



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
1201 NE Lloyd Boulevard, Suite 1100  
PORTLAND, OR 97232-1274

**Refer to NMFS No:**  
**WCRO-2020-03354**

June 7, 2021

Mr. William D. Abadie  
Chief, Regulatory Branch  
Department of the Army  
U.S. Army Corps of Engineers, Portland District  
P.O. Box 2946  
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Port of Chinook Boat Launch and Facilities Improvements (HUC 170800060403)

Dear Mr. Abadie:

This letter responds to your December 10, 2020, request for initiation 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 all required information on, and analysis of, your proposed action and its potential effects to listed species and designated critical habitat.

We reviewed the U.S. Army Corps of Engineers' (USACE) 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 here Biological Evaluation sections 2.3 (Project Description) and 2.4 (Construction Timing), 3.3 (Action Area), 3.4 (Baseline Conditions), 4.1 (Listed Species) and 5.1 (Potential Impact Mechanisms for Species) to be incorporated into the Proposed Action, Action Area, Environmental Baseline, Status of the Species, and Effects Analysis respectively of this biological opinion. The biological evaluation is included in the administrative record for this biological opinion and will be provided upon readers request to Tom Hausmann ([Tom.Hausmann@noaa.gov](mailto:Tom.Hausmann@noaa.gov), 360-515-1478) of the Portland Office.

We received a request for consultation and a Biological Evaluation (BE) from the USACE on December 10, 2020. We did not request any additional information and initiated consultation on December 10, 2020.

The USACE proposes to issue permits to the Port of Chinook (Port) under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. The permit authorizes the Port to remove and replace the boat launch ramp and the boarding, moorage and connecting floats for the ramp in their Baker Bay marina. The purpose of the project is to bring the boat launch into compliance with the Americans with Disabilities Act. The Port plans to begin and complete this construction project during the November 1, 2021 to February 28, 2022 in water work window. The construction project is described in detail on pages 7-13 of the BE.

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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. Section 4.1 of the BE, starting on page 18, describes the species population life stages of ESA listed salmon, steelhead, eulachon and green sturgeon that are likely to be exposed to effects of the proposed construction. We have supplemented this information with abundance, productivity, spatial structure, diversity, and limiting factors to recovery information for these species in Table 1, and critical habitat information for each species in Table 2.

**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
Lower Columbia River Chinook salmon	Threatened 6/28/05	NMFS 2013	NWFS 2015	This ESU comprises 32 independent populations. Twenty-seven populations are at very high risk, 2 populations are at high risk, one population is at moderate risk, and 2 populations are at very low risk Overall, there was little change since the last status review in the biological status of this ESU, although there are some positive trends. Increases in abundance were noted in about 70% of the fall-run populations and decreases in hatchery contribution were noted for several populations. Relative to baseline VSP levels identified in the recovery plan, there has been an overall improvement in the status of a number of fall-run populations, although most are still far from the recovery plan goals.	<ul style="list-style-type: none"> <li>• Reduced access to spawning and rearing habitat</li> <li>• Hatchery-related effects</li> <li>• Harvest-related effects on fall Chinook salmon</li> <li>• An altered flow regime and Columbia River plume</li> <li>• Reduced access to off-channel rearing habitat</li> <li>• Reduced productivity resulting from sediment and nutrient-related changes in the estuary</li> <li>• Contaminant</li> </ul>

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Upper Willamette River Chinook salmon	Threatened 6/28/05	NMFS 2011	NWFSC 2015	This ESU comprises seven populations. Five populations are at very high risk, one population is at moderate risk (Clackamas River) and one population is at low risk (McKenzie River). Consideration of data collected since the last status review in 2010 indicates the fraction of hatchery origin fish in all populations remains high (even in Clackamas and McKenzie populations). The proportion of natural origin spawners improved in the North and South Santiam basins, but is still well below identified recovery goals. Abundance levels for five of the seven populations remain well below their recovery goals. Of these, the Calapooia River may be functionally extinct and the Molalla River remains critically low. Abundances in the North and South Santiam rivers have risen since the 2010 review, but still range only in the high hundreds of fish. The Clackamas and McKenzie populations have previously been viewed as natural population strongholds, but have both experienced declines in abundance despite having access to much of their historical spawning habitat. Overall, populations appear to be at either moderate or high risk, there has been likely little net change in the VSP score for the ESU since the last review, so the ESU remains at moderate risk.	<ul style="list-style-type: none"> <li>• Degraded freshwater habitat</li> <li>• Degraded water quality</li> <li>• Increased disease incidence</li> <li>• Altered stream flows</li> <li>• Reduced access to spawning and rearing habitats</li> <li>• Altered food web due to reduced inputs of microdetritus</li> <li>• Predation by native and non-native species, including hatchery fish</li> <li>• Competition related to introduced salmon and steelhead</li> <li>• Altered population traits due to fisheries and bycatch</li> </ul>
Upper Columbia River spring-run Chinook salmon	Endangered 6/28/05	Upper Columbia Salmon Recovery Board 2007	NWFSC 2015	This ESU comprises four independent populations. Three are at high risk and one is functionally extirpated. Current estimates of natural origin spawner abundance increased relative to the levels observed in the prior review for all three extant populations, and productivities were higher for the Wenatchee and Entiat populations and unchanged for the Methow population. However, abundance and productivity remained well below the viable thresholds called for in the Upper Columbia Recovery Plan for all three populations.	<ul style="list-style-type: none"> <li>• Effects related to hydropower system in the mainstem Columbia River</li> <li>• Degraded freshwater habitat</li> <li>• Degraded estuarine and nearshore marine habitat</li> <li>• Hatchery-related effects</li> <li>• Persistence of non-native (exotic) fish species</li> <li>• Harvest in Columbia River fisheries</li> </ul>

