



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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PORTLAND, OR 97232-1274

Refer to NMFS No:
WCRO-2021-00262

August 5, 2021

Kristine Koch
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-1273

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the ASARCO Peninsula Shoreline Commencement Bay Nearshore/Tideflats Superfund Site Remediation Project, Seattle, King County, Washington (6th Field HUC 171100190301).

Dear Ms. Koch:

This letter responds to your January 14, 2021, request for reinitiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action. Your request qualified for our expedited review and analysis because it met our screening criteria and contained sufficient information on, and analysis of, your proposed action and its potential effects to listed species and designated critical habitat.

We reviewed the Environmental Protection Agency's (EPA) consultation request and related initiation package. Where relevant, we have adopted the information and analyses you have provided and/or referenced but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. We adopt by reference the following sections of the Biological Assessment (BA) Amendment:

- Section 2 for the description of the proposed action;
- Section 3 for the environmental baseline;
- Section 4 for the direct and indirect effects;
- Section 4 for the interrelated and interdependent actions; and
- Section 5 for the cumulative effects

We supplement these sections below with summaries of the information contained in the BA and additional information and analyses where necessary to articulate the rationale for our jeopardy and adverse modification analyses, and to support our conclusions that the proposed action will not jeopardize or adversely modify designated critical habitats of the NMFS jurisdictional species considered herein.

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We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within two weeks at the National Oceanic and Atmospheric Administration (NOAA) Library Institutional Repository [<https://repository.library.noaa.gov/welcome>]. A complete record of this consultation is on file at the Oregon and Washington Coastal Office.

Affected Species and NMFS’ Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely to Jeopardize Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely to Destroy or Adversely Modify Critical Habitat?
Puget Sound DPS Chinook Salmon	T	No	No	No	No
Puget Sound DPS Steelhead	T	Yes	No	No	No
Puget Sound/Georgia Basin DPS bocaccio rockfish	E	Yes	No	No	No
Puget Sound/Georgia Basin DPS yelloweye rockfish	T	No	No	No	No

Fishery Management Plan That Describes EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific groundfish	Yes	Yes
Pacific coast salmon	Yes	Yes

Site/Consultation History

The former Asarco Tacoma Smelter Facility was located on the western shore of Commencement Bay and encompassed 90 acres of land, which included the shoreline down to mean lower low water (MLLW); 67 acres of the property contained the former Smelter Facility and the remaining 23-acres is the Breakwater Peninsula, on which this project is occurring.

In 2000, Asarco had designed a stabilization cap that was to enhance 6.9 acres of shoreline with rip rap and fish mix and create 1.2 acres of new intertidal habitat along the outer edge of the peninsula. The action involved placement of armor toes, retaining walls, and additional riprap, plus construction of an intertidal beach habitat using fish mix. The action was to occur over a three-year period beginning in 2000. However, Asarco only completed shoreline armoring on the southern end of the Smelter Site and on the breakwater peninsula (part of Area 1, Area 2, part of Area 3, and Area 5; Figure 1). Asarco also completed construction of the 1.2-acre intertidal habitat area along the peninsula, now referred to as the “Habitat Basin” (within Area 2).

In December 2002, EPA accepted the Final Design for construction of a sediment cap to remediate the offshore sediments in southern reach of the property, which is not in this project action area. However, Asarco never conducted the work and in August 2005 filed for relief under chapter 11 of the Bankruptcy Code, temporarily postponing construction of the sediment cap and completion of the shoreline stabilization cap.

Point Ruston LLC purchased the Asarco facility property in 2006. As a condition of purchase, Point Ruston LLC entered into a consent decree with EPA to finish construction of the shoreline (within Areas 3 and 4) and the offshore sediment caps. In 2007, Point Ruston LLC completed 10 acres of the sediment cap that placed a silt/sand cap over deep offshore sediments.

In 2011, DNR removed the large dock structures and completed approximately 1.6 acres of the sediment cap that placed a quarry spall cap over the sediments under and around the dock structures.

Point Ruston LLC completed the shoreline stabilization cap in 2012 (Reaches 3 and 4) except for a 100-foot section of shoreline stabilization cap around the City of Tacoma's outfall (located in Area 3 on the slag peninsula). They also reconstructed the City of Tacoma's Edwards Street stormwater outfall located in Reach 5.

