



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 West Coast Region
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Refer to NMFS No.:
 WCRO-2022-01034

December 8, 2022

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 Tri-City Water Resource Recovery Facility Willamette River Outfall Project, Clackamas County, Oregon (HUC# 17090012) (NWP-2022-139)

Dear Mr. Abadie:

This letter responds to your April 28, 2022, 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' (Corps') consultation request and related initiation package. Where relevant, we have adopted the information and analyses provided and/or referenced in the *Tri-City Water Resource Recovery Facility Willamette River Outfall Project Biological Assessment* (BA; Jacobs 2021a) and other provided documentation, 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 BA:

| Section | Title | Elements Covered | Incorporated in Opinion |
|---------|---|--|--|
| 1 | <i>Introduction</i> | Project background Purpose and need Species occurrence in action area ESA-listed species in action area | Background Action Area |
| 2 | <i>Project Description</i> | Proposed action Construction methods Operations Conservation measures Best management practices (BMPs) | Proposed Federal Action |
| 3 | <i>Status of Species and Critical Habitat</i> | UWR/LCR Chinook Salmon CR Coho Salmon UWR/LCR Steelhead | Rangewide Status of the Species and Critical Habitat |
| 4 | <i>Environmental Baseline</i> | Willamette River | Environmental Baseline |

WCRO-2022-01034



| Section | Title | Elements Covered | Incorporated in Opinion |
|----------------|---------------------------------------|---|---|
| 5 | <i>Effects of the Proposed Action</i> | Effects to species Habitat pathways and indicators Physical and biological features Effects for essential fish habitat (EFH) | Effects on Listed Species Effects on Critical Habitat Cumulative Effects EFH affected by the Project |
| 6 | <i>Determination of Effects</i> | Salmon and steelhead and their critical habitat | Effects on Listed Species Effects on Critical Habitat Cumulative Effects |

Pre-consultation discussions were held between NMFS and the applicant’s consultants – Jacobs – On April 13, 2022. Supplementary reports and design information were submitted on April 19, 2022. Additional conversations occurred via phone.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 FR part 402 in 2019 (“2019 Regulations,” see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court’s July 5 order. As a result, the 2019 regulations are once again in effect, and we are applying the 2019 regulations here. For purposes of this consultation, we considered whether the substantive analysis and conclusions articulated in this biological opinion and incidental take statement would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

Clackamas County Water Environment Services (WES) proposes to install a new 90-inch diameter outfall pipeline and 18-port diffuser in the Willamette River at river mile (RM) 25.75, in Oregon City, Clackamas County, Oregon (Figure 1, following page). The proposed outfall consists of a buried 90-inch-diameter welded steel pipe that extends 450-feet into the Willamette River and is approximately 300-feet north of the Abernethy Bridge. Approximately 300-feet offshore, the river outfall transitions to the 153-foot-long, 90-inch-diameter steel multiport diffuser with 18 vertical steel risers and ports in the deepest portion of the river. The river outfall pipe will be buried in the riverbed along its entire length to a depth that will provide protection below the general scour depth, and the weight of the assembly and cover material will mitigate against flotation or pipe movement.

The proposed project will construct a new outfall for the Tri-City Water Resource Recovery Facility (WRRF), which services a 46-square mile service area. The existing outfall for the Tri-City WRRF consists of three 42-inch diameter pipes in a nearshore discharge configuration. The existing outfall is located at RM 25.5, approximately 900 feet upstream of the confluence of the Clackamas River with the Willamette River. The existing discharge’s design and location limits WES’ ability to achieve hydraulic and dilution targets set by their National Pollution Elimination Discharge System (NPDES) permit and state water quality standards. The proposed outfall and diffuser will allow WES to meet state water quality standards under all receiving water conditions, improve dilution and mixing, relocate the discharge approximately 2,500-feet upstream of the Clackamas River confluence, improve fish passage along the east bank of the Willamette River, and increase capacity to support the service area’s build-out flow rate. The existing outfall will be retained in place for use during wet-weather high flow events. In-water construction is anticipated to begin during the Oregon Department of Fish and Wildlife (ODFW)

regulated in-water work window for 2025 and take one in-water work window period to complete.

