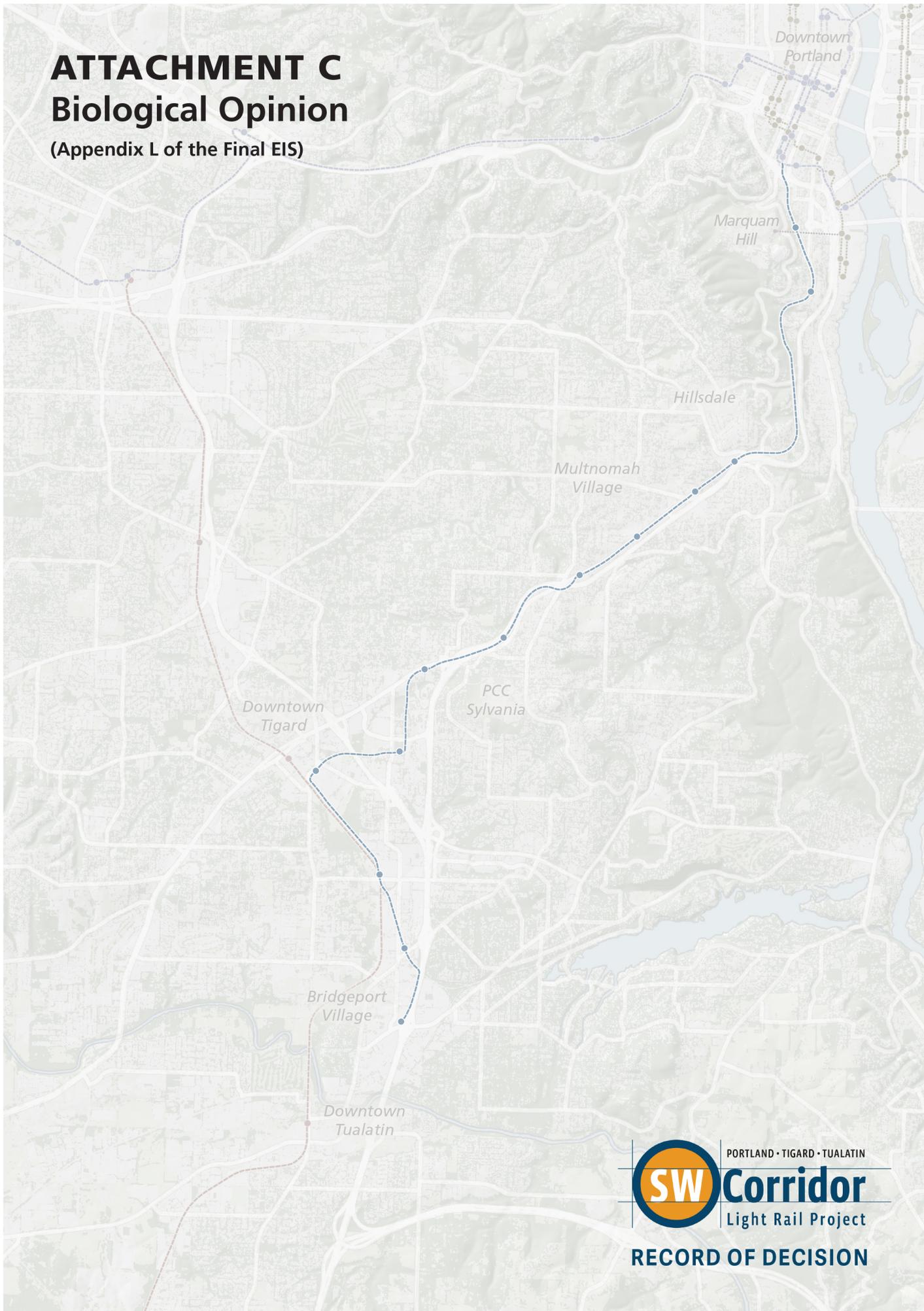


# ATTACHMENT C

## Biological Opinion

(Appendix L of the Final EIS)



**RECORD OF DECISION**



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

Refer to NMFS No:  
WCRO-2020-00611

September 1, 2021

Linda Gehrke  
Regional Administrator  
U.S. Department of Transportation  
Federal Transit Administration, Region X  
915 2nd Avenue, Suite 3142  
Seattle, Washington 98174-1002

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-County Metropolitan Transportation District of Oregon's Southwest Corridor Light Rail Project (HUCs 170900120202, 170900120104, 170900100502), Multnomah and Washington Counties, Oregon

Dear Ms. Gehrke:

This letter responds to your March 18, 2020, request for initiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action. Your request qualified for our condensed 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 Federal Transit Administration's (FTA) consultation request and related initiation package. Where relevant, we have adopted the information and analyses you have provided and/or referenced but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. We adopt by reference here the following sections of the Southwest Corridor Light Rail Project (Project) Biological Assessment (BA; FTA 2020):

