



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-2021-02363

March 16, 2022

Kenna West
City Administrator
411 NE C Street
Willamina, Oregon 97396

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the City of Willamina's Water Systems Improvement Project, Willamina, Oregon (HUC# 1709000807 South Yamhill River)

Dear Ms. West:

This letter responds to your September 22, 2021, 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 consultation request and related initiation package materials submitted by the City of Willamina (City), acting for the U.S. Department of Housing and Urban Development (HUD), per 24 Code of Federal Regulations (CRF) Part 58. 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 the following sections of the *Willamina Water System Improvement Project Biological Assessment* (BA, Project; Shannon & Wilson 2021):

- Section 1 *Introduction* (of the BA) including the project background and species and critical habitat
- Section 2 *Project Description* including the proposed action, project area, project elements and sequencing, mitigation and monitoring, and action area
- Section 3 *Environmental Baseline*
- Section 4 *Natural History and Species Occurrence* including the range-wide status of the species and critical habitat
- Section 5 *Analysis of Effects of the Action* including direct, indirect, and cumulative effects
- Section 6 *Finding of Effect*
- Section 7 *Essential Fish Habitat (EFH) Consultation* for the Magnuson-Stevens Fisheries Conservation and Management Act essential fish habitat response section of this Opinion.

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Pre-consultation discussions were held between the applicant's consultant – Shannon Williams, PE, of Keller & Associates – and NMFS, beginning in October 2020. A multi-agency project meeting was held on January 20, 2021, including the City of Willamina who is acting as the Responsible Entity (RE) on behalf of HUD. This meeting formally presented the scope and scale of the project in detail. Additional meetings were held in February and June of 2021 to discuss stormwater requirements and fish screening criteria, respectively. The request for formal consultation and initiation package was received by NMFS on September 22, 2021.

The City's use of Community Development Block Grant (CDBG) funds from HUD constitutes the federal nexus for Project activities. The Project is located in the City of Willamina, with portions of the project occurring in both Polk and Yamhill Counties, Oregon. The City is proposing to replace the existing Willamina Creek raw water intake and fish screen; replace approximately 4,080 linear feet (LF) of existing raw water pipeline within existing public right-of-way and utility easements; replace approximately 3,450 LF of distribution main to improve pressure to the Willamina school complex; and make electrical and instrumentation improvements to the 6th Street booster station. The project will also add emergency generators to the intake pump station and the 6th Street booster station to provide additional resiliency. Stormwater management facilities will be constructed to provide water quality and flow control (Shannon & Wilson 2021).

The new water intake structure will be concrete with a fixed stainless steel wedge wire screen on the face and an active backwash system on the screen back side consistent with the Oregon Department of Fish and Wildlife (ODFW) and NOAA Fisheries design standards. A gravel access road and access staircase will be installed to enable City staff to maintain the intake. Construction of the new intake structure and removal of the existing intake aboveground structure will occur below the Ordinary High-Water Mark (OHWM). Project construction would begin in spring 2022, with the in-stream work occurring during the regulated in-water work window (IWWW) of July 15 to September 30 (ODFW 2008). Project completion is expected in 2023. A complete description of proposed activities, project sequencing, and the 60% design engineering sheets, which can be found in Section 2.1 (Proposed Action), Section 2.3 (Project Elements and Sequencing), and Appendix B (30% Design Plans) of the BA, respectively (Keller & Associates 2021).

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 (PBF) essential to the conservation of the species that create the conservation value of that habitat. Section 1.3 (Species and Critical Habitat) of the BA identifies the listed species and designated critical habitat in a table; whereas, Sections 4.1.4 through 4.1.7 provides specific status information on those listed species and designated critical habitats occurring in the Project's action area (Shannon & Wilson 2021). Based on our own analysis and data, (NMFS and ODFW 2011; NMFS 2011d; and NMFS 2016a) NMFS concurs with the listed species and critical habitats which may be adversely affected as a result of project construction, including:

Table 1. Species included for ESA coverage in the BA.

ESA-Listed Species	Status
Upper Willamette River Chinook salmon ^{1,2} (<i>O. tshawytscha</i>)	Threatened 6/28/05 CH 09/02/05
Upper Willamette River steelhead ^{6,2} (<i>O. mykiss</i>)	Threatened 1/5/06 CH 09/02/05

¹ 70 FR 37160; ² 70 FR 25630; ⁶ 71 FR 834

However, because the project includes stormwater generation and treatment elements, and due to the persistent nature and downstream transport of a number of stormwater pollutants once in the aquatic environment, based on NMFS analysis and data (IC-TRT 2011; NMFS 2009; NMFS 2011a; NMFS 2011b; NMFS 2011c; NMFS 2011d; NMFS 2013; NMFS 2014a; NMFS 2015a; NMFS 2015b; NMFS 2016b; NMFS 2017a; NMFS 2017b; NMFS 2017c; NMFS 2018; USDC 2009; USDC 2011; and UCSRB 2007) the following additional species and critical habitats are likely to be adversely affected by incremental degradation of water quality from stormwater:

Table 2. Listing status, status of additional species affected by the proposed action, their critical habitat designations and protective regulations, and relevant Federal Register (FR) decision notices for ESA-listed species considered in this opinion. Listing status: ‘T’ means listed as threatened; ‘E’ means listed as endangered; ‘P’ means proposed for listing or designation.