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Snake River spring/summer-run Chinook salmon	Threatened 6/28/05	NMFS 2017a	NWFSC 2015	This ESU comprises 28 extant and four extirpated populations. All except one extant population (Chamberlin Creek) are at high risk. Natural origin abundance has increased over the levels reported in the prior review for most populations in this ESU, although the increases were not substantial enough to change viability ratings. Relatively high ocean survivals in recent years were a major factor in recent abundance patterns. While there have been improvements in abundance and productivity in several populations relative to prior reviews, those changes have not been sufficient to warrant a change in ESU status.	<ul style="list-style-type: none"> <li>• Degraded freshwater habitat</li> <li>• Effects related to the hydropower system in the mainstem Columbia River,</li> <li>• Altered flows and degraded water quality</li> <li>• Harvest-related effects</li> <li>• Predation</li> </ul>
Snake River fall-run Chinook salmon	Threatened 6/28/05	NMFS 2017b	NWFSC 2015	This ESU has one extant population. Historically, large populations of fall Chinook salmon spawned in the Snake River upstream of the Hells Canyon Dam complex. The extant population is at moderate risk for both diversity and spatial structure and abundance and productivity. The overall viability rating for this population is 'viable.' Overall, the status of Snake River fall Chinook salmon has clearly improved compared to the time of listing and compared to prior status reviews. The single extant population in the ESU is currently meeting the criteria for a rating of 'viable' developed by the ICTRT, but the ESU as a whole is not meeting the recovery goals described in the recovery plan for the species, which require the single population to be "highly viable with high certainty" and/or will require reintroduction of a viable population above the Hells Canyon Dam complex.	<ul style="list-style-type: none"> <li>• Degraded floodplain connectivity and function</li> <li>• Harvest-related effects</li> <li>• Loss of access to historical habitat above Hells Canyon and other Snake River dams</li> <li>• Impacts from mainstem Columbia River and Snake River hydropower systems</li> <li>• Hatchery-related effects</li> <li>• Degraded estuarine and nearshore habitat.</li> </ul>

<b>Species</b>	<b>Listing Classification and Date</b>	<b>Recovery Plan Reference</b>	<b>Most Recent Status Review</b>	<b>Status Summary</b>	<b>Limiting Factors</b>
Columbia River chum salmon	Threatened 6/28/05	NMFS 2013	NWFSC 2015	Overall, the status of most chum salmon populations is unchanged from the baseline VSP scores estimated in the recovery plan. A total of 3 of 17 populations are at or near their recovery viability goals, although under the recovery plan scenario these populations have very low recovery goals of 0. The remaining populations generally require a higher level of viability and most require substantial improvements to reach their viability goals. Even with the improvements observed during the last five years, the majority of populations in this ESU remain at a high or very high risk category and considerable progress remains to be made to achieve the recovery goals.	<ul style="list-style-type: none"><li>• Degraded estuarine and nearshore marine habitat</li><li>• Degraded freshwater habitat</li><li>• Degraded stream flow as a result of hydropower and water supply operations</li><li>• Reduced water quality</li><li>• Current or potential predation</li><li>• An altered flow regime and Columbia River plume</li><li>• Reduced access to off-channel rearing habitat in the lower Columbia River</li><li>• Reduced productivity resulting from sediment and nutrient-related changes in the estuary</li><li>• Juvenile fish wake strandings</li><li>• Contaminants</li></ul>

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Lower Columbia River coho salmon	Threatened 6/28/05	NMFS 2013	NWFSC 2015	<p>Of the 24 populations that make up this ESU, 21 populations are at very high risk, 1 population is at high risk, and 2 populations are at moderate risk. Recent recovery efforts may have contributed to the observed natural production, but in the absence of longer term data sets it is not possible to parse out these effects. Populations with longer term data sets exhibit stable or slightly positive abundance trends. Some trap and haul programs appear to be operating at or near replacement, although other programs still are far from that threshold and require supplementation with additional hatchery-origin spawners. Initiation of or improvement in the downstream juvenile facilities at Cowlitz Falls, Merwin, and North Fork Dam are likely to further improve the status of the associated upstream populations. While these and other recovery efforts have likely improved the status of a number of coho salmon populations, abundances are still at low levels and the majority of the populations remain at moderate or high risk. For the Lower Columbia River region land development and increasing human population pressures will likely continue to degrade habitat, especially in lowland areas. Although populations in this ESU have generally improved, especially in the 2013/14 and 2014/15 return years, recent poor ocean conditions suggest that population declines might occur in the upcoming return years</p>	<ul style="list-style-type: none"> <li>• Degraded estuarine and near-shore marine habitat</li> <li>• Fish passage barriers</li> <li>• Degraded freshwater habitat: Hatchery-related effects</li> <li>• Harvest-related effects</li> <li>• An altered flow regime and Columbia River plume</li> <li>• Reduced access to off-channel rearing habitat in the lower Columbia River</li> <li>• Reduced productivity resulting from sediment and nutrient-related changes in the estuary</li> <li>• Juvenile fish wake strandings</li> <li>• Contaminants</li> </ul>