- Section 1 *Introduction* (of the BA) including the proposed action;
- Section 2 *Project Description* including the proposed action and action area;
- Section 3 *Environmental Setting* including the environmental baseline;
- Section 4 *Natural History and Species Occurrence* including status of the species and critical habitat;
- Section 5 *Analysis of Effects of the Proposed Action* including effects of the action and cumulative effects;
- Section 6 *Avoidance, Minimization and Conservation Measures* including effects of the action; and
- Section 8 *Essential Fish Habitat Consultation* for the Magnuson-Stevens Fisheries Conservation and Management Act essential fish habitat analysis.

WCRO-2020-00611



At FTA’s request, NMFS participated in project steering meetings beginning in late 2017. NMFS provided pre-consultation (PC) assistance during these meetings. Quarterly project meetings included FTA, TriMet, Metro, City of Portland, the City of Tigard, a number of consultants (collectively, the Project Team), and NMFS. PC meetings afforded the project team and NMFS multiple opportunities to discuss preliminary design elements, scope and scale of anticipated impacts, assessment methods, areas of concern, avoidance and minimization measures, and documentation requirements for the consultation process. Consultation was formally initiated on March 18, 2020, upon receipt of the FTA’s initiation package. The following represent formal project meetings that were held between the Project Team and NMFS, though numerous informal phone calls and emails also occurred.

November 20, 2017	City of Portland streamlining meeting presentation on Project concepts and discussion of regulatory issues	FTA, TriMet, Metro, City of Portland, consultant team, presenting to NMFS, USFWS, ODFW, ODEQ, Corps, and DSL
March 12, 2018	Project Steering Committee quarterly meeting	FTA, TriMet, Metro, City of Portland, consultant team, and NMFS
July 19, 2018	Project Steering Committee quarterly meeting	FTA, TriMet, Metro, City of Portland, consultant team, and NMFS
September 10, 2018	Coordination meeting to discuss project impacts, NEPA process, and ESA consultation process	FTA, TriMet, Metro, consultant team, and Brad Rawls (NMFS)
January 14, 2019	Preliminary stormwater management discussion	TriMet, City of Portland, consultant team, and Brad Rawls (NMFS)
March 5, 2019	Continued stormwater management discussion and scope of project impacts presentation	TriMet, Metro, consultant team, and Brad Rawls (NMFS)
May 30, 2019	Discussion on consultation approach and initiation submittal requirements	FTA, TriMet, Metro, consultant team, and Brad Rawls (NMFS)
October 1, 2019	Technical Memorandum on stormwater runoff functional assessment approach submitted for review by NMFS	Project team to Brad Rawls (NMFS)
November 8, 2019	Review comments on stormwater Technical Memorandum submitted	Brad Rawls (NMFS) to Project team
March 18, 2020	Consultation initiation package received	--
USFWS = U.S. Fish and Wildlife Service; ODFW = Oregon Department of Fish and Wildlife; ODEQ = Oregon Department of Environmental Quality; Corps = U.S. Army Corps of Engineers; DSL = Oregon Department of State Lands		

The FTA is proposing to fund, in part, a new light rail transit extension in Portland, Oregon. The applicants, Tri-County Metropolitan Transportation District of Oregon (TriMet) and the Metropolitan Planning Organization for Portland (Metro), propose to construct a light rail transit facility along a corridor within the cities of Portland, Tigard, and Tualatin, as an improvement to the overall transit system within the metropolitan area. Both Metro and TriMet are the designated non-federal representatives for this consultation.

The proposed action includes constructing a new Metropolitan Area Express (MAX), 11-mile light rail line extending from the downtown Portland Transit Mall to a southern terminus at Bridgeport Village in Tualatin. The light rail alignment is in a highly urbanized area, and reconstructs multiple segments of arterial streets that currently have limited to no sidewalks, bike lanes, or stormwater management facilities. It includes 4 surface water crossings, 13 new light

rail stations, new sidewalks, new bike lanes, new park and ride facilities with approximately 2,100 new or reconstructed parking spaces, and new stormwater treatment and detention facilities serving the length of the proposed action. The proposed action is expected to serve an estimated 37,000 to 39,000 daily riders, and is intended to provide an alternative to automobile use and related environmental impacts. Description of specific project elements and construction methods are described in Sections 1 and 2 of the BA (FTA 2020).

