

Environmental Review Record

City of Ontario Sewer Improvement Project

Subject: Area of Potential Effects Notification for the Sewer Line Replacement Project, Ontario, Malheur County, Oregon

Ontario Oregon, Malheur County

Categorical Exclusion — NEPA Environmental Documentation

The following agencies/agents have been contacted regarding this project.

<u>Agency/Contact/ Data Source</u>	<u>Address</u>	<u>Name</u>	<u>Contact Date</u>	<u>Response</u>
ESA				
U.S. Fish and Wildlife Services-IPaC-Official Species List	https://ecos.fws.gov/ipac/location/index	NA	April 3, 2020	April 3, 2020- Official Species List
National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)	http://www.westcoast.fisheries.noaa.gov/maps_data/endangered_species_act_critical_habitat.html http://www.nwr.noaa.gov/maps_data/species_population_boundaries.html https://www.fisheries.noaa.gov/resource/map/critical-habitat-salmon-and-steelhead-all-west-coast https://www.fisheries.noaa.gov/resource/map/species-ranges-salmon-and-steelhead-all-west-coast https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-sockeye-salmon https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-fall-run-chinook-salmon	NA	April 3, 2020	na

<u>Agency/Contact/ Data Source</u>	<u>Address</u>	<u>Name</u>	<u>Contact Date</u>	<u>Response</u>
	https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-spring-summer-run-chinook-salmon; https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-basin-steelhead			

Endangered Species Act Guidance for Oregon

Prepared in collaboration with the US Fish and Wildlife Service and NOAA Fisheries Service
 Applies in Oregon only

General requirements	ESA Legislation	HUD Regulations
Section 7(a)(2) of the Endangered Species Act mandates that actions that are authorized, funded, or carried out by Federal agencies do not jeopardize the continued existence of plants and animals that are listed, or result in the adverse modification or destruction of designated critical habitat.	The Endangered Species Act of 1973; 16 U.S.C. 1531 et seq.	24 CFR 58.5(e) 24 CFR 50.4(e)

Purpose

The purpose of this guidance is to assist the U.S. Department of Housing and Urban Development (HUD) and their designated responsible entities who have assumed responsibility for environmental compliance to meet their duty to consult with the US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (NOAA Fisheries) under Section 7(a)(2) of the Endangered Species Act (ESA). Users will be able to determine whether their development projects are likely to have “no effect” on ESA-listed species and critical habitats, and thus do not require any further coordination with, or approval from, the USFWS or NOAA Fisheries.

If you make a “no effect” decision for your project, please document the circumstances and reason for your decision in a memo to file for use if the decision is ever reviewed by another party. If you find that your action “may affect” an ESA-listed species or critical habitat, including a result of post-construction runoff, then you must contact USFWS, NOAA Fisheries, or both to determine whether the project can be modified to eliminate the possibility of an adverse effect. If the adverse effect cannot be eliminated, further consultation with USFWS and/or NOAA Fisheries will be required.

This guidance also includes links to additional resources that describe low-impact development (LID) practices, including many actions that HUD and responsible entities can use to avoid or minimize the adverse impacts of post-construction runoff. HUD or a responsible entity may still choose to complete an individual consultation when warranted by project-specific facts.

Definitions

- **Action Area** is all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.
- **Built environment** means roofs and paved areas like parking, patios, trails, retaining walls, sidewalks, streets, and amenities that prevent infiltration of rainwater into the water table.
- **Candidate Species** are plant and animal taxa considered for possible addition to the List of Endangered and Threatened Species. These are taxa for which the USFWS and NOAA Fisheries have sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions.
- **Critical Habitat** means those specific areas that have been designated by USFWS or NOAA Fisheries (in a rule-making in the *Federal Register*) as essential to the conservation of a listed species.
- **Impervious area** means artificial structures such as rooftops and pavements (e.g., driveways, parking lots, roads, sidewalks, trails) that are covered by impervious material like asphalt, brick, compacted soil, concrete, or stone.
- **Listed Species** means any species of fish, wildlife or plant that has been determined to be endangered or threatened under section 4 of the Endangered Species Act.

Version 6: June, 2016

- **Low impact development (LID)** means management principles and practices that reduce post-construction runoff by infiltrating rainfall into the water table, evaporating rainwater back into the atmosphere after a storm, or finding beneficial uses for rainwater instead of exporting it from the site as a waste product.
- **Nexus** means any action that is funded, authorized or carried out by a Federal agency that may affect ESA-listed species or habitats.
- **Post-construction runoff** means runoff from the built environment that extends off-site after a project's construction is complete.
- **Proposed Species** any species of fish, wildlife or plant that has been proposed by USFWS or NOAA Fisheries in the *Federal Register* to be listed under section 4 of the Endangered Species Act.
- **Proximity** means areas or effects that occur near ESA-listed species or habitats in space or time, including areas where species roost, feed, nest, rear, overwinter, or migrate. NOAA Fisheries considers projects that discharge post-construction stormwater to be in proximity with ESA-listed species or habitats that occur downstream of the discharge site.
- **Responsible entity** means the party authorized by HUD under 24 CFR Part 58 to complete any environmental review necessary for HUD to obligate funds.
- **Riparian area** means vegetation, habitats, or ecosystems that are associated with bodies of water, typically within 150-feet of a stream bank or the shoreline of a standing body of water.
- **Take** under the ESA is defined as actions that may harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect, or to attempt to engage in any such conduct. The ESA also protects against interfering in vital breeding and behavioral activities or degrading critical habitat.

Endangered Species Act Effects Determinations

Section 7 of the ESA requires all Federal agencies to insure that any action authorized, funded or carried out by the agency is not likely to jeopardize the continued existence of a listed species or destroy or adversely modify designated critical habitat. To this end, every project with a Federal nexus must be evaluated to determine its likely effect on listed and proposed species and designated critical habitat. HUD funding for a project serves as a Federal nexus triggering the requirement for environmental review under the ESA. HUD and Responsible Entities are also encouraged to consider candidate species in their evaluations.

- **No effect** means the proposed action will not have any direct or indirect effect on listed species or designated critical habitat.

No effect is the appropriate conclusion when the action agency determines its proposed action will not affect listed species or critical habitat. A determination of '*no effect*' must be supported in the environmental review record but does not require consultation with NOAA Fisheries or USFWS.

- **May affect** means the proposed action may have a direct or indirect effect on an ESA-listed species or critical habitat, including any habitat modification that alters water quality, physical habitat features, or other conditions that contribute to habitat value.

May affect, not likely to adversely affect is the appropriate conclusion when effects on listed species are expected to be *discountable*, or *insignificant*, or completely *beneficial*.

- **Beneficial effects** are contemporaneous positive effects without any adverse effects to the species.
- **Insignificant effects** relate to the size of the impact and should never reach the scale where take occurs. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects.
- **Discountable effects** are those extremely unlikely to occur. Based on best judgment, a person would not expect discountable effects to occur.

A determination of *'not likely to adversely affect'* requires informal consultation with NOAA Fisheries or USFWS (or both); informal consultation results in a Letter of Concurrence from NOAA Fisheries or USFWS.

May affect, likely to adversely affect is the appropriate conclusion if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. A determination of *'likely to adversely affect'* requires formal consultation under section 7 of the ESA; formal consultation results in a Biological Opinion from NOAA Fisheries or USFWS.

Background

An ESA effects analysis must consider both the direct and indirect effects of the action. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur. Few HUD actions occur within designated critical habitat, where direct injury or harm to ESA-listed species or critical habitat is easy to discern. But many HUD actions increase the area of the built environment, and thereby release post-construction runoff to the off-site environment. The indirect effects of post-construction runoff on the aquatic environment are the primary interaction between HUD actions and ESA-listed species and habitats.

One important indirect effect of post-construction runoff occurs when sediment and chemicals like oil, pesticides, and heavy metals accumulate on the built environment where they can be picked up by rainwater and transported into wetlands, lakes, and streams. Once there, those pollutants cause harm when they enter the food chain or otherwise degrade aquatic habitats. Other indirect effects occur when the built environment interrupts the natural cycle of rainwater infiltration into soil by diverting large volumes of post-construction runoff into drainage systems that quickly discharge into the nearest water body, where the effluent can cause erosion or downstream flooding that also harms ESA-listed species and habitats.

This guidance is based on the use of LID practices and principles that are simple, flexible, and economical to use, even in redevelopment situations. LID is highly effective for controlling stormwater impacts. Examples include use of permeable pavers, rain gardens, soil amendments, and tree retention to retain or recreate natural landscape features, reduce impervious cover, and increase on-site detention and infiltration.

Working Towards Recovery

The ESA requires all federal agencies to use their authorities to help conserve listed species. Therefore, as HUD-designated responsible entities, you are encouraged to minimize the effects of your actions on listed species, designated critical habitat and habitat identified in endangered species recovery plans. For your activities, you are especially encouraged to minimize your action's contribution to water quality degradation from point and non-point discharges, and water quantity alteration due to increased impervious surfaces.

DISCLAIMER: This document is intended as a tool to help grantees and HUD staff complete NEPA requirements. This document is subject to change. This is not a policy statement, and the Endangered Species Act and associated regulations take precedence over any information found in this document.

Questions concerning environmental requirements related to HUD programs can be addressed to Deborah Peavler-Stewart (206) 220-5414 or Sara Jensen (206) 220-5226.

Procedure for Section 7 Determination

You may use the guidance below to document compliance with the Endangered Species Act.

Part A: Consultation with NOAA Fisheries Service

Step 1: Obtain Species List & Determine Critical Habitat

For NOAA Fisheries species and designated or proposed critical habitat go to:

http://www.westcoast.fisheries.noaa.gov/maps_data/endangered_species_act_critical_habitat.html

http://www.nwr.noaa.gov/maps_data/species_population_boundaries.html

With a few exceptions on the Oregon Coast, most watersheds in the land area affected by ESA-listings of salmon and steelhead are within or upstream of a watershed occupied by an ESA-listed species or habitat.¹ NOAA Fisheries considers projects that discharge post-construction stormwater to be in proximity with ESA-listed species or habitats that occur downstream of the discharge site.

However, detailed distribution maps are available from recovery planning and implementation documents and the Salmon Population Summary (SPS) Database.² If you need to confirm whether your action is in proximity to ESA-listed salmon or steelhead, contact the appropriate office for NOAA Fisheries.³

Step 2: Determine Effect

Question 1: Would the project effects overlap with federally listed or proposed species and designated or proposed critical habitat covered by NOAA Fisheries?

Note that project effects include those that extend beyond the project site itself, such as noise, water quality, stormwater discharge, visual disturbance; habitat assessment must include consideration for feeding, spawning, rearing, overwintering sites, and migratory corridors.

- NO, the project and all effects are outside the range of listed species and critical habitat covered by NOAA Fisheries.**
- Record your determination of *No Effect* on species or habitats covered by NOAA Fisheries.
 - Maintain documentation in your Environmental Review Record. For example, a map showing that your project is not in or upstream of a watershed of a listed species.
 - Section 7 Consultation with USFWS may still be necessary. CONTINUE TO Part B.
- YES, project effects may overlap with ESA-listed species or designated critical habitat covered by NOAA Fisheries.**
- Continue to Question 2.

¹ http://www.westcoast.fisheries.noaa.gov/publications/protected_species/salmon_steelhead/status_of_esa_salmon_listings_and_ch_designations_map.pdf

² <https://www.webapps.nwfsc.noaa.gov/apex/f?p=261:1:1530350968904#>

³ http://www.westcoast.fisheries.noaa.gov/about_us/our_locations.html

Question 2: Is the project activity listed in Table A (see next page) and does it meet all of the required parameters?

- YES, the activity is listed in Table A and meets all of the required parameters.** Therefore, the project will have *No Effect* on ESA-listed species and/or designated critical habitat.
- Record your determination of *No Effect* and maintain this documentation, including a species list and map of your project location, in your Environmental Review Record.
 - Attach a statement to your determination explaining how your project meets the required parameters in Table A.
 - Section 7 Consultation with USFWS may still be necessary. CONTINUE TO Part B.
- NO, the project description does not match a project description in Table A and all of the specified parameters.**
- Continue to Question 3.

Question 3: Do you have some other basis for a *No Effect* determination, for example a biological assessment or other documentation from a qualified professional?

- YES, the project has professional documentation for *No Effect* determination.**
- Record your determination of *No Effect* and maintain this documentation, including a species list and map of your project location, in your Environmental Review Record.
 - Attach the biological assessment or other professional documentation.
 - Section 7 Consultation with USFWS may still be necessary. CONTINUE TO Part B.
- NO, the project does not have professional documentation supporting a *No Effect* determination.**
- YOU MUST INITIATE SECTION 7 CONSULTATION WITH NOAA Fisheries. Contact information on Page 8.
 - Consultation with USFWS may also be necessary. CONTINUE TO PART B.

TABLE A.