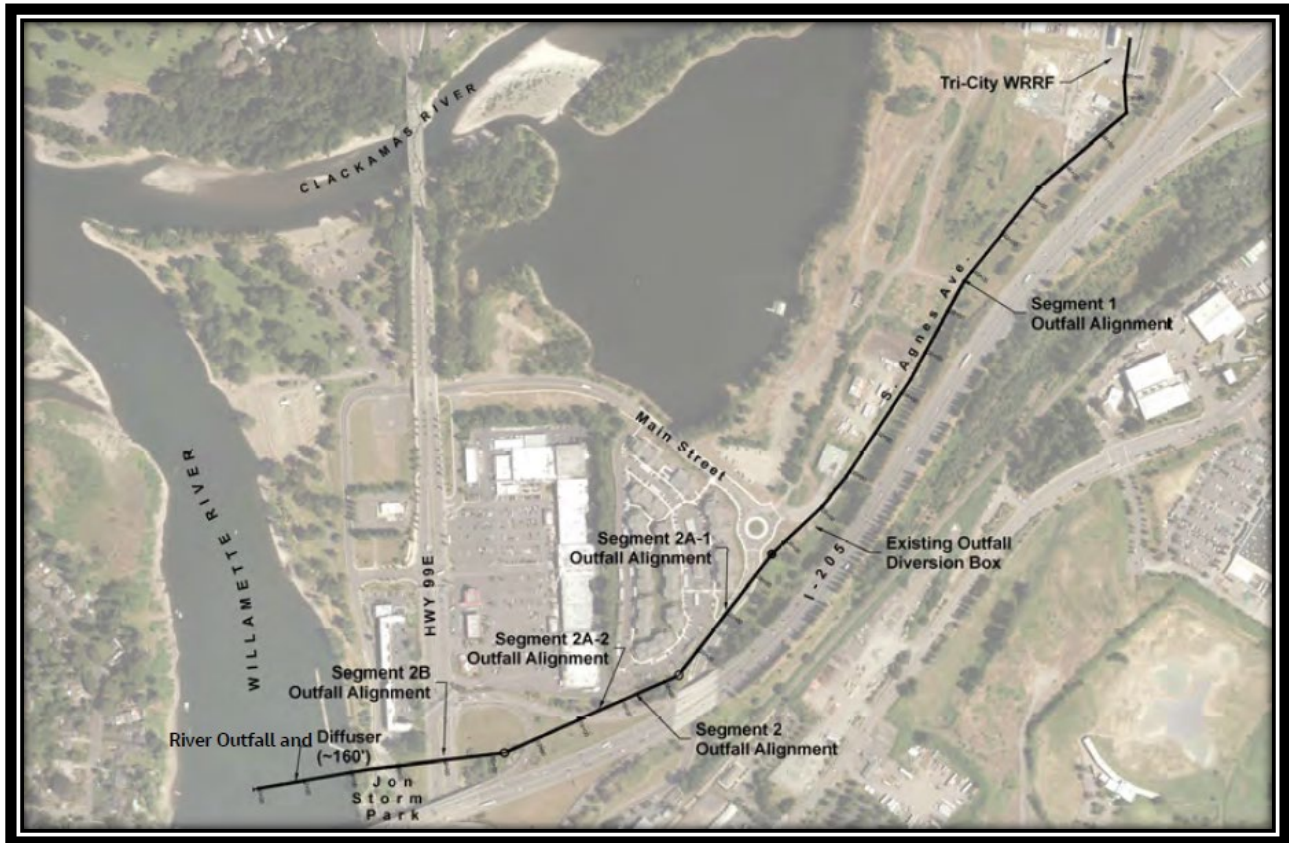


Figure 1. Project Location & Proposed Alignment (Jacobs 2021)

The proposed action will require in-water excavation and fill activities in the Willamette River and tunneling and trenching in the adjacent uplands. Additionally, to allow construction access, an existing debris boom will require the removal and post-construction re-installation of eight (8) piles. The proposed project will require approval by the Corps under the Clean Water Act, Section 404 and the Rivers and Harbors Act (RHA), Section 10. Both the Section 404 permit and Section 10 permits serve as a federal nexus, requiring the Corps to consult on project effects to ESA-listed species, designated critical habitat, and essential fish habitat.

We examined the status of each species that would be adversely affected by the proposed action to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and discuss the function of the physical or biological features essential to the conservation of the species that create the conservation value of that habitat.