We examined the status of each species that would be 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 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 of the BA identifies the listed species in Table 1-2 and critical habitats in Table 1-3, respectively; whereas, Section 4 provides specific status information on those listed species and designated critical habitats occurring in the action area (FTA 2020). Based on our own analysis and data, (IC-TRT 2011; NMFS 2009; NMFS 2011; NMFS 2013; NMFS 2015a; NMFS 2015b; NMFS 2016; NMFS 2017a; NMFS 2017b; NMFS 2017c; NMFS 2018; NMFS and ODFW 2011; and NWFSC 2015) NMFS concurs with the listed species and critical habitats which may be adversely affected, which include:

ESA-Listed Species	Status	ESA-Listed Species	Status
Lower Columbia River Chinook salmon <sup>1,2</sup> ( <i>Oncorhynchus tshawytscha</i> )	Threatened 6/28/05 CH 09/02/05	Upper Columbia River steelhead <sup>6,2</sup> ( <i>O. mykiss</i> )	Threatened 1/5/06 CH 09/02/05
Upper Columbia River spring-run Chinook salmon <sup>1,2</sup> ( <i>O. tshawytscha</i> )	Endangered 6/28/05 CH 09/02/05	Lower Columbia River steelhead <sup>6,2</sup> ( <i>O. mykiss</i> )	Threatened 1/5/06 CH 09/02/05
Snake River spring/summer-run Chinook salmon <sup>1,3</sup> ( <i>O. tshawytscha</i> )	Threatened 6/28/05 CH 10/25/99	Upper Willamette River steelhead <sup>6,2</sup> ( <i>O. mykiss</i> )	Threatened 1/5/06 CH 09/02/05
Upper Willamette River Chinook salmon <sup>1,2</sup> ( <i>O. tshawytscha</i> )	Threatened 6/28/05 CH 09/02/05	Middle Columbia River steelhead <sup>6,2</sup> ( <i>O. mykiss</i> )	Threatened 1/5/06 CH 09/02/05
Snake River fall-run Chinook salmon <sup>1,4</sup> ( <i>O. tshawytscha</i> )	Threatened 6/28/05 CH 12/28/93	Snake River basin steelhead <sup>6,2</sup> ( <i>O. mykiss</i> )	Threatened 1/5/06 CH 09/02/05
Columbia River chum salmon <sup>1,2</sup> ( <i>O. keta</i> )	Threatened 6/28/05 CH 09/02/05	Southern DPS of green sturgeon <sup>7,8</sup> ( <i>Acipenser medirostris</i> )	Threatened 4/7/06 CH 10/09/09
Lower Columbia River coho salmon <sup>1,5</sup> ( <i>O. kisutch</i> )	Threatened 6/28/05 CH 09/02/05	Southern DPS of eulachon <sup>9,10</sup> ( <i>Thaleichthys pacificus</i> )	Threatened 3/18/10 CH 10/20/11
Snake River sockeye salmon <sup>1,4</sup> ( <i>O. nerka</i> )	Endangered 6/28/05 CH 12/28/93		
<sup>1</sup> 70 FR 37160; <sup>2</sup> 70 FR 25630; <sup>3</sup> 64 FR 57399; <sup>4</sup> 58 FR 68543 <sup>5</sup> 81 FR 9252;		<sup>6</sup> 71 FR 834; <sup>7</sup> 71 FR 17757; <sup>8</sup> 74 FR 30714; <sup>9</sup> 75 FR 13012; <sup>10</sup> 74 FR 65324	

“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 of the BA describes the action area by distinguishing the terrestrial and aquatic portions of the overall action area (FTA 2020), and is hereby incorporated by reference. The terrestrial portion of the action area includes all portions of the construction footprint, as well as those areas within 0.25 mile of that footprint. The action area also includes surface streams and wetlands that are crossed by the alignment and the receiving waters to which stormwater discharges. The named surface

waters include Stephens Creek, Tryon Creek, Ash Creek, Red Rock Creek, Ball Creek and Fanno Creek. In addition, a number of unnamed headwater tributaries to the named streams will receive stormwater discharge from the proposed action (FTA 2020). The action area terminates where the Columbia River discharges to the Pacific Ocean.

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 of the BA provides a description of the baseline conditions of aquatic and terrestrial resources that will be impacted as a result of the proposed action. We have adopted the information provided and/or referenced in Section 3 the BA (FTA 2020) 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).

Section 5 of the BA provides a detailed discussion and comprehensive assessment of the effects of the proposed action and is adopted here per 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 temporary and long-term effects of this proposed action are:

Short-term impacts include:

- Increased risk of sedimentation and turbidity,
- Partial up- and downstream passage barriers during construction, and
- General construction-related noise/vibrations/light.

