US Army Corps
of Engineers ®
Walla Walla District

YAKIMA RIVER DELTA ECOSYSTEM RESTORATION

Final Feasibility Report with
Integrated Environmental Assessment

Appendix H

Correspondence and Public Comments/Responses

US Army Corps
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Walla Walla District

YAKIMA RIVER DELTA ECOSYSTEM RESTORATION

Final Feasibility Report with
Integrated Environmental Assessment

Appendix H

Correspondence and Public Comments/Responses

H-1 Environmental and Cultural Correspondence

Clean Water Act

Endangered Species Act

Fish and Wildlife Coordination Act

Section 106 of National Historic Preservation Act

US Army Corps
of Engineers ®
Walla Walla District

Clean Water Act

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

August 29, 2024

U.S. Army Corps of Engineers Walla Walla District
ATTN: Michael Erickson, Chief
Environmental Compliance Section
201 North 3rd Avenue
Walla Walla, WA 99362

Re: Yakima River Delta Ecosystem Restoration - Project Development

Dear Michael Erickson:

The State of Washington Department of Ecology (Ecology) appreciates the early coordination efforts by the U.S. Army Corps of Engineers (Corps) concerning the Yakima River Delta Ecosystem Restoration Project in Benton County. The Corps is proposing to remove the Bateman Island causeway and stabilize the shoreline along Bateman Island, and the mainland. Ecology has received and reviewed the following documentation as part of the pre-application coordination:

- Yakima Delta 1135 Sediment Sampling, PTM Modeling Follow-up, 2024.
- Draft Bateman Island – Yakima River Delta Sediment Characterization Report, 2024.
- Letter of Confirmation for Section 401 Water Quality Certification, 2024.
- Yakima Delta, 2002 Bateman Island Sediment Sampling, 2023.
- Yakima Delta Assessment, 2014 Final Report, 2023.
- Hydrodynamic Modeling and Geomorphic Assessment, 2015 Final Report, 2023.
- Draft Biological Assessment and Consultation Initiation Request, 2023.
- Draft Feasibility Report with Integrated Environmental Assessment, 2023.
- Pre-Filing Meeting Request, 2023.

Based upon the review of the proposed project during the feasibility phase and the supporting information provided to date, Ecology is optimistic that the Corps will be able to

design the project with the necessary measures for the protection of water quality. Ongoing coordination between the Corps and Ecology should enable the Corps to provide the necessary documentation to move through the Section 401 Water Quality Certification (WQC) review process in a timely manner. In addition to a formal WQC Request, the following documentation is also requested:

- A Joint Aquatic Resources Permit Application (JARPA) or a document that provides detail project elements, anticipated impacts, proposed work schedule, and proposed BMPs.
- A request for an extended area of mixing.
- A Water Quality Monitoring and Protection Plan.

Ecology is providing this letter in support of the Corps' continued development of the proposed project and plans. Please be advised that this letter does not substitute for or prejudge Ecology's Section 401 Water Quality Certification which will be issued in the future.

We look forward to continuing coordination on this proposal as you move into the formal permitting phase. Please contact Jessica Hausman at jessica.hausman@ecy.wa.gov or (564) 669-9873 if you have any questions.

Sincerely,

Loree' Randall

Loree' Randall, Section Manager
Aquatic Permitting and Protection Section
Shorelands and Environmental Assistance Program

Sent via email: michael.erickson@usace.army.mil

E-cc: Jessica Hausman, Ecology
Tom Tebb, Ecology
Lori White, Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

October 14, 2021

Colonel Alexander Bullock
District Engineer
Seattle District, Corps of Engineers
PO Box 3755
Seattle, Washington 98124-3755

RE: Revised State of Washington Clean Water Act Section 401 Water Quality Certification Decision on the Proposed 41 Nationwide Permits.

Dear Colonel Bullock:

The Department of Ecology (Ecology) has made minor modifications to State General Conditions 1, 2, and 4 following a meeting between the U.S. Army Corps of Engineers (Corps) and Ecology October 13, 2021. It is our understanding that these modifications will aid in the Corps implementation of Ecology's programmatic Section 401 Water Quality Certification decision for the Nationwide Permits (NWP).

The attached programmatic Section 401 Water Quality Certification decision supersedes the decision document sent to the Corps October 12, 2021.

If you have any questions or would like additional information, please contact Loree' Randall (Loree.Randall@ecy.wa.gov) or Erin Hanlon Brown (Erin.HanlonBrown@ecy.wa.gov)

Sincerely,

Joenne McGerr
Program Manager
Shorelands and Environmental Assistance Program
Washington State Department of Ecology

Attachment – State of Washington Section Programmatic 401 Water Quality Certification Decisions and State Conditions for the U.S Army Corps of Engineers 41 Nationwide Permits in the Draft Final Rule. This document fully outlines Ecology's Section 401 Certification decisions for activities which may result in a discharge and are carried out under a NWP for either Corps Section 404 and/or Section 10 permits.

State of Washington Department of Ecology
Programmatic Section 401 Water Quality Certification
Decisions and Conditions for the U.S. Army Corps of Engineers
41 Nationwide Permits in the Draft Final Rule
Modified October 14, 2021

Pursuant to Section 401 of the Clean Water Act (CWA), as the state water pollution control agency with jurisdictional authority of Washington's surface waters, the Department of Ecology (Ecology) is tasked with issuance of Section 401 Water Quality Certification (Water Quality Certification) of the Nationwide Permits (NWPs) in Washington, with the exception of those lands where the U.S. Environmental Protection Agency (EPA) or a tribe has authority to give such Water Quality Certification. Ecology's Water Quality Certification decisions and conditions are based on information received during a public comment period, review of documentation provided by the U.S. Army Corps of Engineers (Corps), and Ecology's determination as to whether the NWPs comply with applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA, state water quality standards, and other applicable provisions of state law. Ecology's Water Quality Certification decisions and conditions apply to projects or activities authorized under Section 404 of the Clean Water Act and/or Section 10 of the River and Harbors Act, where Ecology is the certifying authority.

Ecology programmatic Section 401 Water Quality Certification decisions for Nationwide Permits (NWPs)

A. State General Conditions for all Nationwide Permits

In addition to all of the U.S. Army Corps of Engineers' (Corps) national and Seattle District's regional permit conditions, the following state general Water Quality Certification conditions apply to all NWPs whether **granted or granted with conditions** in Washington.

Ecology individual Water Quality Certification is required if one or more of the following state general conditions is triggered.

1. **In-water construction activities**. Ecology individual Water Quality Certification is required for projects or activities authorized under NWPs where the project proponent has indicated on the Joint Aquatic Resource Permit Application (JARPA) question 9e that the project or activity will not meet State water quality standards, or has provided information indicating that the project or activity may or would cause or contribute to an exceedance of a State water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC).

   Note: In-water activities include any activity within a jurisdictional wetland and/or waters.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below.

Additionally, the discharge of dredge or fill material and associated activities authorized by Corps NWPs can result in turbidity (e.g., total suspended and settleable solids) that can impair water quality. For example, concentrations of suspended solids above the criteria listed impair aquatic life uses by reducing the availability of food for fish and preventing the development of insect larvae, impeding fish migration and other aquatic life movement, preventing the development of fish eggs, and decreasing fish and other aquatic organisms' resistance to disease.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 -350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***

2. **Projects or Activities Discharging to Impaired Waters**. Ecology individual Water Quality Certification is required for projects or activities authorized under NWPs if the project or activity will occur in a 303(d) listed segment of a waterbody or upstream of a listed segment and may or would cause or contribute to further exceedances of the specific listed parameter.

   To determine if your project or activity is in a 303(d) listed segment of a waterbody, visit Ecology's Water Quality Assessment webpage for maps and search tools.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, this condition is needed because the NWPs do not provide sufficient project and activity specific information to determine that discharges will comply with specific water quality requirements related to the limits on total suspended solids, temperature, dissolved oxygen, nutrients, or pH for which a specific waterbody could be listed as impaired. Site specific analysis is required to determine whether the discharges from the project or activities comply with state water quality requirements in the active channel of a waterbody identified as a section 303(d) or TMDL listed impaired waterbody. This is to ensure implementation efforts to restore and protect the state's aquatic resources; where the state's waters are assessed, restoration and protection objectives are prioritized, and TMDL and alternative approaches are adaptively implemented to achieve state water quality goals with the collaboration of other state and federal agencies, tribes, stakeholders, and the public.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906, (Water Pollution Control Act).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260,***

WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).

- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 - 350, WAC 173-204-400 – 420 WAC 173-204-500 - 590 (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***

3. **Aquatic resources requiring special protection**. Ecology individual Water Quality Certification is required for:

    1. Activities in or affecting the following aquatic resources:
        a) Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publications #14-06-029 and #14-06-030):
            - Estuarine wetlands.
            - Wetlands of High Conservation Value.
            - Bogs.
            - Old-growth forested wetlands and mature forested wetlands.
            - Wetlands in coastal lagoons.
            - Wetlands in dunal systems along the Washington coast.
            - Vernal pools.
            - Alkali wetlands.

        b) Fens, aspen-dominated wetlands, camas prairie wetlands.

        c) Category I wetlands.

        d) Category II wetlands with a habitat score ≥ 8 points.

    2. Activities in or resulting in a loss of eelgrass (Zostera marina) beds.

    This state general condition does not apply to the following NWP:
    NWP 20 – *Response Operations for Oil and Hazardous Substances*

This condition is necessary to ensure that any discharge authorized under the NWP program will comply with state water quality requirements and other applicable state laws as cited below. Additionally, the wetlands of Washington are fragile ecosystems that serve a number of important beneficial functions. Wetlands assist in reducing erosion, siltation, flooding, ground and surface water pollution, and provide wildlife, plant, and fisheries habitats. Wetland destruction or impairment may result in increased public and private costs and property losses.

Wetland functions vary widely. When designating wetlands, science supports using a rating system that evaluates the existing wetland functions and values to determine what functions must be protected.

Estuarine wetlands, especially those that are larger, are relatively rare and provide unique natural resources that are considered to be valuable to society. These wetlands need a high level of protection to maintain their functions and the values society derives from them.

Camas prairies are included by scientists of the Washington Natural Heritage Program and Washington Department of Natural Resources (DNR) as high quality, relatively undisturbed wetlands, or wetlands that support state listed threatened or endangered plants. High quality, relatively undisturbed examples of wetlands are uncommon in Washington. The state is trying to provide a high level of protection to the undisturbed character of these remaining high quality wetlands. Examples of undisturbed wetlands help us to understand natural wetland processes.

Bogs and peatlands are extremely sensitive to disturbance and impossible to re-create through compensatory mitigation. Bogs are low nutrient, acidic wetlands that have organic soils. The chemistry of bogs is such that changes to the water regime or water quality of the wetland can easily alter its vegetation community. The plants and animals that grow in bogs and peatlands are specifically adapted to such conditions and do not tolerate changes well. Immediate changes in the composition of the plant community often occur after the water regime changes. Minor changes in the water regime or nutrient levels in these systems can have major adverse impacts on the plant and animal communities.

Coastal lagoons are shallow bodies of water, like a pond, partly or completely separated from the sea by a barrier beach. They may, or may not, be connected to the sea by an inlet, but they all receive periodic influxes of salt water. This can be either through storm surges overtopping the barrier beach, or by flow through the porous sediments of the beach. Wetlands in coastal lagoons probably cannot be reproduced through compensatory mitigation, and they are relatively rare in the landscape. No information has been found relating to attempts to create or restore coastal lagoons in Washington that would suggest this type of compensatory mitigation is possible. Any impacts to lagoons will, therefore, probably result in a net loss of their functions and values. In addition, coastal lagoons and their associated wetlands are proving to be very important habitat for salmonids.

Eelgrass serves a wide variety of ecological functions in nearshore ecosystems, and is critically linked to other valued ecosystem components. Eelgrass beds are highly productive, annually producing large amounts of carbon that fuel nearshore food webs, principally through detritus pathways. Eelgrass provides critical three-dimensional structure in otherwise two-dimensional environments, and many other marine organisms use this structure. Shellfish, such as crabs and bivalves, use eelgrass beds for habitat and nursery areas and feed indirectly on the carbon fixed by the plants. Fishes such as juvenile salmonids use eelgrass beds as migratory corridors as they pass through Puget Sound; the beds provide both protection from predators and abundant food, such as the small crustaceans associated with eelgrass.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***

- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***

4. Loss of More than 300 Linear Feet of Streambed. Ecology individual Water Quality Certification is required for any project that results in the loss of more than 300 linear feet of streambed.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, per RCW 90.48, it is declared to be the public policy of the state of Washington to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington. Ecology Water Quality Certification is required for projects or activities authorized under NWPs that may cause or contribute to an exceedance of a state water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC). State water quality standards and sediment management standards are available on Ecology's website.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 -350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 (Sediment Management Standards).***

5. Temporary Fills. Ecology individual Water Quality Certification is required for any project or activity with temporary fill in wetlands or other waters for more than six months.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, per joint interagency (EPA, Corps, Ecology) guidance, long-term temporary impacts affect functions that will eventually be restored over time, but not within a year or so. Long-term temporary impacts carry a risk of permanent loss, such as when soil structure is altered by deep excavation or compacted by equipment.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***

- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***

6. **Mitigation.** Project proponents are required to show that they have followed the mitigation sequence and have first avoided and minimized impacts to aquatic resources wherever practicable.

This condition is necessary to ensure that unavoidable physical alterations are properly mitigated and that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, since a literal interpretation of the anti-degradation policy could result in preventing the issuance of any wetland fill permit under Section 401 of the Clean Water Act, it is logical to assume that Congress intended some such permits to be granted within the framework of the Act. This interpretation allows states to adopt a flexible approach to wetland management. For wetlands, allowing some alteration of water quality necessitates the use of mitigation as a method of "controlling pollution." Activities are allowed to occur because, once mitigation is provided, the impacts are not considered significant enough to harm the environment, at least in the long-term. The water quality standards, along with mitigation, protect wetlands as well as allowing some level of degradation where unavoidable or necessary.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***

7. **Stormwater Pollution Prevention**. All projects involving land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoid discharge of pollutants in stormwater runoff to waters.

a) For land disturbances during construction, the applicant must obtain and implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.

b) Following construction, prevention or treatment of on-going stormwater runoff from impervious surfaces shall be provided.

Ecology's Stormwater Management and Design Manuals and stormwater permit information are available on Ecology's website.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, this condition reduces the negative water quality impacts of stormwater runoff from developed areas including sediment, oil, grease, and nutrients from entering into surface waters. Stormwater pollutants can impact streams, rivers, lakes, ponds, wetlands, and wells. This condition also ensures that the permit applicants meet the requirements of the National Pollutant Discharge Elimination System (NPDES) permits, if required.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 -350, WAC173-204-400 – 420, WAC 173-204-500 - 590 (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***

B. Nationwide Permits where Ecology Grants Water Quality Certification

Ecology **grants Water Quality Certification** for the following NWPs provided that the project meets all of the state general conditions. Ecology has determined that the activities identified within the following NWPs will not violate applicable state water quality standards, provided the work is done in accordance with the NWPs national and regional conditions.

1	Aids to Navigation
2	Structures in Artificial Canals
4	Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
5	Scientific Measurement Devices
7	Outfall Structures and Associated Intake Structures
9	Structures in Fleeting and Anchorage Areas
10	Mooring Buoys
11	Temporary Recreational Structures
16	Return Water from Upland Contained Disposal Areas
18	Minor Discharges
20	Response Operations for Oil and Hazardous Substances
22	Removal of Vessels
25	Structural Discharges
30	Moist Soil Management for Wildlife
31	Maintenance of Existing Flood Control Facilities
33	Temporary Construction, Access, and Dewatering

C. Nationwide Permits Where Ecology Granted with Conditions Water Quality Certification

Ecology **grants with conditions Water Quality Certification** for the NWPs identified in the table below. Ecology individual Water Quality Certification is required if any of the Ecology state general conditions or NWP specific conditions are not met.

3	Maintenance
6	Survey Activities
13	Bank Stabilization
14	Linear Transportation Projects
15	U.S. Coast Guard Approved Bridges
19	Minor Dredging
23	Approved Categorical Exclusions
27	Aquatic Habitat Restoration, Establishment, and Enhancement Activities
28	Modifications of Existing Marinas
34	Cranberry Production Activities
35	Maintenance Dredging of Existing Basins
36	Boat Ramps
38	Cleanup of Hazardous and Toxic Waste
45	Repair of Uplands Damaged by Discrete Events
46	Discharges in Ditches

NWP 3 - Maintenance

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity involves the complete replacement of a shoreline stabilization using hard armoring.

2. The project or activity increases the original footprint of the structure by more than $1/10^{th}$ acre in wetlands; or

3. The project or activity includes adding a new structure, such as a weir, flap gate/tide gate, or culvert to the site.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Due to the diverse types of projects authorized under this NWP and because there are other appropriate and practicable alternatives that better protect aquatic resources, not all projects or activities fit under this NWP. Some are best determined on a case-by-case basis to ensure projects will be constructed in a manner to avoid and minimize adverse impacts to beneficial and existing uses of surface waters.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***

6 – Survey Activities

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity involves oil or natural gas exploration; or

2. The project or activity requires trenching in wetlands.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, these conditions are needed to ensure that all avoidance and minimization considerations have been implemented prior to impacting aquatic resources from oil or natural gas exploration and/or trenching in wetlands.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 -350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 (Sediment Management Standards).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 WAC (Hydraulic Code Rules).***

13 – Bank Stabilization

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for all projects and activities authorized under this NWP if:

1. The project or activity includes new, complete replacement, or expansion of existing,

bank stabilization measures in marine and estuarine waters of the Salish Sea; or

2. The project or activity has a length greater than 500 feet (individually or cumulatively) along the bank; or

3. The project or activity has not been designed and stamped by a Professional Engineer or Engineering Geologist; or

4. The project or activity exceeds an average of one cubic yard per running foot below the OHWM or High Tide Line.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, replacement of existing hard armor bank stabilization with new hard armor extends impacts in time, perpetuating impacts to water quality and beneficial uses, including aquatic life and human recreation. Because of the diverse types of projects authorized under this NWP and because appropriate and practicable alternatives for shoreline stabilization that better protect aquatic resources are available, including more ecologically beneficial soft or bioengineering techniques, this condition is necessary to ensure projects will be designed and constructed in a manner to avoid and minimize adverse impacts to beneficial uses.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 -350, WAC173-204-400 – 420, WAC 173-204-500 - 590 (Sediment Management Standards).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***

14 – Linear Transportation Projects

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity impacts more than 1/3 acre of waters; or

2. The project or activity is in a known contaminated or cleanup site; or

3. This NWP is authorized in conjunction with any other NWP.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, these conditions are necessary to ensure that multiple crossings for the same project are not allowed without the necessary BMPs and mitigation. Without these conditions an unlimited number of crossings resulting in more than minimal adverse environmental effects and degradation to water quality could occur. Activities authorized by NWPs and other general permits must be similar in nature, cause only minimal adverse environmental effects when performed separately, and have only minimal adverse effects on the environment.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***

15 – U.S. Coast Guard Approved Bridges

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity triggers an individual U.S. Coast Guard bridge permit.

Note: An Advance Approval from the U.S. Coast Guard is not considered a bridge permit and would not require Ecology individual Water Quality Certification.

This condition is necessary to ensure that project proponents obtain the appropriate authorization from the Coast Guard prior to any discharge authorized under this NWP. This will ensure that the project or activity complies with state water quality requirements and other applicable state laws as cited below.

Note: Per Section 401 of the CWA, Ecology will be required to issue an individual Water Quality Certification for an individual Coast Guard permit.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***

- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***

19 – Minor Dredging

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity is in a known contaminated or cleanup site.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Specifically, this condition is necessary to ensure that contaminated sediment and cleanup sites are not dredged in a manner which would result in resuspension and deposition of contaminated sediment in the water column, in order to protect beneficial and existing uses of surface waters from contaminants being released from the sediments.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

23 – Approved Categorical Exclusions

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity has fill impacts to waters greater than ½ acre.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, this condition is needed to protect beneficial and existing uses of wetland and surface waters to ensure that unavoidable impacts are minimized and/or mitigated.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***

27 – Aquatic Habitat Restoration, Establishment, and Enhancement Activities

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity directly impacts ½ acre or more of tidal waters; or

2. The project or activity affects ½ acre or more of wetlands; or

3. The project or activity is a mitigation bank or an advance mitigation site; or

4. The project or activity is in a known contaminated or cleanup site.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Additionally, they are needed to protect beneficial and existing uses of surface waters and to ensure that unavoidable impacts are mitigated. Site specific conditions may be necessary to ensure that the project meets the requirements for net-increase in beneficial uses and aquatic resource functions.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612***

(Water Quality Standards for Surface Waters of the State of Washington).

- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 WAC (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

28 – Modifications to Existing Marinas

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP that have a potential to discharge to waters and/or have a potential to re-suspend sediments if:

1. The project or activity is in or adjoining a known contaminated or cleanup site.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Specifically, this condition is needed to protect beneficial and existing uses of surface waters from contaminants being released from the sediments.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 WAC (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

34 – Cranberry Production Activities

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity is a new, or expansion of existing cranberry operations.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, Ecology individual Water Quality Certification is required for projects or activities authorized under NWPs that will cause, or may be likely to cause or contribute to an exceedance of state water quality standard or sediment management standard. The primary means for protecting water quality in wetlands is through implementation of the antidegradation section of the water quality standards. The antidegradation policy establishes the bottom line for water quality protection in Washington's waters: "Existing beneficial uses shall be maintained and protected and no further degradation which would interfere with or become injurious to existing beneficial uses shall be allowed."

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***

35 – Maintenance Dredging of Existing Basins

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP that have a potential to discharge to waters and/or have a potential to re-suspend sediments if:

1. The project or activity is in or adjoining a known contaminated or cleanup site.

This condition is necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Specifically, this condition is needed to protect beneficial and existing uses of surface waters from contaminants being released from the sediments.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC***

173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).

- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

36 – Boat Ramps

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity involves poured- in- place concrete below the OHWM or High Tide Line; or

2. The project or activity is in a known contaminated or cleanup site.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Additionally, they are necessary to ensure that projects and activities authorized by this NWP results in no more than a minimal adverse impacts on an individual or cumulative basis, and to ensure that concrete contaminants are not discharged and that contaminated sediments are not disturbed and result in resuspension and deposition of contaminated sediment in the water column that could impact beneficial and existing uses of surface waters.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

38 – Cleanup of Hazardous and Toxic Waste

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity is not authorized though a Model Toxics Control Act (MTCA) order or a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) order.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality requirements and other applicable state laws as cited below. Additionally, they are necessary to ensure that projects and activities authorized by this NWP do not release addition pollution or contaminated sediment into the environment as a result of the cleanup.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

45 – Repair of Uplands Damaged by Discrete Events

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity involves impacts to waters greater than ½ acre.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Additionally, Ecology needs to evaluate the significance of the damage and impacts of the event along with any potential impacts of the repairs. This allows Ecology to gain an understanding of the pre- and post- disaster landscape to assist in the measurement, analysis, and modeling of disaster recovery outcomes.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***

46 – Discharge in Ditches

Ecology Section 401 Certification – Granted with conditions. Ecology individual Water Quality Certification is required for projects or activities authorized under this NWP if:

1. The project or activity involves impacts to waters greater than ½ acre.

These conditions are necessary to ensure that any discharge authorized under this NWP will comply with state water quality and sediment quality requirements and other applicable state laws as cited below. Additionally, they are necessary to ensure that discharges into ditches implement all methods and measures to avoid and minimize adverse impacts during construction and that the ongoing discharge does not physically alter or impact receiving waters or wetlands.

Citation:

- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 – 350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 WAC (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***

D. Nationwide Permits where Ecology Denies Water Quality Certification

Ecology **denies Water Quality Certification** for the NWPs identified in the table below.

8	Oil and Gas Structures on the Outer Continental Shelf
17	Hydropower Projects
32	Completed Enforcement Actions
37	Emergency Watershed Protection and Rehabilitation
41	Reshaping Existing Drainage and Irrigation Ditches
49	Coal Remining Activities
53	Removal of Low-Head Dams
54	Living Shorelines
59	Water Reclamation and Reuse Facilities

Ecology's denial of these NWPs is based on our inability to determine if projects and activities that the Corps would authorize under these NWPs will comply with the state water quality requirements and other applicable state laws. It is unclear if the projects or activities under these NWPs would have potential significant alteration in physical, chemical, and biological integrity, and adverse impacts to water quality. Additionally, the Corps has not provided Ecology adequate information regarding the discharge types, quantities, and specific locations, number of discharges expected to be authorized, as well as the conditions of receiving waters and the quantities of waters (including wetlands) that may be lost from authorizing projects and activities under these NWPs. For these reasons, Ecology is denying Water Quality Certification for the NWPs listed in the table above and an individual Water Quality Certification is required for those projects and activities the Corps authorized with these NWPs.

The following project specific water quality data or information would be needed for all projects or activities authorized by the NWPs listed above to ensure that the range of discharges from potential projects or activities will comply with water quality requirements and other applicable state laws:

1) ***the name or segment identifier of the receiving water(s) and/or wetland(s);***
2) ***the specific location(s) of the project's activities and discharges;***
3) ***the type and amount of the discharge(s);***
4) ***the area of impact to the receiving water(s) and/or wetland(s) from the discharges;***
5) ***available baseline condition assessment or monitoring data for the waterbody and/or wetlands receiving the discharge(s);***
6) ***proposed methods and means for monitoring the discharge(s) into the receiving water(s) and/or wetland(s); and***
7) ***any measures the project or activity will implement to reduce and/or offset the effects of the discharge(s), including any compensatory mitigation for unavoidable impacts.***

Citation:

- ***CWA Sections 301, 302, 303, 306, and 307.***

- ***CWA Section 401 Certification Rule (40 CFR 121).***
- ***Chapter 90.48 RCW, RCW 90.48.010, 90.48.030, 90.48.120, RCW 90.48.160 – 906 (Water Pollution Control Act).***
- ***RCW 90.54.140 (Water Resources Protection Act).***
- ***Chapter 90.74 RCW, RCW 90.74.005-040 (Aquatic Resources Mitigation).***
- ***Chapter 173-201A WAC, WAC 173-201A-010 – 030, WAC 173-201A-200 – 260, WAC 173-201A-300 – 330, WAC 173-201A-500 – 530, WAC 173-201A-600 – 612 (Water Quality Standards for Surface Waters of the State of Washington).***
- ***Chapter 173-204 WAC, WAC 173-204-110 – 130, WAC 173-204-300 -350, WAC 173-204-400 – 420, WAC 173-204-500 - 590 (Sediment Management Standards).***
- ***Chapter 173-226 WAC, WAC 173-226-020 – 250 (Waste Discharge General Permit Program).***
- ***Chapter 220-660 WAC, WAC 220-660-080 - 450 (Hydraulic Code Rules).***
- ***Chapter 173-340 WAC, WAC 173-340-310, 173-340-350, 173-340-360, 173-340-400, 173-340-410, 173-340-440 (Model Toxics Control Act – Cleanup).***

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

October 12, 2021

Colonel Alexander Bullock
District Engineer
Seattle District, Corps of Engineers
PO Box 3755
Seattle, Washington 98124-3755

RE: State of Washington Clean Water Act Section 401 Water Quality Certification Decisions on the Proposed 41 Nationwide Permits.

Dear Colonel Bullock:

On August 18, 2021, Department of Ecology (Ecology) received a letter from the U.S. Army Corps of Engineers (Corps) Seattle District notifying certifying authorities of the opportunity to revise or reconsider their Section 401 Water Quality Certification (WQC) decisions submitted December 2020 for the 41 Nationwide Permits (NWP) that have not yet been finalized. As a result, the reasonable period of time for Ecology to act on the WQC request was extended until October 14, 2021.

In response, Ecology has reconsidered and revised the decisions provided to the Corps on December 13, 2020 for the remaining 41 NWPs. For the 16 NWPs finalized January 13, 2021, the programmatic WQC will not apply and individual WQC will be required as the Corps declined to rely on Ecology's decision as stated in the letter received June 17, 2021.

Ecology's determination as to whether the NWPs comply with applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA, the state water quality standards, and other applicable provisions of state law are reflected in our decisions to grant, grant with conditions, deny, or waive certification.

The following state general conditions apply to all NWPs whether Water Quality Certification is granted or granted with conditions.

- Compliance with water quality standards for in-water construction activities.
- No further exceedance of specific listed parameter(s) in 303(d) listed waterbodies.
- Aquatic resources requiring special protection.
- Loss of more than 300 linear feet of streambed.
- Approval of temporary fills in place for more than six months.
- Mitigation requirements.
- Stormwater discharge pollution prevention.

Ecology's decisions for the proposed 41 NWPs are summarized below. The detailed NWP specific conditions, justifications, and citations are within the attached decision document.

Ecology **grants Section 401 Water Quality Certification** for:
NWP # 1, 2, 4, 5, 7, 9, 10, 11, 16, 18, 20, 22, 25, 30, 31 and 33.

Ecology **grants with conditions Section 401 Certification** for:
NWP # 3, 6, 13, 14, 15, 19, 23, 27, 28, 34, 35, 36, 38, 45, and 46.

Ecology **denies Section 401 Certification** for:
NWP # 8, 17, 32, 37, 41, 49, 53, 54, and 59.

It should be noted that the Seattle District did not request Water Quality Certification for NWPs 1, 2, 8, 9, 10, 11, 28, and 35, because, in their opinion, activities authorized by these NWPs would not result in a discharge into waters of the United States. However, Ecology believes, some activities may result in a discharge into waters. Therefore, Ecology is providing Water Quality Certification for any activity authorized by these listed NWPs.

This letter and attachment constitutes Ecology's Programmatic Water Quality Certifications for the 41 NWPs that have not yet been finalized. These Water Quality Certification decisions apply to all NWP permits authorized in Washington by the Seattle District or Portland District Corps that may result in a discharge into a water where Ecology is the certifying authority.

Ecology's Water Quality Certification decisions neither replace or supersede requirements set forth by other local, state, federal, and Tribal laws, nor eliminate the need to obtain additional permits, approvals, consultations, or authorizations as required by law before proposed activities may commence.

If you have any questions or would like additional information, please contact Loree' Randall (Loree.Randall@ecy.wa.gov) or Erin Hanlon Brown (Erin.HanlonBrown@ecy.wa.gov)

Sincerely,

Joenne McGerr
Program Manager
Shorelands and Environmental Assistance Program
Washington State Department of Ecology

Attachment – State of Washington Section 401 Water Quality Certification Decisions and State Conditions for U.S Army Corps of Engineers Proposed 41 Nationwide Permits in the Final Draft Rule. This document fully outlines Ecology's Section 401 Certification decisions for activities that may result in a discharge and are carried out under a NWP for either Corps Section 404 and/or Section 10 permits.

US Army Corps of Engineers ®
Walla Walla District

Endangered Species Act

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Ecological Services
215 Melody Lane, Suite 101
Wenatchee, Washington 98801

In Reply Refer to:
FWS/R1/2023-0048682

September 25, 2024

Michael S. Erickson
Chief, Environmental Compliance Section
Walla Walla District
U.S. Army Corps of Engineers
201 North 3rd Avenue
Walla Walla, Washington 99362

Subject: Yakima Delta Section 1135 Restoration Project at Bateman Island

This letter transmits the U. S. Fish and Wildlife Service's (USFWS) Biological Opinion on the proposed Bateman Island causeway removal in the Yakima River Delta located in Benton County, Washington (PPL-C-2019-0039; proposed action) and its effects on bull trout (*Salvelinus confluentus*) and its designated critical habit. Formal consultation was conducted in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your August 2024, request for formal consultation was received via electronic mail on August 16, 2024.

The attached Biological Opinion is based on information provided in your August 2024 *Biological Assessment and Consultation Initiation Request Package for Threatened and Endangered Species, Critical Habitat, and Essential Fish Habitat* (BA), your August 2024 Bateman Island Effects Updates table, meetings, electronic mail exchanges, field investigations, and other sources of information as described in the Biological Opinion.

The proposed action is similar in its design and intended purpose to the actions evaluated in our and the National Marine Fisheries Service's July 8, 2008, *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington State Fish Passage and Habitat Enhancement Restoration Programmatic* (File number 13410-2008-FWS-F-0209, as amended though 2024) (FPRP BO). The proposed action aligns most closely with – but does not fit entirely within - four FPRP BO categories, which are: Removal or Modification of Sediment Bars or Terraces that Block or Delay Salmonid Migrations; Levee Removal and Modification; Side Channel/Off-Channel Habitat Restoration and Reconnection; and Debris and Structure Removal. The proposed action's impacts are predominately the result of temporal increases in suspended and benthic sediment.

The narrow range of adverse effects have allowed us to prepare the streamlined BO being transmitted here. Also note that the Matrix of Pathways and Indicators (USFWS 1998b) has not been employed in the effects analyses again because of the narrow range of adverse effects.

A complete record of this consultation is on file at the USFWS' Central Washington Field Office in Wenatchee, Washington. An electronic copy of this Biological Opinion will be available to the public approximately 14 days after it is finalized and signed. A list of Biological Opinions completed by the USFWS since October 1, 2017, can be found on the USFWS Environmental Conservation Online System website at https://ecos.fws.gov/ecp/report/biological-opinion.html.

If you have any questions regarding the attached Biological Opinion or our shared responsibilities under the Endangered Species Act please contact Jason Douglas (jason_douglas@fws.gov), David Dayan (david_dayan@fws.gov), or Michael Lucid (michael_lucid@fws.gov).

