

TECHNICAL MEMORANDUM

Date: May 16, 2021

To: Don Measamer, Director of Planning, Community and Economic Development
City of Anacortes

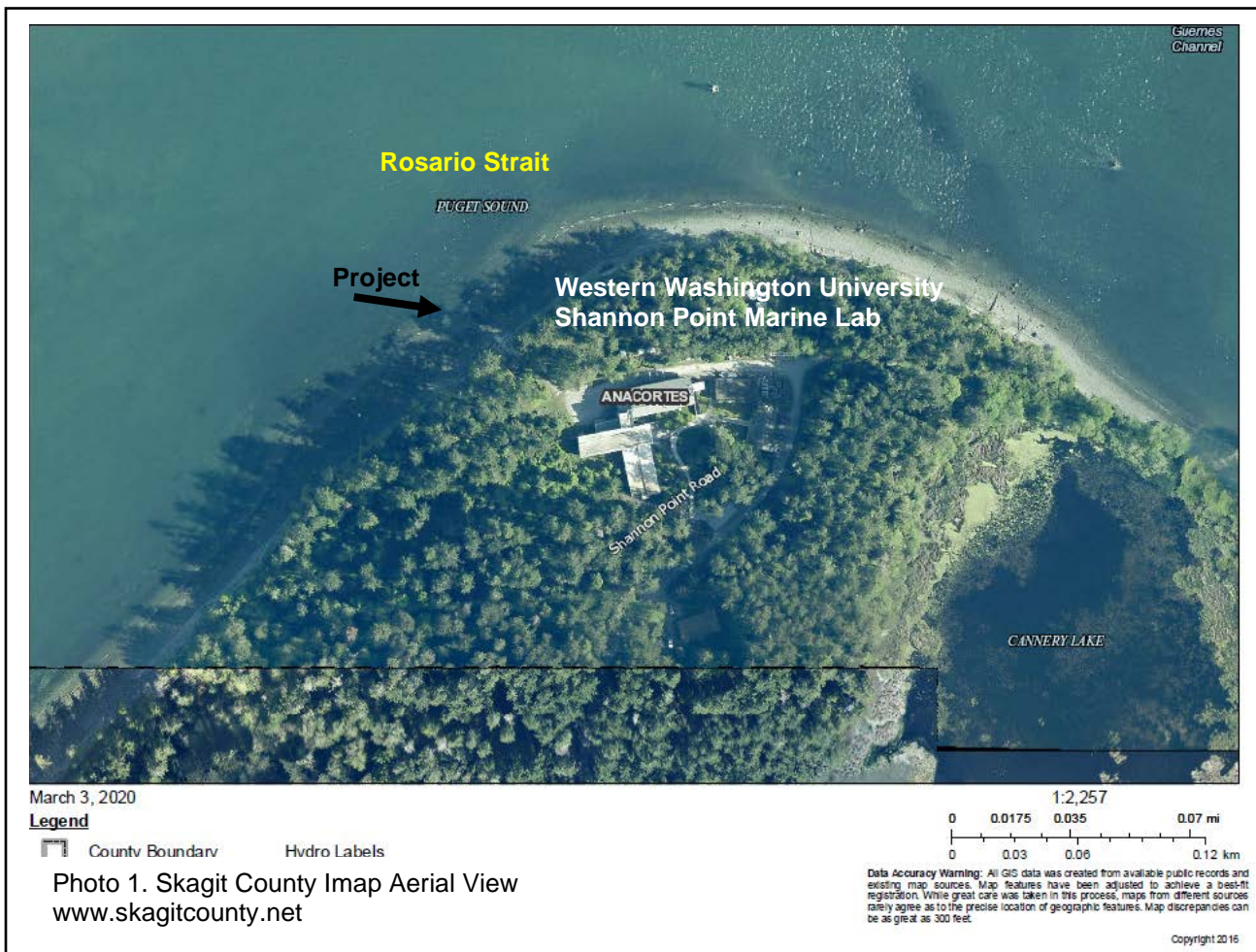
Subject: Western Washington University Shannon Point Marine Laboratory
Shoreline Restoration – Environmental Regulatory Compliance Review

From: Tina Mirabile, PWS, Senior Ecologist, Herrera Environmental Consultations, Inc.