<b>Species</b>	<b>Listing Classification and Date</b>	<b>Recovery Plan Reference</b>	<b>Most Recent Status Review</b>	<b>Status Summary</b>	<b>Limiting Factors</b>
Snake River sockeye salmon	Endangered 6/28/05	NMFS 2015	NWFSC 2015	This single population ESU is at very high risk due to small population size. There is high risk across all four basic risk measures. Although the captive brood program has been successful in providing substantial numbers of hatchery produced fish for use in supplementation efforts, substantial increases in survival rates across all life history stages must occur to re-establish sustainable natural production. In terms of natural production, the Snake River Sockeye ESU remains at extremely high risk although there has been substantial progress on the first phase of the proposed recovery approach – developing a hatchery based program to amplify and conserve the stock to facilitate reintroductions.	<ul style="list-style-type: none"><li>• Effects related to the hydropower system in the mainstem Columbia River</li><li>• Reduced water quality and elevated temperatures in the Salmon River</li><li>• Water quantity</li><li>• Predation</li></ul>



Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Lower Columbia River steelhead	Threatened 1/5/06	NMFS 2013	NWFSC 2015	<p>This DPS comprises 23 historical populations, 17 winter-run populations and six summer-run populations. Nine populations are at very high risk, 7 populations are at high risk, 6 populations are at moderate risk, and 1 population is at low risk. The majority of winter-run steelhead populations in this DPS continue to persist at low abundances. Hatchery interactions remain a concern in select basins, but the overall situation is somewhat improved compared to prior reviews. Summer-run steelhead populations were similarly stable, but at low abundance levels. The decline in the Wind River summer-run population is a source of concern, given that this population has been considered one of the healthiest of the summer-runs; however, the most recent abundance estimates suggest that the decline was a single year aberration. Passage programs in the Cowlitz and Lewis basins have the potential to provide considerable improvements in abundance and spatial structure, but have not produced self-sustaining populations to date. Even with modest improvements in the status of several winter-run DIPs, none of the populations appear to be at fully viable status, and similarly none of the MPGs meet the criteria for viability.</p>	<ul style="list-style-type: none"> <li>• Degraded estuarine and nearshore marine habitat</li> <li>• Degraded freshwater habitat</li> <li>• Reduced access to spawning and rearing habitat</li> <li>• Avian and marine mammal predation</li> <li>• Hatchery-related effects</li> <li>• An altered flow regime and Columbia River plume</li> <li>• Reduced access to off-channel rearing habitat in the lower Columbia River</li> <li>• Reduced productivity resulting from sediment and nutrient-related changes in the estuary</li> <li>• Juvenile fish wake strandings</li> <li>• Contaminants</li> </ul>

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Upper Willamette River steelhead	Threatened 1/5/06	NMFS 2011	NWFSC 2015	<p>This DPS has four demographically independent populations. Three populations are at low risk and one population is at moderate risk. Declines in abundance noted in the last status review continued through the period from 2010-2015. While rates of decline appear moderate, the DPS continues to demonstrate the overall low abundance pattern that was of concern during the last status review. The causes of these declines are not well understood, although much accessible habitat is degraded and under continued development pressure. The elimination of winter-run hatchery release in the basin reduces hatchery threats, but non-native summer steelhead hatchery releases are still a concern for species diversity and a source of competition for the DPS. While the collective risk to the persistence of the DPS has not changed significantly in recent years, continued declines and potential negative impacts from climate change may cause increased risk in the near future.</p>	<ul style="list-style-type: none"> <li>• Degraded freshwater habitat</li> <li>• Degraded water quality</li> <li>• Increased disease incidence</li> <li>• Altered stream flows</li> <li>• Reduced access to spawning and rearing habitats due to impaired passage at dams</li> <li>• Altered food web due to changes in inputs of microdetritus</li> <li>• Predation by native and non-native species, including hatchery fish and pinnipeds</li> <li>• Competition related to introduced salmon and steelhead</li> <li>• Altered population traits due to interbreeding with hatchery origin fish</li> </ul>
Middle Columbia River steelhead	Threatened 1/5/06	NMFS 2009b	NWFSC 2015	<p>This DPS comprises 17 extant populations. The DPS does not currently include steelhead that are designated as part of an experimental population above the Pelton Round Butte Hydroelectric Project. Returns to the Yakima River basin and to the Umatilla and Walla Walla Rivers have been higher over the most recent brood cycle, while natural origin returns to the John Day River have decreased. There have been improvements in the viability ratings for some of the component populations, but the DPS is not currently meeting the viability criteria in the MCR steelhead recovery plan. In general, the majority of population level viability ratings remained unchanged from prior reviews for each major population group within the DPS.</p>	<ul style="list-style-type: none"> <li>• Degraded freshwater habitat</li> <li>• Mainstem Columbia River hydropower-related impacts</li> <li>• Degraded estuarine and nearshore marine habitat</li> <li>• Hatchery-related effects</li> <li>• Harvest-related effects</li> <li>• Effects of predation, competition, and disease</li> </ul>