Potential “No Effect” Activity	Required Parameters
Purchase building	<ul style="list-style-type: none"> No change to existing structures
Landscape repair, including adding sprinkler systems	<ul style="list-style-type: none"> Does not remove trees or streamside vegetation
Interior rehabilitation	<ul style="list-style-type: none"> For existing structures Waste materials are recycled or otherwise disposed of in an EPA approved sanitary or hazardous waste disposal site
Any exterior repair or improvement that will not increase post-construction runoff, e.g. <ul style="list-style-type: none"> Replace exterior paint or siding Build a fence Replace/repair roof without using bituminous waterproofing Replace/repair a roof or siding without using galvanized metal Reconstruct/repair existing curbs, sidewalks or other concrete structures Repair existing parking lots (pot holes, repainting lines, etc.) 	<ul style="list-style-type: none"> Does not increase amount of impervious surface Waste materials are recycled or otherwise disposed of in an EPA approved sanitary or hazardous waste disposal site
Special projects directed to the removal of material or architectural barriers that restrict the mobility of and accessibility to elderly and persons with disabilities, e.g. <ul style="list-style-type: none"> Curb cuts Wheelchair ramps 	Meets <u>all</u> of the following: <ul style="list-style-type: none"> Will not impact an area of natural habitat, a wetland, or riparian area; and Complies with all state and local building codes and stormwater regulations
Install LID practices	<ul style="list-style-type: none"> For existing structures
New construction or addition on previously developed site (for example a building over an existing parking lot)	Meets <u>all</u> of the following <ul style="list-style-type: none"> not increase amount of impervious surface Waste materials are recycled or otherwise disposed of in an EPA approved sanitary or hazardous waste disposal site Stormwater meets NOAA Fisheries standards.⁴
Project that will add new impervious surface that will increase post-construction runoff, including new construction.	Meets <u>all</u> of the following: <ul style="list-style-type: none"> All post-construction runoff will be completely infiltrated or used on-site; and Will not impact an area of natural habitat, a wetland, or riparian area; and Complies with all state and local building codes and stormwater regulations

⁴ Refer to HUD Programmatic Opinion or contact NOAA Fisheries.

Part B: Consultation with U.S. Fish and Wildlife Service

Step 1: Obtain Species List & Determine Critical Habitat

You must obtain a species list for the entire action area of your project. The action area encompasses all of the effects of the project, not just those that occur within the construction footprint. Note that project effects include those that extend beyond the project site itself, such as noise, air pollution, water quality, stormwater discharge, visual disturbance; effects to habitat must be considered, including the project's effects on roosting, feeding, nesting, spawning and rearing habitat, overwintering sites, and migratory corridors.

Go to <http://ecos.fws.gov/ipac/> for a list of species by project area. Please note that this list includes listed, proposed *and* candidate species; consideration of project effects on candidate species is optional, unless effects are very large (contact the local USFWS field office in this case). However, candidate species may become listed as endangered or threatened species during the period of construction. If you have questions, contact the appropriate USFWS field office⁵ to discuss the species list for your area.

Step 2: Determine Effect

Question 1: Would the project effects overlap with federally-listed or proposed species or designated or proposed critical habitat covered by USFWS?

Consider all effects of the project within the action area. The action area encompasses all the effects of the project, including those that occur beyond the boundaries of the property (such as noise, air pollution, water quality, stormwater discharge, visual disturbance)

- NO, the project and all effects are outside the range of listed or proposed species and designated critical habitat covered by USFWS.** Therefore, the project will have *No Effect* on ESA-listed or proposed species or designated critical habitat.
- Record your determination of *No Effect* on species or habitats covered by USFWS, and maintain this documentation in your Environmental Review Record.
 - Attach a statement explaining how you determined that your project's effects do not overlap with species or habitat covered by USFWS.
- YES, project effects may overlap with ESA-listed or proposed species or designated critical habitat covered by USFWS.** Therefore, your project could affect species and habitat.
- Continue to Question 2.

Question 2: Will the project occur on a previously developed site?

- YES, the project will have *No Effect* on ESA-listed species or designated critical habitat.**
- Record your determination of *No Effect* on species or habitats covered by USFWS, and maintain this documentation in your Environmental Review Record.

⁵ <http://www.fws.gov/oregonfwo/Administration/ContactUs/>

- Attach a statement explaining how you determined that your project's effects do not impact species or habitat covered by USFWS.

NO.

- Continue to Question 3.

Question 3: Is the project activity listed in Table A and does it meet all of the required parameters?

YES, the activity is listed in Table A and meets all of the required parameters. Therefore, the project will have *No Effect* on ESA-listed species and/or designated critical habitat.

- Record your determination of *No Effect* and maintain this documentation, including the official species list and map of your project location, in your Environmental Review Record.
- Attach a statement to your determination explaining how your project met the required parameters in Table A.

NO, the project description does not match a project description in Table A and all of the specified parameters.

- Continue to Question 4.

Question 4: Do you have some other basis for a *No Effect* determination, for example a biological assessment or other documentation from a qualified professional?

YES, the project has professional documentation for *No Effect* determination.

- Record your determination of *No Effect* and maintain this documentation, including the official species list and map of your project location, in your Environmental Review Record.
- Attach the biological assessment or other professional documentation.

NO, the project does not have professional documentation for a *No Effect* determination and *may affect* a listed species.

- The project *may affect* listed or proposed species, or designated or proposed critical habitat. Consultation with the USFWS may be required. CONTACT THE USFWS TO DETERMINE THE APPROPRIATE EFFECTS DETERMINATION AND LEVEL OF CONSULTATION REQUIRED. Contact information on Page 9.

Initiating Section 7 Consultation

If the effects of the action are insignificant, discountable, or entirely beneficial, it is *not likely to adversely affect* listed or proposed species or designated critical habitats, and the section 7 consultation for the project may remain informal and relatively simple. A *May Affect, Not Likely to Adversely Affect* determination is the most common outcome of consultation for HUD-funded projects with USFWS.

However, if the effects of the action on listed or proposed species and/or critical habitat are not discountable, insignificant, or entirely beneficial, (i.e., *likely to adversely affect*), formal consultation must be initiated. In such cases, a formal consultation must be initiated prior to committing resources to the project, by which the USFWS and/or NOAA Fisheries assess the action's potential to jeopardize the listed species, to result in the destruction or adverse modification of critical habitat, or to result in incidental take of a listed species. Formal consultation will result in the USFWS and/or NOAA Fisheries issuing a Biological Opinion for the project, including an incidental take statement for project actions, if appropriate. The Biological Opinion will also include non-discretionary terms and conditions to further minimize and/or avoid project impacts to ESA-listed species. Because the constituents of stormwater runoff are particularly harmful to aquatic species, a *May Affect, Likely to Adversely Affect* determination is the most common outcome of consultation for HUD-funded projects with NOAA Fisheries.

At any stage in making your determination, you may wish to contact the appropriate USFWS and NOAA Fisheries field offices for technical assistance. Contact information is available at:

NOAA Fisheries Service
 Portland Regional Office
 1201 Northeast Lyon Blvd, Suite 1100
 Portland, OR 97232
 503-230-5400
<http://www.westcoast.fisheries.noaa.gov/index.html>

U.S. Fish and Wildlife Service
 Oregon Fish and Wildlife Office
 2600 SE 98th Ave, Suite 100
 Portland, OR 97266
 503-231-6179
<http://www.fws.gov/oregonfwo/>

For projects located in the Klamath River Basin, you must contact NOAA's Northern California Office at:

NOAA Fisheries Service
 Arcata Office
 1655 Heindon Road
 Arcata, CA 95521
 707-825-5171

For a map of the Klamath River Basin, please visit:

http://www.westcoast.fisheries.noaa.gov/publications/gis_maps/maps/salmon_steelhead/esa/chinook/web_pdfs_uktr_chinook.pdf

Links to Section 7 Handbook and additional Section 7 resources:

- Section 7 Handbook: http://www.nmfs.noaa.gov/pr/pdfs/laws/esa_section7_handbook.pdf
- Overview of the Section 7 Process: <http://www.fws.gov/Midwest/endangered/section7/index.html>

Additional Resources for LID

- American Rivers, 2012, Banking on Green Report: Economic Benefits of Green Infrastructure Practices
- Clean Water Services, 2009, Low Impact Development Approaches (LIDA) Handbook
- ECONorthwest, 2009, LID at the Local Level - Developers' Experiences and City and County Support
- EPA, 2005, Low Impact Development for Big Box Retailers
- Herrera, 2013, Guidance Document: Western Washington LID Operation and Maintenance
- NCHRP, 2006, Evaluation of BMPs for Highway Runoff Control – LID Design Manual
- Prince George County, Maryland, 1999, Low-Impact Development Design Strategies
- Puget Sound Partnership, 2012, Low Impact Development: Technical Guidance Manual for Puget Sound
- US EPA, 2013, Stormwater to Street Trees: Engineering Urban Forests for Stormwater Management

FOR USE IN OREGON ONLY

APPENDICES

ESA COMPLIANCE GUIDANCE FOR HUD-FUNDED PROJECTS

APPENDIX A: NMFS STORMWATER DESIGN CRITERIA FOR HUD PROJECTS IN OREGON

September 7, 2016

The following administrative elements and design criteria comprise the actions required of the U.S. Department of Housing and Urban Development (HUD) and/or Responsible Entities (RE) to comply with the Terms and Conditions detailed in Section 2.9.4 of the HUD Programs Biological Opinion (opinion). A glossary of terms follows the criteria described below.

1. **HUD Environmental Review.** To demonstrate compliance with the Endangered Species Act (ESA) requirements for consultation with the National Marine Fisheries Service (NMFS) in Oregon, the environmental review for a HUD project must include:
 - a. An effects determination.
 - i. **No Effect.** A project may be determined to have “no effect” on ESA-listed species or designated critical habitat(s), if:
 - (1) The project retains 100% of the water quality design storm onsite through infiltration, evaporation, or evapotranspiration best management practices (BMPs), as applied to the entire project site (i.e. all impervious and landscape areas);
 - (2) The project will not impact an area of natural habitat, a wetland, or riparian area;
 - (3) The project complies with all state and local building codes and stormwater regulations;
 - (4) The project does not rely on underground injection control (UIC) methods to meet retention criteria; and
 - (5) The project is certified by an engineer licensed to practice in the state of Oregon.If a “no effect” determination is warranted, no further consultation with NMFS is required.
 - ii. **Likely to Adversely Affect.** A project that cannot retain 100% of the water quality design storm on-site is considered “likely to adversely affect” (LAA) ESA-listed species and designated critical habitat. Projects that are “likely to adversely affect” ESA-listed species and critical habitats must:
 - (1) Develop and carry out a post-construction stormwater management plan (PCSMP), as described below.
 - (2) The PCSMP must be reviewed and approved by NMFS.
2. **NMFS Review and Approval Process.** To request NMFS review and approval of a PCSMP, HUD or the RE must submit the proposed post-construction stormwater management plan and the Action Notification Form (as described in Appendix B, Part 1 and Part 2) at least 60-days before the anticipated completion of the environmental review for the subject project.

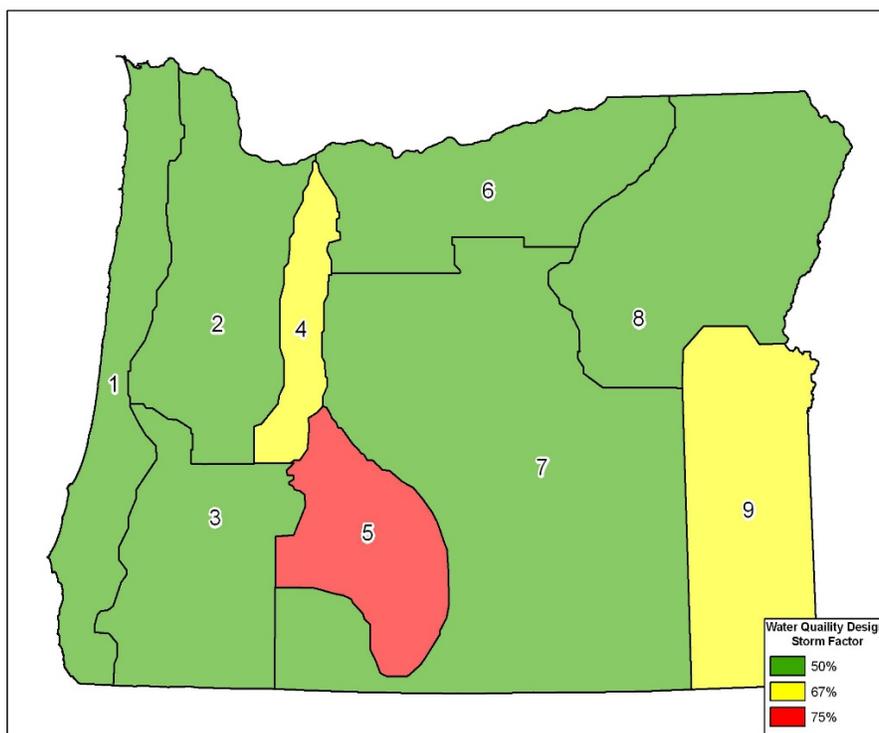
3. **Stormwater Management Plan.** A PCSMP must include the following information:
 - a. All plans, drawings, and the Stormwater Information Form (Appendix B) must be stamped and signed by a licensed, professional engineer.
 - b. A site map for the project that identifies all:
 - i. Property boundaries;
 - ii. Impervious areas, landscape areas, and natural areas (e.g., forested areas, wetlands, riparian zones) within the project boundaries;
 - iii. Low-impact development (LID) practices by type and capacity [in cubic feet per second (cfs), cubic feet (ft³), and/or square feet (ft²) and acres (ac) managed];
 - iv. Manufactured stormwater treatment technologies by type and capacity;
 - v. Other structural source control practices by type and capacity (e.g., special practices for known or suspected contaminated sites); and
 - vi. All runoff discharge points and conveyance paths to the nearest receiving water.
 - c. A description of how LID and other practices will manage all precipitation on-site up to the water quality design storm, and provide adequate treatment for runoff that will be discharged from the site. If 100% treatment of the water quality design storm is achieved through LID, runoff discharged during the water quantity design storm is considered treated.
 - d. A description and schedule of the proposed inspection and maintenance activities for the treatment facilities, including the party responsible for maintenance and contact information for the responsible party.
 - e. The name, email address, telephone number of a person responsible for designing the stormwater management facilities so that NMFS may contact that person if additional information is necessary.