Copy to: Alexis Blue, PE, Assistant Director Capital Planning and Development
Western Washington University

Jonathan Waggoner, PE, Herrera

This technological memorandum summarizes the results of a shorelines and critical areas (fish and wildlife habitat conservation area) assessment conducted by Herrera Environmental Consultants, Inc. (Herrera), to meet the City of Anacortes' (City) Critical Areas and Shorelines environmental regulatory compliance reviews of Western Washington University's (WU) proposed shoreline restoration project at the Shannon Point Marine Laboratory on Parcel P31547 located at 1900 Shannon Point Road (Photo 1, Skagit County, 2021).



As a shoreline restoration measure, WWU is proposing to remove a derelict concrete plank boat launch that covers approximately 2,540 square feet (0.06 acre) of the upper intertidal zone of Rosario Strait at the Shannon Point Marine Laboratory (Photo 2). The project also includes reseating the marine lab's existing in-take/outfall piping infrastructure that has become partially exposed due to coastal erosion. Other decommissioned pipes and debris will also be removed from the site. A native scrub-shrub vegetated shoreline buffer enhancement area (114 square feet) and a pedestrian beach access trail (3-foot minimum width) to retain public access to the marine shoreline will be installed near the upper extents of the beach. The project site plans are included as Attachment A for reference. WWU has an existing aquatic lease agreement with the Washington Department of Natural Resources (WDNR) which delineates the location of lab's piping infrastructure within the Strait (Attachment B).



Photo 2. Derelict concrete plank boat ramp (Herrera, Sept. 30, 2019)

Rosario Strait is a Designated Shoreline of the State (Type S) Water, subject to regulation according to the City's Shoreline Master Program (Section 18.16 of Anacortes Municipal Code [AMC]). The City's shoreline designations for the project site are Natural and Conservancy (City of Anacortes, 2010a). Chapter 2.4.E.2 of the City's Shoreline Master Program identifies the normal maintenance or repair of existing structures or developments to prevent a decline, lapse or cessation from a lawfully established condition as not considered as substantial development for the purposes of the program (City of Anacortes, 2010b). Shoreline habitat and natural systems enhancement projects are a permitted use within the shoreline designation for the site. The property is zoned for Public Use (City of Anacortes, 2019).

City regulated critical areas that are applicable to the project site include: frequently flooded areas (Article II Section 17.70.020-060 AMC) and the fish and wildlife conservation areas: with which state or federally designated endangered, threatened, and sensitive species have a primary association and surf smelt spawning areas (Article VI Section 17.70.540 AMC).

Spawning habitat for surf smelt (*Hypomesus pretiosus*), an important forage fish that spawns year-round within the intertidal area of beaches with a specific mixture of coarse sand and pea gravel is mapped by Washington Department of Fish and Wildlife (WDFW) in association with the Shannon Point shoreline. (Arc GIS, 2019). Forage fish spawning habitat for Pacific sand lance (*Ammodytes hexapterus*), which typically spawn between November and February on finer sand substrates, and Pacific herring (*Clupea pallasii*), which deposit transparent adhesive eggs on inter-tidal and shallow sub-tidal eelgrass and marine algae typically from January 1 to mid-April, is not mapped by WDFW in association with the project area. Due to the existing concrete planks covering much of the upper intertidal zone, existing forage fish spawning habitat at the project site is considered to limited;

however, the project’s shoreline restoration action to remove the concrete and other debris will benefit forage fish by increasing available upper intertidal habitat conducive to spawning.