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Upper Columbia River steelhead	Threatened 1/5/06	Upper Columbia Salmon Recovery Board 2007	NWFSC 2015	<p>This DPS comprises four independent populations. Three populations are at high risk of extinction while 1 population is at moderate risk. Upper Columbia River steelhead populations have increased relative to the low levels observed in the 1990s, but natural origin abundance and productivity remain well below viability thresholds for three out of the four populations. The status of the Wenatchee River steelhead population continued to improve based on the additional year's information available for the most recent review. The abundance and productivity viability rating for the Wenatchee River exceeds the minimum threshold for 5% extinction risk. However, the overall DPS status remains unchanged from the prior review, remaining at high risk driven by low abundance and productivity relative to viability objectives and diversity concerns.</p>	<ul style="list-style-type: none"> <li>• Adverse effects related to the mainstem Columbia River hydropower system</li> <li>• Impaired tributary fish passage</li> <li>• Degraded floodplain connectivity and function, channel structure and complexity, riparian areas, large woody debris recruitment, stream flow, and water quality</li> <li>• Hatchery-related effects</li> <li>• Predation and competition</li> <li>• Harvest-related effects</li> </ul>
Snake River basin steelhead	Threatened 1/5/06	NMFS 2017a	NWFSC 2015	<p>This DPS comprises 24 populations. Two populations are at high risk, 15 populations are rated as maintained, 3 populations are rated between high risk and maintained, 2 populations are at moderate risk, 1 population is viable, and 1 population is highly viable. Four out of the five MPGs are not meeting the specific objectives in the draft recovery plan based on the updated status information available for this review, and the status of many individual populations remains uncertain. A great deal of uncertainty still remains regarding the relative proportion of hatchery fish in natural spawning areas near major hatchery release sites within individual populations.</p>	<ul style="list-style-type: none"> <li>• Adverse effects related to the mainstem Columbia River hydropower system</li> <li>• Impaired tributary fish passage</li> <li>• Degraded freshwater habitat</li> <li>• Increased water temperature</li> <li>• Harvest-related effects, particularly for B-run steelhead</li> <li>• Predation</li> <li>• Genetic diversity effects from out-of-population hatchery releases</li> </ul>

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Southern DPS of green sturgeon	Threatened 4/7/06	NMFS 2018	NMFS 2015c	The Sacramento River contains the only known green sturgeon spawning population in this DPS. The current estimate of spawning adult abundance is between 824-1,872 individuals. Telemetry data and genetic analyses suggest that Southern DPS green sturgeon generally occur from Graves Harbor, Alaska to Monterey Bay, California and, within this range, most frequently occur in coastal waters of Washington, Oregon, and Vancouver Island and near San Francisco and Monterey bays. Within the nearshore marine environment, tagging and fisheries data indicate that Northern and Southern DPS green sturgeon prefer marine waters of less than a depth of 110 meters.	<ul style="list-style-type: none"> <li>• Reduction of its spawning area to a single known population</li> <li>• Lack of water quantity</li> <li>• Poor water quality</li> <li>• Poaching</li> </ul>
Southern DPS of eulachon	Threatened 3/18/10	NMFS 2017c	Gustafson et al. 2016	The Southern DPS of eulachon includes all naturally-spawned populations that occur in rivers south of the Nass River in British Columbia to the Mad River in California. Sub populations for this species include the Fraser River, Columbia River, British Columbia and the Klamath River. In the early 1990s, there was an abrupt decline in the abundance of eulachon returning to the Columbia River. Despite a brief period of improved returns in 2001-2003, the returns and associated commercial landings eventually declined to the low levels observed in the mid-1990s. Although eulachon abundance in monitored rivers has generally improved, especially in the 2013-2015 return years, recent poor ocean conditions and the likelihood that these conditions will persist into the near future suggest that population declines may be widespread in the upcoming return years	<ul style="list-style-type: none"> <li>• Changes in ocean conditions due to climate change, particularly in the southern portion of the species' range where ocean warming trends may be the most pronounced and may alter prey, spawning, and rearing success.</li> <li>• Climate-induced change to freshwater habitats</li> <li>• Bycatch of eulachon in commercial fisheries</li> <li>• Adverse effects related to dams and water diversions</li> <li>• Water quality,</li> <li>• Shoreline construction</li> <li>• Over harvest</li> <li>• Predation</li> </ul>