4. **Stormwater Management Practices.** Post-construction stormwater management emphasizes LID (annual water balance) methods that emphasize the use of on-site features to maximize evapotranspiration and infiltration that will improve water quality and reduce hydromodification (i.e., alteration of the natural flow of water through the watershed). Examples of LID practices, ordered by preference, include, but are not limited to:
 - a. Minimize impervious area
 - i. Share parking spaces
 - ii. Minimize pavement widths
 - iii. Minimize front setbacks
 - iv. Share driveways
 - v. Minimize building footprint
 - vi. Minimize roadway cross sections
 - vii. Minimize new pavement
 - b. Limit disturbance
 - i. Construction sequencing
 - ii. Conserve soils with best drainage
 - iii. Cluster development
 - iv. Tree protection

- v. Minimal excavation foundation
- c. Landscape and hardscape areas
 - i. Restored soils
 - ii. Tree planting
 - iii. De-pave existing pavement (such that it becomes pervious area)
 - iv. Contained planters (over impervious areas)
 - v. Vegetated roof
 - vi. Porous pavement
 - vii. Infiltration rain garden, LID swale, Stormwater planter
 - viii. Soakage trench (some forms of UIC may count as LID)
 - ix. Drywell (some forms of UIC may count as LID)
 - x. Water quality conveyance swale
 - xi. Vegetated filter strips
 - xii. Downspout disconnection
 - xiii. Lined rain garden, LID swale, Stormwater planter

5. **Water Quality Design.** All stormwater treatment practices and facilities occurring in climate zones 1, 2, 3, 6, 7, and 8 (Figure 1) must be designed to treat 50% of the cumulative rainfall from the 2-year, 24-hour storm for the project site (referred to as the water quality design storm).

Figure 1. Water Quality Design Storm by Oregon Climate Regions



Regions: (1) Oregon Coast; (2) Willamette Valley; (3) Southwestern Valleys; (4) Northern Cascades; (5) High Plateau; (6) North Central; (7) South Central; (8) Northeast; (9) Southeast.

Source: Oregon Dept. of Transportation (2008).

All stormwater treatment practices and facilities occurring in climate zones 4 and 9 must provide treatment for 67% of the 2-year, 24-hour storm. Stormwater treatment practices and facilities occurring in climate zone 5 must provide treatment for 75% of the 2-year, 24-hour storm. Note: ESA-listed species considered in this opinion are unlikely to occur in climate zones 5 or 9. Also note: infiltration of the appropriate storm event is considered treatment.

6. **Water Quantity Design.** Water quantity management (retention or detention facilities) is required, unless the outfall of the stormwater facility discharges directly into a major water body (e.g., mainstem Columbia River, Willamette River downstream of Eugene, large lakes, reservoir, ocean, or estuary). On-site retention should use LID methods to the maximum extent feasible and facilities of any kind must collectively limit discharge to match pre-developed discharge rates (i.e., the discharge rate of the site based on its natural groundcover and grade before any development occurred) for flows from the following two storm events:
 - a. 50% of the 2-year, 24-hour storm (i.e. Water Quality Design Storm), and
 - b. the 10-year flow event (annual series) (i.e. Water Quantity Design Storm).

7. **Hydromodification Design Storm.** If a HUD funded project will discharge peak runoff of more than 0.5 cfs during the 2-year, 24-hour storm, into an intermittent or perennial water body in a watershed smaller than 100 square miles, and does not discharge directly into a major water body (e.g., mainstem Columbia River, Willamette River downstream of Eugene, large lakes, reservoir, ocean, or estuary), then flow control treatment and practices must be designed to maintain the frequency and duration of flows generated by storms within the following endpoints:
 - a. Lower discharge endpoint, by U.S. Geological Survey (USGS) flood frequency zone:
 - i. Western Region = 42% of 2-year event
 - ii. Eastern Region
 - (1) Southeast, Northeast, North Central = 48% of 2-year, 24-hour storm
 - (2) Eastern Cascade = 56% of 2-year, 24-hour storm
 - b. Upper discharge endpoint
 - i. Entrenchment ratio¹ <2.2 = 10-year event, 24-hour storm
 - ii. Entrenchment ratio >2.2 = bank overtopping event

¹ Entrenchment ratio is a measurement of the vertical containment of a stream or river. It is calculated as the floodprone width, divided by the surface bankfull discharge width. The lower the entrenchment ratio, the more vertical containment of flood flows exists. Higher entrenchment ratios depict more floodplain development. U.S. Environmental Protection Agency. 2016. Watershed Academy Web: Fundamentals of Rosgen Stream Classification System. U.S. Environmental Protection Agency website, available at: https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=1259. Updated February 26, 2016. Accessed May 19, 2016.

8. **Conveyance.** When conveyance is necessary to discharge treated stormwater directly into surface water or a wetland, the following requirements apply:
 - a. Maintain natural drainage patterns such that runoff may not be redirected to a different drainage basin (i.e. watershed, subwatershed) from the pre-project conditions.
 - b. To the maximum extent feasible, ensure that water quality treatment for the project is completed before commingling with offsite runoff during conveyance.
 - c. Prevent erosion of the flow path from the project to the receiving water and, if necessary, provide a discharge facility made entirely of manufactured elements (e.g., pipes, ditches, discharge facility protection) that extends at least to ordinary high water.

9. **Project Completion Report.** HUD or the RE must submit the Project Completion Report (Appendix B, Part 3) within 60-days of end of construction. The Project Completion Report should include all information necessary to document that the project was constructed in compliance with the provisions of this opinion, including such materials as final plans or as-built drawings.

10. **Failure to Report May Trigger Reinitiation.** NMFS may recommend reinitiation of this consultation if HUD or the RE fails to provide all applicable notifications and completion reports or fails to attend quarterly and annual meetings, as specified.

Glossary of Terms and Abbreviations

Best management practice (BMP). A device, practice, or method for removing, reducing, retarding, or preventing targeted stormwater runoff constituents, pollutants, and contaminants from reaching receiving waters.²

Biofiltration. Use of amended soils, compost, and vegetation to remove pollutants from stormwater by maximizing contact between the stormwater and vegetation and media. Biofiltration is used in flow-through treatment systems, such as bio-swales and amended soil filter strips, and in facilities that pond the stormwater, also known as bioretention facilities.

Biological Opinion (opinion). Endangered Species Act - Section 7 Programmatic Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for U.S. Department of Housing and Urban Development Housing Programs in Oregon. Consultation Number: WCR-2016-4853. United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, West Coast Region. Issued July 25, 2016.

Bioretention. The process in which contaminants and sedimentation are removed from stormwater runoff. Stormwater is collected into the treatment area, which consists of a grass buffer strip, sand bed, ponding area, organic or mulch layer, planting soil, and plants. Runoff passes first over or through a sand bed, which slows the runoff's velocity, distributes it evenly along the length of the ponding area, which consists of a surface organic layer or groundcover and the underlying planting soil. The ponding area is graded, its center depressed. Water is ponded to a depth of approximately 15cm (5.9 inches) and gradually infiltrates the bioretention area or is evapotranspired. The bioretention area is graded to divert excess runoff away from itself. Stored water in the bioretention area planting soil exfiltrates over a period of days into the underlying soils.

Bioslopes, or ecology embankments. Linear flow-through stormwater runoff treatment facilities that can be sited along highway side-slopes, medians, borrow ditches, or other linear depressions. They consist of four basic components: a gravel no-vegetation zone, a vegetated filter strip, the ecology-mix bed, and a gravel-filled underdrain trench.

Bioswales. Landscape elements designed to remove silt and pollution from surface runoff water consisting of a swaled drainage course with gently sloped sides (less than 6%) and filled with vegetation, compost or riprap.

Catchment. The area that drains an individual development site to its first intersection with a stream, ranging from a few acres up to several hundred acres in size. Best management practices and site design are the management focus at this scale.

Constructed wetland. Natural-looking, lined marsh systems that pretreats wastewater by filtration, settling, and bacterial decomposition.

Contained planter BMP. A container with plants placed over an impervious surface intentionally implemented to reduce runoff and prevent or reduce pollution.

Contaminated soils. Soils at sites where contaminants have accumulated as a result of historic activities, not necessarily limited to industrial sites. Contaminated sites have a highly regulated development path with additional permitting. Coordination with the local DEQ Cleanup program is advised.

² U.S. Environmental Protection Agency. Preliminary Data Summary of Urban Stormwater Best Management Practices. Retrieved from: <http://www.epa.gov/guide/stormwater/files/montch1and2.pdf>

Conveyance swale. Long, open channel that conveys stormwater runoff, but may not provide substantial water quality treatment due to a lack of tall, structured plants to slow flows. These are not considered LID BMPs. An example of a conveyance swale is a rock lined roadside ditch.

Detention/Retain. The attenuation (i.e. reduction of peak flows) of runoff from a design storm by storing and releasing runoff slowly to the downstream waterways with no reduction in volume on-site. Detention has been used to reduce flooding, but has been found to be inadequate at protecting downstream water quality. The Environmental Protection Agency now prefers low impact development BMPs, which reduce flooding and improve downstream water quality.³ Because detention facilities do not reduce runoff and have been found to pollute water with temperature, scouring, and changing flows that impact streams, detention facilities are not considered an LID BMP.

Downspout disconnection. A form of dispersion that directs a building's roof drains to a lawn or garden instead of into storm sewer pipes.

Drywell. A well, assemblage of perforated pipes, or drain tiles that receive runoff and infiltrate that runoff underground.

Endangered Species Act (ESA). The Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.).

Essential Fish Habitat (EFH). A Congressional mandate in the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, or Magnuson-Stevens Act. Essential Fish Habitat describes all waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity.

Evaporation. The process of water changing from a liquid to a gas. Evaporation is a significant portion of the annual water cycle that reduces runoff in undeveloped and/or forested areas of Western Oregon.

Evapotranspiration. The collective term for the process of water returning to the atmosphere via interception and evaporation from plant surfaces and transpiration through plant leaves.

Federal action agency. HUD or the Responsible Entity, identified under 24 CFR Part 58.

Filter strip. A filter strip is an area of vegetation, generally narrow and long, that slows the rate of runoff, allowing sediments, organic matter, and other pollutants that are being conveyed by the water to be removed by settling out. Filter strips reduce erosion and the accompanying stream pollution.

Hydrologic Unit Code (HUC). The hydrologic unit code is a sequence of numbers or letters that identify a hydrological feature like a river, river reach, lake, or area like a drainage basin or catchment. As of 2010 there are six levels in the hierarchy, represented by hydrologic unit codes from 2 to 12 digits long, called regions, subregions, basins, subbasins, watersheds, and subwatersheds.

Impervious surface. A surface that prohibits water from soaking into the ground. Examples include roofs, concrete, asphalt, pavers, compacted gravel, compacted clay, plastic liners, and clogged landscape fabric.

Infiltration. Flow or movement of water through the soil surface and into the subsoils.

Infiltration ponds or basins (i.e., recharge basins, sumps). Shallow artificial ponds that are designed to infiltrate stormwater through permeable soils into the groundwater aquifer. Infiltration basins do

³ U.S. Environmental Protection Agency. (2009). Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. Retrieved from: <http://www.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf>

not discharge to a surface water body under most storm conditions, but are designed with overflow structures (pipes, weirs, etc.) that operate during flood conditions.

Isopluvial. Mapped lines of equal rainfall depths.

Likely to Adversely Affect (LAA). A determination of finding under the ESA for a listed species. A finding of "May affect, and is likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure. Exposure to stormwater runoff has been determined to constitute an impact that "May affect, and is likely to adversely affect" listed fish species in Oregon. Actions that are determined to be LAA must enter formal consultation with the U.S. Fish and Wildlife Service and/or NMFS. Use of this opinion is one aspect of formal consultation with NMFS.

Limit disturbance BMP. Any BMP that protects a site or portion of a site in its current, natural vegetated state and/or protects soil permeability.

Low impact development (LID). A pattern of land development that preserves natural resources and promotes opportunities to manage stormwater where it falls. LID relies on a collection of carefully selected techniques to reduce, receive, and clean stormwater runoff to protect and improve water availability and quality. LID designs minimize stormwater runoff based on natural features and decentralized micro-scale controls that intercept, evaporate, transpire, filter, or infiltrate precipitation to avoid or minimize off-site discharge.

LID swale. Long, planted, open channel that conveys stormwater runoff and is designed and constructed to promote infiltration.

Maintenance. Performance of work on a planned, routine basis, or the response to specific conditions and events, as necessary to maintain and preserve the condition of a project feature at an adequate level of service.

Management/Manage. To retain or detain peak flows to reduce streambank scouring and flooding from the water quantity design storms.

Media filters. Media filters are usually two-chambered, including a pretreatment settling basin and a filter bed filled with sand or other absorptive filtering media, used to reduce pollutant loading in runoff.