Long-term impacts include:

- Habitat alteration from vegetation removal
- Increases in impervious surface/increase in water quality pollutants

The following 15 populations and the critical habitats are likely to be adversely affected by the long-term, incremental, impairment to water quality in action area receiving waters. These species are:

- LCR Chinook Salmon ESU;
- LCR Coho Salmon ESU;
- LCR Steelhead Trout DPS (winter- and summer-run);
- Upper Willamette River (UWR) Chinook ESU;
- UWR Steelhead Trout DPS (winter-run);
- Columbia River (CR) Chum Salmon ESU;
- Snake River (SR) Sockeye Salmon ESU;
- SR fall-run Chinook Salmon ESU;
- SR spring/summer-run Chinook Salmon ESU;
- Upper Columbia River (UCR) Chinook Salmon ESU;
- UCR Steelhead Trout DPS
- Snake River Basin (SRB) Steelhead Trout DPS
- Middle Columbia River (MCR) Steelhead Trout DPS
- Southern Green Sturgeon DPS
- Southern Eulachon DPS

An analysis of the effects of the proposed action on designated critical habitat is contained in Section 5 of the BA, which is hereby incorporated by reference. The primary impact on critical habitat is increased pollutant loads that would enter affected waters as the proposed action will add 33.8 ac of new impervious surface. The proposed action will redevelop – or collect stormwater from – approximately 120 ac of existing impervious surface area, including 82 ac of which are currently untreated/undertreated for stormwater pollutants. Proposed stormwater facilities will use a variety of approaches to meet water quality treatment criteria for local, state, and federal regulators. Despite a robust stormwater treatment approach, some water quality contaminants will be discharged to receiving waters, due to facility inefficiency for certain pollutants and storm events which may exceed facility design (Claytor and Brown 1996; NCHRP 2006). Consequently, the proposed action will contribute pollutants to receiving waters, which constitutes a long-term adverse effect to critical habitat, but at substantially reduced concentrations from untreated stormwater (Carls and Meador 2009; Claytor and Brown 1996; Sandahl et al. 2007; Scholz et al. 2011; Spromberg and Meador 2006; Spromberg et al. 2016). Because the proposed action will provide treatment for 82 ac of existing impervious surface area, the proposed action will result in a long-term, incremental net beneficial effect to waters receiving stormwater runoff.

“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. Sections 5.2.2 (Land Use Changes) and 5.4 (Cumulative Effects) of the BA (FTA 2020) provides a comprehensive assessment of the cumulative effects of the proposed action and is adopted here per 50 CFR 402.14(h)(3). The cumulative effects identified are largely proximate to the transit corridor, but their effect could extend to areas outside the proposed action’s action area.

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 Sections 2 and 6 of the BA, the activities associated with the construction and operation of the proposed action can be offset, to some degree, through implementation of appropriate construction BMPs, avoidance and minimization measures, and operational (monitoring and maintenance) BMPs. The BMPs that are proposed were selected based on their consistency with measures detailed in existing programmatic opinions for transportation-related actions (NMFS 2013; NMFS 2014a; NMFS 2021). These measures are likely to minimize exposure of ESA-listed fish species to the adverse effects of construction noise and disturbance, turbidity and sedimentation, limitations to up and downstream passage, increased stormwater runoff, and adverse hydromodification. To a lesser degree, land use changes may result in increased protection for fish-bearing streams outside the UGB and delay development-related effects to both listed species and critical habitats (FTA 2020; Metro 2000).

Adverse effects associated with stormwater pollutants will occur in the receiving waters into which the proposed stormwater facilities would discharge, as well as, the Tualatin River, the lower Willamette River, and the lower Columbia River. Pollutants in stormwater runoff from the proposed action will combine with pollutants from other sources in mixtures and concentrations that exceed thresholds for sublethal and lethal effects on the growth and survival of individual fish (Claytor and Brown 1996). The effect of the action on populations would be the integrated responses of individual fish to the predicted environmental changes. 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. 2000). A persistent change in the environmental conditions affecting a population, for better or worse, can lead to changes in each of these population characteristics.

NMFS identified many factors as limiting the recovery of the salmon species analyzed in this opinion, but only three that will be affected by the proposed action: substrate, water quality, and estuarine and nearshore marine conditions. The identification of substrate and water quality as limiting factors refers to both tributary and mainstem conditions. Within the Willamette-Lower Columbia (WLC) recovery domain, estuarine and nearshore marine conditions are limiting for CR chum salmon and LCR Chinook salmon; stream substrate is limiting for LCR Chinook salmon, CR chum salmon, LCR coho salmon, and LCR steelhead; and water quality is limiting for LCR Chinook salmon, UWR Chinook salmon, CR chum salmon, and LCR coho salmon (NMFS 2011c; NMFS 2013; NMFS 2016). Similarly, for species within the Interior Columbia (IC) recovery domain, estuarine and nearshore marine conditions are limiting for UCR spring-run Chinook salmon; stream substrate is limiting for UCR spring-run Chinook salmon, SR

spring/summer-run Chinook salmon, UCR steelhead, MCR steelhead, and SRB steelhead; and water quality is a factor limiting recovery of SR spring/summer-run Chinook salmon, MCR steelhead, and SRB steelhead (IC-TRT 2011; NMFS 2009; NMFS 2014b). SR sockeye are not limited by any of these three factors (NMFS 2017a).

