



**US Army Corps
of Engineers**
Walla Walla District

LOWER GRANITE PROJECT MASTER PLAN
CLARKSTON, WASHINGTON

Environmental Assessment

ADMINISTRATIVE RECORD – DO NOT DESTROY

PROJECT FILE NUMBER: PM-EC-2017-0028

May 2018

TABLE OF CONTENTS

SECTION 1 - INTRODUCTION

1.1	Introduction.....	1-1
1.2	Project Location and Background	1-2
1.3	Authorities for the Project.....	1-3
1.4	Purpose and Need.....	1-5

SECTION 2 – ALTERNATIVES

2.1	Identification of Alternatives	2-1
2.2	Screening of Alternatives	2-3
2.3	Alternatives Removed from Further Consideration	2-4
2.4	Alternatives Carried Forward for Detailed Analysis	2-5

SECTION 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1	Introduction.....	3-1
3.2	Environmental Review by Resource	3-2

SECTION 4 – COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REVIEW REQUIREMENTS

4.1	Treaties and Native American Tribes	4-1
4.2	Federal Statutes	4-1
4.3	Executive Order	4-6
4.4	State and Local Requirements.....	4-8

SECTION 5 – PUBLIC COORDINATION, CONSULTATION, AND INVOLVEMENT

5.1	Public Scoping Process	5-1
5.2	Draft Document Review	5-1
5.3	Tribal Coordination	5-2

SECTION 6 – ACRONYMS AND ABBREVIATIONS

6-1

SECTION 7 – REFERENCES

7-1

FIGURES

1-1	Lower Granite Project Boundary Map	1-3
-----	--	-----

TABLES

2-1	Alternative Matrix	2-2
2-2	Alternatives by Screening Criteria	2-3
2-3	Land Classification in 1974 Lower Granite Master Plan and in 2018.....	2-6
3-1	Geographic and Temporal Boundaries of Cumulative Effects Area	3-18

APPENDICES

Appendix A	Federal Natural Resources Law Compliance and Biological Evaluation
------------	--

SECTION 1 - INTRODUCTION

1.1 Introduction

This environmental assessment (EA) considers and describes potential environmental effects associated with adoption of an updated Master Plan (MP) for management of natural, cultural and recreational resources at the Lower Granite Lock and Dam Project (Project). The new MP would be a strategic land use management document that guides the comprehensive management and development of all project recreation, natural and cultural resources throughout the life of the water resource project. The new MP would promote the efficient and cost effective management, development, and use of project lands. It is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations.

As required by the National Environmental Policy Act (NEPA) and subsequent implementing regulations promulgated by the Council on Environmental Quality, this assessment is prepared to determine whether the action proposed by the U.S. Army Corps of Engineers (Corps) constitutes a “. . . major Federal action significantly affecting the quality of the human environment . . .” and whether an environmental impact statement is required. The EA is prepared pursuant to NEPA, Council on Environmental Quality (CEQ) regulation (40 CFR, 1500-1517), and the Corps’ implementing regulation, Policy and Procedure for Implementing NEPA, Engineering Regulation (ER) 200-2-2 (USACE1988), Title 33, Code of Federal Regulations, Part 230. The EA covers the action of adopting a new MP. Future site-specific development, operations and maintenance actions that may transpire following adoption of the new MP, would undergo separate (tiered) analysis as required by NEPA.

The National Environmental Policy Act is a full disclosure law, providing for public involvement in the NEPA process. All persons and organizations that have a potential interest in major actions proposed by a federal agency – including other federal agencies, state and local agencies, Native American tribes, interested stakeholders, and minority, low-income, or disadvantaged populations are encouraged to participate in the NEPA process.

The new MP would guide the Corps responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources. The MP would be a dynamic operational document projecting what could and should happen over the life of the project and is flexible based upon changing conditions. The MP would deal in concepts, not details, of design or administration. Detailed management and administration functions would be addressed in a five year Operational Management Plan (OMP), which implements the concepts of the MP into operational actions. Tiered analysis of the OMP is the primary way that future detailed, site specific actions would be addressed fully under NEPA.

The MP would not address dam management procedures and functions, including operations and maintenance of the dam and hydropower facilities, navigation locks and channel, levees, fish passage ladders/facilities or emergency flood operations.

1.2 Project Location and Background

The Lower Granite Lock and Dam Project is located on the Snake River, at River Mile (RM) 107.5 (Figure 1). The dam and nearly all of the Snake River portion of the reservoir lie in southeastern Washington, with the right abutment of the dam in Whitman County and the left abutment in Garfield County. Lower Granite Lake extends up the Snake River into Asotin County, Washington at approximately RM 147, and up the Clearwater River, from its confluence with the Snake River, in Nez Perce County, Idaho to RM 12.

This congressionally authorized project consists of Lower Granite Dam, navigation lock, powerhouse, a fish ladder and associated facilities. The project provides hydroelectric generation, navigation, recreation and incidental irrigation. The dam is about 3,200 feet long with an effective height of 100 feet. The dam is a concrete gravity type, with an earth fill right abutment embankment. It includes a navigation lock with clear dimensions of 86 by 674 feet; and an eight-bay spillway that is 512 feet long, with eight 50-foot by 60.5-foot radial gates.

The lake (Lower Granite Lake) created by the dam extends upstream on the Snake River about 40 miles to the Clarkston, Washington/Lewiston, Idaho area, more than 460 river miles from the Pacific Ocean. The Corps constructed about eight miles of levees around Lewiston to help protect lives and property from potentially destructive high water conditions. Since construction, the levees have prevented more than \$39.3 million in potential flood damages. In 2015, traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to more than 1.1 million tons.

The original master plan document was completed in 1974. It is necessary to update the 1974 MP to comply with new Corps' policy in Engineering Pamphlet (EP) 1130-2-550 (USACE 2013), and to respond to regional and project changes that have occurred since 1974, including increased public use.

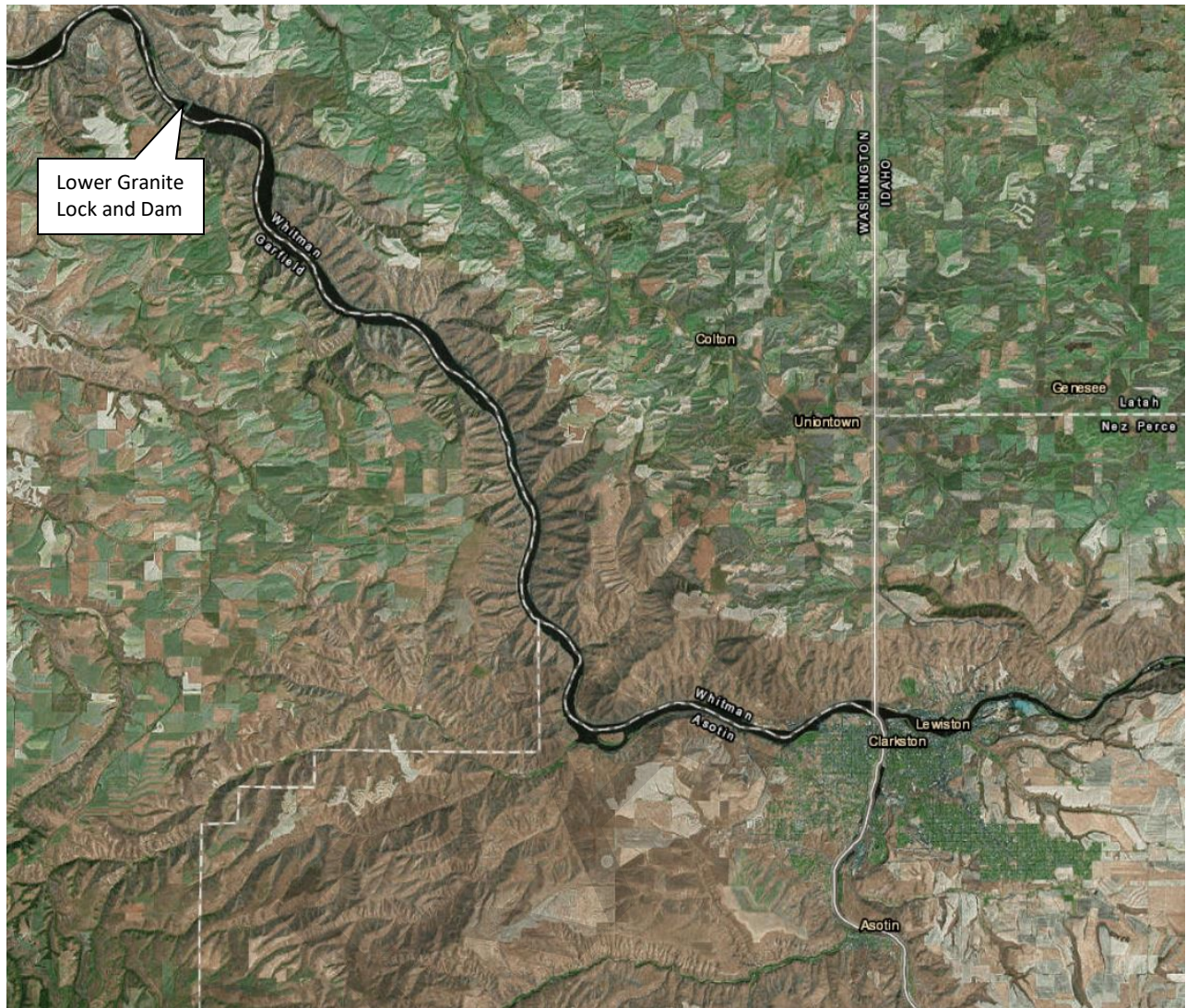


Figure 1-1. Lower Granite Project Area

1.3 Authorities for the Project

The first formal proposal by Congress for the improvement of the Snake River for navigation and other purposes was made in 1902. This was followed by other actions, notably in 1910 and 1935, leading eventually to the Rivers and Harbors Act of 1945, which authorized construction of a series of dams on the lower reach of Snake River downstream from Lewiston. House Document 531, Eighty-First Congress, Second Session, dated 20 March 1950, proposed a four-dam plan with Lower Granite as the last (or most upstream) unit of the four. Construction funds for Lower Granite were first appropriated under Public Law 89-16, dated 30 April 1965. Construction was completed in 1984.

- **Authorized Purposes**

The purposes of the Lower Granite Project, as originally authorized, include navigation, hydroelectric power, incidental irrigation, with fish and wildlife, and recreation added later as additional purposes. As stated above, the MP would not address authorized purposes of navigation, hydroelectric power, or incidental irrigation.

- **Navigation, Hydroelectric Power, Incidental Irrigation**

Public Law (PL) 79-14, River and Harbor Act of 1945, provides authority for original project purposes of navigation, hydroelectric power, and incidental irrigation.

Navigation: The Lower Granite Dam navigation lock is the last of eight locks encountered in the Columbia-Snake Inland Waterway, a 465-mile river highway that allows barge transport of commodities between the Pacific Ocean and Lewiston, Idaho. The navigation channel is maintained at a depth of 14 feet and a width of 250 feet at the minimum operating pool (MOP).

Hydroelectric Power: Lower Granite Dam has six 135-megawatt turbines, for a total generating capacity of 810 Megawatts (MW).

Incidental Irrigation: The Lower Granite Dam is a run-of-the-river dam, which means it does not store/collect water for irrigation purposes. However, the reservoir created by Lower Granite Dam provides incidental irrigation benefits by making access and use of the existing water, by persons with a valid water right issued by the State of Washington, easier.

- **Recreation**

The Flood Control Act of 1944 (PL 78-534), provided authority to add recreation as a purpose.

The Corps is the leading Federal provider of outdoor recreation. As host to 370 million visitors per year, the Corps plays a major role in meeting the Nation's outdoor recreation needs. Popular recreation activities around Lower Granite Dam and Lake include fishing, swimming, picnicking, boating, hunting, and camping. There are several day-use areas, campsites, parks, habitat management units, boat launch facilities, and marinas.

- **Fish and Wildlife**

When Congress authorized the Lower Snake River Projects (LSRP), including the Lower Granite Lock and Dam, the legislative language did not address fish and wildlife losses resulting from the LSRP or mitigation for any of the losses. Under the Fish and Wildlife Coordination Act of 1958 (FWCA) however, both analysis of fish and wildlife impacts associated with Federal water projects and compensation for the loss of fish and wildlife resources and habitat are required. To address FWCA compliance requirements for the LSRP, the US Army Corps of Engineers (Corps) developed the Lower Snake River Fish

and Wildlife Compensation Plan (Comp Plan).

The Comp Plan is a negotiated settlement agreed to by the Corps, Washington Department of Fish and Wildlife (WDFW) and the U.S. Fish and Wildlife Service (USFWS). Its intent is to mitigate for the loss of fish and wildlife resources and their habitat, as well as for the loss of fish- and wildlife-oriented recreational opportunities caused by the construction of the four lower Snake River dams (Corps, 1976). The Comp Plan was published in June, 1975 and authorized by the Water Resources Development Act (WRDA) of 1976. The Comp Plan was subsequently amended by WRDA 1986 and WRDA 2007. The alternatives address land use classifications related to Comp Plan mitigation requirements

1.4 Purpose and Need

The proposed action is to adopt an updated Lower Granite Project MP for the comprehensive management and development of natural, recreational and cultural resources at the Project. The updated MP would promote the efficient and cost effective management, development, and use of project lands and would be a vital tool for responsible stewardship and sustainability of project resources for the benefit of present and future generations.

The purpose of the proposed action is to provide a comprehensive description of the Project, a discussion of factors influencing resource management and development, identification and discussion of special issues, a synopsis of public involvement and input to the planning process, and description of past, present, and proposed development. It would also incorporate current Corps' land use classification standards, include contemporary requirements mandated by federal environmental laws, and better reflect the Corps Environmental Operating Principles, natural resource management mission and environmental stewardship and ecosystem management principles.

Updating the MP is needed because the existing MP is more than 40 years old and provides an inadequate base with which to evaluate contemporary (current and future) land and resources management (e.g. increasing demand for recreational opportunities). The updated MP would comply with new policy found in Corps' EP 1130-2-550, which requires the Project to focus on particular qualities, characteristics, and potentials of the Project and provides consistency and compatibility with national objectives and other state and regional goals and programs. The approval and adoption of the MP would assure the requirements of Corps' policies are met and comments from the public, local, state, federal agencies and tribes are addressed.

Corps' regulations require each Civil Works operating project to develop a master plan. As stated in the EP 1130-2-550, MP goals must include the following:

- Provide the best management practices to respond to regional needs, resource capabilities, suitabilities, and expressed public interests

consistent with authorized project purposes.

- Protect and manage Project natural and cultural resources through sustainable environmental stewardship programs.
- Provide public outdoor recreation opportunities that support Project purposes and public demands created by the Project itself while sustaining Project natural resources.
- Recognize the particular qualities, characteristics, and potentials of the Project.
- Provide consistency and compatibility with national objectives and other state and regional goals and programs.

Due to a combination of age, changes in techniques and methods required by Corps' policy, changes for endangered species management, as well as substantial increases in public use of the Project, the 1974 MP no longer fulfills the intended purpose. An all-inclusive approach is needed to respond to public requirements while meeting all other Project goals. The proposed MP would be a dynamic document that deals in management concepts, not in the specific details of design or administration. It would provide for balanced resource management under special programs, such as environmentally sensitive areas, cultural resources protection, and protection of endangered species and critical habitat. The proposed MP would respond to increased and changing use, visitor desires, and would bring the Lower Granite Project into compliance with current policy.

SECTION 2 – ALTERNATIVES

2.1 Identification of Alternatives

This section identifies a range of alternatives that may respond to the purpose and need identified in Section 1.4, above. A reasonable range of alternatives was initially considered and discussed at a comparable level of detail. The proposed update of the MP is directed by specific Corps' policy which informs consideration of alternatives for strategic project development and management. Alternatives are screened out if they do not conform to policy and don't meet the stated purpose and need.

The alternatives initially considered in this EA include:

Alternative 1: No Action Alternative. Current management based on strategy and guidelines in the 1974 MP with updates in amendments and legal mitigation requirements since 1974.

Alternative 2: Balanced Alternative (Proposed MP). MP update based on new Corps' policy, balancing designed visitor use with environmental and cultural resource sustainability.

Alternative 3: Wildlife Alternative. MP update focused on preservation and enhancement of wildlife resources and habitat. Corps Project personnel identified potential changes in land classifications that would benefit wildlife.

Alternative 4: Recreation Alternative. MP update focused on expanding access and visitor facility development. Project personnel Identified potential changes in land classifications that would benefit recreational opportunities.

Master plans Descriptions of the current Land Classifications (LCs) to be used in the updated master plan alternatives are as follows:

- **Project Operations:** These are lands required for the dam and associated structures, administrative offices, maintenance compounds, and other areas used to operate and maintain the Project.
- **High Density Recreation:** These lands are designated for intensive recreational use to accommodate and support the recreational needs and desires of Project visitors. They include lands where existing or planned major recreational facilities are located; and allow for developed public recreation facilities, concession development, and high-density or high-impact recreational use.
- **Multiple Resource Management:** These are lands managed for one or more of the activities described in the following bullets:
 - **Low Density Recreation:** These lands emphasize opportunities for dispersed or low-impact recreation use.

- **Wildlife Management:** These lands are designated for wildlife management, although all Project lands are managed for fish and wildlife habitat in conjunction with other land uses.
- **Vegetation Management:** These lands focus on the protection and development of forest resources and vegetative cover, although all Project lands are primarily managed to protect and develop vegetative cover in conjunction with other land uses.
- **Recreation-Future Development:** These are lands where recreation areas are planned for the future, or lands that contain existing recreation areas that are temporarily closed.
- **Environmentally Sensitive Area:** These are lands where scientific, ecological, cultural, or aesthetic features have been identified.
- **Mitigation:** These are lands specifically designated to offset fish and wildlife habitat losses associated with the development of the Project.

Table 2-1 presents the proposed changes in land classification between existing conditions in 2018 and future land use classification (2019 and beyond). areas by land classification units for the four proposed alternatives.

Table 2-1. Alternative Matrix. Acres by Land Classification for each Alternative.

Land Classification Nomenclature 2018	Alt 1 No Action	Alt 2 Balanced	Alt 3 Wildlife	Alt 4 Recreation
Operations	542	366.2	273.8	351.3
High Density Recreation (HDR)	842.3	804.5	804.5	809.4
Multiple Resource Management (MRM) Low Density Recreation (LDR)	200	44.7 ¹	36.5 ¹	65.3 ¹
Multiple Resource Management (MRM) Wildlife Management (WM)	757.5	1738 ¹	1838.6 ¹	1727.4 ¹
Multiple Resource Management (MRM) Vegetation Management (VM)	972.6	0 ¹	0	0
Multiple Resource Management (MRM) Future or Inactive Recreation Lands (FIRL)	32.2	27 ¹	27	27
Environmentally Sensitive Areas (ESA)	117	111.3	111.3	111.3
Mitigation	5162.6	5545 ²	5545 ²	5545 ²
Totals	8626.2	8636.7	8636.7	8636.7

Source: Nomenclature from Engineering Pamphlet 1130-2-550

2-2

¹ Lands classified under Multiple Resource Management are managed for all purposes listed. Note: MRM land designation can include low density recreation, future or inactive recreation lands, wildlife management, and vegetation management.

² Increase in acreage is due to open water designation changing to appropriate adjacent land classification through natural sediment deposition.

2.2 Screening of Alternatives

When screening alternatives, the Corps is obligated to consider the stated purpose and need (Section 1.4) and assure compliance with applicable laws/regulations and Corps' policies. Project personnel evaluated all available options and attempted to develop a reasonable range of alternatives focusing on balanced, wildlife, and recreation uses. The Corps developed the following general screening criteria for all alternatives considered:

- A. Provide the best management practices to respond to regional needs, resource capabilities, suitability's, changing use and expressed public interests consistent with authorized Project purposes.
- B. Protect and manage Project natural and cultural resources through sustainable environmental stewardship programs; e.g. environmentally sensitive areas; protection of endangered species and critical habitat; and cultural resources protection.
- C. Provide public outdoor recreation opportunities that support Project purposes, public demands created by the Project itself while sustaining balance with project natural resources;
- D. Recognize the particular qualities, characteristics, and potentials of the Project;
- E. Provide consistency and compatibility with national objectives and other state and regional goals and programs;
- F. Comply with specific requirements for Corps Master Plan policy, environmental laws, and regulations.

Table 2-2 illustrates screening of the four alternatives for each of the criteria described above. Alternatives are marked as "Y" if they meet the definition of the criteria and "N" if they do not. Only Alternative 2 meets all criteria.

Table 2-2 Alternatives by Screening Criteria

Alternative	Criteria					
	A	B	C	D	E	F
1- No Action Alternative	N	Y	N	N	N	N
2- Balanced Alternative (Proposed MP)	Y	Y	Y	Y	Y	Y
3- Wildlife Alternative	N	Y	N	Y	N	Y
4- Recreation Alternative	N	Y	Y	Y	N	Y

For Alternative 1 (No Action), the Corps would continue to use the 1974 MP with its associated management practices, and not implement a MP update. The 1974 MP would not update a regional analysis of recreation and ecosystem needs, project resource capabilities and suitability, recreation program analysis, and cumulative effects assessment, which are essential to the balanced approach and requirements of current Corps' MP policy. Although the Corps currently uses the 1974 MP, the document does not fulfill all current Corps' requirements for an approved MP. Alternative 1 will be carried forward in this analysis as required under CEQ, providing a basis for comparison with other alternatives.

Alternative 2 (Balanced MP) would meet all the conditions of the stated purpose and need and responds to current Corps' policy and regulations. It would provide the required analysis for regional needs, resource capabilities and suitability, and a comprehensive recreation program. Alternative 2 will be carried forward in this analysis as the Proposed MP.

2.3 Alternatives Removed From Further Consideration

Alternative 3, "Wildlife Focus" was developed to include an emphasis on changing land classifications to enhance Project wildlife values and habitat. Project personnel evaluated all possible locations and identified a limited number of land classification changes that would improve wildlife resources. As shown in Table 2-1, the proposed changes in land classifications would include the transfer of small areas of Operations and Multiple Resource Management-Low Density Recreation to Multiple Resource Management-Wildlife Management, resulting in a change of approximately 100 acres. Alt 3 does not meet A, C or E of the screening criteria, so it was not carried forward for further analysis.