**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
Lower Columbia River Chinook salmon	9/02/05 70 FR 52630	Critical habitat encompasses 10 subbasins in Oregon and Washington containing 47 occupied watersheds, as well as the lower Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some, or high potential for improvement. We rated conservation value of HUC5 watersheds as high for 30 watersheds, medium for 13 watersheds, and low for four watersheds.
Upper Willamette River Chinook salmon	9/02/05 70 FR 52630	Critical habitat encompasses 10 subbasins in Oregon containing 56 occupied watersheds, as well as the lower Willamette/Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition. However, most of these watersheds have some, or high, potential for improvement. Watersheds are in good to excellent condition with no potential for improvement only in the upper McKenzie River and its tributaries (NMFS 2005). We rated conservation value of HUC5 watersheds as high for 22 watersheds, medium for 16 watersheds, and low for 18 watersheds.
Upper Columbia River spring-run Chinook salmon	9/02/05 70 FR 52630	Critical habitat encompasses four subbasins in Washington containing 15 occupied watersheds, as well as the Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition. However, most of these watersheds have some, or high, potential for improvement. We rated conservation value of HUC5 watersheds as high for 10 watersheds, and medium for five watersheds. Migratory habitat quality in this area has been severely affected by the development and operation of the dams and reservoirs of the Federal Columbia River Power System.
Snake River spring/summer-run Chinook salmon	10/25/99 64 FR 57399	Critical habitat consists of river reaches of the Columbia, Snake, and Salmon rivers, and all tributaries of the Snake and Salmon rivers (except the Clearwater River) presently or historically accessible to this ESU (except reaches above impassable natural falls and Hells Canyon Dam). Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (Wissmar et al. 1994). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems. Migratory habitat quality in this area has been severely affected by the development and operation of the dams and reservoirs of the Federal Columbia River Power System.
Snake River fall-run Chinook salmon	10/25/99 64 FR 57399	Critical habitat consists of river reaches of the Columbia, Snake, and Salmon rivers, and all tributaries of the Snake and Salmon rivers presently or historically accessible to this ESU (except reaches above impassable natural falls, and Dworshak and Hells Canyon dams). Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (Wissmar et al. 1994). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems. Migratory habitat quality in this area has been severely affected by the development and operation of the dams and reservoirs of the Federal Columbia River Power System.
Columbia River chum salmon	9/02/05 70 FR 52630	Critical habitat encompasses six subbasins in Oregon and Washington containing 19 occupied watersheds, as well as the lower Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. We rated conservation value of HUC5 watersheds as high for 16 watersheds, and medium for three watersheds.

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
Lower Columbia River coho salmon	2/24/16 81 FR 9252	Critical habitat encompasses 10 subbasins in Oregon and Washington containing 55 occupied watersheds, as well as the lower Columbia River and estuary rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. We rated conservation value of HUC5 watersheds as high for 34 watersheds, medium for 18 watersheds, and low for three watersheds.
Snake River sockeye salmon	10/25/99 64 FR 57399	Critical habitat consists of river reaches of the Columbia, Snake, and Salmon rivers; Alturas Lake Creek; Valley Creek; and Stanley, Redfish, Yellow Belly, Pettit and Alturas lakes (including their inlet and outlet creeks). Water quality in all five lakes generally is adequate for juvenile sockeye salmon, although zooplankton numbers vary considerably. Some reaches of the Salmon River and tributaries exhibit temporary elevated water temperatures and sediment loads that could restrict sockeye salmon production and survival (NMFS 2015b). Migratory habitat quality in this area has been severely affected by the development and operation of the dams and reservoirs of the Federal Columbia River Power System.
Lower Columbia River steelhead	9/02/05 70 FR 52630	Critical habitat encompasses nine subbasins in Oregon and Washington containing 41 occupied watersheds, as well as the lower Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. We rated conservation value of HUC5 watersheds as high for 28 watersheds, medium for 11 watersheds, and low for two watersheds.
Upper Willamette River steelhead	9/02/05 70 FR 52630	Critical habitat encompasses seven subbasins in Oregon containing 34 occupied watersheds, as well as the lower Willamette/Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. Watersheds are in good to excellent condition with no potential for improvement only in the upper McKenzie River and its tributaries (NMFS 2005). We rated conservation value of HUC5 watersheds as high for 25 watersheds, medium for 6 watersheds, and low for 3 watersheds.
Middle Columbia River steelhead	9/02/05 70 FR 52630	Critical habitat encompasses 15 subbasins in Oregon and Washington containing 111 occupied watersheds, as well as the Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. We rated conservation value of occupied HUC5 watersheds as high for 80 watersheds, medium for 24 watersheds, and low for 9 watersheds.
Upper Columbia River steelhead	9/02/05 70 FR 52630	Critical habitat encompasses 10 subbasins in Washington containing 31 occupied watersheds, as well as the Columbia River rearing/migration corridor. Most HUC5 watersheds with PCEs for salmon are in fair-to-poor or fair-to-good condition (NMFS 2005). However, most of these watersheds have some or a high potential for improvement. We rated conservation value of HUC5 watersheds as high for 20 watersheds, medium for eight watersheds, and low for three watersheds.
Snake River basin steelhead	9/02/05 70 FR 52630	Critical habitat encompasses 25 subbasins in Oregon, Washington, and Idaho. Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (Wissmar et al. 1994). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems. Migratory habitat quality in this area has been severely affected by the development and operation of the dams and reservoirs of the Federal Columbia River Power System.
Southern DPS of green sturgeon	10/09/09 74 FR 52300	Critical habitat has been designated in coastal U.S. marine waters within 60 fathoms depth from Monterey Bay, California (including Monterey Bay), north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to its United States boundary; the Sacramento River, lower Feather River, and lower Yuba River in