EXISTING ENVIRONMENTAL SITE CONDITIONS

The marine shoreline project site, located within the intertidal zone of Rosario Strait, is situated in the NE1/4 of Section 21, Township 35 North, Range 01 East (W.M.). The project is located within Water Resource Inventory Area (WRIA) 3 - Lower Skagit - Samish watershed. The U.S. Geological Survey Hydrological Unit (HUC) for the site is 171100020303 – Fidalgo Island-Frontal Padilla Bay (USGS, 2021).



Photo 3. Ordinary High-Water Mark located at toe of shoreline bank at elevation 10.0-feet (NAVD88) Herrera (Jan. 6, 2020)

Herrera conducted site visits on September 30, 2019, January 6, 2020 and March 13, 2020 to document the existing environmental conditions at the project site. The nearest low and high tide predictions for the September 2019 site visit conducted during a rising tide between 3 and 4 pm were +2.3 feet at 12:04 pm and +8.0 feet at 6:24 pm, respectively (Photo 2) (NOAA, 2021). The nearest high and low tide predictions for the January 6, 2020 site visit conducted at 2:30 pm were +8.0 feet at 11:58 pm and +0.2 feet at 7:24 pm, respectively (Photo 3). The Ordinary High-Water Mark (OHWM) of Rosario Strait was identified using the definition provided in Washington Administrative Code (WAC), Section 222-16-010 and the methods

outlined in the publication Determining the ordinary high-water mark for Shoreline Management Act Compliance in Washington State (Anderson and others, 2016). The OHWM was identified by the limit of scour demarcation at the toe of the shoreline bank and where the vegetation transitioned from aquatic tolerant species to upland preferred species. The reference elevations for Ordinary High Water (OHW), Mean Higher High Water (MHHW) and Mean Lower Low Water (MLLW) are +10 feet, +7.33 feet and +0.51 feet (NAVD88), respectively. The Baseline Flood Elevation (BFE) established for Zone VE (Areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action) on FEMA’s Flood Insurance Rate Map (FIRM) for the project site (Panel 53031700240A, effective 9/17/2003) is +9.0 feet (FEMA, 2021).

Shannon Point is identified on Ecology’s *Washington State Coastal Atlas* as a stable shoreline with continuous kelp bed vegetation fringing the subtidal zone (Washington State Department of Ecology [Ecology], 2021a). The shoreline bank ranges between five and eight feet in height and there is no evidence of landslide or geological hazardous site conditions within the immediate vicinity of the project site.

No salt marsh, native eelgrass (*Zostera marina*) or American dune grass (*Leymus mollis*) habitats are mapped by Ecology in association with the project site (Ecology, 2021). Aquatic vegetation is generally lacking on the beach within the upper intertidal zone; existing substrates consist of mixed sand, gravel, rocks and boulders (Photo 3). Armoring along the Shannon Point shoreline is mapped by Ecology in association with the subject derelict boat launch, proposed for removal, a portion northeast of the laboratory and the off-site WSDOT ferry terminal facility. WDFW's Priority Habitats and Species maps indicate Shannon Point's marine shoreline as providing habitat for Dungeness crab (*Cancer magister*), red sea urchin (*Strongylocentrotus franciscanus*) and pinto abalone (*Haliotis kamtschatkana*) (WDFW, 2021a). Yuma myotis (*Myotis yumanensis*) is also indicated in association with Shannon Point.

During the Herrera site visits, no wetlands were observed to be present within the immediate project vicinity. Cannery Pond, also referred to as Cannery or Shannon Lake, is classified as a Category I wetland in Section 17.70.320 of City of Anacortes's municipal code (City of Anacortes, 2021). The wetland, located approximately 700-feet to the east of the project site, does not have a direct hydrological connection to the project beach site. The project's proposed actions do not encroach onto the City's regulated and protective associated wetland buffer areas, as defined in Section 17.70.500 of AMC. The wetland is mapped as a Priority Habitat and Species (PHS) by WDFW (WDFW, 2021a). Although rare native plants or vegetation communities are documented in association with the wetland habitat at Cannery Pond, no rare plant species are associated with the project's intertidal marine shoreline site (WDNR, 2021a). No freshwater streams are associated with the project site (WDNR, 2021b, WDFW, 2021b).