Section 1.2 of the BA, *Species with Potential to Occur in the Action Area*, identifies the listed species and designated critical habitat potentially affected by the proposed action (Table 1);

whereas Section 3, *Status of Species and Critical Habitat*, provides specific information on those listed species and designated critical habitats occurring in the Lower Willamette River (Jacobs 2021a). Based on our own analysis and data (NMFS 2011a; NMFS 2011b; NMFS 2013; NMFS 2015; NMFS 2016a; NMFS 2016b; NMFS 2022a; and ODFW and NMFS 2011), NMFS concurs with the listed species and critical habitats which may be adversely affected, which include:

Table 1. Listed Species and Designated Critical Habitat Potentially Affected by the Proposed Action

| ESA-Listed Species | Status | ESA-Listed Species | Status |
|--|-----------------------------------|--|----------------------------------|
| LCR Chinook salmon ^{1,2} | Threatened 6/28/05 CH 09/02/05 | LCR steelhead ^{4,2} | Threatened 1/5/06 CH 09/02/05 |
| UWR Chinook salmon ^{1,2} | Threatened 6/28/05 CH 09/02/05 | UWR steelhead ^{4,2} | Threatened 1/5/06 CH 09/02/05 |
| LCR coho salmon ^{1,3} | Threatened 6/28/05 CH 09/02/05 | EFH – Pacific Salmonids ⁵ | |
| ¹ 70 FR 37160; ² 70 FR 25630; ³ 81 FR 9252; ⁴ 71 FR 834; ⁵ PFMC 2014 | | LCR = Lower Columbia River; UWR = Upper Willamette River; EFH = Essential Fish Habitat; CH = Critical Habitat | |

The Lower Willamette River is designated as Essential Fish Habitat (EFH) for the Pacific Salmon EFH, though no Habitat Areas of Particular Concern (HAPC) have been defined in the action area (NMFS 2022b). Despite the absence of designated HAPCs, the confluence of the Clackamas and Willamette rivers is an identified, high value, cold water refuge for salmonids in the Lower Willamette River (ODFW 2022).

“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 1.3 of the BA, *Federal Endangered Species Act Action Area*, describes the limits of construction, anticipated construction-related effects, the upstream and downstream limits of noise impacts resulting from construction of the proposed infrastructure, and the downstream extent of the Regulatory Mixing Zone (RMZ) and Zone of Initial Dilution (ZID) (Jacobs 2021a).

The aquatic extent of the action area extends from the construction footprints (including staging and laydown areas) to approximately 2,500 feet upstream and downstream in the Willamette River, where any project-related effects are anticipated to occur (Jacobs 2021a). The furthest anticipated extent of effects from the proposed action are related to noise generated from construction, but also include the extent to which resuspended sediment may be deposited in association with downstream flows in the system during or after construction, and the extent of the mixing zone (300 feet) that will occur during operation (Jacobs 2021a).

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 4 of the BA, *Environmental Baseline*, provides a description of the aquatic and near-shore, terrestrial resources that may be impacted as a result of the proposed action (Jacobs 2021a). The BA specifically describes baseline conditions in the Lower Willamette River and the action area. We have adopted the information provided and/or referenced in Section 4 the BA, *Willamette River Bedform Analysis Technical Memorandum* (Jacobs 2020a), *Willamette River Site Characteristics Technical Memorandum* (Jacobs 2020b), and *Willamette River Outfall and Diffuser Conceptual Design Technical Memorandum* (Jacobs 2021b) after evaluation confirmed they meet our regulatory and scientific standards.

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, *Effects of the Proposed Action*, and 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. The following points address areas where supplemental information/analysis was required:

- While discussed in the BA, the impact of hydroacoustic effects is not assessed in-depth. The BA defines the action area as approximately 2,500-feet upstream and downstream of projects activities, as a result of construction-related noise effects (Jacobs 2021a). This area is determined by the potential extent for hydroacoustic effects to exceed the disturbance threshold associated with vibratory hammer use for pile extraction and re-installation. While accurate, this aspect of project work will be short in duration, likely numbering several days split over two separate occasions during the overall in-water construction period. Hydroacoustic impacts associated with heavy equipment use for trenching are far more likely to be of greater significance, though far less extensive within the area affected. NMFS utilized noise estimates for heavy machinery and excavation activities to refine the area most likely to be impacted over the course of in-water construction activities (CalTrans 2020; Hastings and Popper 2005). Effects from such activities are not expected to rise to the injury threshold, but likely will result in species disturbance, potentially eliciting a startle response and affecting foraging behavior, forage availability, delay of migration, and avoidance of predation. The effects of construction-related noise will be temporary and will not impact more than one cohort of the affected populations.
- Additionally, the BA does not assess the disruption to forage species within the area of river bed that will be disturbed by construction. Recolonization of disturbed benthic