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
Southern DPS of eulachon	10/20/11 76 FR 65324	<p>California; the Sacramento-San Joaquin Delta and Suisun, San Pablo, and San Francisco bays in California; tidally influenced areas of the Columbia River estuary from the mouth upstream to river mile 46; and certain coastal bays and estuaries in California (Humboldt Bay), Oregon (Coos Bay, Winchester Bay, Yaquina Bay, and Nehalem Bay), and Washington (Willapa Bay and Grays Harbor), including, but not limited to, areas upstream to the head of tide in various streams that drain into the bays, as listed in Table 1 in USDC (2009). The CHRT identified several activities that threaten the PBFs in coastal bays and estuaries and necessitate the need for special management considerations or protection. The application of pesticides is likely to adversely affect prey resources and water quality within the bays and estuaries, as well as the growth and reproductive health of Southern DPS green sturgeon through bioaccumulation. Other activities of concern include those that disturb bottom substrates, adversely affect prey resources, or degrade water quality through re-suspension of contaminated sediments. Of particular concern are activities that affect prey resources. Prey resources are affected by: commercial shipping and activities generating point source pollution and non-point source pollution that discharge contaminants and result in bioaccumulation of contaminants in green sturgeon; disposal of dredged materials that bury prey resources; and bottom trawl fisheries that disturb the bottom (but result in beneficial or adverse effects on prey resources for green sturgeon).</p> <p>Critical habitat for eulachon includes portions of 16 rivers and streams in California, Oregon, and Washington. All of these areas are designated as migration and spawning habitat for this species. In Oregon, we designated 24.2 miles of the lower Umpqua River, 12.4 miles of the lower Sandy River, and 0.2 miles of Tenmile Creek. We also designated the mainstem Columbia River from the mouth to the base of Bonneville Dam, a distance of 143.2 miles. Dams and water diversions are moderate threats to eulachon in the Columbia and Klamath rivers where hydropower generation and flood control are major activities. Degraded water quality is common in some areas occupied by southern DPS eulachon. In the Columbia and Klamath river basins, large-scale impoundment of water has increased winter water temperatures, potentially altering the water temperature during eulachon spawning periods. Numerous chemical contaminants are also present in spawning rivers, but the exact effect these compounds have on spawning and egg development is unknown. Dredging is a low to moderate threat to eulachon in the Columbia River. Dredging during eulachon spawning would be particularly detrimental.</p>

“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). Section 3.3 on pages 15 and 16 of the BE describes the project action area. This section also explains that the basis of the boundary of action area is the spatial extent of pile driving noise as estimated by the Practical Spreading Loss model.

The “environmental baseline” refers to the condition of the listed species 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).

We refer to page 1-6 of (NMFS, 2013) to describe the long-term history of Baker Bay. In particular, jetties and dredging have reduced high energy mixing from currents and ocean waves that increases nutrient availability to salmonid food webs and floodplain dikes have reduced the tidal marsh habitat that supplies macro detritus to these food webs. We refer to BE sections 3.4.2, 3.4.3 and 3.4.4 on page 16 that provide a brief overview of the current types of habitat in the action area. We refer to BE section 4.1.1.7 (page 20), BE sections 4.1.2 through 4.1.4 (pages 20-22), and BE section 4.1.5.7 (page 24) that describe the importance of action area physical and biological features (PBF) to Chinook salmon, coho salmon, chum salmon, sockeye salmon and steelhead respectively. We refer to BE section 4.1.7 (page 24) to describe the importance of action area PBFs to eulachon and to BE section 4.1.8 (page 25) to describe the importance of action area PBFs to green sturgeon. Included in the baseline are the effects of previous actions that have been reviewed by NMFS under section 7 of the ESA. Biological Opinion WCR 2016-5516 (NMFS, 2016) is the most recent Federal action for this action area. It analyzed the effects of annual maintenance dredging of the marina from 2017 to 2027. The Environmental Baseline section on pages 26 and 27 of this biological opinion further describes the importance of salmonid, eulachon and green sturgeon PBFs in the action area to the overall conservation value of their critical habitat up until 2016. In particular, juvenile salmonids may spend hours to days foraging in the shallow water, larval eulachon will drift through and forage in Baker Bay once their yolk sac is depleted and sub-adult green sturgeon will use Baker Bay for seasonal foraging. We note that in 2020 the USACE conducted a sediment suitability analysis for the Chinook Channel Federal Navigation Project in anticipation of a future dredge project for the channel from the marina to the Columbia River. This dredge project would overlap a small part of the action area for this boat launch replacement proposed 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).

In this action area the in water work window overlaps the migration timing of all adult late fall and spring Chinook salmon, chum salmon, and coho salmon populations, all adult steelhead populations, and adult eulachon. It also overlaps the margin of sub adult and adult green sturgeon presence in the LCR estuary. The in water work window overlaps the downstream migration timing of all juvenile fall, late fall, spring and summer Chinook salmon, chum salmon, and coho salmon populations. The in water work window overlaps the margin of steelhead smolt and eulachon larvae downstream migration through the estuary.