The canopy of the upland forest vegetation growing along the top of the shoreline bank is dominated by Douglas fir (*Pseudotsuga menziesii*). Native shrubs and ground cover including western salmonberry (*Rubus spectabilis*), salal (*Gaultheria shallon*) and sword fern (*Polystichum munitum*) dominate the understory vegetation. The U.S. Fish and Wildlife Service (USFWS) identifies golden paintbrush (*Castilleja levisecta*), a threatened herbaceous native plant species protected through the provisions of the Endangered Species Act (ESA), as potentially being present in association with meadow habitats in Skagit County, this species is not present within the intertidal marine shoreline zone of the project site. Critical habitat for golden paintbrush has not been designated (USFWS, 2021, 1997).

Shoreline buffer functions on the forested portion of the property, including water quality improvement, temperature modification, shoreline stability, potential recruitment of large woody debris, and habitat are served at high levels. Mowed lawn and maintained landscaping adjacent to the existing marine lab buildings, sidewalks, access driveways and the pump house, located approximately 22-feet upslope of the beach project site, provide shoreline buffer functions at low levels (Photo 4). Shoreline stabilizing and habitat enhancing native shrubs are proposed for installation adjacent to a pedestrian trail that will improve public access to the shoreline.



Photo 4. View upslope at pumphouse and lab (Herrera, Jan. 6, 2020). A public trail with adjacent native shrub vegetation will be installed.

PROJECT ACTIONS, BEST MANAGEMENT PRACTICES AND CONSERVATION MEASURES

The proposed shoreline restoration project, to remove the derelict concrete plank boat launch and to reseal the lab's in-take piping infrastructure as remediation from coastal erosional processes, has been designed to meet federal, Washington State and City of Anacortes environmental regulatory compliance requirements related to no loss of ecological functions and sequencing to avoid, minimize and mitigate for any potential project-associated impacts (Section 17.70.550. AMC). . An estimated 50 planks of the derelict boat ramp, representing approximately 14 cubic yards of concrete, is proposed for removal from project site at elevations between +11-feet to +2-feet (NAVD88). An estimated 23 cubic yards of trenching excavation and native sediment backfill for approximately 90 linear feet will be required to reseal the laboratory facility pipes and concrete pipe cap and clean out vaults at an approximate depth of 2-feet below the surface. Any disturbances to beach sediments will be restored post construction to match natural conditions. The project's in-water work is anticipated to be self-mitigating, as the removal of man-made materials and debris from the upper intertidal nearshore environment will increase available habitat for forage fish, invertebrates and shellfish. The shoreline buffer will be enhanced through the installations of native shrubs (114 square feet) and a pedestrian public shoreline access trail.

Equipment to be used for project work includes a small backhoe/excavator and dump trucks for export of removed concrete planks and other debris off-site. Existing access roads and parking areas will be utilized for the transport and staging of equipment and materials, respectively. The duration of in-water construction activities is proposed as 14 days, concurrent with the two-week project fish window exception for year-round surf smelt spawning (U.S. Army Corps of Engineers [USACE], 2012).