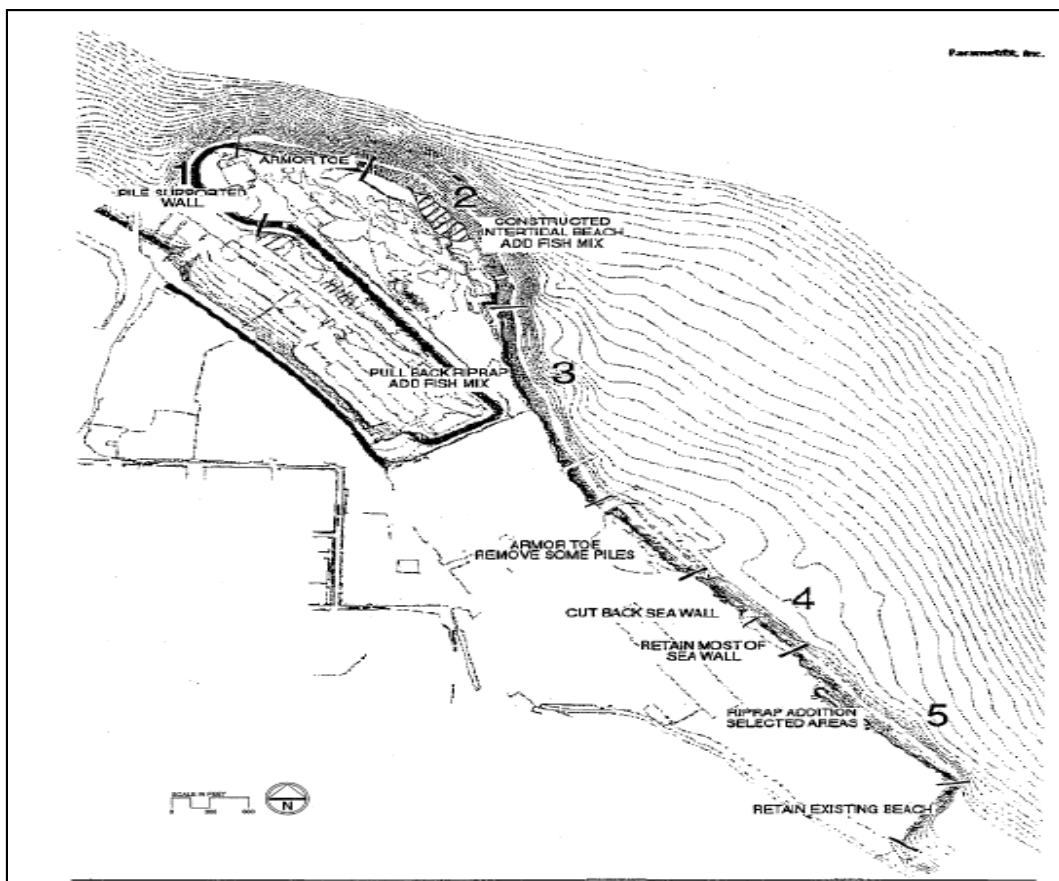


Figure 1. Asarco Reaches 1-2-3-4-5

In 2013, Point Ruston LLC capped the remaining eight acres of contaminated offshore sediment with a minimum of 3-foot thick layer of clean riprap covered with sand and fish mix. EPA entered into a Cooperative Agreement with Metro Parks Tacoma in 2016 to construct the inner shoreline stabilization cap along the peninsula (reaches A, B, C & D – Figure 2) and repair damage to the Habitat Basin from the 2001 Nisqually earthquake. This work was completed in 2019.