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)			
Lower Columbia River	T 6/28/05; 70 FR 37160	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160
Upper Columbia River spring-run	E 6/28/05; 70 FR 37160	9/02/05; 70 FR 52630	ESA section 9 applies
Snake River spring/summer-run	T 6/28/05; 70 FR 37160	10/25/99; 64 FR 57399	6/28/05; 70 FR 37160
Snake River fall-run	T 6/28/05; 70 FR 37160	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Chum salmon (<i>O. keta</i>)			
Columbia River	T 6/28/05; 70 FR 37160	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160
Coho salmon (<i>O. kisutch</i>)			
Lower Columbia River	T 6/28/05; 70 FR 37160	2/24/16; 81 FR 9252	6/28/05; 70 FR 37160
Sockeye salmon (<i>O. nerka</i>)			
Snake River	E 8/15/11; 70 FR 37160	12/28/93; 58 FR 68543	ESA section 9 applies
Steelhead (<i>O. mykiss</i>)			
Lower Columbia River	T 1/5/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160
Middle Columbia River	T 1/5/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160
Upper Columbia River	T 1/5/06; 71 FR 834	9/02/05; 70 FR 52630	2/1/06; 71 FR 5178
Snake River Basin	T 1/5/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160
Green sturgeon (<i>Acipenser medirostris</i>)			
Southern DPS	T 4/07/06; 71 FR 17757	10/09/09; 74 FR 52300	6/2/10; 75 FR 30714
Eulachon (<i>Thaleichthys pacificus</i>)			
Southern DPS	T 3/18/10; 75 FR 13012	10/20/11; 76 FR 65324	Not applicable

Status of the Species: Table 3, below, provides a summary of listing and recovery plan information, status summaries and limiting factors for the species addressed in this opinion. More information can be found in recovery plans and status reviews for these species. Acronyms appearing in the table include DPS (Distinct Population Segment), ESU (Evolutionarily Significant Unit), ICTRT (Interior Columbia Technical Recovery Team), MPG (Multiple Population Grouping), NWFSC (Northwest Fisheries Science Center), TRT (Technical Recovery Team), and VSP (Viable Salmonid Population).

Table 3. Status of additional species and critical habitat affected by the proposed action.

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
Lower Columbia River Chinook salmon	Threatened 6/28/05	NMFS 2013a	NWFSC 2022	This ESU comprises 32 independent populations seven are at or near the recovery viability goals. Ten independent populations either had no abundance information (presumed near zero) or exist at very low abundances. 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. Many of the populations in this ESU remain at “high risk,” with low natural-origin abundance levels. Hatchery contributions remain high for a number of populations, and it is likely that many returning unmarked adults are the progeny of hatchery-origin parents, especially where large hatchery programs operate. Increases in abundance were noted in about half of the fall-run populations, and in 75% of the spring-run populations for which data were available. Overall, the viability of the ESU has increased somewhat since the last status review, although the ESU remains at “moderate” risk of extinction (NWFSC 2022).	<ul style="list-style-type: none"> • Reduced access to spawning and rearing habitat • Hatchery-related effects • Harvest-related effects on fall Chinook salmon • An altered flow regime and Columbia River plume • Reduced access to off-channel rearing habitat • Reduced productivity resulting from sediment and nutrient-related changes in the estuary • Contaminant
Upper Columbia River spring-run Chinook salmon	Endangered 6/28/05	Upper Columbia Salmon Recovery Board 2007	NWFSC 2022	This ESU comprises four independent populations. Three are at high risk and one is functionally extirpated. Abundance and productivity remained well below the viable thresholds called for in the Upper Columbia Recovery Plan for all three populations. Based on the information available for the most recent viability assessment review (NWFSC 2022), the Upper Columbia River spring-run Chinook salmon ESU remains at high risk, with viability largely unchanged from the 2015 status review (NWFSC 2022).	<ul style="list-style-type: none"> • Effects related to hydropower system in the mainstem Columbia River • Degraded freshwater habitat • Degraded estuarine and nearshore marine habitat • Hatchery-related effects • Persistence of non-native (exotic) fish species • Harvest in Columbia River fisheries
Snake River spring/summer-run Chinook salmon	Threatened 6/28/05	NMFS 2017a	NWFSC 2022	This ESU comprises 28 extant and four extirpated populations. All except three populations are at high risk. The most recent five-year geometric mean abundance estimates for 26 of the 27 populations are lower than the corresponding estimates for the previous five-year period by varying degrees. The most recent ESU abundance data show consistent and marked pattern of declining population size, with the recent five-year abundance levels for the 27 populations declining by an average of 55%. The consistent and sharp declines for all populations in the ESU are concerning, as the abundances for some populations are approaching similar levels to those of the early 1990s when the ESU was listed. The Snake River spring/summer-run Chinook salmon ESU continues to be at moderate-to-high risk (NWFSC 2022).	<ul style="list-style-type: none"> • Degraded freshwater habitat • Effects related to the hydropower system in the mainstem Columbia River, • Altered flows and degraded water quality • Harvest-related effects • Predation