Sincerely,

SONJA KOKOS

Digitally signed by SONJA KOKOS
Date: 2024.09.25 11:54:56 -07'00'

for Brad Thompson, State Supervisor
Washington Fish and Wildlife Office

cc:
Washington Department of Fish and Wildlife, Yakima, WA (T. Hutton)
Yakama Nation, Toppenish, WA (D. Blodgett)

Endangered Species Act - Section 7 Consultation

BIOLOGICAL OPINION

U.S. Fish and Wildlife Service Reference:
2023-0048682

Yakima Delta Restoration Project at Bateman Island

Benton County, Washington

Federal Action Agency:

U.S. Army Corps of Engineers

Consultation Conducted By:

U.S. Fish and Wildlife Service
Washington Fish and Wildlife Office
Wenatchee, Washington

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for Brad Thompson, State Supervisor
Washington Fish and Wildlife Office

Date

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ACRONYMS AND ABBREVIATIONS

ac	Acre
af	Acre-Foot
BA	Biological Assessment
Basin	Yakima River Basin
BMP	Best Management Practices
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CH	Critical habitat
cy	Cubic Yards
ESA	Endangered Species Act of 1973, as amended (16 U.S.C. l531 *et seq.*)
FMO	Foraging, Migration and Overwintering
FR	Federal Register
IPCC	Intergovernmental Panel on Climate Change
NMFS	National Marine Fisheries Service
NTU	Nephelometric Turbidity Unit
OHWM	Ordinary High Water Mark
Opinion	Biological Opinion
PCE	Primary Constituent Elements
Project	Yakima Delta Section 1135 Restoration Project at Bateman Island
RM	River Mile
RPM	Reasonable and Prudent Measures
Services	U.S. Fish and Wildlife Service and National Marine Fisheries Service
TMDL	Total Maximum Daily Load
Unit	Mid-Columbia Recovery Unit
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

This document represents the U. S. Fish and Wildlife Service's (USFWS) Biological Opinion (Opinion) based on our review of the proposed Yakima Delta Section 1135 Restoration Project at Bateman Island located in Benton County, Washington. The Opinion address effects to bull trout (*Salvelinus confluentus*), and critical habitat for the bull trout in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA). Your August 2024 request for formal consultation was received on August 16, 2024.

This Opinion is based on information provided in your August 2024 *Biological Assessment and Consultation Initiation Request Package for Threatened and Endangered Species, Critical Habitat, and Essential Fish Habitat* (BA), your August 2024 Bateman Island Effects Updates table, meetings, electronic mail exchanges, field investigations, and other sources of information as described in the Biological Opinion. A complete record of this consultation is on file at the USFWS' Central Washington Field Office in Wenatchee, Washington. An electronic copy of this Biological Opinion will be available to the public approximately 14 days after it is finalized and signed. A list of Biological Opinions completed by the USFWS since October 1, 2017, can be found on the USFWS Environmental Conservation Online System website at https://ecos.fws.gov/ecp/report/biological-opinion.html.

2 CONSULTATION HISTORY

The following is a summary of important events associated with this consultation:

- August 7, 2024: We met virtually with your staff to discuss project elements, causeway sediment sampling results, adverse effects, and bull trout conservation needs. We also received a draft version of the BA and associated request for formal consultation.
- August 12, 2014: We notified your staff via electronic mail that we could accommodate an expedited consultation timeline, delivering a final BO by mid-September.
- August 13, 2024: Our staff provided you with literature documenting the presence of bull trout in the mainstem Columbia River and provided comments on your Draft BA.
- August 16, 2024: We received your integrated request for formal consultation and BA.
- August 20, 2024: We received your Sediment Characterization Summary for the Yakima Delta and shortly thereafter, a corrected version.
- September 13, 2024: We received your email transmitting the Northwest Hydraulic Consultants, Inc. (NHC) March 22, 2024, *Sediment Sampling in the Yakima River Delta Transport Modeling with PTM Final Report, Rev. 0* and August 21, 2024, *Yakima Delta 1135 Sediment Sampling PTM Modeling Follow-up, Final Report, Rev. 1*.

3 BIOLOGICAL OPINION

4 DESCRIPTION OF THE PROPOSED ACTION

A federal action means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas (50 CFR 402.02).

4.1 Background

The U.S. Army Corps of Engineers, Walla Walla District (USACE), proposes to contribute to the restoration of the ecosystem on the Yakima River delta degraded by the construction and continuous operation of McNary Lock and Dam and the Tri-Cities Levees. Located in the Lower Yakima River, in Kennewick and Richland, Washington (WA), riparian and aquatic habitat along the Yakima River delta has supported a variety of woody vegetation and an abundance of aquatic species and various wildlife. Following the construction of McNary Dam - which impounds Lake Wallula - and the Federal levee system in the 1950s, many acres of the area were inundated. This change in the hydraulic conditions of the Yakima River resulted in ecosystem loss and degradation, creating a need for restoration notably exacerbated by the construction of a private causeway on the south side of Bateman Island that USACE proposes to remove.

4.2 Proposed Action

The proposed action is described in detail in the BA (pp 13-16), and the text is incorporated herein via reference. The following is an adaptation of the BA's summary of the proposed action (BA pp. iii-v).

1. The construction duration will be approximately 13 weeks, with 12 weeks of potential in water work.

2. Placement of approximately 600 linear feet (lf) of turbidity curtain on both the upstream and downstream sides of the causeway, for a total of 1,200 lf. Curtains will be installed approximately 150 from the centerline of the causeway for a total of 300 feet of width of screened area, and will be in place during causeway removal, toe excavation, and placement of riprap and aggregate. See Figure 1-2 of the Biological Assessment below.

3. Removal of causeway vegetation and preparation of the existing surface along the south shore of the island to facilitate contractor access to the work site and the placement of fill within the area following excavation.

4. Hauling approximately 62 cubic yards (cy) rock and soil materials across the causeway to Bateman Island to a stockpile for later use to stabilize the exposed island shoreline.

5. Removal of the entire 560-foot-long causeway using a long reach arm excavator to cut 39,870 cy of material over an 800-foot-long alignment.

6. Stabilization of the Bateman Island shoreline by excavation of 41 cy to create a toe four feet below the river bottom and three feet out for the placement of 62 cy of shoreline stabilization materials. This work will be accomplished from the causeway before causeway removal progress prohibits reaching the Bateman Island shoreline.

7. Stabilization of the mainland shoreline by excavation of 51 cy to create a toe four feet below the river bottom and three feet out for the placement of 77 cy of shoreline stabilization materials.

8. Monitoring will occur to track project performance, turbidity during construction and sediment mobilization post-construction.
9. Water temperature monitoring will occur daily for one year prior to construction until five years post construction.

4.3 Conservation Measures

The following is the BA's summary of the proposed action (BA pp. iv-v).

1. Silt curtains will be deployed prior to construction above and below the causeway to minimize turbidity from construction activities during causeway removal, toe excavation, and the placement of riprap.

2. Prior to closing either segment of silt curtain, a portable bubbler or similar method will be used, dragged along the bottom of the area within the silt curtain towards the opening. The opening will be closed behind the bubble curtain as it exits the silt curtained area.

3. Begin removal of the causeway in the winter when few, if any, juvenile salmonids will be present. This will occur during the winter in-water work window from December 1 through February 28.

4. During in-water work, turbidity monitoring will occur. If state water quality standards are exceeded, work will be modified or paused until turbidity levels return to acceptable limits. An extended mixing zone will be employed (900 feet). Monitoring will include data collected upstream in the Yakima River near the Highway 240 bridge, 300 ft downstream of the construction zone, and at the 900 ft downstream extent of the mixing zone. See figure 1-2 below.

5. Sediment transport monitoring at 1-, 3-, 5- and 10-year intervals will visually assess mudflat development and shoreline erosion. Sediment depth at key navigation points and water intakes will be assessed using simple hydroacoustic techniques to ensure that intakes are not being obstructed. This information will help confirm assumptions regarding sediment deposition post-construction.

6. Construction best management practices will be followed to minimize impacts from potential petroleum spills.

a. Equipment inspected daily for spills and leaks with immediate cleanup or repair as appropriate before work is started.

b. Ensure spill cleanup kits available on-site.

c. No fueling or fuel storage within 100 feet of water.

7. Construction materials will not be released into the water, except for clean fill or riprap installed to protect the shorelines from erosion.

8. Silt curtains will be used to minimize turbidity from any excavated or stockpiled materials as described above.

9. Interstitial spaces of fill material will be filled with gravel or soil as appropriate to prevent the creation of predator habitat.

10. Use of nature-based designs will be maximized in the development of shoreline stabilization elements.

11. Disturbance of the existing subsurface materials within the boundaries of the disturbed shoreline will be minimized as much as practicable during design and construction by providing requirements and constraints in the construction specifications that require the contractor to protect the existing subsurface materials.

12. During design phase adjustments to the excavated surface will be identified to minimize or eliminate excavation and refine the disturbed footprint, ensuring subsurface materials are protected as much as feasible.

Measures have been incorporated into the project to avoid or minimize impacts to listed species and to comply with anticipated permits and project approvals. Generally, the project will avoid or minimize impacts to listed species given the following best management practices (BMPs) and project design criteria.

4.4 Action Area

The action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment.

The Yakima River delta is located at the confluence of the Columbia and Yakima Rivers, approximately Columbia River Mile 335 (Figure 1; BA Figure 1-1). It is situated within Richland and Kennewick, Washington. Bateman Island is in the eastern extent of the delta, with an earthen causeway running from the south side of the delta to Bateman Island. The zone of influence from McNary Dam (Lake Wallula) extends up the Yakima River to just past the Interstate 182 (182) Bridge (around Yakima River Mile 2). The Yakima River flows into the Columbia River by going under the 182 and route 240 bridges, down into the delta, and then back up around the northern tip of Bateman Island.

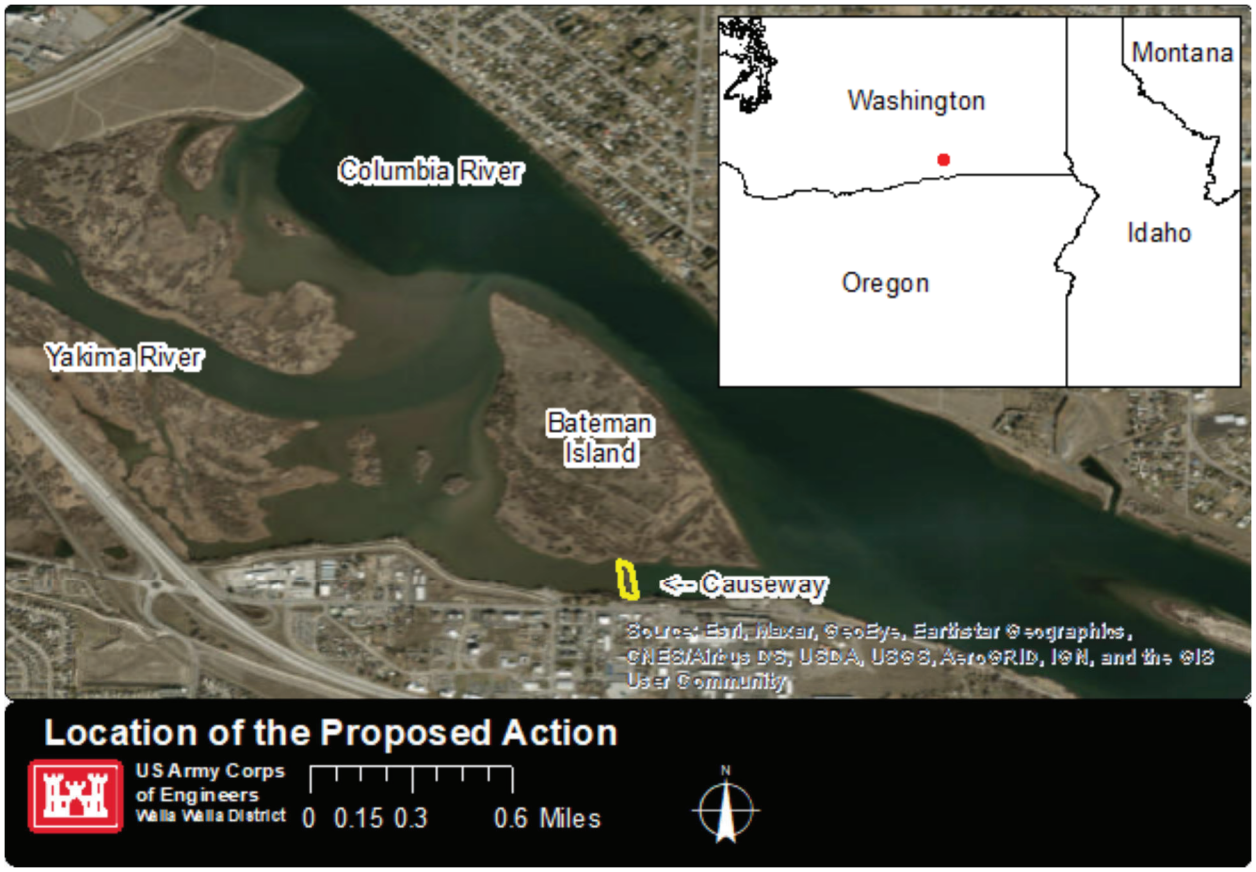

Figure 1. Figure 1.1 from the BA, Yakima River Delta Action Area - Confluence of the Columbia and Yakima Rivers.

Project effects cannot extend above the Interstate 182 bridge on the Columbia River nor the Highway 240 Bridge over the Yakima River. Therefore, we identify these visible landmarks as the upper extent of potential indirect effects. The area of potential indirect effects from natural sediment mobilization continues 20 miles downstream (Figure 2; BA Figure 1-2) to become discountable near the mouth of the Walla Walla River. Northwest Hydraulic Consultants, Inc. (NHC; 2024) indicates that approximately one third of the potential sediment mobilization would deposit before the Ed Hendler Bridge, just downstream of Clover Island on the Columbia River (Figure 2; BA Figure 1-2). The USACE conservatively estimates that continuing downstream, at least an additional third of the sediments would deposit before Finley near the Snake River confluence, an equal distance from the causeway to the Ed Hendler Bridge.

The Snake River is a notable source of sediment to the Columbia River, discharging an annual mean load of 1,220 tons per day of suspended sediment (USGS 2007), a decrease of 35-60 percent from historic levels (MacGregor 2024). The Yakima River has a recorded sediment load of approximately 176 tons per day during the irrigation season (WDEQ 2006). These numbers pale against the suspended sediment load in the Columbia River at Vancouver, Washington, which is estimated at 14,144,700 tons per day (Diaz 2023). Post-project sediment mobilization during freshets would be a small overall addition to the sediment loading of the Columbia River.

It is highly unlikely that a difference in Columbia River turbidity could be detected past the point of the Snake River confluence due to the influence of the highly turbid Snake River (Clark *et al*. 2013) and the widening of the Columbia River from the Snake River confluence down to the Walla Walla River confluence. USACE finds the potential effects of sediment mobilization turbidity to be completely discountable based on the likely settling rates derived from NHC modeling combined with the relatively high turbidity found in the Snake (Clark *et al*. 2013) and Walla Walla Rivers (Mapes 1969) and the distance downstream from the Yakima River delta (20 miles), particularly when the added flow rates provided by these tributaries to the Columbia River. These combined factors ensure sediment mobilization indirect effects become insignificant (i.e. not measurable) at the point of the Walla Walla River confluence.

Figure 2. Figure 1-2 from the BA, Area of Potential Indirect Effects from Sediment Mobilization.

5 ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

5.1 Jeopardy Determination

In accordance with our regulations (see 50 CFR 402.02, 402.14(g)), the jeopardy determination in this Biological Opinion relies on the following four components:

1. The *Status of the Species* evaluates the species' current range-wide condition relative to its reproduction, numbers, and distribution; the factors responsible for that condition; its

survival and recovery needs; and explains if the species' current range-wide population retains sufficient abundance, distribution, and diversity to persist and retains the potential for recovery (see Endangered Species Consultation Handbook, March 1998).

2. The *Environmental Baseline* section of this biological opinion evaluates the past and current condition of the species in the action area relative to its reproduction, numbers, and distribution absent the effects of the proposed action; including the anticipated condition of the species contemporaneous to the term of the proposed action; the factors responsible for that condition; and the relationship of the action area to the survival and recovery of the species.

3. The *Effects of the Action* section of this biological opinion evaluates all consequences to the species that are reasonably certain to be caused by the proposed action (i.e., the consequences would not occur but for the proposed action and are reasonably certain to occur) and how those consequences are likely to influence the survival and recovery of the species.

4. The *Cumulative Effects* section of this biological opinion evaluates the effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation, on the species and its habitat, and how those effects are likely to influence the survival and recovery of the species.

In accordance with policy and regulation, the jeopardy determination is made by formulating the USFWS's opinion as to whether the proposed Federal action, including its consequences, taken together with the status of the species, environmental baseline, and cumulative effects, reasonably would be expected to reduce appreciably the likelihood of both the survival and recovery of the species in the wild by reducing the reproduction, numbers, or distribution of that species.

5.2 Destruction or Adverse Modification Determination

A final rule revising the regulatory definition of "destruction or adverse modification" (DAM) of critical habitat (CH) was published on August 27, 2019 (84 FR 44976). The final rule became effective on October 28, 2019. The revised definition states:

> "Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species."

In accordance with regulations and regional implementing guidance, the DAM determination in this Biological Opinion relies on the following four components:

1. The *Status of Critical Habitat* section evaluates the range-wide condition of the critical habitat (CH) in terms of essential habitat features, primary constituent elements, or physical and biological features that provide for the conservation of the listed species; the

factors responsible for that condition; and the intended value of the CH for the conservation of the listed species.

2. The *Environmental Baseline* section of this biological opinion evaluates the past and current condition of the CH in the action area absent the effects of the proposed action; including the anticipated condition of the species and its CH contemporaneous to the term of the proposed action; the factors responsible for that condition; and the conservation value of CH in the action area for the conservation of the listed species.

3. The *Effects of the Action* section of this biological opinion evaluates all consequences to CH that are reasonably certain to be caused by the proposed action (i.e., the consequences would not occur but for the proposed action and are reasonably certain to occur) and how those consequences are likely to influence the conservation value of the affected CH for the species in the action area.

4. *Cumulative Effects* section of this biological opinion evaluates the effects to CH of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation, and how those effects are likely to influence the conservation value of the affected CH for the species in the action area.

In accordance with regulation, the DAM determination is made by formulating the USFWS' opinion as to whether the effects of the proposed Federal action, taken together with the status of the critical habitat, environmental baseline, and cumulative effects, reasonably would be expected to result in a direct or indirect alteration that appreciably diminishes the value of CH for the conservation of the species.

6 STATUS OF THE SPECIES: Bull Trout

The bull trout was listed as a threatened species in the coterminous United States in 1999. Throughout its range, the bull trout is threatened by the combined effects of habitat degradation, fragmentation, and alteration (associated with dewatering, road construction and maintenance, mining, grazing, the blockage of migratory corridors by dams or other diversion structures, and poor water quality), incidental angler harvest, entrainment, and introduced non-native species (64 FR 58910 [Nov. 1, 1999]). Since the listing of bull trout, there has been very little change in the general distribution of bull trout in the coterminous United States, and we are not aware that any known, occupied bull trout core areas have been extirpated (USFWS, 2015, p. iii).

The 2015 recovery plan for bull trout identifies six recovery units of bull trout within the listed range of the species (USFWS, 2015, p. 34). Each of the six recovery units are further organized into multiple bull trout core areas, which are mapped as non-overlapping watershed-based polygons, and each core area includes one or more local populations. Within the coterminous United States, we currently recognize 109 currently occupied bull trout core areas, which comprise 600 or more local populations (USFWS, 2015, p. 34). Core areas are functionally similar to bull trout meta-populations, in that bull trout within a core area are much more likely to interact, both spatially and temporally, than are bull trout from separate core areas.

The USFWS has also identified a number of marine or main-stem riverine habitat areas outside of bull trout core areas that provide foraging, migration, and overwintering (FMO) habitat that may be shared by bull trout originating from multiple core areas. FMO habitat is defined as relatively large streams and mainstem rivers, including lakes or reservoirs, estuaries, and nearshore environments, where subadult and adult migratory bull trout forage, migrate, mature, or overwinter. This habitat is typically downstream from spawning and rearing habitat and contains all the physical elements to meet critical overwintering, spawning migration, and subadult and adult rearing needs. While year-round occupancy by bull trout in the seven shared FMO segments in the Mid-Columbia Recovery Unit is possible, stream temperatures are often prohibitive during the warmest times of the years; thus, occupancy is more common from late fall through late spring. These shared FMO areas support the viability of bull trout populations by contributing to successful overwintering survival and dispersal among core areas (USFWS, 2015, p. 35).

For a detailed account of bull trout biology, life history, threats, demography, and conservation needs, refer to Appendix A: Status of the Species: Bull Trout.

7 STATUS OF BULL TROUT CRITICAL HABITAT

Bull trout critical habitat was designated in the coterminous United States in 2010. The condition of bull trout critical habitat varies across the species' range from poor to good. Although still relatively widely distributed across its historic range, the bull trout occurs in low numbers in many areas. Overall bull trout abundance is "stable" range-wide (USFWS, 2015, p. iii). However, 81 core areas have 1,000 or fewer adults, with 24 core areas not having surveys conducted to determine adult abundance (USFWS, 2008, p. 22, 2015, p. 2). In addition, 23 core areas have declining populations, with 66 core areas having insufficient information (USFWS, 2008, p. 22, 2015, p. 2). These values reflect the condition of bull trout habitat. The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, impoundments, dams, water diversions, and the introduction of nonnative species (63 FR 31647, June 10, 1998; 64 FR 17112, April 8, 1999) (USFWS 1998a and 1999, respectively).

There is widespread agreement in the scientific literature that many factors related to human activities have impacted bull trout and their habitat and continue to do so. Among the many factors that contribute to degraded PCEs, those that appear to be particularly significant and have resulted in a legacy of degraded habitat conditions are as follows:

1. fragmentation and isolation of local populations due to the proliferation of dams and water diversions that have eliminated habitat, altered water flow and temperature regimes, and impeded migratory movements (Dunham & Rieman, 1999, p. 652; Rieman and McIntyre and McIntyre 1993, p. 7);

2. degradation of spawning and rearing habitat and upper watershed areas, particularly alterations in sedimentation rates and water temperature, resulting from forest and rangeland practices and intensive development of roads (Fraley & B. B. Shepard, 1989, p. 141; Montana Bull Trout Scientific Group, 1998, pp. 20–45).

3. the introduction and spread of nonnative fish species, particularly brook trout (*S. fontinalis*) and lake trout (*S. namaycush*), as a result of fish stocking and degraded habitat conditions, which compete with bull trout for limited resources and, in the case of brook trout, hybridize with bull trout (Leary *et al*., 1993; Rieman *et al*., 2007);

4. in the Puget Sound and Olympic Peninsula geographic regions where anadromous bull trout occur, degradation of main-stem river FMO habitat, and the degradation and loss of marine nearshore foraging and migration habitat due to urban and residential development; and

5. degradation of FMO habitat resulting from reduced prey base, roads, agriculture, development, and dams.

For a detailed account of the status of designated bull trout critical habitat, refer to Appendix B: Status of Designated Critical Habitat: Bull Trout.

8 ENVIRONMENTAL BASELINE: Bull Trout and Designated Bull Trout Critical Habitat

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

8.1 Current Condition of the Species and Critical Habitat in the Action Area

The analyses presented in this section supplement the Status of the Species and Status of Critical Habitat evaluations (see Appendices A and B) by focusing on the current condition of the bull trout and its critical habitat in the action area, the factors responsible for that condition (inclusive of the factors cited above in the regulatory definition of environmental baseline), and the role the action area plays in the survival and recovery of the bull trout and in the recovery support function of designated critical habitat. We also considered relevant factors that influence the condition of the bull trout and its critical habitat in areas surrounding the action area while completing this baseline evaluation. Thus, this section analyzes the current condition of the bull trout in the action area, the factors responsible for that condition, and the intended role of the action area in the conservation of the Mid-Columbia River Recovery Unit.

Characterizing the environmental baseline for highly mobile species requires a multi-scale analysis that evaluates the condition of all areas used by the affected individuals. Bull trout found in the action area of a project often inhabit a much larger area through the course of its life

cycle. For example, bull trout often migrate over 100 km between spawning and overwintering habitat. For bull trout, USFWS primarily considers the condition of the environmental baseline at two different spatial scales: (1) the "core area" scale, which typically incorporates multiple watersheds occupied by separate, but potentially interacting, local populations of bull trout, and (2) the watershed or specific reaches in a watershed affected by the proposed project.

Again, the action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment.

The action area is situated at the confluence of the Yakima and Columbia rivers (Figure 1; BA Figure 1-1) and is on the boundary of the Yakima River Core area and the Mainstem Feeding, Migration, and Overwintering (FMO) area for bull trout (see Figure C-1 in USFWS 2015).

The action area includes the zone of influence from McNary Dam, the stage-related effects of which extends up the Yakima River to just past the Interstate 182 (182) Bridge (around Yakima River Mile 2) (see Figure 2; BA Figure 1-2, above). The Yakima River flows into the Columbia River by going under the 182 and route 240 bridges, down into the delta, and then back up around the northern tip of Bateman Island. Project effects cannot physically manifest above the Interstate 182 bridge on the Columbia River or the Highway 240 Bridge over the Yakima River. The USACE therefore identified these visible landmarks as the upper extent of potential indirect effects. The area of potential indirect effects from sediment mobilization continues downstream from these boundaries for 20 river miles a point near the mouth of the Walla Walla River.

There is no recent documentation of bull trout from the Yakima Core Area moving from the headwaters into the mainstem Columbia River and thus, the Mainstem FMO area, although such the movement has not been well-studied (Barrows *et al*. 2016). There is no spawning and rearing (S&R) habitat in the action area.

Given that the backwatering effects of McNary Dam render the lowermost two miles of the Yakima River more deltaic than riverine, Bateman Island is more properly viewed as a component of the mainstem Columba River. Additionally, the proposed actions effects are concentrated at the site of the proposed Bateman Island causeway removal, extending downstream approximately 20 river miles in the mainstem Columbia River. The action's direct and indirect effects therefore are largely to bull trout using the Mainstem FMO habitat rather than fish solely occurring in or originating from the Yakima Core Area (or other Core Areas). The environmental baseline will thus include only a description of bull trout and critical habitat in the affected reach of Mainstem FMO area and the associated Mainstem Upper Columbia River Critical Habitat Unit (CHU).

8.1.1 Current Condition of Bull Trout in the Action Area

Bull trout are likely to occur in the action area during the implementation of the proposed action. The USFWS has identified a number of marine or mainstem riverine habitat areas outside of bull trout Core Areas that provide foraging, migratory, and overwintering habitat that may be shared by bull trout originating from multiple Core Areas. These shared foraging, migratory, and

overwintering (FMO) areas support the viability of bull trout populations by contributing to successful overwintering survival and dispersal among Core Areas (USFWS 2015a). Again, the mainstem Columbia River within the action area is FMO habitat.

Barrows *et al*. (2016) describes much more knowledge of the use of the Columbia River today than when we listed bull trout. This is likely due to increased studies using new technologies and advances in pit tags and their antennas. In comparison to salmon, where millions of smolts are tagged annually, we have identified key movement and migration routes with only a few thousand tagged bull trout. Most movement data we do have comes from outside the Yakima Basin, where very little tagging of bull trout has occurred.

Barrows *et al*. (2016) found that acoustic-tagged bull trout in the mainstem Columbia River utilize deep, slow water habitat and suggest bull trout that overwinter within the mainstem may not establish a fixed winter range but instead continuously move throughout the corridor possibly using multiple habitat types. Individuals were described to be migrating through the mainstem corridor as far as 240 river km (150 river miles) downstream and 130 river km (80 river miles) upstream from the mouth of their natal subbasin though this varies by populations. Barrows *et al*. (2016) also indicated 93 percent of the mid-Columbia River (albeit defined differently than in USFWS (2015d) in linear distance is used by bull trout.

Subadult bull trout from mid-Columbia River subbasins can spend multiple years using FMO habitat in the mainstem before ascending tributaries to spawn (Barrows *et al*. 2016). It is likely that historically, the mainstem Columbia River in the action area provided valuable overwintering and foraging areas for bull trout from the Yakima Basin (*ibid.*) and smaller and less stable core areas in both the upper Columbia and Snake River basins.

With expected improvements in populations, we reasonably assume that fluvial bull trout from populations within the known range of movement - the Walla Walla, Entiat, Wenatchee, Methow, Snake, and eventually, Yakima rivers - could use the FMO habitat in the action area to overwinter, express amphidromous life-histories, and or disperse to other river systems.

Most of the bull trout from the Walla Walla River Subbasin that enter the mainstem Columbia River do so from October through February and subsequently return to the subbasin from March through June. They could, however, potentially be migrating throughout the mainstem during all months of the year (Barrows *et al*. 2016). There have been five PIT-tagged bull trout from the Walla Walla River Subbasin detected in the fish ladders and juvenile bypass systems at Columbia River dams, including Priest Rapids and McNary dams between 2008 and 2013 (Table 1.5 in Barrows *et al*. 2016), near the lower terminus of the action are or well upstream, respectively. Detection histories of these fish indicated that they likely entered the mainstem Columbia River during the fall or winter months. Due to their relatively rapid rate of movement through the lower Walla Walla River, the fish detected in the McNary Dam adult ladder most likely moved downstream of McNary Dam during fall or early winter. We further note that there were definitive observations of four Walla Walla River bull trout (two PIT-tagged, two enumerated in an observation area) passing upstream at McNary Dam in 2007 alone (Barrows *et al*. 2016). Barrows *et al*. (2016) estimated of the total number of Walla Walla subbasin bull trout that may have used the Columbia River in five years from January 2007 through February 2012 as 496 (Table 1.4). This represents a mean of approximately 99 Walla Walla bull trout in the

mainstem Columbia Rive in any one year. The subset that ascend McNary Dam and enter Lake Wallula - and thus the action area - is likely smaller.

A bull trout was also reported in the PTAGIS database from the Entiat River local population (Columbia RM 484). This bull trout was tagged in an Entiat river salmon smolt trap in September 2009, and migrated 151 miles downstream in the Columbia River, passing Rocky Reach, Rock Island in early July 2010, Wanapum, and Priest Rapids Dams through either spill, turbines, or juvenile fish bypasses, passed through the action area, and then traveled at least 47 miles up the Yakima river to Prosser Dam (47 river miles) near the town of Prosser, Washington, to be detected at a salmon/steelhead pit tag array antenna in late June 2011. It was subsequently detected in the adult fishways at Priest Rapids Dam (May 2012), Rock Island Dam (June 2012), and Rocky Reach Dam (June 2012), and at a PIT tag antenna array in the Entiat River (July 2012). This fish could have moved into other areas of the Yakima within the nine months that it stayed in the area and could have traveled other locations without detection. It was picked up back in the Columbia River and after passing through the action area a second time, again in the Entiat River near its spawning area approximately 34 river miles upstream. This fish traveled over approximately 202 miles each way to get between the Yakima and the Entiat Rivers, not including other movements we could not account for outside of where the pit tag antenna arrays were located. There are other core areas well within this type of a migratory range from the Yakima.

The Wenatchee and Methow are two other core areas in which bull trout are known to exhibit large migratory ranges (Bioanalysts, 2004; Kelly Ringel and DeLaVerne, 2008; Nelson and Johnsen 2012). We are reasonably certain bull trout originating in these rivers could migrate to the action area.

There is also a potential for bull trout from the Snake River to be present at the downstream terminus of the action area. A bull trout trapped in the lower Umatilla River was genetically assigned to the Tucannon River (Small *et al*. 2012), meaning that individual passed through mainstem Columbia River in the action area.

Migratory bull trout are present in 13 of the local populations in the Yakima Core Area; fluvial bull trout are present in four of those populations and are the most likely to enter the mainstem Columbia River. Again, while the Yakima Core Area abuts the action area at Bateman Island there is no current documentation of bull trout from the Core Area moving into the mainstem Columbia River. There is, however, some evidence that Yakima bull trout infrequently use the middle to lower mainstem Yakima River. One adult bull trout has been captured in an anadromous salmonid smolt trap that has been operated at the mouth of Ahtanum Creek since 2000 (Reiss *et al*. 2012), and that fish presumably entered the Yakima River. In addition, a small number of bull trout were observed in the lower Yakima River or its tributaries in the late 1990s and early 2000s (USFWS 2002). Given the ongoing implementation of mainstem Yakima restoration projects – including some that may reduce water temperatures - there is a potential that that Yakima River fluvial bull trout will eventually enter the mainstem Columbia River FMO habitat.

8.1.2 Current Condition of Bull Trout Designated Critical Habitat in the Action Area

The Mainstem Upper Columbia River CHU includes the Columbia River from John Day Dam upstream 520.1 km (323.2 mi) to Chief Joseph Dam (75 FR 63939). The Mainstem Upper Columbia River CHU supports FMO habitat for fluvial bull trout; several accounts exist of bull trout in the Columbia River between the Yakima and John Day rivers. The Mainstem Upper Columbia River CHU provides connectivity to the Mainstem Lower Columbia River CHU and 13 additional CHUs (Clearwater River, Powder River Basin, Imnaha River, Grande Ronde River, Walla Walla River Basin, Umatilla River, John Day River, Yakima River, Mainstem Snake River, Lower Snake River Basins, Hells Canyon Complex, Sheep and Granite Creeks, and Upper Columbia River Basins). The Mainstem Upper Columbia River CHU is located in north-central, central, and south-central Washington and northcentral and northeast Oregon. The action area is situated in an approximately 20-mile reach of the Columbia River in this CHU.

This section defines the individual bull trout PCEs and clarifies how the USFWS evaluated each. It should be noted that the analysis of PCEs for this consultation is limited to only those PCEs that are present within the action area and that could be directly or indirectly affected by the proposed action.