Best management practices (BMPs), as recommended by Ecology in the latest version of the *Stormwater Management Manual for Western Washington*, or other resources, as required by the City of Anacortes, will be implemented during the construction phase of the project to reduce potential impacts to aquatic habitat (Ecology, 2019). Representative avoidance, minimization and conservation measures associated with the project include, but are not exclusive of the following:

- No upland or aquatic vegetation removal is associated with the project.
- Any equipment maintenance and staging will occur at upland areas away from the shoreline environment.
- All in-water project work will be conducted during low tide intervals, when project area sediments are exposed rather than inundated.
- The project will occur within the most restrictive agency approved fish project window (July 16-February 15) (USACE Tidal Reference 9), allowing for a two-week exception for year-round surf smelt spawning, which can be implemented upon verification that no active spawn is present at the time of construction (USACE, 2012). Should in-water work extend beyond 14 days from project initiation, additional forage fish spawning surveys are to be conducted for each subsequent two weeks of project activities.
- Although much of the project work will occur below the BFE of +9.0 feet, the project meets FEMA's requirements for no net rise in flood conditions. The project will remove concrete and debris at elevations above and below the BFE and no new structures are proposed for construction within the special flood hazard zone.
- The project is to be conducted in compliance with the State's Water Quality Standards for aquatic life; however temporary increases in local turbidity during in-water construction may occur. As provided in WAC 173-201A-200 (1)(e) the aquatic life turbidity criteria will be modified, without specific written authorization from Ecology, to allow a temporary area of mixing during and immediately after necessary in-water construction activities that result in the disturbance of in-place sediments. The temporary area of mixing is subject to the constraints of WAC 173-201A-400 (4) and (6) and can occur only after the activity has received all necessary local and state permits and approvals, and after the implementation of appropriate BMPs to avoid or minimize disturbance of in-place sediments. For projects working within estuaries and marine waters, the point of compliance shall be at a radius of 150-feet from the activity causing the turbidity exceedance. The baseline water quality of Rosario Strait is not anticipated to change substantially in association with construction of the project. Any changes in turbidity are anticipated minor, short-term and localized, because disturbed sediment will be in very shallow water and in a relatively small area.
- Construction generated noise will be typical of small projects and will not exceed levels that could be harmful to wildlife. No underwater noise is associated with the project. Noise from construction activities will occur only during daylight hours (from 2 hours post-dawn to 2 hours pre-dusk).

FISH AND WILDLIFE SPECIES AND HABITATS

Herrera completed an analysis of the project's actions for any potential effects to ESA listed protected species and associated designated critical habitat present within the vicinity of the project site (Herrera, 2021). The limits of the project's action areas for ESA analysis were defined by considering the potential geographic reach of project-associated mechanisms that may lead to impacts on listed species and associated critical habitat. This includes effects resulting from

construction noise, land use disturbances, equipment operation and transport and in-water project work, including the extent of potential sedimentation or degradation of aquatic areas associated with turbidity. The limit of project-related noise is the distance at which noise from construction is undistinguishable from background or ambient conditions. Based on the equipment to be used and WSDOT's guidance regarding the attenuation of airborne construction-generated noise to background or ambient levels, the limits of project-related noise over water and overland were calculated as 3,200 feet (0.6 mile) and 1,600 feet, respectively (WSDOT, 2021). The project's in-water action area, extended to accommodate the State's water quality allowance for a temporary sediment mixing zone during construction, extends an additional 150-feet from the project activities occurring within the upper intertidal zone from OHWM (10-feet) and +2.0 feet. Herrera reviewed the applicable primary constituent elements (PCEs), or the physical or biological features of critical habitat designated as essential for the conservation of the listed species, such as the presence of migration corridors free of barriers, water quality, availability of prey, etc., and determined that the existing habitat conditions within the project's action area were functioning adequately (NMFS, 2005 a, b, 2016, Ecology, 2021b). No conditions impeding species use of the project area were identified. Project recommended ESA determinations, based on the implementation of applicable BMPs and conservation measures, are presented in Table 1. Rationale for the ESA determinations is provided in the following sections.