Minimal excavation foundation BMP. A foundation type that allows groundwater to move freely through soil (not pipes) underneath the building (e.g. pier foundations and buildings with crawl spaces).

Minimize impervious area BMP. Any BMP that reduces land area not able to infiltrate or evaporate rainfall or runoff as a result of being covered by buildings, roofs, and roads, parking lots and sidewalks.

Municipal separate storm sewer system (MS4). A conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, manmade channels or storm drains) owned or operated by a governmental entity that discharge to waters of the State.

National Marine Fisheries Service (NMFS).

New development. Any project where the land cover is changed from a natural, pre-developed state into another land cover.

No Effect. A determination of finding under the ESA for a listed species. A finding of "no effect" means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to the action and its environmental consequences. A determination of "not effect" does not require consultation with the U.S. Fish and Wildlife

Service and/or NMFS. Please consult the *Endangered Species Act Guidance for Oregon* for more information on making a “no effect” determination, available at:

http://portal.hud.gov/hudportal/documents/huddoc?id=Oregon_ESA_NEG.pdf

Pervious. See “Porous” definition.

Permeable. See “Porous” definition.

Post-construction stormwater management plan (PCSMP). A stormwater plan specifically prepared to address long-term stormwater management and treatment from a HUD-funded project, which demonstrates compliance with NMFS’ stormwater criteria.

Predevelopment or predeveloped condition. The naturally vegetated land cover and contour (i.e. shape and slope) that would historically have been on a site.

Porous. A material that allows water to pass through it.

Porous pavement. Permeable pavement surface with a stone reservoir underneath. The reservoir temporarily stores surface runoff before infiltrating it into the subsoil. Runoff is thereby infiltrated directly into the soil and receives some water quality treatment. Porous pavement often appears the same as traditional asphalt or concrete but is manufactured without "fine" materials, and instead incorporates void spaces that allow for infiltration.

Post-development or post-developed condition. The land cover on a site as a result of development activities, which may include but is not limited to buildings; roads; sidewalks; ornamental, and working and protected landscapes.

Rainfall management. Use of BMPs to treat and reduce the volumes of stormwater leaving a site by infiltrating or evaporating rain that falls directly on the surface of the BMP. Examples of rainfall management facilities include restored soils, vegetated roofs, and contained planters. When rainfall management BMPs are used, they are referred to as “Runoff Prevention BMPs”.

Rain garden. A “sunken garden bed” with gentle side slopes that collects and treats stormwater runoff by ponding runoff and passing it through soils and plants. A rain garden does not function like a wetland nor is it considered a wetland for regulatory purposes.

Redevelopment. Any project where existing land cover, which was previously developed, is changed to another land cover.

Responsible Entity (RE). The city, county, state or Tribe that assumes the responsibility for environmental review decision-making and action that would otherwise apply to HUD, including the responsibility to comply with ESA.

Retention/Retain. The attenuation (i.e. control of flow) of runoff from a design storm by reducing volume on-site through infiltration, evaporation, and evapotranspiration.

Retrofit. Any project that improves water quality from an existing developed area without a change to the land cover contributing runoff.

Runoff prevention BMP. Any BMP that reduces the volume of runoff generated by evaporating and/or infiltrating rainfall that falls directly on it.

Runoff reduction BMP. Any BMP that decreases the volume of runoff leaving a site by evaporating and/or infiltrating runoff directed to the BMP from another area.

Soakage trench. An excavated trench filled with coarse stone that receives runoff and stores it until it infiltrates underground into surrounding soils.

Stormwater or runoff. Surface water runoff that originates as precipitation on a particular site, basin, or watershed.

Stormwater planter. A structural container (either above or sunken into the ground) with vertical side slopes and a flat bottom that collects and treats stormwater runoff, primarily from rooftops, driveways, sidewalks, parking lots, and streets by ponding runoff and passing it through soils and plants.

Treatment/Treat. To reduce pollution in runoff from the water quality design storm.

Treatment train. The use of multiple site- and/or BMP-scale strategies to reduce pollution.

Tree planting. To install a new tree in a permanent location that provides adequate soil volume and other site conditions to meet its long-term health needs.

Tree protection. To preserve trees by fencing, limiting soil compaction, guarding from animal damage and other practices.

Water quality, or quantity, design storm. Depth of rainfall predicted from a storm event of a given frequency used to size water quality treatment and flow control facilities. Watershed. Designated hydrologic unit, or drainage area, typically at the 5th or 6th field, for identification and hierarchical cataloging purposes.

Water quality conveyance swale. Long, planted, open channel that conveys stormwater runoff. These facilities are generally not designed to promote infiltration. Instead, they are designed for conveyance and sometimes detention, providing some water quality treatment.

Underground injection control (UIC). A manmade structure that places fluid underground.⁴

U.S. Department of Housing and Urban Development (HUD).

Vegetated filter strips. A dispersion BMP that manages runoff flowing onto it from pavement and roof surfaces.

Vegetated stormwater facilities. This is a general term that applies to rain gardens, stormwater planters, and LID swales, which are configured differently, but achieve a similar, high level of treatment and runoff reduction through intentional temporary ponding of water.

⁴ Oregon Department of Environmental Quality. Frequently Asked Questions on UICs. Retrieved from: http://www.deq.state.or.us/wq/uic/faqs.htm#What_is_a_UIC_System

**APPENDIX B: E-MAIL GUIDELINES AND ACTION NOTIFICATION FORM
FOR USE WITH THE HUD PROGRAMMATIC OPINION**

SEPTEMBER 7, 2016

Use of the HUD Programmatic E-mail Box

Use the HUD programmatic e-mail box at HUDBiOp.wcr@noaa.gov to request that NMFS review and approve the post-construction stormwater management plan (PCSMP) for a HUD funded project, to withdraw a request for review, and to submit the project completion forms.

The mailbox will send you an automatic reply after receipt of any message, but you will not receive any other communication from the programmatic e-mail box. Please direct all other communications or questions to the appropriate NMFS biologist or branch chief.

Please only submit one request for review, withdrawal, or completion report per e-mail. Please remember to attach all supporting information, including:

E-mail Title

In the subject line of the email (see below for requirements), clearly state the type of action you are requesting (i.e., Action Notification, Withdrawal, etc.), Project Name, Applicant Name (HUD Office or Responsible Entity), County, and Waterway (to which the project will discharge).

Use caution when entering the necessary information in the subject line. If these titling conventions are not used, NMFS will not accept the e-mail.

Examples:

Action Notification: HUD Project Name, Housing & Community Development, Multnomah County, Willamette River

Withdrawal: HUD Project Name, City of Medford, Jackson County, Bear Creek, NMFS' Project tracking Number

Project Completion: HUD Project Name, Housing & Community Development, Washington County, Tualatin River, NMFS' Project tracking Number

Action Notification and Stormwater Information Forms

HUD or the RE must submit an Action Notification Form, a complete Stormwater Information Form, and a complete PCSMP to the HUD programmatic e-mailbox to request that NMFS review and approve the PCSMP for a HUD project. Within 7 calendar days, NMFS will inform the applicant which staff person was assigned to complete the review, and within 30 calendar days NMFS will determine whether the proposed stormwater plan is approved or not.

If asked, the consultation biologist will provide an estimate of the time necessary to complete the review based on the complexity of the proposed action and work load considerations at the time of the request.

NMFS may delay its review if the Action Notification Form, the Stormwater Information Form, or the PCSMP is incomplete or unsatisfactory. Please contact NMFS early during the development phase of a project if you have any questions about how these guidelines may affect your project.

Withdrawing a Request for Review

If it is necessary to withdraw a request for review, submit a separate email with the word “WITHDRAWN” at the beginning of the e-mail subject line, but otherwise follow the email titling conventions as described above. State the reason for the withdrawal in the email. If HUD or an RE re-submits a request for NMFS review that has been previously withdrawn, NMFS will process the resubmittal as if it was a new action notification.

Action Completion Report. HUD or the RE must submit the Action Completion Report to NMFS within 60 days of finishing construction of the stormwater management facilities for a HUD funded project. Failure to submit the Action Completion Report may result in NMFS recommending reinitiation of this consultation.

Detailed instructions on completing each form follows in Appendix B.

INSTRUCTIONS FOR COMPLETING THE ACTION NOTIFICATION FORM

The following information provides guidance or instructions on completing each field of the Action Notification Form.

PROJECT INFORMATION

Field Name	Guidance/Instructions
Date of Request	Enter the 8 digit date in the MM/DD/YYYY format
Project Name	Enter the official name of the project (e.g. how the project will be referenced in the Environmental Review Record.
County	Enter the name of the county in which the project occurs.
Project Street Address	Enter the street address for the project. If a legal street address is not available, provide the closest street name(s).
HUD Office/Program	Provide the name of the HUD Office or Program from which funding is received. Provide the Name, Job Title, Phone Number, and Email Address of the principal HUD contact for the project.
Responsible Entity	Provide the name of the Responsible Entity who will manage/oversee/carry out/ or otherwise be responsible for the proposed project. Provide the Name, Job Title, Phone Number, and Email Address of the named responsible entity for the proposed project.
6th Field HUC Name and Number	Provide the 10-digit, 6 th field Hydrologic Unit Code (HUC) number and the associated watershed name. This information can be found by accessing the Oregon Explorer website. Go to http://oregonexplorer.info/ . Enter the street address of the proposed property. In the “Explore this Place” information pop-up box you will find the project location’s latitude and longitude (to answer the next question on the form) and the name of the watershed in which the project is located. Click on the name of the watershed and the map will zoom in, the 10-digit 6 th field HUC number should be displayed under the watershed name on the map. If the name and HUC number do not immediately appear, zoom in on the map using the “+” button in the upper left-hand corner of the map.
Latitude and Longitude	Provide the Latitude and Longitude in signed degrees format (e.g., 45.XX, -122.XX). This information can be found by accessing the Oregon Explorer website, as described above.
Proposed Construction Period	Provide the proposed Start Date for construction and anticipated End Date for construction.
ESA-listed Species & Critical Habitat in the Action Area	Check the appropriate boxes for ESA-listed species and Critical Habitats within the project’s action area. Note, the project’s action area extends from the project’s location and extends to the Pacific Ocean. Consequently, a project in the Willamette Valley may affect all ESA-listed species that occur/utilize the Lower Columbia River. This information can be found by accessing NMFS’ West Coast Region website. Go to http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html . Select the “ESA-Listed Pacific Salmon” link to find listed salmon and steelhead. Select the “ESA-Listed Other Marine Species” to information for eulachon (Columbia River smelt) and North American green sturgeon. Maps of critical habitat for these species can be found at the following link: http://www.westcoast.fisheries.noaa.gov/publications/gis_maps/maps/other/20eulachon/eulachon-ch-maps.pdf You <u>do not</u> need to identify Marine Mammals and Marine Turtles. If you need additional assistance completing this section of the form, please contact NMFS directly.

Field Name	Guidance/Instructions
EFH Species Occurring in the Action Area	Check the appropriate boxes for Essential Fish Habitat (EFH) species potentially occurring in the project’s action area (See note above about extent of the action area). Select Chinook and/or coho salmon if any of the Chinook or coho salmon populations were selected as ESA-listed Species. To identify if Coastal Pelagic Species or Groundfish occur in the action area, you can read about each species’ habitats at http://www.pcouncil.org/coastal-pelagic-species/background-information/ or you can contact NMFS directly.
Project Description	Provide a concise description of the proposed action.

STORMWATER INFORMATION FORM HUD PROGRAMMATIC OPINION

If you are submitting a project that includes a stormwater plan for review, please fill out the following cover sheet **to be included with** any stormwater management plan and any other supporting materials. Please have the project engineer provide their signed stamp in the box to the right. Submit this form with the Action Implementation Form to NMFS at HUDBiOp.wcr@noaa.gov.