populations can take up to a decade to recover, depending on the area affected, post-construction habitat suitability, and species composition (NMFS 2022d). While the benthic community will be disrupted, it will not be completely removed for the area and the material returned to the trench will likely retain benthic organisms. The proposed action will replace excavated materials to bury the pipeline and diffuser manifold; consequently, the recovery period for the disturbed area is likely to be more rapid. Additionally, it is possible that the effluent discharge to the affected area will accelerate benthic recovery, though it may also result in a change in species composition, population diversity, and density. While actual recovery time is unknown, the effects of benthic disturbance will be temporary and are not expected to impact more than five cohorts of the affected populations.

- Finally, the proposed action will occur contemporaneously with the U.S. Department of Transportation's (DOT) Abernethy Bridge Widening Project (NMFS # NWR-2011-2095). The DOT will be constructing in-water bridge supports for the Interstate 205 bridge during the in-water work periods of 2022 through 2025. The BA acknowledges both projects conducting in-water work contemporaneously in 2025 and in reasonably close proximity (+/- 300-feet); however, there is no discussion of whether the combined projects will have additive or multiplicative effects when taken together. Understandably, conducting such analysis is speculative, given the uncertainty what activity and effects timing between the two projects in 2025. It seems reasonable to conclude that the disturbance effects encountered by listed salmonids in the Lower Willamette River would extend further upstream than the defined action area.

UWR and LCR Chinook salmon, LCR coho salmon, and UWR and LCR steelhead will be affected by the proposed action. The effects of construction activities will be temporary, with most effects impacting only one cohort of the species present. Effects from construction have the potential to result in injury and mortality, particularly out-migrating juveniles, but most impacts will consist of disturbance-level effects.

Critical habitat is designated within the action area for UWR and LCR Chinook salmon, LCR coho salmon, and UWR and LCR steelhead. The proposed action will result in both temporary and permanent impacts to critical habitat for the five populations assessed. Construction-related impacts will be temporary, likely only affecting one cohort of each species present. Some minor impacts, such as benthic recolonization and shoreline vegetation will take longer to recover, potentially affecting five or more cohorts of species. The permanent loss of habitat quality resulting from the proposed action is very small when compared to the habitat available for the affected populations. Further, the proposed diffuser will eliminate the use of the existing shoreline discharge location, except during high, wet-weather events equal to the 25-year storm event or greater. This will result in a permanent improvement to water quality and shallow water habitat quality at the site of and downstream from the existing outfall. Operation of the proposed diffuser will constitute a permanent, adverse effect within the ZID and RMZ, however, the proposed location and design will serve to improve water quality conditions in the Willamette River generally and in the action area specifically.

“Cumulative effects” are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Section 5.2 of the BA, Cumulative Effects, states that cumulative effects are not anticipated to occur as a result of the proposed action. However, one aspect of the project not addressed is the potential effects of climate change.

- Climate change is projected to result in a regional shift in precipitation, from winter snowfall to rainfall, which is likely to have pronounced effects on water quantity and quality in the Columbia Basin (Abatzoglou et al. 2014; Dominguez et al. 2012; Raymondi et al. 2013). Decreased snow-fed runoff could have significant impacts on all salmonid populations 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; Scheuerell and Williams 2005; Winder and Schindler 2004 Zabel et al. 2006).

Future impacts of climate change could result if existing climate models are accurate. Decreased dry-weather streamflow would likely be of greatest concern, as the RMZ and ZID could constitute a larger percent of channel width than analyzed in the BA, potentially having a greater impact on the species utilizing the action area. Additionally, increased wet-weather run-off could activate the existing shoreline outfall on a more regular basis, reducing the water quality and shallow water habitat improvement gains anticipated. Finally, increased in-stream temperatures could be exacerbated by the main channel location of the diffuser, possibly resulting in a thermal barrier to migration and requiring operational or infrastructure modifications to minimize 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.