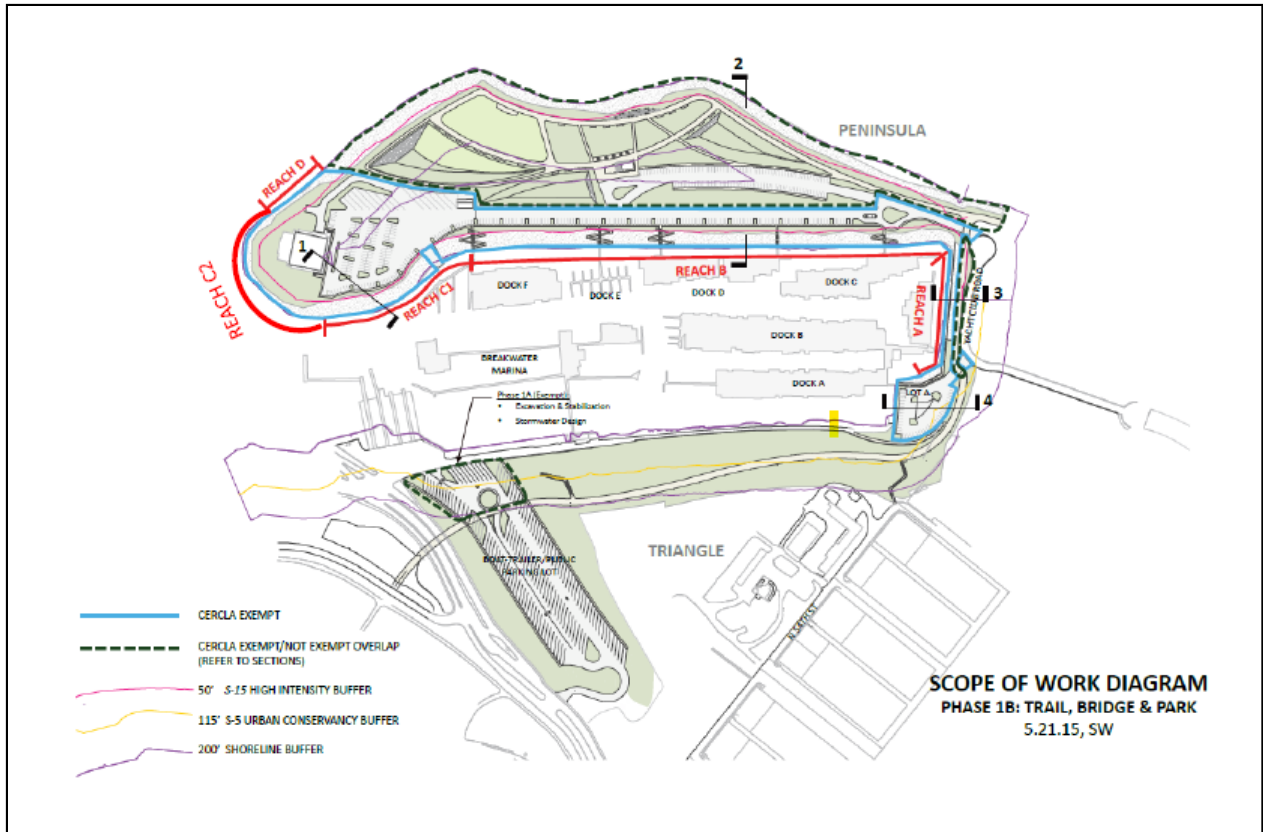


Figure 2. Arasco Reaches A-B-C-D

The BAs previously submitted to the Services for consultation include the following:

- **2000 – Biological Assessment Shoreline Stabilization and Protection Asarco Smelter Site** (Parametrix, 2000): BA to address potential environmental impacts caused by actions related to Asarco’s shoreline stabilization and protection plan.
- **2001 – Addendum: Biological Assessment Shoreline Stabilization and Protection Asarco Smelter Site** (Parametrix, 2001): Addendum to the 2000 BA to address amendments to the Terms and Conditions outlined in the Services’ BOs and to address the construction schedule and construction modifications for work to be completed in the years 2001 and 2002.
- **2006 Biological Assessment Addendum – Commencement Bay Nearshore/Tideflats Superfund Site, Tacoma, Washington** (Anchor, 2006): Addendum to the 2000 BA was to identify changes in the listing status for ESA-regulated species and critical habitat that had occurred since the 2000 BA, describe additional details of the 2002 EPA-approved sediment cap design that differed from the 2000 BA, and updated the analysis of potential effects associated with construction elements on ESA-listed species and critical habitat.
- **2010 Biological Assessment for Dock Demolition – Section 7 Consultation** (FWS, 2010): BA to evaluate effects to bull trout and marbled murrelet from demolition of the large offshore dock structures.
- **2011 Biological Assessment – Edwards Street Outfall Reconstruction** (Hydrometrics/Parametrix, 2011b): BA to assess the effects of reconstructing the City of Tacoma’s Edwards Street stormwater outfall.

- **2011 Biological Assessment – South Outfall Diversion to Edwards Street Outfall** (Hydrometrics, 2011): BA to assess the effects of treatment and diversion of stormwater from developments on Point Ruston to the City of Tacoma’s Edwards Street stormwater outfall.
- **2011 Biological Assessment – Shoreline Protection** (Hydrometrics, Parametrix, 2011): BA to assess the effects of completing the shoreline protection measures on the Commencement Bay shoreline habitat at the former Asarco Tacoma Smelter Facility.
- **2013 Sediment Cap Biological Assessment Summary** (Hydrometrics, 2013): BA to assess the effects of design changes to the offshore sediment cap.
- **2016 Addendum to Biological Assessments for the Shoreline Armoring of the Asarco Smelter Site and the Slag Peninsula in Tacoma, Washington** (EPA, 2016): Addendum to 2000 BA to assess the effects of constructing the shoreline stabilization cap on the inner shoreline of the Breakwater Peninsula.

Project Description:

The EPA plans to have the U.S. Army Corps of Engineers repair a portion of the existing shoreline cap at the former Asarco Tacoma Smelter Facility within the Commencement Bay Nearshore/Tideflats Superfund site. The purpose of the armoring is to reduce slag weathering and erosion due to wind and wave energy in the intertidal shoreline areas (-4’ MLLW to +10’ MLLW). Freshly broken and exposed slag surfaces are a source of metals to the environment, so the isolation and protection of shoreline slag is critical to blocking this pathway to the Bay. The remedy was initially installed by Asarco in the 2000-2003 three-year window, as noted above. Since then, approximately 1,100 lineal feet of the shoreline stabilization cap has failed due to: the environmental forces onsite (earthquakes and waves); the steep vertical slope (1.5-2H:1V); the limited extent of the stabilization bench/key; and the small rock size on the bench which allowed waves to undercut the key. Additionally, there is approximately 100 lineal feet of shoreline that was never remediated due to an existing City of Tacoma outfall that needed repair. The repair of the outfall will extend the pipe deeper into Commencement Bay. The upland portion of the outfall was repaired in 2017 by Metro Parks Tacoma while capping and redeveloping the upland portion of the site. The remainder of the repair is in water and will occur simultaneously with the installation of the shoreline stabilization cap in this area. See Figure 3 for specific sites of the repair evaluated in this Opinion.