PCE 1 *- Springs, seeps, groundwater sources and subsurface connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.*

Baseline conditions for the PCE are not functioning in the reach in which the Bateman Island causeway is presently situated. The causeway is likely to be partially saturated with alluvial water, but the earthen structure is of insufficient volume to contribute appreciably to the storage and discharge of alluvial groundwater downstream. The water discharging from the causeway is unlikely to me measurably cooled given the appreciably elevated temperatures immediately upstream. Baseline conditions for this PCE are not functioning within the mainstem Columbia River within the action area due to the presence of extensive flood control levees with rock revetment (riprap) in the Tri Cities area.

PCE 2 *- Migration habitats with minimal physical, biological, or water quality impairments between spawning, rearing, over-wintering, and freshwater and marine foraging habitats, including, but not limited to, permanent, partial, intermittent, or seasonal barriers.*

Baseline conditions for this PCE are not functioning in the channel south of Bateman Island presently blocked by the causeway. The existing channel to the north of Bateman Island is partially functioning in terms of this PCE, but is impaired in terms of water quality, and summer water temperatures in particular.

PCE 3 *- An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.*

Baseline conditions for this PCE are functioning within the action area. Adult and sub-adult bull trout that may be present area are likely to encounter sufficient prey.

PCE 4 *- Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes, that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks, and unembedded substrates to provide a variety of depths, gradients, velocities, and structure.*

Baseline conditions for PCE 4 are not functioning in the action area. The Yakima River delta is in the middle reach of the Columbia River, an area estimated to have lost more than 80 percent of aquatic and riparian habitat available prior to the construction of McNary Lock and Dam, impoundment of Lake Wallula, and construction of the Tri-Cities Levees. The causeway itself prevents flow mixing, inhibits natural sediment transport, and contributes to thermal barrier development which inhibits fish passage into the Yakima River.

PCE 5 *- Water temperatures ranging from 2° C to 15° C with adequate thermal refugia for temperatures that exceed the upper end of this range.*

Baseline conditions for PCE 5 are functioning within the action area only during winter months while bull trout are using FMO habitat.

PCE 6 *- In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure the success of egg and embryo over-winter survival, fry emergence, and young of the year and juvenile survival.*

There is no bull trout spawning and rearing habitat within the action area.

PCE 7 *- A natural hydrograph including peak, high, low, and base flows, or if flows are controlled, minimal flow departure from a natural hydrograph.*

PCE 7 is not functioning in the action area. The Columbia River is appreciably influenced by the operation of McNary Dam as well as the reservoirs and diversions of the Yakima and Wapato irrigation projects within the Yakima River watershed.

PCE 8 *- Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.*

Baseline conditions in the action area are not functioning during the summer. Columbia River summer water temperature within the action area can reach a maximum summer temperature of approximately 72° F, averages approximately 65° F at the mouth of the Yakima River Delta and Bateman Island, and temperature in the Yakima River Delta averaged between 75° F -78° F (USACE 2021). Baseline conditions for PCE 8 are functioning within the action area during winter when temperatures are lower and sub-adult and adult bull trout may be present.

PCE 9 *- Low levels of nonnative predation, interbreeding, and competition.*

Primary Constituent Element 9 is not functioning in terms of predation. Native (e.g. northern pikeminnow; *Ptychocheilus oregonensis*) and nonnative (e.g. smallmouth bass; *Micropterus dolomieu*) are among the predatory fish present throughout lower Yakima and mainstem Columbia rivers, as are piscivorous birds including but not limited to American white pelicans (*Pelecanus erythrorhynchos*) and double-breasted cormorants (*Phalacrocorax auritus*). This

PCE is functioning with respect to competition and interbreeding with congeneric brook trout (*S. fontinalis*) and lake trout (*S. namaycush*), which are not known to occur in detectable numbers in the action area.

8.2 Conservation Role of the Action Area

8.2.1 Mainstem Feeding, Migration, and Overwintering (FMO) Area

The portion of the action area presently occupied by the Bateman Island Causeway and its immediately adjacent waters has no conservation role in that it partially blocks fish passage between the Columbia River and Yakima River and contributes to poor water quality, particularly with respect to elevated temperatures. The 20-mile reach of the action area, however, is bull trout FMO habitat. Like all bull trout FMO areas designated rangewide, these shared FMO areas support the viability of bull trout populations by contributing to successful overwintering survival and connectivity between core areas.

The action area in the 20 river miles downstream of the causeway, however, is within Mainstem FMO habitat. The Mainstem FMO area in within the Mainstem Upper Columbia River CHU and is has been determined to be essential to the conservation of bull trout. The Mainstem Upper Columbia River CHU is essential for maintaining bull trout distribution within the unique geographic region of the Mid-Columbia Recovery Unit and conserving the fluvial migratory life history types exhibited by many of the populations from adjacent (Yakima) and nearby (Walla Walla, Entiat) core areas. It is essential for large-scale conservation by maintaining broad distribution within the Mid-Columbia Recovery Unit across Washington, Idaho, and Oregon.

The action area's location between Chief Joseph Dam in the unit's most northern geographical area and John Day Dam in the unit's most southern area provides key connectivity for the Mid-Columbia River Recovery Unit. The action area is within a larger reach essential for maintaining distribution and genetic contributions to the Lower Columbia and Snake River Mainstems and 13 CHUs. Bull trout are known to reside year-round as sub-adults and adults, but spawning adults may utilize the mainstem Columbia River for up to at least 9 months as well. Several studies in the upper Columbia and lower Snake Rivers indicate migration between the Mainstem Upper Columbia River CHU and core areas, generally during periods of cooler water temperatures. FMO habitat provided by the mainstem Columbia River is essential for conservation because it supports the expression of the fluvial migratory life history forms for multiple core areas.

Data to directly estimate bull trout overwintering survival in the action area – like the larger mainstem FMO - is lacking. The sole reference for bull trout survival in the action area suggests the majority of Walla Walla River Subbasin bull trout that enter the mainstem Columbia River may not survive to return to the subbasin (Barrows *et al*. 2016).

Connectivity both within mainstem habitats and between mainstem and subbasin habitats is required to make progress towards the recovery of bull trout. Connectivity is the maintenance of suitable stream conditions that allow bull trout to move freely upstream and downstream with habitat linkages that connect to other habitat areas (Schaller *et al*. 2014). Schaller *et al*. (2014) assessed connectivity from two perspectives: (1) connectivity within the migratory corridor (i.e., allowing for unrestricted migration and the full expression of life history strategies and (2)

connectivity (i.e. dispersal) among core area populations (Schaller *et al*. 2014). The action area's conservation role supports both forms of connectivity. Yakima River fish exhibiting fluvial life histories, though not yet documented, are free to move into the mainstem FMO during the winter and return in the spring. The likelihood of such movements is likely to increase over time as the Yakima Basin Integrated Plan partners and other entities continue to implement conservation actions throughout the Yakima River watershed and in the middle and lower rivers in particular (i.e. the proposed action analyzed herein as well as future potential stream restoration and irrigation fish screening and passage improvement projects). Similarly, the documented presence of bull trout from the Entiat and Walla Walla rivers in the action area indicates the second aspect of connectivity - dispersal between populations – remains possible.

8.2.2 Conservation Role of the Local Populations in the Action Area

The action area does not support a local spawning population, serving instead as habitat in which subadult and adult migratory bull trout forage, migrate, mature, and/or or overwinter. Bull trout of a variety of life stages rely on FMO habitat to complete extensive and important parts of their life cycle (Homel and Budy 2008, p. 875; Monnot *et al*. 2008, pp. 235-237). Migratory bull trout become much larger than resident fish, benefiting from the more productive waters of larger streams, lakes, and marine habitats, consequently leading to increased reproductive potential. The use of migration habitat by bull trout can also increase potential for dispersion, facilitating gene flow among local populations (interbreeding groups) when individuals from different local populations interbreed, stray, or return to nonnatal streams. Importantly, local populations that have been extirpated by catastrophic events may become reestablished because of movements by bull trout through migration habitat [Rieman and McIntyre 1993, p. 7; Montana Bull Trout Scientific Group (MBTSG) 1998, p. 45].

8.3 Climate Change

Consistent with the USFWS policy, our analyses under the ESA include consideration of ongoing and projected changes in climate. The term "climate" refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used [Intergovernmental Panel on Climate Change (IPCC) 2014a, pp. 119-120]. The term "climate change" thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2014a, p. 119). Various types of changes in climate can have direct or indirect effects on species and critical habitats. These effects may be positive, neutral, or negative, and they may change over time. The nature of the effect depends on the species' life history, the magnitude and speed of climate change, and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2014b, pp. 64, 67-69, 94, 299). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change and its effects on species and their critical habitats. We focus in particular on how climate change affects the capability of species to successfully complete their life cycles, and the capability of critical habitats to support that outcome.

Climate change research for the larger Northern Rockies area predicts warmer springs, earlier snowmelt, and hotter, drier summers with longer fire seasons (Isaak *et al* 2015 p. 2540). In the Pacific Northwest, most models project warmer air temperatures, increases in winter precipitation, and decreases in summer precipitation [Independent Scientific Advisory Board (ISAB) 2007 p. iii]. Warmer temperatures will lead to more precipitation falling as rain rather than snow. As the seasonal amount of snow pack diminishes, the timing and volume of stream flow are likely to change and peak river flows are likely to increase in affected areas. Higher air temperatures are also likely to increase water temperatures (ISAB 2007 p. 16).

Over the last century, average annual temperatures in the US have increased about 2° F (0.2° F per decade) over the last 50 years (USDA 2010 p. 3; Bonneville *et al*. 2017 p.92). Winter temperatures have increased more than other seasons, and the daily minimum temperatures, typically occurring at night, have increased more than daily maximums. Models indicate that temperature increases would occur during all seasons, with the greatest increases projected in summer. Precipitation predictions are considered less certain, but most models project decreased summer precipitation and increased winter precipitation.

The variation in precipitation and temperature patterns from one year to the next, combined with the geographic complexity of the Basin, result in highly variable Columbia River flows from year to year (Bonneville *et al*. 2017 p.19). The Columbia River has an annual average runoff of approximately 200-million-acre feet per year (maf/year), with roughly 25 percent of that volume originating in the Canadian portion of the Basin (Bonneville *et al*. 2017 p.92).

All life stages of the bull trout rely on cold water. Increasing air temperatures are likely to impact the availability of suitable cold-water habitat (Isaak *et al* 2015 p. 2540; Dunham *et al* 2014). For example, ground water temperature is generally correlated with mean annual air temperature and has been shown to strongly influence the distribution of many trout species (Rieman *et al*. 2007 p. 1557). Ground water temperature is linked to bull trout selection of spawning sites and has been shown to influence the survival of embryos and early juvenile rearing of bull trout (Rieman *et al*. 2007 p. 1553). Increases in air temperature are likely to be reflected in increases in both surface water and groundwater temperatures.

Bull trout require very cold (less than 10 ℃) water for spawning and incubation (Dunham *et al*. 2014). Suitable spawning habitat is often found in accessible higher elevation tributaries and headwaters of rivers. However, impacts on hydrology associated with climate change are related to shifts in timing, magnitude and distribution of peak flows that are also likely to be most pronounced in these high elevation stream Basins (Battin *et al*. 2007 p. 6720). The increased magnitude of winter peak flows in high elevation areas is likely to impact the location, timing, and success of spawning and incubation for the bull trout and Pacific salmon species as well as juvenile survival. Low elevation river reaches are unlikely to provide suitably cold temperatures for bull trout spawning, incubation, and juvenile rearing under current temperatures. Therefore, the general impact of temperature and hydrologic changes may not be as extreme, or range constrictions as pronounced as what may occur in higher elevation streams. As climate change progresses and stream temperatures warm, thermal refugia will be critical to the persistence of many bull trout populations.

Projected changes in climate may be expected to result in several impacts to bull trout and habitat including contraction of the range of bull trout; variable or elevated stream temperatures that reduce survival and reproduction; altered ground water exchange that limits egg development; and changed geomorphology that reduces presence or quality of spawning habitat (USFWS 2015a). In addition, increased or variable flows from extreme precipitation events, rain on snow and longer dry periods may increase scouring of spawning areas, reduce juvenile rearing capacity of habitat, and inhibit movements during summer low flow conditions (USFWS 2015a). Increased frequency and extended periods of wildfires may result in loss and fragmentation of habitat (USFWS 2015a).

There is still a great deal of uncertainty associated with predictions relative to the timing, location, and magnitude of future climate change. It is also likely that the intensity of effects will vary by region (ISAB 2007). For example, several studies indicate that climate change has the potential to impact ecosystems in nearly all streams throughout the State of Washington (ISAB 2007; Isaak *et al*. 2015; Battin *et al*. 2007; Rieman *et al*. 2007). In streams and rivers with temperatures approaching or at the upper tolerance limits for bull trout, such as occurs in the Walla Walla, Yakima, Umatilla and Snake Rivers, there is little, if any likelihood, that bull trout will be able to adapt to or avoid the effects of climate change/warming without connectivity to cooler waters. As bull trout distribution contracts, patch size (contiguous catchment area of suitable spawning/rearing habitat) decreases and connectivity is truncated. Bull trout populations that may be currently connected will likely face increasing isolation (Dunham *et al*. 2014; Rieman *et al*. 2007 p. 1553). Due to variations in landform and geographic location across the range of the bull trout, it appears that some populations face higher risks than others. Bull trout in areas with currently elevated water temperatures and/or at the southern edge of its range may already be at risk of adverse impacts from current as well as future climate change.

9 EFFECTS OF THE ACTION: Bull Trout and Designated Bull Trout Critical Habitat

The effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.17).

The effects of the of the action to bull trout are described for the five project elements that may affect bull trout including: (1) vegetation removal and site preparation; (2) hauling and stockpiling of riprap on Bateman Island; (3) removal of the causeway; (4) excavation to create a toe on the mainland bank to accept riprap; and (5) placement of rock and soil materials along the Bateman Island shoreline and riprap along the mainland shoreline. The proposed conservation measures are analyzed, as applicable, for each element.

9.1 Effects to Bull Trout

> Removal of vegetation and preparation of the existing surface along the south shore of the island to facilitate contractor access to the work site and the placement of fill within the area following excavation.

All woody vegetation will be removed from the causeway using vegetation cutting equipment (i.e., chainsaws) and/or an excavator, used for grubbing. This action is likely to have a minor adverse effect on anadromous fish species, specifically steelhead, as their habitat productiveness is dependent on complexity in the form of these woody structures. Bull trout occur in the action area in the winter, when shading from landward deciduous trees is not a factor. The proposed conservation measures stipulate that construction materials will not be released into the water. Construction equipment will be inspected for leaks, refueled at least 100 feet away from the river, and spill cleanup kits will be on site. These measures minimize the risk of adverse effects to water quality.

Hauling riprap/rock and soil materials across the causeway to Bateman Island to a stockpile for later use.

Approximately 62 cubic yards (cy) of rock and soil will be hauled to Bateman Island by trucks, via the causeway. The material will be stockpiled on the island to be placed along the island and mainland shoreline to minimize shoreline erosion. This action will likely have little to no direct effect, as the temporary placement area for the stockpile of material will be located on Bateman Island and not within or near the water during this construction step. The proposed conservation measures stipulate that construction materials will not be released into the water. Construction equipment will be inspected for leaks, refueled at least 100 feet away from the river, and spill cleanup kits will be on site. These measures minimize the risk of adverse effects to water quality.

Removal of the entire 560-foot-long causeway using a long reach arm excavator to cut 39,870 cy of material over an 800-foot-long alignment.

Bull trout may be present in the FMO habitat in the action area during the winter in-water work window from December 1 through February 28. Excavation of the causeway will result in a temporary decline in water quality during the construction, as sediment will be mobilized and create a turbidity plume. Silt curtains will be emplaced up- and downstream as a conservation measure, and a portable bubbler will be moved towards the curtains prior to closure to ensure fish depart. Once the silt curtains are closed and causeway excavation begins, the area between them will have a high level of turbidity. The abundance of excess sediments between the silt curtains is likely to settle and temporarily cover gravels used by juvenile anadromous salmonids for camouflage and feeding and create temporary thermal barriers that impede fish passage. These effects may indirectly reduce the prey base available for bull trout. Downstream turbidity monitoring will be at 300-foot and 900-foot points of compliance to ensure any sediments that escape containment do not appreciably increase turbidity.

The proposed conservation measures stipulate that construction materials will not be released into the water. Construction equipment will be inspected for leaks, refueled at least 100 feet away from the river, and spill cleanup kits will be on site. These measures minimize the risk of adverse effects to water quality.

The long-term effect of the removal of the Bateman Island Causeway will be a significant improvement in water quality within the Yakima Delta by providing cooler water during the

summer months. Cooler water improves habitat conditions for upstream passage of anadromous salmonids, the juveniles of which are preyed upon by bull trout. The action also restores natural flow patterns, reduces the warmwater predator habitat that currently exists west of the causeway, and appreciably improves fish passage at the site scale.

Additional excavation to create a toe at the base of the riprap (four feet below the bottom and three feet out from the Bateman Island and mainland shorelines).

Creation of a toe, designed to stabilize the base of the stabilized shoreline, will result in temporary adverse effects on water quality. Similar to the excavation during the causeway removal, excavation to create a toe is likely to stir up sediment that could impact overwintering or migrating bull trout. The action is not anticipated to generate notable cumulative impacts and will provide long-term benefits for these fish species during future migration periods. The proposed conservation measures stipulate that construction materials will not be released into the water. Construction equipment will be inspected for leaks, refueled at least 100 feet away from the river, and spill cleanup kits will be on site. These measures minimize the risk of adverse effects to water quality.

Placement of rock and soil materials along the Bateman Island shoreline and riprap along the mainland shoreline to provide stabilization.

Stabilization of the Bateman Island shoreline by excavation of 41 cy of material will create a toe four feet below the river bottom and three feet out for the placement of 62 cy of shoreline stabilization materials over 93 linear feet (lf). Stabilization of the mainland shoreline by excavation of 51 cy to create a toe four feet below the river bottom and three feet out will allow for the placement of 77 cy of shoreline stabilization materials over 115 lf. Interstitial spaces of fill material will be filled with gravel or soil as a conservation measure to prevent the creation of predator habitat.

The placement of riprap will limit post-project recruitment of riparian vegetation along at least 93 lf of Bateman Island and 115 lf of the mainland to the detriment of shade and export of invertebrates. This, however, does not constitute a loss of habitat as the causeway presently occupies nearly all the area that will be riprapped. Moreover, the Bateman Island shoreline stabilization will be designed and implemented to be as nature-based as possible in function. For both shorelines interstitial spaces will be filled with gravel or soils as appropriate to minimize the creation of potential predator habitat.

Not unlike the construction steps requiring excavation of materials, placement of rock and fill will increase turbidity temporarily, resulting in similar short-term adverse effects. These effects will be minimized by the silt curtain, which will remain in place (Figure 3; BA Figure 1.3, below). It is important to note that no excavation is being proposed on the currently intact sections of the island or shoreline. This action will minimize shoreline erosion potential at a soon-to-be vulnerable site, which had an overall, long-term benefit on the Yakima River Delta Ecosystem.

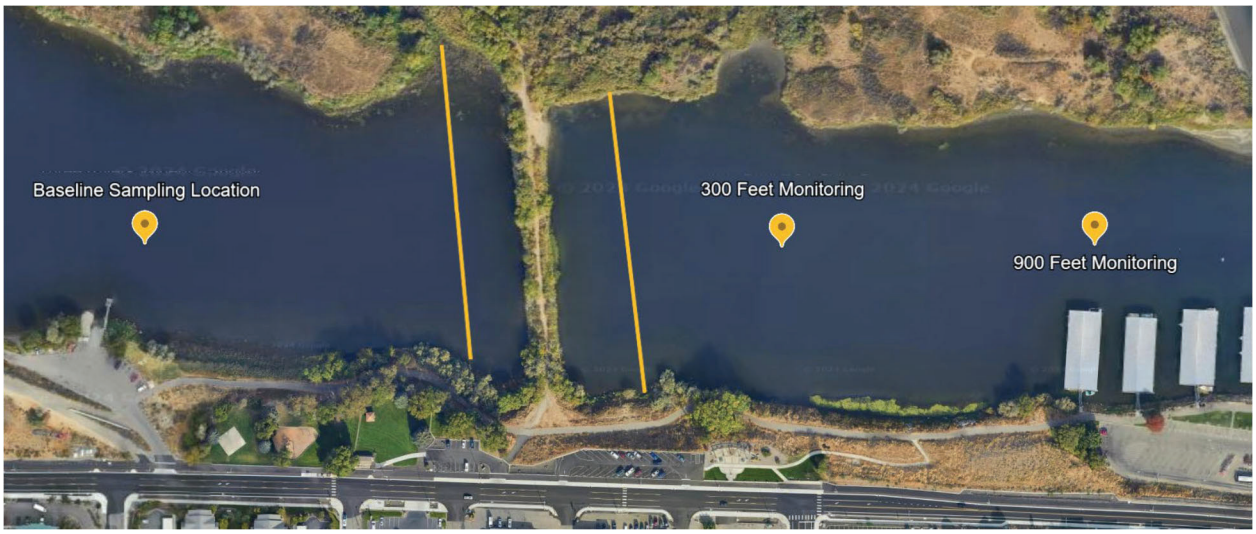

Figure 3: Figure 1.3 from the BA, Bateman Island Causeway and Vicinity with Turbidity Curtains and Monitoring.

The placement of riprap will not, however, minimize the effects of the action on sediment mobilization in the Yakima Delta. Removal of the causeway will alter the path of flows and thus, the shear stresses experienced by sediments presently distributed in the areas surrounding Bateman Island (NHC 2024b). The quantity and duration of sediment mobilization, deposition, and re-mobilization will vary with the frequency, magnitude, and duration of elevated flows following implementation of the proposed action. Figure 1.6 in NHC (2024b) illustrates polygons in which sediment transport due to shear stress was modeled. Polygons 1, 2, and 3 are most closely associated with the alignment of the channel that the proposed action will restore to a condition of flow. Sediment removal times range from as little as 3.4 weeks in Polygon 2 to as long as 3.6 years in Polygon 3 (Table 1.4 in NHS 2024). Other Polygons within the Yakima Delta are subject to less shear stress – even following opening of the south channel of Bateman Island. The time to sediment transport from Polygon 4, for example, was modeled to require from 17 to >4,500 years.

The BA states that the area of potential indirect effects from natural sediment mobilization could continue as far as 20 miles downstream in the Columbia River before the plume becomes indistinguishable from baseline turbidity near the mouth of the Walla Walla River. The NHC 2024a report indicates that approximately one third of the potential sediment mobilization will deposit before the Ed Hendler Bridge, just downstream of Clover Island on the Columbia River. The USACE conservatively estimates that continuing downstream, at least an additional third of the sediments will deposit before Finley near the Snake River confluence, an equal distance from the causeway to the Ed Hendler Bridge.

It is highly unlikely that a difference in Columbia River turbidity from sediment mobilization at Bateman Island could be detected past the point of the Snake River confluence. The Snake River is appreciably turbid under baseline conditions (Clark *et al*. 2013, USGS 2007) and contributes a large volume of flow to the Columbia River. The larger dimensions and water volume of the Columbia River below the Snake River confluence render it difficult to discern any Bateman Island-related increase in turbidity from that point downstream to the Walla

Walla River confluence (Clark *et al*. 2013, Mapes 1969), 20 river miles from Bateman Island.

Bull trout occurring in 20 miles of mainstem FMO habitat between Bateman Island and the Walla Walla River confluence will be subjected to the effects of increased suspended sediment. The introduction of sediment at levels in excess of natural amounts can have multiple adverse effects on channel conditions and bull trout (Rhodes *et al*. 1994). The effect of sediment beyond natural background conditions can be fatal at high levels. Low levels may result in sublethal effects such as loss or reduction of foraging capability, reduced growth, reduced resistance to disease, increased stress, and interference with orientation in homing and migration (McLeay *et al*. 1987; Newcombe and Jensen 1996; Bash *et al*. 2001, Cederholm and Reid 1987). Redding *et al.* (1987) found that suspended sediment may inhibit normal feeding activity, as a result of a loss of visual ability or as an indirect consequence of increased stress.

The fraction of sediment that temporarily deposits in the mainstem channel will affect benthic invertebrates inhabiting the stream bottom (Waters 1995). Increased sediment deposition can affect macroinvertebrate habitat by filling of interstitial space and rendering attachment sites unsuitable. This may cause invertebrates to seek a more favorable habitat (Rosenberg and Snow 1975). The degree to which substrate particles are surrounded by fine material was found to have a strong correlation with macroinvertebrate abundance and composition (Birtwell *et al*. 1999). At an embeddedness of one-third, insect abundance can decline by about 50 percent, especially for riffle-inhabiting taxa (Waters 1995). We note, however, that bull trout become increasingly piscivorous are larger sizes and thus, the subadult and adult fish occurring in the FMO within the action area will be relatively less affected by any temporary declines in macroinvertebrate density than would juveniles. We are note that the interstitial spaces in emplaced riprap will be purposely filled with materials simulating embedded conditions to minimize cover that otherwise may be used by aquatic predators.

The sublethal effects of the proposed action's increase in sediment and embeddedness also include loss or reduction of foraging capability, reduced growth, reduced resistance to disease, increased stress, and interference with orientation in homing and migration (McLeay *et al*. 1987; Newcombe and Jensen 1996; Bash *et al*. 2001).

We note that these effects to turbidity and embeddedness do not consider the timing, magnitude, and duration of post-project sediment erosion and deposition described above and in Table 1-4 in NHC 2024b. The effects of increased sediment may last for weeks or decades, with relatively larger but more brief annual effects associated with the former and longer term but smaller magnitude effects resulting from the latter.

9.2 Effects to Bull Trout Designated Critical Habitat

The final bull trout critical habitat designation in 2010 (75 FR 2270) lists a total of nine primary constituent elements (PCEs) that are designed to incorporate what is essential for bull trout conservation. Effects analyses for bull trout critical habitat evaluate how a proposed action will affect the capability of the PCEs to support the life history needs of the species and provide for

its conservation (75 FR 63943). The nine PCEs are listed in the Status of Bull Trout Critical Habitat, above. We analyzed the effects to bull trout using The Matrix of Pathway Indicators (Matrix; USFWS 1999). The Matrix incorporates one population pathway and six habitat pathways which represent different features or functions of populations and habitat that can be affected by projects. These features and functions are characterized by measurable indicators of population performance and habitat conditions (four population indicators and 19 physical habitat indicators). Analysis of these indicators provides a systematic approach for evaluating the existing baseline condition and potential project impacts, using metrics meaningful to bull trout. The remainder of this section will analyze effects of the proposed action on only those PCEs that are present and functioning in the action area or which may be improved by the proposed action.

PCE 2 *- Migration habitats with minimal physical, biological, or water quality impairments between spawning, rearing, over-wintering, and freshwater and marine foraging habitats, including, but not limited to, permanent, partial, intermittent, or seasonal barriers.*

Again, baseline conditions for this PCE are not functioning in the channel south of Bateman Island presently blocked by the causeway. We anticipate that the removal of the causeway will appreciably reduce water quality impairments due to elevated summer temperatures, thus reducing the duration of the summer seasonal barrier to migration for any bull trout that may be present (e.g. the previously discussed Entiat River bull trout transited the action area in summer). Additionally, the proposed action will remove a physical and thermal migration barrier for anadromous salmonids, the offspring of which are prey for bull trout.

PCE 3 *- An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.*

Baseline conditions for this PCE are functioning within the action area. Adult and sub-adult bull trout that may be present area are likely to encounter sufficient prey. We anticipate the action area will experience a temporal reduction in the abundance of aquatic macroinvertebrates, and forage fish during the causeway removal and subsequent in-water placement of riprap followed by an increase in food base (e.g. juvenile salmonids) as water quality improves in the now-open channel following implementation of the project.

PCE 5 *- Water temperatures ranging from 2° C to 15° C with adequate thermal refugia for temperatures that exceed the upper end of this range.*

Baseline conditions for PCE 5 are functioning within the action area primarily during winter months while bull trout are using FMO habitat. We do not anticipate the proposed action will measurably affect winter water temperatures. We do, however, anticipate improvements in summer water temperatures once the causeway is no longer backwatering the Yakima River. This will extend the season during which bull trout using FMO habitat can transit the area and encounter suitable water temperatures, and we may encounter more bull trout similar to the aforementioned fish from the Entiat River transiting the action area and/or entering the Yakima River.

PCE 8 *- Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.*

Baseline conditions for PCE 8 are functioning within the action area during winter when water temperatures are within the bull trout's level of tolerance and sub-adult and adult bull trout may be present. We anticipate that the removal of the causeway will temporarily worsen water quality in terms of suspended and benthic sediment (see effects to the species, described above), but increase the area in which PCE 8 functions over the longer term.

PCE 9 *- Low levels of nonnative predation, interbreeding, and competition.*

Primary Constituent Element 9 is not functioning in terms of predation. Native (e.g. northern pikeminnow; *Ptychocheilus oregonensis*) and nonnative [e.g. largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), channel catfish (*Ictalurus punctatus*), and walleye (*Stizostedion vitreum*)] are present throughout lower Yakima and mainstem Columbia rivers, as are piscivorous birds including but not limited to American white pelicans (*Pelecanus erythrorhynchos*) and double-breasted cormorants (*Phalacrocorax auritus*). We anticipate that the proposed action will reduce the occurrence and/or species distribution of predatory fish that may reside in the slack water above and below the causeway, in turn reducing predation on bull trout using the FMO habitat in that portion of the action area. Primary Constituent Element 9 is functioning with respect to competition and interbreeding with congeneric brook trout (*S. fontinalis*) and lake trout (*S. namaycush*), which are not known to occur in detectable numbers in the action area.

The Mid-Columbia Fisheries Enhancement Group (MCFEG) examined various aspects of the proposed action (MCFEG 2016) and hypothesized that nonnative salmonid predator fishes that inhabit the Yakima River Delta may benefit from the large area of slack water habitat upstream of the existing Causeway (e.g., the 'mud hole') that warms much earlier than the surrounding area, which is more influenced by flows from the Columbia River. Walleyes in particular require very low velocity areas that warm quickly and are in early spring in close proximity to spawning areas for successful recruitment. Pitlo (2002) reported that the fall abundance of age-0 Walleyes was highly correlated with the rate of water warming between April 15 and May 5 in the upper Mississippi River. This slack/warm water habitat in proximity to preferred spawning habitat for walleyes (shallow, rocky, swift; Paragamian 1989) is limited in the mid-Columbia River region. Walleye year class strength has been shown to be negatively related to discharge fluctuations and suspended sediment loads (Mion *et al*. 1998). Compared to the Columbia River, which experiences large daily (even hourly) fluctuations in discharge related to load following by hydroelectric dams (Langshaw and Pearsons 2010; Harnish *et al*. 2014a), the Yakima River discharge changes relatively slowly. Further, changes in agricultural practices in the Yakima River Basin have decreased the suspended sediment loads in the river significantly over the past 10 years (Johnson *et al*. 2010 (data available on---line at http://www.ecy.wa.gov/eim/). A productive post-spawn fishery has developed in the Yakima River Delta area (personal observation noted in MCFEG 2016). It is likely that the combination of an increasing Columbia River Walleye population, decreased sediment loads in the Yakima River, and the large amount of slack water that rapidly warms in the early spring provide an excellent larval recruitment area for Walleyes. Further, this area of slack water may also provide suitable habitat for overwinter survival of age-0 smallmouth bass and channel catfish. Successful recruitment of these predators

in this area may contribute to predation losses of juvenile salmonids and lamprey migrating through the action area.

We therefore anticipate that the proposed action will slightly reduce the occurrence and/or species distribution of predatory fish that may reside in the slack water above and below the causeway, thus reducing predation on bull trout using the FMO habitat in that portion of the action area.

9.3 Summary of Effects

The proposed action was analyzed for its short-term adverse effects to bull trout via impacts to water quality in the Mainstem FMO habitat and for its longer-term beneficial effects to FMO habitat, also largely due to improved water quality, following removal of the Bateman Island Causeway. Therefore, the proposed action **may affect, and is likely to adversely affect bull trout** in the action area.

The proposed action was also analyzed for effects to bull trout critical habitat PCEs. USFWS concludes that the proposed action will have varying levels of impact to the PCEs because of the level of physical disturbance to the Yakima River Delta and a 20-mile reach of the mainstem Columbia River.

We anticipate no short- or long-term effects to water temperature (PCE 5) in winter when bull trout occurrence in the action area is expected to be greatest. Baseline conditions for PCE 5 are not functioning in the channel south of Bateman Island presently blocked by the causeway. The existing channel to the north of Bateman Island is partially functioning in terms of this PCE, but is impaired in terms of water quality, and summer water temperatures in particular. We anticipate that the proposed action will improve conditions for PCE 2 (migratory corridors) in terms of fish passage and improve water quality and temperature in the restored channel following the causeway's removal. The project will extend the duration of suitable passage conditions. Immigrating/emigrating bull trout are less likely to encounter a thermal barrier the longer temps are suitable, and bull trout engaging in longer-distance movements such as the Entiat River fish described previously may be detected more frequently post-project. We further anticipate that the proposed action will improve PCE 3 (food base) following a short period in which the PCE is adversely affected by in-water work. Water quality (PCE 8) is functioning at present and will function in a larger area following removal of the Bateman Island Causeway.

Primary Constituent Element 9 (competition and predation) is anticipated to improve to a small degree. The occurrence of competitive congeneric fish (lake and brook trout) is anticipated to be unchanged, but the habitat suitability for native and nonnative fishes may be reduced by the elimination of slack water habitat following causeway removal. The accumulation of short-term adverse effects in advance of beneficial effects means that **the proposed action may affect, and is likely to adversely affect bull trout designated critical habitat.** The adverse effects will be temporary and will not permanently impact the physical and ecological processes that maintain the PCEs.