As described in the BA – Section 2 (*Project Description*), Section 2.5 (*Conservation Measures and Best Management Practices*), and Section 5 (*Effects of the Proposed Action*) – the activities associated with the construction and operation of the proposed action can be reduced, to some degree, through implementation of appropriate construction BMPs, avoidance and minimization measures, and operational (monitoring and maintenance) BMPs (Jacobs 2021a). The BMPs that are proposed are consistent with measures detailed in existing programmatic opinions for in-water, construction-related actions (NMFS 2012). These measures are likely to minimize exposure of ESA-listed fish species to the adverse effects of construction and operation of the proposed facilities; however, the proposed activities will result in construction-related adverse effects that have the potential to harass, harm, or kill multiple life stages of all listed species present. Similarly, the proposed activities have the potential to temporarily render suitable habitat less suitable for several

years, if not longer. Despite the proposed BMPs and conservation measures, all risk of adverse effects cannot be eliminated and a certain number of listed species will be subject to temporary harassment, injury, or death.

NMFS identified several factors as limiting the recovery of the listed species analyzed in this opinion, all of which will be affected by the proposed action. Within the Willamette-Lower Columbia (WLC) recovery domain, stream substrate is limiting for LCR Chinook salmon, LCR coho salmon, and LCR steelhead; water quality is limiting for LCR/UWR Chinook salmon, LCR coho salmon, and LCR/UWR steelhead (NMFS 2013; NMFS 2016a; 2016b). Additionally, the quantity of nearshore, shallow water habitat in the Lower Willamette River is identified as a limiting factor for all listed species that utilize this segment of the river (NMFS 2013; NMFS 2016a; NMFS 2016b; NMFS 2022a).

The effects of the proposed action are likely to shift the physical location of impacts related to water temperature and water quality. The proposed location of the new diffuser will increase temperature effects and decrease water quality mid-channel in the Willamette River. However, locating the diffuser in this location will greatly curtail temperature and water quality impacts from the existing outfall location along the east shoreline of the river, leading to improvement in the condition of the nearshore, shallow water habitat and shifting the effects from effluent discharge from primarily juvenile life stages to adult life stages, based on their river use patterns. The new diffuser will also reduce potential temperature and water quality impacts on the mouth of the Clackamas River, which is identified as a cold-water refuge (ODFW 2022). Shifting the outfall location will improve overall water quality and temperature characteristics in the Lower Willamette River by increasing the rate and volume of mixing that occurs. These impacts may impair the migration and feeding behavior patterns for the adult life stage of the species present, but should result in habitat quality improvements for juvenile life stages. Pollutant loading in the receiving waters downstream of the proposed action will decrease with improvements to wastewater processes. The listed species considered in this opinion are also likely to benefit from anticipated long-term improvements in pollutant loading as upstream contributions of anthropogenic pollutants are curtailed. Therefore, the project, in and of itself, is not likely to cause a new risk of harm or appreciably reduce the likelihood of survival or recovery.

Climate change presents a number of unknowns for Willamette Basin salmonids. 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. Decreased snow-fed runoff could have significant impacts on all listed species present. Changes in runoff patterns, volume, and temperature can adversely affect individual fitness, run timing, and habitat suitability for listed species and critical habitat.

Of the five listed species that are likely to be adversely affected by the proposed action, none meet NMFS' guidelines for a viable salmonid population (McElhany et al. 2000; McElhany et al. 2006; McElhany et al. 2007). It may seem that populations in such weak condition could not sustain additional habitat degradation. However, habitat is only one of many factors associated with population abundance and productivity, and its impacts must be evaluated over a long time-scale of decades or longer to account for the effects of habitat recovery actions, the influence of genetic factors, and role the environmental cycles and processes (McElhany et al. 2007). Instantaneous measures of population characteristics, such as population size, growth rate, spatial

structure, and diversity, are the sums of individual characteristics within a particular area, while measures of population change, such as a population growth rate, are measured as the productivity of individuals over the entire life cycle (McElhany et al. 2007). A persistent change in the environmental conditions affecting a population, for better or worse, can lead to changes in each of these population characteristics.