The project **may affect, but is not likely to adversely affect**, threatened Puget Sound Chinook (*Oncorhynchus tshawytscha*) and Coastal/Puget Sound bull trout (*Salvelinus confluentus*)(threatened), and endangered Puget Sound/Georgia Basin DPS of bocaccio (*Sebastes paucispinis*)(endangered) and the critical habitat designated for these species (NMFS, 2005a and b, USFWS 1999, 2005, 2010, NMFS, 2010b, 2014, 2017). The project's removal of concrete and debris from the upper intertidal zone of Rosario Strait will benefit foraging and migrating Chinook salmon, bull trout and juvenile rearing bocaccio that may be present within the project's nearshore action area. Any potential disturbances to water quality due to the suspension of sediments during in-water work will be short-term and minor. No underwater noise is associated with the project.

The project is determined to have **no effect** on threatened Puget Sound/Georgia Basin DEPS of yelloweye rockfish (*Sebastes ruberrimus*) and its associated designated critical habitat (NMFS, 2010b, 2014, 2017). Although juvenile bocaccio rockfish may be found in intertidal waters with or without kelp, juvenile yelloweye rockfish are not typically found in waters less than 98 feet in depth (Love, et, al. 2002). Based on the shallow water depths and the exposure of the project area substrates during low tide work periods yelloweye rockfish are not likely to be present in the project's action area.

The project is determined to have **no effect** on threatened species of Puget Sound steelhead (*O. mykiss*), eulachon (*Thaleichthys pacificism*) and North American green sturgeon (*Acipenser madirostris*). Unlike many other anadromous species, Puget Sound steelhead do not utilize shallow

Table 1. ESA Determinations for WWU Marine Lab Shoreline Restoration Project

Species ESU/DPS	ESA Listing Status/Date	ESA Critical Habitat	Project Recommended ESA Determination
Fish - USFWS Jurisdiction			
Coastal/Puget Sound Bull Trout (<i>Salvelinus confluentus</i>)	Threatened November 1, 1999 (64 FR 58910)	Designated: September 26, 2005 (70 FR 56212) Revised Final Rule: October 18, 2010 (76 FR 61599 61621)	Species and Designated Critical Habitat: May Affect, Not Likely to Adversely Affect
Fish – National Marine Fisheries Service (NOAA Fisheries, 2021, NMFS 2005a,b,NMFS 2016)			
Puget Sound Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	Threatened June 28, 2005 (70 FR 37160)	Designated: September 2, 2005 (70 FR 52630) Effective January 2, 2006	Species and Designated Critical Habitat: May Affect, Not Likely to Adversely Affect
Puget Sound Steelhead (<i>Oncorhynchus mykiss</i>)	Threatened May 11, 2007 (72 FR 26722)	Designated February 24, 2016 (81 FR 9252:9325) Not Applicable to Nearshore	Species: No Effect
Puget Sound/Georgia Basin DPS Bocaccio (<i>Sebastes paucispinis</i>)	Endangered	Designated: November 13, 2014 (79 FR 68042) Effective: February 11, 2015	Species and Designated Critical Habitat: May Affect, Not Likely to Adversely Affect
Puget Sound/Georgia Basin DPS Yelloweye Rockfish (<i>Sebastes ruberrimus</i>)	Threatened		Species and Designated Critical Habitat: No Effect
Southern DPS of eulachon (<i>Thaleichthys pacificus</i>)	Threatened March 18, 2010 (75 FR 13012)	Designated: October 20, 2011 (FR 76 65324) Not Applicable to Action Area	Species: No Effect
Southern DPS of North American green sturgeon (<i>Acipenser medirostris</i>)	Threatened April 7, 2006 (71 FR 17757)	Designated: October 9, 2009 (FR 74-52300) Not Applicable to the Action Area	Species: No Effect
Marine Mammals (NMFS Jurisdiction):			
DPS Southern Resident Killer Whale (<i>Orcinus orca</i>)	Endangered November 18, 2005 (70 FR 69903)(NMFS, 2005c)	Designated: November 29, 2006 (71 FR 69054)(NMFS, 2006b) Not Applicable to the Project Action Area	Species: No Effect