10 CUMULATIVE EFFECTS: Bull Trout and Designated Bull Trout Critical Habitat

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

The USFWS is not aware of any other future actions that are reasonably certain to occur in the action area that are likely to contribute to cumulative effects on bull trout or bull trout critical habitat. For this description of cumulative effects, the USFWS assumes that future non-Federal activities in the area of the proposed action will continue into the immediate future at similar intensities. Current ongoing activities anticipated to continue to affect bull trout in the action area include native and non-native predatory and competitive fishes, avian predators, and recreation. Accordingly, these actions will continue to contribute to degraded baseline conditions.

11 INTEGRATION AND SYNTHESIS OF EFFECTS: Bull Trout and Designated Bull Trout Critical Habitat

The Integration and Synthesis section is the final step in assessing the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action and the cumulative effects to the status of the species and critical habitat, and the environmental baseline, to formulate our biological opinion as to whether the proposed action is likely to: (1) appreciably reduce the likelihood of both survival and recovery of the species in the wild by reducing its numbers, reproduction, or distribution; or (2) result in the destruction or adverse modification of critical habitat.

11.1 No Jeopardy Determination

The purpose of the proposed Bateman Island causeway removal in the Yakima River Delta is to restore fluvial function and fish passage to the south side of Bateman Island. The causeway removal will improve water quality, especially in terms of water temperature, to the benefit of anadromous salmonids (juveniles of which are bull trout prey) and, during winter, for bull trout using the mainstem Columbia River and adjacent delta for feeding, migration, and overwintering (again, FMO).

Adverse effects to bull trout in the action area come from the liberation of sediments from in-water work with heavy equipment. Sediment curtains will be emplaced to minimize the transport of materials downstream during removal of the Bateman Island causeway and subsequent bank armoring, but the accumulated materials will be resuspended when the curtains are removed, and flow is reestablished in the channel. This will first occur in winter when bull trout are occupying FMO habitat in the mainstem Columbia River. We estimate that the 20-mile downstream extent of sediment will involve some deposition along the course, and this will be resuspended during subsequent elevated flows (freshets).

We anticipate that up to 268 bull trout potentially occurring in the 20-mile reach of Mainstem FMO habitat in the action area will be subject to the sublethal effects of temporarily increased

benthic and suspended sediments over the length of time that sediments from the action area are likely to be liberated or eroded, suspended, and deposited.

The 268 bull trout we anticipate being taken are based on calculations of the numbers of the species that have been known to depart spawning and rearing habitat in the Walla Walla River watershed and enter the FMO habitat in the action area (within Lake Wallula above McNary Dam). The Walla Walla River is important to the conservation of bull trout and the species movements there are among the most well-studied in quantitative terms (Barrows *et al*. 2016, pp. 58-67). Most of the bull trout from the Walla Walla River Subbasin that enter the mainstem Columbia River do so from October through February, and they subsequently return to the subbasin from March through June, but they could potentially be migrating throughout the mainstem during all months of the year (*ibid*.).

Table 1.4 in Barrows *et al*. (2016, p. 64) summarizes the number of PIT-tagged Walla Walla River bull trout outmigrants that reached the Columbia River in Lake Wallula (and therefore, the action area) from January 2007 through February 2012. The multi-year data set is well suited to comparison with the proposed action; the effects of sedimentation are likely to last from as little as 3.4 weeks to as long as 3.6 years in the three Yakima Delta areas most likely to experience erosion in the near term (NHS 2024, p. 11). Seventy-four (74) bull trout were detected in a PIT array at the Oasis Road Bridge near the Walla Walla River's mouth, after which they entered the Columbia River in the action area (Barrows *et al*. 2016, p. 64)). Adjusting for physical detection efficiency (PDE), the total number of outmigrating bull trout entering the action area was 496 (95 percent CI 130 - 898) (*ibid*.).

We have no reliable way to discern the proportion of bull trout that remain in Lake Wallula within the action area – and experience the effects of sedimentation - from those that pass McNary Dam and thus, exit the action area. Relocations in the mainstem Columbia River of acoustic-tagged bull trout from the Walla Walla River Subbasin ranged from 12 river kilometers (rkm) downstream to approximately 14 rkm upstream from the mouth of the Walla Walla River (Barrows *et al*. 2016, p.59). The acoustic detection data also describe proportion of bull trout that returned from varying locations in the Columbia River to the mouth of the Walla Walla River; these fish survived other baseline sources of mortality and are thus more definitively thought to be subject to the proposed action's sedimentation as a primary stressor. Barrows *et al*. (2016; p. 59) found that 54 percent of the acoustic-tagged bull trout that entered the Columbia River subsequently returned to the mouth of the Walla Walla River; the fate of the remaining 46 percent is unknown, but likely includes predation, passage mortality at dams, and amphidromy – effects not resulting from the proposed action. The returning 54 percent of the 496 bull trout initially exiting the Walla Walla River is 268 bull trout.

11.2 No Adverse Modification Determination

The action area contains designated bull trout critical habitat. The proposed action will have varying effects to bull trout critical habitat. The most significant impacts stem from the act of removing the Bateman Island Causeway, which will adversely affect PCEs 3, 5, 8, and 9. However, these impacts will be limited in duration, and will not permanently reduce or impair the recovery support function of bull trout designated critical habitat. Therefore, the proposed action will not result in adverse modification of bull trout critical habitat.

12 CONCLUSION: Bull Trout and Designated Bull Trout Critical Habitat

After reviewing the current status of bull trout, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the USFWS' biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the bull trout and is not likely to destroy or adversely modify designated critical habitat.

13 INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. *Harm* is defined by the USFWS as an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR 17.3). *Harass* is defined by the USFWS as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by USACE so that they become binding conditions of any grant or permit issued to the USACE, as appropriate, for the exemption in section 7(o)(2) to apply. USACE has a continuing duty to regulate the activity covered by this Incidental Take Statement. If USACE 1) fails to assume and implement the terms and conditions or 2) fails to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, USACE must report the progress of the action and its impact on the species to the USFWS as specified in this Incidental Take Statement [50 CFR 402.14(i)(3)].

14 AMOUNT OR EXTENT OF TAKE

The USFWS anticipates 268 bull trout will be taken as a result of this proposed action. The incidental take is expected to be in the form of capture, harm, and harass. This total is based on the information presented in the Environmental Baseline and Effects of the Action.

The USFWS anticipates incidental take of bull trout from temporal increases in sedimentation in the mainstem Columbia River will be difficult to detect because of the low likelihood of measuring sublethal effects.

However, pursuant to 50 CFR 402.14(i)(1)(i), a surrogate can be used to express the anticipated level of take in an Incidental Take Statement, provided three criteria are met: (1) measuring take impacts to a listed species is not practical; (2) a link is established between the effects of the

action on the surrogate and take of the listed species; and (3) a clear standard is set for determining when the level of anticipated take based on the surrogate has been exceeded.

The USFWS' regulations state that significant habitat modification or degradation caused by an action that results in death or injury to a listed species by significantly impairing its essential behavior patterns constitutes take in the form of harm. Those regulations further state that an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt its normal behavioral patterns constitutes take in the form of harass. Such annoyance can be caused by actions that modify or degrade habitat conditions (e.g., excessive noise or smoke). In cases where this causal link between effects of a federal action to habitat and take of listed species is established, and the biological opinion or incidental take statement explains why it is not practical to express and monitor the level of take in terms of individuals of the listed species, the USFWS' regulations authorize the use of habitat as a surrogate for expressing and monitoring the anticipated level of take, provided a clear standard is established for determining when the level of anticipated take has been exceeded.

The following discussion presents the USFWS' analysis and findings with respect to the three regulatory criteria for use of a surrogate in this Incidental Take Statement (ITS) to express the anticipated level of take likely to be caused by benthic and suspended sediments.

1. Measuring take of individual bull trout within the action area is not practical. Measuring take of individual bull trout would require locating, capturing, tagging, and radio-tracking of individual bull trout in the action area prior to, during, and after project implementation. Such an undertaking is not practicable to implement and would pose additional risk of harm through capture and handling of individuals.

2. A link is established between the effects of the action and take of the bull trout. In the accompanying Opinion, we have provided a detailed analysis of how the anticipated habitat effects are reasonably certain to significantly disrupt normal bull trout behavior patterns, including feeding, breeding, or sheltering and how the anticipated habitat effects are reasonably certain to significantly degrade habitat to the point that actual injury or death would occur. We specifically identified the temporary increases in suspended and benthic sediments as the cause of take.

3. A clear standard is set for determining when the level of anticipated take based on the surrogate has been exceeded. The proposed action incorporates turbidity monitoring during in-water work. Monitoring will include data collected upstream in the Yakima River near the Highway 240 bridge, 300 feet downstream of the construction zone, and at downstream extent of the modeled mixing zone, 900 feet downstream (see BA Figure 1.2). The proposed action also includes post-project visual and hydroacoustic monitoring at 1-, 3-, 5- and 10-year intervals. In-water work will be paused or modified until turbidity levels return to acceptable limits if State of Washington water quality standards are exceeded. If the proposed action is modified such that it cannot maintain compliance with State Water Quality Standards, the level of take anticipated in this Incidental Take Statement will be exceeded, triggering reinitiation of formal consultation under section 7 of the ESA. Similarly, if the 1-, 3-, 5- and 10-year post-project monitoring reveals

appreciable differences to the modeled distribution of sediments released following causeway removal, the level of take anticipated will be exceeded, also triggering reinitiation of formal consultation under section 7 of the ESA.

The following discussion presents the USFWS' analysis and findings with respect to the three regulatory criteria for use of a surrogate in this ITS to express the anticipated level of take likely to be caused by the increase in benthic and suspended sediments.

1. Measuring take impacts to individual bull trout across the action area is not practical. To measure take of individual bull trout would require extensive efforts to capture fish, evaluate their condition, conduct genetic assessments, implant acoustic tags, and construct an acoustic detection array to understand how the increased sediment impacted bull trout respiration, feeding, and distribution. Such an undertaking is not practicable to implement, particularly at the scale of the mainstem Columbia River, and may pose additional risk of harm through capture and handling of individuals.

2. A link is established between the effects of the action and take of bull trout. In the accompanying BO, we have provided a detailed analysis of how the anticipated habitat effects are reasonably certain to significantly disrupt normal bull trout behavior patterns, including feeding, and how the anticipated habitat effects are reasonably certain to significantly degrade habitat to the point that actual injury or death would occur. We specifically identified sublethal effects to 268 bull trout from increased sedimentation in a 20-mile reach of the Columbia River as the cause of take.

3. A clear standard is set for determining when the level of anticipated take based on the surrogate has been exceeded. If the proposed action is modified such that it cannot maintain compliance with State Water Quality Standards at the identified points of compliance during construction and/or subsequent visual and hydroacoustic monitoring at 1-, 3-, 5- and 10-year intervals reveal incorrect assumptions regarding sediment, the level of take anticipated in this ITS will be exceeded, triggering reinitiation of formal consultation under section 7 of the ESA.

15 EFFECT OF THE TAKE

In the accompanying Opinion, the USFWS determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

16 REASONABLE AND PRUDENT MEASURES

The USFWS finds the following reasonable and prudent measure (RPM) is necessary and appropriate to minimize the impacts (i.e., the amount or extent) of incidental take of bull trout:

1. Conduct sufficient monitoring to ensure that the project is implemented as proposed, and the amount and extent of incidental take is not exceeded.

17 TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, Reclamation must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

To implement the RPM:

T&C 1: In addition to implementing all of the proposed water quality monitoring, the USACE shall report the results of the turbidity monitoring at the 300-foot and 900-foot points of compliance and of the visual sediment transport monitoring at 1-, 3-, 5- and 10-year intervals to the USFWS, noting any appreciable deviation from assumptions regarding turbidity and/or sediment deposition during and after construction. The results shall be provided to Jason_Douglas@fws.gov and washingtonfwo@fws.gov, accompanied by the project title and file number FWS/R1/2023-0048682.

The USFWS has determined that no more than 268 bull trout will be incidentally taken as a result of the proposed action. The reasonable and prudent measure, with its implementing terms and condition, is designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The federal agency must immediately provide an explanation of the causes of the taking and review with the USFWS need for possible modification of the reasonable and prudent measures.

The USFWS is to be notified within three working days upon locating a dead, injured or sick endangered or threatened species specimen. Initial notification must be made to the nearest U.S. Fish and Wildlife Service Law Enforcement Office. Notification must include the date, time, precise location of the injured animal or carcass, and any other pertinent information. Care should be taken in handling sick or injured specimens to preserve biological materials in the best possible state for later analysis of cause of death, if that occurs. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed. Contact the U.S. Fish and Wildlife Service Law Enforcement Office at (425) 883-8122, or the USFWS' Washington Fish and Wildlife Office at (360) 753-9440.

18 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- The USFWS recommends that the USACE continue to support stream restoration projects in the mainstem Columbia River and its tributaries via both the Civil Works Continuing

Authorities Program, and the issuance of Department of the Army Permits by the Regulatory Program.

- The USFWS recommends that the Corps continue to work with partner Nations and agencies to increase the implantation of PIT and/or acoustic tags in bull trout and the emplacement of arrays to detect the respective tagged fish in the mainstem Columbia River.

In order for the USFWS to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

19 REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request for formal consultation. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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Appendix A

Status of the Species – Bull Trout

Bull Trout

This section provides information about the bull trout's life history, habitat preferences, geographic distribution, population trends, threats, and conservation needs. This includes description of the effects of past human activities and natural events that have led to the current status of the bull trout. This information provides the background for analyses in later sections of the biological opinion. The proposed and final listing rules contain a physical species description (63 FR 31647, June 10, 1998; 64 FR 58910, November 1, 1999). Additional information can be found at https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E065.

Listing Status and Current Range

The coterminous United States population of the bull trout (*Salvelinus confluentus*) was listed as threatened on November 1, 1999 (64 FR 58910). The threatened bull trout occurs in the Klamath River Basin of south-central Oregon; the Jarbidge River in Nevada; the Willamette River Basin in Oregon; Pacific Coast drainages of Washington, including Puget Sound; major rivers in Idaho, Oregon, Washington, and Montana, within the Columbia River Basin; and the St. Mary-Belly River, east of the Continental Divide in northwestern Montana (Bond 1992, pg. 2; Brewin and Brewin 1997, pg. 215; Cavender 1978, pp. 165-166; Leary and Allendorf 1997, pp. 716-719; 63 FR 31647; 64 FR 58910; 75 FR 2269, January 14, 2010; USFWS 2015a, pg. 1).

The final listing rule for the United States coterminous population of the bull trout discusses the consolidation of five DPSs into one listed taxon and the application of the jeopardy standard in accordance with the requirements of section 7 of the ESA of 1973, as amended (Act; 16 U.S.C. 1531 et seq.), relative to this species, and established five interim recovery units for each of these DPSs for the purposes of Consultation and Recovery (64 FR 58910).

Six draft recovery units were identified based on new information (75 FR 63898, October 18, 2010) that confirmed they were needed to ensure a resilient, redundant, and representative distribution of bull trout populations throughout the range of the listed entity. The final Recovery Plan for the Coterminous Bull Trout Population (bull trout recovery plan) formalized these six recovery units (USFWS 2015a, pg. 36-43) (see Figure BT-1). The final recovery units replace the previous five interim recovery units and will be used in the application of the jeopardy standard for Section 7 consultation proceedures.

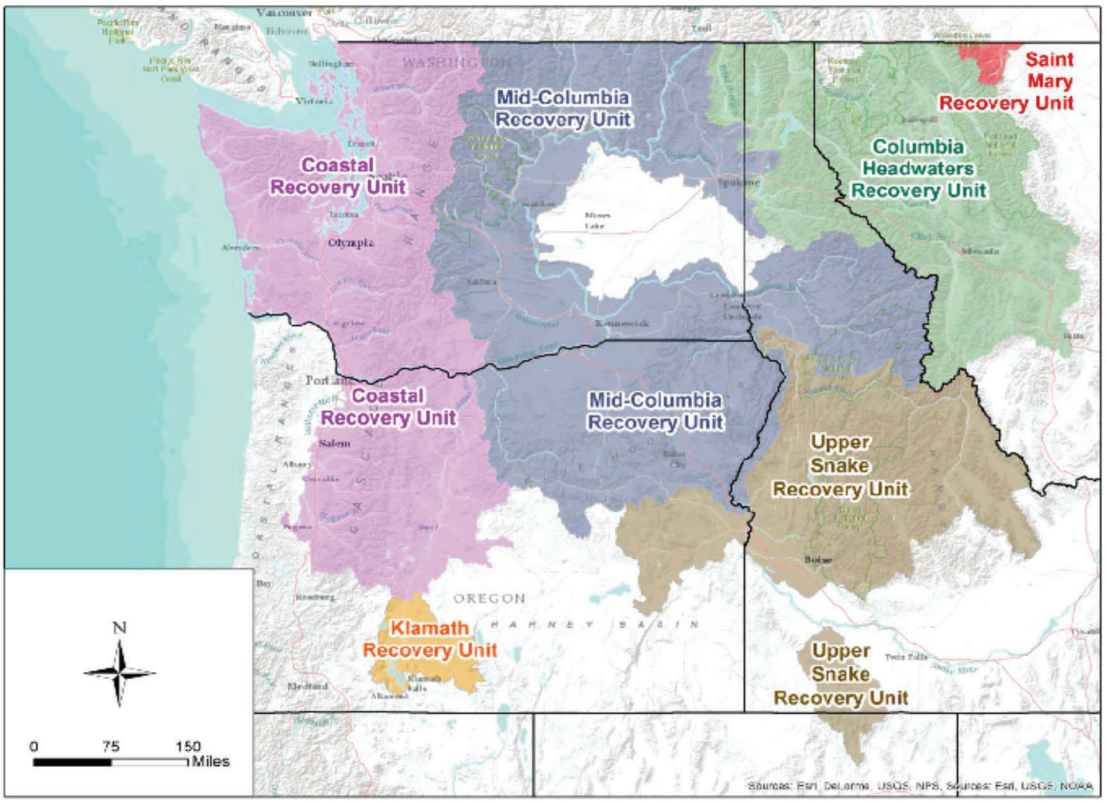

Figure BT-1. Locations of the six bull trout recovery units in the coterminous United States.

Reasons for Listing, Rangewide Trends, and Threats

Throughout its range, the bull trout is threatened by the combined effects of habitat degradation, fragmentation, and alterations associated with dewatering, road construction and maintenance, mining, grazing, the blockage of migratory corridors by dams or other diversion structures, poor water quality; incidental angler harvest; entrainment (a process by which aquatic organisms are pulled through a diversion or other device) into diversion channels; and introduced non-native species (63 FR 31647; 64 FR 58910). Poaching and incidental mortality of bull trout during other targeted fisheries are identified described in the bull trout recovery plan (see Threat Factors B and D) as additional threats (USFWS 2015a, pg. 150). Since the time of coterminous listing the species (64 FR 58910) and designation of its critical habitat (69 FR 59996, October 6, 2004; 70 FR 56212, September 26, 2005; 75 FR 63898) a great deal of new information has been collected on the status of bull trout. The USFWS's Science Team Report (Whitesel *et al* 2004, entire), the bull trout core areas templates (USFWS 2005b, entire; USFWS 2009, entire), Conservation Status Assessment (USFWS 2005a), and 5-year Reviews (USFWS 2008, entire; USFWS 2015h, entire) have provided additional information about threats and status. The final recovery plan lists other documents and meetings that compiled information about the status of bull trout (USFWS 2015a, pg. 3). As well, 2015 5-year review maintained the listing status as

threatened based on the information compiled in the final bull trout recovery plan (USFWS 2015h, pg.3) and the recovery unit implementation plans (RUIPs) (USFWS 2015b-g, entire).

When first listed, the status of bull trout and its threats were reported by the USFWS at subpopulation scales. In 2002 and 2004, the draft recovery plans (USFWS 2002, entire; USFWS 2004a, entire; USFWS 2004b, entire) included detailed information on threats at the recovery unit scale (i.e. similar to subbasin or regional watersheds), thus incorporating the metapopulation concept with core areas and local populations. In the 2008, 5-year Review, the USFWS established threats categories (i.e. dams, forest management, grazing, agricultural practices, transportation networks, mining, development and urbanization, fisheries management, small populations, limited habitat, and wildfire.) (USFWS 2008, entire). In the final recovery plan, threats and recovery actions are described for 109 core areas, forage/migration and overwintering areas, historical core areas, and research needs areas in each of the six recovery units (USFWS 2015a, p 10-11). Primary threats are described in three broad categories: Habitat, Demographic, and Nonnative Fish for all recovery areas described in the listed range of the species. The 2015 5-year status review (USFWS 2015h, entire) references the final recovery plan and the recovery unit implementation plans and incorporates by reference the threats described therein. Although significant recovery actions have been implemented since the time of listing, the 5-year review concluded that bull trout still meets the definition of a "threatened" species (USFWS 2015h, entire).

New or Emerging Threats

The final Recovery Plan for the Coterminous Bull Trout Population (USFWS 2015a, pg. 17) describes new or emerging threats, climate change, and other threats. Climate change was not addressed as a known threat when bull trout was listed. The 2015 bull trout recovery plan and RUIPs (USFWS 2015b-g, entire) summarize the threat of climate change and acknowledge that some bull trout local populations and core areas may not persist into the future due to small populations, isolation, and effects of climate change (USFWS 2015a, pg. 48). The recovery plan further states that use of best available information will ensure future conservation efforts that offer the greatest long-term benefit to sustain bull trout and their required coldwater habitats (USFWS 2015a, pg. vii, and pp. 17-20). Mote *et al*. (2014, entire) summarized climate change effects to include rising air temperature, changes in the timing of streamflow related to changing snowmelt, increases in extreme precipitation events, lower summer stream flows, and other changes. A warming trend in the mountains of western North America is expected to decrease snowpack, hasten spring runoff, reduce summer stream flows, and increase summer water temperatures (Poff *et al*. 2002, entire; Koopman *et al*. 2009, entire; PRBO Conservation Science 2011, entire). Lower flows as a result of smaller snowpack could reduce habitat, which might adversely affect bull trout reproduction and survival. Warmer water temperatures could lead to physiological stress and could also benefit nonnative fishes that prey on or compete with bull trout. Increases in the number and size of forest fires could also result from climate change (Westerling *et al*. 2006, entire) and could adversely affect watershed function by resulting in faster runoff, lower base flows during the summer and fall, and increased sedimentation rates. Lower flows also may result in increased groundwater withdrawal for agricultural purposes and resultant reduced water availability in certain stream reaches occupied by bull trout (USFWS 2015c, pg. B-10). Although all salmonids are likely to be affected by climate change, bull trout

are especially vulnerable given that spawning and rearing are constrained by their location in upper watersheds and the requirement for cold water temperatures (Battin *et al*. 2007, pp. 6672-6673; Rieman *et al*. 2007, pg. 1552). Climate change is expected to reduce the extent of cold water habitat (Isaak *et al*. 2015, entire), and increase competition with other fish species (lake trout (*Salvelinus namaycush*), brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), and northern pike (*Esox Lucius*) for resources in remaining suitable habitat. Brook trout, a fish species that competes for resources with and predates on the bull trout, will continue increasing their range in several areas (an elevation shift in distribution) due to the effects from climate change (Ficke *et al*. 2009, pg. 1; Peterson *et al*. 2013, pg. 117; Howell 2017, pg. 2).

Life History and Population Dynamics

Distribution

The historical range of bull trout includes major river basins in the Pacific Northwest at about 41 to 60 degrees North latitude, from the southern limits in the McCloud River in northern California and the Jarbidge River in Nevada to the headwaters of the Yukon River in the Northwest Territories, Canada (Cavender 1978, pp. 165-166; Bond 1992, pg. 2). To the west, the bull trout's range includes Puget Sound, various coastal rivers of British Columbia, Canada, and southeast Alaska (Bond 1992, pg. 2). Bull trout occur in portions of the Columbia River and tributaries within the basin, including its headwaters in Montana and Canada. Bull trout also occur in the Klamath River basin of south-central Oregon. East of the Continental Divide, bull trout are found in the headwaters of the Saskatchewan River in Alberta and Montana and in the MacKenzie River system in Alberta and British Columbia, Canada (Cavender 1978, pp. 165-166; Brewin and Brewin 1997, entire).

Reproductive Biology

The iteroparous reproductive strategy (fishes that spawn multiple times, and therefore require safe two-way passage upstream and downstream) of bull trout has important repercussions for the management of this species. Bull trout require passage both upstream and downstream, not only for repeat spawning but also for foraging. Most fish ladders, however, were designed specifically for anadromous semelparous salmonids (fishes that spawn once and then die, and require only one-way passage upstream). Therefore, even dams or other barriers with fish passage facilities may be a factor in isolating bull trout populations if they do not provide a safe downstream passage route. Additionally, in some core areas, bull trout that migrate to marine waters must pass both upstream and downstream through areas with net fisheries at river mouths. This can increase the likelihood of mortality to bull trout during these spawning and foraging migrations.

Growth varies depending upon life-history strategy. Resident adults range from 6 to 12 inches total length, and migratory adults commonly reach 24 inches or more (Goetz 1989, pg. 30; Pratt 1985, pp. 28-34). The largest verified bull trout is a 32-pound specimen caught in Lake Pend Oreille, Idaho, in 1949 (Simpson and Wallace 1982, pg. 95).

Bull trout typically spawn from August through November during periods of increasing flows and decreasing water temperatures. Preferred spawning habitat consists of low-gradient stream reaches with loose, clean gravel (Fraley and Shepard 1989, pg. 141). Redds are often

constructed in stream reaches fed by springs or near other sources of cold groundwater (Goetz 1989, pp. 15-16; Pratt 1992, pp. 6-7; Rieman and McIntyre 1996, pg. 133). Depending on water temperature, incubation is normally 100 to 145 days (Pratt 1992, pg. 1). After hatching, fry remain in the substrate, and time from egg deposition to emergence may surpass 220 days. Fry normally emerge from early April through May, depending on water temperatures and increasing stream flows (Pratt 1992, pg. 1; Ratliff and Howell 1992, pg. 10).

Early life stages of fish, specifically the developing embryo, require the highest inter-gravel dissolved oxygen (IGDO) levels, and are the most sensitive life stage to reduced oxygen levels. The oxygen demand of embryos depends on temperature and on stage of development, with the greatest IGDO required just prior to hatching.

A literature review conducted by the Washington Department of Ecology (WDOE 2002, pg. 9) indicates that adverse effects of lower oxygen concentrations on embryo survival are magnified as temperatures increase above optimal (for incubation). Normal oxygen levels seen in rivers used by bull trout during spawning ranged from 8 to 12 mg/L (in the gravel), with corresponding instream levels of 10 to 11.5 mg/L (Stewart *et al*. 2007, pg. 10). In addition, IGDO concentrations, water velocities in the water column, and especially the intergravel flow rate, are interrelated variables that affect the survival of incubating embryos (ODEQ 1995, Ch. 2 pp. 23-24). Due to a long incubation period of 220+ days, bull trout are particularly sensitive to adequate IGDO levels. An IGDO level below 8 mg/L is likely to result in mortality of eggs, embryos, and fry.

Population Structure

Bull trout exhibit both resident and migratory life history strategies. Both resident and migratory forms may be found together, and either form may produce offspring exhibiting either resident or migratory behavior (Rieman and McIntyre 1993, pg. 2). Resident bull trout complete their entire life cycle in the tributary (or nearby) streams in which they spawn and rear. The resident form tends to be smaller than the migratory form at maturity and also produces fewer eggs (Goetz 1989, pg. 15). Migratory bull trout spawn in tributary streams where juvenile fish rear 1 to 4 years before migrating to either a lake (adfluvial form), river (fluvial form) (Fraley and Shepard 1989, pg. 138; Goetz 1989, pg. 24), or saltwater (anadromous form) to rear as subadults and to live as adults (Brenkman and Corbett 2005, entire; McPhail and Baxter 1996, pg. i; WDFW *et al*. 1997, pg. 16). Bull trout normally reach sexual maturity in 4 to 7 years and may live longer than 12 years. They are iteroparous (they spawn more than once in a lifetime). Repeat- and alternate-year spawning has been reported, although repeat-spawning frequency and post-spawning mortality are not well documented (Fraley and Shepard 1989, pg. 135; Leathe and Graham 1982, pg. 95; Pratt 1992, pg. 8; Rieman and McIntyre 1996, pg. 133).

Bull trout are naturally migratory, which allows them to capitalize on temporally abundant food resources and larger downstream, and resident forms may develop where barriers (either natural or manmade) occur or where foraging, migrating, or overwintering habitats for migratory fish are minimized (Swanberg, 1997, entire; Brenkman and Corbett 2005, pp. 1075-1076; Goetz *et al*. 2004, pg. 105, Starcevich *et al* 2012, entire; USFWS 2016, pg. 170). For example, multiple life history forms (e.g., resident and fluvial) and multiple migration patterns have been noted in the Grande Ronde River (Baxter 2002, pp. 96, 98-106). Some river systems have retained habitat conditions that allow free movement between spawning and rearing areas and the mainstem

Rivers. In these areas with connectivity bull trout can migrate between large rivers lakes, and spawning tributaries. Other migrations in Central Washington have shown that fluvial and adfluvial life forms travel long distances, migrate between core areas, and mix together in many locations where there is connectivity (Ringel *et al* 2014, entire; Nelson and Nelle 2008, entire). Such multiple life history strategies help to maintain the stability and persistence of bull trout populations to environmental changes. Benefits of connected habitat for migratory bull trout include greater growth in the more productive waters of larger streams, lakes, and marine waters; greater fecundity resulting in increased reproductive potential; and dispersing the population across space and time so that spawning streams may be recolonized should local populations suffer a catastrophic loss (Frissell 1999, pp. 861-863; MBTSG 1998, pg. 13; Rieman and McIntyre 1993, pp. 2-3). In the absence of the migratory bull trout life form, isolated populations cannot be replenished when disturbances make local habitats temporarily unsuitable. Therefore, the range of the species is diminished, and the potential for a greater reproductive contribution from larger size fish with higher fecundity is lost (Rieman and McIntyre 1993, pg. 2).

Whitesel *et al*. (2004, pg. 2) noted that although there are multiple resources that contribute to the subject, Spruell *et al*. (2003, entire) best summarized genetic information on bull trout population structure. Spruell *et al*. (2003, entire) analyzed 1,847 bull trout from 65 sampling locations, four located in three coastal drainages (Klamath, Queets, and Skagit Rivers), one in the Saskatchewan River drainage (Belly River), and 60 scattered throughout the Columbia River Basin. They concluded that there is a consistent pattern among genetic studies of bull trout, regardless of whether examining allozymes, mitochondrial DNA, or most recently microsatellite loci. Typically, the genetic pattern shows relatively little genetic variation within populations, but substantial divergence among populations. Microsatellite loci analysis supports the existence of at least three major genetically differentiated groups (or evolutionary lineages) of bull trout (Spruell *et al*. 2003, pg. 17). They were characterized as:

- "Coastal", including the Deschutes River and all of the Columbia River drainage downstream, as well as most coastal streams in Washington, Oregon, and British Columbia. A compelling case also exists that the Klamath Basin represents a unique evolutionary lineage within the coastal group.

- "Snake River", which also included the John Day, Umatilla, and Walla Walla rivers. Despite close proximity of the John Day and Deschutes Rivers, a striking level of divergence between bull trout in these two systems was observed.

- "Upper Columbia River" which includes the entire basin in Montana and northern Idaho. A tentative assignment was made by Spruell *et al*. (2003, pg. 25) of the Saskatchewan River drainage populations (east of the continental divide), grouping them with the upper Columbia River group.

- Spruell *et al*. (2003, pg. 17) noted that within the major assemblages, populations were further subdivided, primarily at the level of major river basins. Taylor *et al*. (1999, entire) surveyed bull trout populations, primarily from Canada, and found a major divergence between inland and

> coastal populations. Costello *et al*. (2003, pg. 328) suggested the patterns reflected the existence of two glacial refugia, consistent with the conclusions of Taylor and Costello (2006, pg. 1165-1170), Spruell *et al*. (2003, pg. 26) and the biogeographic analysis of Haas and McPhail (2001, entire). Both Taylor *et al*. (1999, pg. 1166) and Spruell *et al*. (2003, pg. 21) concluded that the Deschutes River represented the most upstream limit of the coastal lineage in the Columbia River Basin.

More recently, the USFWS identified additional genetic units within the coastal and interior lineages (Ardren *et al*. 2011, pg. 18). Based on a recommendation in the USFWS's 5-year review of the species' status (USFWS 2008, pg. 45), the USFWS reanalyzed the 27 recovery units identified in the 2002 draft bull trout recovery plan (USFWS 2002, pg. 48) by utilizing, in part, information from previous genetic studies and new information from additional analysis (Ardren *et al*. 2011, entire). In this examination, the USFWS applied relevant factors from the joint USFWS and NMFS Distinct Population Segment (DPS) policy (61 FR 4722, February 7, 1996) and subsequently identified six draft recovery units that contain assemblages of core areas that retain genetic and ecological integrity across the range of bull trout in the coterminous United States. These six draft recovery units were used to inform designation of critical habitat for bull trout by providing a context for deciding what habitats are essential for recovery (75 FR 63898). These six recovery units, adopted in the final bull trout recovery plan (USFWS 2015a, entire) and described further in the RUIPs (USFWS 2015b-g, entire) include: Coastal, Klamath, Mid-Columbia, Columbia Headwaters, Saint Mary, and Upper Snake. A number of additional genetic analyses within core areas have been completed to understand uniqueness of local populations (Hawkins and Von Bargen 2006, entire; 2007, entire; Small *et al*. 2009, entire; DeHaan and Neibauer 2012, entire).