The Northern Reach is approximately 500 feet long and between 60 and 85 feet wide, extending landward from the -4’ MLLW contour to elevation +10’ MLLW. The Northern Reach is bordered on its east by the Habitat Basin. The Southern Reach is approximately 900-feet long and between 70 and 110 feet wide extending landward from the -4’ MLLW contour to elevation +10’ MLLW. The northern end borders the Habitat Basin and the southern end extends just beyond the City of Tacoma outfall.



Figure 3. Action Area - northern reach, southern reach, and outfall

Generally, maintenance work consists of re-grading the shoreline by filling voids in the existing riprap layer over the entire shoreline to create a flat bedding surface suitable for placement of the shoreline stabilization cap repair materials. The shoreline stabilization cap repair materials consist of a geotextile fabric layer, a bedding layer, a built-up armor toe, and an armor layer over the existing shoreline. The entire shoreline repair area of each reach will be re-worked in this way to cover exposed slag and prevent future weathering and erosion of the slag. A final layer consisting of a minimum of 12 inches of fish mix will be placed over the armor stone from -4' to +7' MLLW.

This action will complete the shoreline stabilization cap for the former Asarco Tacoma Smelter Facility. Because the proposed action does not change the quantity or character of the effluent, nor the location where the discharge enters Commencement Bay, we do not evaluate the effects of the effluent, which are a component of the baseline that is not being modified.

Status of the species and critical habitat:

We examined the status of each species that would be adversely affected by the proposed action to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and discuss the function of the physical or biological features essential to the conservation of the species that create the conservation value of that habitat. The reinitiation package referred to an old status of the species and critical habitat. Table 1 and 2, below, present the most up to date information on the statuses'.

Table 1 Listing classification and date, recovery plan reference, most recent status review, status summary, and limiting factors for each species considered in this opinion.

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Puget Sound Chinook salmon	Threatened 6/28/05 (70 FR 37159)	Shared Strategy for Puget Sound 2007 NMFS 2006	NMFS 2016a	This ESU comprises 22 populations distributed over five geographic areas. Most populations within the ESU have declined in abundance over the past 7 to 10 years, with widespread negative trends in natural-origin spawner abundance, and hatchery-origin spawners present in high fractions in most populations outside of the Skagit watershed. Escapement levels for all populations remain well below the TRT planning ranges for recovery, and most populations are consistently below the spawner-recruit levels identified by the TRT as consistent with recovery.	<ul style="list-style-type: none"> • Degraded floodplain and in-river channel structure • Degraded estuarine conditions and loss of estuarine habitat • Degraded riparian areas and loss of in-river large woody debris • Excessive fine-grained sediment in spawning gravel • Degraded water quality and temperature • Degraded nearshore conditions • Impaired passage for migrating fish • Severely altered flow regime

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Puget Sound steelhead	Threatened 5/11/07	NMFS 2019	NMFS 2016a	This DPS comprises 32 populations. The DPS is currently at very low viability, with most of the 32 populations and all three population groups at low viability. Information considered during the most recent status review indicates that the biological risks faced by the Puget Sound Steelhead DPS have not substantively changed since the listing in 2007, or since the 2011 status review. Furthermore, the Puget Sound Steelhead TRT recently concluded that the DPS was at very low viability, as were all three of its constituent MPGs, and many of its 32 populations. In the near term, the outlook for environmental conditions affecting Puget Sound steelhead is not optimistic. While harvest and hatchery production of steelhead in Puget Sound are currently at low levels and are not likely to increase substantially in the foreseeable future, some recent environmental trends not favorable to Puget Sound steelhead survival and production are expected to continue.	<ul style="list-style-type: none"> • Continued destruction and modification of habitat • Widespread declines in adult abundance despite significant reductions in harvest • Threats to diversity posed by use of two hatchery steelhead stocks • Declining diversity in the DPS, including the uncertain but weak status of summer-run fish • A reduction in spatial structure • Reduced habitat quality • Urbanization • Dikes, hardening of banks with riprap, and channelization
Puget Sound/ Georgia Basin DPS of yelloweye Rockfish	Threatened 04/28/10	NMFS 2017	NMFS 2016b	Yelloweye rockfish within the Puget Sound/Georgia Basin (in U.S. waters) are very likely the most abundant within the San Juan Basin of the DPS. Yelloweye rockfish spatial structure and connectivity is threatened by the apparent reduction of fish within each of the basins of the DPS. This reduction is probably most acute within the basins of Puget Sound proper. The severe reduction of fish in these basins may eventually result in a contraction of the DPS' range.	<ul style="list-style-type: none"> • Over harvest • Water pollution • Climate-induced changes to rockfish habitat • Small population dynamics