Alternative 4, "Recreation Emphasis", was developed to include an emphasis on changing land classifications to enhance Project recreation values and opportunities. Project personnel evaluated all possible locations and identified a limited number of land classification changes that would improve recreation resource opportunities. As shown in Table 2-1, the proposed changes in land classifications would include the transfer of small areas of Operations and Multiple Resource Management-Wildlife Management to High Density Recreation and Multiple Resource Management-Low Density Recreation, resulting in a change of approximately 25 acres. Alternative 4 does not meet A and E of the screening criteria, so it was not carried forward for further analysis.

Neither Alternative 3 nor Alternative 4 fully respond to the purpose and need identified for this action. Of critical importance is the need to emphasize that an approved Corps' MP would be stewardship driven and must seek to balance recreational development and use with protection and conservation of natural and cultural resources. These alternatives do not consider project-wide resource capability and suitability, and are not consistent with multiple use authorized project purposes. Alternative 3 and Alternative 4 have, therefore, been eliminated from further consideration as not satisfying the purpose and need for the proposed action, as identified in Section 2.2 above.

2.4 Alternatives Carried Forward for Detailed Analysis

2.4.1 General

The following section generally describes Alternative 1, No Action, using the 1974 MP, with supplements and updates to 2018, and Alternative 2, the Proposed MP. The 1974 MP and Proposed MP, written many years apart, were developed based on different regulations and Corps' policies. No comprehensive revision to the MP has been done since 1974. The Proposed MP is a conceptual planning document that does not direct specific actions, such as ground disturbing activities that would cause direct impacts to recreation, natural and cultural resources. Using the 1974 MP or the Proposed MP would influence planning and management of the Project and how all resources are best administered.

The 1974 MP was based on MP guidance at that time. The document envisioned and described a number of recreation amenities, some of which were never constructed. The Proposed MP would address management and policy necessary to accommodate regional and local changing conditions at Lower Granite Project. Of substantial importance for the update is the addition of new recreation uses to be considered and a significant growing public demand for recreation and natural resources.

Although somewhat different in content, generally both documents utilize a standard practice of identifying resource objectives, land classifications, and designation of management units for recreation use potential, resource protection, and maintenance practices. Project Resource Objectives (RO) are clearly written statements that are specific to a project or project area. They specify the selected option(s) for resource use, development, and management. They must be consistent with authorized project purposes, Federal laws and directives, regional needs, resource capabilities, and expressed public desires. Formulation and establishment of ROs for each civil works project is required by Engineer Regulation (ER) 1130-2-435, (USACE 1987). Project Land Classifications indicate the primary use for which the project lands are managed. A Project management unit is a tract of land designated, based on land classification, to achieve or contribute towards the achievement of project objectives.

2.4.2 Alternative 1 – No Action Alternative

The Lower Granite Master Plan was completed in 1974. It was the first multiple resource inventory and analysis in the Lower Granite Project's history. It has undergone several supplements since the original Master Plan was developed in 1974. Table 2-3 identifies the total acres for each land classification that changed between 1974 and 2018, as well as the changes to the nomenclature that resulted from a recent update to Engineer Pamphlet 1130-2-550.

Table 2-3. Land Classification in 1974 Lower Granite Master Plan and in 2018.

1974		2018	
Land Classification Nomenclature	Acres	Land Classification Nomenclature	Acres
Project Operations	704.4	Project Operations	542
Recreation Low Density	1006.3	Multiple Resource Management (MRM)–Low Density Recreation	200
Recreation High Density	540.2	High Density Recreation	842.3
Wildlife Management	2404.4	MRM–Wildlife Management	757.5
		MRM–Vegetation Management	972.6
		MRM–Future or Inactive Recreation Areas	32.2
Mitigation		Mitigation	5162.6
Unknown/Natural Area	50.3	Environmentally Sensitive Areas	117
Total Acres	4705.6		8626.2

The land classification changes that occurred during this period were the result of a number of actions. Six master plan supplements occurred between 1978 and 2013. A supplement is a minor change to a master plan such as a change in land classification or facility footprint. Supplements are prepared as often as necessary to ensure master plans remain relevant. Other land classification changes were the result of the real estate actions or requirements associated with the Comp Plan. Full details of the land classification changes are contained in the Proposed MP.

The Comp Plan was initiated to provide fish and wildlife compensation for construction of the four mainstem lower Snake River dams (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite), which impounded approximately 140 miles on the lower Snake River. The COMP PLAN, published in June 1975, was authorized by the Water Resources Development Act (WRDA) of 1976, amended in WRDA 1986 to increase the project cost limit, and again in WRDA 2007 to add woody riparian restoration. It was a negotiated mitigation settlement developed to compensate for wildlife habitat and hunting and fishing opportunity losses resulting from the construction and operation of the four dams (USACE 1975).

The 1974 MP was a systematic organization of land use allocations, development plans, and design criteria for a new Project. It was accomplished with an inventory and analysis of regional and project resources, as well as the application of Corps' policy, responding to public needs and public desires. The methodology used in 1974 has changed since that time and is no longer in compliance with current Corps direction. The 1974 MP focused on Plans of Development for specific location and was later modified and amended as described above.

2.4.3 Alternative 2 - Proposed MP

Alternative 2, the Proposed MP, would replace the 1974 MP. The intent of the

Proposed MP is to develop a guide for the sustainable use of resources at the Project. To fully authorize changes in facilities, use and resource management, and to accommodate regional changes and requirements such as project operations to meet ESA requirements, a planning document is required that meets Corps' policy. The EP 1130-2-550, (USACE 2013) provides the following MP guidance. "A current, approved MP is necessary before any new development, construction, consolidation, or land use change can be pursued. These activities will not be included in budget submissions unless they are included in an approved MP". The primary objective of this Proposed MP is to publish a clear, concise, and strategic land use document that will guide the comprehensive management and development of all Project recreational, natural, and cultural resources.

Alternative 2 would help focus on four primary components that were not included in the 1974 document, or that require expanded analysis, including: (1) regional investigation of recreational and ecosystem needs; (2) Project resource capabilities and suitability; (3) expressed public interests that are compatible with authorized purposes; and (4) NEPA compliance, including a Cumulative Effects Assessment.

The Proposed MP update would provide a current comprehensive description of the Project, a discussion of factors influencing resource management and development, identification and discussion of special issues, a synopsis of public involvement and input to the planning process, and description of past, present, and proposed future development. The Proposed MP would incorporate current Corps of Engineers land use classification standards (including updated land use classification maps), include contemporary requirements mandated by federal environmental laws, and better reflect the Corps of Engineers Environmental Operating Principles, natural resource management mission and environmental stewardship and ecosystem management principles.

The Proposed MP would include a description of Resource Objectives which were not part of the 1974 MP. ROs are clearly written statements that respond to identified issues and specify measurable and attainable activities for resource development and/or management of the lands and waters under jurisdiction of the Walla Walla District at Lower Granite Lock and Dam. The objectives would be consistent with authorized project purposes, Federal laws and directives, and they take into consideration regional needs, resource capabilities, State Comprehensive Outdoor Recreation Plans, cultural and natural resources significant to regional Tribes, and public input. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in the proposed MP.

The Proposed MP would classify project lands on environmental and socioeconomic considerations, public input, and an evaluation of past, present and forecasted trends.

Proposed MP Resource Objectives

1. General Resource Objectives

a. Safety and Security – Provide use areas and facilities that are safe and free of crime.

b. Aesthetic Resource – Plan all management actions with consideration given to landscape quality and aesthetics.

c. Facilities Management – Ensure all current and future facilities are maintained and meet Federal and State design standards.

d. Real Estate Management – Prevent unintentional trespass and negative impacts associated with encroachments on government property while allowing State, County, municipal, and private entities opportunities to provide public recreation services and revenue-generating opportunities.

e. Water Quality - Comply with Federal and State water quality standards.

2. Recreation Resource Objectives

a. Land and Water Accessibility – Provide use areas and facilities that are accessible for all Project visitors.

b. Interpretive Services and Outreach Programs – Interpretive services would focus on agency, District, and Project missions, benefits, and opportunities. Interpretive services at the Project will be used to enhance public safety through promoting public awareness, understanding and appreciation of the Project and its resources.

c. Recreation Optimization and Sustainability – Utilize leveraged resources when possible to maintain and improve recreation facilities that reduce operations and maintenance costs while meeting public demand.

d. Quality Outdoor Recreation in Urban Settings (Intensive Use) - Operate and maintain day-use facilities, as well as develop new facilities that meet public demand, to provide opportunities for multiple user groups in an urban setting.

e. Quality Outdoor Recreation in Rural Settings (Low Density Use) - Operate and maintain multi-purpose facilities, as well as develop new facilities that meet public demand, to provide opportunities for multiple user groups in a rural setting.

3. Environmental Stewardship

a. Riparian and Wetland Protection – Protect and limit impacts to wetlands and riparian corridors on the Project in conjunction with Project missions, water quality, and fish and wildlife benefits.

b. Fish and Wildlife Habitat Management – Conserve, protect, restore, and/or enhance habitat and habitat components important to the survival and proliferation of threatened, endangered, special status, regionally important, and Lower Snake River Compensation Plan species and habitat on Project lands.

c. Cultural Resources Management – Carry out legal requirements of the National Historic Preservation Act (NHPA) in support of existing and ongoing work around Lower Granite Lock and Dam.

d. Integrated Pest Management – Minimize negative impacts to native flora and fauna and damage to Government facilities by reducing and/or eradicating invasive and nuisance species on Project lands.

e. Fire Management - Minimize the negative effects of wildfires, including impacts to Federal property and the recreating public.

Proposed MP Land Classifications

Project LCs designate the primary use for which project lands are managed. Project lands are zoned for development and resource management consistent with authorized project purposes and the provisions of NEPA and other Federal laws. The Proposed MP would use EP 1130-2-550 land classification categories previously described in Section 2.1

- Project Operations.
- High Density Recreation
- Multiple Resource Management
 - Low Density Recreation
 - Wildlife Management
 - Vegetation Management
 - Recreation-Future Development
- Environmentally Sensitive Area

Resource Plan Recommendation

The Resource Plan for the Project describes in broad terms how the lands would be managed. The Proposed MP would divide Project lands into management areas within land classifications. The Project chose the Management by Area approach as set forth in EP 1130-2-550 to modify and combine some of the units. The management areas

identified are presented in broad terms. A more descriptive plan for managing these lands can be found in the Lower Granite Operational Management Plan (OMP). Management tasks described in the OMP must support the Resource Objectives, land classifications, and resource plan set forth in the Master Plan. Section 5 of the Proposed MP (Appendix A) contains detailed descriptions of the management areas by land classification.

The recommendations seek to improve operation and maintenance for recreational facilities for increased efficiency. Many site features, such as steep slopes and fluctuating water levels at the Project, make the operation and maintenance of recreational facilities expensive and time consuming. Creating more efficient recreational opportunities would help to ensure the continued success of public access and use at the Lower Granite Project.

The conceptual development guidelines presented in the Master Plan would authorize the Natural Resources staff to propose projects that address current problems and demands. The guidelines specifically consider types of recreational uses and facilities, including motorized access, boating, fishing, floating facilities and docks, marinas, boat launch ramps, camping, campsites, swimming, hiking, biking, and equestrian use. Other analysis includes visitation and future demands. Facilities design principles and criteria extracted from EM 1110-1-400, "Recreation Planning and Design Criteria" (USACE 2004), appropriate to the Project are provided and discussed. These include structures, utilities, landscaping, and other support items.

Proposed MP Recommendations

Design criteria for recreation areas and facilities would be updated with current engineering manuals, engineering regulations and engineering pamphlets. The conceptual development guidelines presented in the Proposed MP would authorize the Natural Resources staff to propose projects that address current problems and demands. Each proposed project would be evaluated for environmental compliance before it is implemented and based on proper approval, public desire and available funding.

The Proposed MP provides conceptual guidelines for the effective management of the Project. Guidelines were developed in accordance with the Corps' master planning process. Preparation of the MP required: (1) an appraisal of the natural and human-related resource conditions of the Project and the surrounding region, and (2) an examination of environmental and administrative constraints and influences. Recommendations seek to improve operation and maintenance for increased efficiency. Efficient recreation and wildlife opportunities help to ensure the continued success of public access.

The MP is a living document establishing the basic direction for management and development of the Project in agreement with the capabilities of the resource and public needs. The MP is flexible in that supplementation can be achieved through a formal process that addresses unforeseen needs. The MP would be reviewed every five years to facilitate the evaluation and utilization of new information as it becomes available.

SECTION 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 Introduction

This section describes the existing affected environment (existing condition of resources) and evaluates potential environmental effects on those resources for each alternative. Alternative 1 (No Action) and Alternative 2 (Proposed Master Plan or MP) were carried forward for analysis. This analysis is prepared at the broad scale planning level. The EA does not analyze site specific actions. Those actions would be identified in the Project OMP's and be evaluated under NEPA, tiering from this EA.

This section identifies and describes: (1) the affected environment – i.e. the Project recreation, natural and cultural resources which have the potential to affect or to be affected by the alternatives, and (2) what the effects on those resources might be with implementation of the alternatives. Although all existing resources within the Project area were initially considered, only those resources determined relevant to the proposed action were included in the affected environment evaluation. While the intent is to focus on relevant resources, it is important to recognize that the level of relevance of each identified resource to the proposed action is not the same.

The Proposed MP Alternative would comply with Corps policy in EP 1130-2-550, (USACE 2013), which recognizes particular qualities, characteristics, and potentials of the Project and provides consistency and compatibility with national objectives and other state and regional goals and programs. According to current Corps policy, funding for new recreational development, construction, consolidation or land use change would not be permitted without an approved MP that meets current requirements identified in the EP. Based on this requisite, the No Action Alternative would restrict any changes to operations and maintenance that require budget approval. Although short-term impacts may be minimal, long-term proposed actions for management changes would not be approved, possibly resulting in adverse impacts to natural and cultural resources and visitors. The No Action Alternative does not meet the Project Purpose and Need, but is carried forward in this analysis as required under CEQ, providing a basis for comparison with other alternatives.

The purposes of the Lower Granite Project, as originally authorized, include navigation, hydroelectric power, incidental irrigation, with fish and wildlife, and recreation added later as additional purposes. Maintenance of equipment and use of structures for navigation, hydroelectric power, and irrigation are the highest focus. According to Corps policy, a MP does not include water management operations and associated prime facilities (dams, gates, locks, levees, etc.). Therefore impacts of navigation, hydroelectric power, and irrigation are not included in this assessment, which focuses on recreation and fish and wildlife values.

3.2 Environmental Review by Resource

The Proposed MP being analyzed in this EA does not include detailed actions for the Project. It is not feasible to define the exact nature of potential impacts prior to receiving proposals for specific development or management changes, such as construction of new facilities, roads, trails, or vegetation management at the broad, landscape-scale.

This section discusses the existing environmental conditions of the Project area, as well as general effects anticipated to occur for the proposed action, over a wide range of environmental and social elements. In addition, the No Action Alternative is evaluated, which provides a comparison to the proposed action. Resources that have been considered relevant in this analysis include: Aesthetics; Recreation; Socioeconomics; Aquatic Resources; Wildlife; Vegetation; Water Quality; Threatened and Endangered Species; Cultural Resources; Environmental Justice; Climate Change; and Cumulative Effects.

3.2.1 Aesthetics/Visual Quality

Bordered by grasslands, shrub-steppe, and agricultural crop lands which vary in appearance by season and crop rotation, the Project offers thousands of acres open for recreation adjacent to Lower Granite Lake. The Snake River flows through the Project and presents users the opportunity to view the river canyon and many native wildlife species. Recreational areas and habitat management units are present throughout the Project providing areas for both land and water-related activities, including hiking, boating, bike, or horse. Lower Granite Dam creates the reservoir on the Snake River, providing the observer with scenic views of the Snake River Canyon downstream from Hells Canyon.

The aesthetic quality of an area is a measure of the visitor's perception of how pleasing an area appears. Many people visit the Project because of its aesthetic value and visitors enjoy visual resources through a variety of landforms, wildlife, fisheries, recreation and vegetation. The deep river canyon provides dramatic backdrops to the reservoir and agricultural lands.

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action Alternative, visual resources on Project lands would evolve through natural process as vegetation matures, by changes occurring on adjacent lands within the view shed, or as a result of routine operation and maintenance activities performed by Project staff. Maintenance activities such as mowing, vegetation trimming, facility cleaning, facility repair, etc., would have minor or no adverse impacts to aesthetics.

The surrounding privately owned property is primarily used for agricultural purposes and municipal development in the Clarkston and Asotin,

Washington and Lewiston, Idaho areas. Based on past and current use, visual quality would likely remain constant in the near future. Long-term, aesthetic quality of adjacent property may be modified by alternate crops or changes in land use, such as construction of industrial buildings or housing. The influence of increasing human population in the region may modify views from the Project. Future development such as new roads, cell towers, wind turbines, or power line towers would adversely impact aesthetics.

Alternative 2 - Proposed MP. With the Proposed MP Alternative, potential impacts to aesthetics, influenced by project operation and maintenance, would be similar to the No Action Alternative. Implementation of Alternative 2 would utilize additional analysis to make improvements for maintenance and operations of natural, cultural and recreational resources. With long-term balanced planning, this alternative would be more effective in creating beneficial impacts for quality aesthetics by using enhanced vegetation management, facility development and visitor management. Visual quality from outside of project lands would not be impacted by adoption of Alternative 2.

3.2.2 Recreation

The Project provides a wide range of all-season recreational pursuits along the Snake River due to its close proximity to the cities of Lewiston, Idaho and Clarkston, Washington. While portions of the project provide users with an urban park atmosphere, much of the project is devoted to wild land or dispersed recreation pursuits such as hiking, picnicking, boating, biking, running, horseback riding, hunting, fishing, and nature study. Project levees, comprising eight miles around Lewiston, are popular all season recreation areas. Visitors use the area heavily for boating and fishing on Lower Granite Lake; walking, bicycling, and exercising on the 18.9 mile Clearwater-Snake River National Recreation Trail; and camping, picnicking, hunting, horseback riding, rock climbing, birding, and sightseeing throughout the Project. There were over 2.6 million visitors at the Project in 2016.

Boating on Lower Granite Lake is a primary activity for many visitors. Much of the boating is related to fishing; however, waterskiing, tubing, wake boarding, jet skiing, sailing, kayaking, and canoeing are also important boating activities. Access to the 48.7 mile long lake is gained through 12 well-spaced boat ramps, seven managed by the Corps, and five are managed by lessees through a real estate instrument. Additionally, two marinas with over 220 slips are operated by lessees in the upper reaches of the lake.

During the hot summer months, swimming is a popular activity. Swimming usually occurs at the lake's four designated swimming areas, but visitors also swim in undesignated areas adjacent to sandy beaches.

Fishing is another major water activity of visitors to Lower Granite Lake. Most anglers fish for steelhead, Chinook salmon, and smallmouth bass. Fishing for trout takes place at Corps ponds including Evans, Golf Course and Lewiston Levee ponds.

Many visitors to the Project camp at one of the nearly 300 camp sites. The Project offers a diversity of camping opportunities ranging from highly developed campsites with electricity, water, and sewer to primitive camping where the only amenities are a fire ring and table.

The Lower Granite Project is an important resource for hunting. White-tailed and mule deer are the primary big game species. Upland game bird hunters target turkey, pheasant, chukar, and mourning dove. Waterfowl hunting is fairly common. Over 6,500 acres of Lower Granite Project lands are open to public hunting.

The Project provides more than 30 miles of land-based recreation trails. The largest trail system on Project lands is the paved Clearwater-Snake River National Recreation Trail. This urban trail system has two components:

- The Lewiston Levee Parkway runs atop the Lewiston Levees and connects recreation areas on the Idaho side of the river to the city of Lewiston, Idaho.
- The Greenbelt Trail connects recreation facilities on the Washington side of the river to the communities of Asotin and Clarkston, Washington.

Hells Gate contains nearly 13 miles of approved hiking trails with varying degrees of difficulty in the middle of the wildlife habitat area.

A large percentage of visitors to the Project each year come to sightsee and view the Snake River canyon. Sightseeing is often combined with picnicking, hiking, bird watching, wildlife photography, or other activities

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action Alternative recreation use would continue as in the past with predicted increasing visitation as local and regional populations grow. Short-term recreation in the Project area would continue with minor or no adverse impacts from routine operation and maintenance of facilities. BMPs would be used to eliminate or significantly reduce adverse impacts for visitors from operation and maintenance actions. Long-term, increased use would deteriorate natural and manmade resources as carrying capacity is approached. Maintenance requirements would increase to sustain current resources.

Alternative 2 - Proposed MP. Potential impacts to recreation from Alternative 2 would be similar to the No Action Alternative over the short-term. The new MP would comply with current Corps guidance, and would provide analysis of use, demand, carrying capacity, and social effects of

proposed actions from the predicted increased visitation. Using a long-term balanced planning approach, Alternative 2 would be more effective in accommodating increased number of visitors and preserving natural resources. Recreation use and experience quality would be beneficially impacted by adoption of Alternative 2 over the long-term.

3.2.3 Socioeconomics

The Project located in southeastern Washington and north central Idaho, occupies portions of Asotin, Garfield, and Whitman counties in Washington, and Nez Perce County in Idaho. Lewiston, Idaho (2016 population estimate: 32,872) and Clarkston, Washington (2016 population estimate: 7341) are the two largest cities in the area. The cities comprise the Lewiston, ID-WA Metropolitan Statistical Area (MSA), with an estimated population of 61,476 as of July 1, 2011 (U.S. Census Bureau 2018). The cities of Lewiston and Clarkston are named after Meriwether Lewis and William Clark (of the Lewis and Clark expedition), respectively.

The MSA is the primary regional transportation, retail, health care, wholesale and professional services, and entertainment center. With the presence of Lewis–Clark State College in Lewiston, it is also a center for education and workforce training. The local economy has historically been driven by agriculture and manufacturing. The Ports of Lewiston and Clarkston are the terminus of a navigable waterway to the Pacific Ocean. They handle barge traffic carrying grain, wood products, and manufacturing goods.