Population Dynamics

Although bull trout are widely distributed over a large geographic area, they exhibit a patchy distribution, even in pristine habitats (Rieman and McIntyre 1993, pg. 4). Increased habitat fragmentation reduces the amount of available habitat and increases isolation from other populations of the same species (Saunders *et al*. 1991, entire). Burkey (1989, entire) concluded that when species are isolated by fragmented habitats, low rates of population growth are typical in local populations and their probability of extinction is directly related to the degree of isolation and fragmentation. Without sufficient immigration, growth for local populations may be low and probability of extinction high (Burkey 1989, entire; Burkey 1995, entire).

Metapopulation concepts of conservation biology theory have been suggested relative to the distribution and characteristics of bull trout, although empirical evidence is relatively scant (Rieman and McIntyre 1993, pg. 15; Dunham and Rieman 1999, entire; Rieman and Dunham 2000, entire). A metapopulation is an interacting network of local populations with varying frequencies of migration and gene flow among them (Meffe and Carroll 1994, pp. 189-190). For inland bull trout, metapopulation theory is likely most applicable at the watershed scale where habitat consists of discrete patches or collections of habitat capable of supporting local populations; local populations are for the most part independent and represent discrete reproductive units; and long-term, low-rate dispersal patterns among component populations influences the persistence of at least some of the local populations (Rieman and Dunham 2000, entire). Ideally, multiple local populations distributed throughout a watershed provide a

mechanism for spreading risk because the simultaneous loss of all local populations is unlikely. However, habitat alteration, primarily through the construction of impoundments, dams, and water diversions has fragmented habitats, eliminated migratory corridors, and in many cases isolated bull trout in the headwaters of tributaries (Rieman and Clayton 1997, pp. 10-12; Dunham and Rieman 1999, pg. 645; Spruell *et al*. 1999, pp. 118-120; Rieman and Dunham 2000, pg. 55).

Human-induced factors as well as natural factors affecting bull trout distribution have likely limited the expression of the metapopulation concept for bull trout to patches of habitat within the overall distribution of the species (Dunham and Rieman 1999, entire). However, despite the theoretical fit, the relatively recent and brief time period during which bull trout investigations have taken place does not provide certainty as to whether a metapopulation dynamic is occurring (e.g., a balance between local extirpations and recolonizations) across the range of the bull trout or whether the persistence of bull trout in large or closely interconnected habitat patches (Dunham and Rieman 1999, entire) is simply reflective of a general deterministic trend towards extinction of the species where the larger or interconnected patches are relics of historically wider distribution (Rieman and Dunham 2000, pp. 56-57). Research does, however, provide genetic evidence for the presence of a metapopulation process for bull trout, at least in the Boise River Basin of Idaho (Whiteley *et al*. 2003, entire), while Whitesel *et al*. identifies that bull trout fit the metapopulation theory in several ways (Whitesel *et al*, 2004, pg. 18-21).

Habitat Characteristics

The habitat requirements of bull trout are often generally expressed as the four "Cs": cold, clean, complex, and connected habitat. Cold stream temperatures, clean water quality that is relatively free of sediment and contaminants, complex channel characteristics (including abundant large wood and undercut banks), and large patches of such habitat that are well connected by unobstructed migratory pathways are all needed to promote conservation of bull trout throughout all hierarchical levels.

Bull trout have more specific habitat requirements than most other salmonids (Rieman and McIntyre 1993, pg. 4). Habitat components that influence bull trout distribution and abundance include water temperature, cover, channel form and stability, valley form, spawning and rearing substrate, and migratory corridors (Fraley and Shepard 1989, entire; Goetz 1989, pp. 23, 25; Hoelscher and Bjornn 1989, pp. 19, 25; Howell and Buchanan 1992, pp. 30, 32; Pratt 1992, entire; Rich 1996, pg. 17; Rieman and McIntyre 1993, pp. 4-6; Rieman and McIntyre 1995, entire; Sedell and Everest 1991, entire; Watson and Hillman 1997, entire). Watson and Hillman (1997, pp. 247-250) concluded that watersheds must have specific physical characteristics to provide the habitat requirements necessary for bull trout to successfully spawn and rear and that these specific characteristics are not necessarily present throughout these watersheds. Because bull trout exhibit a patchy distribution, even in pristine habitats (Rieman and McIntyre 1993, pp. 4-6), bull trout should not be expected to simultaneously occupy all available habitats.

Migratory corridors link seasonal habitats for all bull trout life histories. The ability to migrate is important to the persistence of bull trout (Rieman and McIntyre 1993, pg. 2). Migrations facilitate gene flow among local populations when individuals from different local populations interbreed or stray to nonnatal streams. Local populations that are extirpated by catastrophic events may also become reestablished by bull trout migrants. However, it is important to note

that the genetic structuring of bull trout indicates there is limited gene flow among bull trout populations, which may encourage local adaptation within individual populations, and that reestablishment of extirpated populations may take a long time (Rieman and McIntyre 1993, pg. 2; Spruell *et al*. 1999, entire). Migration also allows bull trout to access more abundant or larger prey, which facilitates growth and reproduction. Additional benefits of migration and its relationship to foraging are discussed below under "Diet."

Cold water temperatures play an important role in determining bull trout habitat quality, as these fish are primarily found in colder streams, and spawning habitats are generally characterized by temperatures that drop below 9 °C in the fall (Fraley and Shepard 1989, pg. 137; Pratt 1992, pg. 5; Rieman and McIntyre 1993, pg. 2).

Thermal requirements for bull trout appear to differ at different life stages. Spawning areas are often associated with cold-water springs, groundwater infiltration, and the coldest streams in a given watershed (Pratt 1992, pp 7-8; Rieman and McIntyre 1993, pg. 7). Optimum incubation temperatures for bull trout eggs range from 2 °C to 6 °C whereas optimum water temperatures for rearing range from about 6 °C to 10 °C (Buchanan and Gregory 1997, pg. 4; Goetz 1989, pg. 22). In Granite Creek, Idaho, Bonneau and Scarnecchia (1996, entire) observed that juvenile bull trout selected the coldest water available in a plunge pool, 8 °C to 9 °C, within a temperature gradient of 8 °C to 15 °C. In a landscape study relating bull trout distribution to maximum water temperatures, Dunham *et al*. (2003, pg. 900) found that the probability of juvenile bull trout occurrence does not become high (i.e., greater than 0.75) until maximum temperatures decline to 11 °C to 12 °C.

Although bull trout are found primarily in cold streams, occasionally these fish are found in larger, warmer river systems throughout the Columbia River basin (Buchanan and Gregory 1997, pg. 2; Fraley and Shepard 1989, pp. 133, 135; Rieman and McIntyre 1993, pp. 3-4; Rieman and McIntyre 1995, pg. 287). Availability and proximity of cold water patches and food productivity can influence bull trout ability to survive in warmer rivers (Myrick 2002, pp. 6 and 13).

All life history stages of bull trout are associated with complex forms of cover, including large woody debris, undercut banks, boulders, and pools (Fraley and Shepard 1989, pg. 137; Goetz 1989, pg. 19; Hoelscher and Bjornn 1989, pg. 38; Pratt 1992, entire; Rich 1996, pp. 4-5; Sedell and Everest 1991, entire; Sexauer and James 1997, entire; Thomas 1992, pp. 4-6; Watson and Hillman 1997, pg. 238). Maintaining bull trout habitat requires stable and complex stream channels and stable stream flows (Rieman and McIntyre 1993, pp. 5-6). Juvenile and adult bull trout frequently inhabit side channels, stream margins, and pools with suitable cover (Sexauer and James 1997, pg. 364). These areas are sensitive to activities that directly or indirectly affect stream channel stability and alter natural flow patterns. For example, altered stream flow in the fall may disrupt bull trout during the spawning period, and channel instability may decrease survival of eggs and young juveniles in the gravel from winter through spring (Fraley and Shepard 1989, pg. 141; Pratt 1992, pg. 6; Pratt and Huston 1993, pg. 70). Pratt (1992, pg. 6) indicated that increases in fine sediment reduce egg survival and emergence.

Diet

Bull trout are opportunistic feeders, with food habits primarily a function of size and life-history strategy. Fish growth depends on the quantity and quality of food that is eaten, and as fish grow

their foraging strategy changes as their food changes, in quantity, size, or other characteristics (Quinn 2005, pp. 195-200). Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macrozooplankton, and small fish (Boag 1987, pg. 58; Donald and Alger 1993, pp. 242-243; Goetz 1989, pp. 33-34). Subadult and adult migratory bull trout generally feed on various fish species (Donald and Alger 1993, pp. 241-243; Fraley and Shepard 1989, pp. 135, 138; Leathe and Graham 1982, pp. 13, 50-56). Bull trout of all sizes other than fry have been found to eat fish half their length (Beauchamp and VanTassell 2001, pg. 204). In nearshore marine areas of western Washington, bull trout feed on Pacific herring (*Clupea pallasi*), Pacific sand lance (*Ammodytes hexapterus*), and surf smelt (*Hypomesus pretiosus*) (Goetz *et al*. 2004, pg. 105; WDFW *et al*. 1997, pg. 23).

Bull trout migration and life history strategies are closely related to their feeding and foraging strategies and their environment. Migration allows bull trout to access optimal foraging areas and exploit a wider variety of prey resources both within and between core areas. Connectivity between the spawning, rearing, overwintering, and forage areas maintains this diversity. There have been recent studies documenting movement patterns in the Columbia River basin that document long distance migrations (Borrows *et al* 2016, entire; Schaller *et al* 2014, entire; USFWS 2016, entire). For example, a data report documented a juvenile bull trout from the Entiat made over a 200-mile migration between spawning grounds in the Entiat River to foraging and overwintering areas in Columbia and Yakima River near Prosser Dam (PTAGIS 2015, Tag Code 3D9.1C2CCD42DD). As well, in the Skagit River system, anadromous bull trout make migrations as long as 121 miles between marine foraging areas in Puget Sound and headwater spawning grounds, foraging on salmon eggs and juvenile salmon along their migration route (WDFW *et al*. 1997, pg. 25). Anadromous bull trout also use marine waters as migration corridors to reach seasonal habitats in nonnatal watersheds to forage and possibly overwinter (Brenkman and Corbett 2005, pp. 1078-1079; Goetz *et al*. 2004, entire).

Conservation Needs

The 2015 recovery plan for bull trout established the primary strategy for recovery of bull trout in the coterminous United States: (1) conserve bull trout so that they are geographically widespread across representative habitats and demographically stable in six recovery units; (2) effectively manage and ameliorate the primary threats in each of six recovery units at the core area scale such that bull trout are not likely to become endangered in the foreseeable future; (3) build upon the numerous and ongoing conservation actions implemented on behalf of bull trout since their listing in 1999, and improve our understanding of how various threat factors potentially affect the species; (4) use that information to work cooperatively with our partners to design, fund, prioritize, and implement effective conservation actions in those areas that offer the greatest long-term benefit to sustain bull trout and where recovery can be achieved; and (5) apply adaptive management principles to implementing the bull trout recovery program to account for new information (USFWS 2015a, pg. 24.) .

Information presented in prior draft recovery plans published in 2002 and 2004 (USFWS 2002, entire; 2004a, entire; 2004b, entire) provided information that identified the original list of threats and recovery actions across the range of the species and provided a framework for implementing numerous recovery actions by our partner agencies, local working groups, and others with an interest in bull trout conservation. Many recovery actions were completed prior to finalizing the recovery plan in 2015.

The 2015 recovery plan (USFWS 2015a, entire) integrates new information collected since the 1999 listing regarding bull trout life history, distribution, demographics, conservation successes, etc., and integrates and updates previous bull trout recovery planning efforts across the range of the coterminous bull trout listing

The USFWS has developed a recovery approach that: (1) focuses on the identification of and effective management of known and remaining threat factors to bull trout in each core area; (2) acknowledges that some extant bull trout core area habitats will likely change (and may be lost) over time; and (3) identifies and focuses recovery actions in those areas where success is likely to meet our goal of ensuring the certainty of conservation of genetic diversity, life history features, and broad geographical representation of remaining bull trout populations so that the protections of the ESA are no longer necessary (USFWS 2015a, pg. 45-46).

To implement the recovery strategy, the 2015 recovery plan establishes the recovery of bull trout will entail effectively managing threats to ensure the long-term persistence of populations and their habitats, ensuring the security of multiple interacting groups of bull trout, and providing habitat conditions and access to them that allow for the expression of various life history forms within each of six recovery units (USFWS 2015a, pg. 50-51)." The recovery plan defines four categories of recovery actions that, when implemented and effective, should:

1. Protect, restore, and maintain suitable habitat conditions for bull trout;

2. Minimize demographic threats to bull trout by restoring connectivity or populations where appropriate to promote diverse life history strategies and conserve genetic diversity;

3. Prevent and reduce negative effects of nonnative fishes and other nonnative taxa on bull trout;

4. and result in actively working with partners to conduct research and monitoring to implement and evaluate bull trout recovery activities, consistent with an adaptive management approach using feedback from implemented, site-specific recovery tasks, and considering the effects of climate change (USFWS 2015a, pg. 50-51).

Bull trout recovery is based on a geographical hierarchical approach. Bull trout are listed as a single DPS within the five-state area of the coterminous United States. The single DPS is subdivided into six biological-based recovery units: (1) Coastal Recovery Unit; (2) Klamath Recovery Unit; (3) Mid-Columbia Recovery Unit; (4) Upper Snake Recovery Unit; (5) Columbia Headwaters Recovery Unit; and (6) Saint Mary Recovery Unit (USFWS 2015a, pg. 23). A viable recovery unit should demonstrate that the three primary principles of biodiversity have been met: representation (conserving the genetic makeup of the species); resiliency (ensuring that each population is sufficiently large to withstand stochastic events); and redundancy (ensuring a sufficient number of populations to withstand catastrophic events) (USFWS 2015a, pg. 33).

Each of the six recovery units contain multiple bull trout recovery areas which are non-overlapping watershed-based polygons, and each core area includes one or more local population. Currently there are 109 occupied core areas, which comprise 611 local populations (USFWS 2015a, pg. 3, Appendix F). There are also six core areas where bull trout historically occurred but are now extirpated, and one research needs area where bull trout were known to occur historically, but their current presence and use of the area are uncertain (USFWS 2015a,

pg. 3, Appendix F). Core areas can be further described as complex or simple (USFWS 2015a, pg. 3-4). Complex core areas contain multiple local bull trout populations, are found in large watersheds, have multiple life history forms, and have migratory connectivity between spawning and rearing habitat and foraging, migration, and overwintering habitats (FMO). Simple core areas are those that contain one bull trout local population. Simple core areas are small in scope, isolated from other core areas by natural barriers, and may contain unique genetic or life history adaptations.

A core area is a combination of core habitat (i.e., habitat that could supply all elements for the long-term security of bull trout) and a core population (a group of one or more local bull trout populations that exist within core habitat) and constitutes the basic unit on which to gauge recovery within a recovery unit. Core areas require both habitat and bull trout to function, and the number (replication) and characteristics of local populations inhabiting a core area provide a relative indication of the core area's likelihood to persist. A core area represents the closest approximation of a biologically functioning unit for bull trout. Core areas are presumed to reflect the metapopulation structure of bull trout.

A local population is a group of bull trout that spawn within a particular stream or portion of a stream system (USFWS 2015a, pg. 73). A local population is considered to be the smallest group of fish that is known to represent an interacting reproductive unit. For most waters where specific information is lacking, a local population may be represented by a single headwater tributary or complex of headwater tributaries. Gene flow may occur between local populations (*e.g.*, those within a core population), but is assumed to be infrequent compared with that among individuals within a local population.

Population Units

The final recovery plan (USFWS 2015a, entire) designates six bull trout recovery units as described above. These units replace the 5 interim recovery units previously identified (USFWS 1999, entire). The USFWS will address the conservation of these final recovery units in our section 7(a)(2) analysis for proposed Federal actions. The recovery plan (USFWS 2015a, entire) identified threats and factors affecting the bull trout within these units. A detailed description of recovery implementation for each recovery unit is provided in separate recovery unit implementation plans (RUIPs) (USFWS 2015b-g, entire), which identify recovery actions and conservation recommendations needed for each core area, forage/ migration/ overwinter (FMO) areas, historical core areas, and research needs areas. Each of the following recovery units (below) is necessary to maintain the bull trout's numbers and distribution, as well as its genetic and phenotypic diversity, all of which are important to ensure the species' resilience to changing environmental conditions. For more details on Federal, State, and tribal conservation actions in this unit see the actions since listing, contemporaneous actions, and environmental baseline discussions below.

Coastal Recovery Unit

The Coastal RUIP describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015b, entire). The Coastal Recovery Unit is divided into three Geographic Regions: Puget Sound, Olympic Peninsula, and the Lower Columbia River regions. This recovery unit contains 20 core areas comprising 84

local populations and a single potential local population in the historic Clackamas River core area where bull trout had been extirpated and were reintroduced in 2011. This recovery unit also has four historically occupied core areas that could be re-established (USFWS 2015a, pg. 47; USFWS 2015b, pg. A-2).

Although population strongholds do exist across the three regions, populations in the Puget Sound region generally have better demographic status while the Lower Columbia River region exhibits the least robust demography (USFWS 2015b, pg. A-6). Puget Sound and the Olympic Peninsula currently support the only anadromous local populations of bull trout. This recovery unit also contains ten shared FMO habitats which allow for the continued natural population dynamics in which the core areas have evolved (USFWS 2015b, pg. A-5). There are four core areas within the Coastal Recovery Unit that have been identified as current population strongholds: Lower Skagit, Upper Skagit, Quinault River, and Lower Deschutes River (USFWS 2015a, pg.79; USFWS 2015b, pg. A-3). These are the most stable and abundant bull trout populations in the recovery unit. The Puget Sound region supports at least two core areas containing a natural adfluvial life history.

The demographic status of the Puget Sound populations is better in northern areas. Barriers to migration in the Puget Sound region are few, and significant amounts of headwater habitat occur in protected areas (USFWS 2015b, pg. A-7). The current condition of the bull trout in this recovery unit is attributed to the adverse effects of climate change, loss of functioning estuarine and nearshore marine habitats, development and related impacts (e.g., flood control, floodplain disconnection, bank armoring, channel straightening, loss of instream habitat complexity), agriculture (e.g., diking, water control structures, draining of wetlands, channelization, and the removal of riparian vegetation, livestock grazing), fish passage (e.g., dams, culverts, instream flows) residential development, urbanization, forest management practices (e.g., timber harvest and associated road building activities), connectivity impairment, mining, and the introduction of non-native species (USFWS 2015b, pg. A-1 – A-25). Conservation measures or recovery actions implemented or ongoing include relicensing of major hydropower facilities that have provided upstream and downstream fish passage or complete removal of dams, land acquisition to conserve bull trout habitat, floodplain restoration, culvert removal, riparian revegetation, levee setbacks, road removal, and projects to protect and restore important nearshore marine habitats (USFWS 2015b, pg. A-33 – A-34).

Klamath Recovery Unit

The Klamath recovery unit implementation plan describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015c, entire). The Klamath Recovery Unit is located in southern Oregon and northwestern California. The Klamath Recovery Unit is the most significantly imperiled recovery unit, having experienced considerable extirpation and geographic contraction of local populations and declining demographic condition, and natural re-colonization is constrained by dispersal barriers and presence of nonnative brook trout (USFWS 2015a, pg. 39). This recovery unit currently contains three core areas and eight local populations (USFWS 2015a, pg. 47; USFWS 2015c, pg. B-1). Nine historic local populations of bull trout have become extirpated (USFWS 2015c, pg. B-1). All three core areas have been isolated from other bull trout populations for the past 10,000 years (USFWS 2015c, pg. B-3). The current condition of the bull trout in this recovery unit is attributed to the adverse effects of climate change, habitat degradation and fragmentation,

past and present land use practices, agricultural water diversions, nonnative species, and past fisheries management practices (UFWS 2015c, pg. B-13 – B-14). Conservation measures or recovery actions implemented or ongoing include removal of nonnative fish (e.g., brook trout, brown trout, and hybrids), acquiring water rights for instream flows, replacing diversion structures, installing fish screens, constructing bypass channels, installing riparian fencing, culver replacement, and habitat restoration (USFWS 2015c, pg. B-10 – B-11).

Mid-Columbia Recovery Unit

The Mid-Columbia RUIP describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015d, entire). The Mid-Columbia Recovery Unit is located within eastern Washington, eastern Oregon, and portions of central Idaho. The Mid-Columbia Recovery Unit is divided into four geographic regions: Lower Mid-Columbia, Upper Mid-Columbia, Lower Snake, and Mid-Snake Geographic regions. This recovery unit contains 24 occupied core areas comprising 142 local populations, two historically occupied core areas, one research needs area, and 7 FMO habitats (USFWS 2015a, pg. 47; USFWS 2015d, pg. C-1 – C-4). The current condition of the bull trout in this recovery unit is attributed to the adverse effects of climate change, agricultural practices (e.g. irrigation, water withdrawals, livestock grazing), fish passage (e.g. dams, culverts), nonnative species, forest management practices, and mining (USFWS 2015d, pg. C-9 – C-34). Conservation measures or recovery actions implemented or ongoing include road removal, channel restoration, mine reclamation, improved grazing management, removal of fish barriers, and instream flow requirements (USFWS 2015d, C-37 – C-40).

Columbia Headwaters Recovery Unit

The Columbia headwaters RUIP describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015e, entire). The Columbia Headwaters Recovery Unit is located in western Montana, northern Idaho, and the northeastern corner of Washington. The Columbia Headwaters Recovery Unit is divided into five geographic regions: Upper Clark Fork, Lower Clark Fork, Flathead, Kootenai, and Coeur d'Alene geographic regions (USFWS 2015e, pg. D-2 – D-4). This recovery unit contains 35 bull trout core areas; 15 of which are complex core areas as they represent larger interconnected habitats and 20 simple core areas as they are isolated headwater lakes with single local populations. The 20 simple core areas are each represented by a single local population, many of which may have persisted for thousands of years despite small populations and isolated existence (USFWS 2015e, pg. D-1). Fish passage improvements within the recovery unit have reconnected some previously fragmented habitats (USFWS 2015e, pg. D-42), while others remain fragmented. Unlike other recovery units in Washington, Idaho and Oregon, the Columbia Headwaters Recovery Unit does not have any anadromous fish overlap (USFWS 2015e, pg. D-42). Therefore, bull trout within the Columbia Headwaters Recovery Unit do not benefit from the recovery actions for salmon (USFWS 2015e, pg. D-42). The current condition of the bull trout in this recovery unit is attributed to the adverse effects of climate change, mostly historical mining and contamination by heavy metals, expanding populations of nonnative fish predators and competitors, modified instream flows, migratory barriers (e.g., dams), habitat fragmentation, forest practices (e.g., logging, roads), agriculture practices (e.g. irrigation, livestock grazing), and residential development (USFWS 2015e, pg. D-10 – D-25).

Conservation measures or recovery actions implemented or ongoing include habitat improvement, fish passage, and removal of nonnative species (USFWS 2015e, pg. D-42 – D-43).

Upper Snake Recovery Unit

The Upper Snake RUIP describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015f, entire). The Upper Snake Recovery Unit is located in central Idaho, northern Nevada, and eastern Oregon. The Upper Snake Recovery Unit is divided into seven geographic regions: Salmon River, Boise River, Payette River, Little Lost River, Malheur River, Jarbidge River, and Weiser River. This recovery unit contains 22 core areas and 207 local populations, with over 70 percent being present in the Salmon River Region (USFWS 2015a, pg. 47; USFWS 2015f, pg. E-1 – E-2). The current condition of the bull trout in this recovery unit is attributed to the adverse effects of climate change, dams, mining, forest management practices, nonnative species, and agriculture (e.g., water diversions, grazing) (USFWS 2015f, pg. E-15 – E-18). Conservation measures or recovery actions implemented or ongoing include instream habitat restoration, instream flow requirements, screening of irrigation diversions, and riparian restoration (USFWS 2015f, pg. E-19 – E-20).

St. Mary Recovery Unit

The St. Mary RUIP describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015g, entire). The Saint Mary Recovery Unit is located in Montana but is heavily linked to downstream resources in southern Alberta, Canada. Most of the Saskatchewan River watershed which the St. Mary flows into is located in Canada. The United States portion includes headwater spawning and rearing habitat and the upper reaches of FMO habitat. This recovery unit contains four core areas, and seven local populations (USFWS 2015g, pg. F-1) in the U.S. Headwaters. The current condition of the bull trout in this recovery unit is attributed primarily to the outdated design and operations of the Saint Mary Diversion operated by the Bureau of Reclamation (e.g., entrainment, fish passage, instream flows), and, to a lesser extent habitat impacts from development and nonnative species (USFWS 2015g, pg. F-7 – F-8). The primary issue precluding bull trout recovery in this recovery unit relates to impacts of water diversions, specifically at the Bureau of Reclamations Milk River Project (USFWS 2015g, pg. F-5). Conservation measures or recovery actions implemented or ongoing are not identified in the St. Mary RUIP; however, the USFWS is conducting interagency and tribal coordination to accomplish conservation goals for the bull trout (USFWS 2015g, pg. F-9)

Federal, State and Tribal Actions Since Listing

Since our listing of bull trout in 1999, numerous conservation measures that contribute to the conservation and recovery of bull trout have been and continue to be implemented across its range in the coterminous United States. These measures are being undertaken by a wide variety of local and regional partnerships, including State fish and game agencies, State and Federal land management and water resource agencies, Tribal governments, power companies, watershed working groups, water users, ranchers, and landowners.

In many cases, these bull trout conservation measures incorporate or are closely interrelated with work being done for recovery of salmon and steelhead, which are limited by many of the same threats. These include removal of migration barriers (culvert removal or redesign at stream crossings, fish ladder construction, dam removal, etc.) to allow access to spawning or FMO habitat; screening of water diversions to prevent entrainment into unsuitable habitat in irrigation systems; habitat improvement (riparian revegetation or fencing, placement of coarse woody debris in streams) to improve spawning suitability, habitat complexity, and water temperature; instream flow enhancement to allow effective passage at appropriate seasonal times and prevent channel dewatering; and water quality improvement (decommissioning roads, implementing best management practices for grazing or logging, setting pesticide use guidelines) to minimize impacts from sedimentation, agricultural chemicals, or warm temperatures.

At sites that are vulnerable to development, protection of land through fee title acquisition or conservation easements is important to prevent adverse impacts or allow conservation actions to be implemented. In several bull trout core areas, it is necessary to continue ongoing fisheries management efforts to suppress the effects of non-native fish competition, predation, or hybridization; particularly brown trout, brook trout, lake trout, and northern pike (DeHaan *et al*. 2010, entire; DeHaan and Godfrey 2009, entire; Rosenthal and Fredenberg 2017, pg. 2). A more comprehensive overview of conservation successes from 1999-2013, described for each recovery unit, is found in the Summary of Bull Trout Conservation Successes and Actions since 1999 (Available at: http://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/Service_2013_summary_of_conservation_successes.pdf).

Projects that have undergone ESA section 7 consultation have occurred throughout the range of bull trout. Singly or in aggregate, these projects could affect the species' status. The USFWS has conducted periodic reviews of prior Federal "consulted-on" actions. A detailed discussion of consulted-on effects in the proposed action area is provided in the environmental baseline section below.

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Appendix B

Status of Critical Habitat – Bull Trout

Legal Status

Current Designation

The Service published a final critical habitat designation for the coterminous United States population of the bull trout on October 18, 2010 (70 FR 63898); the rule became effective on November 17, 2010. Critical habitat is defined as the specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. Designated critical CHUs for the bull trout are described in Figure 1. A justification document describes occupancy and the rationale for why these habitat areas are essential for the conservation of bull trout was developed to support the rule and is available on our website (https://www.fws.gov/pacific/bulltrout/crithab/Jusitfication%20Docs.html).

The scope of the designation involved the species' coterminous range. Rangewide, the Service designated reservoirs/lakes and stream/shoreline miles as bull trout critical habitat (Table B-1). Designated bull trout critical habitat is of two primary use types: 1) spawning and rearing, and 2) foraging, migration, and overwintering (FMO).

Table B-1. Stream/shoreline distance and reservoir/lake area designated as bull trout critical habitat by state.

State	Stream/Shoreline Miles	Stream/Shoreline Kilometers	Reservoir /Lake Acres	Reservoir/ Lake Hectares
Idaho	8,771.6	14,116.5	170,217.5	68,884.9
Montana	3,056.5	4,918.9	221,470.7	89,626.4
Nevada	71.8	115.6	-	-
Oregon	2,835.9	4,563.9	30,255.5	12,244.0
Oregon/Idaho	107.7	173.3	-	-
Washington	3,793.3	6,104.8	66,308.1	26,834.0
Washington (marine)	753.8	1,213.2	-	-
Washington/Idaho	37.2	59.9	-	-
Washington/Oregon	301.3	484.8	-	-
Total	19,729.0	31,750.8	488,251.7	197,589.2

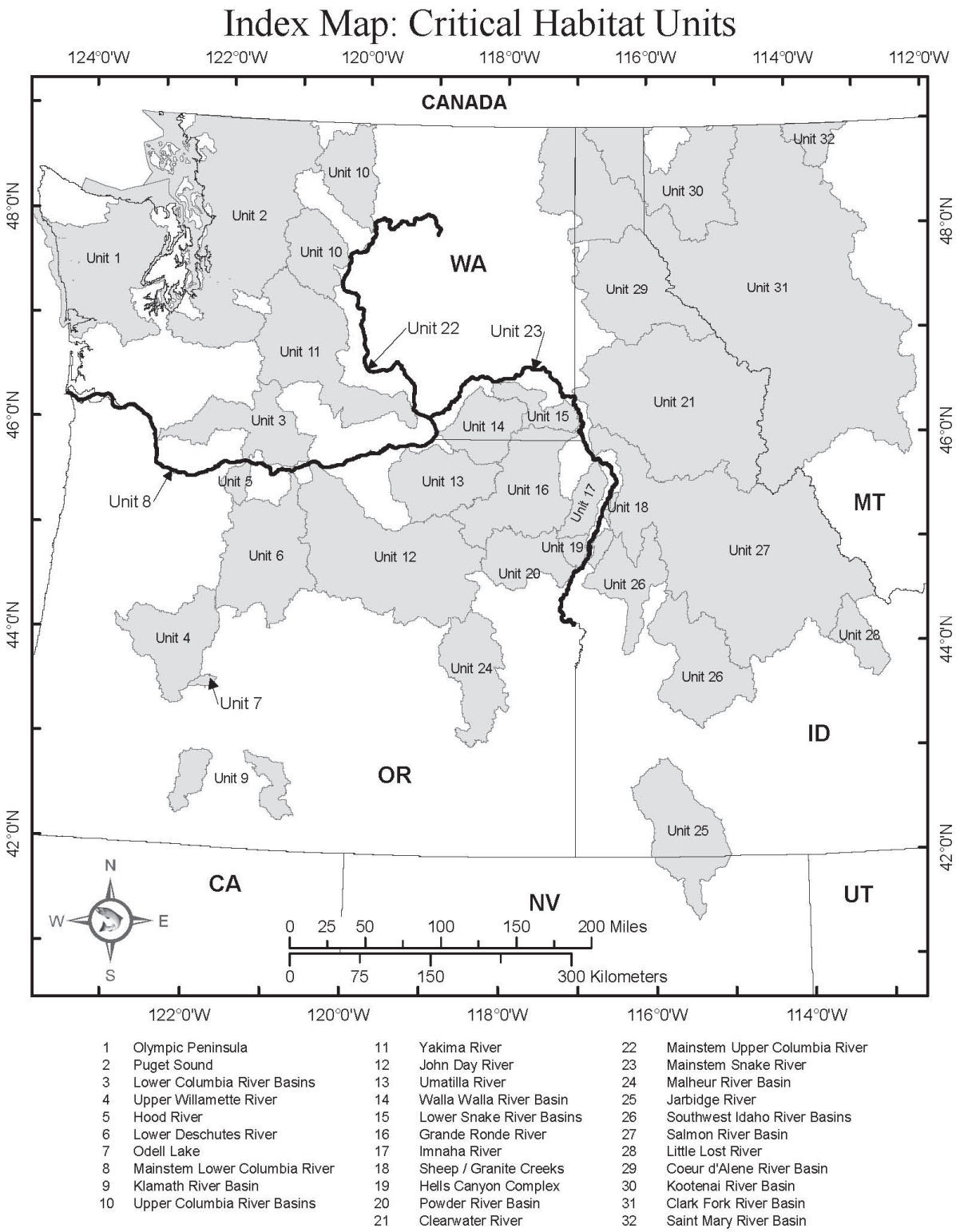

Figure 1. Index map of bull trout designated critical habitat units.

This rule also identifies and designates as critical habitat approximately 1,323.7 km (822.5 miles) of streams/shorelines and 6,758.8 ha (16,701.3 acres) of lakes/reservoirs of unoccupied habitat to address bull trout conservation needs in specific geographic areas in several areas not occupied at the time of listing. These unoccupied areas were determined by the Service to be essential for restoring functioning migratory bull trout populations based on currently available scientific information. These unoccupied areas often include lower main stem river environments that can provide seasonally important migration habitat for bull trout. This type of habitat is essential in areas where bull trout habitat and population loss over time necessitates reestablishing bull trout in currently unoccupied habitat areas to achieve recovery.