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
<p>Puget Sound/ Georgia Basin DPS of Bocaccio</p>		<p>NMFS 2017</p>	<p>NMFS 2016b</p>	<p>Though bocaccio were never a predominant segment of the multi-species rockfish population within the Puget Sound/Georgia Basin, their present-day abundance is likely a fraction of their pre-contemporary fishery abundance. Most bocaccio within the DPS may have been historically spatially limited to several basins within the DPS. They were apparently historically most abundant in the Central and South Sound with no documented occurrences in the San Juan Basin until 2008. The apparent reduction of populations of bocaccio in the Main Basin and South Sound represents a further reduction in the historically spatially limited distribution of bocaccio, and adds significant risk to the viability of the DPS.</p>	<ul style="list-style-type: none"> • Over harvest • Water pollution • Climate-induced changes to rockfish habitat • Small population dynamics

Table 2. Critical habitat, designation date, federal register citation, and status summary for critical habitat considered in this opinion

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
Puget Sound Chinook salmon	9/02/05 70 FR 52630	Critical habitat for Puget Sound Chinook salmon includes 1,683 miles of streams, 41 square mile of lakes, and 2,182 miles of nearshore marine habitat in Puget Sounds. The Puget Sound Chinook salmon ESU has 61 freshwater and 19 marine areas within its range. Of the freshwater watersheds, 41 are rated high conservation value, 12 low conservation value, and eight received a medium rating. Of the marine areas, all 19 are ranked with high conservation value.
Puget Sound steelhead	2/24/16 81 FR 9252	Critical habitat for Puget Sound steelhead includes 2,031 stream miles. Nearshore and offshore marine waters were not designated for this species. There are 66 watersheds within the range of this DPS. Nine watersheds received a low conservation value rating, 16 received a medium rating, and 41 received a high rating to the DPS.
Puget Sound/Georgia Basin DPS of yelloweye rockfish	11/13/2014 79 FR68042	Critical habitat for yelloweye rockfish includes 414.1 square miles of deepwater marine habitat in Puget Sound, all of which overlaps with areas designated for canary rockfish and bocaccio. No nearshore component was included in the CH listing for juvenile yelloweye rockfish as they, different from bocaccio and canary rockfish, typically are not found in intertidal waters (Love et al., 1991). Yelloweye rockfish are most frequently observed in waters deeper than 30 meters (98 ft) near the upper depth range of adults (Yamanaka et al., 2006). Habitat threats include degradation of rocky habitat, loss of eelgrass and kelp, introduction of non-native species that modify habitat, and degradation of water quality as specific threats to rockfish habitat in the Georgia Basin.
Puget Sound/Georgia Basin DPS of bocaccio	11/13/2014 79 FR68042	Critical habitat for bocaccio includes 590.4 square miles of nearshore habitat and 414.1 square miles of deepwater habitat. Critical habitat is not designated in areas outside of United States jurisdiction; therefore, although waters in Canada are part of the DPSs' ranges for all three species, critical habitat was not designated in that area. Based on the natural history of bocaccio and their habitat needs, NMFS identified two physical or biological features, essential for their conservation: 1) Deepwater sites (>30 meters) that support growth, survival, reproduction, and feeding opportunities; 2) Nearshore juvenile rearing sites with sand, rock and/or cobbles to support forage and refuge. Habitat threats include degradation of rocky habitat, loss of eelgrass and kelp, introduction of non-native species that modify habitat, and degradation of water quality as specific threats to rockfish habitat in the Georgia Basin.

Action area: The “action area” means 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). The Asarco Breakwater Peninsula is located at the southeastern end of Point Defiance Park in Ruston, Washington (BA Section 2, Figure 1-1). The peninsula extends into Commencement Bay parallel to the shoreline and acts as a breakwater along the northeast edge of the Breakwater Marina (BA Section 2, Figure 1-2) and the latitude-longitude is 47.305619, -122.509247. The maximum extent of effects extends from the construction areas (at the bank stabilization area and at outfall site) to 200 feet out into Commencement Bay to account for the turbidity point of compliance for temporary mixing zones in lakes (WAC 173-201A-200).

Environmental baseline: The environmental baseline refers to the condition of the listed species and/or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline (50 CFR 402.02).

As described in Section 3 of the BA, environmental baseline conditions of the action area are typical of Commencement Bay shoreline, except that slag fill has been used to extend the natural shoreline about 400 feet into Commencement Bay. Land uses within the action area have included the Asarco Tacoma Smelter, historic lumber mills south of the site, current redevelopment of an upland mixed-use commercial/residential development, park space, ferry terminal, and marina operations.

Designated critical habitat for Puget Sound (PS) Chinook salmon (designated 9/2/2005; 70 FR 52630) occurs within the action area (BA, Section 4). Chinook salmon potentially use the Site shoreline as juveniles during their outmigration. Following entry into Commencement Bay from the Puyallup River, the juveniles rear along the bay’s shorelines for days to weeks, prior to migrating into deeper waters.

Designated critical habitat for bocaccio (designated 11/13/2014; 79 FR68042) occurs within the action area. No information is available on the occurrence of bocaccio within the shoreline protection action area. The action area does not provide preferred habitat (deep water rocky reef, shelf and outcrop areas) for adult bocaccio. However, the larval and pelagic juvenile stages could be transported into the action area from the Tacoma Narrows area by currents. If present these younger life stages may settle in shallow water habitat before moving to deeper habitat areas as they grow. In the absence of specific information on the distribution of bocaccio in the action area, we assume that they could potentially occur in very small numbers.