Engineers' Signed Stamp

PROJECT INFORMATION	NMFS PROJECT TRACKING #: WCR-____-____
PROJECT NAME _____	COUNTY _____
PROJECT STREET ADDRESS _____	
TYPE OF PROJECT <input type="checkbox"/> REDEVELOPMENT <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> INSTITUTIONAL (select all that apply) <input type="checkbox"/> NEW DEVELOPMENT <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> OTHER _____	
HAVE YOU CONTACTED ANYONE AT NMFS <input type="checkbox"/> YES <input type="checkbox"/> NO If Yes, Who: _____	
NEAREST RECEIVING WATER OCCUPIED BY ESA-LISTED SPECIES OR DESIGNATED CRITICAL HABITAT _____	
STORMWATER DESIGNER / ENGINEER CONTACT INFORMATION NAME _____	
AFFILIATION/FIRM _____ PHONE _____ EMAIL _____	

SUMMARY OF DESIGN ELEMENTS															
1	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center; vertical-align: middle;">DESIGN STORMS</td> <td style="padding: 5px;"> 2-YEAR, 24-HOUR STORM [Consult: http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm] _____ INCHES _____ IN/HR </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR STORM) [Except climate regions 4 & 9 (67%) and climate region 5 (75%)] _____ INCHES </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> WATER QUANTITY DESIGN STORM (10-YEAR, 24-HOUR STORM) [Consult: http://www.wrcc.dri.edu/pcpnfreq/or10y24.gif] _____ INCHES </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> HYDROMODIFICATION DESIGN STORM (% BASED ON 2-YEAR, 24-HOUR STORM) [Western region (42%); Eastern Cascade (56%); SE, NE, North Central (48%)] _____ INCHES </td> </tr> </table>	DESIGN STORMS	2-YEAR, 24-HOUR STORM [Consult: http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm] _____ INCHES _____ IN/HR		WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR STORM) [Except climate regions 4 & 9 (67%) and climate region 5 (75%)] _____ INCHES		WATER QUANTITY DESIGN STORM (10-YEAR, 24-HOUR STORM) [Consult: http://www.wrcc.dri.edu/pcpnfreq/or10y24.gif] _____ INCHES		HYDROMODIFICATION DESIGN STORM (% BASED ON 2-YEAR, 24-HOUR STORM) [Western region (42%); Eastern Cascade (56%); SE, NE, North Central (48%)] _____ INCHES						
DESIGN STORMS	2-YEAR, 24-HOUR STORM [Consult: http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm] _____ INCHES _____ IN/HR														
	WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR STORM) [Except climate regions 4 & 9 (67%) and climate region 5 (75%)] _____ INCHES														
	WATER QUANTITY DESIGN STORM (10-YEAR, 24-HOUR STORM) [Consult: http://www.wrcc.dri.edu/pcpnfreq/or10y24.gif] _____ INCHES														
	HYDROMODIFICATION DESIGN STORM (% BASED ON 2-YEAR, 24-HOUR STORM) [Western region (42%); Eastern Cascade (56%); SE, NE, North Central (48%)] _____ INCHES														
2	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center; vertical-align: middle;">SITE CHARACTERISTICS</td> <td style="padding: 5px;"> TOTAL PROJECT AREA _____ ACRES _____ FT² </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> EXISTING IMPERVIOUS SURFACE AREA _____ ACRES _____ FT² </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> PROPOSED TOTAL IMPERVIOUS SURFACE AREA _____ ACRES _____ FT² </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> PROPOSED LANDSCAPE AREA _____ ACRES _____ FT² </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> TOTAL AREA OF GROUND DISTURBANCE _____ ACRES _____ FT² </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> WILL IMPERVIOUS AREA BE REDUCED FROM CURRENT CONDITIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, BY HOW MUCH? _____ ACRES _____ FT² </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> IS THE SITE CONTAMINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO </td> </tr> </table>	SITE CHARACTERISTICS	TOTAL PROJECT AREA _____ ACRES _____ FT ²		EXISTING IMPERVIOUS SURFACE AREA _____ ACRES _____ FT ²		PROPOSED TOTAL IMPERVIOUS SURFACE AREA _____ ACRES _____ FT ²		PROPOSED LANDSCAPE AREA _____ ACRES _____ FT ²		TOTAL AREA OF GROUND DISTURBANCE _____ ACRES _____ FT ²		WILL IMPERVIOUS AREA BE REDUCED FROM CURRENT CONDITIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, BY HOW MUCH? _____ ACRES _____ FT ²		IS THE SITE CONTAMINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO
SITE CHARACTERISTICS	TOTAL PROJECT AREA _____ ACRES _____ FT ²														
	EXISTING IMPERVIOUS SURFACE AREA _____ ACRES _____ FT ²														
	PROPOSED TOTAL IMPERVIOUS SURFACE AREA _____ ACRES _____ FT ²														
	PROPOSED LANDSCAPE AREA _____ ACRES _____ FT ²														
	TOTAL AREA OF GROUND DISTURBANCE _____ ACRES _____ FT ²														
	WILL IMPERVIOUS AREA BE REDUCED FROM CURRENT CONDITIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, BY HOW MUCH? _____ ACRES _____ FT ²														
	IS THE SITE CONTAMINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO														
3	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center; vertical-align: middle;">DESIGN BASIS</td> <td style="padding: 5px;"> STORMWATER DESIGN MANUAL USED, INCLUDING YEAR/VERSION _____ DESCRIBE WHICH ELEMENTS OF YOUR STORMWATER PLAN CAME FROM THIS MANUAL _____ </td> </tr> </table>	DESIGN BASIS	STORMWATER DESIGN MANUAL USED, INCLUDING YEAR/VERSION _____ DESCRIBE WHICH ELEMENTS OF YOUR STORMWATER PLAN CAME FROM THIS MANUAL _____												
DESIGN BASIS	STORMWATER DESIGN MANUAL USED, INCLUDING YEAR/VERSION _____ DESCRIBE WHICH ELEMENTS OF YOUR STORMWATER PLAN CAME FROM THIS MANUAL _____														

WATER QUALITY INFORMATION			
4	ARE LOW IMPACT DEVELOPMENT (LID) METHODS INCORPORATED INTO DESIGN? HOW MUCH OF TOTAL STORMWATER IS TREATED USING LID?	<input type="checkbox"/> YES	<input type="checkbox"/> NO _____ % _____ FT ³
5	SPECIFIC LID WATER QUALITY TREATMENT ELEMENTS INCORPORATED		
	<u>SITE DESIGN ELEMENTS</u> <input type="checkbox"/> SITE LAYOUT <input type="checkbox"/> CLUSTERED DEVELOPMENT <input type="checkbox"/> DE-PAVE EXISTING PAVEMENT <input type="checkbox"/> CONSERVE SOILS W/ BEST DRAINAGE <input type="checkbox"/> TREE PROTECTION <input type="checkbox"/> CONSTRUCTION SEQUENCING <input type="checkbox"/> REFORESTATION/TREE PLANTING <input type="checkbox"/> RESTORED SOILS <input type="checkbox"/> POROUS PAVEMENT	<u>TREATMENT METHODS</u> <input type="checkbox"/> WATER QUALITY SWALE <input type="checkbox"/> VEGETATED FILTER STRIPS <input type="checkbox"/> VEGETATED ROOF <input type="checkbox"/> INFILTRATION RAIN GARDEN / LID SWALE <input type="checkbox"/> INFILTRATION STORMWATER PLANTERS <input type="checkbox"/> SOAKAGE TRENCH <input type="checkbox"/> DRYWELL <input type="checkbox"/> LINED RAIN GARDEN/LID SWALE <input type="checkbox"/> LINED STORMWATER PLANTER	<u>OTHER LID WATER QUALITY TREATMENT METHODS</u> <input type="checkbox"/> NAME _____ SOURCE _____ <input type="checkbox"/> NAME _____ SOURCE _____ <input type="checkbox"/> NAME _____ SOURCE _____
6	TREATMENT TRAIN, INCLUDING PRETREATMENT AND LID BMPs USED TO TREAT WATER QUALITY _____ WHY THIS TREATMENT TRAIN WAS CHOSEN FOR THE PROJECT SITE _____ PAGE IN STORMWATER PLAN WHERE MORE DETAILS CAN BE FOUND _____		
7	STORMWATER TREATMENT REQUIRED	VOLUME _____ FT ³	PEAK DISCHARGE _____ CFS
	IS THE WATER QUALITY DESIGN STORM FULLY TREATED?	VOLUME <input type="checkbox"/> YES <input type="checkbox"/> NO	PEAK DISCHARGE <input type="checkbox"/> YES <input type="checkbox"/> NO
	IF NO, WHY NOT? HOW WILL YOU OFFSET THE EFFECTS FROM UNTREATED STORMWATER? _____		

WATER QUANTITY INFORMATION			
8	DOES THE PROJECT DISCHARGE DIRECTLY INTO A MAJOR WATER BODY?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
9	PRE-DEVELOPMENT RUNOFF RATE AND VOLUME	WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR) _____ CFS _____ FT ³ WATER QUANTITY DESIGN STORM (10-YEAR 24-HOUR) _____ CFS _____ FT ³	
	POST-DEVELOPMENT RUNOFF RATE AND VOLUME	WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR) _____ CFS _____ FT ³ WATER QUANTITY DESIGN STORM (10-YEAR 24-HOUR) _____ CFS _____ FT ³	
** POST-DEVELOPMENT RUNOFF RATE MUST BE LESS THAN OR EQUAL TO PRE-DEVELOPMENT RUNOFF RATE **			
10	METHODS USED TO LIMIT STORMWATER DISCHARGE FROM PROJECT _____ PAGE IN STORMWATER PLAN WHERE MORE DETAILS CAN BE FOUND _____		

OTHER RELEVANT INFORMATION

INSTRUCTIONS FOR COMPLETING THE STORMWATER INFORMATION FORM

The following information provides guidance or instructions on completing each field of the Stormwater Information Form.

PROJECT INFORMATION

Field Name	Guidance/Instructions
NMFS Project Tracking #	Enter the 8+ digit tracking number assigned to the proposed project. NMFS will provide this number to you in an email following submittal of the Action Notification Form. If you are submitting the Stormwater Information Form with the Action Notification Form, NMFS will complete this field and provide the tracking number to you via email. The format for this number is WCR-201X-ZZZZ, where “X” is the year the project is submitted and “Z” is a 4+ digit number unique to the project.
Project Name	Enter the official name of the project (e.g. how the project will be referenced in the Environmental Review Record).
County	Enter the name of the county in which the project occurs.
Project Street Address	Enter the legal street address of the proposed project. If a legal street address is not available, provide the closest street name(s).
Type of Project	Please check the boxes that best describe the proposed project. Please identify whether the proposed project is new development, redevelopment of an existing property, or retrofit at an existing property. Indicate whether the project is a residential, commercial, or institutional property. If the project is something other than the options provided, select “Other” and describe the project in the text field.
Have You Contacted Anyone at NMFS	Respond “Yes” or “No,” as appropriate. If you answer “Yes,” please identify the name of the NMFS personnel with whom you communicated.
Nearest Receiving Water Occupied by ESA-listed Species	<p>Provide the name of the nearest receiving water occupied by ESA-listed species and/or comprising designated critical habitat for listed species that will receive stormwater runoff. Note, the action area includes all downstream receiving waters; as such, a receiving water that is occupied/used by ESA-listed species could be a considerable distance removed from the project site.</p> <p>To find this information, go to http://www.streamnet.org/data/interactive-maps-and-gis-data/. Select the “Stream Mapper” box. When the map appears, zoom to the project location. Identify the waterbody closest to (e.g. downstream of) the proposed project and click on the stream. A pop-up box will list the stream name and the fish species documented in the subject stream. Note there may be multiple records, which can be paged through by clicking on the small triangle icon in the upper right-hand corner of the pop-up box. Also, note that just because a species is documented in the selected receiving water does not mean the identified species is ESA-listed.</p> <p>Use this information in conjunction with response to the “NMFS Species and Critical Habitat in the Action Area” response from the Action Notification Form to identify the nearest receiving water that is occupied by ESA-listed species. If you need additional assistance completing this section of the form, please contact NMFS directly.</p>
Stormwater Designer/ Engineer Contact Info	Provide the name of the licensed engineer who designed the stormwater treatment for the proposed project. Provide the Name, Affiliation / Firm, Phone Number, and Email Address of the named responsible entity for the proposed project.

SUMMARY OF DESIGN ELEMENTS

#	Field Name	Guidance/Instructions
	2-Year, 24-Hour Storm	<p>The 2-Year, 24-Hour storm event for the proposed project’s location will be used to model several design storms. Enter the number of inches of Precipitation (up to 2 significant digits) for the 2-Year, 24-Hour storm event for the proposed project’s location. Also, enter the Precipitation Intensity in inches per hour (up to 2 significant digits).</p> <p>To find this information got to http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm. Enter the latitude and longitude for the project and click “Submit.” The information will be displayed as the second row on the generated table.</p>
1	Water Quality Design Storm	<p>The water quality design storm is defined as 50% of the 2-Year, 24-Hour storm event for the proposed project’s location, except as described below. Enter the inches of Precipitation (up to 2 significant digits).</p> <p>The design storm is dependent on which climate zone the project is located, as follows (See below figure):</p> <ul style="list-style-type: none"> Climate zones 1, 2, 3, 6, or 8: Design Storm = 50% of the 2-year, 24-hour storm Climate zones 4 and 9: Design Storm = 67% of the 2-year, 24-hour storm Climate zone 5: Design Storm = 75% of the 2-year, 24-hour storm <div data-bbox="553 751 1304 1371" style="text-align: center;"> <p>The map shows Oregon divided into nine numbered climate zones. A legend titled 'Water Quality Design Storm Factor' shows three categories: 50% (green), 67% (yellow), and 75% (red). Zone 5 is shaded red, zones 4 and 9 are shaded yellow, and zones 1, 2, 3, 6, 7, and 8 are shaded green.</p> </div> <p>Regions: (1) Oregon Coast; (2) Willamette Valley; (3) Southwestern Valleys; (4) Northern Cascades; (5) High Plateau; (6) North Central; (7) South Central; (8) Northeast; (9) Southeast. Source: Oregon Dept. of Transportation (2008).</p>
	Water Quantity Design Storm	<p>The water quantity design storm is defined as the 10-year, 24-hour storm event for the proposed project’s location. Enter the number of inches of Precipitation (up to 2 significant digits). A map of 10-year, 24-hour storm isopleths for Oregon may be downloaded from the Western Region Climate Center website: http://www.wrcc.dri.edu/pcpnfreq/or10y24.gif.</p>
	Hydromodification Design Storm	<p>The water quality design storm is defined as the 2-Year, 24-Hour storm event for the proposed project’s location, except as described below. Enter the number of inches of Precipitation (up to 2 significant digits) for the 2-Year, 24-Hour storm event for the proposed project’s location.</p> <ul style="list-style-type: none"> Western Region = 42% of 2-year event Eastern Region: Eastern Cascade = 56% of 2-year, 24-hour storm Southeast, Northeast, North Central = 48% of 2-year, 24-hour storm