Climate change and human development have and continue to adversely impact critical habitat creating limiting factors and threats to the recovery of the ESA-listed species considered. Climate change will likely result in a generally negative effect on stream flow and temperature. Non-federal plans to mitigate climate change are largely unknown but may have localized benefits that extend to species and habitat within the Willamette River Basin as a whole. When these influences are considered collectively, we expect trends in habitat quality to remain flat or degrade gradually over time. This will, at best, further stress population abundance and productivity for the species affected by this consultation. In a worst-case scenario, we expect population abundance trends to decline. We expect the quality and function of critical habitat physical and biological features (PBFs) to express a gradual, positive trend over time with respect to water quality improvements from increased wastewater treatment and reduction of upstream, anthropogenic inputs. However, climate change-induced water temperature and water quantity impairment is expected to continue on a negative trend.

After reviewing and analyzing the 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, or destroy or adversely modify their designated critical habitat for the following populations:

- Lower Columbia River Chinook salmon
- Upper Willamette River Chinook salmon
- Lower Columbia River coho salmon
- Lower Columbia River steelhead
- Upper Willamette River steelhead

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

Construction-related direct and indirect effects:

All five species analyzed in this opinion occur in habitats directly affected by construction-related actions. Potential direct effects to these species that may result in take include the disturbance of aquatic habitat, increased sedimentation and turbidity, and possible physical injury or burial. Fish affected by the proposed action will likely incur short-term stress due to visual, auditory, and vibrational disturbance. Nonlethal stress experienced by individual fish can vary in duration from brief (minutes to hours for vibratory hammer activities), to moderate (weeks to months for construction noise and visual disturbances), to long (years for benthic recolonization and riparian vegetation regeneration).

The proposed action includes a number of avoidance and minimization BMPs to prevent, to the extent practicable, take of listed species individuals from construction activities (Jacobs 2021a). BMPs include seasonal work restriction for in-water work (e.g., work windows); development and implementation of a Spill Prevention, Control and Countermeasures Plan; and development and implementation of a Temporary Erosion and Sediment Control Plan. 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 annually throughout project construction. These indicators include:

1. For floodplain, riparian, streambank and channel conditions within the project's construction footprint:
 - a. Acres of upland vegetation disturbed in the riparian zone and floodplain.
 - b. Number of trees removed greater than 6" diameter at breast height in the riparian zone.
 - c. Acres of upland vegetation restored in the riparian zone and floodplain.
 - d. Number of trees replanted in the riparian zone.

2. For construction discharge:
 - a. Construction turbidity may not exceed a 10% increase above natural 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.

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

Operations-related effects:

Operation of the proposed facilities will result in long-term, localized water temperature and water quality effects at the new diffuser location. Improvements incorporated into the outfall design will result in sustained improvements in water quality downstream of the relocated outfall as it relates to pollutant discharge. Relocation of the outfall to the proposed location will result in the long-term degradation of water quality during dry period discharge, likely rendering suitable habitat less suitable for adult life stages of the listed species assessed. Corresponding with the outfall relocation, water quality at the current outfall location will result in long-term improvement of water quality following curtailment of the outfall's use, potentially resulting in less suitable, shallow water habitat becoming more suitable. Long-term operation, coupled with anticipated population growth in the County's service district and predicted changes in precipitation patterns due to climate change, may exacerbate the water quality impacts of discharge at the proposed location, particularly with respect to stream temperature and the functional size of the RMZ and ZID.

Water quality reporting, required by the Oregon Department of Environmental Quality (ODEQ), will serve as the take indicator for the operations-related effects of the proposed action. ODEQ requires water quality monitoring be conducted throughout wet period discharge to ensure compliance with WES' NPDES permit. Parameters include temperature, pH, BOD, as well as specific contaminant sampling. NMFS will use annual compliance reports submitted to ODEQ by WES to assess take from the continued operation of the proposed action.

Documentation will include the following:

1. For five consecutive years following commencement of outfall operations, provide an annual report to NMFS that documents for the outfall's discharge:
 - a. Summary reports detailing water quality compliance of effluent discharge to the Willamette River from the WES' WRRF facilities and processes, including:
 - i. Summary reports submitted to the ODEQ on NPDES compliance;
 - ii. Summary of effluent characteristics discharged;
 - iii. Number of events resulting in discharge from the existing, shoreline outfall; and
 - iv. Summary of any exceedances of permit conditions and any corrective actions taken.
 - b. Reporting shall occur annually, concurrent with reporting schedules for the ODEQ.
 - c. Notification of any proposed modification to processes or operations which may change the volume or constituent make up of discharged effluent.

Incidental take related to project operations within the action area that meets the terms and conditions of this incidental take statement will be exempt from the taking prohibition.