Designated critical habitat for PS steelhead and yelloweye rockfish do not occur in the action area.

Effects of the Action: Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

The BA provides detailed discussion and comprehensive assessment of some of the effects of the proposed action in Section 4 of the initiation package, and is adopted here (50 CFR 402.14(h)(3)). NMFS agrees with the some aspects of the effects analysis and disagrees with others and this is discussed in more detail below.

Habitat

When activities alter features of critical habitat (eg water, prey, riparian vegetation) we determine if the change will reduce the role for which the habitat is considered critical. In this case, the conservation role is not impaired and therefore the effect is ‘not likely to adversely affect’ (NLAA).

The likely effects of the proposed action on critical habitat include temporary construction effects over one work window: water quality (turbidity), loss of prey, and increased construction noise. Because these effects are temporary, and will be limited to the small action area, we expect that these habitat reductions would not be sufficient to reduce the ability of designated critical habitat to meet the biological requirements of listed species, we therefore agree with the EPA that the effects are NLAA critical habitat of PS Chinook salmon or bocaccio rockfish.

Permanent project effects include: water quality (outfall and slag). The shoreline stabilization cap repair and outfall replacement action will have beneficial indirect effects for all ESA-listed species by reducing release of slag and associated metals to Commencement Bay from the shoreline. Benefits will include increased invertebrate prey production of the habitat within the site and reduced exposure of commercial species to metals.

Species

We agree with the BA and *do not* anticipate that the temporary effects (construction) of the proposed action are likely to adversely affect PS Chinook salmon (listed as threatened on 6/28/2005; 70 FR 37160). However, contrary to the BA, we *do* anticipate that the temporary effects (construction) of the proposed action is likely to adversely affect juvenile PS steelhead (listed as threatened 5/11/2007; 72 FR 26722) as this species will occur in the action area during construction. We also expect a small number of larval and juvenile bocaccio rockfish (designated as endangered 4/28/10; 75 FR 22276) to occur in the action area during construction activities. As with steelhead, we disagree with EPA’s NLAA determination for bocaccio in Section 4 of the BA. Instead, we anticipate that the temporary effects (construction) of the proposed action would likely adversely affect larval and juvenile bocaccio occurring in the action area.

NMFS agrees with the EPA's determination that some species exposure to the following likely effects will be insignificant to listed species:

- Temporary reduction in benthic and epibenthic prey. (Section 3.7)
- Construction noise and boat activity from the shoreline stabilization cap repair and outfall replacement operations. (Section 4.1.1)

NMFS disagrees with the NLAA analysis in the BA on Water Quality (Section 6.5) and instead provides the following analysis of exposure and adverse response:

Fish exposure potential and response

While construction effects are too brief and too limited in space or intensity to be adverse to the conservation role for which the habitat was designated, any individuals of the listed species present when the construction effects occur could respond adversely. Construction of the outfall will occur from August 16 through February 15. Juvenile PS Chinook salmon are not expected to be present in the area during construction. If any ESA-listed salmonids are present, they are most likely to be Juvenile PS steelhead, which could be exposed to physical and biological changes to the habitat caused by the project. No information is available on the occurrence of bocaccio within the action area and the action area does not provide preferred habitat (deep water rocky reef, shelf and outcrop areas), so adult bocaccio are not expected to be present, though larval and juvenile bocaccio from the July spawn or juveniles from the spring spawn might be in the action area.

Impairment of normal patterns of behavior including rearing and migrating, potential injury such as gill abrasion, cough, chemical bioaccumulation or other transitory health effects can occur from exposure to turbidity. Exposure to contaminated sediments is expected to be brief and at low intensity, causing only sublethal health effects.

The effects of suspended sediment on fish increase in severity with sediment concentration and exposure time and can progressively include behavioral avoidance and/or disorientation, physiological stress (e.g., coughing), gill abrasion, and death—at extremely high concentrations. Newcombe and Jensen (1996) analyzed numerous reports on documented fish responses to suspended sediment in streams and estuaries and identified a scale of ill effects based on sediment concentration and duration of exposure, or dose. Exposure to concentrations of suspended sediments expected could elicit sublethal effects such as a short-term reduction in feeding rate or success, or minor physiological stress such as coughing or increased respiration. Studies show that salmonids have an ability to detect and distinguish turbidity and other water quality gradients (Quinn, 2005; Simenstad, 1988), and that larger juvenile salmonids are more tolerant to suspended sediment than smaller juveniles (Servizi and Martens, 1991; Newcombe and Jensen, 1996).

NMFS used the Weston Solutions (2006) data as an estimate for the range of expected total suspended solids (TSS) and Newcombe and Jensens (1996) 'scale of ill effects' to determine likely associated biological responses. For an exposure duration of up to two hours and an increase in TSS over background of up to 240 mg/L, the calculated severity of ill effect for juvenile salmon does not exceed a behavioral effect of short-term reduction in feeding rates and feeding success (the fish is startled, experiences reduced vision, stops feeding to reorient, and

may swim away). Any elevations in turbidity and TSS generated by project activities will be localized, short-term and similar to the variations that occur normally within the environmental baseline of the marine nearshore—which is regularly subject to strong winds and currents that generate suspended sediments. Thus, the juvenile salmonids and rockfish likely will have encountered similar turbidity before.