The racial makeup of the MSA was 93.01% White, 0.25% African American, 3.88% Native American, 0.60% Asian, 0.06% Pacific Islander, 0.55% from other races, and 1.66% from two or more races. Hispanic or Latino of any race were 1.94% of the population. The median income for a household in the MSA was \$34,903, and the median income for a family was \$42,402. Males had a median income of \$35,249 versus \$24,616 for females. The per capita income for the MSA was \$18,146 (Wikipedia 2018).

Many recreational opportunities are found within the Project area. The cities of Lewiston and Clarkston provides public recreation facilities including parks, golf courses, swimming pools, and recreation trails. Other regional recreation include the National Park Service's Nez Perce National Historical Park, 8 miles east of Lewiston and recreation in the Umatilla National Forest, located southwest of Clarkston.

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action alternative there would be minor or no impacts to socioeconomics in the area surrounding the Project. Population growth and demographic makeup of the population would remain similar to rates and percentages the area experiences currently. Land values would not be affected if the No Action Alternative was implemented. Any changes in the socioeconomic conditions of the

area would likely be the result of outside influences and not those created by the No Action Alternative.

Impacts to socioeconomics within the Lewiston/Clarkston Valley from operation of the Project are related to utilization of the Project for recreational purposes. Composition of social groups at the Project appears to mimic the demographics of the region. This conclusion is based on three observations, 1) The Project is very near the urban population that accounts for much of the Project visitation; 2) there are no or minimal fees for use; and 3) there are no requirements for high-cost recreation equipment for many of the recreational opportunities provided by the Project. Visitors can utilize many of the Project facilities without disparity for economic considerations. With the No Action Alternative there would be minor or no adverse impacts to socioeconomics in Lewiston/Clarkston area or the surrounding counties from routine operation and maintenance of facilities, visitor use, or management of natural and cultural resources.

Alternative 2 - Proposed MP. With Alternative 2, potential impacts to socioeconomics in the surrounding counties from operation and maintenance of facilities, visitor use, or management of natural and cultural resources would be similar to the No Action Alternative. The Proposed MP would use contemporary analysis to consider if the Project is impacting socioeconomics or influencing socioeconomic factors in the use of the recreation facilities. Land values would not be affected if Alternative 2 would be implemented. Any changes in the socioeconomic conditions of the area would likely be the result of outside influences and not those created by the Proposed MP.

3.2.4 Aquatic Resources

The Snake River is home to 35 native fish species including both resident and anadromous species in the Project area. Lower Granite Lake has a combination of fish species common to both reservoir environments and rivers. Native, anadromous species include Chinook salmon (*Oncorhynchus tshawytscha*), sockeye salmon (*Oncorhynchus nerka*), and steelhead (*Oncorhynchus mykiss*), while native resident species include bull trout (*Salvelinus confluentus*), northern pikeminnow (*Ptychocheilus oregonensis*), chiselmouth (*Acrocheilus alutaceus*), white sturgeon (*Acipenser transmontanus*), and others. In addition, a variety of introduced fish species are present including largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), white crappie (*Pomoxis annularis*), black crappie (*Pomoxis nigromaculatus*), common carp (*Cyprinus carpio*), walleye (*Sander vitreus*), channel catfish (*Ictalurus punctatus*), lake trout (*Salvelinus namaycush*), and others.

Due to the proximity to the Snake River, there are a variety of aquatic/wetland habitats present in the Project area. Lower Granite Lake fluctuates between the minimum operating pool (MOP) level of elevation 733 feet and the ordinary high water mark

(OHWM) elevation of 738 feet. MOP is generally maintained between April 1 and September 1, with higher water levels, up to OHWM, maintained between September 1 and April 1. Due to the water level fluctuating up to five feet, aquatic habitats ranging from the shallow pool to uplands are present in the Project area.

Approximately 7.6% of the vegetated lands at the project are classified as wetlands. These wetlands are classified as Palustrine Emergent (0.6% of vegetated lands), Palustrine Scrub Shrub (2.8% of vegetated lands), and Palustrine Forest (4.3% of vegetated lands).

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action Alternative, impacts related to aquatic resources would remain unchanged. Resource management would continue as it has in recent years. The No Action Alternative would have no new direct effects on resident/anadromous fish and/or aquatic resources. Land uses would remain unchanged and management of the land and activities on the project would be conducted as it has in the past. Any ongoing impacts to fish and other aquatic organisms would occur primarily as a result of negative water quality impacts in the reservoir and streams.

Alternative 2 - Proposed MP. Under Alternative 2, potential impacts to aquatic resources from operation and maintenance of facilities, visitor use or management of natural and cultural resources would be similar to the No Action Alternative. Alternative 2 would have no new direct effects on resident fish and/or aquatic habitat. Under this alternative, the new MP would enable more efficient land management. The MP would comply with current Corps guidance, and would provide analysis of use, demand, carrying capacity, social effects of proposed actions. Future development would create positive effects, providing for sustainable use of reservoir resources and reduced long-term direct and indirect impacts to project resources. Effects from long-term, minor modifications to facilities or natural resources are likely under this alternative to better meet the needs of the recreating public and to better respond to resource objectives. With new construction, indirect, minor, short-term impacts would occur, but implementation of BMPs would minimize detrimental impacts.

3.2.5 Wildlife

The Project provides fish and wildlife habitat for over 250 species between Lewiston, Idaho, and Starbuck, Washington. Corps-managed HMUs provide public hunting and fishing opportunities, as well as access to view wildlife for educational, recreational, and aesthetic experiences.

Various forms of wildlife are generally abundant close to riparian habitats associated

with HMUs along the Snake River and tributary streams. Many species of mammals, birds, amphibians, and reptiles inhabit riparian corridors during different parts of the year.

Mammals common to the area include white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), otter (*Lontra canadensis*), striped skunk (*Mephitis mephitis*), bats [silver-haired (*Lasioncycteris noctivagans*) and hoary (*Lasiurus cinereus*)], and a variety of small rodents [including deer mouse (*Peromyscus maniculatus*) and Montane vole (*Microtus montanus*)]. Occasionally, bobcat (*Lynx rufus*), black bear (*Ursus americanus*), cougar (*Puma concolor*), and moose (*Alces alces*) have been seen in the Project area.

Common birds include wild turkey (*Meleagris gallopavo*), belted kingfisher (*Megasceryle alcyon*), California quail (*Lophortyx californicus*), ring-necked pheasant (*Phasianus colchicus*), mourning doves (*Zenaidura macroura*), swallows (*Tachycineta* spp. and *Hirundo* spp.), sparrows (*Melospiza melodia*), woodpeckers (*Picoides* spp.), various other songbirds, ducks (*Anas* spp.), hawks (*Buteo* spp.), osprey (*Pandion haliaetus*), and owls [common barn owl (*Tyto alba*), western screech owl (*Otus kennicotti*), great horned owl (*Bubo virginianus*), snowy owl (*Nyctea scandiaca*), northern pygmy owl (*Glaucidium gnoma*), long-eared owl (*Asio otus*), and short-eared owl (*Asio flammeus*)]. Canada goose (*Branta canadensis*), Bald eagles (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), and American white pelicans (*Pelecanus erythrorhynchos*), can be seen along shorelines and riparian habitats.

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action Alternative, wildlife populations would evolve from the existing condition in a natural process as habitat changes, as influenced by operation of the Project, and as human use changes. There would be no adverse impacts to wildlife species from routine operation and maintenance of facilities, natural and cultural resources using appropriate BMPs. Adverse impacts to wildlife would occur with increased human presence in some locations. The forecasted increase in visitation would adversely impact wildlife and associated habitat in some locations. Wildlife would likely move to alternative habitat areas.

Alternative 2 - Proposed MP. Under Alternative 2, potential impacts to wildlife resources from operation and maintenance of facilities, visitor use, or management of natural and cultural resources would be similar to the No Action Alternative. The Proposed MP would comply with new Corps guidance, and would provide analysis of use, demand, carrying capacity, environmental and social effects of proposed actions. Utilizing the guidance and updated analysis would assist in sustaining the long-term natural ecosystem process for many habitats and protecting regional populations of wildlife species that use and/or require the habitat

characteristics associated with Project lands. Planning under Alternative 2 would be expected to achieve habitat and animal health by meeting management objectives and would provide long-term enhancement of wildlife populations. The increase of almost 1000 acres of Multiple Resource Management-Wildlife Management Land Classification areas would provide opportunities for continued wildlife habitat enhancement actions across the Project.

3.2.6 Vegetation

Major vegetation zones in the general region include grasslands and shrub-steppe in the lower to mid-elevations, forest in mid to higher elevations, and alpine meadows in the highest elevations. The Project area is located primarily in the grassland/shrub-steppe zone as it occurs in low elevations adjacent to the Snake River.

Three vegetation broad categories are found within the Project: terrestrial, riparian, and wetland. Terrestrial vegetation is dominated by the grass/forb cover type (85% of Project area), with lesser amounts of shrub-steppe and upland forest cover types. Riparian and wetland vegetation comprise the remainder of the vegetation cover types, occurring generally in linear bands along the reservoir shoreline and streambanks.

Presently, approximately 60 percent of the Project is classified as mitigation and environmentally sensitive areas mainly consisting of grassland and shrub-steppe. Habitat management has focused on grassland enhancement and vegetation diversity, including efforts to increase riparian habitat through the planting of shrubs and trees to compensate for habitat lost after dam construction. A wildlife contract has been in place for over 20 years to control noxious weeds, manage native grasses, plant wildlife food plots, and plant native trees and shrubs. Acreages for these management activities has varied over the years, but is prioritized by Corps wildlife biologists.

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action Alternative, vegetation management would continue as currently operated. Vegetation would change as growth occurs naturally over time, along with vegetation plantings. There would be minor impacts to vegetation from routine operation and maintenance, including treatments of invasive plant species. Maintenance of facilities and infrastructure would require trimming or removal of vegetation. Other vegetation would be managed for storm damage, disease, or modifications of wildlife habitat as required for targeted wildlife species. Land and water uses would remain unchanged and management of the land and activities on the project would be conducted as it has in the past.

Alternative 2 - Proposed MP. Under Alternative 2, potential effects to vegetation from project operation and maintenance and visitor use would be similar to No Action Alternative. Implementation of the Proposed MP

would utilize additional analysis to make changes for anticipated impacts from increased visitation and influences from outside of the Project. Alternative 2 would have no new direct effects on vegetation management. Implementing the guidance and updated analysis would assist in sustaining the natural ecosystem process for many habitats and protecting regional populations of the sensitive wildlife species that use and/or require the habitat characteristics associated with Project lands, particularly riparian and wetland vegetation cover types. Using long-term balanced planning, this alternative would be more effective in enhancing vegetation for wildlife resources.

3.2.7 Water Quality

Overall water quality was summarized in the Biological Evaluation (Appendix B) in terms of six criteria for the Lower Granite Project: 1) water quality, 2) habitat access, 3) habitat elements, 4) channel condition and dynamics, 5) flow and hydrology, and 6) watershed conditions. Environmental baseline conditions were evaluated as: 1) properly functioning, 2) at risk, or 3) not properly functioning.

Water quality, evaluated based on temperature, sediment, and chemical contaminants/nutrients, is considered “at risk.” Temperature is generally high in the summer months, though it is moderated by cold water releases from Dworshak Dam. Sediment deposition and transport on the Snake River experiences great fluctuations between high and low flow periods. Chemical contamination/nutrients are sometimes high due to agricultural runoff.

Habitat access, evaluated based on physical barriers, is considered “at risk.” The lower Snake River dams provide fish passage, but some migrants are delayed or killed.

Habitat elements, evaluated based on substrate, large woody debris, pool frequency, pool quality, off-channel habitat, and refugia, are considered “at risk” to “not properly functioning.” Substrate is impacted by the deposition of sand and silt in some areas of the Snake River, and very little large woody debris is deposited, resulting in “not properly functioning” conditions. Pool frequency and pool quality are both “at risk” due to alterations caused by the lower Snake River dams. Off-channel habitat is “not properly functioning” because little to no off channel habitats exist along the lower Snake River. Refugia is “at risk” because sources of materials such as large woody debris are limited in the Snake River.

Channel conditions and dynamics, evaluated based on width to depth ratio, streambank condition, and floodplain connectivity, are considered “at risk” to “not properly functioning.” The width to depth ratio is “not properly functioning” due to the existing reservoir being much deeper and wider than the pre-impoundment Snake River. Streambank condition is “at risk” as only a narrow band of riparian vegetation exists along the Snake River as the natural floodplain was inundated by Lower Granite

Lake. Floodplain connectivity is “not properly functioning” as reservoir levels are controlled by dam operations and levees were constructed to restrict access river access to the floodplain.

Flow and hydrology, evaluated based on peak/base flows and drainage network increase, are considered “at risk” to “not properly functioning.” Peak/base flows are “not properly functioning” since the river is somewhat controlled by Hells Canyon Dam on the Snake River and Dworshak Dam on the North Fork Clearwater River. Drainage network is “at risk” as urban development, with many impervious surfaces, has increased local runoff in many areas along the Snake River.

Watershed conditions, evaluated based on road density and location, disturbance history, and riparian reserves, are considered “at risk.” Road density and location is “at risk” as road networks have expanded greatly within the Snake River Basin within the past century, contributing to sediment into streams and rivers. Disturbance history is “at risk” as large wildfires have increased in frequency throughout the Inland Northwest resulting in increased potential sediment delivery to streams. Riparian reserves are “at risk” due to the absence of vegetation along shorelines, or only a narrow band.

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action alternative impacts related to water quality from operation of recreation and wildlife lands at the Project would remain unchanged. Water quality would remain at risk due to temperature impacts, sediment, reduced riparian vegetation, etc. Management of the land and operational activities on the Projects would be conducted as it has in the past. Development outside of the Project for new housing, industrial use, or changes in farming practices and wildfire frequency/severity could potentially adversely impact water quality.

Alternative 2 - Proposed MP. Under Alternative 2, potential impacts to water quality from operation and maintenance of facilities, visitor use or management of natural and cultural resources would be similar to the No Action Alternative. Water quality impacts from specific recreation and environmental maintenance actions would be minor and short term. The Proposed MP would comply with new Corps of Engineers guidance, and would provide analysis of use, demand, and carrying capacity. Implementing the MP guidance and updated analysis would assist in sustaining the natural ecosystem process to protect water quality.

3.2.8 Threatened and Endangered Species

There are seven species listed under the Endangered species Act (ESA) in the Lower Granite project area. These include: Snake River spring/summer and fall Chinook (*Oncorhynchus tshawytscha*), Snake River Sockeye (*Oncorhynchus nerka*), Snake River Steelhead (*Oncorhynchus mykiss*), Bull Trout (*Salvelinus confluentus*), Spalding's

catchfly (*Silene spaldingii*), and Yellow-billed cuckoo (*Coccyzus americanus*). The lower Snake River and its tributaries within the Project area contain designated critical habitat for all ESA-listed fishes.

- **Snake River Spring/Summer Chinook Salmon**

Snake River spring/summer Chinook salmon were listed as threatened on 1992, and include all natural-origin populations in the Tucannon, Grande Ronde, Imnaha, Salmon, and mainstem Snake Rivers. Adult and juvenile spring/summer Chinook salmon generally only migrate through the Project area. A number of limiting factors, including degraded freshwater spawning and rearing habitat, the hydropower system, and harvest, affect these populations.

- **Snake River Fall Chinook Salmon**

Snake River fall Chinook salmon were listed as threatened on June 28, 2005 and reaffirmed April 14, 2014 (79 Federal Register 20802). Historically, the lower and middle Snake River populations formed the two major population groups, however, the construction of Hells Canyon Dam extirpated the middle Snake River population. Spawning populations presently occur in the mainstem Snake River below Hells Canyon Dam, Lower Granite Dam, and in the lower reaches of the Clearwater, Grand Ronde, Tucannon, Salmon, and Imnaha Rivers. Fall Chinook salmon migrate through the Project area, but reservoir type fall Chinook smolts likely rear in the lower Snake River within the Project area, and a small population of adults typically spawn in the Snake River below Lower Granite Dam.

- **Snake River Sockeye Salmon**

Snake River sockeye salmon were listed as endangered on November 20, 1991. Sockeye generally only migrate through the Project area, but adults have been known to hold up below Lower Granite Dam in the summer when high water temperature impedes migration. Sockeye may also seek thermal refuge in the Clearwater River upstream of the Snake River confluence.

- **Snake River Steelhead**

Snake River steelhead were listed as threatened on August 18, 1997, and protective regulations were issued under section 4(d) of the Endangered Species Act on July 10, 2000. Their threatened status was reaffirmed on January 5, 2006, and again on April 14, 2014. This distinct population segment includes populations below natural and manmade impassable barriers in streams in the Snake River basin of southeast Washington, northeast Oregon, and Idaho. Steelhead typically migrate through the Project area, but may also seek thermal refuge in the Clearwater River upstream of the Snake River confluence in summer, and overwinter in the Lower Granite Dam pool prior to completing their spawning migration.

- **Bull Trout**

The United States Fish and Wildlife Services (USFWS) issued a final rule listing the Columbia River Basin population of bull trout as a threatened species on June 10, 1998. Bull trout are currently listed throughout their range in the western United States as a threatened species. Historically, bull trout were found in about 60 percent of the Columbia River Basin. They now occur in less than half of their historic range. Populations remain in portions of Oregon, Washington, Idaho, Montana, and Nevada (USFWS 2014). The lower Snake River within the Project area has one major stronghold bull trout population in Asotin Creek, which consists of six tributaries. Asotin Creek offers the only bull trout refugia with suitable spawning and rearing habitat in the Project area (USFWS 2014). Bull trout persistence in this basin is important for maintaining connectivity between populations in the upper Snake River Basin and the Columbia River. Both sub-adult and adult bull trout likely use the lower Snake River during the fall, winter, and spring for rearing and overwintering, although the proportion of local populations that may do this is unknown.

- **Spalding's Catchfly**

Spalding's Catchfly was listed as threatened on October 10, 2001. This plant is found predominantly in grasslands and sagebrush-steppe. Its current range extends through northeast Oregon, western Idaho, and southeast Washington, encompassing the Project area. To date, no Spalding's catchfly have been documented on Project lands (Trumbo 2018).

- **Western Yellow-Billed Cuckoo**

The yellow-billed cuckoo was listed as threatened on October 3, 2014. Critical habitat was also proposed for designation at that time, but not in Washington. In the Pacific Northwest, the species was fairly common in willow bottoms along the Willamette and Columbia Rivers in Oregon, and in the Puget Sound lowlands and along the lower Columbia River in Washington, but was rare east of the Cascade Mountains in these states.

- **Environmental Consequences**

Alternative 1 – No Action. Considering impacts to Endangered Species includes fish, wildlife, and plant impacts. Land and water uses would remain unchanged and management of the land and activities at the Project would be conducted as in the past. Under the No Action Alternative there would be no direct effect on ESA-listed species. The existing land classifications, resource objectives, and management actions would not change.

Alternative 2 - Proposed MP. Under Alternative 2, potential effects to threatened and endangered species from Project operation and maintenance and visitor use would be similar to the No Action Alternative. Necessary protection actions would be fulfilled pursuant to ESA and other

associated regulations and executive orders. The Corps has determined that the Proposed MP, may affect, but is not likely to adversely affect any associated ESA-listed species. The proposed action may affect, but is not likely to adversely affect critical habitat for ESA-listed fishes, and would have no effect on yellow-billed cuckoo critical habitat

3.2.9 Cultural Resources

There is ample evidence that people have lived along the Snake and Clearwater Rivers for thousands of years. These areas not only represent long ago activities, they are still of living importance today to affiliated Tribes. A number of historic period sites are also present, including those related to agriculture, transportation, industry, and homesteads. An overview and historic context for Lower Granite and other dams in the Federal Columbia River Power System (FCRPS) is discussed in a number of documents and will not be repeated here (Historical Resource Associates, Inc. 2015, Reid 1995).

Formal ethnographic studies by researchers with the Nez Perce, Palus, and other tribes began in the late 1800s and early 1900s, but the first documented archaeological survey of Corps lands at Lower Granite was the Smithsonian Institute's River Basin Surveys in 1948. Twelve archaeological sites were recorded during that initial survey, with additional surveys, salvage excavations, and ethnographic studies conducted by archaeologists from Washington State University and the University of Idaho up to the time of reservoir impoundment (Osborne 1948). At the time of publication of the original Lower Granite Master Plan in 1974, the Corps, its contractors, and local universities had just completed excavations at a number of significant sites including Wawawai, Alpowa, Silcott, and Granite Point (Adams et al 1975, Brauner 1976, Leonhardy 1969, Yent 1976). In addition to those excavations, about two dozen Nez Perce burial sites were tested, and hundreds of graves were relocated by University and Tribal crews (Sprague 1978). The Corps also relocated several historical Euroamerican cemeteries prior to inundation (Schalk and Nelson 2016).

To date, 159 archaeological sites have been documented on Corps lands at the Lower Granite Project. Three of those sites, Hasotino, Hatwai, and Interior Grain Tramway, have been listed on the National Register of Historic Places (NRHP). One of those sites, Hasotino, is managed by the Corps, but is also a contributing site to Nez Perce National Historical Park.

Another ten archaeological sites have been found eligible through concurrence determinations with the State Historic Preservation Officer (SHPO), but have not been formally nominated to the NRHP. Eight archaeological sites have been found not eligible for the NRHP through concurrence determinations, and 138 sites are unevaluated. Ninety of the unevaluated sites are inundated, and have not been evaluated because limited information is available whether the site retains attributes that make it eligible for the NRHP.

Traditional Cultural Properties have been identified at Lower Granite by the Confederated Tribes of the Colville Indian Reservation, the Nez Perce Tribe, and the Confederated

Tribes and Bands of the Yakama Nation. These properties are in the process of being evaluated for NRHP eligibility.

Two buildings at Chief Timothy Park have been documented that are over 50 years old, and have been recommended not eligible for the NRHP. The Corps needs to complete concurrence determinations with the Washington SHPO before formally determining their eligibility status. One structure on the Idaho side has been found not eligible through a concurrence determination with the Idaho SHPO. One object, the Washington-Idaho Territorial Marker, has been documented, and it is currently unevaluated.

