial operations, including from minor habitat disturbance of the seafloor due to the use of a plow sled for cable burial and potential recovery.

Elevated Turbidity

Turbidity associated with cable laying and potential recovery activities on the seafloor would be minimized, but not eliminated, by utilizing BMPs. Because turbidity would be increased only for a short period of time in a very small and narrow area (the cable is 4.42 mm [0.174 in] in diameter), the effects from the Proposed Action from increases in turbidity would likely have an insignificant effected on the listed species. Installation-related turbidity would be minimized, but not eliminated, at the shoreside connection.

Habitat Disturbance

During the shoreside cable placement to landing infrastructure, it will be necessary to use divers to gently place the cable through eelgrass (a type of seagrass HAPC) to rest on the seafloor. While the eelgrass would be hand-placed, some strands may be impacted for a short period of time before returning to their original position pre-disturbance. Depending on tidal conditions at the time, divers may also need to walk on portions of the eelgrass (e.g., if the water is too shallow to float above the eelgrass) to lay the cable. This would also potentially adversely impact the eelgrass for a short period of time, until the strands return to their original position. There are no long-term impacts to eelgrass anticipated from the brief cable laying activities within the habitat.

While no kelp is anticipated to lie within the project's action area, due to seasonal changes there may be some kelp during cable laying operations. If kelp is observed and unavoidable, divers would guide the cable to the seafloor through kelp to minimize the disturbance footprint. Utilizing these mitigation measures, impacts (if any) to both the kelp and prey species would be temporary.

No permanent adverse effects on EFH for Pacific Coast Groundfish, CPS, or their prey species would result from temporary cable installation or operation. Therefore, the project "**will not adversely impact**" EFH for Pacific Coast Groundfish, Coastal Pelagic Species, and "**will adversely impact**" seagrass, albeit only for a temporary and short time.

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B.4 LIST OF PERMITS

APPENDIX C: PUBLIC ENGAGMENT

LIST OF RECIPIENTS

FEDERAL ELECTED OFFICIALS

The Honorable Patty Murray
United States Senate
Washington, D.C. 20510

The Honorable Maria Cantwell
United States Senate
Washington, D.C. 20510

The Honorable Rick Larsen
U.S. House of Representatives
Washington, D.C. 20515

LOCAL ELECTED OFFICIALS

Governor Inslee
Office of the Governor
Olympia, WA 98504-0002

Senator Lovelett
223 John A. Cherberg Building
Olympia, WA 98504

Senator Shewmake
213 John A. Cherberg Building
Olympia, WA 98505

Representative Lekanoff
JLOB 422
Olympia, WA 98504

Representative Ramel
LEG 422
Olympia, WA 98504

Representative Rule
JLOB 334
Olympia, WA 98504

Representative Timmons
JLOB 419
Olympia, WA 98505

Mayor Steward
435 Martin Street
Blaine, WA 98230

Mayor Pro Tem Lopez
435 Martin Street
Blaine, WA 98230

Blaine City Manager
435 Martin Street, Suite 3000
Blaine, WA 98230

Council Member May
435 Martin Street
Blaine, WA 98230

Council Member Higgins
435 Martin Street
Blaine, WA 98230

Council Member Hurt
435 Martin Street
Blaine, WA 98230

Council Member Davidson
435 Martin Street
Blaine, WA 98230

Council Member Hill
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Whatcom County Executive Sidhu
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Whatcom County Council Member Galloway
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Whatcom County Council Member Donovan
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Whatcom County Council Member Byrd
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Whatcom County Council Member Scanlon
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STATE and LOCAL AGENCIES