For Southern DPS green sturgeon, NMFS identified the primary limiting factor as reduction of its spawning area to a single known population limited to a small portion of the Sacramento River, although poaching, the effects of nonnative species, and effects of contaminants were identified as other potentially serious threats (NMFS 2015a). Of those, this action affects contaminants. Limiting factors for Southern DPS eulachon include water pollution and sediment balances, which are also affected by this action, although the primary threats appear to be changes in ocean and freshwater conditions due to climate change, by-catch of eulachon in commercial fisheries, adverse effects related to dams and water diversions, artificial fish passage barriers, over-harvest, and predation (NMFS 2017b).

The effects of the proposed action are likely to cause a small addition to the limiting factors related to estuarine and nearshore marine conditions. However, substrate and water quality, contaminant exposure, and water pollution from the project area are expected to have a long-term, adverse effect on the listed species and critical habitats evaluated in this Opinion. This includes the following named streams and rivers:

- Stephens Creek, downstream of the Hwy 43 crossing;
- Tryon Creek and unnamed headwater tributaries;
- Red Rock Creek and unnamed tributaries;
- Ball Creek and unnamed tributaries;
- Fanno Creek and unnamed tributaries;
- Tualatin River;
- Willamette River; and
- Columbia River

Those effects will be due to the additive effect of contributing persistent pollutants to areas with impaired water quality and contaminated substrate, and making them available for accumulation in the prey base (Sandahl et al. 2007; Scholz et al. 2011; Spromberg and Meador 2006). These impacts are likely to impair essential fish rearing and feeding behavior patterns for some individuals of each species considered. However, the number of individual salmon, steelhead, southern green sturgeon, or eulachon injured or killed annually from this incremental increase in stormwater pollutants will be commensurate with its contribution to the total pollutant load that now enters the Columbia River from all sources, and therefore, is not likely to cause a new risk of harm or deterioration in the pre-action condition of any species or appreciably reduce the likelihood of survival or recovery.

Of the 15 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). 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. 2000). Toxic pollutant loading in the receiving waters downstream of the proposed action has decreased and is likely to continue to decrease due to abatement of anthropogenic sources, techniques to minimize stormwater pollutant contributions, and natural flushing process of stream and river discharge (NCHRP 2006). The listed species considered in this opinion are likely to benefit from such a decreasing pollutant load.

Climate change presents a number of unknowns for Columbia 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 (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, except CR chum salmon. 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).

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. Climate change will likely result in a generally negative effects on stream flow and temperature. Information in Section 3 of the BA describes the environmental baseline in the action area as poor, particularly with regard to water quality. NMFS assumes that the environmental baseline is not meeting all biological requirements of individual fish of listed species. This is due to one or more impaired aquatic habitat functions related to any of the habitat factors limiting the recovery of the species in that area. As described in Sections 5.2.2 and 5.4 of the BA, the cumulative effects are likely to have an adverse impact on critical habitat PBFs (water quality), but that redevelopment within the action area will likely result in an incremental water quality improvement as sites are redeveloped with more protective regulations for stormwater treatment. Additionally, any future project that entails in-water work will require appropriate Federal and ESA review.

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 the following species or destroy or adversely modify their designated critical habitat:

- Lower Columbia River Chinook salmon
- Upper Columbia River spring-run Chinook salmon
- Snake River spring/summer-run Chinook salmon
- Upper Willamette River Chinook salmon
- Snake River fall-run Chinook salmon
- Columbia River chum salmon
- Lower Columbia River coho salmon
- Snake River sockeye salmon
- Upper Columbia River steelhead
- Lower Columbia River steelhead
- Upper Willamette River steelhead
- Middle Columbia River steelhead

- Snake River basin steelhead
- Southern DPS of green sturgeon
- Southern DPS of eulachon

## **INCIDENTAL TAKE STATEMENT**

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

### **Amount or Extent of Take**

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

#### Construction-related direct and indirect effects:

Only LCR coho salmon and UWR steelhead are likely to occur in habitats directly affected by construction-related actions. These species occur in Fanno Creek, and despite fish passage barriers, these species might also occur within the lower portions of Red Rock Creek and Ball Creek where construction activities are proposed. Potential direct effects to these species that may result in take include the reduction or disturbance of aquatic habitat, increased sedimentation and turbidity, increased shading, potential fish salvage methods, and removal and fill within the 100-year floodplain. Fish affected by the proposed action 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), and to permanent (shading from new structure crossings).