The BE provides a detailed discussion and comprehensive assessment of the direct effects of the proposed action in Section 5.1. We refer to the analysis of the effects of impact pile driving on all salmonids on pages 27-30, on eulachon on page 30 and on green sturgeon on page 31 noting in particular that the in water work window minimizes the exposure of salmonid smolts and green sturgeon to injurious sound pressure waves and that the marina is surrounded on three sides by a breakwater that blocks injurious sound pressure waves from reaching Baker Bay except at the entrance. We refer to the analysis of the effect of vibratory pile installation and extraction noise on all salmonids, eulachon and green sturgeon on page 31 noting in particular that the in water work window minimizes the exposure of salmonid smolts and green sturgeon to behavior altering noise and that the marina is surrounded by a breakwater that blocks behavior altering noise from reaching Baker Bay except at the entrance. We refer to the analysis of the effect of vibratory pile driver installation and extraction suspended sediment and excavation suspended sediment on salmonids on pages 31 and 32, on eulachon on pages 32 and 33 and on green sturgeon on page 32 noting in particular that the in water work window minimizes exposure of salmonid smolts to sublethal physiological effects or behavioral effects of suspended sediment and that the marina is surrounded by a breakwater that blocks suspended sediment from reaching Baker Bay. The BE also provides a detailed discussion and comprehensive assessment of the effect of the proposed action on salmonid, eulachon and green sturgeon critical habitat in Section 5.2. We refer to the analysis of the effects of piles and overwater structures on estuarine area PBFs (obstruction, predation, water quality, natural cover and forage) on pages 33 and 34 noting in particular the short duration of construction effects and the replacement of the solid dock deck with a grated deck. NMFS has evaluated these sections and after our independent, science-based evaluation determined that they meets our regulatory and scientific standards (50 CFR 402.14(h)(3)).

“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. We find no indication that the Port of Chinook will not continue to use, maintain and update this marina into the foreseeable future. We searched for and did not find any State or private actions proposed for this action area. Water quality within the action area is likely to be affected over time by storm water runoff from upland areas, and upstream activities, as well as an array of effects associated with climate change.

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.

As indicated in Table 1 most of the species and their component populations are at a low level of persistence, or in other words, at a risk of extinction. The BE at section 4 makes it clear that individuals from all of the Table 1 species populations are likely to migrate near the action area. Most of these are unlikely to enter the action area, but a few species are likely to enter the action area at some point during their life history. Biological Opinion WCR 2016-5516 makes it clear that fish from component populations that do enter the action area encounter habitat conditions that have been degraded by the presence of overwater structures, maintenance dredging, altered flow, reduced water quality and the loss of vegetated riparian areas. The BE at section 5 makes it clear that the proposed action will create a 10 to 14 week disturbance in the action area where fish that enter the action area will be exposed to behavior modifying effects, and the response of some individual could include injurious or lethal effects. Individual fish that enter the action area after construction is complete, and for the life of the structures, will encounter limited rearing conditions because structures displace shallow water areas with concrete, permanently remove benthic prey in that location, and boat use can impair water quality, aquatic vegetation, and prey recruitment.

The last element in the integration of effects includes a consideration of the cumulative effects anticipated in the action area. Recovery of the action area from the baseline condition is unlikely and the marinas negative impact on habitat conditions is likely to continue to cause slight negative pressure on population abundance trends into the future. However, even when we consider the current status of the threatened and endangered fish populations and degraded environmental baseline within the action area, and the cumulative effects, the proposed action's effect on abundance is expected to be very low, and dispersed across various populations, such that distribution, diversity, or productivity of any of the component populations of the ESA-listed species are not discernibly altered. Because the proposed action will not reduce the productivity, spatial structure, or diversity the affected populations, the action, when combined with a degraded environmental baseline and continual pressure from cumulative effects, will not appreciably reduce the likelihood of survival or recovery any of the listed species considered in this opinion.

With regards to critical habitat, because the proposed action is a replacement of existing structures, the reductions on PBFs are primarily temporary, and is not expected to expand the amount of use, thus is not likely to aggravate limiting factors in the action area.

In the context of the status of designated critical habitat and the specific baseline conditions of PBFs in the action area, the proposed action will not add obstruction to the passage of migrating fish, reduce cover, remove riparian vegetation, alter flows, destabilize the channel or change its

characteristics, alter water temperature, or substantially reduce available forage. However, the proposed action will temporarily effect water quality PBFs within the action area. When considering the cumulative effects of non-federal actions, recovery of aquatic habitat is unlikely in the action area and the action area is likely to have a slightly negative trend in the quality of critical habitat PBFs over time. Given that the proposed action will have low-level but largely temporary effects on the PBFs for rearing for salmonids, green sturgeon and eulachon, even when considered as an addition to the baseline conditions, the proposed action is not likely to appreciably diminish the value of designated critical habitat for the conservation of subject species of this consultation. In summary, ESA listed salmon, steelhead, green sturgeon and eulachon, occupying the action area will be exposed to effects from the proposed action but NMFS analysis did not identify effects with intensities or durations that would result in a reduction of the value of the designated critical habitat for migration or rearing, or reductions in productivity, diversity, or spatial structure of exposed populations, thus the survival and recovery of ESA listed species are also not reduced.

## **Conclusion**

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 LCR Chinook salmon, UWR Chinook salmon, UCR spring-run Chinook salmon, SR spring-summer run Chinook salmon, SR fall run Chinook salmon, CR chum salmon, LCR coho salmon, SR sockeye salmon, LCR steelhead, UWR steelhead, MCR steelhead, UCR steelhead, SR basin steelhead, Southern DPS of green sturgeon, or Southern DPS of eulachon or destroy or adversely modify their designated critical habitat.