Table 1. Continued:			
Species ESU/DPS	ESA Listing Status/Date	ESA Critical Habitat	Project Recommended ESA Determination
Birds (USFWS Jurisdiction):			
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Threatened October 1, 1992 (57 FR 45328)	Designated: May 24, 1996 (61 FR 26255) Revised Final Rule October 5, 2011 (76 FR 61599) Not Applicable to the Project Action Area	Species: May Affect, Not Likely to Adversely Affect
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Threatened November 3, 2014 (79 FR 59991)	Proposed: August 15, 2014 (79 FR 48547). Not Applicable	Species: No Effect
Streaked Horn Lark (<i>Eremophila alpestris strigata</i>),	Threatened, November 4, 2013 (78 FR 61451)	Designated: October 3, 2013 (78 FR 61505 61589) Not Applicable	Species: No Effect

Notes: DPS = Distinct Population Segment; ESU = Evolutionary Significant Unit; NMFS = National Marine Fisheries Service; USFWS = U.S. Fish and Wildlife Service; FR=Federal Register

No ESA determination is provided for designated critical habitat that is not applicable to the project's action area.

nearshore areas (NMFS, 2007). Although Rosario Strait is within the range for eulachon and sturgeon, these species are not likely to be present within the intertidal action area for the (NMFS 2006a, 2010a). Critical habitat for these species is not designated within the nearshore project action area (NMFS, 2009a, 2010a, 2011 and 2016a, b).

Rosario Strait is included in the summer core area of designed critical habitat for the DPS of southern resident killer whale (*Orcinus orca*)(endangered), which includes all U.S. marine waters in Whatcom and San Juan counties; and those west and north of the Deception Pass Bridge (Highway 20) in Skagit County (48°24' 25" N./122°38' 35" W.)(NMFS, 2006b). Critical habitat boundaries include all waters relative to a contiguous shoreline delimited by the line at a depth of 20 feet (6.1 m) relative to extreme high water and is therefore not applicable to the project's action area within the shallow intertidal zone. The project is determined to have **no effect** on the Southern Resident DPS of killer whales due to its exclusion from shallow water depths (less than 20-feet deep) within the project's action area of the upper intertidal zone. No underwater noise is associated with the project thus avoiding direct impacts to swimming or diving species, including all fish, marine mammals and foraging birds that may be present within the project vicinity.

Critical habitat for marbled murrelet (*Brachyramphus marmoratus*)(threatened), typically associated with nesting sites in large tracts of old growth or mature forests in the foothills of the Cascade

and Olympic mountains is not designated within the project's action area (USFWS, 1996, 2011). Murrelets, which forage for surf smelt (*Hypomesus pretiosus*) and other small prey in marine waters, may, however, be present within the project's in-water action area (USFWS, 1992). Aquatic habitat is not protected as designated critical habitat for murrelets and therefore is not applicable to the project. The recommended daily restriction of construction activities to daylight hours only will avoid potential in-air construction-generated noise disturbances while murrelets fly to and from their nesting sites in low light conditions prior to dawn and post dusk during their breeding season from April 1 to September 15. WWU's proposed restoration action to remove concrete and other debris from the upper intertidal area at the project site will increase available spawning habitat for surf smelt, thus benefiting marbled murrelets foraging for prey. The project is determined to **may affect, not likely to adversely affect**, marbled murrelet.

Threatened streaked horn lark (*Eremophila alpestris strigata*) and yellow-billed cuckoo (*Coccyzus americanus*) are indicated by USFWS as potentially present in Skagit County, however final designated and proposed critical habitat, respectively, for these species is associated with their documented breeding areas, none of which are documented in association with the intertidal project's action area (USFWS, 2021, USFWS, 2013 and 2014). No ESA listed terrestrial mammal species are associated with the project site. Grey wolf, *Canis lupus*, also indicated by USFWS as potentially present in Skagit County, is not associated with habitats present within the City of Anacortes (USFWS, 2021).