The final rule continues to exclude some critical habitat segments based on a careful balancing of the benefits of inclusion versus the benefits of exclusion. Critical habitat does not include: 1) waters adjacent to non-Federal lands covered by legally operative incidental take permits for habitat conservation plans (HCPs) issued under section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (Act), in which bull trout is a covered species on or before the publication of this final rule; 2) waters within or adjacent to Tribal lands subject to certain commitments to conserve bull trout or a conservation program that provides aquatic resource protection and restoration through collaborative efforts, and where the Tribes indicated that inclusion would impair their relationship with the Service; or 3) waters where impacts to national security have been identified (75 FR 63898). Excluded areas are approximately 10 percent of the stream/shoreline miles and 4 percent of the lakes and reservoir acreage of designated critical habitat. Each excluded area is identified in the relevant CHU text, as identified in paragraphs (e)(8) through (e)(41) of the final rule. Fewer than 2,000 stream miles and 20,000 acres of lake and reservoir surface area were excluded from the designation of critical habitat. It is important to note that the exclusion of waterbodies from designated critical habitat does not negate or diminish their importance for bull trout conservation, nor reduce authorities that protect the species under the ESA. Because exclusions reflect the often complex pattern of land ownership, designated critical habitat is often fragmented and interspersed with excluded stream segments.

Conservation Role and Description of Critical Habitat

The conservation role of bull trout critical habitat is to support viable core area populations (75 FR 63898:63943 [October 18, 2010]). The core areas reflect the metapopulation structure of bull trout and are the closest approximation of a biologically functioning unit for the purposes of recovery planning and risk analyses. CHUs generally encompass one or more core areas and may include FMO areas, outside of core areas, that are important to the survival and recovery of bull trout.

As shown in Figure 1, thirty-two CHUs within the geographical area occupied by the species at the time of listing are designated under the final critical habitat rule. Twenty-nine of the CHUs contain all of the physical or biological features identified in this final rule and support multiple life-history requirements. Three of the mainstem river units in the Columbia and Snake River basins contain most of the physical or biological features necessary to support the bull trout's particular use of that habitat, other than those physical biological features associated with Primary Constituent Elements (PCEs) 5 and 6, which relate to breeding habitat.

The primary function of individual CHUs is to maintain and support core areas, which 1) contain bull trout populations with the demographic characteristics needed to ensure their persistence and contain the habitat needed to sustain those characteristics (Rieman and McIntyre 1993, p. 19); 2) provide for persistence of strong local populations, in part, by providing habitat conditions that encourage movement of migratory fish (MBTSG 1998, pp. 48-49; Rieman and McIntyre 1993, pp. 22-23); 3) are large enough to incorporate genetic and phenotypic diversity, but small enough to ensure connectivity between populations (Hard 1995, pp. 314-315; Healey and Prince 1995, p. 182; MBTSG 1998, pp. 48-49; Rieman and McIntyre 1993, pp. 22-23); and 4) are distributed throughout the historic range of the species to preserve both genetic and phenotypic adaptations (Hard 1995, pp. 321-322; MBTSG 1998, pp. 13-16; Rieman and Allendorf 2001, p. 763; Rieman and McIntyre 1993, p. 23).

The Olympic Peninsula and Puget Sound CHUs are essential to the conservation of amphidromous bull trout, which are unique to the Coastal-Puget Sound population segment. These CHUs contain marine nearshore and freshwater habitats, outside of core areas, that are used by bull trout from one or more core areas. These habitats, outside of core areas, contain PCEs that are critical to adult and subadult foraging, overwintering, and migration.

Primary Constituent Elements for Bull Trout Critical Habitat

Within the designated critical habitat areas, the PCEs for bull trout are those habitat components that are essential for the primary biological needs of foraging, reproducing, rearing of young, dispersal, genetic exchange, or sheltering. Based on our current knowledge of the life history, biology, and ecology of the bull trout and the characteristics of the habitat necessary to sustain its essential life-history functions, we determined in our final designation that the following PCEs are essential for the conservation of bull trout.

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.

2. Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.

3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.

5. Water temperatures ranging from 2 °C to 15 °C (36 °F to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form;

geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.

6. In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.

7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.

8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

9. Sufficiently low levels of occurrence of non-native predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

PCE 9 addresses the presence of nonnative predatory or competitive fish species. Although this PCE applies to both the freshwater and marine environments, currently no non-native fish species are of concern in the marine environment, though this could change in the future.

Note that only PCEs 2, 3, 4, 5, and 8 apply to marine nearshore waters identified as critical habitat. Also, lakes and reservoirs within the CHUs also contain most of the physical or biological features necessary to support bull trout, with the exception of those associated with PCEs 1 and 6. Additionally, all except PCE 6 apply to FMO habitat designated as critical habitat.

Critical habitat designated within each CHU includes the stream channels within the designated stream reaches and has a lateral extent as defined by the bankfull elevation on one bank to the bankfull elevation on the opposite bank. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain and is reached at a discharge that generally has a recurrence interval of 1 to 2 years on the annual flood series. If bankfull elevation is not evident on either bank, the ordinary high-water line must be used to determine the lateral extent of critical habitat. The lateral extent of designated lakes is defined by the perimeter of the waterbody as mapped on standard 1:24,000 scale topographic maps. The Service assumes in many cases this is the full-pool level of the waterbody. In areas where only one side of the waterbody is designated (where only one side is excluded), the mid-line of the waterbody represents the lateral extent of critical habitat.

In marine nearshore areas, the inshore extent of critical habitat is the mean higher high-water (MHHW) line, including the uppermost reach of the saltwater wedge within tidally influenced

freshwater heads of estuaries. The MHHW line refers to the average of all the higher high-water heights of the two daily tidal levels. Marine critical habitat extends offshore to the depth of 10 meters (m) (33 ft) relative to the mean low low-water (MLLW) line (zero tidal level or average of all the lower low-water heights of the two daily tidal levels). This area between the MHHW line and minus 10 m MLLW line (the average extent of the photic zone) is considered the habitat most consistently used by bull trout in marine waters based on known use, forage fish availability, and ongoing migration studies and captures geological and ecological processes important to maintaining these habitats. This area contains essential foraging habitat and migration corridors such as estuaries, bays, inlets, shallow subtidal areas, and intertidal flats.

Adjacent shoreline riparian areas, bluffs, and uplands within CHUs are not designated as critical habitat. However, it should be recognized that the quality of marine and freshwater habitat along streams, lakes, and shorelines is intrinsically related to the character of these adjacent features, and that human activities that occur outside of the designated critical habitat within the CHUs can have significant effects on physical and biological features of the aquatic environment.

Activities that are likely to cause adverse effects to critical habitat are evaluated to determine if they are likely to "destroy or adversely modify" critical habitat such that the critical habitat will no longer serve the intended conservation role for the species or retain those PCEs that relate to the ability of the area to at least periodically support the species. Activities that may destroy or adversely modify critical habitat are those that alter the PCEs to such an extent that the conservation value of critical habitat is appreciably reduced (75 FR 63898:63943). The Service's evaluation must be conducted at the scale of the entire critical habitat area designated, unless otherwise stated in the final critical habitat rule (Service and NMFS 1998, pp. 4-39). Thus, adverse modification of bull trout critical habitat is evaluated at the scale of the final designation, which includes the critical habitat designated for the Klamath River, Jarbidge River, Columbia River, Coastal-Puget Sound, and Saint Mary-Belly River population segments. However, we consider all 32 CHUs to contain features or areas essential to the conservation of the bull trout (75 FR 63898:63901, 63944). Therefore, if a proposed action would alter the physical or biological features of critical habitat to an extent that appreciably reduces the conservation function of one or more critical habitat units for bull trout, a finding of adverse modification of the entire designated critical habitat area may be warranted (75 FR 63898:63943).

Current Critical Habitat Condition Rangewide

The condition of bull trout critical habitat varies across its range from poor to good. Although still relatively widely distributed across its historic range, the bull trout occurs in low numbers in many areas, and populations are considered depressed or declining across much of its range (67 FR 71240). This condition reflects the condition of bull trout habitat. The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, impoundments, dams, water diversions, and the introduction of nonnative species (63 FR 31647, June 10 1998; 64 FR 17112, April 8, 1999).

There is widespread agreement in the scientific literature that many factors related to human activities have impacted bull trout habitat function, and continue to do so. Among the many

factors that contribute to degraded PCEs, those which appear to be particularly significant and have resulted in a legacy of degraded habitat conditions are as follows: 1) fragmentation and isolation of local populations due to the proliferation of dams and water diversions that have eliminated habitat, altered water flow and temperature regimes, and impeded migratory movements (Dunham and Rieman 1999, p. 652; Rieman and McIntyre 1993, p. 7); 2) degradation of spawning and rearing habitat and upper watershed areas, particularly alterations in sedimentation rates and water temperature, resulting from forest and rangeland practices and intensive development of roads (Fraley and Shepard 1989, p. 141; MBTSG 1998, pp. ii - v, 20-45); 3) the introduction and spread of nonnative fish species, particularly brook trout and lake trout, as a result of fish stocking and degraded habitat conditions, which compete with bull trout for limited resources and, in the case of brook trout, hybridize with bull trout (Leary *et al*. 1993, p. 857; Rieman *et al*. 2006, pp. 73-76); 4) in the Coastal-Puget Sound region where amphidromous bull trout occur, degradation of mainstem river FMO habitat, and the degradation and loss of marine nearshore foraging and migration habitat due to urban and residential development; and 5) degradation of FMO habitat resulting from reduced prey base, roads, agriculture, development, and dams.

Effects of Climate Change on Bull Trout Critical Habitat

One objective of the final rule was to identify and protect those habitats that provide resiliency for bull trout use in the face of climate change. Over a period of decades, climate change may directly threaten the integrity of the essential physical or biological features described in PCEs 1, 2, 3, 5, 7, 8, and 9. Protecting bull trout strongholds and cold water refugia from disturbance and ensuring connectivity among populations were important considerations in addressing this potential impact. Additionally, climate change may exacerbate habitat degradation impacts both physically (e.g., decreased base flows, increased water temperatures) and biologically (e.g., increased competition with non-native fishes). For more discussion regarding impacts of climate change, see the status of the species and environmental baseline sections.

Consulted on Effects to Critical Habitat

The Service has formally consulted on the effects to bull trout critical habitat throughout its range. Section 7 consultations include actions that continue to degrade the environmental baseline in many cases. However, long-term restoration efforts are also proposed and have been implemented, which provides some stability or improvement in the existing functions within some of the critical habitat units. For about a detailed analysis of prior consulted-on effects in the action area, see the environmental baseline section.

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

Refer to NMFS No: WCRO-2024-01917

August 29, 2024

Michael S. Erickson
Chief, Environmental Compliance Section
Walla Walla District
U.S. Army Corps of Engineers
201 North 3rd Avenue
Walla Walla, WA 99362-1876

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Yakima River Delta Ecosystem Restoration Project

Dear Mr. Erickson:

This letter responds to your August 6, 2024, request for initiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action. Your request qualified for our expedited review and analysis because it met our screening criteria and contained all required information on, and analysis of, your proposed action and its potential effects to listed species and designated critical habitat.

We reviewed the U.S. Army Corps of Engineers' (Corps') consultation request, related initiation package, and subsequent information provided by the Corps. Where relevant, we have adopted the information and analyses you have provided and/or referenced but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. In our biological opinion below, we indicate what parts of your document we have incorporated by reference and where that information is being incorporated. In summary, we adopt by reference the following sections of the BA (Corps 2024): Section 1.2 Project Action Area; Section 1.3 Proposed Action (including the Conservation Measures listed in the Summary on pp. iv–v); Section 2 Listed Species; Section 3 Environmental Baseline, Section 4.1 Effects of Listed Species; Section 4.2 Effects on Critical Habitat; Section 4.3 Cumulative Effects; Section 4.4 Impact Minimization Measures; and Section 5 Magnuson–Stevens Act – Essential Fish Habitat.

The Corps requested initiation of consultation on August 6, 2024, via letter and included an attached Biological Assessment (BA). The NMFS provided comments on the BA to the Corps on August 9. The Corps provided an updated BA on August 16 and a sediment analysis on August 20, 2024. We received sufficient information to initiate consultation on August 16, 2024.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 FR 24268). We are applying the updated regulations to this consultation. The 2024 regulatory changes, like those from 2019, were intended to improve and clarify the

consultation process, and, with one exception from 2024 (offsetting reasonable and prudent measures), were not intended to result in changes to the Services' existing practice in implementing section 7(a)(2) of the ESA (89 FR 24268; 84 FR 45015). We have considered the prior rules and affirm that the substantive analysis and conclusions articulated in this biological opinion and incidental take statement would not have been any different under the 2019 regulations or pre-2019 regulations.

As described in Section 1.3 of the BA, the Corps proposes to remove the 560-foot-long Bateman Island causeway to restore ecosystem structure and processes in the Yakima River Delta in central Washington State. The causeway impairs fish passage between the Yakima and Columbia Rivers, impairs water quality in the delta, and increases predation on salmonids by non-native fish. The causeway will be excavated to reconnect the south channel of the Yakima River to the Columbia River. Work will begin in December and continue over 13 weeks in the winter to reduce short-term impacts to water quality. The Yakama Nation and/or Washington Department of Fish and Wildlife will be local co-sponsors of the project.

BIOLOGICAL OPINION

We examined the status of each species that would be adversely affected by the proposed action to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and discuss the function of the physical or biological features essential to the conservation of the species that create the conservation value of that habitat. The status of the species and critical habitat is adopted here from Section 2 of the BA, and supplemented with the most updated status of the species summary information found at: https://www.fisheries.noaa.gov/west-coast/consultations/esa-section-7-consultations-west-coast#columbia-river-middle-and-upper. We believe the proposed action is likely to adversely effect Upper Columbia River (UCR) steelhead, UCR spring-run Chinook salmon, and Middle Columbia River (MCR) steelhead.

Finally, we examined the likely effects on any listed species and critical habitats that your agency made "not likely to adversely affect" determinations for. Our conclusions regarding the effects of the action on Snake River (SR) Sockeye, SR spring/summer-run Chinook salmon, SR fall-run Chinook salmon, SR Basin steelhead, and their critical habitats are presented below under the heading: NLAA determinations.

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area is described in Section 1.2 of the BA. The action area is the Yakima River from the WA-240 bridge downstream to the mouth and the Columbia River from the I-182 bridge downstream to the confluence of the Columbia and Walla Walla Rivers.

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already

undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from Federal agency activities or existing Federal agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02). Section 3 of the BA describes the environmental baseline and is adopted here.

Every individual UCR steelhead and UCR spring-run Chinook salmon that survives to the smolting life stage uses the action area. Every individual from the following populations of MCR steelhead that survives to the smolting life stage uses the action area: Upper Yakima, Naches, Satus, and Toppenish. Adequate function of the action area is important for survival and recovery of all of these species because many or all of the component populations of each ESU and DPS are dependent on survival through the action area. In addition, all components of the freshwater migration corridors and freshwater rearing sites physical and biological features (PBFs) are of high importance to the conservation of critical habitat in the action area.

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

The Corps proposes to remove the Bateman Island causeway. The temporary and long-term effects of this proposed action are:

- Temporary increase in suspended sediment during construction that is likely to injure juvenile salmon and steelhead
- Crushing or other trauma to juvenile salmon and steelhead from excavation and fill activities in the construction area
- Minor changes to shading and habitat complexity from removing riparian vegetation on the causeway and island
- Predation risk along newly stabilized banks upon completion of the project and into the foreseeable future
- Restoration of more natural flow and sediment regimes, including suspension of sediments in the delta and settling in the Columbia River during high flow events for several years after construction
- Reduced predation across at least 400 acres of delta upon completion of the project and into the foreseeable future
- Improved quality of rearing habitat across at least 400 acres of delta upon completion of the project and into the foreseeable future
- Improved passage for adults and juveniles between the Columbia and Yakima Rivers upon completion of the project and into the foreseeable future

Individuals from all populations of UCR steelhead and UCR spring-run Chinook salmon and the Upper Yakima, Naches, Satus, and Toppenish populations of MCR steelhead will be meaningfully affected by the proposed action. The effects of construction will be temporary and will not impact more than a small number of individuals of one cohort of any population. A small number of individuals of each population will be killed in future years by a new predation

opportunity that will be created by stabilizing shoreline habitat in the action area with riprap or similar materials. Ultimately, the long-term changes to flow routing will have a beneficial effect on the abundance and productivity of the affected populations by improving habitat structure and temperature, and decreasing predator populations, across at least 400 acres of the Yakima River Delta. These changes will increase smolt survival through the action area, reduce delays to adult migration, and improve rearing habitat quality. Additionally, the action will increase opportunities for expression of more life history diversity for MCR steelhead by allowing earlier adult migration into the Yakima river, which has been increasingly limited by high temperatures in the delta.

The freshwater rearing sites PBF of critical habitat will be temporarily adversely affected during construction because the critical habitat within the construction area will be inhospitable. We do not expect adverse effects to the freshwater migration corridor PBF. The action will meaningfully improve the conservation value of critical habitat with respect to the freshwater rearing sites and freshwater migration corridors PBFs via long-term changes to flow and sediment routing. These changes will have a beneficial effect on both PBFs by improving habitat structure and temperature, and decreasing predator populations, across at least 400 acres of the delta, resulting in increasing the ability of the critical habitat to better support both rearing and migration into the foreseeable future.

"Cumulative effects" are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Section 4.3 of the BA is adopted here and describes climate change and "daily stressors" as causing cumulative effects in the action area. NMFS' understanding of "daily stressors" in this context is minor ongoing effects of boating and other recreation that have minor adverse effects. Cumulative effects of climate change in the action area are likely to be adverse and consequential because the delta area is subject to high water temperatures that increasingly impair migration of MCR steelhead between the Columbia and Yakima Rivers, and contribute to predation on juvenile UCR and MCR steelhead and UCR spring-run Chinook salmon. The primary purpose of the proposed action is to restore natural flow in the delta in order to lower temperatures and attenuate cumulative effects of climate change.

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action to the environmental baseline and the cumulative effects, taking into account the status of the species and critical habitat, to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

The environmental baseline is highly degraded, primarily as a result of operation of the Columbia River hydropower system that has transformed the action area from a free-flowing river into a reservoir with warm, slow-moving water and an abundance of native and non-native predators of juvenile salmonids. The Yakima River Delta is further impaired by operation of the

Yakima Irrigation Project that alters Yakima River flows and contributes to poor water quality, and by the Bateman Island causeway that blocks flow south of the island, increases temperatures and sediment deposition, impairs migration, and increases predation on juveniles.

The status of UCR steelhead, UCR spring-run Chinook salmon, and MCR steelhead is generally poor relative to recovery needs. Within the action area, abundance and productivity have been reduced by a combination of high smolt mortality rates and pre-spawn mortality that is likely higher than historical levels. In addition, life history diversity for adult MCR steelhead has been reduced by high temperatures in the Yakima River Delta that prevent them from migrating up the Yakima during much of July and August, squeezing the migration window into a narrower period such that expression of migration timing diversity is limited.

Critical habitat, particularly the freshwater migration corridors PBF, in the action area is important for recovery because all populations of UCR steelhead and UCR spring-run Chinook salmon, and four populations of MCR steelhead, must migrate through the action area to complete their life cycle. The conservation value of critical habitat is degraded as described above by the Columbia River hydropower system, Yakima Irrigation Project, and the Bateman Island causeway.

The proposed action will cause injury and perhaps death to a few juveniles that are rearing in the construction area when work commences in December. Specifically, fish trapped within the silt curtain containment system will be subject to high suspended sediment concentrations for up to 13 weeks, and have a chance of being directly crushed by excavation and fill activities. A small number of juveniles from a single cohort of each UCR steelhead and UCR spring-run Chinook salmon population and a small number of juveniles from the Upper Yakima, Satus, Naches, and Toppenish populations of MCR steelhead will be affected. In the long term, a small number of juveniles from these same populations may be killed annually by predacious fish that use the proposed stabilized shoreline to ambush juvenile salmonids.

The proposed action will also result in redistributing sediments stored in the delta over several years. Removal of the causeway will result in deepening of some parts of the delta via erosion and deposition of the sediments in the Columbia River as the delta adjusts to partially restored ecosystem function; full restoration of ecosystem function is not possible because the Columbia River is impounded by McNary Dam. Most of the sediments will be transported during high flow events and contribute to a small increase in suspended sediment load relative to the Columbia River sediment load. Deposition will be distributed over a broad area and is not expected to meaningfully change the character or function of downstream habitats. The proposed action will also have beneficial effects across over 400 acres by restoring flow through the southern channel of the delta, reducing high summer temperatures, reducing predation, and increasing passage conditions between the Yakima and Columbia Rivers for adults and juveniles.

Cumulative effects are largely a result of ongoing climate change that increases water temperature, which can limit migration periods, increase pre-spawn mortality, increase predation risk, and alter foodwebs. The proposed action will attenuate effects of climate change within the Yakima River Delta by reducing the temperature anomaly caused by water backing up from the causeway into the delta.

A small number of juveniles from each affected population are expected to be injured or killed during construction. Given typical smolt-to-adult return rates for the relevant populations, construction impacts are expected to reduce the population by much less than one adult return equivalent. Therefore, construction effects are likely to result in a one-time reduction of adult returns of no more than one fish per population; the number is likely to be zero for UCR steelhead and UCR spring-run Chinook salmon populations because even fewer juveniles will be injured or killed due to very low density in the action area. Therefore, although it is important that each population persist or increase to maintained, viable, or highly viable levels to meet recovery objectives, the short-term negative effects of the proposed action will not meaningfully affect the survival or recovery of any affected population.

The proposed action will have beneficial effects across the delta and improve over 400 acres of habitat such that the abundance and productivity of each population should benefit via reduced predation risk and improved rearing habitat. A small number of juveniles will likely be killed annually via predation at the localized shoreline stabilization structures but this negative effect will be outweighed by decreased predation across a much larger area. Benefits will be even greater for the Yakima basin populations of MCR steelhead because reducing the thermal migration barrier in the delta will allow a wider migration window than currently exists, allowing expression of more diverse life histories for adults.

The conservation value of critical habitat will be temporarily reduced during construction because the freshwater rearing sites PBF will be significantly impaired within the silt curtains. In the long-term, the conservation value of critical habitat across the delta area will improve with respect to the freshwater rearing sites and freshwater migration corridors PBFs.

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of MCR steelhead, UCR steelhead, and UCR spring-run Chinook salmon or destroy or adversely modify its designated critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is

incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

Amount or Extent of Take

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

Construction Effects

The Corps will install silt curtains to contain suspended sediments in a 78,000 square-foot containment area extending upstream and downstream from the causeway before commencing in-water excavation and fill activities. Those juvenile fish that do not flee the containment area during deployment of the silt curtains will be trapped within the containment area for the 13-week duration of construction. Those juveniles will be subject to incidental take via two mechanisms: increased suspended sediment and mechanical trauma. The magnitude and duration of increased suspended sediment concentration within the containment area is expected to injure most or all juvenile fish. Those same fish will additionally be at risk of injury or death via mechanical trauma during excavation and fill if they are contacted by moving excavator buckets, or crushed by riprap or other fill dumped along the shoreline as bank stabilization.

Predation at Stabilized Shoreline

Construction of riprap or cribwall bank stabilization along 208 linear feet of shoreline (combining the island and mainland shoreline) will create simplified bank habitat that facilitates predation on juvenile fish during rearing and migration. A small number of juvenile fish are expected to be killed annually as a result of creating predation opportunity at this location.

It is difficult if not impossible to predict and/or observe the number of fish harmed, injured, and/or killed from construction effects and predation at the stabilized shoreline. Therefore, NMFS uses surrogate measures for incidental take associated with these take pathways. The surrogates are causally linked to the take pathways and are readily measured indicators of the potential for and intensity of adverse impacts to ESA-listed species. The amount and extent of take will be exceeded if any of the following surrogates are exceeded:

- 78,000 square feet of aquatic habitat will be enclosed within the containment area bounded by the silt curtains.
- 208 linear feet of shoreline will be armored with riprap, cribwall, or other measures for the foreseeable future.

Although the surrogates are largely coextensive with the proposed action, they nevertheless function as effective reinitiation triggers because they are readily observable. If at any time the level or method of take exempted from take prohibitions and quantified in this opinion is exceeded, reinitiation of consultation will be required.

Effect of the Take

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

Reasonable and Prudent Measures

"Reasonable and prudent measures" refer to those actions the Director considers necessary or appropriate to minimize the impact of the incidental take on the species (50 CFR 402.02).

The Corps shall:

1. Minimize incidental take resulting from construction effects.

2. Minimize incidental take resulting from shoreline stabilization.

3. Minimize incidental take by developing and implementing a monitoring and reporting program to confirm that the terms and conditions in this ITS are effective in avoiding and minimizing incidental take from proposed activities and that the amount and extent of take is not exceeded.

NMFS believes that full application of project minimization measures included as part of the proposed action, together with use of the RPMs and terms and conditions described below, are necessary and appropriate to minimize the likelihood of incidental take of listed species due to completion of the proposed action.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The Corps or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement RPM 1:
    a. Minimize the number of fish affected within the containment area by locating silt curtains as close to the construction area as feasible without compromising the function of the curtains.

2. The following terms and conditions implement RPM 2:
    a. Share design alternatives for shoreline stabilization with NMFS and other relevant fisheries agencies to seek specific design recommendations to reduce impacts. This should occur soon after the Corps commences the design process.

3. The following terms and conditions implement RPM 3:
    a. Within 90 days after construction is completed, the Corps shall provide NMFS a post-project monitoring report including, at a minimum, the following information:
        i. Project name and NMFS Tracking Number: Yakima River Delta Ecosystem Restoration Project, WCRO-2024-01917.
        ii. Total square footage of aquatic habitat enclosed within silt curtains.
        iii. Total length of shoreline stabilization constructed.
    b. The monitoring report should be sent to: crbo.consultationrequest.wcr@noaa.gov.

Conservation Recommendations

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

The proposed action is expected to meaningfully improve the conservation value of habitat in the delta by reducing temperatures and otherwise improving conditions. The project is urgent, as demonstrated by the 2024 fish kill in the action area. Therefore, we recommend carrying out the action as expeditiously as possible.

Reinitiation of Consultation

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

NLAA Determinations

We reviewed the Corps' consultation request document and related materials. Based on our knowledge, expertise, and your action agency's materials, we concur with the action agency's conclusions that the proposed action is not likely to adversely affect the following NMFS ESA-listed species and/or designated critical habitat: SR Sockeye, SR spring/summer-run Chinook salmon, SR fall-run Chinook salmon, SR Basin steelhead, and their critical habitats. The only effects that will manifest in that portion of the action area occupied by these species or their CH (approximately 10 miles downstream of the construction area) are slightly changed turbidity and sedimentation patterns in the Columbia River, which will be insignificant.

ESSENTIAL FISH HABITAT RESPONSE

Thank you also for your request for essential fish habitat (EFH) consultation. NMFS reviewed the proposed action for potential effects on EFH pursuant to section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA), implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. We have concluded that the action would adversely affect EFH designated under the Pacific Salmon Fisheries Management Plan. No conservation recommendations are provided.

MAGNUSON–STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.905(b)).

The proposed project occurs within EFH for various Federally managed fish species within the Pacific Salmon Fishery Management Plan.

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

1. Temporarily degraded water quality during construction activities that increase suspended sediment concentration.
2. Constructing shoreline stabilization that provides predation opportunities for non-native fish.

The action as a whole will greatly improve EFH in the long term. NMFS has no additional EFH conservation recommendations to provide at this time. This concludes the EFH consultation.

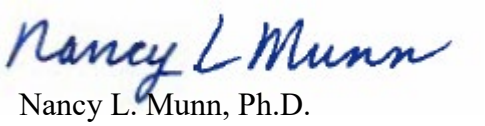
The Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600. 920(l)).

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public

Law 106-554). The biological opinion will be available through the NOAA Institutional Repository: https://repository.library.noaa.gov. A complete record of this consultation is on file at NMFS' Columbia Basin Branch in Ellensburg, Washington.

Please direct questions regarding this letter to Sean Gross, Columbia Basin Branch, sean.gross@noaa.gov, (509) 856-5442.

Sincerely,



Nancy L. Munn, Ph.D.
Acting Assistant Regional Administrator
Interior Columbia Basin Office

cc: David Dayan, U.S. Fish and Wildlife Service
Katherine Herzog, U.S. Army Corps of Engineers

REFERENCES

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US Army Corps
of Engineers ®
Walla Walla District

Fish and Wildlife Coordination Act

CENWW-PPL-C

MEMORANDUM FOR RECORD 27 August 2024

SUBJECT: U.S. Fish and Wildlife (USFWS) Coordination for Yakima Delta Ecosystem Restoration Project

1. Purpose: The purpose of this memorandum is to document Walla Walla District's attempt to complete Fish and Wildlife Coordination Act (FWCA) consultation with the USFWS on the project.

2. Study Background:
    a. The purpose of the proposed Project (restoration of the ecosystemin the Yakima River Delta, at Richland, Washington) is to provide ecosystem restoration through improvement of fish passage and aquatic habitat.
    b. The main features in the recommended plan include removal of the Bateman Island causeway and stabilizing the subsequently exposed shorelines.
    c. The existing and future without project condition of the delta includes a partial physical passage barrier combined with a strong thermal fish passage barrier.
    d. Future with project condition would include an improvement to water temperatures and improved fish passage supporting multiple upstream fish and fish habitat improvement efforts in the Yakima River.

3. Fish and Wildlife Coordination Act (FWCA) Communications:
    a. Sent letter to USFWS and NMFS requesting early coordination/comments to FWCA on 12 June 2020. USFWS declined to enter coordination via letter dated 18 August 2020. NMFS responded via email on 29 September 2022 also declining formal FWCA coordination.

4. Status of FWCA Consultation:
    a. As of today's date, no further correspondence received from the Services specific to FWCA consultation on the Project.
    b. Given that the aquatic habitat in the action area is specifically improving conditions for state and tribally managed aquatic resources, as well as Federally protected species, the project would inherently provide the type of measures that would be suggested by the Services under the FWCA.
    c. The Services did provide technical support and coordination throughout the project and are completing ESA consultation on the Project.

5. Recommendation:
    a. Due to Walla Walla District's attempt to engage the Services in consultation with responses declining to participate, this MFR documents the completion of consultation under the FWCA.
    b. This MFR will be included in the Final Integrated Rehabilitation Letter Report and Environmental Assessment to document the District's compliance with the FWCA.

Signed:

ERICKSON.MICHAEL.SCOTT.1151172349

Digitally signed by ERICKSON.MICHAEL.SCOTT.1151172349
Date: 2024.08.27 09:47:48 -07'00'

Michael Erickson
Chief, Environmental Compliance Section
U.S. Army Corps of Engineers Walla Walla District

Encl.
1. USFWS Response Letter dated 18 August 2020.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

In Reply Refer To:
01EWFW00-2020-CPA-0011

Michael Erickson
Chief, Environmental Compliance Section
Walla Walla District Corps of Engineers
201 North 3rd Avenue
Walla Walla, Washington 99362-1876

Dear Mr. Erickson:

Subject: Acknowledgement of receipt of letter and request for coordination under the Fish and Wildlife Coordination Act for the Yakima River Delta project

This letter acknowledges the U.S. Fish and Wildlife Service's (USFWS) receipt of your letter, dated June 12, 2020, requesting to initiate coordination under the Fish and Wildlife Coordination Act (FWCA) for the ecosystem restoration project in the Yakima River Delta in Benton County, Washington. We received your letter and request on August 19, 2020. The USFWS appreciates your invitation for our involvement in a FWCA capacity on the project. Since receiving the request, we have coordinated internally and with NMFS, and we have reviewed our past correspondence from 2019 regarding the project.

Given our current status and participation as a cooperating agency under the National Environmental Policy Act, we will continue to look for opportunities to provide comments or offer technical assistance and review under the FWCA through the ongoing project planning process, as necessary and depending on staff availability. Thus, we agree that more formal coordination as it pertains to the potential development of a significant FWCA deliverable (e.g., Coordination Act Report) is unnecessary in this case. Nonetheless, we will continue to coordinate internally and participate in cooperating agency meetings, when appropriate.

The USFWS looks forward to more engagement throughout the NEPA project planning process. If you have questions, then please contact Molly Good at molly_good@fws.gov; (360) 753-5822 or Mary Root at mary_root@fws.gov; (360) 753-9547.

Sincerely,

SIERRA FRANKS

Digitally signed by SIERRA FRANKS
Date: 2020.09.18 15:20:08 -07'00'

For Brad Thompson, State Supervisor
Washington Fish and Wildlife Office

cc:
USACE, Walla Walla, Washington, (J. Hook)
NMFS, Yakima, Washington (D. Bambrick)

US Army Corps of Engineers ®
Walla Walla District

Section 106 of the National Historic Preservation Act

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

January 25, 2023

Scott Hall
Walla Walla District
Corps of Engineers
201 North Third Avenue
Walla Walla, Washington 99362-1876

RE: Yakima River Ecosystem Restoration and Bateman Island Causeway Removal Project
Wisaard # : 2022-04-02781-COE-WW

Dear Scott Hall;

Thank you for contacting our department. We have reviewed the professional cultural resources survey report you provided for the proposed *Yakima River Ecosystem Restoration and Bateman Island Causeway Removal Project*, Benton County, Washington.

We concur with your Determination of No Adverse Effect with the stipulations for professional archaeological monitoring as detailed in the report and for an unanticipated find plan.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

In the event that archaeological or historic materials are encountered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribe's cultural staff and cultural committee and this department notified.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615
email: *rob.whitlam@dahp.wa.gov*

US Army Corps
of Engineers ®
Walla Walla District

YAKIMA RIVER DELTA ECOSYSTEM RESTORATION

Final Feasibility Report with
Integrated Environmental Assessment

Appendix H

Correspondence and Public Comments/Responses

H-2 Tribal Correspondence

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

700 NE Multnomah Street, Suite 1200
Portland, Oregon 97232

(503) 238-0667
F (503) 235-4228
www.critfc.org

March 9, 2023

U.S. Army Corps of Engineers
ATTN: PPL-C (Yakima River Delta)
201 N. 3rd Ave.
Walla Walla, WA 99362
Sent via email: NEPANWW@usace.army.mil

To Whom It May Concern:

The Columbia River Inter-Tribal Fish Commission (CRITFC) appreciates the opportunity to provide comments on the draft Feasibility Study/Environmental Assessment for the Yakima River Delta Ecosystem Restoration Project. CRITFC's mission is to protect our member tribes' treaty fisheries and the quality of waters in the Columbia Basin. CRITFC supports the adoption of Alternative 3A which calls for the complete removal of the earthen causeway. Alternative 3A promises to improve the ecosystem function of the Yakima River delta by remedying the stagnant backwater environment that resulted from blocked flow south of Bateman Island.