## **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:

The proposed boat launch and float replacements and pile driving will take place when juvenile and/or adult individuals of LCR Chinook salmon, UWR Chinook salmon, UCR spring-run Chinook salmon, SR spring-summer run Chinook salmon, SR fall run Chinook salmon, CR chum salmon, LCR coho salmon, SR sockeye salmon, LCR steelhead, UWR steelhead, MCR steelhead, UCR steelhead, SR basin steelhead, Southern DPS of green sturgeon, or Southern DPS of eulachon may enter the action area.

Incidental take caused by the adverse effects of the proposed action will occur among individuals of the species identified above in the form of harm (altered habitat that results in injury or death) and from exposure to impact pile driver noise and sound pressure waves and suspended sediment. A definitive number of ESA listed fish that will be harmed cannot be estimated or measured because of the highly variable presence of species over time, and the inability to observe injured or dead specimens. Instead, NMFS will use habitat-based surrogates that are causally related to harm to account for the take, which is called an “extent” of take.

For this proposed action, the extent of take from impact pile driving is related to the up to 800 impact blows needed to install the 16 piles. The extent of take from suspended sediment from pile removal and excavation is related to the up to 150 foot radius from the suspended sediment source to the point where the suspended sediment concentration returns to background. These are measurable and verifiable metrics by which the action agency or other observers can determine if the extent of take has been exceeded. The marina and the action agency have included multiple best practices to minimize environmental perturbations that could cause harm. Therefore we have no measures to further reduce take, other than monitoring.

### **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).

Monitor incidental take from pile driving and suspended sediment

### **Terms and Conditions**

The terms and conditions described below are non-discretionary, and the USACE or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The USACE 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.

Prepare and provide NMFS with a plan before construction begins describing how impacts of the incidental take on listed species in the action area would be monitored and documented and a report within 90 days of the completion of construction documenting incidental take monitoring results.

### **Reinitiation of Consultation**

Reinitiation of consultation is required and shall be requested by [name of action agency] 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.

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.

### **MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT**

The project elements that could potentially impact groundfish, pelagic, and salmon species' EFH are demolition and construction (including excavation) of the concrete boat launch ramp, pile removal and installation, float replacement/reconfiguration, and general construction activities.

1. Demolition, excavation, and construction of the concrete boat ramp may cause localized, temporary increases in turbidity and TSS at the Action Area.
2. Pile removal and pile driving could result in temporary increases in turbidity.
3. Impact driving/proofing may result in elevated sound levels for not more than 30 total minutes per day (in approximately five-minute intermittent intervals) for approximately 4 days for the Project. Potentially injurious sound pressure levels in water would be limited to areas within 18 meters.
4. There is potential for an unintentional release of fuel, lubricants, or hydraulic fluid from equipment that could lead to adverse impacts to the water column EFH if allowed to enter waters of the US (Baker Bay/Columbia River).

### **Conservation Recommendations**

1. All work in aquatic areas will be completed during the November 1 to February 28 in-water work period per the USACE guidance.

2. Short-term impacts to water quality during construction (boat ramp demolition and construction and associated excavation, pile removal) will be minimized through adherence to BMPs (see BE Section 6 for a complete list).
3. The contractor will comply with applicable State water quality standards (WAC 173-201A) and implement corrective measures if temporary water quality standards are exceeded.
4. The contractor will comply with the substantive requirements of the Hydraulic Code.
5. Excess or waste materials and debris will be disposed of at an appropriate upland facility and will not be allowed to enter the Columbia River.
6. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into the Columbia River. Proper security shall also be maintained to prevent vandalism.
7. Corrective actions will be taken in the event of any discharge of oil, fuel, or chemicals into the Columbia River. Corrective actions will include: In the event of a spill, containment and cleanup efforts will begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup will include proper disposal of any spilled material and used cleanup material. The cause of the spill shall be assessed and appropriate action will be taken to prevent further incidents or environmental damage.
8. The contractor will have a spill containment kit, including oil-absorbent materials, on site to be used in the event of a spill or if any oil product is observed in the water.
9. Piles will be installed to the extent possible with a vibratory hammer. Impact driving/proofing may only occur if driving conditions preclude the use of a vibratory hammer for float support pile and will be limited to the final five feet of embedment for pile.

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/welcome>]. A complete record of this consultation is on file at Lacey, Washington.

Please direct questions regarding this letter to Tom Hausmann, [Tom.Hausmann@noaa.gov](mailto:Tom.Hausmann@noaa.gov), 360-515-1478, Portland, Oregon.

Sincerely,



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

cc: Brad Johnson, USACE

## REFERENCES

NMFS (2013). ESA recovery plan for Lower Columbia River coho salmon, Lower Columbia River Chinook salmon, Columbia River chum salmon and Lower Columbia River steelhead. (Seattle, WA: National Marine Fisheries Service, Northwest Region).

NMFS (2016). Endangered Species Act Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Port of Chinook Maintenance Dredging, (6th field HUC 170800060500 Baker Bay-Frontal Columbia River), Pacific County, Washington (COE No.: NWP-2008-472-1)

bcc: T. Hausmann, S. Hecht, F. Johnson

PDF copies sent to:

Brad.A.Johnson2@usace.army.mil

william.d.abadie@usace.army.mil