Sites at Lower Granite Reservoir have been affected by reservoir related effects, including erosion, sediment deposition, development, and recreational activities. Sites have also been or could be affected by unauthorized actions, such as vandalism, looting, and cattle encroachments.

- **Environmental Consequences**

Alternative 1 – No Action. Under the No Action Alternative, there would be no changes to any process affecting cultural resource protection, and there would be no adverse impacts to cultural resources. The Corps would continue to review individual undertakings, and consult with the Idaho and Washington SHPO and affiliated Tribes in accordance with the 2009 FCRPS Programmatic Agreement.

Alternative 2 - Proposed MP. Under Alternative 2, potential effects to cultural resources from project operation and maintenance and visitor use would be similar to the no Action Alternative. The Corps determined that the adoption and implementation of the Master Plan would have “No Effect” on historic properties, in accordance with Section 106 of the National Historic Preservation Act. The Corps would continue to review individual undertakings, and consult with the Idaho and Washington SHPO and affiliated Tribes in accordance with the 2009 FCRPS Programmatic Agreement.

3.2.10 Environmental Justice

Federal agencies are required to consider and minimize potential impacts to subsistence, low income, or minority communities. The goal is to ensure that no person or group of people shoulder a disproportionate share of negative environmental impacts resulting from the execution of the country's domestic and foreign policy programs.

- **Environmental Consequences**

Alternative 1 – No Action. The Project is located on Corps managed property and requires limited or no fees for entrance or use of the facilities or natural resources. The existing MP does not direct actions

that would impact specific subsistence, low income, or minority communities.

Alternative 2 - Proposed MP. Under alternative 2, potential effects to environmental justice from project operation and maintenance and visitor use would be similar to No Action Alternative. The Proposed MP would not direct specific actions that would cause a disproportionate share of negative environmental impacts to a person or group of people.

3.2.11 Climate Change

Indications are that average global atmospheric temperatures are trending upward over the previous several decades, and are correlated to increased atmospheric carbon dioxide levels (NASA 2018). Internal combustion engines emit carbon dioxide (CO₂) as one byproduct of efficient burning of fuel (gasoline or diesel). International efforts are being directed at reducing carbon release into the atmosphere.

In the Pacific Northwest, changes in snowpack, stream flows and forest cover are already occurring. Future climate change would likely continue to influence these changes. Average annual temperature in the region is projected to increase by 3-10 F by the end of the century. Winter precipitation in the form of rain, not snow, is projected to increase while summer precipitation is projected to decrease (EPA 2018).

Reduced precipitation during the summer months would impact vegetation type and quantity, resulting in changes to wildlife habitat, including food sources, cover vegetation, and possibly reproduction areas. Higher temperatures would increase evaporation rates from the lake, lowering lake elevations, and increasing water temperature, impacting aquatic flora and fauna. Along with rising air temperatures, there would be a corresponding rise in stream temperature. This would likely reduce the quality and suitability of steelhead and bull trout habitat in the Project area. Some vegetation throughout the project would exhibit stress response to higher temperature and less precipitation.

- **Environmental Consequences**

Alternative 1 – No Action. There would no effects to climate change as a result of implementing the No Action Alternative. Gradual climate change would continue, in correlation with increasing CO₂ emissions worldwide. However, climate change would have the capability to cause minor effects to the Project with the potential existing for a change in weather patterns such as more rain and less snow in the winter.

Alternative 2 - Proposed MP. With adoption of Alternative 2, potential effects to climate change and from climate change would be similar to the No Action Alternative.

3.2.12 Cumulative Effects

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations implementing the Act require federal agencies to consider the cumulative impacts of their actions. Cumulative effects are defined as, “the impact on the environment which results from the incremental impact of an action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR § 1508.7). Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The primary goal of a cumulative effects analysis is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and reasonably foreseeable future actions.

3.3.12.1 Resources Considered

The Corps used the technical analysis conducted in this EA to identify and focus on cumulative effects that are “truly meaningful” in terms of local and regional importance. While the EA addresses the effects of alternatives on the range of resources representative of the human and natural environment, not all of those resources need to be included in the cumulative effects analysis – just those that are relevant to the decision to be made on the proposed action. The Corps has identified the following resources that are notable for their importance to the area and potential for cumulative effects. Those resources are:

- Recreation
- Wildlife

Resources are discussed in terms of their cumulative effect boundary (spatial and temporal), the historic condition and impacts to the resources, present condition and impacts to the resources, reasonably foreseeable future actions that may affect the resources, and the effects to the resource by the MP alternatives when added to other past, present, and future actions.

This section evaluates the cumulative effects of actions that could potentially affect the same environmental resources as those discussed earlier in this EA. The scope of this analysis extends beyond the Project to other areas that sustain the resources of concern. A resource may be differentially impacted in both time and space. The implication of those impacts depends on the characteristics of the resource, the magnitude and scale of the project’s impacts, and the environmental setting (EPA 1999).

3.3.12.2 Geographic and Temporal Scope of Cumulative Effects Analysis

Guidance for setting appropriate boundaries for a cumulative effect analysis is available from CEQ (CEQ 1997) and EPA (EPA 1999). Generally, the scope of cumulative effects analysis should be broader than the scope of analysis used in assessing direct or indirect effects. “Geographic boundaries and time periods used in

cumulative impact analysis should be based on all resources of concern and all of the actions that may contribute, along with the project effects, to cumulative impacts” (EPA, 1999). The analysis should delineate appropriate geographic areas including natural ecological boundaries, whenever possible, and should evaluate the time period of the project’s effects.

The resources assessed have experienced various impacts since approximately 1960, when dam construction was contemplated. Actions such as construction and operations of dams and associated levee systems, agricultural development, road building, development of cities and urbanization have negatively and positively impacted resources.

Discussed below are the past, present, and reasonably foreseeable future actions that were considered for the cumulative effects analysis, the effects of the actions on the resources assessed, and a summary of the cumulative effects of the alternatives. Table 3-1 summarizes the geographic and temporal boundaries used in this cumulative effects analysis.

Table 3-1: Geographic and Temporal Boundaries of Cumulative Effects Area

Resource	Geographic Boundary	Temporal Boundary
Recreation	Upstream from Lower Granite Dam along the Snake and Clearwater Rivers	50 years
Wildlife		

The geographic boundary for the cumulative effects analysis for Recreation and Wildlife includes actions taking place along the Snake and Clearwater Rivers upstream from Lower Granite Dam. The timeframe of 50 years was identified based on an approximate construction start of the Lower Granite Project of 1970. For reasonably foreseeable actions, a timeframe of five years into the future has been considered. Only actions that are reasonably foreseeable are included. To be reasonably foreseeable, there must be a strong indication that an action/event will occur or be conducted.

3.3.12.3 Past, Present, and Reasonably Foreseeable Future Actions and Implications for Resources

The following sections present summaries of past, present, and reasonably foreseeable future actions considered in this cumulative effects analysis, and the effects of those actions on the resources considered.

3.3.12.3.1 Past Actions

Most past actions were related to the Corps construction of Lower Granite Lock and Dam

and associated facilities in the 1970's. The construction of the dam resulted in Lower Granite Lake being formed with slack water extending up the Snake River upstream of Clarkston, Washington. A variety of recreational sites were created at that time. Additional recreational sites have resulted from lease agreements with state agencies such as the Idaho Department of Parks and Recreation at Hells Gate State Park, and other entities including the cities of Lewiston, Idaho and Clarkston and Asotin, Washington.

Recreational development in local municipalities has occurred concurrent with increases in population. Park development and improvements, development of walking trails, and other facilities have occurred. The Asotin County Aquatic Center was opened in 2004. Maintenance/upgrades of other recreational facilities were needed as sites were used including the replacement of the retaining wall at Chestnut Beach in 2017.

Lands were acquired by the Corps as part of the Lower Snake River Fish and Wildlife Compensation Plan to mitigate for impacts associated with loss of fish and wildlife habitat from the construction of Lower Granite Dam. A total of 54 habitat management units were developed along the Snake River, including Lower Granite Lake. Vegetation plantings have been conducted up to the present time to develop and improve wildlife habitat or Corps lands.

3.3.12.3.2 Effects of Past Actions on Resources

Wildlife

Loss of wildlife habitat associated with the construction of Lower Granite Dam and the subsequent filling of Lower Granite Lake was the main wildlife impact in the project area in the past. Habitat studies were conducted to determine the extent of impacts to wildlife habitat. The Lower Snake River Fish and Wildlife Compensation Plan was developed to mitigate for those impacts. Tree removal and shoreline work related to construction and maintenance of recreational facilities impacted riparian wildlife habitat.

Recreation

Recreational opportunities dramatically increased with the creation of Lower Granite Lake. Recreational facilities offering day-use opportunities, picnicking, hiking, boating, camping, hunting, wildlife viewing and many other activities were developed. Over time, some facilities required increased maintenance to remain operational. Boat marinas and swimming beaches experienced significant sedimentation and required dredging to remove accumulated sediments.

3.3.12.3.3 Present Actions

Present actions include regular operation and maintenance activities at other Corps recreational facilities. Specific Corps present actions include the development of a fishing platform at Golf Course Pond, replacement of a recreation shelter at Swallows Park, and ongoing vegetation plantings at Project HMUs and other locations as actions associated with the Lower Snake River Fish and Wildlife Compensation Plan are

completed. The regular treatment of invasive plants as locations are identified is occurring under the provisions of the District Programmatic Pest Management Plan (USACE 2013a).

3.3.12.3.4 Effects of Present Actions on Resources

Wildlife

Vegetation plantings and treatments of invasive plants would continue to improve wildlife habitat in the Project area. Riparian plantings of willows (*Salix sp.*), black cottonwood (*Populus trichocarpa*), and other species would create habitat for birds, mammals, reptiles, and amphibians creating shoreline conditions similar to what existed before the construction of Lower Granite Dam.

Adoption of the proposed Lower Granite Master Plan would continue the emphasis of wildlife habitat mitigation developed in the Lower Snake River Fish and Wildlife Compensation Plan.

Recreation

Adoption of the proposed Lower Granite Master Plan would guide the comprehensive management and development of all Project recreation, natural and cultural resources into the future. The Proposed MP would promote stewardship and sustainability of Project resources. Recreation use has increased from 1,630,936 in 1994 to almost 2,700,000 visits in 2016.

3.3.12.3.5 Reasonably Foreseeable Future Actions

Future actions in the Project area include continuing operation and maintenance of Corps facilities and the following proposed actions:

- Restoration of the beach access area at Swallows Park. The original pool area would be filled in and a new beach would be established nearby. Native vegetation (grasses, shrubs, trees) would be established at the previous pool site.
- Mitigation requirements associated with the Swallows Beach Restoration Project by the Washington Department of Ecology would establish three Environmentally Sensitive Areas in the Alpowa, Asotin, and Knoxway Canyon locations.
- Construction of a recreational fishing platform at Evans Pond would occur.
- Dredging of recreational boat marinas.
- Continued planting of native vegetation at HMUs and other Project locations for wildlife habitat and recreational values.
- Management of recreation sites for diverse public wants and evolving desires.

Commercial and residential development within and surrounding the cities of Clarkston and Lewiston would likely continue into the future. Recreation programs in both cities would continue to expand as population increases. Coordination between the cities, Corps, and other entities would likely continue and would increase as area population

increases.

3.3.12.3.6 Effects of Reasonably Foreseeable Future Actions on Resources

Wildlife

Reasonably foreseeable future actions within the Project area would generally have beneficial impacts on wildlife in the area. Habitat would continue to be managed for multiple wildlife species, particularly in riparian and shoreline locations. The development and use of parks in Lewiston and Clarkston would have negligible impacts on wildlife, though vegetation plantings would have positive impacts. Added visitation at these sites, as the area population grows, may adversely impact certain wildlife species.

Impacts from Lower Snake River Fish and Wildlife Compensation Plan vegetation plantings would continue providing positive impacts to wildlife as vegetation grows, creating more vertical structure and habitat diversity. Additional vegetation planting would provide similar benefits.

Recreation

Parks and golf courses in both cities would continue to be used and managed at existing conditions for the reasonably foreseeable future. Future population growth would occur, requiring additional recreation facilities. The restoration of the beach access area at Swallows Park may increase public use of the park and nearby recreational facilities.

Increased visitation at the Project would require management to prevent user conflicts where there are physical limitations based on total recreation lands available. Increased use at city parks would set in motion redistribution of users to Corps facilities and other recreation lands in and around the Project area.

3.3.12.4 Summary of Cumulative Effects of Past, Present, and Reasonably Foreseeable Future Actions on Resources

Wildlife

Generally, wildlife populations have remained at stable, to increasing, levels during the past twenty years within the Project boundary. Impacts caused by new housing construction and increased human occupation in the cities of Lewiston and Clarkston and surrounding areas, generate adverse and beneficial impacts to a variety of wildlife species. As human population grows in the area and development increases to support the human population, some wildlife species would be displaced.

Adoption of the Proposed MP would not significantly contribute to the potential for ongoing adverse impacts to wildlife as human population increases in the Lewiston/Clarkston area. The surrounding land base would support stable to

increasing levels of most wildlife species. Based on MP objectives, future management would effectively improve wildlife habitat conditions, including food, cover, and reproduction. The Proposed MP, when combined with past, present, and reasonable foreseeable future actions would not be expected to have a significant detrimental effect on wildlife, and would, in many cases, have positive impacts.

Recreation

Increasing human population and available recreational opportunities would continue to drive impacts to recreation in the reasonably foreseeable future. Recreational demand would continue to grow as the regional population increases. City parks, golf courses, beaches/pool facilities, marinas, walking trails, picnic, and camping areas would be fully utilized. Impacts to other recreation lands in the area, such as the Nez Perce Historic site, would be negligible. It is anticipated that public use at the Lower Granite Project would increase in the future, but adverse impacts would be negligible.

Implementation of the Proposed MP at the Lower Granite Project would not significantly contribute to detrimental cumulative effects to recreation. Recreation needs of the public at the Lower Granite Project would be better accommodated through the implementation of the Proposed MP. Future recommendations would be based on review of existing facilities, resource suitability and carrying capacity, environmental and social effects. There would be modernization and upgrading of existing facilities and improved management of natural resources. The Proposed MP, when combined with past, present, and reasonable foreseeable future actions would not be expected to have a significant detrimental effect on recreation, and would, in many cases, have positive impacts.

SECTION 4– COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REVIEW REQUIREMENTS

Section 4 identifies the legal, policy, and regulatory requirements that could affect each proposed alternative. The MP will not, when adopted, authorize any new site specific actions. Those will be identified in future 5-year OMPs, which may require tiered NEPA review. The following paragraphs address the principal environmental review and consultation requirements applicable to the Proposed MP. Pertinent Federal treaties, statutes, and executive orders (EO) are included.

4.1 Treaties and Native American Tribes

Treaties between the United States and regional mid-Columbia/lower Snake River tribes document agreements reached between the federal government and the tribes. In exchange for Native American tribes ceding much of their ancestral land, the government established reservation lands and guaranteed that it would respect the treaty rights, including fishing and hunting rights. These treaties, as well as statutes, regulations, and national policy statements originating from the executive branch of the federal government provide direction to federal agencies on how to formulate relations with Native American tribes and people. Treaties with area tribes (e.g., Treaty of June 9, 1855, Walla Walla, Cayuse, etc., 12 Stat. 945 (1859)) explicitly reserved unto the tribes certain rights, including the exclusive right to take fish in streams running through or bordering reservations, the right to take fish at all usual and accustomed places in common with citizens of the territory, and the right of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed lands. These reserved rights include the right to fish within identified geographical areas.

Adoption of the Proposed MP would have no adverse impacts on important treaty resources.

4.2 Federal Statutes

- **National Environmental Policy Act (NEPA)**

As required by NEPA and subsequent implementing regulations promulgated by the Council on Environmental Quality, this EA was prepared in order to determine whether the proposed action constitutes a "...major Federal action significantly affecting the quality of the human environment..." and whether an EIS is required. This EA documents the evaluation and consideration of potential environmental effects associated with the proposed action.

This EA has been prepared and is being circulated to agencies, tribes, and the public for review and comment pursuant to requirements of NEPA. No impacts significantly affecting the quality of the human environment have been identified at this time. If no such impacts are identified during the public review process, compliance with NEPA would be achieved upon the signing

of a FONSI. However, if such impacts are identified during the public review, an EIS would be required. Compliance with NEPA would then be achieved upon completion of an EIS and the signing of a Record of Decision.

The adoption of the Proposed MP would be in compliance with this act. Subsequent implementing plans would be subject to further tiered review under NEPA.

- **The Endangered Species Act (ESA)**

The ESA established a national program for the conservation of threatened and endangered fish, wildlife and plants and the habitat upon which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with the USFWS and National Marine Fisheries Service (NMFS), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats.

Section 7(c) of the ESA and the Federal regulations on endangered species coordination (50 CFR §402.12) require that Federal agencies prepare a Biological Assessment that analyzes the potential effects of major actions on listed species and critical habitat. The Corps sent copies of the Biological Evaluation (Appendix B), documenting the Corps' determination that adoption of the proposed MP is not likely to adversely affect listed species or designated critical habitat, to the USFWS and NMFS on March 16, 2018 for their review and concurrence.

Adoption of the Proposed MP would be in compliance with the Act upon receipt of concurrence. Implementation of future specific actions under the MP or OMP would require assessment of effects to species and critical habitat in compliance with ESA.

- **The Magnuson-Stevens Fishery Conservation and Management Act (MSA)**

As amended, the MSA (Public Law 94-265), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for fisheries regulated under a federal fisheries management plan.

Federal agencies must consult with NMFS on all proposed actions authorized, funded, or carried out by the agency that may adversely affect EFH. Steelhead and bull trout are the only species in the area affected by the MSA.

The adoption of the Proposed MP would have no effect on chinook, steelhead, or bull trout or EFH. The proposed action would be in compliance with this Act.

- **The National Historic Preservation Act (NHPA)**

Section 106 of the NHPA (16 USC 470; recently codified at 54 USC 306108) requires that federal agencies evaluate the effects of federal undertakings on historic properties and afford the Advisory Council on Historic Preservation opportunities to comment on the proposed undertakings. The first step in the process is to identify cultural resources included in (or eligible for inclusion in) The National Register of Historic Places (NRHP) that are located or near the study area. The second step is to identify the possible effects of proposed actions. The lead agency must examine whether feasible alternatives exist that would avoid such effects. If an effect cannot reasonably be avoided, measures must be taken to minimize or mitigate potential adverse effects. Specific actions to be taken following approval of the proposed Master Plan would require project-specific determination of effects in accordance with Section 106 of the NHPA.

The Corps has determined that adoption of the Proposed MP has no potential to affect historic properties. However, as noted above, any project-specific actions implemented subsequent to adoption of the proposed Master Plan would require a determination of effect, and consultation with State Historic Preservation Officers, Tribal Historic Preservation Officers, and interested parties where applicable in accordance with Section 106 of the NHPA.

- **Native American Graves Protection and Repatriation Act (NAGPRA)**

The NAGPRA (25 USCA. 3001) addresses the discovery, identification, treatment, and repatriation of Native American (and Native Hawaiian) human remains, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony. This act also establishes fines and penalties for the sale, use, and transport of Native American cultural items.

The adoption of the Proposed MP would not require or trigger compliance with the Act. Future site actions would be reviewed for compliance with this Act.

- **Federal Water Pollution Control Act (Clean Water Act (CWA))**

The Federal Water Pollution Control Act (33 U.S.C. §1251 et seq., as amended) is more commonly referred to as the Clean Water Act. This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The act was established to restore and maintain the chemical, physical, and biological integrity of the Nation's waters and sets goals to eliminate discharges of pollutants into navigable water, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.

Adoption of the Proposed MP would not require or trigger compliance with the CWA. Future site specific actions would be reviewed for compliance with the Act.

- **American Indian Religious Freedom Act (AIRFA)**

The American Indian Religious Freedom Act (AIRFA) of 1978 (42 USCA 1996) established protection and preservation of Native Americans' rights of freedom of belief, expression, and exercise of traditional religions. Courts have interpreted AIRFA to mean that public officials must consider Native Americans' AIRFA interests before undertaking actions that might harm those interests.

The Corps would continue to coordinate with affected Native American tribes on the Proposed MP.

- **Archaeological Resources Protection Act (ARPA)**

The Archaeological Resources Protection Act (16 USC 470aa-470ll) provides for the protection of archeological sites located on public and Native American lands, establishes permit requirements for the excavation or removal of cultural properties from public or Native American lands, and establishes civil and criminal penalties for the unauthorized appropriation, alteration, exchange, or other handling of cultural properties.

The Corps would continue to protect archeological resources and sites on lands within the Corps' jurisdiction, in accordance with the Act.

- **The Clean Air Act (CAA)**

The CAA of 1970, as amended, established a comprehensive program for improving and maintaining air quality throughout the United States. Its goals are achieved through permitting of stationary sources, restricting the emission of toxic substances from stationary and mobile sources, and establishing National Ambient Air Quality Standards (NAAQS). Title IV of the CAA includes provisions for complying with noise pollution standards.

Adoption of the Proposed MP would have no adverse impacts on air quality and be in compliance with the Act. Implementing future plans or actions would require subsequent review to ensure compliance with the CAA

- **The Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (FWCA) of 1934 requires Federal agencies involved in water resource development projects to consult with the USFWS and the state agency administering wildlife resources concerning

proposed Federal water resources development projects that could result in the control or modification of a natural stream or body of water that might have effects on the fish and wildlife resources that depends on the body of water or its associated habitat.

Adoption of the proposed MP would not be subject to the Act as it would not “result in the control or modification of a natural stream or body of water. Implementing future plans or actions would require subsequent review to ensure compliance with FWCA.

- **The Migratory Bird Treaty Act (MBTA)**

The MBTA (16U.S.C. S 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. The MBTA prohibits the harming, harassment, and take of protected species, except as permitted by the USFWS.

A wide variety of species listed under the MBTA occur on Corps managed lands within the Project area. There would be no take of migratory birds and the proposed action would not conflict with the purpose of the MBTA. The adoption of the Proposed MP would be in compliance with the MBTA. Implementing future plans or actions would require subsequent review to ensure compliance with MBTA.