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
Upper Willamette River Chinook salmon	Threatened 6/28/05	ODFW and NMFS 2011	NMFS 2016a/ NWFSC 2022	This ESU comprises seven populations. Abundance levels for all but one of the seven DIPs in this ESU remain well below their recovery goals. The Clackamas River DIP currently exceeds its abundance recovery goal, while the Calapooia River population may be functionally extinct, and the Molalla River population remains critically low (there is considerable uncertainty in the level of natural production in the Molalla River). Abundances in the North and South Santiam Rivers have declined since the last review, with natural-origin abundances in the low hundreds of fish. The Middle Fork Willamette River is at a very low abundance, even with the inclusion of natural-origin spring-run Chinook salmon spawning in Fall Creek. Overall, there has likely been a declining trend in the viability of the ESU since the last review (NWFSC 2015). The Upper Willamette River Chinook salmon ESU remains at “moderate” risk of extinction (NWFSC 2022).	<ul style="list-style-type: none"> • Degraded freshwater habitat • Degraded water quality • Increased disease incidence • Altered stream flows • Reduced access to spawning and rearing habitats • Altered food web due to reduced inputs of microdetritus • Predation by native and non-native species, including hatchery fish • Competition related to introduced salmon and steelhead • Altered population traits due to fisheries and bycatch
Snake River fall-run Chinook salmon	Threatened 6/28/05	NMFS 2017b	NWFSC 2022	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. Overall, the status of Snake River fall-run Chinook salmon has improved compared to the time of listing. The single extant population in the ESU is currently meeting the criteria for a rating of “viable”, 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 Complex (NMFS 2017b). The Snake River fall-run Chinook salmon ESU therefore is considered to be at a moderate-to-low risk of extinction, with viability largely unchanged from the prior review (NWFSC 2022).	<ul style="list-style-type: none"> • Degraded floodplain connectivity and function • Harvest-related effects • Loss of access to historical habitat above Hells Canyon and other Snake River dams • Impacts from mainstem Columbia River and Snake River hydropower systems • Hatchery-related effects • Degraded estuarine and nearshore habitat.

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
Columbia River chum salmon	Threatened 6/28/05	NMFS 2013a	NWFS 2022	Presently, detectable numbers of chum salmon persist in only four of the 17 populations, a fraction of their historical range. A total of three of 17 populations exceed the recovery goals established in the recovery plan (Dornbusch 2013). The remaining populations have unknown abundances, although it is reasonable to assume that the abundances are very low and unlikely to be more than 10% of the established recovery goals. With so many primary populations at near-zero abundance, none of the major population groups could be considered viable. It is notable that during this most recent review period, the three populations (Grays River, Washougal, and Lower Gorge) improved markedly in abundance. The ESU remains at "moderate" risk of extinction, and the viability is largely unchanged from the 2015 review (NWFS 2022).	<ul style="list-style-type: none"> • Degraded estuarine and nearshore marine habitat • Degraded freshwater habitat • Degraded stream flow as a result of hydropower and water supply operations • Reduced water quality • Current or potential predation • An altered flow regime and Columbia River plume • Reduced access to off-channel rearing habitat in the lower Columbia River • Reduced productivity resulting from sediment and nutrient-related changes in the estuary • Juvenile fish wake strandings • Contaminants
Lower Columbia River coho salmon	Threatened 6/28/05	NMFS 2013a	NWFS 2022	In contrast to the previous status review update (NWFS 2015), which occurred at a time of near-record returns for several populations, the ESU's abundance has declined during the last five years. Only six of the 23 populations for which we have data appear to be above their recovery goals. This includes the Youngs Bay and Big Creek DIPs, which have very low recovery goals, and the Tilton River and Salmon Creek DIPs, which were not assigned goals but have relatively high abundances. Of the remaining DIPs in the ESU, three are at 50–99% of their recovery goals, seven are at 10–50% of their recovery goals, and seven are at <10% of their recovery goals (this includes the Lower Gorge DIP, for which there are no data, but it is assumed that the abundance is low). Overall, abundance trends for the ESU are generally negative and the status remains at “moderate” risk (NWFS 2022).	<ul style="list-style-type: none"> • Degraded estuarine and near-shore marine habitat • Fish passage barriers • Degraded freshwater habitat: Hatchery-related effects • Harvest-related effects • An altered flow regime and Columbia River plume • Reduced access to off-channel rearing habitat in the lower Columbia River • Reduced productivity resulting from sediment and nutrient-related changes in the estuary • Juvenile fish wake strandings • Contaminants