#	Field Name	Guidance/Instructions
2	Total Project Area	Enter the total area for the proposed project in Acres (up to 3 significant digits) and Square Feet (no significant digits). Total project area should include all areas within the limits of construction and will typically correspond to the parcel(s) comprising the project site.
	Existing Impervious Surface Area	Enter the amount of existing impervious surface area (prior to project modification) in Acres (up to 3 significant digits) and Square Feet (no significant digits). Impervious surface area includes all surfaces that considered impervious to infiltration from rainwater, such as roofs, sidewalks, roadways, and similar surfaces.
	Proposed Total Impervious Surface Area	Enter the amount of proposed, post-construction, total impervious surface area at the proposed project site in Acres (up to 3 significant digits) and Square Feet (no significant digits).
	Proposed Landscape Area	Enter the amount of proposed, post-construction, landscaping area in Acres (up to 3 significant digits) and Square Feet (no significant digits). Landscaped area include proposed vegetated areas (e.g., lawns, parkway strips, shrubbery, trees, vegetated stormwater facilities, etc.) but are not protected natural areas (e.g., forested areas, wetlands, riparian zones).
	Total Area of Ground Disturbance	Enter the amount of proposed, post-construction, area that will be subject to ground disturbing activities (e.g., grading, excavation, fill, structures, etc.). Enter the area of ground disturbance in Acres (up to 3 significant digits) and Square Feet (no significant digits).
	Impervious Surface Area Reduction	Respond “Yes” or “No,” as appropriate. If you answer “Yes,” enter the amount of exiting impervious surface area that will be removed in Acres (up to 3 significant digits) and Square Feet (no significant digits).
	Is the Site Contaminated	Respond “Yes” or “No,” as appropriate.
3	Stormwater Manual Used	Enter the name and version of the stormwater manual used to design the project’s stormwater system. Examples include: City of Portland, Clean Water Services, King County, Western Washington, etc.
	Elements Incorporated into Project Design	Explain which elements of the proposed stormwater design are taken from the stormwater manual employed.

WATER QUALITY INFORMATION

#	Field Name	Guidance/Instructions
4	LID Methods Incorporated	Indicate if Low Impact Design (LID) stormwater treatment methods that are incorporated into the proposed design.
	Volume of Stormwater Treated by LID	Indicate the percentage of stormwater that is treated by LID stormwater methods. (OPTIONAL) Indicate the volume of stormwater treated by LID methods. A template to calculate LID treatment is available at: http://www.deq.state.or.us/wq/tmdls/lidmanual.htm
5	Specific LID Stormwater Treatment Methods	Check the boxes of all LID stormwater treatment methods incorporated into the project’s design. If the design employs a LID method not listed, select the “Other” box and include the name of the LID method and the source from which it is derived (e.g. stormwater manual).
6	Treatment Train Employed	Describe the treatment train employed to treat the project’s stormwater. Include methods for interception, evapotranspiration, pre-treatment, treatment, bioretention, and other relevant features of how stormwater treatment and retention is achieved. This should include a description of site scale treatment trains and BMP-scale treatment trains. (continues on following page)

#	Field Name	Guidance/Instructions
6	Treatment Train Employed (continued)	<p>Site Scale Example:</p> <p>Stormwater treatment is incorporated into site design from the outset to maximize on-site infiltration and limit the amount of stormwater generated from impervious surfaces. Over 30% of the trees occurring on the project site will be retained under the proposed plan and will be supplemented with additional tree and shrub plantings for landscaping and stormwater areas. All landscaped areas will be amended with compost (3 inches for gardens, 1.75 inches for lawns) to a depth of 12 inches to improve infiltration of rainfall, preventing runoff. Impervious surfaces associated with parking areas will be reduced by using permeable pavers for the front third of each parking space.</p> <p>Stormwater generated from rooftops is collected into stormwater planters for pre-treatment and retention before detention in an underground stormwater vault system, after which it will discharge into the municipal stormwater system.</p> <p>Precipitation falling on sidewalks and parking areas is reduced through interception and re-evaporation by trees covering approximately 25% of these impervious areas. Stormwater generated from sidewalks and parking areas fully infiltrates the water quality design storm in stormwater planters. Storms larger than the water quality design storm are discharged into the municipal stormwater system.</p> <hr/> <p>BMP Scale Example:</p> <p>Compost amended landscape areas: The compost specified is from a U.S. Composting Council Seal of Testing Assured (STA) supplier.</p> <p>Stormwater Planters: Stormwater planters will incorporate a crushed rock pad, sized using U.S. Army Corps of Engineers rock pad standards, to dissipate energy from the concentrated flows at the inlet. Plantings have been designed to provide 90% cover over each facility bottom within a 2-year period. Non-plastic, biodegradable erosion control fabric will protect exposed soil from erosion. Infiltration into the subsoils, confirmed through testing where facilities will be located, provides treatment for pollutants such as nitrogen, phosphorus, copper, zinc, hydrocarbons, biologicals and sediment. During large storms, overflows top a weir in the side of the planters and cascade into an catch basin. By placing the catch basin outside the facility, less water is exposed to pollution and this lower amount of water spends less time in contact with the metal catch basin grates than if it were placed inside the facility.</p>
7	Stormwater Treatment Required (Volume)	<p>Volume: Enter the value for the post-developed volume generated by the water quality design storm in cubic feet (ft³). To calculate this value you can input the results from a modeling software or use the simple calculation methods below.</p> <p>To calculate runoff volume the equation: $V = (A) (DS)$ may be used</p> <p>Where: V = Runoff volume in cubic feet (ft³) A = Impervious Surface Area of the site in square feet (ft²) DS = Design Storm precipitation in feet (ft)</p> <p>Example: calculate the runoff volume from a fully developed (e.g. 100% impervious surface area) parcel 0.574 acres in size, with a design storm precipitation of 1.25 in. The entire site will be redeveloped as impervious surface area.</p> <p>$V = (A) (DS) = (0.574 \text{ ac}) (1.25 \text{ in})$</p> <p>Convert Units: $A = 0.574 \text{ ac} \rightarrow 25,000 \text{ ft}^2$ $DS = 1.25 \text{ in.} \rightarrow 0.104 \text{ ft}$ $V = (25,000 \text{ ft}^2) (0.104 \text{ ft}) \rightarrow V = \sim 2,604 \text{ ft}^3$</p> <p>2,604 ft³ of stormwater treatment must be provided for the project site.</p> <p>If you are using modeling software to calculate treatment volume using a specific methodology (e.g., the Santa Barbara Urban Hydrograph method, etc.), please indicate which modeling software was employed to determine the required stormwater treatment (e.g. HydroCAD), relevant software version (e.g. ver. 9.9), and the modeling method used (e.g. SBUH, etc.).</p>

#	Field Name	Guidance/Instructions
7	Stormwater Treatment Required (Peak Discharge)	<p>Peak Discharge: Enter the value for the post-developed peak discharge of the water quality design storm in cubic feet per second (cfs). To calculate this value you can input the results from a modeling software or use the simple calculation methods below. If you are using modeling software to calculate peak discharge please indicate which modeling software was employed to determine the peak discharge value, relevant software version, and the modeling method used.</p> <p>To calculate peak discharge via the “Rational Method,” the equation $q = (C) (i) (A)$ may be used</p> <p>Where: q = peak discharge or runoff rate in cfs C = the runoff coefficient for the area discharging runoff i = the storm intensity in inches/per hour A = the area of the discharge area in acres</p> <p>The runoff coefficient, C, is a unitless variable that represents the fraction of rainfall striking the drainage area that becomes runoff from that drainage area. Values for C for a variety of types of drainage areas can be found in handbooks, textbooks, on the internet, or from the ODOT Hydraulics Manual, Chapter 7: https://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/docs/Hydraulics/Hydraulics%20Manual/CHAPTER_07.pdf</p> <p>Example: Calculate the peak discharge for a 1.5-acre lot. The runoff coefficient for this site is determined to be 0.85, based on existing impervious surfaces, site slopes, and local soils. The specified design storm intensity has been determined to be 0.045 in/hr.</p> $q = CiA = (0.85) (0.045 \text{ in/hr}) (1.23 \text{ ac})$ <p>Convert Units: $C = 0.85$ (unitless) $i = 0.045 \text{ in/hr} \rightarrow 1.04 \times 10^{-6} \text{ ft/sec}$ $A = 1.23 \text{ ac} \rightarrow 53,578 \text{ ft}^2$</p> $q = (0.85) (1.04 \times 10^{-6} \text{ ft/sec}) (53,578 \text{ ft}^2) = \sim 0.05 \text{ ft}^3/\text{sec}$ <p>The peak discharge for the design storm is ~ 0.05 cfs.</p>
	Stormwater Treatment Required (Area Treated)	<p>(OPTIONAL) Indicate the area of stormwater treated by LID methods. A template to calculate LID treatment is available at: http://www.deq.state.or.us/wq/tmdls/lidmanual.htm. Chapter 4 (version 1 preferred) provides a step-by-step method for considering BMPs and estimating the area of runoff they manage and references an Excel file called the LID Implementation Form. (For example, deciduous tree canopy over an impervious area can only be considered to manage 25% of that area. The rest must drain to another facility for management of peak flows.)</p> <p>Use the LID Implementation Form to enter areas. Facility sizing for concentrated of volumes (e.g. determining the size of a stormwater planter or an LID swale) cannot be completed until this template is adapted by your jurisdiction, so size facilities using other methods and enter the areas managed on the LID Implementation Form and ignore other worksheets in the Excel file.</p>
	Water Quality Design Storm Fully Treated (Volume)	<p>Respond “Yes” or “No” if the water quality design storm’s volume is fully treated. If no, explain how the effects of untreated stormwater volume and peak discharge rate will be mitigated such that ESA-listed species or designated critical habitat are not injured or impaired.</p>
	Water Quality Design Storm Fully Treated (Peak Discharge)	<p>Respond “Yes” or “No” if the water quality design storm’s peak discharge is fully treated. If no, explain how the effects of untreated stormwater volume and peak discharge rate will be mitigated such that ESA-listed species or designated critical habitat are not injured or impaired.</p>

WATER QUANTITY INFORMATION

#	Field Name	Guidance/Instructions
8	Does Project Discharge into Large Waterbody	Indicate whether the project will discharge into a large waterbody. NMFS defines a large waterbody as either the Pacific Ocean, the Willamette River downstream of Eugene, the Columbia River, or other large lakes or impoundments. If you need additional assistance completing this section of the form, please contact NMFS directly.
9	Pre-Development Runoff Rate	Enter the pre-development runoff rate for the project site for the 2-year, 24-hour storm and the 10-year storm in cubic feet per second (cfs). Pre-development site conditions assume the conditions prior to human development or disturbance.
	Post-Development Runoff Rate	Enter the post-development runoff rate for the project site for the 2-year, 24-hour storm and the 10-year storm in cubic feet per second (cfs).
*** Post Development Runoff Rate Must be Equal to or Less Than Pre-Development Runoff Rates ***		
10	Methods Used to Limit Discharge	<p>Describe the stormwater design’s methods for limiting stormwater discharge from the project site. Include methods for interception, evapotranspiration, bioretention, detention, and other relevant features of how stormwater retention and detention is achieved.</p> <p>Example:</p> <p>Stormwater treatment is incorporated into site design from the outset to maximize on-site infiltration and limit the amount of stormwater discharging from the site. Over 50% of the trees occurring on the project site will be retained under the proposed plan to increase interception of precipitation, re-evaporation, and to provide enhanced infiltration of rainfall that passes through the canopy. Supplemental tree and shrub plantings for landscaping and stormwater treatment will further reduce stormwater generation through interception and infiltration; however, these practices are most effective during storms smaller than the water quantity design storm.</p> <p>Stormwater runoff generated from rooftops is collected into stormwater planters for retention and partial infiltration of the water quality design storm before discharging into an underground detention pipe, after which it is discharged into the municipal stormwater system.</p> <p>Precipitation falling on sidewalks and parking areas is reduced by using permeable pavers for the front third of each parking space, increasing infiltration. Stormwater runoff generated from sidewalks and parking areas is fully infiltrated during the water quality design storm. Infiltration of the water quality storm was shown through modeling to attenuate the water quantity design storm, so no detention was needed for these areas. Runoff, when it occurs, is discharged into the municipal stormwater system.</p>
	Page in Stormwater Plan where more details can be found	Identify the section in the project’s stormwater plan that discusses the decisions underlying the proposed stormwater design, including site constraints.
11	Specific LID Discharge Reduction Methods	Check the boxes of all LID stormwater discharge reduction methods incorporated into the project’s design. If the design employs a LID method not listed, select the “Other” box and include the name of the LID method and the source from which it is derived (e.g. stormwater manual).
12	Water Quantity Design Storm Fully Managed (Volume)	Respond “Yes” or “No” if the water quantity design storm’s volume is fully managed. If no, explain how the effects of untreated stormwater volume will be mitigated such that ESA-listed species or designated critical habitat are not injured or impaired.
	Water Quantity Design Storm Fully Managed (Peak Discharge)	Respond “Yes” or “No” if the water quantity design storm’s peak discharge is fully managed. If no, explain how the effects of untreated stormwater peak discharge rate will be mitigated such that ESA-listed species or designated critical habitat are not injured or impaired.