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a federal fisheries management plan (FMP). The Pacific Fisheries Management Council (PFMC) has jurisdiction for commercial fisheries in Washington waters and has designated EFH for the Pacific salmon fishery, Pacific coast groundfish, and coastal pelagic fisheries (PFMC 1998, 2003, 2011a, 2011b).

Pacific salmon EFH includes all freshwater, estuarine, nearshore and tidal submerged marine waters and substrates within Washington State territorial waters that are necessary for Chinook, coho (*Oncorhynchus kisutch*) and pink salmon (*Oncorhynchus gorbuscha*) spawning, breeding, feeding or growth to maturity (PFMC, 2003). Rosario Strait is situated within the Ecological Significant Unit (ESU) for Puget Sound/Strait of Georgia coho salmon, identified by NMFS as a Species of Concern (WDFW, 2021, NMFS, 2009b). In addition to Chinook and coho, Rosario Strait provides habitat for non-ESA listed chum (*Oncorhynchus keta*) and sockeye (*Oncorhynchus nerka*) salmon. Provisions to protect listed salmon species benefit coho and other salmon species' conservation.

Designated EFH for groundfish encompasses all waters from the MHHW elevation in estuaries, and upriver extent of saltwater intrusion in river mouths, and along the coasts of Washington,

Oregon, and California seaward to 11,483-foot depth contour (PFMC, 2011a,b). Over 90 species of groundfish, including rockfish (bocaccio, canary, etc.), are managed by the PFMC.

The project area, with shallow water depths within the intertidal zone at elevations near MHHW, is not suitable habitat for the pelagic species of EFH, including northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), Pacific chub mackerel (*Scomber japonicas*), jack mackerel (*Trachurus symmetricus*), and market squid (*Loligo opalescens*). Therefore, the proposed action will have **“no effect”** on EFH for Coastal Pelagic Species.

For the purposes of determining the project’s potential effects to EFH, an adverse effect is defined as any impact that reduces quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity) site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. The shoreline restoration project will improve the habitat conditions of available nearshore area for foraging and migrating Pacific salmon and groundfish through the removal of 14 cubic yards of concrete and other debris from 2,540 square feet (0.06 acre) of the upper intertidal zone. As discussed for determining the project’s potential effects to ESA listed species, any turbidity generated during in-water construction activities at low tide conditions will be minor and short term. Any fish present within the shallow action area are anticipated to avoid the temporary turbid conditions and to swim to clearer waters where adjacent intertidal habitat space for foraging, osmoregulation and predator avoidance will remain available. Based on implementation of BMPs and conservation measures outlined for in-water construction, the project is determined to **“not adversely affect or modify Pacific salmon or Pacific Groundfish EFH”**.

SUMMARY

Based on a review of the project components, including noise and in-water construction activities, WWU’s shoreline restoration project at the Shannon Point Marine Laboratory property is evaluated to not result in a significant decrease in the populations of any ESA-listed species and will not result in the adverse modification or reduction of designated critical habitat or EFH. Any project-associated construction generated in-air noise and or turbidity within the water column will be temporary and is considered insignificant in regard to the preservation and protection of existing fish and wildlife species and associated habitat and functions. Increased spawning by forage fish as a direct result of the project action may inadvertently benefit species, such as marbled murrelet, that prey on forage fish as a significant component of their diet.

The project is not anticipated to adversely affect any Washington State priority habitats or species of native plants, fish and wildlife species and or those that are of local importance to the City of Anacortes. A total of 114 square feet of the project site’s shoreline buffer will be enhanced through the installation of native shrubs. A pedestrian trail will provide public access to the shoreline.

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ATTACHMENT A – PROJECT SITE PLANS

ATTACHMENT B – WDNR AQUATIC LEASE