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
Snake River sockeye salmon	Endangered 6/28/05	NMFS 2015b	NWFSC 2015/ NWFSC 2022	This single population ESU is 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. Current climate change modeling supports the “extremely high risk” rating with the potential for extirpation in the near future (Crozier et al. 2020). The viability of the Snake River sockeye salmon ESU has likely declined since the time of the 2015 review, and the extinction risk category remains “high” (NEFSC 2022).	<ul style="list-style-type: none"> • Effects related to the hydropower system in the mainstem Columbia River • Reduced water quality and elevated temperatures in the Salmon River • Water quantity • Predation
Upper Columbia River steelhead	Threatened 1/5/06	Upper Columbia Salmon Recovery Board 2007	NWFSC 2022	This DPS comprises four independent populations. All four populations are at high risk of extinction. The proportions of hatchery-origin returns in natural spawning areas remain high across the DPS, especially in the Methow and Okanogan River populations. Tributary habitat actions called for in the Upper Columbia Salmon Recovery Plan are anticipated to be implemented over the next 25 years, and the benefits of some of those actions will require some time to be realized. The most recent estimates (five-year geometric mean) of total and natural-origin spawner abundance have declined since the 2015 report, largely erasing gains observed over the past two decades for all four populations. Recent declines are persistent and large enough to result in small, but negative 15-year trends in abundance for all four populations. The overall DPS viability remains largely unchanged from the 2015 review, and the DPS is at high risk driven by low abundance and productivity relative to viability objectives and diversity concerns (NWFSC 2022).	<ul style="list-style-type: none"> • Adverse effects related to the mainstem Columbia River hydropower system • Impaired tributary fish passage • Degraded floodplain connectivity and function, channel structure and complexity, riparian areas, large woody debris recruitment, stream flow, and water quality • Hatchery-related effects • Predation and competition • Harvest-related effects
Lower Columbia River steelhead	Threatened 1/5/06	NMFS 2013a	NWFSC 2022	This DPS comprises 23 historical populations, 17 winter-run populations and six summer-run populations. The majority of winter-run steelhead DIPs in this DPS continue to persist at low abundance levels (hundreds of fish), with the exception of the Clackamas and Sandy River DIPs, which have abundances in the low 1,000s. Although the five-year geometric abundance means are near recovery plan goals for many populations, the recent trends are negative. Summer-run steelhead DIPs were similarly stable, but also at low abundance levels. Summer-run DIPs in the Kalama, East Fork Lewis, and Washougal River DIPs are near their recovery plan goals; however, it is unclear how hatchery-origin fish contribute to this abundance. The decline in the Wind River summer-run DIP is a source of concern, given that this population has been considered one of the healthiest of the summer runs. The juvenile collection facilities at North Fork Dam in the Clackamas River appear to be successful enough to support increases in abundance. Hatchery interactions remain a concern in select basins, but the overall situation is somewhat improved compared to prior reviews. Although a number of DIPs exhibited increases in their five-year geometric means, others still remain depressed, and neither the winter- nor summer-run MPGs are near viability in the Gorge. Overall,	<ul style="list-style-type: none"> • Degraded estuarine and nearshore marine habitat • Degraded freshwater habitat • Reduced access to spawning and rearing habitat • Avian and marine mammal predation • Hatchery-related effects • An altered flow regime and Columbia River plume • Reduced access to off-channel rearing habitat in the lower Columbia River • Reduced productivity resulting from sediment and nutrient-related changes in the estuary • Juvenile fish wake strandings • Contaminants

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
Upper Willamette River steelhead	Threatened 1/5/06	NMFS 2011	NMFS 2016a/ NWFSC 2022	<p>the Lower Columbia River steelhead DPS is therefore considered to be at “moderate” risk, and the viability is largely unchanged from the prior review (NWFSC 2022).</p> <p>This DPS has four demographically independent populations. Populations in this DPS have experienced long-term declines in spawner abundance. The underlying cause(s) of these declines is not well understood. Returning adult winter steelhead do not experience the same deleterious water temperatures as the spring-run Chinook salmon, and prespawn mortalities are not likely to be significant. Although the recent magnitude of these declines is relatively moderate, continued declines would be a cause for concern. Improvements to Bennett Dam fish passage and operational temperature control at Detroit Dam may be providing some stability in abundance in the North Santiam River DIP. It is unclear if sufficient high-quality habitat is available below Detroit Dam to support the population reaching its VSP recovery goal, or if some form of access to the upper watershed is necessary to sustain a “recovered” population. Similarly, the South Santiam River basin may not be able to achieve its recovery goal status without access to historical spawning and rearing habitat above Green Peter Dam (Quartzville Creek and the Middle Santiam River) and/or improved juvenile downstream passage at Foster Dam. Overall, the Upper Willamette River steelhead DPS continued to decline in abundance, and introgression by non-native summer-run steelhead continues to be a concern. Although the most recent counts at Willamette Falls and the Bennett Dams in 2019 and 2020 suggest a rebound from the record 2017 lows, it should be noted that current “highs” are equivalent to past lows. In the absence of substantial changes in accessibility to high-quality habitat, the DPS will remain at “moderate-to-high” risk (NWFSC 2022).</p>	<ul style="list-style-type: none"> • Degraded freshwater habitat • Degraded water quality • Increased disease incidence • Altered stream flows • Reduced access to spawning and rearing habitats due to impaired passage at dams • Altered food web due to changes in inputs of microdetritus • Predation by native and non-native species, including hatchery fish and pinnipeds • Competition related to introduced salmon and steelhead • Altered population traits due to interbreeding with hatchery origin fish
Middle Columbia River steelhead	Threatened 1/5/06	NMFS 2009	NWFSC 2022	<p>This DPS comprises 17 extant populations. The DPS does not currently meet the viability criteria described in the Middle Columbia River steelhead recovery plan. While recent (five-year) returns are declining across all populations, the declines are from relatively high returns in the previous five-to-ten year interval, so the longer-term risk metrics that are meant to buffer against short-period changes in abundance and productivity remain unchanged. Overall, the Middle Columbia River steelhead DPS remains at “moderate” risk of extinction, with viability unchanged from the prior review.</p>	<ul style="list-style-type: none"> • Degraded freshwater habitat • Mainstem Columbia River hydropower-related impacts • Degraded estuarine and nearshore marine habitat • Hatchery-related effects • Harvest-related effects • Effects of predation, competition, and disease