- **The Bald and Golden Eagle Protection Act (BGEPA)**

The BGEPA prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions, primarily for Native American Tribes. Take under the BGEPA includes both direct taking of individuals and take due to disturbance. Disturbance is further defined on 50 CFR 22.3. Bald and golden eagles are known to nest and roost on Corps managed lands in the Project area. While nest sites have not been formally documented in the District, locations of some nests are known.

The adoption of the Proposed MP would be in compliance with the BGEPA and would not result in disturbance or take of bald or golden eagles. Implementing future plans or actions would require subsequent review to ensure compliance with BGEPA.

- **Watershed Protection and Floodplain Management Act**

The purpose of the Watershed Protection and Flood Prevention Act is to protect watersheds from erosion, floodwater, and sediment damages. The Act provides assistance programs to local organizations for the protection of

watersheds, including risk management. The proposed project is in compliance with the Act.

The adoption of the Proposed MP would not affect upstream watersheds or the designed levels of flood protection provided by the Project. Implementing future plans or actions would require subsequent review to ensure compliance with WPFMA.

4.3 Executive Orders

- **Executive Order 11990, Protection of Wetlands, May 24, 1977**

This Executive Order (EO) requires Federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetland. Wetlands are regulated under Section(s) 401 and 404 of the Clean Water Act. Section 401, Water Quality Certification, ensures compliance with water quality standards.

Section 404 regulates activities within the Waters of the U.S., which includes the Snake River and its surrounding tributaries. The Corps is responsible for implementing and complying with these regulations. The effects to wetlands for all alternatives are essentially the same. However, the intent of the proposed MP would provide additional protection as the priority is responsible stewardship and sustainability.

Wetlands would not be detrimentally impacted by adoption of the Proposed MP. A detailed review of site specific actions would be completed to ensure wetland values and functions would not be affected. Implementing future plans or actions would require subsequent review to ensure compliance with the EO.

- **Executive Order 12898, Environmental Justice**

This EO requires federal agencies to consider and minimize potential impacts to subsistence, low income, or minority communities. The goal is to ensure that no person or group of people shoulder a disproportionate share of negative environmental impacts resulting from the execution of the country's domestic and foreign policy programs. The proposed MP is a conceptual planning document for strategic land management and development of project recreation, natural and cultural resources. It is intended for responsible stewardship and sustainability of resources. The proposed MP would not direct specific actions that would cause a disproportionate share of negative environmental impacts to a person or group of people.

Adoption of the Proposed MP would not conflict with requirements of this E.O. Implementing future plans or actions would require subsequent review to

ensure compliance with the EO.

- **Executive Order 13007, Native American Sacred Sites, May 24 1986**

Executive Order 13007 directs federal agencies to accommodate access to and ceremonial use of tribal sacred sites by tribal religious practitioners. Agencies are to avoid adversely affecting the physical integrity of such sacred sites and to maintain the confidentiality of sacred sites when appropriate. The act encourages government-to-government consultation with tribes concerning sacred sites. Some sacred sites may qualify as historic properties under the NHPA.

Adoption of the Proposed MP would not adversely affect any Native American sacred sites. The Corps would consult with tribes in the future when implementing the MP, as appropriate, concerning sacred sites in compliance with the EO.

- **Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, November 6, 2000, and Presidential Memorandum, "Government to Government Relations with Native American Tribal Governments, April 29, 1994**

Executive Order 13175 sets forth guidelines for all federal agencies to establish regular and meaningful consultation and collaboration with Indian tribal officials in the development of federal policies that have tribal implications; strengthen the United States government-to-government relationships with Indian tribes; and reduce the imposition of unfunded mandates on Indian tribes.

The Presidential Memorandum of 1994 states in part that, "each...department and agency shall consult, to the greatest extent practicable and permitted by law, with tribal governments prior to taking actions that affect federally recognized tribal governments."

The Corps sent letters offering government-to-government consultation to the Confederated Tribes of the Colville Reservation, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Confederated Tribes and Bands of the Yakama Reservation, and the Nez Perce Tribe on March 6, 2017. No comments were received from the Tribes.

The Corps also sent letters to the Confederated Tribes of the Colville Reservation, the CTUIR, the Confederated Tribes and Bands of the Yakama Reservation, and the Nez Perce Tribe March 6, 2017, requesting scoping comments regarding the proposed MP update. The Proposed MP, along with this draft FONSI and EA, will be provided to the Nez Perce and the CTUIR Tribes, with a letter requesting review and comment.

The Proposed MP would not, when adopted, authorize any new site specific actions, which could have tribal implications or affect tribal governments. Site specific actions would be identified in future 5-year OMPs, which would require tiered NEPA review and compliance specific to all applicable laws. The Corps did, however, offer consultation with the Nez Perce and the CTUIR on development and proposed adoption of the Proposed MP.

4.7 State and Local Regulations

On a case-by-case basis, state or local laws and ordinances may also be applicable to any potential project implementation, based on aspects of the individual project. A state water quality certification is an example of a potential instance where a state permit or authorization may be a requirement for project implementation. Adoption of the Proposed MP would not trigger compliance with any state or local laws or regulations. On a case by case basis these requirements would be addressed for site specific actions under OMPs.

SECTION 5 – PUBLIC COORDINATION, CONSULTATION, AND INVOLVEMENT

5.1 Public Scoping Process

A 30 day public scoping process for the Proposed MP was initiated on March, 22 2017 and was extended another 30 days until May 22, 2017. Letters were sent to interested public, organizations, stakeholders, federal and state congressional offices, and agencies offering the opportunity to comment on the scoping process for the master plan update.

The Corps of Engineers conducted a public scoping meeting in Clarkston, Washington on March 22, 2017 and in Pullman, Washington on March 23, 2017, to support the MP update. Scoping meetings are a useful tool to obtain information from the public and governmental agencies. For a planning process such as the MP revision, the scoping process was also used as an opportunity to get input from the public and agencies about the vision for the MP update and the issues that the MP should address where possible. The meetings were attended by approximately 80 individuals. The Corps received about 70 suggestions and comments related to management issues and recreation at the Lower Granite Project. A majority of the comments focused on:

- Recreational opportunities
- Real estate and access
- Dam removal
- Control of invasive plant species

The general concepts presented included providing access to the Project and surrounding areas, to enhance the wildlife habitat and recreational opportunities, and consideration of local economic development opportunities. Comments compiled from attendees at the public scoping meeting and other sources were used to update the MP.

The Corps has a webpage to disseminate information and collect comments for the MP update. Draft and Final versions of the MP, FONSI and EA will be placed on this webpage, at the location identified below.

5.2 Draft Document Review

The Draft MP, Draft FONSI and EA were released to the public, Tribes and interested parties on June 5th, 2018 for a 21 day review period. Comments received from review of the Draft MP, Draft FONSI and EA would be summarized, with comment responses becoming an attachment to the final FONSI. The Draft MP, Draft FONSI and EA can be viewed on the Corps website at:

<http://www.nww.usace.army.mil/Locations/District-Locks-and-Dams/Lower-Granite-Master-Plan/>

5.3 Tribal Coordination

The Corps sent letters to the Confederated Tribes of the Colville Reservation, the CTUIR, the Confederated Tribes and Bands of the Yakama Reservation, and the Nez Perce Tribe on March 6, 2017, requesting scoping comments regarding the proposed MP update. The letters also offered Government to Government consultation. Coordination on the MP update continues with the Tribes throughout this process.

On June 5, 2018, the Corps sent letters to the Confederated Tribes of the Colville Reservation, the CTUIR, the Confederated Tribes and Bands of the Yakama Reservation, and the Nez Perce Tribe requesting review and comment on the Draft MP, FONSI and EA.

SECTION 6 – ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
CWA	Clean Water Act
CEQ	Council on Environmental Quality
CFS	Cubic Feet Per Second
ESA	Endangered Species Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EP	Engineering Pamphlet
ER	Engineering Regulation
FCP	Flood Control Project
HMU	Habitat Management Unit
LC	Land Classification
COMP PLAN	Lower Snake River Fish and Wildlife Compensation Plan
MP	Master Plan
MOP	Minimum Operating Pool
MSL	Mean Sea Level
MW	Megawatt
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
OHWL	Ordinary High Water Mark
OMP	Operational Management Plan
PL	Public Law
RM	River Mile
RO	Resource Objective
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Services
WRDA	Water Resources Development Act

SECTION 7 – REFERENCES

- Adams, W. H., L. P. Gaw, and F. C. Leonhardy. 1975. Archaeological Excavations at Silcott, Washington: The Data Inventory. Reports of Investigations, No. 53, Laboratory of Anthropology, Washington State University, Pullman, Washington.
- Brauner, D. R. 1976. Alpawai: The Culture History of the Alpowa Locality, Volumes 1 and 2. Washington State University, Department of Anthropology, Pullman, Washington.
- Council on Environmental Quality (CEQ). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. January 1997. Crecelius, E.A., and O.A. Cotter
- Environmental Protection Agency (EPA). 1999. Consideration of Cumulative Impacts in EPA Review of NEPA Documents. U.S. Environmental Protection Agency, Office of Federal Activities, May 1999.
- EPA. 2018. Climate Impacts in the Northwest. Available from: <https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-northwest.html>
- Historical Research Associates, Inc. 2015. A Systemwide Research Design for the Study of Historic Properties in the Federal Columbia River Power System. Prepared for the Federal Columbia River Power System, Cultural Resource Program. Available Online: <https://www.bpa.gov/efw/CulturalResources/FCRPSCulturalResources/Pages/Program-Documents.aspx>
- Leonhardy, F. C. 1969. Artifact Assemblages and Archaeological Units at Granite Point Locality 1 (45WT41), Southeastern Washington. Laboratory of Anthropology, Washington State University, Pullman, Washington.
- National Aeronautics and Space Administration. 2018. Carbon Dioxide. Available at: <https://climate.nasa.gov/vital-signs/carbon-dioxide/>
- Osborne, D. 1948. An Appraisal of the Archaeological Resources of the Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Reservoirs, Snake River, Washington. Columbia Basin Project, River Basin Surveys, Smithsonian Institution.
- Reid, K. C. 1995. An Overview of Cultural Resources in the Snake River Basin: Prehistory and Paleoenvironments (1st Update). Prepared for the U.S. Army Corps of Engineers by Rainshadow Research, Inc., Pullman Washington.
- Schalk, R. F. and M.A. Nelson. 2016. Archival Research and Site Analysis Walla

Walla District Grave Relocation Projects. Prepared for the U.S. Army Corps of Engineers, Walla Walla District, by Cascadia Archaeology, LLC and Applied Earthworks, Inc, Seattle, Washington and Albany Oregon.

- Smith, M. R., P. W. Mattocks, Jr., and K. M. Cassidy. 1997. Breeding birds of Washington State: location data and predicted distribution. *In* K. M. Cassidy, C. E. Grue, M. R. Smith, and K. M. Dvornich, editors. Washington state gap analysis - final report. Volume 4. Seattle Audubon Society Publications in Zoology No. 1, Seattle, Washington.
- Sprague, R. 1978. Nez Perce Grave Recovery Lower Granite Dam Reservoir, 1973-1978. University of Idaho Anthropological Research Manuscript Series, No. 47, Moscow, Idaho.
- Trumbo, B. 2018. Personal communication, February 22, 2018.
- USACE. 1974. Lower Granite Master Plan. Walla Walla District, Walla Walla, Washington. June 1974.
- U.S. Army Corps of Engineers (USACE). 1975. Lower Granite Project, Walla Walla, Washington, Final Environmental Impact Statement. Walla Walla District, Walla Walla, Washington, June 1975.
- USACE. 1987. Engineering Regulation 1130-2-435, Project Operations Preparation of Master Plans, 30 December 1987. U.S. Army Corps of Engineers, CECW-CO, Washington D.C.
- USACE. 1988. Engineering Regulation 200-2-2, Procedures for Implementing NEPA, March 1988. U.S. Army Corps of Engineers, CECW-CO, Washington D.C. (Title 33, Code of Federal Regulations, Part 230.)
- USACE. 1996. Engineering Pamphlet 1130-2-550, *"Project Operations, Recreation Operations and Maintenance Guidance and Procedures"*, U.S. Army Corps of Engineers, CECW-CO, Washington D.C.
- USACE. 2004. EM 1110-1-400, *"Recreation Planning and Design Criteria, Engineering and Design Recreation Facility and Customer Services Standards"*, 1 November 2004. U.S. Army Corps of Engineers, CECW-CO, Washington D.C.
- USACE. 2013. Engineering Pamphlet 1130-2-550, *"Project Operations, Recreation Operations and Maintenance Guidance and Procedures"*, change 5, U.S. Army Corps of Engineers, CECW-CO, Washington D.C.
- USACE. 2013a. Integrated Pest Management Plan-Environmental Assessment. Walla Walla District, Walla Walla, WA.

U.S. Census Bureau. 2018. Population Census. Available from: www.census.gov

U.S. Fish and Wildlife Service. 2000. *Biological Opinion; Effects to Listed Species from Operations of the Federal Columbia River Power System*. U.S. Fish and Wildlife Service, Regions 1 and 6.

USFWS. 2014. Bull trout critical habitat units – index map (Washington, Oregon, Idaho, Montana, Nevada). Available from:
https://www.fws.gov/pacific/bulltrout/finalcrithab/FR_Maps_CHUs.jpg.

Wikipedia. 2018. Lewiston-Clarkston Metropolitan Area. Available from
: https://en.wikipedia.org/wiki/Lewiston-Clarkston_metropolitan_area

Yent, M. A. 1976. The Cultural Sequence at Wawawai (45WT39), Lower Snake River Region, Southeastern Washington. Washington State University, Department of Anthropology, Pullman, Washington.

APPENDIX A

FEDERAL NATURAL RESOURCES LAW COMPLIANCE AND BIOLOGICAL EVALUATION

DRAFT



**US Army Corps
of Engineers** ®

Walla Walla District
BUILDING STRONG®

LOWER GRANITE MASTER PLAN REVISION

GRANITE LAKE AND LOWER GRANITE DAM

**Federal Natural Resources Law Compliance
and
Biological Evaluation**

AMENDMENT

ADMINISTRATIVE RECORD – DO NOT DESTROY

FILE NUMBER: PM-EC-2017-0028

June 2018

SUMMARY

This biological evaluation amendment is prepared pursuant to section 7(a)(2) of the Endangered Species Act (ESA) to evaluate the effects of reclassifying lands managed by the U.S. Army Corps of Engineers (Corps), Walla Walla District, on listed species under the jurisdiction of the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. The Corps is presently updating the Master Plan (MP) for the Lower Granite Project, which encompasses all Corps lands from Lower Granite Dam upstream in Granite Lake on the lower Snake and Clearwater Rivers.

The original Lower Granite MP was drafted in 1974. The development of the Lower Snake River Fish and Wildlife Compensation Plan (Comp Plan) in 1975 immediately changed acreage and associated classifications for the Lower Granite Project. Land use classification changes are being proposed for the MP update among four broad categories to reflect land management as a result of the Comp Plan, as well as public comment, and resource manager prioritization. Land use categories are 1) Operations; 2) Recreation; 3) Wildlife; 4) Mitigation. The proposed action would increase designated Wildlife and Mitigation acreage by 980.5 (129.4%) and 376.7 (7.1%) acres, respectively, totaling 7,394.3 acres between the two.

There would be no degradation of the environmental baseline as a result of the proposed action or Corps land management actions. The proposed increase in acreage for wildlife and mitigation classifications would ensure habitat enhancements and maintenance precluding development.

The Corps concludes that the proposed action “may affect, but is not likely to adversely affect” Snake River sockeye, Snake River spring/summer Chinook, Snake River fall Chinook, Snake River steelhead, bull trout, yellow-billed cuckoo, and Spalding’s catchfly. The Corps further determined the proposed action “may affect, but is not likely to adversely affect” critical habitat for ESA-listed fishes, and would have “no effect” on yellow-billed cuckoo proposed critical habitat. Critical habitat is not designated for Spalding’s catchfly. The Corps is requesting informal consultation for land use classification changes and associated actions not previously consulted on at the program level.

In addition, this document analyzes the project's likely effects on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps has also determined that the proposed project would result in no take of species listed under the Migratory Bird Treaty Act, and no disturbance or take under the Bald and Golden Eagle Protection Act.

If additional information regarding this document is required, please contact Brad Trumbo, Biologist in the Environmental Compliance Section of the U.S. Army Corps of Engineers, Walla Walla District, at (509) 527-7257, or by email at bradly.a.trumbo@usace.army.mil. Other correspondence can be mailed to:

Brad Trumbo
U.S. Army Corps of Engineers Walla Walla District
201 North Third Ave.
Walla Walla, WA 99362

Brad Trumbo
Biologist/Preparer
U.S. Army Corps of Engineers
Walla Walla District
Environmental Compliance Section

Ben Tice
Biologist/Reviewer
U.S. Army Corps of Engineers
Walla Walla District
Environmental Compliance Section

Contents

ACRONYMS AND ABBREVIATIONS	VII
1. FEDERAL ACTION	1
1.1 INTRODUCTION.....	1
1.2 PREVIOUS CONSULTATION	2
1.3 PROPOSED ACTION	3
1.3.1 Project Location	3
1.3.2 Action Area	3
1.3.3 Project Description	3
1.3.4 Proposed Conservation Measures.....	9
1.3.5 Interdependent and Interrelated Actions	10
1.3.6 Previous and Ongoing Projects in the Action Area.....	10
2 LISTED SPECIES.....	10
2.1 SPECIES LISTED FOR THE ACTION AREA	10
2.2 SPECIES STATUS.....	11
2.2.1 Snake River Sockeye.....	11
2.2.2 Snake River Spring/Summer Chinook.....	13
2.2.3 Snake River Fall Chinook.....	16
2.2.4 Snake River Steelhead	21
2.2.5 Bull Trout.....	25
2.2.6 Yellow-Billed Cuckoo	28
2.2.7 Spalding's Catchfly	31
2.3. STATUS OF CRITICAL HABITAT	34
2.3.1 Anadromous Species	34
2.3.2 Bull Trout.....	38
2.3.3 Yellow-billed Cuckoo and Spalding's Catchfly	39
3 ENVIRONMENTAL BASELINE	40
3.1. HISTORIC CONDITIONS	40
3.2. CURRENT CONDITIONS.....	40
3.3. MATRIX OF PATHWAYS AND INDICATORS.....	40
3.4. BASELINE CONDITION JUSTIFICATION	43
3.4.1 Water Quality.....	43
3.4.2 Habitat Access	43
3.4.3 Habitat Elements	43
3.4.4 Channel Condition and Dynamics.....	44
3.4.5 Flow and Hydrology.....	44
3.4.6 Watershed Conditions.....	45
4 EFFECTS OF THE ACTION	45
4.1 EFFECTS ON LISTED SPECIES	45
4.1.1 Anadromous Fishes and Bull Trout.....	45
4.1.2 Yellow-billed Cuckoo.....	46
4.1.3 Spalding's Catchfly	47
4.2 EFFECTS ON CRITICAL HABITAT.....	47
4.2.1 Anadromous Fishes	47
4.2.2 Bull Trout.....	48
4.2.3 Yellow-billed Cuckoo and Spalding's Catchfly	49
4.3 EFFECTS DETERMINATIONS	50
4.3.1 Listed Species	50
4.3.2 Critical Habitat.....	50
4.3.3 Environmental Baseline	51
5 MAGNUSON-STEVENSON ACT - ESSENTIAL FISH HABITAT	51

6 FISH AND WILDLIFE COORDINATION ACT	51
7 MIGRATORY BIRD TREATY ACT	52
8 BALD AND GOLDEN EAGLE PROTECTION ACT	52
9 STATE-LISTED THREATENED, ENDANGERED, AND SENSITIVE SPECIES	53
10 CULTURALLY SIGNIFICANT PLANTS	53
11 EFFECTS SUMMARY	54
12 REFERENCES.....	56
Appendix A.....	61
Appendix B.....	111
APPENDIX C.....	117

Tables

Table 1: Past, present, and future land use classifications (acres) for the Lower Granite Project.....	6
Table 2: Threatened and endangered species and designate critical habitats occurring in the action area.....	10
Table 3: Total number of bull trout observed passing the adult ladder at Lower Granite Dam	28
Table 4: Physical and biological features of critical habitat designated for anadromous species.....	35
Table 5: Physical and Biological Features (PBF) of critical habitat designated for bull trout.....	39
Table 6: Checklist for documenting environmental baseline and effects of proposed actions on relevant anadromous salmonid habitat indicators	42
Table 7: Effect determinations for the proposed action to the PBFs critical habitat designated for anadromous fish	48
Table 8: Effect determinations for the proposed action to the PBFs of critical habitats designated for bull trout.....	49
Table 9: Effect determinations for listed species and critical habitat that may occur in the action area	50
Table 10: Effect determinations summary for listed species, critical habitats, and other pertinent environmental considerations.....	55

Figures

Figure 1: Geographic location of Lower Granite Dam	4
Figure 2: Spatial extent of Granite Lake lands (action area)	5
Figure 3: Present and proposed future land use classification percentages among Granite Lake Project lands	7
Figure 4: Snake River sockeye salmon distribution	12
Figure 5: Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River sockeye salmon passing Lower Granite Dam	13
Figure 6: Snake River spring/summer Chinook salmon distribution	15
Figure 7: Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River spring/summer Chinook salmon passing Lower Granite Dam	16
Figure 8: Snake River fall Chinook salmon distribution	18
Figure 9: Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River fall Chinook salmon passing Lower Granite Dam	20
Figure 10: Snake River steelhead distribution	22
Figure 11: Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River steelhead passing Lower Granite Dam	25
Figure 12: Bull trout distribution in the Columbia River Basin	27
Figure 13: Yellow-billed cuckoo distribution in the North America	31
Figure 14: Distribution of Spalding's catchfly	33
Figure 15: Snake River fall Chinook salmon Critical Habitat	36
Figure 16: Snake River steelhead Critical Habitat	37
Figure 17: Bull trout critical habit in the Columbia River Basin	38

Acronyms and Abbreviations

BA	Biological Assessment
BE	Biological Evaluation
BGEPA	Bald and Golden Eagle Protection Act
CFR	Code of Federal Regulations
Comp Plan	Lower Snake River Fish and Wildlife Compensation Plan
Corps	Walla Walla District, U.S. Army Corps of Engineers
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act of 1973, as amended
ESU	Evolutionarily Significant Unit
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
MBTA	Migratory Bird Treaty Act
MP	Master Plan
MPI	Matrix of Pathway Indicators
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NRM	Natural resource Management
PBF	Physical and Biological Features
RM	River Mile
USFWS	U.S. Fish and Wildlife Service

1. Federal Action

1.1 Introduction

The U.S. Army Corps of Engineers, Walla Walla District (Corps), is revising the Lower Granite Dam Master Plan (MP). The MP is a document developed to guide the management of Lower Granite Reservoir (Granite Lake) and its associated public lands. The MP also cites the laws authorizing and governing the development of natural and man-made project resources to include recreational opportunities and fish and wildlife habitat enhancements.