HYDROMODIFICATION INFORMATION

#	Field Name	Guidance/Instructions
13	Does Project Discharge into Large Waterbody	Indicate whether the project will discharge into a large waterbody. If yes, information in this section may not be required. NMFS defines a large waterbody as either the Pacific Ocean, the Willamette River downstream of Eugene, the Columbia River, or other large lakes or impoundments. If you need additional assistance completing this section, please contact NMFS directly.
14	Peak discharge >0.5 cfs during the hydromodification storm event	Indicate whether the peak discharge will be greater than 0.5 cfs during the hydromodification storm event, (i.e. 2-year, 24-hour). If yes, flow control management will be required to minimize hydromodification impacts.
	Flow control proposed	If the response above was “yes,” enter the amount of flow control provided in cfs and as a percentage of the hydromodification storm event (i.e. 2-year, 24-hour storm).

MAINTENANCE AND INSPECTION PLAN

#	Field Name	Guidance/Instructions
15	Is Maintenance and Inspection Plan Included	Indicate whether a maintenance and inspection plan is included in the project’s stormwater plan. The maintenance and inspection plan should describe the elements of the stormwater system, the inspection schedule and process, legal and financial responsibility for carrying out inspections and maintenance activities, sample inspection log, and who the maintenance and inspection reports will be sent to (e.g. city, county, or other jurisdictional entity).
	*** NMFS cannot complete review without a maintenance and inspection plan ***	
16	Contact Information for Maintenance and Inspection Entities	Provide the contact information for the party or parties who will be legally responsible for performing/contracting the inspections and maintenance of the stormwater facilities.

OTHER RELEVANT INFORMATION

Include any other relevant information that may be helpful in evaluating the proposed stormwater plan and design.

ACTION COMPLETION REPORT
HUD PROGRAMMATIC OPINION

Submit this form within 60 days of completing all work to NMFS at HUDBiOp.wcr@noaa.gov.

DATE OF NOTIFICATION _____		NMFS TRACKING # (Number Provided by NMFS)		WCR- ____-____
PROJECT NAME _____				
HUD OFFICE/PROGRAM _____			RESPONSIBLE ENTITY _____	
NAME _____		PHONE _____		NAME _____
TITLE _____		EMAIL _____		PHONE _____
TITLE _____		EMAIL _____		EMAIL _____
CONSTRUCTION COMPLETION DATE _____				

Please include the following:

1	An explanation of the stormwater system as built or installed by the construction contractor, including any on-site changes from the original plans. Add additional sheets, if necessary. _____
2	Photographs of the constructed stormwater facility, including photos of the outfall structure, vegetation, facility location relative to other site features, etc.
3	A map showing the stormwater facility’s location(s)
4	As built design drawings for the stormwater facility and site stormwater collection system (PDF versions only please. No CAD files)

INSTRUCTIONS FOR COMPLETING THE ACTION COMPLETION REPORT

The following information provides guidance or instructions on completing each field of the Action Completion Report. This form must be submitted within 60-days of completing all project work.

Field Name	Guidance/Instructions
Date of Notification	Enter the 8 digit date you are submitting this report in the MM/DD/YYYY format.
NMFS Project Tracking #	Enter the 8+ digit tracking number assigned to the proposed project. This will be the same number NMFS provided to you following submittal of the Action Notification Form.
Project Name	Enter the official name of the project (e.g. how the project will be referenced in the Environmental Review Record.
HUD Office/Program	Provide the name of the HUD Office or Program from which funding is received. Provide the Name, Job Title, Phone Number, and Email Address of the principal HUD contact for the project funding.
Responsible Entity	Provide the name of the Responsible Entity who will manage/oversee/carry out/ or otherwise be responsible for the proposed project. Provide the Name, Job Title, Phone Number, and Email Address of the named responsible entity for the proposed project.
Construction Completion Date	Enter the 8 digit date that project construction was completed in in the MM/DD/YYYY format.

#	Field Name	Guidance/Instructions
1	Description of Stormwater System Constructed	Describe the stormwater system as built or installed by the construction contractor, including any on-site changes from the original plans. If the design, sizing, or methods were changed from those described in the Stormwater Information Form, provide information on what necessitated the changes and how the changes affect the stormwater treatment and management for the site. Changes to the stormwater system may require re-submittal of the Stormwater Information Form and a revised project stormwater plan so that NMFS can assess whether the system is in compliance with the opinion.
2	Photos of Constructed Stormwater Facilities	Provide photographs of the constructed stormwater facilities, including photos of outfall structure(s), vegetation, facility location(s) relative to other site features, etc.
3	Site Map	Provide a site map showing the stormwater facility location(s).
4	As-Built Plans	Provide an electronic copy of the as-built plans for the project'

APPENDIX C: Low-Impact Development (LID) References

- Cahill, M. 2016. Low Impact Development in Western Oregon: A Practical Guide for Watershed Health. Green Girl Land Development Solutions LLC, Portland Oregon. A Report for Oregon Department of Environmental Quality, Portland, Oregon.
- City of Portland. 2016. Stormwater Management Manual. Bureau of Environmental Services. (August)
- Clean Water Services. 2009. Low Impact Development Approaches Handbook. Hillsboro, Oregon. (July)
- Hinman, C. 2005. Low Impact Development: Technical Guidance Manual for Puget Sound. A Report for the Puget Sound Action Team and Washington State University, Pierce County Extension. Olympia, Washington. (January)
- National Association of Home Builders. 2003. The Practice of LID Development. A Report for HUD and the Partnership for Advancing Technology in Housing. 2003. Washington, D.C. (July)
- Transportation Research Board. 2006. National Cooperative Highway Research Program (NCHRP) Report 565. Evaluation of Best Management Practices for Highway Runoff Control. Washington, D.C.
- U.S. EPA. 2000. Low-Impact Development (LID): A Literature Review. Office of Water, Washington, D.C. (October)
- Washington State Department of Ecology. 2011. Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies: Technology Assessment Protocol – Ecology (TAPE). Lacey, Washington.
- Washington State Department of Ecology. 2014. Stormwater Management Manual for Western Washington. Water Quality Program. Lacey, Washington. (December)

ESA and NMFS Determination of No Effect

No ESA-listed species or critical habitats under the jurisdiction of the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) are known to occur in the Ontario Sewer Improvement Project area; and therefore, none would be affected by the project (<https://www.fisheries.noaa.gov/resource/map/critical-habitat-salmon-and-steelhead-all-west-coast>; <https://www.fisheries.noaa.gov/resource/map/species-ranges-salmon-and-steelhead-all-west-coast>). Improvements will occur on land that has already been developed, replacement of existing facilities, existing ROW, and easements. No in-water work will occur or be discharged to surface waterbody. The project is determined to have no effect on ESA-listed, candidate, or proposed species, Critical Habitat, or NOAA-NMFS protected species. USFWS official species list (IPaC), NMFS fish Evolutionary Significant Units maps (3), and no effect information is attached.

NMFS-protected species or critical habitat will not be affected. The extent of critical habitat for Snake River Salmon and Steelhead Evolutionarily Significant Units (ESUs) in the State of Idaho and their potential for occurrence (Figures attached) does not extend upstream of Hells Canyon Dam on the Snake River (do not extend to Project Area). All waters upstream of Hells Canyon Dam (and in the project area watershed) are recognized by NMFS as anthropogenically blocked and no longer allow access to habitat upstream for listed Snake River salmon or steelhead. (<https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-sockeye-salmon>; <https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-fall-run-chinook-salmon>; <https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-spring-summer-run-chinook-salmon>; <https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/snake-river-basin-steelhead>). Furthermore, no Essential Fish Habitat (EFH) for Chinook salmon occurs upstream of Hells Canyon Dam or in the project area (Figure attached); and in turn, none would be affected as a result of the proposed project.

No ESA-listed, proposed, or candidate species or critical habitat under the jurisdiction of USFWS was identified as occurring in the project area (USFWS, 2020; IPaC, USFWS official species list). Overall, no ESA-listed species, designated critical habitat, or EFH would be affected as a result of the proposed Ontario Sewer Improvement Project.

David E. Fornander, Ph.D
Technologist Professional
Aquatic Ecology, Fisheries, and Environmental Compliance

JACOBS

Direct 208.383.6181
Mobile 208.340.6613
Fax 208.345.5315
www.jacobs.com

[Browse our jobs!](#) and feel free to list me as a referral.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Oregon Fish And Wildlife Office

2600 Southeast 98th Avenue, Suite 100

Portland, OR 97266-1398

Phone: (503) 231-6179 Fax: (503) 231-6195

<https://www.fws.gov/oregonfwo/articles.cfm?id=149489416>

In Reply Refer To:

April 03, 2020

Consultation Code: 01EOFW00-2020-SLI-0333

Event Code: 01EOFW00-2020-E-00622

Project Name: Ontario Sanitary Sewer Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to investigate opportunities for incorporating conservation of threatened and endangered species into project planning processes as a means of complying with the Act. If you have questions regarding your responsibilities under the Act, please contact the Endangered Species Division at the Service's Oregon Fish and Wildlife Office at (503) 231-6179. For information regarding listed marine and anadromous species under the jurisdiction of NOAA Fisheries Service, please see their website (http://www.nwr.noaa.gov/habitat/habitat_conservation_in_the_nw/habitat_conservation_in_the_nw.html).

Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oregon Fish And Wildlife Office
2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398
(503) 231-6179

Project Summary

Consultation Code: 01EOFW00-2020-SLI-0333

Event Code: 01EOFW00-2020-E-00622

Project Name: Ontario Sanitary Sewer Improvements

Project Type: Federal Grant / Loan Related

Project Description: replacement of sewer pipe with in ground pipe bursting technique within previously disturbed city ROW paved, gravel, and maintained areas.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/44.020116620822876N116.96788622769449W>



Counties: Malheur, OR

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

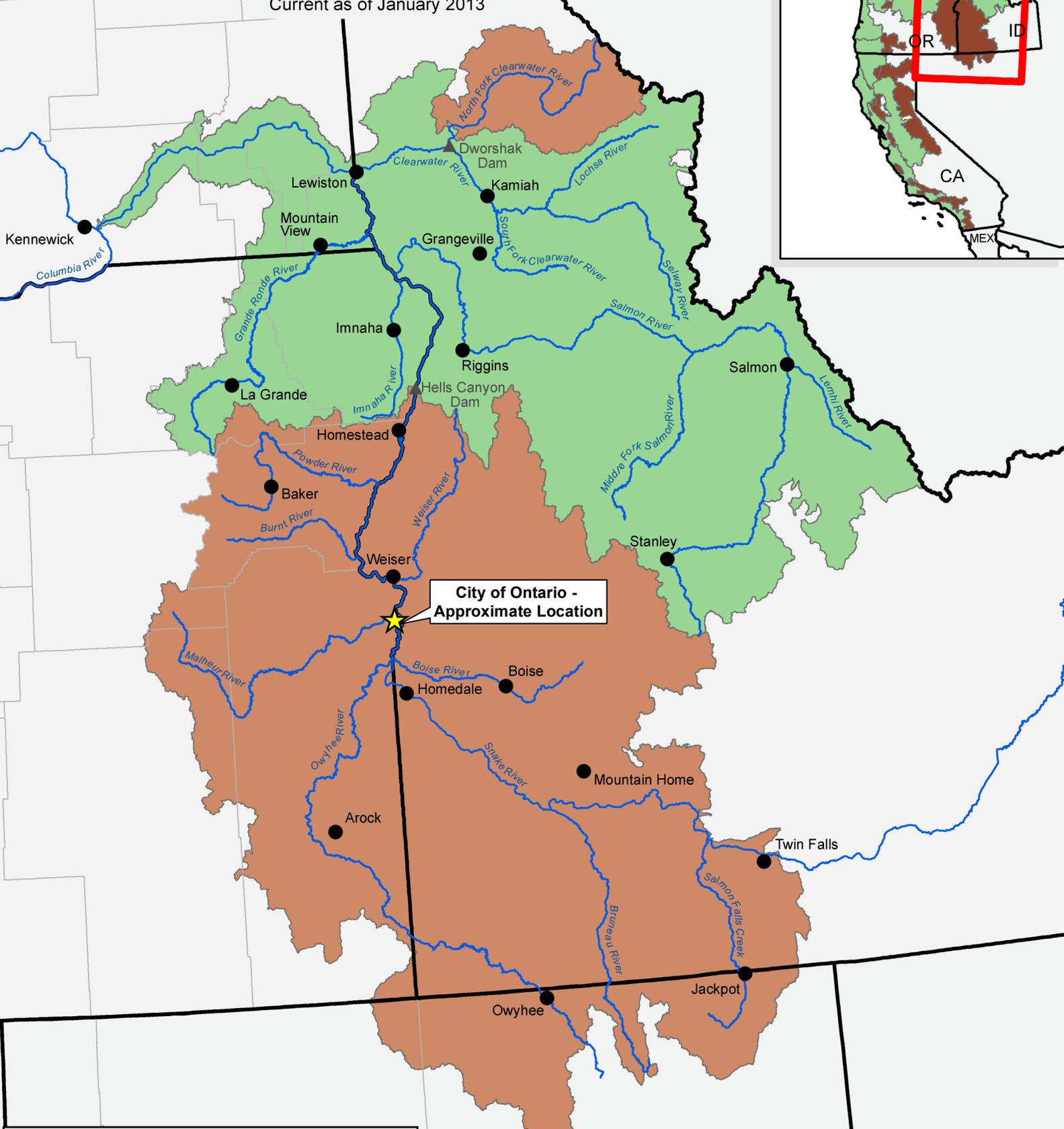
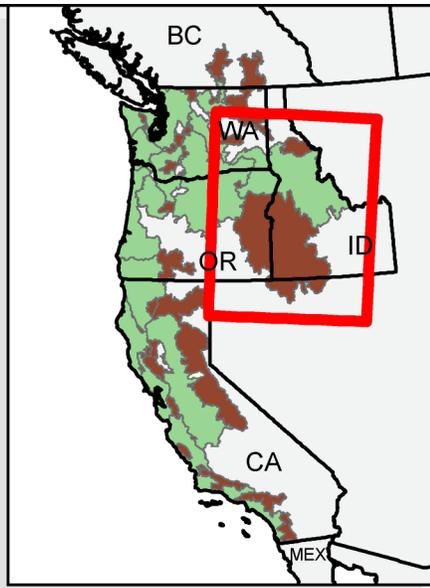
Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