The proposed action includes a number of avoidance and minimization BMPs to prevent, to the extent practicable, take of LCR coho salmon and UWR steelhead individuals from construction activities (FTA 2020). BMPs include seasonal work restriction for in-water work (e.g., work windows); dewatering screening criteria; use of experienced biologists to conduct removal activities (if needed); 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. 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 footprint:
  - a. 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.
  - b. Acres of upland vegetation disturbed in the riparian zone and floodplain.
  - c. Number of trees removed greater than 6" diameter at breast height in the riparian zone.
  - d. Acres of upland vegetation restored in the riparian zone and floodplain.
  - e. Number of trees replanted in the riparian zone.
  - f. Acres of net new impervious area created.
2. For construction discharge:
  - a. Construction runoff turbidity may not exceed 10% increase in 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 action will result in the creation of new impervious surface area and reconstruction of existing impervious surface area, both of which will generate stormwater runoff. Stormwater runoff conveys pollutants that degrade water quality in receiving waters. Because of the persistent nature of a number of stormwater pollutants, individuals from all listed populations evaluated in this Opinion may experience take as a result of water quality impairment.

The proposed action includes a number of stormwater BMPs to treat and manage stormwater, thereby minimizing adverse effects to Columbia Basin listed salmonids, southern green sturgeon, and southern eulachon (FTA 2020). The effectiveness of stormwater facilities to treat and

manage runoff relies upon monitoring and maintenance of each facility. Documentation of facility monitoring and maintenance will serve as a take surrogate for water quality protection from stormwater pollutants. Documentation will include the following:

1. Development of a Post-construction Stormwater Management Plan (PCSMP) for the project alignment. The PCSMP will identify all stormwater basins that receive stormwater from impervious surface in the Project footprint and areas of impervious surface contiguous to the Project that drain onto Project impervious surfaces. Provide:
  - a. A map delineating all stormwater basins and a corresponding key or table that details:
    - i. A description of the stormwater treatment and management facilities constructed to treat and manage stormwater discharged to each basin;
    - ii. The receiving water to which the stormwater facility discharges;
    - iii. A description of the effectiveness and capacity of the stormwater facilities based on the expected runoff volume, including, the design storm, BMP geometry, and analyses of residence time, as appropriate.
  - b. A description of the maintenance, repair, and component replacement requirements for each facility, or general type of facility constructed. Include:
    - i. Manufacturer operations and maintenance specifications, if applicable;
    - ii. Proposed routine maintenance schedule and description of maintenance activities;
    - iii. Conditions triggering maintenance outside those routinely scheduled (e.g., recent storm size, specific weather conditions);
    - iv. Proposed inspection schedule and description of facility elements to be inspected; and
    - v. Vegetation condition criteria, for vegetated facilities, required to determine proper functioning condition. Include the methods by which such criteria will be determined (e.g., percent cover, percent bare ground, number of dead plants).
  - c. Identification of the jurisdictional authority responsible for the operations, inspections, and maintenance of each facility.
2. For five consecutive years following commencement of Project operations, provide an annual report to NMFS that documents for each stormwater facility:
  - a. Routine inspections conducted;
  - b. Non-routine inspections conducted and the cause;
  - c. Maintenance activities undertaken;
  - d. Maintenance activities recommended for later implementation.

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

## **Reasonable and Prudent Measures**

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

1. Minimize incidental take associated with Project construction by ensuring that all BMPs described in the proposed action and this Opinion are implemented and reported, as appropriate.
2. Minimize incidental take associated with post-construction operations by ensuring development and implementation of a comprehensive monitoring and reporting program authorized or conducted by the FTA or its applicants.

## **Terms and Conditions**

The terms and conditions described below are non-discretionary, and the FTA or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The FTA 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 FHWA, 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 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).
      1. 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.

2. 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.
- ii. 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.
  - 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. Implement the monitoring and maintenance requirements described in the ITS under “Operations-related effects:”
  - b. The applicant must submit monitoring reports to:

[projectreports.wcr@noaa.gov](mailto:projectreports.wcr@noaa.gov)

Attn: WCRO-2020-00611

## **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 with this Opinion.

## **Reinitiation of Consultation**

Reinitiation of consultation is required and shall be requested by FTA 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.

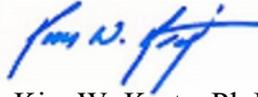
NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was 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. These effects include:

1. Temporary disturbance and/or injury, including mortality, from construction activities in proximity to the instream environment and fish removal practices;
2. Long-term injury and habitat impairment (water quality, sediment composition) as a result of increased stormwater pollutant generation;
3. Long-term habitat improvement (water quality, sediment composition) as stormwater treatment BMPs reduce stormwater contaminant concentrations over time.