Effect of the Take

In this 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 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 2021 BA and this opinion are implemented and reported, as appropriate.
2. Minimize incidental take associated with post-construction operations by ensuring implementation of a comprehensive effluent discharge monitoring and reporting program authorized by the ODEQ.

Prepare and provide NMFS with plan(s) and report(s) describing how impacts of the incidental take on listed species in the action area would be monitored and documented.”

RPM 1 includes reporting necessary to comply with the amount/extent of take identified for construction-related direct and indirect effects, including:

1. Construction effects of aquatic, riparian, and floodplain impacts; and
2. Turbidity monitoring during in-water/near-water construction activities.

RPM 2 includes reporting submitted to the ODEQ necessary to comply with the amount/extent of take identified for operations-related direct and indirect effects.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The U.S. Army Corps of Engineers 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 2021 BA (Jacobs 2021a).
 - b. Turbidity: The Corps, 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. Continuous, real-time, monitoring of turbidity must occur each day during daylight hours when in-water work is being conducted on the streambank and in-

water portions of the project area. A properly calibrated turbidimeter is required unless another monitoring method is proposed and authorized by the ODEQ.

1. Representative Background Point: Applicant must record turbidity measurements during streambank/in-water work at an undisturbed area. A background location shall be established at a representative location at least 100-feet upstream of the in-water/streambank activity unless otherwise authorized by the ODEQ. 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).
 2. Compliance Point: The Applicant must record turbidity measurements during streambank/in-water work. A compliance location shall be established at a representative location 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.
- ii. Compliance: The Applicant must compare turbidity monitoring results from the compliance points to the representative background levels taken. 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 |

2. The following terms and conditions implement reasonable and prudent measure 2:
 - a. A project completion report within 60-days of completing construction, including:
 - a. Project name
 - i. Corps/ODEQ/WES contact person
 - ii. Construction completion date
 - iii. The outfall diffuser “as built” or “as installed” plans and/or narrative by the construction contractor, including any on-site changes from the original design plans
 - b. Five annual reports on water quality compliance with the NPDES permit conditions.
 - c. Each annual report must be submitted to NMFS concurrent with submittal to ODEQ. Submit reports to: projectreports.wcr@noaa.gov

Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

1. Because the proposed action will overlap with the U.S. Department of Transportation's Abernathy Bridge Widening Project, there are a number of references in the BA to coordination with the Oregon Department of Transportation (ODOT) regarding construction timing, BMP monitoring activities, etc. Since a number of these discussions could directly involve construction activities, avoidance and minimization measures, and take indicators, NMFS recommends that the project biologist for this opinion and the ODOT-liaison to NMFS be included in meetings to discuss coordination between projects.
2. Because NMFS is particularly concerned with impacts to shallow water habitat – that shoreline habitat represented by water depths less than 15-feet – NMFS recommends that a silt curtain be utilized during in-water trenching operations occurring closest to shore. NMFS believes this will encourage juvenile, out-migrating salmonids to be directed around the construction area, thereby minimizing potential take to this life stage.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the U.S. Army Corps of Engineers 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.

EFH for Pacific coast salmon was identified as being present within the action area (PFMC 2014). No HAPCs were identified. Based on information provided by the action agency and the analysis of effects presented in the ESA portion of this document, NMFS concludes that proposed action will have adverse effects on EFH designated for Chinook and coho salmon (i.e., Pacific Salmon EFH). These effects include:

1. Temporary disturbance and/or injury from in-water/near-water construction activities;
2. Long-term injury and habitat impairment (water quality, temperature) resulting from the change in wastewater discharge location;
3. Long-term habitat degradation (water quantity, temperature) resulting from climate change; and
4. Long-term, incremental habitat improvement (water quality, temperature) resulting from relocation of WES' WRRF outfall location and design improvements.

The RPMs, above, also serve to minimize these effects on Pacific Salmon EFH. Implementation of RPMs 1 and 2, including all required Terms and Conditions, will serve as conservation measures for Pacific Salmon EFH.

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 Oregon Washington Coastal Office, in Portland, Oregon.

Please contact Brad Rawls in the Oregon Washington Coastal Office at 503-231-5414 or at brad.rawls@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,



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Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Caila Heintz, Corps Project Manager
Greg Geist, Applicant
Peggy O'Neill, Consultant Project Manager

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