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<u>TRIBAL NATIONS</u>

Chairman Anthony Hillaire
Lummi Nation
2665 Kwina Road
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Lena Tso
Tribal Historic Preservation Officer
Lummi Nation
2665 Kwina Road
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Chairman Steve Edwards
Swinomish Indian Tribal Community
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Stephanie Trudel
Tribal Historic Preservation Officer
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Chairwoman RoseMary LaClair
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Trevor Delgado
Tribal Historic Preservation Officer
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Chairperson Nino Maltos
Sauk-Suiattle Indian Tribe
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Kevin Joseph
Tribal Historic Preservation Officer
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Chairwoman Marilyn Scott
Upper Skagit Indian Tribe
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Sedro Wooley, WA 98284

Chairman Robert de los Angeles
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Under Secretary
U.S. Department of Homeland Security
Washington, DC

May 8, 2024

Science and Technology

Andrew Baca
Acting Director
Environmental Justice, Community Health, and Environmental Review Division
U.S. EPA, Region 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

Dear Mr. Baca:

The purpose of this letter is to solicit comments regarding the U.S. Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) proposal to deploy, operate, and recover, or continue operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay, Washington, near the Northern border with Canada, under a research project titled Maritime Environmental Data Sampling System (MEDSS). The purpose of the project is to assess the advances of sensor technology to increase maritime domain awareness that may be applicable to the rest of the United States. The project is needed to assess the capability and performance of the cable sensor system.

DHS S&T is preparing an Environmental Assessment (EA) to evaluate the potential impacts associated with the Proposed Action pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 United States Code §§ 4321 et seq.); the *Regulations Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508); and the Department's own policies and practices on implementing NEPA. The Draft EA will be made available for viewing on: http://www.dhs.gov/national-environmental-policy-act.

DHS S&T is committed to utilizing cutting-edge technologies and providing scientific expertise to enhance the safety of America. The mission of DHS S&T is to enable effective, efficient, and secure operations across all homeland security missions by applying scientific, engineering, analytic, and innovative approaches to deliver timely solutions for the Homeland Security Enterprise.

As previously stated, the proposed project includes activities related to the deployment, operation, and the recovery, or continuation of operations of a submerged cable in the waters of the Strait of Georgia and Semiahmoo Bay in Washington State, near the Northern border with Canada. The cable would be shallow buried along most of the route except in sensitive habitats (e.g., eelgrass or kelp beds) where the cable would be placed on the seafloor by divers. The cable, with an outside diameter of 4.42 millimeters (0.174 inches), would originate at a shoreside facility with space to house equipment and run for 10 to 30 kilometers in the vicinity of the United States and Canadian maritime border. The purpose of the cable is to assess the sensor system's capability to collect maritime environmental data. No on-land disturbance, facility construction, or demolition is anticipated.

No impacts to the public are anticipated and best practices will be used to reduce and prevent impacts on the natural environment and public. S&T is preparing a Biological Assessment, consulting with National Oceanic and Atmospheric Administration, National Marine Fisheries Service, the U.S. Army Corps of Engineers, the Washington State Department of Archaeology and Historic Preservation, and federally recognized Native American Tribes with interest in the area, along with other appropriate federal and state environmental protection, natural resource, historic and cultural agencies during planning to prevent impacts to Biological and Cultural and Historic Resources.

DHS S&T appreciates receiving comments that you may have about the Draft EA within the next 30 days following the date of this letter. The Final EA will address substantive comments and concerns received from all interested parties during the public comment period. Following that, a Notice of Availability announcing the completion and release of the Final EA and Finding of No Significant Impact, if applicable, will be published on the aforementioned DHS website and in the local newspaper on or around July 15, 2024.

Additionally, DHS S&T has published a Notice of Availability in *The Northern Light* newspaper to inform the public about the opportunity to review and comment on the Draft EA during the 30-day review period. All comments or questions regarding the Proposed Action may be submitted via email at: MEDSS_EA@hq.dhs.gov. It is important that any comments submitted include a reference to "MEDSS EA Comments" in the subject line. Thank you for your support of the DHS mission.

Respectfully,

Dimitri Kusnezov
Under Secretary for Science and Technology