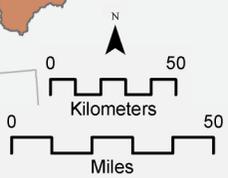
Snake River Basin Steelhead Distinct Population Segment

Current as of January 2013



Snake River Basin Steelhead

- DPS Boundary
- Historical Watershed: Anthropogenically Blocked
- County Boundary

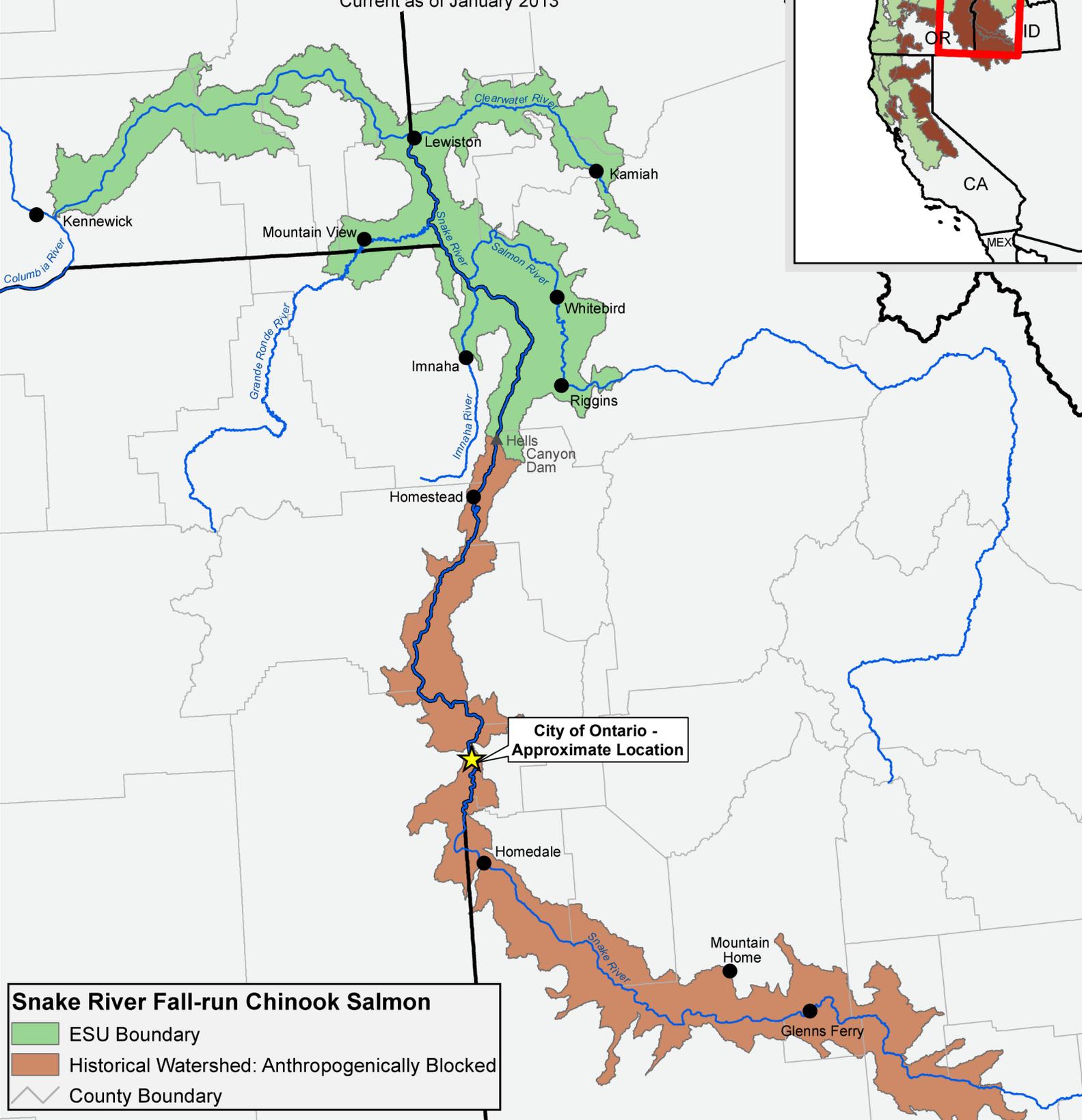
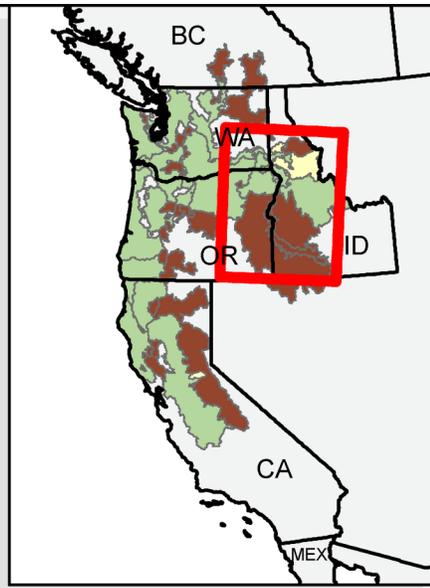


Map is for general reference only
 UNITED STATES DEPARTMENT OF COMMERCE
 NATIONAL Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 PROTECTED RESOURCES DIVISION
 1201 NE Lloyd Boulevard, Suite 1100
 PORTLAND, OREGON 97232



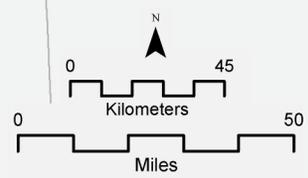
Snake River Fall-run Chinook Salmon Evolutionarily Significant Unit

Current as of January 2013

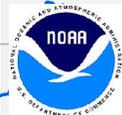


Snake River Fall-run Chinook Salmon

- ESU Boundary
- Historical Watershed: Anthropogenically Blocked
- County Boundary



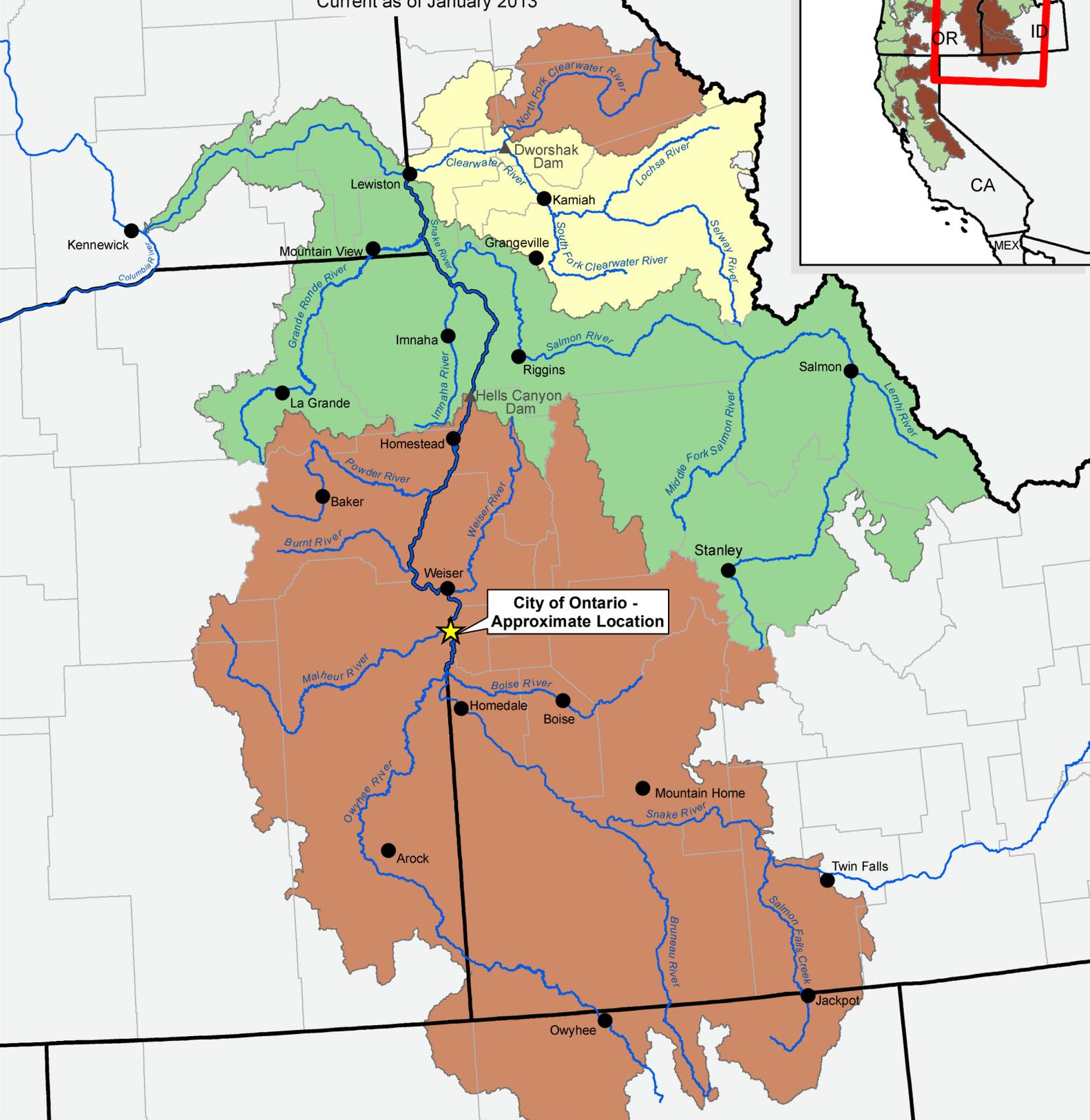
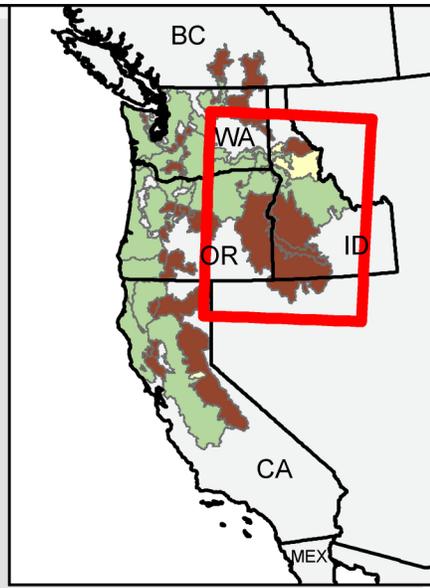
Map is for general reference only
 UNITED STATES DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 PROTECTED RESOURCES DIVISION
 1201 NE Lloyd Boulevard, Suite 1100
 PORTLAND, OREGON 97232



Snake River Spring\Summer-run Chinook Salmon

Evolutionarily Significant Unit

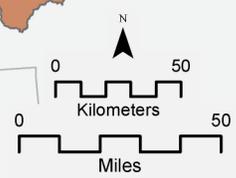
Current as of January 2013



City of Ontario - Approximate Location

Snake River Spring\Summer-run Chinook Salmon

- ESU Boundary
- Historical Watershed: Anthropogenically Blocked
- Functionally Extirpated
- County Boundary



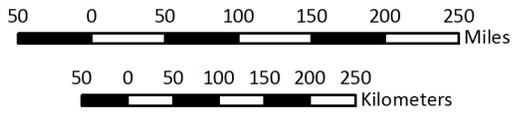
Map is for general reference only
 UNITED STATES DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 PROTECTED RESOURCES DIVISION
 1201 NE Lloyd Boulevard, Suite 1100
 PORTLAND, OREGON 97232

Chinook Salmon West Coast States Essential Fish Habitat (EFH)

Salmonid EFH described in "Fisheries Off West Coast States; West Coast Salmon Fisheries; Amendment 18 to the Salmon Fishery Management Plan" published in the Federal Register / Vol. 79, No. 243/ Thursday, December 18, 2014.



Impassable Dam	Chinook Salmon EFH (2014)	Marine Salmon EFH (2014)	4th Field Hydrologic Unit (HU)
Natural Barrier			



12/2014, C. Gavette Chinook_EFH_2014.mxd
UNITED STATES DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 WEST COAST REGION
 777 Sonoma Ave., Room 325
 SANTA ROSA, CALIFORNIA 95404