The MP is a strategic land use document that guides the comprehensive management and development of all Project recreational, natural, and cultural resources throughout the life of the Project. The MP focuses on overarching management goals and objectives to guide and articulate Corps responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources at the Project.

The MP does not specify or authorize actions and does not address regional water quality, water management, or the operation and maintenance (O&M) of project operations facilities such as Lower Granite Lock and Dam.

The original MP was finalized in 1974 and is in need of updating to accommodate present management goals and objectives. Master Plans are inherently living documents, meaning periodic updates are important to maintain MP relevancy for any given Project. Estimating the intrinsic and economic value of resources to the public is important for guiding resource management actions, and these values must be updated for present day as well.

Land use classifications presented in the 1974 MP must be updated as acreages and management purposes have changed on Corps lands, particularly in accordance with the 1975 Lower Snake River Fish and Wildlife Compensation Plan (Comp Plan). The proposed land use classification changes presented in the updated MP are the product of the Comp Plan, public comment, and resource manager prioritization.

This biological evaluation (BE) is prepared pursuant to section 7(a)(2) of the Endangered Species Act (ESA) to provide a high-level evaluation of the effects of the proposed land use classification changes for Granite Lake on ESA-listed species and their critical habitats under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS), collectively referred to as “Services”. The Corps is requesting informal consultation for land use classification changes and associated actions not previously consulted on at the program level. Actions affecting fish and wildlife resources resulting from land use classification changes are covered under prior consultations.

1.2 Previous Consultation

The original Granite Lake MP did not include any ESA consultation process. The development of Lower Granite Dam included an environmental impact statement that considered the effects to natural resources and fish and wildlife. Since Lower Granite Dam came online in 1975, numerous wildlife habitat management actions under the MP and Comp Plan individually underwent ESA consultation.

Relevant prior consultations are listed below. See Appendix A for referenced responses from the Services.

1. May 2018: A revised *Aquatic Pest Management Program* BA was submitted to the Services requesting informal consultation on programmatic aquatic invasive species control actions.
2. December 2016: The *Lower Snake River Wildlife Habitat Planting* supplemental BA was submitted to the USFWS requesting informal consultation on programmatic habitat planting activities under the Comp Plan at Central Ferry and Rice Bar HMUs. While a 2013 consultation included typical planting actions and associated effects, the proposed plantings at Central Ferry and Rice Bar were to include contouring of three to four feet of ground surface with heavy equipment to facilitate water table connectivity for riparian plants. The USFWS concurred with a determination of “may affect, not likely to adversely affect” bull trout or their critical habitat in April, 2017 (01EWF00-2017-I-0294).
3. March 2014: The *Aquatic Pest Management Program* BA was submitted to the Services requesting informal consultation on programmatic aquatic invasive species control actions. A biological opinion was received from USFWS in May, 2017 (01EWF00-2014-F-0335). A biological opinion was also received from NMFS in April, 2016 (WCR-2014-688), but was determined not implementable by the Corps. Consultation on a “Phase II” of the Aquatic Pest Management Program is ongoing with NMFS.
4. July 2013: The *Lower Snake River Programmatic Planting Plan* BA was submitted to the Services requesting informal consultation on programmatic habitat planting activities within Corps HMUs, including Lyon’s Ferry on the Palouse River, east up the lower Clearwater and Snake Rivers in Lewiston, Idaho. The USFWS concurred with a determination of “may affect, not likely to adversely affect” bull trout or their critical habitat (01EWF00-2013-I-0046). The NMFS also concurred with the determination of “may affect, not likely to adversely affect” for anadromous salmonids and their critical habitat (NWR-2013-10331).
5. July 2012: *The Pest Management Program for Corps of Engineers Managed Lands in the Walla Walla District in Oregon, Idaho, and Washington* BA was submitted to the Services requesting informal consultation on programmatic

invasive species control actions. The USFWS concurred with a determination of “may affect, not likely to adversely affect” bull trout or their critical habitat (01EWF00-2012-I-0378). The NMFS also concurred with the determination of “may affect, not likely to adversely affect” for anadromous salmonids and their critical habitat (2012/00353). No aquatic actions are covered under this consultation.

Operation and maintenance of Lower Granite Lock and Dam and associated facilities is not covered in the MP or this BA. Separate consultation has occurred with NMFS (2008, 2010, and 2014) and is in progress with USFWS for O&M of the Federal Columbia River Power System.

1.3 Proposed Action

The proposed action is to update the Granite Lake MP, which involves changing land use classifications on Corps-managed lands. The primary purpose of this project is to accommodate past and future fish and wildlife habitat and recreational enhancements.

1.3.1 Project Location

Lower Granite Dam is located approximately 27 miles northeast of Pomeroy, WA, and southwest of Pullman, WA (46°39'37" North, 117°25'37" West) at River Mile (RM) 107.5 on the Snake River (Figure 1). The dam lies within the Lower Snake – Tucannon Hydrological Unit Code (17060107); Washington Township 14 North, Range 43 East, Section 32. The dam straddles both Garfield and Whitman Counties, while Granite Lake extends up the Snake River into Asotin County, WA, and up the Clearwater River into Nez Perce County, ID.

1.3.2 Action Area

Granite Lake includes and extends from Lower Granite Dam upriver to approximately RM 147 on the Snake River, and RM 11 on the lower Clearwater River from its confluence with the Snake River (Figure 2).

The action area was originally estimated to encompass approximately 4,706 acres for fish and wildlife and recreation around Lower Granite Dam and upstream along the shoreline of Granite Lake. The present acreage estimate is approximately 8,626 acres.

1.3.3 Project Description

The Granite Lake MP revision is a planning exercise where Corps Natural Resource Management (NRM) personnel inventoried current land use classifications and the present status of recreation and habitat features on Corps land. The Corps managers then sought public input on land use and recreation activities. Finally, the Corps developed alternatives based on NRM recommendations and public input.

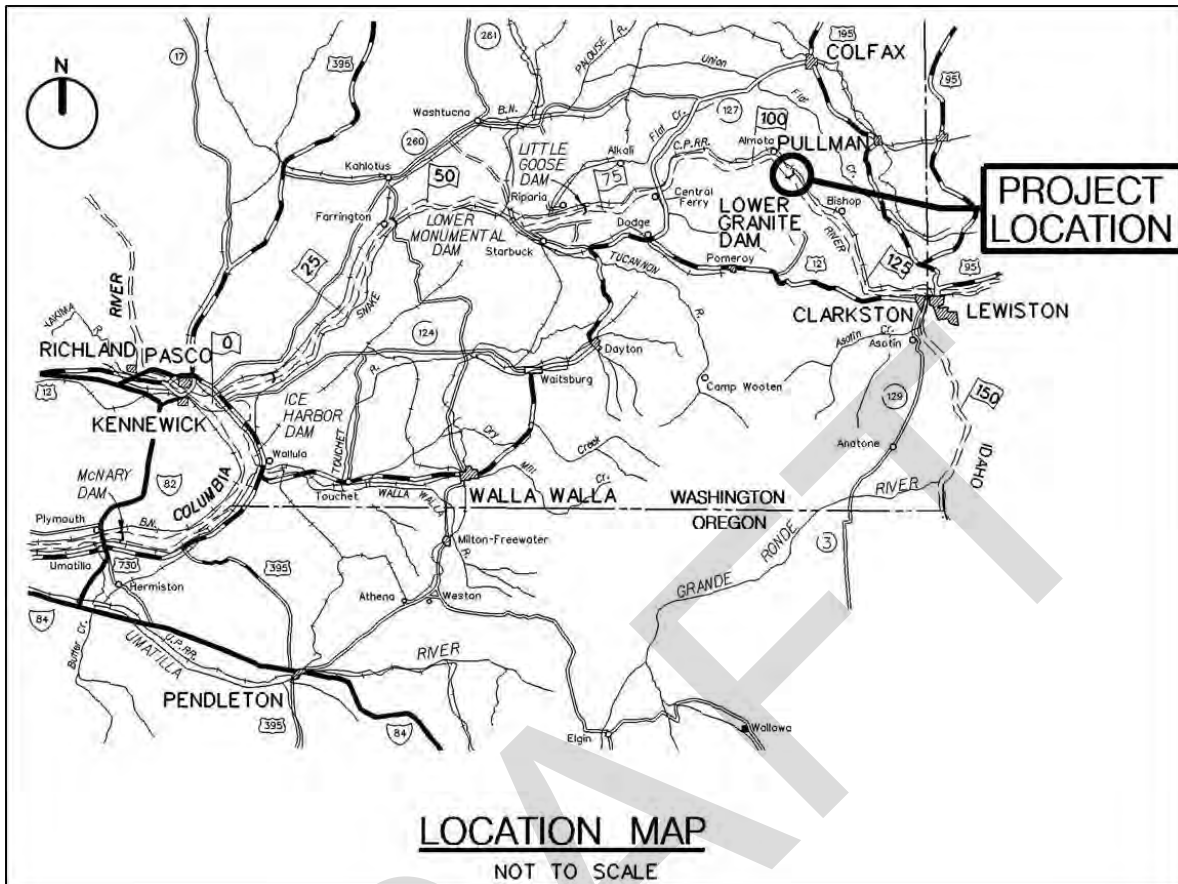
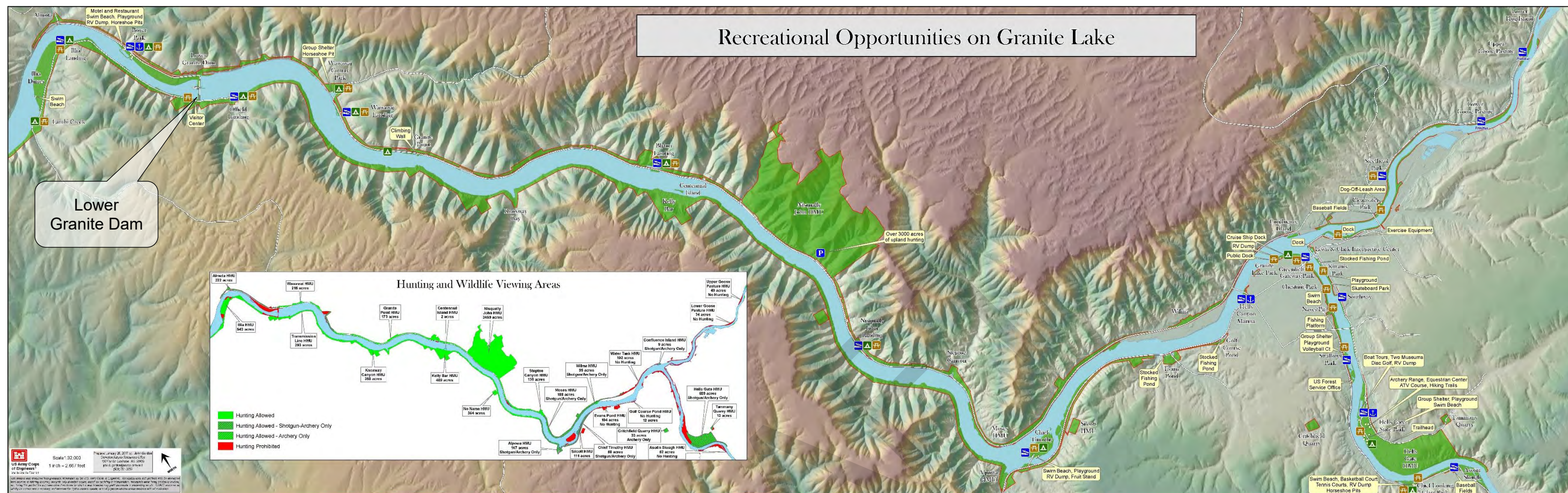


Figure 1. Geographic location of Lower Granite Dam.



The alternatives were used to develop an environmental assessment and recommended alternative detailing final proposed land use changes for the updated MP.

There are four broad land use categories: Operations, Recreation, Wildlife, and Mitigation. Alternatives considered were:

1. No Action
2. Recreation-Centric
3. Wildlife-Centric
4. Balanced Approach

Table 1 presents past, present, and future land use classifications. The recommended alternative (wildlife-centric) increases the total Project acreage by 10.5 acres to 8,637.7. Acreage classified as Operations and Recreation would be reduced and shifted to Wildlife and Mitigation, increasing these classes by 980.5 (129.4%) and 376.7 (7.1%) acres, respectively, and totaling 7,394.3 acres between the two. Figure 3 presents the percentage breakdown of classification acreages for the existing and proposed conditions.

The increased acreage for wildlife and mitigation purposes bolsters the Corps ability to enhance habitat and reduce recreation maintenance budgets. While habitat management actions may not see increased acreage commensurate with the land use classification changes on an annual basis, habitat management actions including grassland management, invasive species control, and riparian and shrub-steppe planting are certain to continue into the foreseeable future. HMU management objectives and plans are jointly developed among the Corps, Washington Department of Fish and Wildlife, and the USFWS, presently under the Comp Plan, and continuing into the foreseeable future.

Table 1. Past, present, and future land use classifications (acres) for the Lower Granite Project.

Land Classification	1974	2018	2019 and Beyond	Change 2018-2019	
Operations	70.4	542	366.2	-175.8	-32.5%
Recreation	1,546.5	2,047.1	876.2	-1,170.9	-57.2%
Wildlife	2,404.4	757.5	1,738	980.5	129.4%
Mitigation	50.3	5,279.6	5,656.3	376.7	7.1%
Total Acres	4,705.6	8,626.2	8,637.7	10.5	0.12%

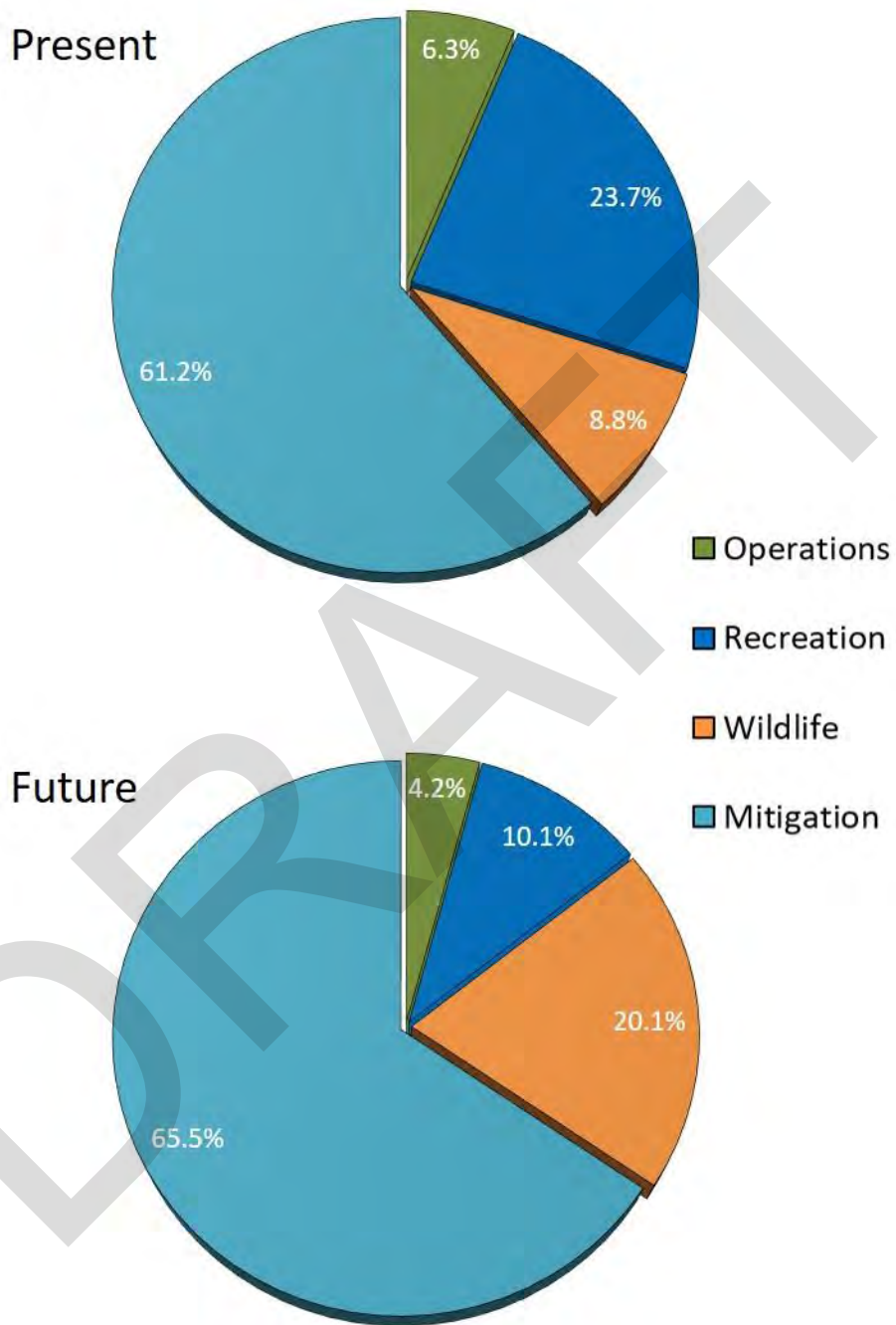


Figure 3. Present and proposed future land use classification percentages among Granite Lake Project lands.

1.3.3.1 Project Activities

Project activities covered in this BA include the administrative land use classification changes and their broad implications for ESA-listed fish, wildlife, and plants. General habitat and recreation area management activities that would continue to occur are discussed below, as well as which ESA consultation covers the activities.

Habitat management actions include the following, all of which satisfy the requirements of the Comp Plan.

- Terrestrial invasive plant control through mowing, herbicide application, and biological controls (covered under USFWS consultation 01EWF00-2012-I-0378 and NMFS consultation 2012/00353).
- Aquatic invasive plant control through mowing, herbicide application, and biological controls (covered somewhat under USFWS consultation 01EWF00-2014-F-0335 and NMFS consultation WCR-2014-688 and presently in consultation).
- Native grass reseeding and tree and shrub planting (covered under USFWS consultations 01EWF00-2017-I-0294 and 01EWF00-2013-I-0046 and NMFS consultation NWR-2013-10331). A present contract for the restoration of 60 acres in Lake Bryan (not included in the Lower Granite Dam MP) is the final planting project of this size to be completed under the Comp Plan.
- Irrigation of trees and shrubs (covered under USFWS consultations 01EWF00-2013-I-0046 and 01EWF00-2017-I-0294, and NMFS consultation NWR-2013-10331).
- Food plot planting and maintenance. This would include planting food crops such as wheat and corn for upland wildlife and waterfowl. There are five food plots on Granite Lake lands.

Recreation areas were developed when Lower Granite Dam was constructed over forty years ago. Presently, fifteen recreation areas exist on Granite Lake including parks and boat access sites. Land acreage classified as recreation are proposed to be reduced by approximately 57% (Table 1) as natural areas occur within the boundaries of recreation lands. Corps activities associated with recreation areas include the following.

- Terrestrial invasive plant control through mowing, herbicide application, and biological controls. Lawn maintenance by mowing (covered under USFWS consultation 01EWF00-2012-I-0378 and NMFS consultation 2012/00353).
- Aquatic invasive plant control through mowing, herbicide application, and biological controls (covered somewhat under USFWS consultation 01EWF00-2014-F-0335 and NMFS consultation WCR-2014-688 and presently in consultation).
- Native and lawn grass reseeding or turf replacement in developed recreation areas. Only four recreation areas are likely to receive turf.

- Infrastructure maintenance in developed recreation areas such as picnic shelter painting and reroofing, sidewalk or parking lot repair, or other maintenance internal to a structure.

Activities not specifically covered under prior consultations (as identified above) include food plot planting and maintenance in HMUs, and infrastructure maintenance and lawn grass seeding in developed recreation areas. These activities have not been consulted because the Corps has determined no effect for ESA-listed species. General Activities associated with these activities include the following.

- Food plot planting and maintenance
 - Surface tillage
 - Seeding via broadcast or drill seeder
- Native and lawn grass reseeding or turf replacement in developed recreation areas.
- Infrastructure maintenance in developed recreation areas such as picnic shelter painting and reroofing, sidewalk or parking lot repair, or other maintenance internal to a structure.

Effects for these actions are presented in this BA in Section 4. It should also be noted that recreational fishing and hunting activities are not authorized or regulated by the Corps, but by state fish and wildlife agencies. Therefore, recreational fishing for ESA-listed fishes is addressed between the states and the Services.

1.3.3.2 Project Timeline

Acceptance by the Corps of the final Lower Granite Master Plan would mark the official change of land use classifications as proposed. The following is an anticipated timeline for the proposed action to take place.

- March 2018: The Draft Final MP and Environmental Assessment (EA) are completed.
- April 2018: Internal quality control review of the MP and EA is completed.
- May 2018: The MP and EA are released for a 30-day public comment period
- June – July 2018: The Corps responds to comments on the MP and EA
- July – August 2018: The MP and proposed action are finalized pending no significant comments are received during the public comment period.

1.3.4 Proposed Conservation Measures

The proposed land use classification change of 1,357.2 acres from Operations and Recreation classifications to Wildlife and Mitigation is a conservation measure within itself and supports the Corps mitigation requirements under the Comp Plan.

1.3.5 Interdependent and Interrelated Actions

The acreage and locations of future wildlife habitat enhancement actions would be interrelated with the proposed land use classification changes.