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, at 503-231-5414.

Sincerely,



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

cc: Mark A. Assam

## REFERENCES

- Abatzoglou, J.T., Rupp, D.E. and Mote, P.W. 2014. Seasonal climate variability and change in the Pacific Northwest of the United States. *Journal of Climate* 27(5): 2125-2142.
- Carls, M.G., and J.P. Meador. 2009. A perspective on the toxicity of petrogenic PAHs to developing fish embryos related to environmental chemistry. *Human and Ecological Risk Assessment: An International Journal* 15(6):1084-1098.
- Claytor, R.A., and W.E. Brown. 1996. Environmental indicators to assess stormwater control programs and practices: Final report. Center for Watershed Protection. Silver Spring, Maryland. URL: [http://books.google.com/books/about/Environmental\\_Indicators\\_to\\_Assess\\_Storm.html?id=d7NwGQAACAAJ](http://books.google.com/books/about/Environmental_Indicators_to_Assess_Storm.html?id=d7NwGQAACAAJ).
- Crozier, L.G., Hendry, A.P., Lawson, P.W., Quinn, T.P., Mantua, N.J., Battin, J., Shaw, R.G. and Huey, R.B., 2008. Potential responses to climate change in organisms with complex life histories: evolution and plasticity in Pacific salmon. *Evolutionary Applications* 1(2): 252-270.
- Dominguez, F., E. Rivera, D. P. Lettenmaier, and C. L. Castro. 2012. Changes in Winter Precipitation Extremes for the Western United States under a Warmer Climate as Simulated by Regional Climate Models. *Geophysical Research Letters* 39(5).
- Federal Transit Administration (FTA). 2020. Southwest Corridor Light Rail Project Biological Assessment. March 2020.
- Goode, J.R., Buffington, J.M., Tonina, D., Isaak, D.J., Thurow, R.F., Wenger, S., Nagel, D., Luce, C., Tetzlaff, D. and Soulsby, C., 2013. Potential effects of climate change on streambed scour and risks to salmonid survival in snow-dominated mountain basins. *Hydrological Processes* 27(5): 750-765.
- IC-TRT. 2011. Draft recovery plan for Idaho Snake River spring/summer Chinook and steelhead populations in the Snake River spring/summer Chinook salmon evolutionarily significant unit and Snake River steelhead distinct population segment (chapters 1-3) National Marine Fisheries Service, Northwest Region, Protected Resources Division. Boise, Idaho. <http://www.idahosalmonrecovery.net>.
- McElhany, P., M.H. Ruckelshaus, M.J. Ford, T.C. Wainwright, and E.P. Bjorkstedt. 2000. Viable salmonid populations and the recovery of evolutionarily significant units. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-42. Seattle. 156 p.
- Metro. 2000. The nature of 2040: The region's 50-year plan for managing growth. Metro. Portland, Oregon.
- National Cooperative Highway Research Program (NCHRP). 2006. Evaluation of Best Management Practices for Highway Runoff Control. Transportation Research Board. NCHRP Report 565. Washington, D.C.

- NMFS. 2009. Middle Columbia River steelhead distinct population segment ESA recovery plan. National Marine Fisheries Service, Northwest Region. Seattle.
- NMFS. 2011. Columbia River estuary ESA recovery plan module for salmon and steelhead. Prepared for NMFS by the Lower Columbia River Estuary Partnership (contractor) and PC Trask & Associates, Inc. (subcontractor). National Marine Fisheries Service, Northwest Region. Portland, Oregon. January. URL: [http://www.nwr.noaa.gov/publications/recovery\\_planning/salmon\\_steelhead/domains/willamette\\_lower\\_columbia/estuary-mod.pdf](http://www.nwr.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/willamette_lowercol/lower_columbia/estuary-mod.pdf).
- NMFS. 2013. ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead. National Marine Fisheries Service, Northwest Region. June
- NMFS. 2014. Revised Standard Local Operating Procedures for Endangered Species to Administer Maintenance or Improvement of Stormwater, Transportation, and Utility Actions Authorized or Carried Out by the U.S. Army Corps of Engineers in Oregon (SLOPES for Stormwater, Transportation or Utilities). NMFS Consultation #NWR-2013-10411. March 2014.
- NMFS. 2015a. Southern Distinct Population Segment of the North American Green Sturgeon (*Acipenser medirostris*) 5-Year Review: Summary and Evaluation. West Coast Region, Long Beach, California. 42 p.
- NMFS. 2015b. ESA Recovery Plan for Snake River Sockeye Salmon (*Oncorhynchus nerka*). NMFS West Coast Region, June 2015.
- NMFS. 2016. 5-year review: summary and evaluation of Lower Columbia River Chinook, Columbia River chum, Lower Columbia River coho, and Lower Columbia River steelhead. National Marine Fisheries Service. Portland, Oregon.
- NMFS. 2017a. ESA Recovery Plan for Snake River Fall Chinook Salmon (*Oncorhynchus tshawytscha*). NMFS West Coast Region, November 2017
- NMFS. 2017b. Recovery Plan for the Southern Distinct Population Segment of Eulachon (*Thaleichthys pacificus*). National Marine Fisheries Service, West Coast Region, Protected Resources Division, Portland, OR, 97232
- NMFS. 2017c. ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon (*Oncorhynchus tshawytscha*) & Snake River Basin Steelhead (*Oncorhynchus mykiss*).
- NMFS. 2018. Recovery Plan for the Southern Distinct Population Segment of North American Green Sturgeon (*Acipenser medirostris*). Sacramento CA. URL: [http://www.westcoast.fisheries.noaa.gov/protected\\_species/green\\_sturgeon/green\\_sturgeon\\_pg.html](http://www.westcoast.fisheries.noaa.gov/protected_species/green_sturgeon/green_sturgeon_pg.html)