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
Snake River basin steelhead	Threatened 1/5/06	NMFS 2017a	NWFS 2022	<p>This DPS comprises 24 populations. Snake River Basin steelhead are classified as summer-run based on their adult run timing patterns. Much of the freshwater habitat used by Snake River Basin steelhead for spawning and rearing is warmer and drier than that associated with other steelhead DPSes. Snake River Basin steelhead spawn and rear as juveniles across a wide range of freshwater temperature/precipitation regimes. Based on the updated viability information available for this review, all five MPGs are not meeting the specific objectives in the draft recovery plan, and the viability of many individual populations remains uncertain. Of particular note, the updated, population-level abundance estimates have made very clear the recent (last five years) sharp declines that are extremely worrisome, were they to continue. Overall, the Snake River Basin steelhead DPS remains at “moderate” risk of extinction, with viability largely unchanged from the 2015 review (NWFS 2022).</p>	<ul style="list-style-type: none"> • Adverse effects related to the mainstem Columbia River hydropower system • Impaired tributary fish passage • Degraded freshwater habitat • Increased water temperature • Harvest-related effects, particularly for B-run steelhead • Predation • Genetic diversity effects from out-of-population hatchery releases
Southern DPS of green sturgeon	Threatened 4/7/06	NMFS 2018	NMFS 2021	<p>The Sacramento River contains the only known green sturgeon spawning population in this DPS. The spawning population in the Sacramento River congregates in a limited area of the river compared to potentially available habitat. The reason for this is unknown. This is concerning given that a catastrophic or targeted poaching event impacting just a few holding areas could affect a significant portion of the adult population. Recent studies provide information on the population abundance of Southern DPS green sturgeon. Future surveys and abundance estimates will provide a basis for understanding the population trajectory of the Southern DPS. Since there are no past survey data or abundance estimates that can be used as a reference point, these data do not provide a basis for changing the status of the Southern DPS. Consistent with the 2015 review, data suggest that the spawning population of the Southern DPS is smaller than the Northern DPS, which is consistent with the fact that Southern DPS is listed under the ESA, and the Northern DPS is not (NMFS 2021).</p>	<ul style="list-style-type: none"> • Reduction of its spawning area to a single known population • Lack of water quantity • Poor water quality • Poaching

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review/ Viability Assessment	Status Summary	Limiting Factors
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"> • 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. • Climate-induced change to freshwater habitats • Bycatch of eulachon in commercial fisheries • Adverse effects related to dams and water diversions • Water quality, • Shoreline construction • Over harvest • Predation

Status of the Critical Habitat: Table 4, below, describes the status of designated critical habitat affected by the proposed action by examining the condition and trends of the essential PBFs of that habitat throughout the designated areas. These features are essential to the conservation of the ESA-listed species because they support one or more of the species' life stages (e.g., sites with conditions that support spawning, rearing, migration and foraging).

Table 4 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 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.
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.
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.
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.

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
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.
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.
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.
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.

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
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 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. Several activities threaten the PBFs in coastal bays and estuaries and need special management considerations or protection. The application of pesticides, activities that disturb bottom substrates/ adversely affect prey resources/ degrade water quality through re-suspension of contaminated sediments, commercial shipping and activities 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/prey resources for green sturgeon.
Southern DPS of eulachon	10/20/11 76 FR 65324	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.

“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 2.5 of the BA describes the action area for the Project activities, with Section 2.51 addressing terrestrial portions of the action area and 2.52 describing the aquatic portions of the action area (Shannon & Wilson 2021). The description of the terrestrial action area and is adopted here per 50 CFR 402.14(h)(3). However, the described aquatic action area is limited to the effects of turbidity and sedimentation resulting from in-stream construction. For projects with stormwater impacts, NMFS considers the aquatic action area to include all receiving waters into which stormwater discharges, including downstream receiving waters that are connected by a surface water connection, terminating where the Columbia River discharges to the Pacific Ocean. This Opinion has employed this larger action area in its analysis and determination, which includes: Willamina Creek downstream of the new water intake structure, the South Yamhill River downstream of Willamina Creek’s confluence, the Yamhill River downstream of the South Yamhill River’s confluence, the Willamette River downstream of the Yamhill River’s confluence, and the Columbia River downstream of the Willamette River’s confluence.

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).