1.3.6 Previous and Ongoing Projects in the Action Area

Habitat management and enhancement actions have occurred for over thirty years, and will continue within the action area for the foreseeable future. There are 24 HMUs within the action area and a habitat management contract is in place to manage these units. Management actions are identified and prioritized by the Lower Granite Wildlife Biologist, the USFWS, and the Washington Department of Fish and Wildlife.

Recreation including but not limited to boating, camping, fishing, hunting, hiking, birding, picnicking, and photography have and will continue to occur among acreage classified as Recreation, Wildlife, and Mitigation. Management of acreage classified as Recreation and associated facilities has and will continue to occur into the foreseeable future.

Activities on acreage classified as Operations generally includes operation and maintenance of the dams, fish passage facilities, and other appurtenances. These activities will also occur into the foreseeable future.

2 Listed Species

2.1 Species Listed for the Action Area

The Corps reviewed the list of threatened and endangered species that pertain to the action area under the jurisdiction of the USFWS on 28 February, 2018 [USFWS Ref# 01EWF00-2018-SLI-0122; 01EIFW00-2018-SLI-0076 (Table 2)].

Table 2. Threatened and endangered species and designate critical habitats occurring in the action area.

Species	Scientific Name	Status	Critical Habitat
NMFS			
Snake River Sockeye	<i>Oncorhynchus nerka</i>	Endangered	Yes
Snake River Spring/Summer Chinook	<i>O. tshawytscha</i>	Threatened	Yes
Snake River Fall Chinook Salmon	<i>O. tshawytscha</i>	Threatened	Yes
Snake River Steelhead	<i>O. mykiss</i>	Threatened	Yes

Table 2 Continued.

Species	Scientific Name	Status	Critical Habitat
USFWS			
Bull Trout	<i>Salvelinus confluentus</i>	Threatened	Yes
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>	Threatened	Proposed
Spalding's Catchfly	<i>Silene spaldingii</i>	Threatened	No

2.2 Species Status

2.2.1 Snake River Sockeye

2.2.1.1 Listing History

Snake River sockeye salmon were listed as endangered on November 20, 1991 (56 FR 58619), and reaffirmed most recently, April 14, 2014 (79 FR 20802). Under NOAA Fisheries' interim policy on artificial propagation, the progeny of fish from a listed population that are propagated artificially are considered part of the listed species and are protected under the ESA. Thus, although not specifically designated, sockeye salmon produced in the captive broodstock program are included in the listing. Given the dire status of the wild population under any criteria (16 wild and 264 hatchery-produced adult sockeye returned to the Stanley Basin between 1990 and 2000), NMFS considers the captive broodstock and its progeny essential for recovery.

2.2.1.2 Distribution

Snake River sockeye were historically abundant in several lake systems of Idaho and Oregon. However, almost all populations have been extirpated in the past century; the only remaining sockeye in the Snake River system are found in Redfish Lake, in the Stanley Basin on the Salmon River (Figure 4). The non-anadromous form (kokanee), found in Redfish Lake and elsewhere in the Snake River Basin, is included in the evolutionarily significant unit (ESU). Sockeye occur within the action area only during their smolt and adult migrations.

2.2.1.3 Life History/Biological Requirements

Sockeye salmon are unique among the anadromous salmonids in the Columbia River Basin because they spawn and juveniles rear in a lake rather than tributary stream. In general, juvenile sockeye salmon rear in the lake environment for one to three years before migrating to sea. Adults typically return to the natal lake system to spawn after spending one to several years in the ocean. Sockeye use the Snake and Columbia

Rivers as a migration corridor. Some juveniles have been observed in shoreline areas during the spring. All juveniles normally migrate out of the action area by July.

2.2.1.4 Factors for Decline

Beginning in the late 19th century, anadromous sockeye salmon were affected by heavy harvest pressures, unscreened irrigation diversions, and dam construction. From 1954 to 1990, the Idaho Department of Fish and Game actively tried to eradicate sockeye salmon from Pettit, Stanley, Yellowbelly, and Hell Roaring Lakes (NMFS 2015). Their plan at the time was to increase the rainbow trout population for anglers. Increased predation on juvenile salmonids due to the habitat changes is also a contributor to the declining salmonid population.

In 1910, impassable Sunbeam Dam was constructed 20 miles downstream of Redfish Lake. Although several fish ladders and a diversion tunnel were installed during subsequent decades, it is unclear whether enough fish passed above the dam to sustain the run. The dam was partly removed in 1934, after which Redfish Lake runs partially rebounded. Evidence is mixed as to whether the restored runs constitute anadromous forms that managed to persist during the dam years, non-anadromous forms that became migratory, or fish that strayed in from other areas.

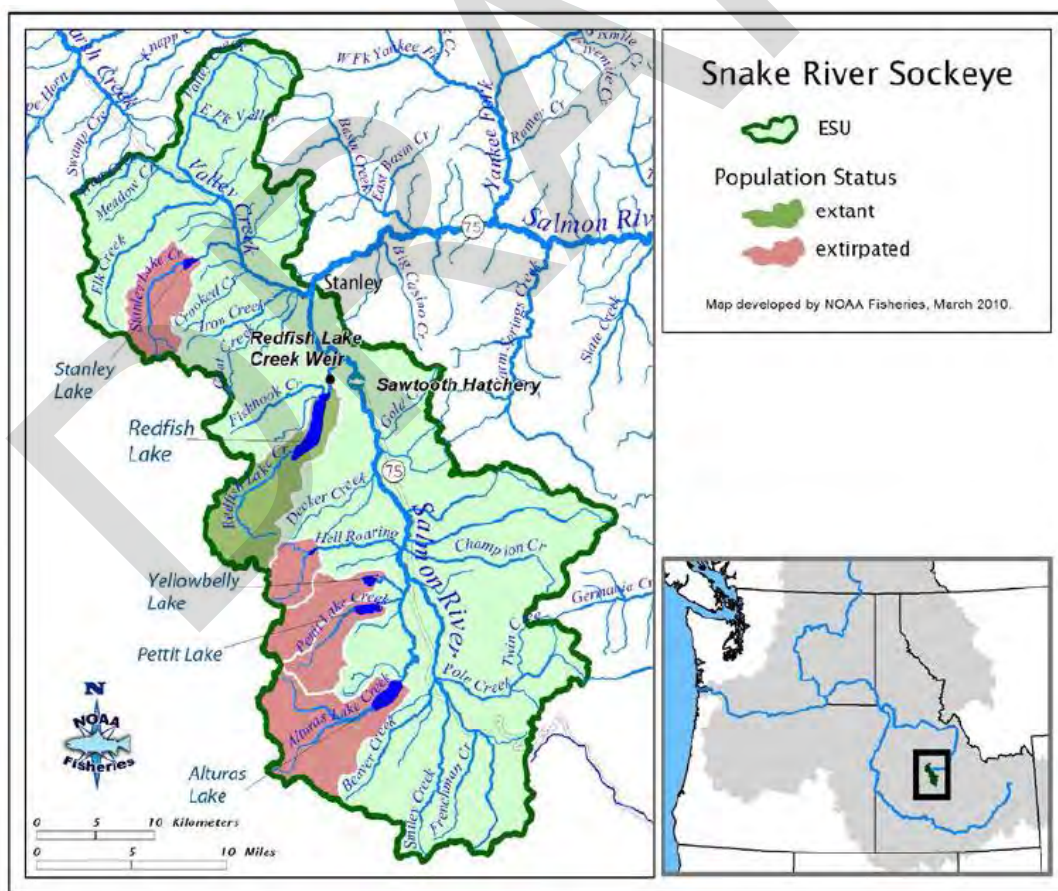


Figure 4. Snake River sockeye salmon distribution (NMFS 2015).

Impacts from habitat alterations, irrigation withdrawals, dam passage, and poor ocean conditions continue to affect sockeye and the extremely low sockeye population is likely the main factor limiting recovery. NMFS proposed an interim recovery level of 2,000 adult sockeye salmon in Redfish Lake and two other lakes in the Snake River Basin. Currently, NMFS considers the status of this ESU to be dire under any criteria with a high risk of extinction.

2.2.1.5 Local Empirical Information

Wild Snake River juvenile sockeye salmon generally migrate downriver during April through June, and wild adult sockeye salmon are not typically counted at Lower Granite Dam before June or after October (Figure 5). Once returning adults enter the Columbia River they are susceptible to tribal gill net fisheries and potential angling pressure between the mouth of the Columbia and the Snake River. Upper Columbia runs such as the Wenatchee and Okanogan River populations typically see larger runs, sometimes into the 100,000s, but there is no way to visually determine from which run a sockeye may have originated.

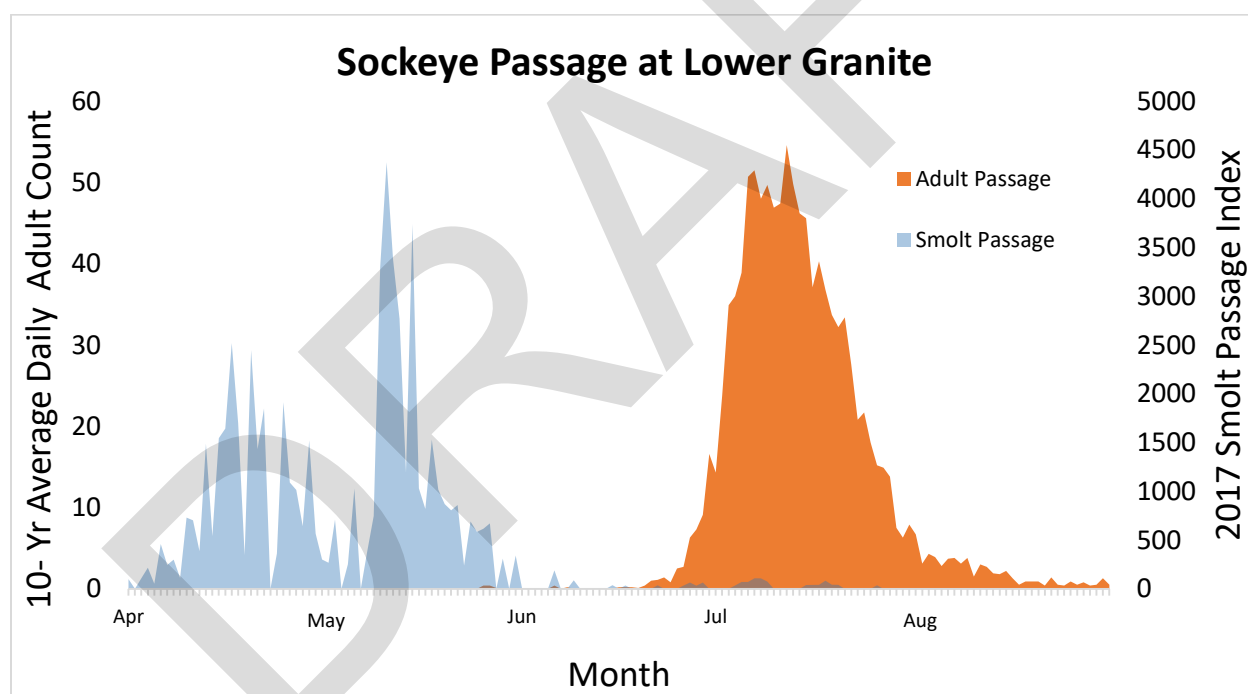


Figure 5. Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River sockeye salmon passing Lower Granite Dam (DART 2018). Data are based on adult fishway counts and juvenile fish facility sampling.

2.2.2 Snake River Spring/Summer Chinook

2.2.2.1 Listing History

Snake River spring/summer Chinook salmon were listed as threatened on April 22, 1992 (57 FR 14653) and reaffirmed most recently, April 14, 2014 (79 FR 20802).

Spring/summer Chinook are found in several subbasins of the Snake River. Some or all of the fish returning to several of the hatchery programs are also listed including those returning to the Tucannon River, Imnaha, and Grande Ronde hatcheries, and to the Sawtooth, Pahsimeroi, and McCall hatcheries on the Salmon River.

2.2.2.2 Distribution

Historically, spring/summer Chinook salmon spawned in virtually all accessible, suitable habitat in the Snake River system. Presently, spring/summer Chinook migrate through the lower Snake River, and the Grande Ronde, and may spawn in the Salmon River and its tributaries, as well as tributaries to the Grande Ronde (Figure 6).

2.2.2.3 Life History/Biological Requirements

In the Snake River, spring/summer Chinook are stream-type fish with juveniles that migrate swiftly to sea as yearlings. Depending primarily on location within the basin (not run type), adults tend to return after either two or three years in the ocean. Like most salmonids in the Pacific Northwest, they spawn and rear in small, high-elevation streams.

2.2.2.4 Factors for Decline

Even before mainstem Snake River dams were built, habitat was lost or severely damaged in small tributaries by construction and operation of irrigation dams and diversions, inundation of spawning areas by impoundments, and siltation and pollution from sewage, farming, logging, and mining (NMFS 2017).

In 1927, major subbasins in the Clearwater River Basin were blocked to Chinook salmon by the construction of Lewiston Dam, which has since been removed. Tributary streams upstream of the Salmon River were completely blocked by the 1960's by construction of the Hells Canyon Complex. The lower Snake River dams have also impacted a portion of the remaining population. By the mid-1900s, the abundance of adult spring and summer Chinook salmon had greatly declined.

Factors such as injury while passing through dams, predation, and high water temperatures continue to impact Snake River Chinook. The limited amount of high quality habitat available is likely the main factor limiting recovery of Snake River spring/summer Chinook salmon.

2.2.2.5 Local Empirical Information

During the late 1800s, the Snake River produced a substantial portion of all Columbia River Basin spring and summer Chinook salmon (NMFS 2017). Juvenile spring Chinook salmon have been documented using the backwater areas of the McNary reservoir for rearing. Although sampling has not occurred during the cooler water months in the lower Snake River, it is reasonable to assume that individuals of Snake River spring/summer Chinook salmon could use the backwater areas of lower Snake River reservoirs for periods of rearing or overwintering between September and March.

June 2018

Figure 6. Snake River spring/summer Chinook salmon distribution.

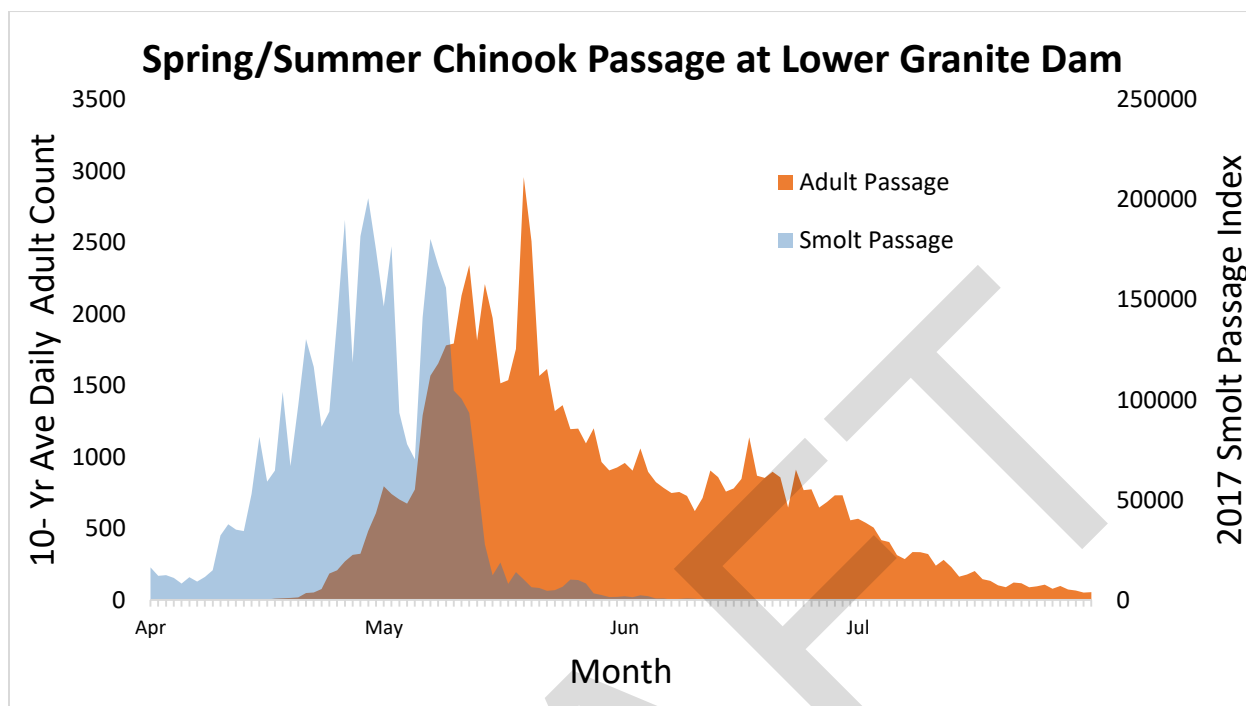


Figure 7. Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River spring/summer Chinook salmon passing Lower Granite Dam (DART 2018). Data are based on adult fishway counts and juvenile fish facility sampling.

2.2.3 Snake River Fall Chinook

2.2.3.1 Listing History

NMFS listed Snake River fall-run Chinook salmon as threatened on April 22, 1992 (57 CFR 14653) and their threatened status was reaffirmed on June 28, 2005 (70 CFR 37160).

2.2.3.2 Distribution

Sneke River fall Chinook salmon spawning and rearing occurs only in larger, mainstem rivers such as the Salmon, Snake River, and Clearwater River. Historically, primary fall Chinook salmon spawning areas were located on the upper mainstem Snake River (Connor et al. 2005). Presently, a series of Snake River mainstem dams block access to the upper Snake River, significantly reducing spawning and rearing habitat. The vast majority of spawning today occurs upstream of Lower Granite Dam, with the largest concentration of spawning sites in the Clearwater River, downstream from Lolo Creek.

Snake River fall Chinook do not occur above Dworshak Dam. Figure 8 shows the extent of their distribution in the Clearwater River below Dworshak Dam. It appears that the area is used as primary spawning and rearing by fall Chinook.

2.2.3.3 Life History/Biological Requirements

Currently, natural spawning is limited to the Snake River from the upper end of Lower Granite Reservoir to Hells Canyon Dam, the lower reaches of the Imnaha, Grande Ronde, Clearwater, Salmon, and Tucannon Rivers, and small areas in the tailraces of the lower Snake River hydroelectric dams (Good et al. 2005). Adult Snake River fall Chinook salmon enter the Columbia River in July and August and reach the mouth of the Snake River from the middle of August through October. Spawning occurs in the mainstem and in the lower reaches of large tributaries in October and November. Based on what is known of Upper Columbia River fall Chinook salmon, juveniles in the Snake River presumably emerge from the gravel in March and April, and downstream migration usually begins within several weeks of emergence.

Prior to alteration of the Snake River Basin by dams, fall Chinook salmon exhibited a largely ocean-type life history, where they migrated downstream and entered salt water at age 0. Today, fall Chinook salmon in the Snake River Basin exhibit one of two life histories that Connor et al. (2005) have called ocean-type and reservoir-type. The reservoir-type life history is one where juveniles overwinter in the pools created by the dams, prior to migrating out of the Snake River. The reservoir-type juveniles range up to 4 inches longer than ocean-type juveniles, and return at similar ages and sizes relative to their ocean-type cohort (Connor et al. 2005).

Fall Chinook salmon in this ESU are estimated to be approximately 60 percent ocean-type, 40 percent reservoir-type (Connor et al. 2005). Adults return to the Snake River at ages 2 through 5, with age 4 most common at spawning (Waples et al. 1991). Spawning, which takes place in October through November, occurs in the mainstem and in the lower parts of major tributaries. Juveniles emerge from the gravels in March and April of the following year and move downstream from natal spawning and early rearing areas from June through early fall. Juvenile fall-run Chinook salmon move seaward slowly as subyearlings, typically within several weeks of emergence (Waples et al. 1991).

2.2.3.4 Factors for Decline

Snake River fall Chinook salmon are believed to have once lived and spawned in the mainstem Snake River from its confluence with the Columbia River upstream to Shoshone Falls at RM 615. The spawning grounds between Huntington, Oregon (RM 328) and Auger Falls in Idaho (RM 607) were historically the most important for this species; and only limited spawning activity occurred downstream of RM 273 (Waples et al. 1991), about 1 mile below Oxbow Dam. However, development of irrigation and hydropower projects on the mainstem Snake River have inundated or blocked access to most of this area in the past century.

Construction of Swan Falls Dam (RM 458) in 1901 eliminated access to about 25 percent of potential habitat, leaving only approximately 458 miles of useable habitat.