The temporary reduction in prey items within the action area, caused by disturbed sediment during in-water work, are not expected to be measurable and we expect fish in the action area will not have reduced feeding success or reduced quality of preybase. The result of this effect on fish will be insignificant.

Post-construction, there should be no increased effect to listed species, since the nature or amount of the effluent being discharged will not have changed. The relocation further offshore should actually reduce effects to fish by providing less intense exposure to effluent in aquatic habitat through increased mixing.

Cumulative Effects:

Under the ESA, cumulative effects are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Section 5.4.2 of the BA discusses cumulative effects. Significant improvements in the Puget Sound chinook rearing and migration in Commencement Bay are unlikely without changes in land and water-use practices, particularly stormwater management, source control and contaminated sediments cleanup, spill prevention and containment, port management practices, and shoreline development. One source of potential cumulative effects is from the use of pesticides used by the Metropolitan Park District of Tacoma on the park vegetation. Standard pesticide registration focuses on concentrations that are lethal for fish when determining application rates. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. However, now that the Puget Sound chinook ESUs are listed under the ESA, NMFS assumes that private and State project proponents will take steps to curtail or avoid actions that would result in the “take” of chinook. Future federal actions, including future cleanup actions and in-water and shoreline construction, will be reviewed through separate section 7 processes.

Integration and Synthesis:

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action to the environmental baseline and the cumulative effects, taking into account the status of the species and critical habitat, to formulate the agency’s biological opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or

distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

The salmonid species are threatened with future risk of extinction, and bocaccio are endangered by the risk of extinction. The status for salmonids is in part due to poor habitat conditions rangewide, and for bocaccio is largely due to overfishing, late fecundity, and poor conditions for larval and juvenile lifestages rangewide. The proposed action will add temporary effects to the habitat that will not impair the habitat's role for either PS chinook or bocaccio, and the permanent effects are beneficial. When we consider the addition of adverse effects to the number of species exposed and the nature of their response is unlikely to reduce abundance from any of the affected populations.

The shoreline stabilization cap repair and outfall replacement action have a positive effect when combined with other sediment remediation actions such as isolating contaminated slag and sediments (capping) at the former smelter site, creating habitat such as in the new Habitat Basin, and the removal of large overwater structures.

Conclusion:

The habitat impacts, both temporary and permanent, is insufficient to alter the conservation role of the habitat, and similarly the response of the populations is expected to be minor because the number of fish injured or killed too small to meaningfully influence the VSP parameters of steelhead, and bocaccio populations. The proposed action would not reduce the likelihood of survival and recovery of these species. The proposed action is also not likely to result in appreciable reduction of the conservation of the species. After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of PS steelhead, or bocaccio.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

Amount or Extent of Take:

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows:

- Harm of PS steelhead and bocaccio from temporary construction related effects (turbidity).

NMFS anticipates that an undetermined number of juvenile PS steelhead and juvenile and larval bocaccio may be taken as a result of full implementation of the proposed action. However, because the number that may be in the action area at any given time is highly variable, the actual number of individual fish taken as a result of the underlying project is impossible to determine. While immediate death may unintentionally result during construction activities we do not expect this form of take; harm is more likely to accrue by exposure of fish to temporarily degraded environmental conditions during rearing and migration portions of their life histories, reducing their health or fitness. The timing, duration, and extent of such exposure will vary during the course of the project activities, with varying results, all of which fall under the definition of harm. The qualitative results of such effects can be described in this opinion, but no techniques presently exist to correlate those effects with the potential numerical extent of take. Therefore, for the purposes of this opinion, the extent of take is correlated to the physical extent of habitat affected and the duration of habitat modifications, which are measurable and observable methods of documenting the sources of take.

Take in the form of harm from suspended sediment/contaminated sediment is limited to that in-water work which occurs from August 16 to February 15. Construction outside of the in-water work window could increase the number of fish that would be exposed suspended sediment/contaminated sediment. PS steelhead and bocaccio will be exposed to suspended sediments and re-suspended contaminants in the sediments during rock placement and outfall construction. The suspended sediments and re-suspended contaminants will occur contemporaneously—these stressors are triggered by activity, and can be measured and monitored in the by reporting compliance with the work window.

The extent of take in the form of harm from exposure suspended sediment/contaminated sediments, and reduced prey availability can both be measured by the physical extent of the affected habitat. State water quality regulations (WAC173-201A-400) establish a mixing zone of 200 feet plus the depth of water over the discharge port(s) as measured during mean lower low water. In this area we expect temporarily high levels of sediment, and the substrate where these sediments deposit may have temporarily lower abundance of benthic prey.