Section 3.2 (Aquatic Species Habitat) of the BA (Shannon & Wilson 2021) provides a detailed description of the lower reaches of Willamina Creek, where proposed in-water work activities will occur, including listed species use and the physical and biological factors (PBF) in this portion of the action area and is adopted here per 50 CFR 402.14(h)(3). Given NMFS’ use of a more expansive action area, the following environmental baseline information was also considered in our analysis of the Project’s effects.

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 a detailed discussion and comprehensive assessment of the effects of the proposed action in Section 5 (Analysis of Effects of the Action) of the Project BA (Shannon & Wilson 2021) is adopted here (50 CFR 402.14(h)(3)). NMFS has evaluated this section and after our independent, science-based evaluation determined it meets our regulatory and scientific standards. Potential effects include:

- Minor, temporary, disturbance impacts from in-stream/near-stream construction activities, including behavioral changes.
- Minor, temporary, disturbance impacts from streambank construction and revegetation activities, including increased suspended sediments, turbidity, and accidental chemical spills.
- Minor, temporary, reduction in riparian habitat quality due to vegetation clearing for construction access. This habitat will fully recover within two years after construction is complete.
- Minor, permanent, reduction in riparian habitat quality due to vegetation removal for new intake structure and access road/stairway.
- Minor, long-term, reduction in water quality from stormwater pollutants generated from new impervious surface area.
- Minor, long-term, improvement in water quality from off-site stormwater treatment proposed to off-set stormwater from new impervious surface area.
- Minor, periodic, reduction in water temperature during draught or low flow years as a result of increased water withdrawal.

The UWR steelhead endemic to the South Yamhill River and Willamina Creek are not identified as a unique population in the Willamette Basin (NMFS 2016a). Radio-tagging studies suggest that a considerable proportion of winter-run steelhead ascending Willamette Falls do not enter the demographically independent populations (DIPs) that constitute this DPS; these fish may be non-native early winter-run steelhead that appear to have colonized the western tributaries, misidentified summer-run steelhead, or late winter-run steelhead that have colonized tributaries (NMFS 2016a). Given this uncertainty in origin, it is difficult to extrapolate effects from the proposed action at the population scale.

UWR steelhead occurring in Willamina Creek may be temporarily affected by the proposed construction; however, such localized effects are unlikely to affect the species viability or recovery at the population scale. Regardless, the effects of construction will be temporary and will not impact more than one cohort of the affected species assemblage. The permanent loss of habitat quality resulting from the proposed action is very small when compared to the habitat available for the affected steelhead assemblage in both Willamina Creek and the South Yamhill River. Potential reductions in stream flow in Willamina Creek during drought years or low water years may result in thermal barriers to upstream migration, potentially resulting in a reduction in upstream spawning access and decreased spawning success.

Willamina Creek is not designated as critical habitat for UWR steelhead (NMFS 2021). Anticipated temporary, construction-related impacts are not of sufficient magnitude or duration to adversely modify the UWR steelhead critical habitat designated in the South Yamhill River or other critical habitat within NMFS' defined action area.

“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. Replacement of the City’s water intake structure will reduce

the need for future in-stream/near-stream maintenance due to its location and design. Future land use development and population growth is expected in the vicinity of the proposed action. An increase in population density in proximity to the Project alignment can result in increased watershed development, increased stormwater contributions to receiving waters, and adverse human interaction with riparian and stream habitats. Increases in stormwater volume can result in adverse hydromodification, fragmentation/loss of existing riparian habitat, and render currently suitable habitat unsuitable in the future (Claytor and Brown 1996; Sandahl et al. 2007). Such development is expected to be consistent with local growth management plans and include provisions to address stormwater runoff and other development impacts.

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 proposed action will occur in and adjacent to Willamina Creek, which is utilized for migration and rearing by UWR steelhead. As described in Sections 2, 3, 4, and 5 of the BA (Shannon & Wilson 2021), the proposed activities will result in construction-related adverse effects that have the potential to harass, harm, or kill out-migrating, juvenile and smolt life stages of UWR steelhead. Similarly, the proposed activities have the potential to temporarily render suitable habitat less suitable until the completion of in-water work. Section 2.3 (Project Elements and Sequencing) of the BA identifies construction Best Management Practices (BMPs) and avoidance and minimization measures to limit the anticipated pathways for effects. The BMPs that are included as part of the proposed action are consistent with measures detailed in the U.S. Army Corps of Engineers' Standard Local Operating Procedures for Endangered Species (SLOPES) programmatic opinion for stormwater, transportation, and utility actions (NMFS 2014b). Such measures are considered protective of listed species and critical habitat and conducive to species recovery (NMFS 2014b). These measures are likely to minimize exposure of ESA-listed fish species to the adverse effects of construction noise and disturbance, turbidity and sedimentation, and limitations to up and downstream passage. However, all risk of adverse effects cannot be eliminated and a certain number of listed UWR steelhead will be subject to temporary harassment, injury, or death.