- NMFS. 2021. Reinitiation of the Endangered Species Act Programmatic Biological Opinion and Magnuson-Stevens Act Essential Fish Habitat Response for the Federal-Aid Highway Program in the State of Oregon (FAHP). (January 29, 2021) (Refer to: NMFS No.: 2021-00004). National Marine Fisheries Service, West Coast Region. Portland, Oregon.
- NMFS (National Marine Fisheries Service) and ODFW (Oregon Department of Fish and Wildlife). 2011. Endangered Species Act - Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead. Portland, Oregon. August 5, 2011.
- Northwest Fisheries Science Center (NWFSC). 2015. Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest.
- Pacific Fishery Management Council (PFMC). 2014. Appendix A to the Pacific Coast Salmon Fishery Management Plan, as modified by Amendment 18 to the Pacific Coast Salmon Plan: Identification and description of essential fish habitat, adverse impacts, and recommended conservation measures for salmon. Pacific Fishery Management Council, Portland, OR. September 2014. 196 p. + appendices.
- Raymondi, R.R., J.E. Cuhaciyan, P. Glick, S.M. Capalbo, L.L. Houston, S.L. Shafer, and O. Grah. 2013. Water Resources: Implications of Changes in Temperature and Precipitation. In *Climate Change in the Northwest: Implications for Our Landscapes, Waters, and Communities*, edited by M.M. Dalton, P.W. Mote, and A.K. Snover, 41-58. Island Press, Washington, DC.
- Sandahl, J.F., D.H. Baldwin, J.J. Jenkins, and N.L. Scholz. 2007. A sensory system at the interface between urban stormwater runoff and salmon survival. *Environmental Science & Technology* 41(8):2998-3004
- Scheuerell, M.D., and J.G. Williams. 2005. Forecasting climate-induced changes in the survival of Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*). *Fisheries Oceanography* 14:448-457. Shared Strategy for Puget Sound. 2007. Puget Sound salmon recovery plan. Volume 1, recovery plan. Shared Strategy for Puget Sound. Seattle.
- Scholz, N.L., M.S. Myers, S.G. McCarthy, J.S. Labenia, J.K. McIntyre, G.M. Ylitalo, L.D. Rhodes, C.A. Laetz, C.M. Stehr, B.L. French, B. McMillan, D. Wilson, L. Reed, K.D. Lynch, S. Damm, J.W. Davis, and T.K. Collier. 2011. Recurrent die-offs of adult coho salmon returning to spawn in Puget Sound lowland urban streams. *Plos One* 6(12):e28013.
- Spromberg, J.A., and J.P. Meador. 2006. Relating chronic toxicity responses to population-level effects: A comparison of population-level parameters for three salmon species as a function of low-level toxicity. *Ecological Modeling* 199:240-252.
- Spromberg, J.A., Baldwin, D.H., Damm, S.E., McIntyre, J.K., Huff, M., Davis, J.W., and Scholz, N.L. 2016. Widespread adult coho salmon spawner mortality in western U.S. urban watersheds: lethal impacts of stormwater runoff are reversed by soil bioinfiltration. *Journal of Applied Ecology*, 53:398-407.

- Winder, M. and D. E. Schindler. 2004. Climate change uncouples trophic interactions in an aquatic ecosystem. *Ecology* 85: 2100–2106
- Zabel, R.W., M.D. Scheuerell, M.M. McClure, and J.G. Williams. 2006. The interplay between climate variability and density dependence in the population viability of Chinook salmon. *Conservation Biology* 20(1):190-200