As such, NMFS expects that for projects such as this with sediment disturbing activities, that elevated levels of suspended sediment and re-suspended contaminants resulting from construction actions will reach background levels within a 200-foot buffer from the point of suspended sediment generation. Listed fish and their prey resources can be harmed from a wide range of elevated sediment levels and expect that at the point where sediment levels return to background levels that the harm will cease. Thus, the maximum extent of take is defined as within the 200-foot buffer around the outer boundaries of each of the project footprint, where

construction will suspend sediments and re-suspend contaminants. The presence of visible elevated suspended sediment levels beyond 200-foot buffer would indicate exceedance of take.

The extent of incidental take identified in this section can be reasonably and reliably measured and monitored and serves as meaningful reinitiation trigger.

Effect of the Take:

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures:

“Reasonable and prudent measures” are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

1. The EPA shall minimize incidental take of listed species resulting from suspended sediment and re-suspended contaminants during construction.
2. The EPA shall submit monitoring reports to NMFS to document that the extent of take was not exceeded.

Terms and Conditions:

To be exempt from the prohibitions of section 9 of the ESA the EPA or any applicant must comply with the following terms and conditions in order to implement the RPMs above (50 CFR 402.14). The EPA or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

The following terms and conditions implement reasonable and prudent measure 1:

1. Minimize Impact Area and Duration. The applicant shall confine all construction, excavation, backfilling, and staging impacts to the minimum area and duration necessary to complete the project, and to work in as few days as possible over the available work window to ensure the least amount of overlap of work with species presence.

The following terms and conditions implement reasonable and prudent measure 2:

1. Monitoring. Turbidity monitoring shall be conducted and recorded as described below. Monitoring shall occur each day during daylight hours when in-water work is being conducted. Turbidity will be monitored periodically during in-water work and at a

distance downstream of the construction zone (mixing zone), as determined by Ecology, to document that nephelometric turbidity unit (NTU) limit complies with threshold in Table 200 (1)(e) Aquatic Life Turbidity Criteria in WAC 173-201A.

Implement the best management practices and conservation measures to ensure compliance with Washington State water quality standards by conducting water quality monitoring during construction activities. If monitoring indicates an exceedance of the turbidity limit at the edge of the mixing zone, stop work until turbidity is within acceptable limits, and resume work with additional BMPs to reduce suspension of sediment, or add a turbidity curtain at the worksite to constrain suspended sediment.

2. Reporting. The applicant shall report all monitoring items, including turbidity observations and dates of initiation and completion of in-water work to NMFS within 60 days of the close of any work window in which the proposed action was conducted. Any exceedance of take covered by this opinion must be reported to NMFS immediately. All reports must include a discussion of implementation of the terms and condition #1, Minimize Impact Area and Duration, above.
3. The applicant shall submit monitoring reports to: projectreports.wcr@noaa.gov

Conservation Recommendations:

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02). Because the action itself will improve long-term quality of habitat and ecosystem function and includes BMPs sufficient to minimize risk to listed species, no conservation recommendations are proposed.

Reinitiation of Consultation:

Reinitiation of consultation is required and shall be requested by EPA or by NMFS, where discretionary federal involvement or control over the action has been retained or is authorized by law and (1) the amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion; or if (4) a new species is listed or critical habitat designated that may be affected by the identified action.

MAGNUSON STEVENS ACT ESSENTIAL FISH HABITAT CONSULTATION

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA),

including conservation measures and any determination you made regarding the potential effects of the action. This review was conducted pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.

The proposed action and action area for this consultation are described in the Introduction to this document. The action area includes areas designated as EFH for various life-history stages of Pacific Coast salmon, coastal pelagic species, and west coast groundfish. Based on information provided by the action agency and the analysis of effects, NMFS concludes that proposed action, specifically water quality from turbidity, will have adverse effects on the EFH for the designated fishery management plans.

EFH conservation recommendations include:

1. Allow zero net increase in annual loading of stormwater pollutants into EFH (i.e. TSS, total and dissolved Cu and Zn). This can be accomplished by infiltrating or dispersing the majority of the treated stormwater such that the volume and frequency of discharges affects only a few feet of in-water habitat in the vicinity of the point of discharge. This should be demonstrated via dilution analysis utilizing flow and discharge assumptions that are conservative for listed fish.
2. Use an adaptive management plan with ecological indicators to oversee monitoring and ensure mitigation objectives are met. Take corrective action as needed.
3. The EPA shall provide native riparian vegetation around the intertidal habitat basin to provide shade to support rearing.
4. The EPA shall use restorative soils, *e.g.*, fish mix, approved by Washington State Department of Fish and Wildlife biologists.

As required by section 305(b)(4)(B) of the MSA, the EPA must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the federal agency have agreed to use alternative time frames for the federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH

portion of this consultation, you clearly identify the number of conservation recommendations accepted.

The EPA must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The biological opinion will be available through NOAA Institutional Repository <https://repository.library.noaa.gov/>. A complete record of this consultation is on file at Oregon Washington Coastal Office in Lacey, Washington.

Please direct questions regarding this letter to Lisa Abernathy, Lisa.Abernathy@NOAA.gov, 206-707-5386, in the Oregon Washington Coastal Office in Seattle, Washington.

Sincerely,

Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

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