Because of the uncertainty as to their origin, UWR steelhead in Willamina Creek and the South Yamhill River have not been assessed for their risk of extinction. Within the action area, the presence of the new water intake facility constitutes a minor, permanent, impairment to habitat PBFs. Of the limiting factors identified for UWR steelhead, water quality has the potential to be temporarily impaired as a result of construction activities. Within the Willamette-Lower Columbia (WLC) recovery domain, water quality, contaminants, or fresh water degradation are limiting for the 15 species identified in Table 2. Consequently, long-term, minor water quality degradation is anticipated from the minor increase in stormwater generating impervious surfaces

area. Taken in context, the effects of the proposed action have the potential to degrade the PBFs of water quality, which are already compromised by the existing conditions.

Climate change presents a number of unknowns for Columbia Basin salmonids, including those that use the South Yamhill River and Willamina Creek. A projected regional shift in precipitation, from winter snowfall to rainfall, is likely to have pronounced effects on water quantity and quality in the basin (Abatzoglou et al. 2014; Dominguez et al. 2012; Raymondi et al. 2013). Decreased snow-fed runoff could have significant impacts on all species covered in this Opinion. Changes in runoff patterns, volume, and temperature can adversely affect individual fitness, run timing, and habitat suitability for listed species and critical habitat (Crozier et al. 2008; Goode et al. 2013; Raymondi et al. 2013; Zabel et al. 2006). Increased water temperature, especially from summer into fall, has the potential to be a significant stressor to UWR steelhead trout. Alteration in run timing, diminished individual fitness, and habitat suitability are all possibilities, potentially resulting in a decrease in species numbers, their distribution, and availability of suitable habitat within the basin (NMFS 2013; NMFS 2016a, NMFS 2018).

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 any of the 15 species captured in Tables 1 and 2, or destroy or adversely modify their designated critical habitat. Similarly, the long-term, minor, degradation of water quality from increases in stormwater generation is not likely to jeopardize the continued existence of the below species, or destroy or adversely modify their critical habitat, where designated.

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). "Harass" is further defined by interim guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "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:

Potential consequences of the construction portion of proposed action on UWR steelhead, the only species present in the construction area, may include reduction or disturbance of aquatic habitat, increased sedimentation and turbidity, potential fish salvage methods, work area isolation methods, and removal and fill within the active channel. Fish affected by project work will likely incur short-term stress due to fish removal activities, up to, and including mortality. Nonlethal stress experienced by individual fish can vary in duration from brief (minutes to hours for removal activities), to moderate (weeks to months for construction disturbances), to long (years for riparian vegetation regeneration).

The proposed action includes a number of avoidance and minimization BMPs to prevent, to the extent practicable, take of UWR steelhead individuals from construction activities (Shannon & Wilson 2021). BMPs include seasonal work restriction for in-water work (e.g., work windows); dewatering screening criteria; use of experienced biologists to conduct fish removal activities; development and implementation of a Spill Prevention, Control and Countermeasures Plan; development and implementation of a Temporary Erosion and Sediment Control Plan; Project staff who will conduct monitoring and maintenance of all plan requirements and permit conditions. The same BMPs would also serve to minimize adverse consequences of the proposed action that will carry through to further downstream reaches of the action area and the remaining 14 affected species. Proper implementation of these BMPs will reduce the potential for take, but will not remove all such potential.

The following take indicators will be monitored and recorded during construction activities and reported back to NMFS throughout project construction. These indicators include:

1. For streambank and in-stream construction: ESA-listed fish captured (number salvaged) during in-water work area isolation. No adult fish are likely to be included in this total as they can be effectively excluded from the work area before it is completely isolated from flowing water. Of the juvenile fish that will be collected, fewer than 2% are likely to be killed while the remaining fish are likely to be released and survive with no adverse effects. This number is too small to result in a fraction over one single adult equivalent and therefore will not delay recovery of any species regardless of the recovery status of the population those juveniles are drawn from.
2. For construction discharge: In-water construction turbidity may not exceed a 10% increase over background stream turbidity, as demonstrated by a turbidity monitoring protocol that is sufficient to meet Clean Water Act section 401 certification requirements, except for limited duration activities necessary to address an emergency or accommodate essential construction activities (e.g., channel reconstruction, removal of work area containment), provided that all practicable turbidity control techniques have been applied.
3. For site revegetation and compensatory monitoring: Record acres of upland vegetation restored in the riparian zone and floodplain. Record number and species of trees replanted in the riparian zone.

Incidental take within the Project area that meets the terms and conditions of this incidental take statement will be exempt from the taking prohibition.

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 when the reasonable and prudent alternative is implemented.

Reasonable and Prudent Measures

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

1. Minimize incidental take associated with Project construction by ensuring that all BMPs described in the BA are implemented and reported, as appropriate.
2. Monitor the impacts of incidental take on listed species in the action area from streambank construction activities by implementing a monitoring and reporting program for in-stream turbidity and fish removal activities. Both monitoring and reporting shall be authorized or conducted by the City or its applicants. Reports will be sent to NMFS within 60 days of completion of project activities.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the City of Willamina – acting on behalf of HUD – must comply (or must ensure that any applicant complies) with the following terms and conditions. The City of Willamina 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.