The proposed post-project performance assessment and monitoring plan is comprehensive and well-designed. The monitoring plan will be essential in determining whether the constructed measures have met the projects goals and objective. The monitoring plan will also ensure that project outcomes are consistent with the objective of establishing a more natural flow regime in the delta. Monitoring of riparian and wetland habitats, sedimentation, erosion patterns and water quality changes will facilitate the prompt identification of adaptive management triggers.

CRITFC recognizes that the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Confederated Tribes and Bands of the Yakama Nation are members of the Yakima River Basin Watershed Enhancement Workgroup and participated as cooperating agencies in this project. For comments on this proposed Alternative draft NPDES permit, CRITFC hereby incorporates by reference the comments filed by its member tribes, including the Yakama Nation and the CTUIR.

Protecting areas that provide habitat for tribal fishery resources through reconstruction of river confluence areas to eliminate shallows, replanting native vegetation, and increasing channel depths is a priority for the CRITFC and its member tribes. Thank you for this opportunity to submit these comments. Please contact Dianne Barton, Water Quality Coordinator, with any questions at 503-238-0667.

Sincerely,

Aja K. DeCoteau
Executive Director

Confederated Tribes *of the*
Umatilla Indian Reservation
Department of Natural Resources
Administration

46411 Timíne Way
Pendleton, OR 97801

www.ctuir.org ericquaempts@ctuir.org
Phone 541-276-3165 Fax: 541-276-3095

March 10, 2023

U.S. Army Corps of Engineers
ATTN: PPL-C (Yakima River Delta)
201 N. 3rd Ave.
Walla Walla, WA 99362

Transmitted Electronically to: NEPANWW@usace.army.mil and Kristen.M.Shacochis-Brown@usace.army.mil

Re: CTUIR DNR comments on the Yakima River Delta Ecosystem Restoration Draft Feasibility Report with Integrated Environmental Assessment

Dear Kristen Shacochis-Brown:

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources (DNR) appreciates the work of the Walla Walla Corps of Engineers (Corps) and partner agencies, tribes, and groups on the Yakima River Delta Ecosystem Restoration Draft Feasibility Report with Integrated Environmental Assessment (EA). The CTUIR continues to support this project as identified in our October 16, 2017, letter. Our primary concern is that it has taken this long to get the project to an alternative selection phase and will take even longer to implement. Due to the timing, the CTUIR DNR supports the tentatively selected plan of Alternative 3a, full removal of the causeway without immediate riparian habitat restoration. Habitat restoration efforts will be more appropriate after the river has resumed its more natural course south of Bateman Island.

Background

The CTUIR is a federally-recognized Indian tribe, with a reservation in Northeast Oregon and ceded, aboriginal, and usual and accustomed areas in Oregon, Washington, Idaho, and other Northwest states. In 1855, predecessors to the CTUIR—ancestors with the Cayuse, Umatilla, and Walla Walla Tribes—negotiated and signed the Treaty of 1855 with the United States, 12 Stat. 945. The Treaty is a contract between sovereigns and is "the supreme Law of the Land" under the United States Constitution. In the Treaty the CTUIR ceded millions of acres of land to the federal government, and in exchange received assurances that various pre-existing tribal rights would be protected, and our interests would be respected, in perpetuity. A paramount objective in the Treaty was protecting and maintaining our tribal First Foods—water, fish, big game, roots, berries, and other plants—and the habitats and environmental conditions that support and sustain them, then, now, and forever. This remains a paramount objective of the CTUIR.

On October 16, 2017, the CTUIR Board of Trustees requested the Walla Walla Corps of Engineers to remove the causeway to Bateman Island because the "causeway creates a complete blockage of the channel of the Yakima River that historically flowed around the south end of Bateman Island. This causeway needs to be removed to address ongoing fish passage issues as well as ongoing cultural resource problems caused by recreational access." The letter went on to note:

> [T]he causeway forces all of the water flowing out of the Yakima to go around the north side of Bateman Island. This results in stagnant water and increases the presence of algae, visible in this picture, due to higher water temperatures. These conditions encourage non-native and invasive aquatic plant species such as flowering rush to grow. The higher temperatures also become a refuge for introduced non-native fish species such as smallmouth bass, walleye and catfish that have a high rate of predation on the out-migrating salmon smolts from the Yakima. The causeway also blocks the upstream passage of adult fish in the summer, causing negative survival effects. Modeling tells us that if the causeway were removed there would be higher flows and lower temperatures in the estuary, both of which would benefit salmon.

These conditions have not changed. Stagnant water impairs water quality and provides habitat for resident salmonid predators and recreational access continues to cause impacts to cultural resources.

As discussed in numerous meetings on the Yakima Delta, the CTUIR DNR continues to support a Corps feasibility study to reconnect portions of the Yakima estuary and floodplain currently bisected by Highway 240. The Yakima River floodplain at the mouth was once over a mile wide, but now is only approximately 350 feet, constrained by a single bridge of Highway 240. Installation of additional flowage paths under Highway 240 will increase hyporheic connectivity and allow for greater temperature moderation of the Yakima River.

Technical Comments

The EA is well-written overall and considers the potential impacts and benefits of the causeway removal adequately. However, we do have a few suggested revisions, below.

Section 2.14 Cultural and Historic Resources

This section lays out a thumbnail sketch of tribal occupancy of the area relying on oral history and archaeological data. The CTUIR suggests adding a sentence to the end of the first paragraph that states: "There is ample evidence, in the form of both oral histories and archaeology, that document a tribal presence in the area of the Yakima Delta since time immemorial." This would make for a better transition to the next two paragraphs.

Section 2.15 Socioeconomics/Environmental Justice

In the "Minority Groups" subsection of this section, tribal members are mentioned briefly in two sentences that state: "Many of the American Indian population in the Tri-Cities area identify with the local tribes including the Yakama, Umatilla, and Nez Perce. These native populations advocate for their Tribal Treaty resources, including salmonids, wapato, and tule." This section should be expanded upon to recognize that tribal members rely on Treaty Rights to harvest salmonids, wapato, and tules for ceremonial and subsistence purposes, and not just that tribes "advocate" for those resources. These resources are specifically contemplated in the Treaty of 1855 and tribal members retain rights to hunt and gather on unclaimed lands and fish at all usual and accustomed areas. Tribal advocacy relates to, and is founded upon, tribal rights and use of these resources.

Section 4.13 Cultural and Historic Resources

The CTUIR DNR largely agrees with the analysis of the environmental consequences of the removal of the causeway. Alternative 3a has some moderate impacts to cultural resources, but by comparison to the existing, ongoing impacts to cultural resources, such largely short-term moderate impacts are a significant improvement. For instance, elimination of pedestrian access to Bateman Island will dramatically reduce human-induced impacts to the island such as garbage, human waste, and archaeological site looting. While the EA provides that Bateman Island may still be used for recreation by boat access, the CTUIR DNR recommends that the Corps examine the administrative record regarding Borgan's Island and the impacts of recreation on that island to inform their recreation decisions. Recreation on Borgan's Island caused many impacts to natural resources including wildlife, human waste disposed of on-site, and looting of archaeological sites. Virtually all other islands managed by other federal agencies on the Columbia River are closed to public access to prevent these impacts. Borgan's Island was ultimately closed for public use in 2017 after many years of documented impacts of recreationists on the island.

The analysis identifies the causeway itself as a historic property however does not identify that the undertaking is within a known historic property of religious and cultural significance to Indian Tribes (HPRCSIT). The CTUIR feel the impacts to our HPRCSIT are minimal as the removal of the causeway will benefit this resource.

Section 4.14 Economics/Socioeconomics/Environmental Justice

The environmental consequences addressed in Alternatives 2a and 3a should address the positive impacts of increased presence of salmonids and other aquatic life. Increased availability of these resources positively impacts the economies of families by providing foods relied on for subsistence, but also meets an important environmental justice obligation of the Corps to restore Treaty-reserved resources to tribal members that have been impacted by federal, state, and private development. As such, these Alternatives have strong economic, socioeconomic, and environmental justice benefits.

Section 5 Tentatively Selected Plan

As noted above, the CTUIR DNR strongly supports the Tentatively Selected Plan. In this section, however, the study does not consider all the data relevant in determining the differential impacts between partial and full removal of the causeway. While the EA on page 104 does a good job identifying impacts of the causeway and potential benefits to causeway removal, there are specific benefits of full removal that would not be present in a partial removal. For instance, lamprey, one of the tribal First Foods which is relied on culturally by the tribes, are not strong swimmers. . The wider the channel is, the lower the velocity of the river at the confluence with the Columbia River. The difference in water velocities between a 500-foot channel and a 250-foot channel may potentially have an impact on lamprey migration. The CTUIR, the Yakama Nation, and the Nez Perce Tribe have worked for decades to restore lamprey populations and every incremental step to improve habitat is critical. We have a long way to go to restore lamprey and the difference between partial and full causeway removal has the potential to be significant.

Section 5.3 Lands, Easements, Rights-of-Way, Relocations, and Disposal Site Considerations

The fact that the causeway itself is considered a trespass upon Washington State lands should figure more prominently than a single mention in the EA. This causeway was constructed without proper approval by the landowner and removal will remedy both environmental harm and illegal conduct. Such a consideration should warrant further discussion in the EA.

Section 6 Compliance with Applicable Laws, Regulations, and Executive Orders

The CTUIR DNR appreciates the inclusion of the relevant tribal treaties, including our Treaty of 1855, in Section 6 regarding "Compliance with Applicable Laws, Regulations, and Executive Orders." One addition that would improve this section would be to reference and quote the Corps' Policy Principles on the Trust Responsibility:

> TRUST RESPONSIBILITY - The U.S. Army Corps of Engineers will work to meet trust obligations, protect trust resources, and obtain Tribal views of trust and treaty responsibilities or actions related to the Corps, in accordance with provisions of treaties, laws and Executive Orders as well as principles lodged in the Constitution of the United States.

Section 6.2.9 addresses compliance with Executive Order 13007. The first sentence describing the EO mentions only accommodating tribal access to sacred sites while the second sentence mentions avoiding adverse effects to sacred sites. This should be rewritten to include both concepts in the first sentence. Further, the section states "All sacred sites were avoided during development of alternatives." This is inaccurate. Bateman Island is within a documented historic property of religious and cultural significance to the CTUIR and as such it would be considered a sacred site. The CTUIR proposes rewriting the section to read:

EO 13007 directs Federal agencies to accommodate access and ceremonial use of tribal sacred sites by tribal religious practitioners as well as avoiding adverse effects to the physical integrity of such sacred sites while maintaining the confidentiality of sacred sites as appropriate. The EO directs government-to-government consultation with tribes concerning sacred sites. Some sacred sites may qualify as historic properties under the NHPA. Bateman Island is within a historic property and sacred site designated by the CTUIR. Impacts to this sacred site are addressed in this EA.

Errata

- The report variously estimates the volume of the entire causeway removal as either 37,000 cy or 40,000 cy. The EA uses 37K twice on page 108 and once on page G-1. It uses 37,000 on pages 114, 127, E-3, and E-4. It uses 40,000 on pages 43 and 44. We recommend a consistent amount.
- Sparse is misspelled "sparce" twice on page 71 and twice on page 76.
- "It's" is used incorrectly on page 77, twice on page 78, and twice on page 79.
- On page A-1, in "Project Name," feasibility is spelled as "Feasilibity."
- On page A-5, question 21a has a formatting problem.
- In the References of Appendix B, there are formatting problems with the entries for authors Bigelow, Collins, Dadswell.

Respectfully,

Eric Quaempts, Director
Department of Natural Resources

Cc: Jeremy Nguyen, WWACOE Tribal Liaison, Jeremy.A.Nguyen@usace.army.mil

Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

LTC ShaiLin KingSlack
Walla Walla District
US Army Corps of Engineers
ATTN: PPL-C (Yakima River Delta Restoration Project)
201 N. Third Ave.
Walla Walla, WA 99362

Subject: Response to the Yakima River Delta Ecosystem Restoration Draft Feasibility Report with Integrated Environmental Assessment developed by the U.S. Army Corps of Engineers (USACE) under WRDA 2000, Section 1135

Dear LTC ShaiLin KingSlack,

I write on behalf of the Confederated Tribes and Bands of the Yakama Nation ("Yakama Nation") in response to the Environmental Assessment (EA) and proposed action alternatives currently under consideration by the U.S. Army Corps of Engineers (USACE) to correct the impacts of the Bateman Island Causeway. The EA and preferred alternatives are being considered by the USACE under a WRDA 2000, Section 1135 Feasibility Study that was initiated at the request of the Washington Department of Fish and Wildlife. The purpose of the 1135 project was to investigate the feasibility and design for restoring flow in the Yakima River Delta in order to ameliorate adverse temperature and related environmental impacts from McNary Dam, including salmon habitat degradation and thermal barriers to anadromous fish migration further exacerbated by the Bateman Island Causeway. The Yakama Nation supports the adoption of Alternative 3A, which calls for the complete removal of the earthen causeway. In addition, Yakama Nation would like to see an efficient timeline for implementation of this alternative.

Since time immemorial, the original, free, and independent Native Nations that later confederated as the Yakama Nation have depended on the Columbia River for cultural, spiritual, and economic well-being. In Article III of the Treaty with the Yakamas, U.S. – Yakama Nation, June 9, 1855, 12 Stat. 951 ("Treaty of 1855"), the Yakama Nation expressly reserved the right to fish at "usual and accustomed places," which includes sites on the Columbia River[1]. The Yakama treaty negotiators knew that securing these rights was crucial to guaranteeing the vitality of their people. For the Yakama Nation, the exercise of fishing rights in particular was "not much less necessary…than the atmosphere they breathed."[2] Yakima River salmon and steelhead populations are fundamental to the exercise of Yakama Nation treaty-reserved rights.

The Yakama Nation acts as a steward over the Columbia River in exchange for the livelihood that it provides, "speaking for the things that cannot speak for themselves." The Yakama Nation has a significant interest in ensuring that water temperature in the Columbia and Yakima Rivers be regulated and maintained in a manner that will protect fish and, by extension, the Yakama Nation's Treaty-reserved rights.

[1] See, e.g., *U.S. v. Winans*, 198 U.S. 371 (1905).
[2] Id. at 381.

The Yakama Nation and other entities in the Yakima River Basin have invested millions of dollars into the recovery and restoration of native fish and their habitats. Although these investments have resulted in significant success in the maintenance and revitalization of fish populations in the Columbia River Basin, we continue to deal with the present impacts of the dams. Poor water quality conditions caused by the McNary pool inundation is exacerbated by the Bateman Island causeway. These conditions are perennially lethal to Yakima River salmon and steelhead populations. Furthermore, the stagnant pool created by the causeway supports unnaturally high numbers of invasive and native predator fish species that take an immense toll on native salmon species.

Therefore, the McNary pool and the Causeway put the region's significant investments in fisheries and ecosystem restoration at risk. The causeway has also diminished salmon fishing opportunities for local communities and the Yakama Nation. The loss of these salmon has a severe negative impact on the Yakama Nation subsistence, economy, culture, and religion.

Accordingly, causeway removal is a crucial action for meaningful and effective temperature control in the Yakima Delta and would improve a number of environmental conditions in the public interest, including:

Improving survival of juvenile salmon and steelhead migrating out of the Yakima River;
Improving survival of juvenile salmon and steelhead migrating through the Columbia River;
Reducing the populations of invasive fish species;
Reducing delays in migration by adult salmonids;
Increasing numbers of adult salmonids that make it safely upstream to spawn;
Improving water quality; and
Reducing health risk by reducing mosquito breeding areas.
Reducing Fire Risk/Frequency protecting human health and safety and supporting wildlife

In addition to improving the environment affected by the McNary project, the removal of the causeway by the Corps would further its performance of its trust obligation to the Yakama Nation to protect Treaty resources.

In summary, the success of Yakama Nation and other entities in improving native fish abundance is threatened by the drastic increases in water temperature and other impacts from the causeway. These conditions are devastating to both the Yakama Nation's fisheries and its culture. We support the USACE selection of Alternative 3A in the draft Feasibility Study/Environmental Assessment, and look forward to collaborating with USACE to ensure the successful implementation of the project. However, we urge that the regulatory process for the Bateman Island Causeway project be expedited. The current extended timeframe will continue to have adverse effects on the salmon survival. The causeway was not engineered or constructed with regard to safe fish passage, which has caused detrimental impacts to our first foods and has major implications to one of our sacred places. The Yakama Nation has provided a letter expressing concerns with the integrity and protection of this important site. It is our expectation that the complete removal of the earthen causeway be selected and implemented as expedient as possible to improve environmental conditions for our important fish populations. If you have any questions regarding this letter, please contact Joe Blodgett, Yakima Klickitat Fisheries Project (YKFP) Coordinator (509) 945-5899 or Michael Porter YKFP Lower Yakima River Coordinator (509) 945-1073.

Sincerely,

GERALD LEWIS, CHAIRMAN
YAKAMA NATION TRIBAL COUNCIL

US Army Corps
of Engineers ®
Walla Walla District

YAKIMA RIVER DELTA ECOSYSTEM RESTORATION

Final Feasibility Report with
Integrated Environmental Assessment

Appendix H

Correspondence and Public Comments/Responses

H-3 Public Comments and Responses

	Commenter	Main Concern(s)	Tone	Affiliations
1	Mike Perlot	Non-Specific	Positive	Perlot Farms
2	William Collins	Non-Specific	Negative	General Public
3	Don Filmore	Non-Specific	Positive	General Public
4	Joel Aylor	Non-Specific	Positive	Nez Perce Tribe
5	Mark Jacobson	Non-Specific	Positive	General Public
6	Dave Ramey	Fish	Positive	General Public
7	Scott Hennick	Non-Specific	Positive	General Public
8	Chris Madison	Non-Specific	Positive	General Public
9	Steve Panther	Fish	Positive	General Public
10	James Owen	Access/ Recreation	Negative	General Public
11	Phillip Bartley	Birding	Positive	General Public
12	Larry Chapman	Access/ Recreation	Neutral	General Public
13	Robert Myers	Access/ Recreation	Neutral	General Public
14	Susan M Bailey	Access/ Recreation	Neutral	General Public
15	Shane Milburn	Fish	Positive	General Public
16	Michael L Artz	Non-Specific	Positive	General Public
17	John Dick	Access/ Recreation	Neutral	General Public
18	Aaron J Gunderson	Access/ Recreation	Negative	General Public
19	N/a	Access/ Recreation	Neutral	General Public
20	Brian Luedtke	Access/ Recreation	Neutral	General Public
21	Mark Jones	Access/ Recreation	Negative	General Public
22	Sonia M Ayala	Non-Specific	Positive	General Public
23	Matt Millbauer	Access/ Recreation	Positive	General Public
24	John Duresky	Access/ Recreation	Negative	General Public
25	Janice Isaacson	Access/ Recreation	Negative	General Public
26	Judy Arndt	Access/ Recreation	Negative	General Public
27	Eric Anderson	Access/ Recreation	Negative	General Public
28	Bob Derting	Access/ Recreation	Negative	General Public
29	Brian Skeels	Access/ Recreation	Neutral	General Public
30	David Thompson	Invasive Species	Positive	General Public
31	Keith Rademacher	Access/ Recreation	Negative	General Public
32	Gage Gordon	Non-Specific	Positive	General Public
33	Wilby Richards	Access/ Recreation	Negative	General Public
34	Dr. Mark Sytsma	Technical	Neutral	Portland State University
35	Rick Kippes	Meeting Quesitons	Neutral	General Public
36	Robery Hogue	Non-Specific	Positive	General Public
37	Cristan Jap Campos	Non-specific	Positive	General Public
38	J Lynchh	Fish	Negative	General Public
39	Jim Talbott	Access/ Recreation	Neutral	General Public

40	Mark Williams	Non-Specific	Positive	General Public
41	Gary Spanner	Access/ Recreation	Neutral	General Public
42	Beth Gibson	Non-specific	Positive	General Public
43	Francesca Maier	Non-specific	Positive	General Public
44	Scott Tinker	Non-specific	Positive	General Public
45	Daniel P Gassenberg	Access/ Recreation	Neutral	General Public
46	M Deborah Rogers	Non-Specific	Positive	General Public
47	Daniel R McQueen	Access/ Recreation	Negative	General Public
48	Ellen Baer	Non-specific	Positive	General Public
49	James Ham	Access/ Recreation	Neutral	General Public
50	Judi Nellis	Access/ Recreation	Negative	General Public
51	M C Pearsall	Access/ Recreation	Negative	General Public
52	Jaron Senecal	Access/ Recreation	Neutral	General Public
53	Brian Matthews	Access/ Recreation	Negative	General Public
54	Jeffrey T Shipley	Non-Specific	Positive	General Public
55	Douglas J Nordwall	Access/ Recreation	Neutral	General Public
56	N/a	Non-Specific	Positive	General Public
57	N/a	Non-Specific	Positive	General Public
58	Kathryn Ritchie	Non-Specific	Positive	General Public
59	Mike Connolley	Access/ Recreation	Neutral	General Public
60	Ryan Bowman	Access/ Recreation	Neutral	General Public
61	Shawna Boolen	Non-Specific	Positive	General Public
62	Marilyn R Young	Access/ Recreation	Neutral	General Public
63	Larry S Franks	Non-Specific	Positive	General Public
64	Adasm Pechtel	Access/ Recreation	Neutral	General Public
65	Daniel J Evans	Access/ Recreation	Neutral	General Public
66	Leroy T Noga	Access/ Recreation	Negative	General Public
67	Caitlin M Cicchetti	Non-Specific	Positive	General Public
68	Thomas Swaggerty	Access/ Recreation	Positive	General Public
69	Jared Mathey	Non-Specific	Positive	General Public
70	Marleen Lechelt	Non-Specific	Negative	General Public
71	Cindy Twedt	Non-Specific	Positive	General Public
72	Randall L Rogers	Non-Specific	Positive	General Public
73	Jim Kelly	Access/ Recreation	Negative	General Public
74	Meghan Ryan	Access/ Recreation	Neutral	General Public
75	Eleanor B Wireman	Access/ Recreation	Neutral	General Public
76	Mike C Wingfield	Access/ Recreation	Neutral	General Public
77	Kathryn Umbarger	Access/ Recreation	Neutral	General Public
78	William Sharp	Non-Specific	Positive	General Public
79	Benjamin Caleca	Access/ Recreation	Neutral	General Public

80	Thomas A. McClelland	Access/ Recreation	Neutral	General Public
81	Steve Wegner	Project Improvements	Neutral	Retired Fed Govt Hydrologist
82	Victor Hubbard	Birding	Neutral	General Public
83	Tai Gorecke	Access/ Recreation	Negative	General Public
84	Cherie A Baudrand	Birding	Neutral	General Public
85	Courtney Irish	Birding	Negative	General Public
86	Margie Van Cleve	Non-Specific	Positive	Sierra Club Washington State
87	William J Bosch	Non-Specific	Positive	General Public
88	Jamie Burns	Access/ Recreation	Negative	General Public
89	Kevin Sugden	Non-Specific	Positive	Trout Unlimited
90	Dr. Ben Harrison	Non-Specific	Positive	General Public
91	Guy F. Reisenauer	Access/ Recreation/ Sediment Transport	Negative	General Public
92	Doug Nolan	Access/ Recreation	Neutral	General Public
93	Carl Cadwell	Non-Specific	Neutral	General Public
94	Not Specified	Access/ Recreation	Neutral	General Public
95	Amy Prince	Access/ Recreation	Negative	General Public
96	David Prince	Access/ Recreation	Neutral	General Public
97	Not Specified	Fish	Positive	General Public
98	Not Specified	Technical	Neutral	General Public
99	Cindy Preston	Technical	Neutral	Washington DNR
100	Jim Buelt	Access/ Recreation	Neutral	General Public
101	Not Specified	Non-Specific	Positive	General Public
102	Not Specified	Non-Specific	Positive	General Public
103	Darrell Puls	Marina	Negative	General Public
104	Mike Rlzzitiello	Access/ Recreation	Negative	General Public
105	Keith Christopher Naulty	Non-Specific	Positive	General Public
106	Dori L Luzzo Gilmour	Non-Specific	Positive	General Public
107	Michael L Estes	Marina/ Access/ Hydrology	Negative	General Public
108	Mrs. Amy S Prince	Access/ Recreation	Negative	General Public
109	Derek M Miceli	Access/ Recreation	Negative	General Public
110	Mr. David Prince	Access/ Recreation	Negative	General Public
111	Alex Frank	Access/ Recreation	Negative	General Public
112	Kathryn Holm	Access/ Recreation	Negative	General Public
113	John Jessica Foltz	Non-Specific	Positive	General Public
114	Chris Murray	Access/ Recreation	Neutral	General Public
115	Scott K Woodward	Access/ Recreation	Negative	Tapteal Greenway Association
116	Elke Davis	Access/ Recreation	Negative	General Public
117	Forrest Matthews	Access/ Recreation	Negative	General Public
118	Ric Valicoff	Non-Specific	Positive	President of Roza Board of Directors (Richland City Council)
119	Darrell B Severance	Access/ Recreation	Negative	General Public

120	Paul J Pickett	Technical	Positive	General Public
121	Marla Mervin	Non-Specific	Positive	General Public
122	Miles B Johnson	Non-Specific	Positive	Columbia Riverkeeper
123	Ms. Cathleen Burns	Non-Specific	Positive	General Public
124	Caleb G McMurtrey	Non-Specific	Positive	General Public
125	James F Guzman	Non-Specific	Positive	General Public
126	Ben Di Biase	Access/ Recreation	Negative	General Public
127	Nancy A LaFramboise	Access/ Recreation	Negative	General Public
128	Amy Ford	River Flow (Marina)	Negative	Columbia Park Marina, LLC
129	William L LaFramboise	Access/ Recreation	Positive	General Public
130	Scott Revell	Non-Specific	Positive	Roza-Sunnyside Board of Joint Control
131	Rocky Ross	Access/ Recreation	Negative	General Public
132	Sage Park	Sediment Transport	Neutral	Department of Ecology - Central Region
133	Ms Mary L. Peters	Access/ Recreation	Neutral	General Public
134	Mark A. Gerber	Fish	Negative	General Public
135	Lori Brady	Non-Specific	Positive	Sunnyside Valley Irrigation District
136	Richard Gies	Non-Specific	Positive	General Public
137	Nancy J Richter	Access/ Recreation	Neutral	General Public
138	Gene Huffman	Non-Specific	Positive	Kennewick Irrigation District
139	Richard C. Kippes	Access/ Recreation	Negative	General Public
140	Gail Taff	Non-Specific	Positive	General Public
141	Lori Gibson	Non-Specific	Positive	Kennewick Irrigation District
142	Michael R. Aldrich	Access/ Recreation	Neutral	General Public
143	Richard W Richter	Access/ Recreation	Neutral	General Public
144	Brandon Wilm	Access/ Recreation	Negative	General Public
145	Mark Nielson	Marina/ Access/ Hydrology	Negative	Benton and Franklin Conservation Districts
146	Merritt Mitchell Wajeeh	Non-specific	Positive	Mid-Columbia Fisheries Enhancement Group
147	Art Kelly	Access/ Recreation	Negative	General Public
148	Robert V Harris	Non-specific	Positive	General Public
149	Judy Guse	Access/ Recreation	Negative	General Public
150	Andrea Tulee	Fish	Positive	Yakima Tribe Member
151	Dianne Barton	Sediment Transport	Positive	Columbia River Inter-Tribal Fish Commission
152	Jeremy J. Lustig	Sediment Transport/ Hydrology	Neutral	City of Kennewick
153	Mr. Dana C Ward	Access/ Recreation	Negative	Lower Columbia Basin Audubon Society
154	Doug Gruba	Access/ Recreation	Negative	General Public
155	Charlene Burge	Access/ Recreation	Negative	General Public
156	Donald Rawlings	Access/ Recreation	Negative	General Public
157		Non-Specific	Positive	Yakima Nation (Tribal Organization)
158	Victor Andy	Non-Specific	Positive	General Public
159	Richard Jeffery Leaumont	Non-Specific	Neutral	General Public

160	David J Northover	Non-Specific	Positive	Yakama Nation (Tribal Organization)
161	Breanna Gervais	Fish	Positive	General Public
162	David J Watson	Hydraulics	Neutral	General Public
163	Kelly Mattocks	Burial Grounds	Neutral	General Public
164	Cary M Roe	Sediment Transport	Neutral	City of Kennewick
165	Sean Cozart	Access/ Recreation	Negative	General Public
166	Susannah M Hale	Non-Specific	Positive	General Public
167	Jim Bridger	Access/ Recreation	Negative	General Public
168	Mr. Edward A Washines	Tribal Consulation	Positive	Yakama Nation (Tribal Organization)
169		Non-Specific	Positive	General Public
170	Gordon Smith	Access/ Recreation	Negative	General Public
171	Dr. William D Schroeder	Non-Specific	Positive	Arête Cultural Resource Management
172	Laurie Peterson Vanscotter	Access/ Recreation	Negative	General Public
173	Brandee Kandle	Access/ Recreation	Neutral	General Public
174	Roberta L Wallahee	Non-Specific	Positive	Yakama Nation (Tribal Organization)
175	Jolena M Tillequots	Non-Specific	Positive	Yakama Nation (Tribal Organization)
176	Richard Bloom	Sediment Transport	Negative	General Public
177	Pete Voordepporte	Sediment Transport/ Fish/ Hydrology	Negative	General Public
178	Brandi N Parsley	Non-Specific	Positive	Yakama Nation (Tribal Organization)
179	Lydia	Access/ Recreation	Negative	General Public
180	Tamara Strong	Non-Specific	Positive	Yakama Nation (Tribal Organization)
181	Ben JR Woodall	Access/ Recreation	Neutral	OBrien Construction
182	Krebs Mario	Access/ Recreation	Neutral	General Public
183	Julie Lawrence	Non-Specific	Positive	Board of Yakima County Commissioners
184	Audie Huber	Non-Specific	Positive	Confederated Tribes of the Umatilla Indian Reservation
185	David A Snyder	Non-Specific	Positive	General Public
186	David Cannon	Access/ Recreation	Negative	General Public
187	Arlea Malissa Meninick	Non-Specific	Positive	Yakama Child Care & Development Fund Program
188	Kathy Criddle	Access/ Recreation	Negative	General Public
189	Jim Cassens	Access/ Recreation	Negative	General Public
190	Timothy Smith	Non-Specific	Positive	General Public
191	Adam Fyall	Non-Specific	Positive	Benton County Commissioners Office
192	Shannon L Adams	Non-Specific	Positive	Yakama Nation (Tribal Organization)
193	Ted Chow	Access/ Recreation	Negative	General Public
194	Mr Kevin D Mote	Access/ Recreation	Negative	General Public
195	Benjamin Fox	Access/ Recreation	Negative	General Public
196	Adam Fyall Will McKay Jerome Delvin Michael Alvarez	Sediment Transport	Positive	Benton County Commissioners Office

197	Mike Lilga	Access/ Recreation	Neutral	General Public
198	Brian J Schafer	Non-Specific	Positive	Yakama Nation (Tribal Organization)
199	David E Ortman	Non-Specific	Positive	General Public
200	Laurene G Contrera	Non-Specific	Positive	Yakama Nation (Tribal Organization)
201	Heath Bateman	Sediment Transport	Negative	City of Pasco (Public Works)
202	Trina Sherwood	Non-Specific	Positive	Yakama Nation (Tribal Organization)
203	Kathleen A Robson	Non-Specific	Positive	Yakama Nation (Tribal Organization)
204	Amy Jensen	Sediment Transport	Positive	U.S. EPA Region 10
205	Sandra P Vantine	Non-Specific	Positive	General Public
206	Andie M Miller	Access/ Recreation	Negative	General Public
207	Jacob Miller	Access/ Recreation	Negative	General Public
208	David P Giroux	Access/ Recreation	Negative	General Public
209	Albert Sutlick	River Flow	Negative	General Public
210		Non-Specific	Positive	General Public
211	Rosann Ferris	Access/ Recreation	Neutral	General Public
212	Mark E Whitten	Access/ Recreation	Negative	General Public
213	Ms Sonia M Ayala	Non-Specific	Positive	General Public
214	Ms. Lillian Slovic	Non-Specific	Positive	General Public
215	Dr. Andrew Fisher	Non-Specific	Positive	William & Mary
216	Kevin Bouchey	River Flow (Marina)	Negative	General Public
217	Natasha Geiger	Non-Specific	Positive	General Public
218	Susan Higgins	access/ Recreation	Neutral	General Public
219	Myra D Weihermiller	Support	Positive	General Public
220	Marco Seiferle Valencia	Support	Positive	General Public
221	Anna Kessie	Access/Recreation	Neutral	General Public
222	Stan Isley	Birding/Recreation	Neutral	Conservation Chair of the Yakima Valley Audubon Society (YVAS)
223	Jeremiah Newell	Support	Positive	General Public
224	Tyler Gilmore	Support	Positive	General Public
225	Harriet Cooke	Support	Positive	General Public
226	Dr Felice D Kelly	Support	Positive	General Public
227	Lori Brady	Support	Positive	President of Yakima Basin Joint Board (YBJB)
228	Ms Martha Taylor	Recreation	Neutral	General Public
229	Jim R Coleman	Support	Positive	General Public
230	Teri Warner	Access	Neutral	General Public
231	Emily B Stebbins	Support	Positive	General Public
232	Carol Martin	Support	Positive	General Public/Tribal Community
233	Arlea M Meninick	Support	Positive	General Public/Tribal Community
234	George Lee	Support	Positive	General Public

235	Ms Atwice Kamiakun	Support	Positive	General Public/Tribal Community
236	Donna Broers	Support	Positive	General Public/Trout Unlimited member
237	Kevin Richardson	Support	Positive	General Public/Tribal Community
238	Mr Donald F Bechard	Support	Positive	General Public/Tribal Community
239	Jay W Grate	Access	Negative	General Public
240	April Wood	Access	Negative	General Public
241	Ms Debra M Byrd	Support	Positive	General Public/Tribal Community
242	Urban Eberhart	Support	Positive	Kittitas Reclamation District
243	Debbie Berkowitz	Various concerns	Negative	General Public
244	Glen D Yallup	Support	Positive	Vice Chairman of Yakama Nation
245	Sarah Dyrdahl	Support	Positive	Northwest Region Director American Rivers
246	Theresa W Grate	Access/Recreation	Negative	General Public
247	Chairman Gerald Lewis	Support	Positive	Yakama Nation Tribal Council
248	Robyn Pebeahsy	Support	Positive	General Public
249	Laura Warner	Water Quality	Neutral	DMMO
250	Eric Anderson	Support	Positive	General Public
251	Alethearia Moon	Support	Positive	General Public
252	Joe Schiessl	Various Concerns	Negative	City of Richland
253	Sandra Shelin	Editorial comments on report	Neutral	General Public

Specific Comments and Responses

Number/Commenter	Comment	Response (see main report for others not listed here)
No. 128, Amy Ford, Columbia Park Marina, LLC	The marina was built in and designed for slack water. Bateman Island causeway was in place at the time of construction. The US Army Corp of Engineers, Department of Natural Resources and City of Richland all had to approve the installation of the marina structure into this environment.	Full removal of the Bateman Island causeway will result in different river conditions at the marina than those which have existed since the marina was constructed. River conditions will likely be more similar to those that would have existed without construction of the causeway. If it is determined that the marina cannot withstand river conditions without the causeway in place, the real estate outgrant permitting operation of the marina at this location will be reviewed and/or reevaluated. Continued operation of the marina will only be permitted if it can be done safely and in accordance with relevant engineering and environmental standards, laws, and regulations.
	My concerns of the removal of the causeway, whether it be full or partial is the impacts the new flow of water that will move through the marina will have. It is fact that the Columbia River will flow around the south side of Bateman Island and join the Yakima River. This is going to create current through the marina. Again, the marina construction was built for slack water. The river will have high velocities of current during the runoff periods and throughout the summer when the pool level is raised. We have seen up to 6.8 mph ourselves on the river.	Full removal of the Bateman Island causeway will result in different river conditions at the marina than those which have existed since the marina was constructed. River conditions will likely be more similar to those that would have existed without construction of the causeway. If it is determined that the marina cannot withstand river conditions without the causeway in place, the real estate outgrant permitting operation of the marina at this location will be reviewed and/or reevaluated. Continued operation of the marina will only be permitted if it can be done safely and in accordance with relevant engineering and environmental standards, laws, and regulations.
	There will be impacts from ice, large logs, debris, and the initial unknow amount of sediment that will flow through the marina and it's unknow how much will stay and how much will flush out down river. It is stated in the released report that any damage that is caused by ice or debris will be considered an "act of nature". I disagree, these situations would not happen if the causeway stayed intact. There are no other marinas in our region that is located in a free-flowing body of water without protection. Customers leave their boats in the water all year round. There will be impacts to the vessels that remain in the water.	Full removal of the Bateman Island causeway will result in different river conditions at the marina than those which have existed since the marina was constructed. River conditions will likely be more similar to those that would have existed without construction of the causeway. If it is determined that the marina cannot withstand river conditions without the causeway in place, the real estate outgrant permitting operation of the marina at this location will be reviewed and/or reevaluated. Continued operation of the marina will only be permitted if it can be done safely and in accordance with relevant engineering and environmental standards, laws, and regulations.
	Other concerns, there are electrical, fuel and wastewater lines that run along the docks and water ways. If they are broken due to ice, debris or high current flows, this would cause pollution to the river and potential life safety hazards to the public and fish.	Full removal of the Bateman Island causeway will result in different river conditions at the marina than those which have existed since the marina was constructed. River conditions will likely be more similar to those that would have existed without construction of the causeway. If it is determined that the marina cannot withstand river conditions without the causeway in place, the real estate outgrant permitting operation of the marina at this location will be reviewed and/or reevaluated. Continued operation of the marina will only be permitted if it can be done safely and in accordance with relevant engineering and environmental standards, laws, and regulations.