1. The following terms and conditions implement reasonable and prudent measure 1:
 - a. Carry out all relevant conservation measures as described in the BA.
 - b. Turbidity: The City, or its applicants, must implement appropriate BMPs to minimize turbidity during in-water work. Any activity that causes turbidity to exceed 10% above natural stream turbidity is prohibited except as specifically provided below:
 - i. Monitoring: Turbidity monitoring must be conducted and recorded as described below. Monitoring must occur at two-hour intervals each day during daylight hours when in-water work is being conducted on the streambank portion of the project area. A properly calibrated turbidimeter is required unless another monitoring method is proposed and authorized by the Oregon Department of Environmental Quality (DEQ).
 - ii. Representative Background Point: Applicant must take and record a turbidity measurement every two hours during in-water work at an undisturbed area. A background location shall be established at a representative location approximately 100 feet upstream of the in-water/streambank activity unless otherwise authorized by DEQ. The background turbidity, location, date, tidal stage (if applicable) and time must be recorded immediately prior to monitoring downstream at the compliance point described below.

- iii. Compliance Point: The Applicant must monitor every two hours. A compliance location shall be established at a representative location approximately 100 feet downstream from the disturbance at approximately mid-depth of the waterbody and within any visible plume. The turbidity, location, date, and time must be recorded for each measurement.
- iv. Compliance: The Applicant must compare turbidity monitoring results from the compliance points to the representative background levels taken during each two-hour monitoring interval. Pursuant to OAR 340-041-0036, short term exceedances of the turbidity water quality standard are allowed as follows:

Turbidity Level	Restriction to Duration of Activity
0 to 4 NTU above background	No Restrictions
5 to 29 NTU above background	Work may continue a maximum of 4 hours. If turbidity remains 5 to 29 NTU above background, stop work and modify BMPs. Work may resume when NTU is between 0 to 5 NTU above background.
30 to 49 NTU above background	Work may continue a maximum of 2 hours. If turbidity remains 30 to 49 NTU above background, stop work and modify BMPs. Work may resume when NTU is between 0 to 5 NTU above background.
50 NTU or more above background	Stop work immediately and inform NMFS

- c. Fish salvage reporting:
 - i. All fish removal and fish release activity shall be documented in a log book with the following information: project location, date, methods, personnel, personnel qualifications, instream temperature, water conductivity, visibility, electrofisher settings, and other comments. Special note will be made if multiple fish removal operations must be conducted.
 - ii. Species, number of each species, age class estimate, and location of release will be recorded for all fish handled.
 - 1. All juvenile rainbow trout (*Oncorhynchus mykiss*), all shall be recorded as steelhead.
 - iii. Information regarding the number of ESA-listed species injured or killed will be documented, including species, age class estimate, number injured, and number killed.
- 2. The following terms and conditions implement reasonable and prudent measure 2:
 - a. Ensure completion of a monitoring and reporting program to confirm that the take exemption for the proposed action is not exceeded, and that the terms and conditions in this incidental take statement are effective in minimizing incidental take.
 - i. Turbidity. The City must record all turbidity monitoring required by subsection 1.b, above, in daily logs. The daily logs must include calibration documentation; background NTUs; compliance point NTUs; comparison of the points in NTUs; location; date; and time for each

reading. Additionally, a narrative must be prepared discussing all exceedances with subsequent monitoring, actions taken, and the effectiveness of the actions. The City must make available copies of daily logs for turbidity monitoring to DEQ, NMFS, USFWS, and ODFW upon request.

- ii. Fish Salvage. The City must record all fish removal actions required by 1.c above in event logs. The event log must include date of activity, water temperature, water conductivity, personnel, personnel qualifications, start time, stop time, total time electrofishing, electrofisher settings, changes to electrofisher settings and rationale, fish handling methods, holding time, release location, species captured, age class estimate, any injuries, any mortalities.
- iii. Project completion notification. The City must provide a notification of the completion of project activities, excluding monitoring, if applicable, within 60 days of completing all construction. Include the turbidity monitoring report and fish salvage report with the project completion notification.
- iv. Submit all reports and notifications to:
Attn: WCRO-2021-02363
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). No conservation recommendations are included as part of this Opinion.

Reinitiation of Consultation

Under 50 CFR 402.16(a): “Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If 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 the biological opinion or written concurrence; or (4) If 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.

NMFS determined the proposed action would adversely affect EFH as follows:

- Pacific Salmon: Minor water quality degradation resulting for minor increase in stormwater-generating surfaces and associated transport of contaminants.

NMFS determined that the following conservation recommendations are necessary to avoid, minimize, mitigate, or otherwise offsets the impact of the proposed action on EFH.

- Construct stormwater treatment and management facilities as described in *Willamina Water System Improvement Project Concept Stormwater Management Plan* (Keller & Associates 2022).

As required by section 305(b)(4)(B) of the MSA, the City of Willamina – acting on behalf of HUD – 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 the 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)).

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, Portland, Oregon.

Please direct questions regarding this letter to Brad Rawls, Oregon-Washington Coast Office, 503-231-5414, brad.rawls@noaa.gov.

Sincerely,



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

cc: Jeff Brown, City of Willamina
Kinsey Friesen, USACE
Shannon Williams, PE, Keller & Associates

REFERENCES

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