	Boat owner's maneuvering in and out of the slips will be more challenging due to the current they will be fighting against to get in and out of there slips. This could discourage business. There will also be constant pressure on tie off lines that will create constant tension on the boats and docks. Could lead to breakage and a boat floating out of a slip and down river. These are just a few impacts to consider.	Small increases in velocities through the marina are anticipated; however, modeling indicates only a minimal amount of increase. While this will create new or different river conditions at the marina and some boaters may choose not to utilize the marina under these new conditions, boaters would continue to be able to use the marina and should be able to do so safely, provided the marina meets appropriate engineering and environmental standards, laws, and regulations in accordance with real estate outgrant agreements.
	I understand and realize the need for the echo system restoration project and to help restore salmon population. However, without protecting the marina and the public boat launch and docks, the sustainability of operation needs to be looked at more closely. Without the marina and public boat launch and docks, you are taking away a public service to the entire Tri-City community and to a private individual's source of income.	Small increases in velocities through the marina are anticipated; however, modeling indicates only a minimal amount of increase. While this will create new or different river conditions at the marina and some boaters may choose not to utilize the marina under these new conditions, boaters would continue to be able to use the marina and should be able to do so safely, provided the marina meets appropriate engineering and environmental standards, laws, and regulations in accordance with real estate outgrant agreements.
No. 145, Mark Nielson, Benton and Franklin Conservation Districts	Benton Conservation District has reviewed the USACE Draft Feasibility Report for the Bateman Island Causeway Removal and **does not support the preferred selected alternative as presented.**	Comment noted
	Staff were not consulted by USACE in the selection of the preferred draft alternative. As such, please remove Benton Conservation District from the language in Appendix E, Section 18, Page E – 12 stating the District's support for the presented proposal.	Revision addressed in report
	We will revisit support for the selected alternative pending modifications to the selected alternative that include: 1. Foot access to the island for urban recreation after causeway removal and consideration for emergency vehicle access for safety 2. Protection and/or mitigation for the public boat launch to maintain functional average velocities required for safe launching and trailering of watercraft 3. Restoration of the native vegetation and riparian areas within the impacted and disturbed areas of the Yakima Delta resulting from causeway removal 4. Partial removal of the causeway should be fully evaluated 5. Assurance that DDT, DDT degradation compounds and toxins released into the Columbia River from the mobilization of sediment behind the causeway will not harm Columbia River water quality or basin wide efforts to decrease toxins within the middle Columbia River.	**1 and 5**. See main report for response to pedestrian access and sediment concerns. Both the private and public boat launches have minimal impacts based on the modeled velocities (Refer to Appendix D). **2.** The overnight boat storage located at the private marina will experience the maximum increase due to the extension of these docks towards the middle of the channel. **3.** Monitoring will be conducted to ensure establishment of vegetation. Habitat benefits were calculated with the riparian restoration and did not provide enough benefits to outweigh the costs for this project. **4.** Partial removal was fully evaluated; however, this alternative has potential impacts to juvenile salmonids from predation of the remnant causeway left in place so was eliminated from further consideration.

	While Benton Conservation District supports improved flows to benefit temperature dynamics within the Yakima Delta we do not support the lack of mitigation for the decreased recreational foot access to Bateman Island. Access to urban green spaces for recreation are an important part of the health and vitality of our community. Removing foot access to the island creates barriers for those who do not own watercraft thereby limiting recreational enjoyment of the island to only those of certain means. The preferred alternative elevates social inequity issues for safe urban recreation.	See main report for response to pedestrian access. Mitigation is only provided when there is determined a net loss to the region. Due to other recreation opportunities in close proximity to Bateman Island, this is not deemed a significant impact to warrant compensatory mitigation.
	There needs to be consideration to retain emergency vehicle access to the island. Benton Conservation District is willing to partner with local and state entities to secure grants and funding to restore full recreational access to the island after causeway removal.	See main report for response to firefighting
	The public boat launch is an important part of Benton Conservation District's operations for work within the Yakima River Delta. Increased flows at the boat launch may directly impact water stargrass harvester operations and is a significant concern. Average flows greater than 0.75 ft/sec can create operational challenges for launching and trailering of the aquatic harvester. Management of Water Stargrass in the Yakima River and Delta is recognized as a priority for Yakima Delta Restoration. We would like additional information from USACE on the range of average velocities that are anticipated at the public boat launch from late May through September.	Both the private and public boat launches have minimal impacts based on the modeled velocities (Refer to Appendix D). The overnight boat storage located at the private marina will experience the maximum increase due to the extension of these docks towards the middle of the channel. See Section 5.8 of main report, "Resulting from the full removal of the causeway, modeling of Water Year 2021 has indicated velocities to the north of the marina would increase at a 90 percent exceedance duration (majority of the time) from approximately 0.25 ft/sec to approximately 0.45 ft/sec."
	We encourage USACE to reconsider the lack of riparian restoration as part of their selected alternative and provide a more holistic approach for restoration of the degraded areas within the delta beyond the water quality challenges. Benton Conservation District is willing to work with USACE and WDFW to secure additional funding and support to restore native riparian vegetation within the delta.	Monitoring will be conducted to ensure establishment of vegetation. Habitat benefits were calculated with the riparian restoration and did not provide enough benefits to outweigh the costs for this project
	Based on the report, partial removal appeared to provide similar benefits as full removal. However, partial removal was removed from further consideration based on "increased predation" without any scientific justification backing the statement. Partial removal would allow less expensive alternatives to island access than full removal. These alternative should be evaluated.	Partial removal was fully evaluated; however, this alternative has potential impacts to juvenile salmonids from predation of the remnant causeway left in place so was eliminated from further consideration. This determination was based on fish sampling in the Yakima Delta and life cycle fisheries science specific to salmonids.

	The original 2015 report conducted by Northwest Hydraulic Consultants investigated impacts of causeway removal on the bed sediment releases to the Columbia River. Sediments within the causeway were determined as likely to flush out within 2 – 6 weeks following a breach in the Causeway (NHC, 2015). Columbia River is anticipated to dilute the flushing sediment and not pose a problem for resulting turbidity. However, since the 2015 report, there has been increased awareness of ongoing water quality improvements and efforts in the Columbia River Basin relating to Toxics Reduction. Local, state and federal goals for the Columbia River include reducing toxin loads and contamination for the benefit of salmonids and human health. Even with historical loads to the Columbia, it is important that current projects do not further contribute to Columbia River toxin levels. We strongly encourage USACE to work with Ecology to ensure the toxins within the sediments will not create a problem for downstream water quality. EPA Toxic Reduction Grant Opportunities for the Columbia River may help offset costs for ensuring that the sediment releases into the Columbia River will not negatively impair Columbia River water quality. Benton Conservation District is willing to work with partners to obtain grants through EPA to help mitigate and protect downstream Columbia River waters from additional toxin loads.	See main report for response to sediment concerns. The Corps is and will continue to coordinate with Ecology and EPA to ensure impacts from the transport of the accumulated sediments are minimal.
No. 204, Amy Jensen, U.S. EPA Region 10	EPA would like to clarify that the mobilization of sediment resulting from removal of the causeway to Bateman Island satisfies the CWA Section 404 Regulatory Program definition of a discharge of dredged material. The regulatory definition clearly states that it includes redeposit of dredged material (other than incidental fallback) into waters of the United States which is incidental to any activity, including channelization or other excavation. The FR/EA indicates the proposed action alternatives would release sediments impounded behind the causeway and that those sediment are expected to be deposited downstream; “Contaminated sediment would be mobilized, creating a turbidity plume that would settle within the confluence of the Yakima River and Columbia River. This sediment would continue to move through the McNary pool and dissipate under other sedimented [sic] deposited naturally by the Columbia River.”3 Our conclusion directly rebuts statements in the FR/EA and FONSI that suggest Alternative 3a “would not involve a point-source discharge of pollutants,” that are followed by conflicting statements that the mobilization of contaminated sediment “may require the issuance of a Section 402 Permit from the Environmental Protection Agency (EPA).”4 EPA’s CWA Section 402 and 404 programs have conferred and agree that these discharges would constitute a point-source discharge and should be regulated under CWA Section 404 even though the mobilization of sediment from behind the causeway would alter water quality in waters of the United States.	Removal of the causeway to Bateman Island would not result in a discharge of dredged or fill material under Section 404 of the Clean Water Act, implementing regulations (40 CFR 232.2(1)) or associated guidance. Removal of the causeway would not involve the "redeposit of dredged material", other than (possibly) incidental fallback. The proposed action is intended to result in complete removal of the causeway, with upland disposal of all such material. EPA’s interpretation of the definition a discharge, citing 40 CFR § 232.2, is mistaken and conflates mobilization of sediment with the addition (redeposit) of dredged material. In fact, the regulation does not include the word “mobilization” and clearly distinguishes between the addition of dredged material and incidental fallback. Any redeposit of dredged material associated with removal of the causeway, however, would involve (at most) incidental fallback. Any mobilization of incidental fallback would be covered by the applicable exception/exemption. Mobilization of existing sediment upriver of the causeway would not involve the discharge or redeposit of dredged material or incidental fallback.

	Furthermore, the effects of removing the causeway described in the FR/EA are comparable to the effects of breaching a dam, which the Corps has concluded would constitute a discharge of dredge material. As explained in the Corps' Regulatory Guidance Letter (RGL) 05-04 on the breaching of dams and the discharge of sediments from or through a dam, "the discharge of substantial quantities of accumulated bottom sediment from or through a dam into downstream waters constitutes a discharge of dredged material (and possibly fill material) that requires a CWA Section 404 permit."5 Additionally, the downstream deposition of mobilized material may have the effect of changing the bottom elevation of areas within the Columbia River, such as behind the McNary Lock & Dam, i.e. Lake Wallula.	EPA summarily concludes removal of the causeway would be similar to or tantamount to removal of a dam. EPA's analysis is based on unsupported assumptions and fails to provide any analysis regarding why the causeway should be considered a dam and subject to the Corps Regulatory Guidance Letter No. 05-04. EPA simply refers to the causeway as "the dam" later in its letter. The causeway was constructed to provide access to Bateman Island, before the Island was purchased by the federal Government to support construction of the McNary Dam and Reservoir Project (McNary). Basically, it's a road, path, or berm. It resembles a levee (an embankment for preventing flooding), or possibly a dike (to control or confine water), but it has no apparent water control purpose. Historical photos show water completely surrounding Bateman Island. The causeway, therefore, did not create an impoundment or raise the water surface. More on point, Corps regulations (33 CFR § 321.2(b)) defines a dike or dam as "[A]ny impoundment structure that completely spans a navigable water of the United States." Similarly, the Preamble to the recent EPA/Corps regulation defining WOTUS states: "Impoundments are distinguishable from natural lakes and ponds because they are created by discrete structures (often human-built) like dams or levees that typically have the effect of raising the water surface elevation, creating or expanding the area of open water, or both. (Revised Definition of "Waters of the United States," 88 Fed. Reg. 3004, 3075 (Jan. 18, 2023))." Additionally, regulations are generally read to give words their plain, usual, and ordinary meaning, unless ambiguous or a different meaning is intended. The Merriam-Webster Dictionary defines "dam" as "a barrier built across a watercourse for impounding water." Likewise, "Impound" is defined as "to collect and confine (water) in or as if in a reservoir." The causeway is not a dam, as it does not span completely across the Columbia River with the intention of creating an impoundment/reservoir. The causeway restricts water flow around the west side of Bateman Island, but water from the Yakima River is free to flow around the north side of the Island and into the Columbia River, as it has since before the causeway was constructed. The Yakima Delta Section 1135 Feasibility Report/Environmental Assessment (FR/EA) provides a worst-case assumption of approximately 250K cubic yards of sediment slurry per foot of eroded depth in a 150-acre area and an additional 60 acres of sediment north of the Delta could be mobilized because of the additional mixing between the Yakima and Columbia Rivers.'" (FR/EA, p. 57). Those volumes are unlikely, however, and not determinative of a Section 404 discharge of dredged material. Again, mobilization of upriver sediment is not mentioned in the definition of a "discharge" of dredged/fill material. Also, EPA's letter references a Bateman Island Modification Report, prepared by the mid-Columbia Fisheries Enhancement Group, concluding sediment upriver of the causeway to be best characterized as fluid mud. Such fine sediment may be easily mobilized but is less likely to change the bottom elevation of the Columbia River, and certainly not increase bottom elevation upriver of McNary Dam in Lake Wallula, approximately 40 miles downstream.
	Therefore, these discharges of mobilized sediment resulting from removal of the causeway to Bateman Island should be evaluated for compliance with the restrictions on discharge contained in the Guidelines, and additional information is needed to evaluate the project under the Guidelines. Specifically, additional information is needed regarding the type, composition, and quantity of sediment to be mobilized to demonstrate the discharges are suitable for in-water disposal and to identify the Least Environmentally Damaging Practicable Alternative (LEDPA) to meet the project purpose.	Again, the removal of the causeway does not involve the discharge of dredged or fill material and, therefore, does not trigger Section 404 review/analysis, including to identify the LEDPA or suitability for in-water disposal. The Corps is planning, however, to conduct limited sediment sampling to determine if movement of any sediment after causeway removal would include any contaminants. That information will support a general, more in-depth effects analysis for the NEPA document.

	EPA advises that the current thickness of sediments behind the dam should be measured to provide an accurate estimate of the volume of the proposed discharge.	The Yakima Delta Section 1135 Feasibility Report/Environmental Assessment (FR/EA) provides a worst-case assumption of approximately 250K cubic yards of sediment slurry per foot of eroded depth in an 150-acre area and an additional 60 acres of sediment north of the Delta could be mobilized because of the additional mixing between the Yakima and Columbia Rivers.'" (FR/EA, p. 57). Those volumes are unlikely, however, and not determinative of a Section 404 discharge of dredged material. Again, mobilization of upriver sediment is not mentioned in the definition of a "discharge" of dredged/fill material. Also, EPA's letter references a Bateman Island Modification Report, prepared by the mid-Columbia Fisheries Enhancement Group, concluding sediment upriver of the causeway to be best characterized as fluid mud. Such fine sediment may be easily mobilized but is less likely to change the bottom elevation of the Columbia River, and certainly not increase bottom elevation upriver of McNary Dam in Lake Wallula approximately 40 miles downstream. The Corps is, however, proposing to conduct sediment testing to characterize the sediments and determine the extent of historic agricultural contamination, if any.
	To fully characterize the material to be discharged and the potential effects downstream from movement of the material, the Corps should conduct a thorough characterization of the physical properties of the sediment through the collection of sediment at numerous coring stations in the area to be mobilized.	Removal of the causeway will not involve a "discharge" of dredged or fill material. However, it's not unlikely there will be some movement of sediment/silt given potential increased flows west of Bateman Island. The amount of sediment that could be subject to movement identified in the EA was intended to be a worst-case scenario, and not a prediction/estimate. EPA's letter references a Bateman Island Modification Report, prepared by the mid-Columbia Fisheries Enhancement Group, concluding sediment upriver of the causeway to be best characterized as fluid mud. The Sponsor has conducted sediment testing to characterize the sediments and determine if any contaminants are present, as part of the NEPA review/documentation.
	Regardless, because there is reason to believe contaminants could be present in the sediment that would be mobilized, a sediment quality evaluation should be performed on the material behind the causeway to demonstrate it is suitable for in-water disposal.	The Sponsor has conducted sediment testing to characterize the sediments and determine if any contaminants are present, as part of the NEPA review/documentation.
	The results of a sediment evaluation can also help inform the potential for and impacts of other alternatives under the Guidelines. Depending on the contaminant toxicity levels identified in the sediment to be mobilized, other practicable measures may be appropriate to include in the LEDPA, such as dredging impounded material behind the causeway and disposing it in an appropriate upland facility.	Again, the removal of the causeway does not involve the discharge of dredged or fill material and, therefore, does not trigger Section 404 review/analysis, including to identify the LEDPA or suitability for in-water disposal. The Corps is proposing to conduct sediment testing to characterize the sediments and determine the extent of historic agricultural contamination, if any.

	EPA also notes that the McNary National Wildlife Refuge is located along the eastern half of Lake Wallula where mobilized sediment could be deposited under the action alternatives, yet the FR/EA does not discuss any potential project impacts to this refuge. Sanctuaries and refuges are identified as “special aquatic sites” under the Guidelines and are afforded particular importance to protect the functions and values for which they were established.17 All actions to avoid and minimize impacts to refuges, the aquatic ecosystems, and the human use values they support must be addressed and taken	The FR/EA has been modified to mention the McNary Wildlife Refuge downstream, but similar to forebay of the McNary Dam, mobilized sediment resulting from removal of the causeway is not expected to result in sediment deposition causing adverse effects to the refuge. The FR/EA provides a worst-case scenario of approximately 250K cubic yards of sediment slurry per foot of eroded depth in an 150-acre area and an additional 60 acres of sediment north of the Delta could be mobilized because of the additional mixing between the Yakima and Columbia Rivers.’” (FR/EA, p. 57). Those volumes are unlikely, however. Also, EPA’s letter references a Bateman Island Modification Report, prepared by the mid-Columbia Fisheries Enhancement Group, concluding sediment upriver of the causeway to be best characterized as fluid mud. Such fine sediment may be easily mobilized but is less likely to change the bottom elevation of the Columbia River, and less likely approximately 15 miles downstream at the Refuge, especially when considering the substantial amount of natural sediment that exits the mouth of the Snake River each spring in the vicinity of the Refuge.
No. 252, Joe Schiessl, City of Richland	Per the enclosed City of Richland Resolution No. 2023-31, we support the intent to improve water quality in the Yakima River provided that the Project does not result in adverse impacts that are left unmitigated	Comment noted.
	The Report does not adequately account for recreational use of Bateman Island as evidenced by an absence of quantitative data. Section 2.11 contains only qualitative information, which is insufficient to evaluate the environmental consequences considered in Section 4.10. A numerical count of pedestrian and bicycle users accessing Bateman Island via the existing Bateman Island Causeway is necessary prior to determining the impact to recreational users if the Bateman Island Causeway is removed.	Projects under the Continuing Authorities Program (CAP) are streamlined and based on use of qualitative analysis as much as possible.
	A well-documented evaluation of environmental consequences requires collection and review of quantitative data prior to determining environmental consequences (Section 4.10). The Report does not correlate existing data with projected outcomes and falls short of meeting a minimum data standard necessary to determine environmental consequences of the tentatively selected plan (TSP) with respect to recreation.	Projects under the Continuing Authorities Program (CAP) are streamlined and based on use of qualitative analysis as much as possible.
	Mr. Walter indicated that Bateman Island is intended by the Corps to be recreation land provided to the public as offset for the McNary Project’s significant and adverse impact to public recreation in the Tri-Cities. This fact supports and elevates the importance of public access to Corps-owned recreational lands, especially in light of the reduction in public access anticipated by the TSP. The Report is incomplete and the analysis is insufficient if Bateman Island is intended to be a public recreation area offsetting recreation losses from the McNary Project, and the TSP reduces recreational access to the island. This important information was not previously identified and has not been used to evaluate environmental consequences.	The referenced meeting was for open discussion to collaborate with the City. Correction to Mr. Walter's statement is necessary. It is stated in the McNary Master Plan (Section 4.01, 1.F.1): "“The importance and value of wildlife resources in the vicinity of McNary Reservoir were identified prior to the construction of the project. In a General Plan signed by the Secretary of Army, Secretary of Interior, and Directors of the fish and wildlife agencies of the States of Oregon and Washington, key wildlife management areas at Cold Springs in Oregon, the mouth of the Walla Walla River, along the Columbia River near Burbank, Washington, around Burbank Slough, islands and associated shorelands in the Snake River, lands at the mouth of the Yakima River, and islands in the Columbia River near Richland, were identified for their wildlife management potentials.”. This indicates the original purpose of Bateman Island was intended for wildlife management.

	Bateman Island and the Yakima Delta are both identified as a “high risk area due to fuel type and fuel loading” and as having “high protection value” in the adopted Benton County Natural Hazard Mitigation Plan and the Benton County Wildfire Protection Plan. The City bases its operational EMS deployment on a standard risk and benefit analysis. The City does not have a specific emergency response plan for Bateman Island. This is typical for natural cover lands. Instead, in response to a fire event, Richland Fire & Emergency Services (hereafter “RFD”) will begin its response by assessing the potential for human presence on the island at the time of a fire start. Based on historic use patterns, including recreational use of the island, RFD will presume the presence of humans and begin evacuation activities. Given the size of Bateman Island and its significant natural cover, confirmation of a full evacuation of humans would be difficult, and RFD’s response would shift to suppression activities.	See main report for response to firefighting on Bateman Island.
	Suppression is undertaken to save lives and prevent the risk of fire carrying from the island to the shore based upon weather conditions, fuel load and the risk profiles identified in adopted emergency plans. Suppression activities are necessary to maintain life safety expectations and to minimize the risk of fire spread to additional locations in the Yakima River Delta during the fire season (Spring through Fall).	See main report for response to firefighting on Bateman Island.
	Corps planners have shared with the City their assumption that fire risk is reduced by eliminating the Bateman Island Causeway access point for recreational users. Under this assumption, reducing the number of users that present a fire risk reduces overall fire risk. This assumption is not captured in the Report. The City requests that the assumption be included in the Report if it is being relied upon by Corps planners as background data (as has been communicated to the City).	See main report for response to firefighting on Bateman Island. This assumption was not documented in the report as it was not based on data or evidence. This was part of an open discussion in an effort to further understand the outstanding risks.
	The City’s ability to manage on-site island vegetation will cease if access to the island is limited to boat. Vegetation will increase on the island, and fire fuel load will correspondingly increase over time.	Comment noted
	During the March 31, 2023, meeting referenced above, the parties in attendance discussed several mitigating strategies to reduce fire risk on Bateman Island. The first measure discussed is included in the Report under Section 5.8, which states, “[f]ull removal of the causeway will result in a change to land management practices at the island. It is assumed that firefighting would be limited to use of boats with no vehicular access. This change in management to the island will have to be understood by the general public. Signage will be used as a reminder of lack of public services to the island and recreational visits to the island is under one’s own risk.” Firefighting by boat is not a viable alternative. A fireboat would need to spray a distance of 1,700 feet from adequate water depth to reach the interior of Bateman Island at its widest location.	See main report for response to firefighting on Bateman Island. The Corps recognizes this a major concern and coordination is vital to reach an understanding on the path forward. Additional meetings will continue as the Corps works with WDFW to draft a firefighting management plan for Bateman Island. This plan will be coordinated with the City of Richland during design and prior to construction.
	Corps planners also suggested during the March 31, 2023, meeting that vegetation management could be an effective fire risk mitigation technique. The City is open to this idea as a mitigator, but not as a stand-alone solution to solve fire risk. The City is not prepared to undertake the scale of project suggested at the March 31, 2023, meeting, to include an approximate 160-acre conversion of the island from non-native vegetation to a fire-safe native vegetation, nor is the City prepared to maintain fire breaks as additional risk mitigation.	See main report for response to firefighting on Bateman Island. The Corps recognizes this a major concern and coordination is vital to reach an understanding on the path forward. Additional meetings will continue as the Corps works with WDFW to draft a firefighting management plan for Bateman Island. This plan will be coordinated with the City of Richland during design and prior to construction.

	Therefore, tribal consultation on this item is necessary. In short, vegetation conversion across the island from invasive species conditions to native vegetation conditions, native vegetation management, and fire break construction and management are new scopes of work that the City is not prepared to address as long-term land management activities for the Corps of Engineers'project.	See main report for response to firefighting on Bateman Island. The Corps recognizes this a major concern and coordination is vital to reach an understanding on the path forward. Additional meetings will continue as the Corps works with WDFW to draft a firefighting management plan for Bateman Island. This plan will be coordinated with the City of Richland and tribes during design and prior to construction.
	Additionally, on March 31, 2023, City staff discussed aerial fire suppression resources with Corps planners. State-owned air resources were engaged during the 2017 fire, but the area's planes were scheduled for preventative maintenance and therefore unavailable. Other aerial resources were ordered but they did not respond to the incident. The City's experience indicates that aerial resources are not reliable assets and cannot be counted on as primary response vehicles.	See main report for response to firefighting on Bateman Island. The Corps recognizes this a major concern and coordination is vital to reach an understanding on the path forward. Additional meetings will continue as the Corps works with WDFW to draft a firefighting management plan for Bateman Island. This plan will be coordinated with the City of Richland during design and prior to construction.
	Last, it is the City's experience that natural areas within the urban center of the Tri Cities that are difficult to access by law enforcement and public officials become attractive areas for activities that are not aligned with expectations which may increase fire and public safety risk. This will likely be the case for Bateman Island. Camping, partying, cultural resource looting, homelessness, and campfires risks will increase given the relatively easy proximity by floatation and limited access by law enforcement and public officials. On-water law enforcement on the Columbia River is operated jointly by Benton and Franklin Counties. Land-based law enforcement on Bateman Island will remain an obligation of the City of Richland and the Richland Police Department does not operate a river unit nor own a law enforcement vessel.	Currently USACE ranger staff perform patrols throughout the McNary pool both by vehicle and water vessel as do some of the county Sheriff departments. These patrols are dependent on the time of year and revolving prioritization. MM: Speculative, no evidence to know this for sure.
	The local government, City of Richland, is not supportive of the TSP as currently formulated because of significant adverse environmental consequences to recreation, sediment transport, downstream navigation, and impact to existing marina structures. The Corps and the Project's nonfederal sponsor are in possession of pre-1135 project documentation led by the Mid-Columbia Fisheries Enhancement Group and the Washington State Department of Fish and Wildlife (the nonfederal sponsor for the TSP) that demonstrate broad community support for a more comprehensive project without the negative and significant environmental consequences generated from the current TSP.	Any decision made prior to the 1135 project being initiated does not guarantee to be the final decision for the 1135 project. The Corps planning process allows for consideration of all ideas during the scoping phase. Screening of measures are conducted based on meeting the project purpose and need as well as other criteria as identified in Section 3 of the main report. Benefits and costs are also generated and evaluated to recommend a cost-efficient plan.
	On previous occasions, the nonfederal sponsor has communicated to the Richland City Manager and the Richland City Council that the Project will have three (3) objectives: water quality, access to the island, and marina protection. The current TSP only addresses one of the three items communicated to the City of Richland from the nonfederal sponsor. For these reasons, the City of Richland does not consider the current project "acceptable" (one of the four screening criteria, discussed above, used by the Corps to evaluate alternatives). Additionally, page E-12, section 18 of Appendix E (Real Estate Plan) should be corrected to remove the statement claiming that the TSP has "broad-based support from local agencies (City of Richland)."	Any decision made prior to the 1135 project being initiated does not guarantee to be the final decision for the 1135 project. The Corps planning process allows for consideration of all ideas during the scoping phase. Screening of measures are conducted based on meeting the project purpose and need as well as other criteria as identified in Section 3 of the main report. Benefits and costs are also generated and evaluated to recommend a cost-efficient plan. Acceptability is defined by ER 1105-2-100 as "the extent to which the alternative plans are acceptable in terms of applicable laws, regulations and public policies." Revision addressed in Appendix E.

	The City of Richland remains in support of a project to improve water quality in the Yakima River. The City recognizes and appreciates the work of the Corps to take the project this far and offers our assistance to help re-engage a larger coalition of public agencies, sovereign tribal nations, and nongovernmental organizations that existing prior to initiation of the 1135 program. This team was previously led by the nonfederal sponsor and has already scoped a solution fitting of the problem. Their project understanding has been transmitted to Corps planners.	Any decision made prior to the 1135 project being initiated does not guarantee to be the final decision for the 1135 project. The Corps planning process allows for consideration of all ideas during the scoping phase. Screening of measures are conducted based on meeting the project purpose and need as well as other criteria as identified in Section 3 of the main report. Benefits and costs are also generated and evaluated to recommend a cost-efficient plan.
	The City believes that a collaborative project involving three levels of government, sovereign tribal nations and nongovernmental organizations can bring the needed horsepower deserving of this important project and deliver results benefitting the Yakima River.	The Corps appreciates the collaboration and considers this project a priority.
	No application has been made to the City at this time, and the City's Shoreline Administrator has not yet made a determination regarding appropriate treatment of the Tentatively Selected Plan under the City's shoreline master program. However, based upon review of the Draft Feasibility Report, it would appear that either a Shoreline Substantial Development Permit or an Exemption Certificate, subject to appropriate conditions, would be required	State and local permitting/regulations does not pertain to the federal government. Additional coordination by the Sponsor will be necessary prior to construction.
	Even of the project is deemed exempt from the requirement for a Shoreline Substantial Development Permit, the City may attach conditions to the approval of exempted developments and/or uses as necessary to ensure consistency of any project with the Shoreline Management Act and the City's shoreline master program.	State and local permitting/regulations does not pertain to the federal government. Additional coordination by the Sponsor will be necessary prior to construction.
	Due to the failure to consider some impacts and the failure to take a hard look at others, the Draft Feasibility Report does not support the draft Finding of No Significant Impact ("FONSI"), which the Corps also has released for public review and comment. Based on a review of the Draft Feasibility Report, as well as consideration of potential impacts that are not disclosed in the Report, it appears likely that a SEPA threshold determination for this project would result in a determination of significance, meaning that an Environmental Impact Statement would be required.	The Corps does not agree that this project has significant impacts that require an Environmental Impact Statement.