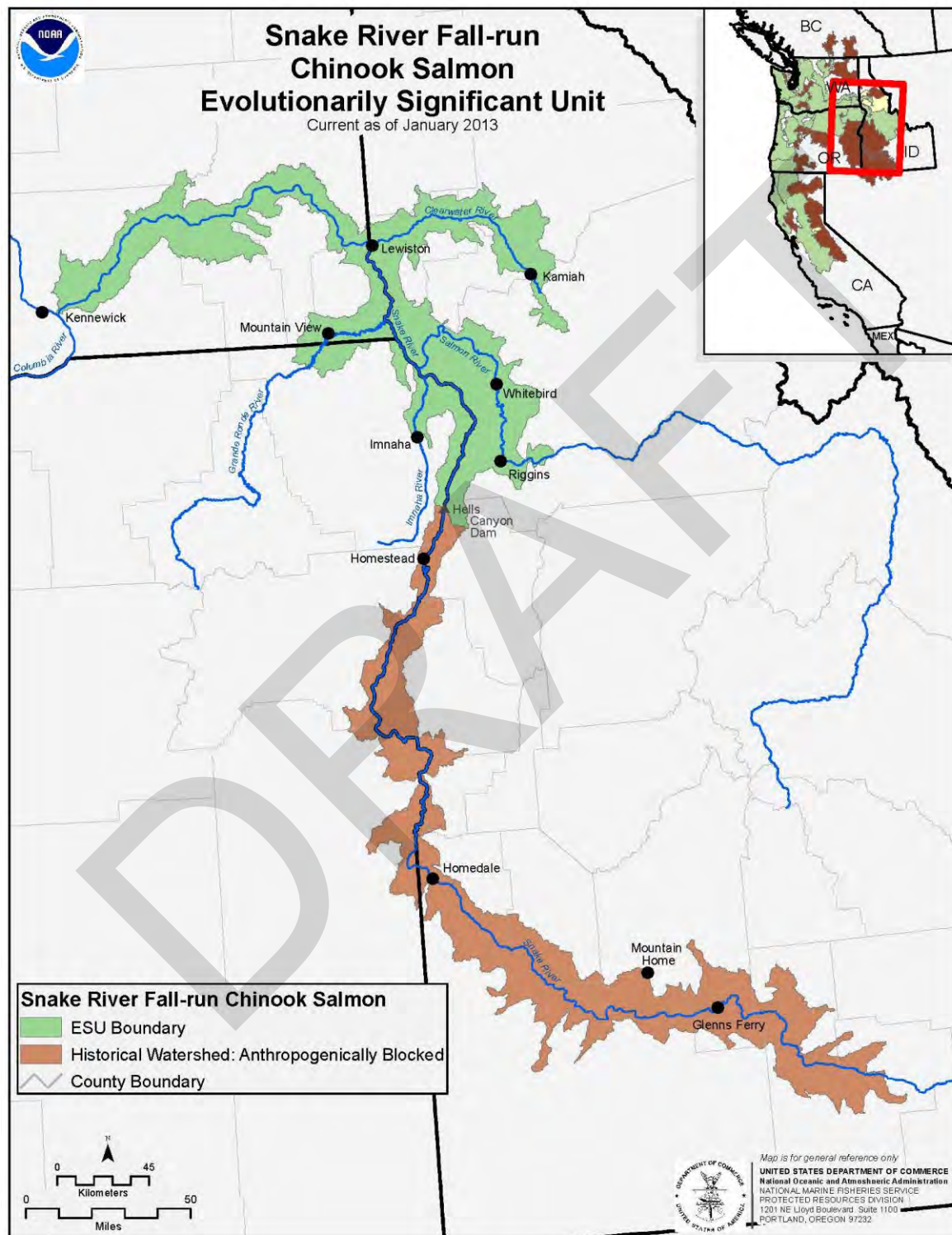


Figure 8. Snake River fall Chinook salmon distribution.

Construction of the Hells Canyon Dam complex (from 1958-1967) cut off anadromous fish access to 211 miles (46 percent) of the remaining historical fall Chinook salmon habitat upstream of RM 247. The lower Snake River Dams allow access to upriver areas, but have further changed the character of the remaining habitat.

Snake River fall Chinook salmon now have access to approximately 100 miles of mainstem Snake River habitat, which is roughly 22 percent of the 458 miles of historic habitat available prior to completion of the Hells Canyon Complex and the four lower Snake River dams. These fish are also affected by passage through dams, high water temperatures, predation and poor estuary conditions.

The loss of spawning habitat restricted the ESU to a single naturally spawning population and increased its vulnerability to environmental variability and catastrophic events. The diversity associated with populations that once resided above the Snake River dams has been lost and the impact of hatchery fish and fish from other areas straying to the spawning grounds has the potential to further compromise the genetic diversity of the ESU.

The Snake River system has contained hatchery-reared fall Chinook salmon since 1981 (Busack 1991). The hatchery contribution to Snake River Basin escapement has been estimated at greater than 47 percent (Myers et al. 1998). Artificial propagation is relatively recent, so cumulative genetic changes associated with it may be limited. Wild fish are incorporated into the brood stock each year, which should reduce divergence from the wild population. Release of subyearling fish may also help minimize the differences in mortality patterns between hatchery and wild populations that can lead to genetic change.

2.2.3.5 Local Empirical Information

Wild juvenile fall Chinook salmon typically pass through the Lower Snake River from mid-June through September, and some lingering portion of the annual migration lasting until December (Figure 9). Many of the juvenile fall Chinook salmon outmigrating from the Clearwater River and Snake Rivers spend time in shoreline areas (less than 9.8 feet in depth) in the Lower Granite reservoir and less time in downriver reservoirs, where they prefer sand-substrate areas (Bennett et al. 1997).

Trapping studies conducted in 1954 and 1955 showed that juveniles moving through the lower Snake River in March and April were less than 2 inches in length, whereas those migrating in May and June were 2.4 – 3.2 inches. Peak fry migration in the Brownlee-Oxbow Dam reach of the Snake River occurred from April through the middle of May (Waples et al. 1991).

When water temperatures reach about 70°F, these fish appear to have achieved adequate growth and fitness due to the warming conditions of these shallow-water habitat areas. They leave the shoreline areas to either continue rearing or begin their migration in the cooler pelagic zone of the reservoirs (Bennett et al. 1997). PIT tag data

suggests that some Clearwater River fall Chinook salmon migrate to the ocean as yearlings (reservoir-type), rather than as subyearlings.

Cold-water releases from Dworshak Dam, aimed at augmenting flows for adult migration, may stunt juvenile growth rates in the late summer and early fall, leading to the reservoir-type life history trait. Overwintering and early rearing of fall Chinook salmon in Lake Wallula backwater areas has been documented and it would be logical to assume that the potential for overwintering and rearing exists in the lower Snake River as well.

The low velocity and relatively fine substrate along a high percentage of the reservoir shorelines of the Lower Snake River reservoirs preclude spawning in these areas. The limited spawning that does occur is in the tailrace areas below all of the lower Snake River dams, where water velocity and substrate is suitable. Surveys conducted at Lower Monumental in 2002, 2003, and 2009 (Mueller et al. 2010), and at Lower Granite in 2002, 2003 (Mueller et al. 2009), and 2013 (Normandeau Associates 2013) documented fall Chinook redds in both locations downstream of the powerhouse and juvenile bypass system outfall pipes.

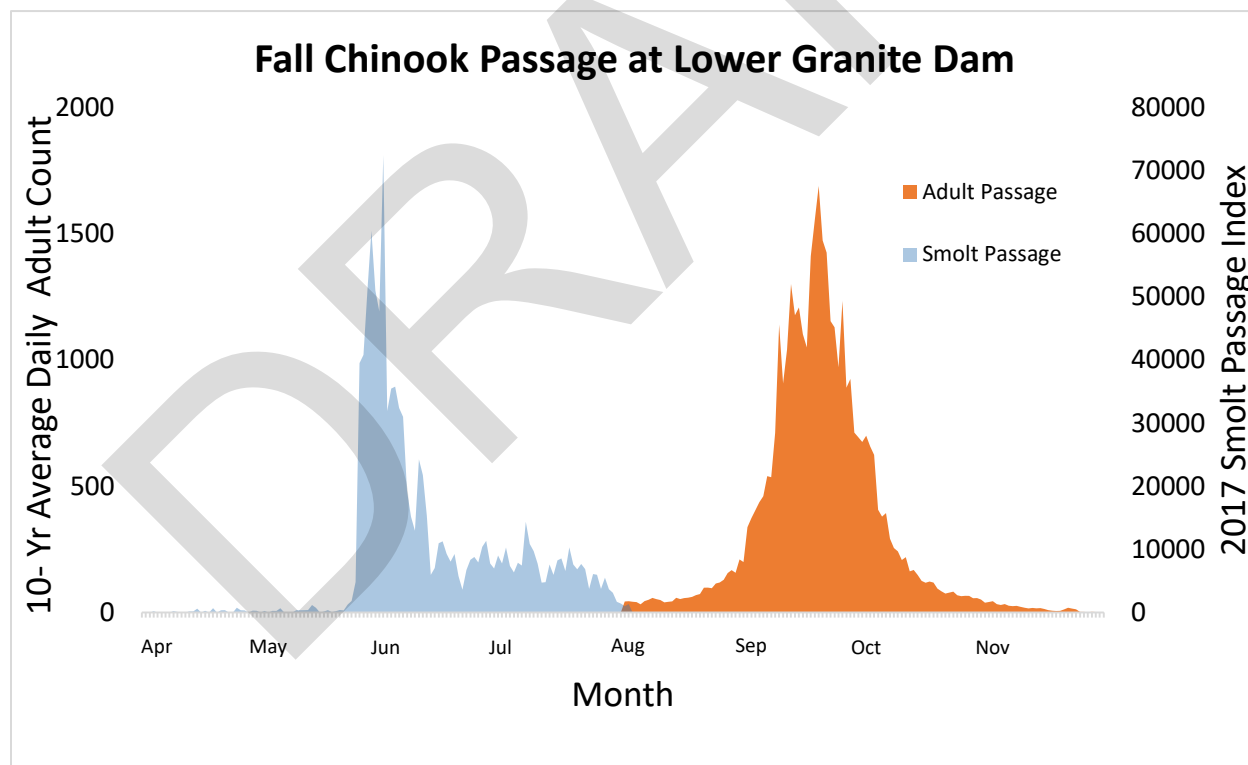


Figure 9. Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River fall Chinook salmon passing Lower Granite Dam (DART 2018). Data are based on adult fishway counts and juvenile fish facility sampling.

2.2.4 Snake River Steelhead

2.2.4.1 Listing History

Snake River Basin steelhead was listed as a threatened on August 18, 1997 (62 FR 43937) and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Their threatened status was reaffirmed on June 28, 2005 (70 FR 37160). The distinct population segment (DPS) includes all naturally spawned steelhead populations below natural and manmade impassable barriers in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho, as well as six artificial propagation programs: the Tucannon River, Dworshak National Fish Hatchery, Lolo Creek, North Fork Clearwater River, East Fork Salmon River, and the Little Sheep Creek/Imnaha River Hatchery steelhead hatchery programs.

2.2.4.2 Distribution

The Snake River steelhead DPS is distributed throughout the Snake River drainage system, including tributaries in southwest Washington, eastern Oregon and north/central Idaho [Good et al. 2005 (Figure 10)]. Snake River Basin steelhead do not presently occur above Dworshak Dam.

The ICBTRT (2007) identified 26 populations in the following six major population groups for this species: Clearwater River, Grande Ronde River, Hells Canyon, Imnaha River, Lower Snake River, and Salmon River. The North Fork Clearwater River population in the Clearwater River is extirpated.

It has been noted that Snake River Basin steelhead remain spatially well distributed in each of the six major geographic areas in the Snake River Basin (Good et al. 2005). Environmental conditions are generally drier and warmer in these areas than in areas occupied by other steelhead species in the Pacific Northwest. Snake River Basin steelhead were blocked from portions of the upper Snake River beginning in the late 1800s and culminating with the construction of Hells Canyon Dam in the 1960s.

2.2.4.3 Life History/Biological Requirements

With one exception (the Tucannon River production area), the tributary habitat used by Snake River steelhead DPS is above Lower Granite Dam. The Interior Columbia Basin Technical Recovery Team (ICBTRT 2003) identified six major population groups in the DPS: (1) The Grande Ronde River system; (2) the Imnaha River drainage; (3) the Clearwater River drainage; (4) the Salmon River; (5) Hells Canyon; and (6) the lower Snake. The Snake River historically supported more than 55 percent of total natural-origin production of steelhead in the Columbia River Basin. It now has approximately 63 percent of the basin's natural production potential.

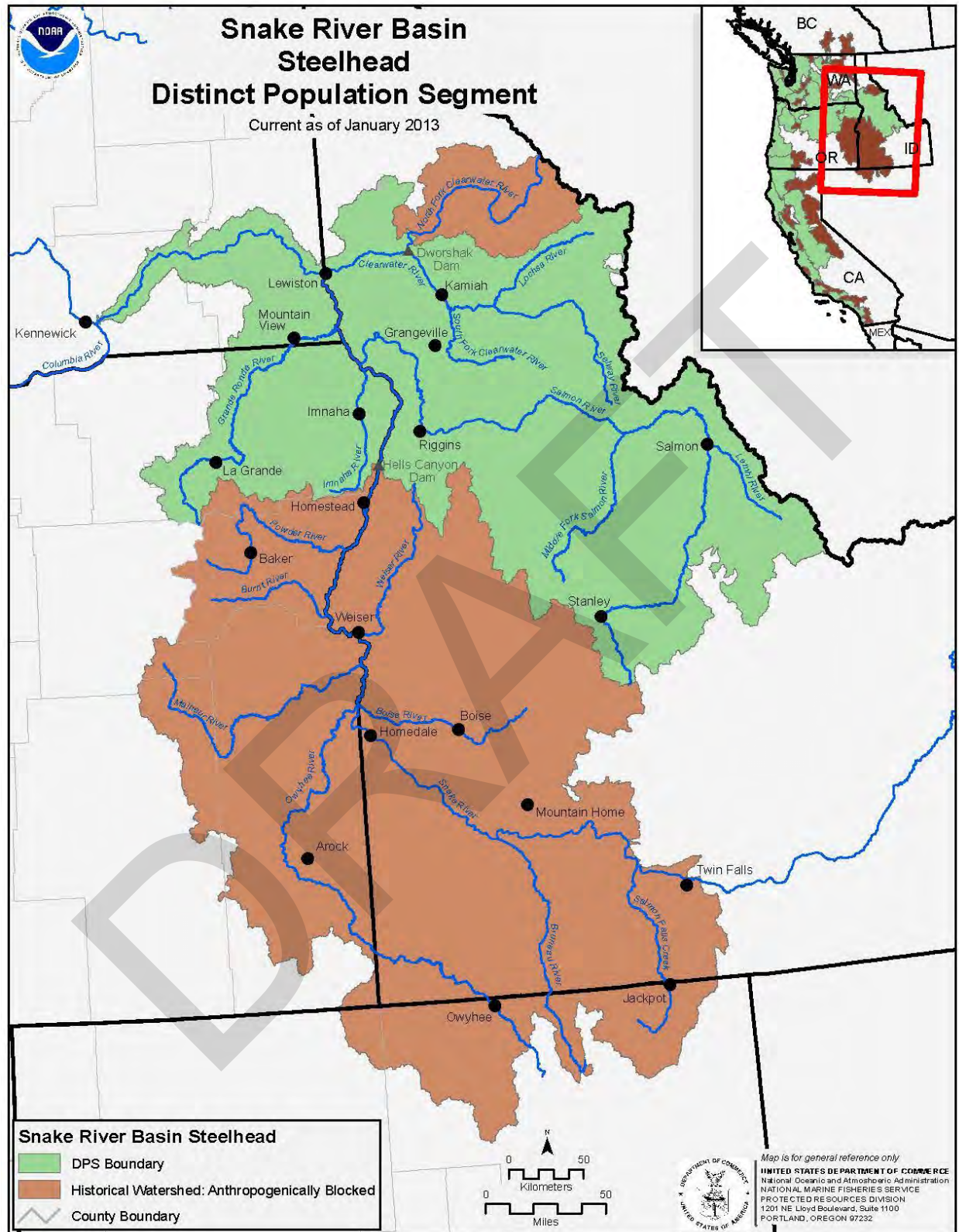


Figure 10. Snake River steelhead distribution.

Snake River Basin steelhead migrate a substantial distance from the ocean (up to 940 miles) and use high elevation tributaries (up to 6,562 feet above sea level) for spawning and juvenile rearing. Snake River steelhead occupy habitat that is considerably warmer and drier (on an annual basis) than other steelhead DPSs.

Managers classify up-river summer steelhead runs into two groups based primarily on ocean age and adult size upon return to the Columbia River. A-run steelhead are predominately age-1-ocean fish while B-run steelhead are larger, predominated by age-2-ocean fish. Snake River Basin steelhead are generally classified as summer run, based on their adult run timing pattern.

Snake River Basin steelhead enter fresh water from June to October and, after holding over the winter, spawn during the following spring from March to May. Snake River Basin steelhead usually smolt as 2- or 3-year-olds. Outmigration occurs during the spring and early summer periods, coinciding with snowmelt in the upper drainages. Hatchery steelhead trout display small peaks in arrival timing at Lower Granite and Little Goose Dams in mid-May to mid-June; however, the general trend at each dam is a protracted emigration (Blenden et al. 1996).

A-run populations are found in the tributaries to the lower Clearwater River, the upper Salmon River and its tributaries, the lower Salmon River and its tributaries, the Grand Ronde River, Imnaha River, and possibly the Snake River's mainstem tributaries below Hells Canyon Dam. B-run steelhead occupy four major subbasins, including two on the Clearwater River (Lochsa and Selway) and two of the Salmon River (Middle Fork and South Fork Salmon); areas that are for the most part not occupied by A-run steelhead.

Some natural B-run steelhead are also produced in parts of the mainstem Clearwater River and its major tributaries. There are alternative escapement objectives of 10,000 (Columbia River Fisheries Management Plan) and 31,400 (Idaho) for B-run steelhead. Therefore, B-run steelhead represent at least one-third and as much as three-fifths of the production capacity of the DPS.

Steelhead adult migration preferred temperatures are between approximately 39.2° Fahrenheit (F) and 48.2°F (Bell 1990). Steelhead preferred temperatures fall between 50.0°F and 55.4°F, while the upper lethal limit for steelhead is approximately 75°F (Spence et al. 1996).

2.2.4.4 Factors for Decline

Historic fishing pressure began the decline of salmonid populations over 100 years ago. Construction of dams, roads, railroads, and levees/shoreline protection, as well as irrigation withdrawals has altered the rearing habitat of juvenile salmon and the migratory habitat of juveniles and adults. Increased predation on juvenile salmonids due to the habitat changes is also a contributor to the declining salmonid population. Prior to the construction of the lower Snake River dams, a large percentage of the

shoreline consisted of shallow water with a small particle size substrate. Today, much of the shoreline consists of deeper water.

Hydrosystem projects create substantial habitat blockages in this ESU; the major ones are the Hells Canyon Dam complex (mainstem Snake River) and Dworshak Dam (North Fork Clearwater River). Minor blockages are common throughout the region. Habitat in the Snake River Basin is warmer and drier and often more eroded than elsewhere in the Columbia River Basin or in coastal areas. The reduced amount of suitable habitat may be the main factor limiting steelhead recovery.

2.2.4.5 Local Empirical Information

Very little information is documented on near-shore habitat use by juvenile steelhead in the mainstem Columbia and Snake Rivers. Juvenile steelhead are thought to utilize the deeper, higher velocity areas away from the shoreline to migrate. They could potentially use the shoreline area during the winter and spring for rearing.

Most wild adult steelhead typically migrate through the reach between June and August for the A-run and between late August and November for the B-run (Figure 11). Adults from this stock may be migrating in deeper water or individuals may be holding in mid-channel areas prior to moving upriver into tributaries for spawning in early spring.

Wild juvenile Snake River steelhead generally migrate downstream through the lower Snake River, mainly between late March and the end of June (Figure 11). Some rearing or overwintering may occur in the reservoirs.

Steelhead adult returns to Lower Granite Dam fluctuated widely in the 1980s and remained at relatively low levels through the 1990s. Documenting wild steelhead counts began in 1994 and show a marked increase in 2001. Since 2000, counts have remained higher than during the 1990s with peaks and troughs in returns. Wild steelhead returns decreased substantially since 2014 with slightly more than 20,000 fish passing McNary Dam in 2017, approximately 13,000 of which were subsequently counted passing Ice Harbor Dam.

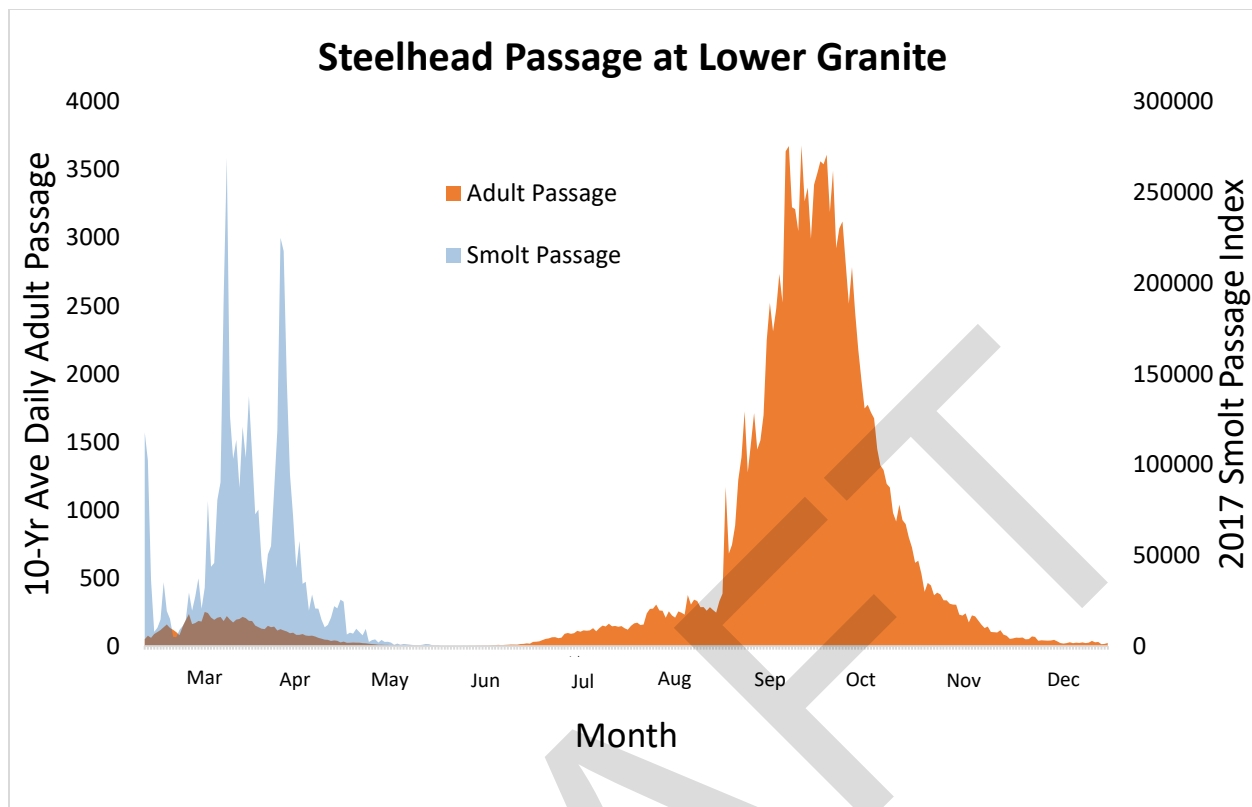


Figure 11. Passage timing and counts of adults and 2017 smolt passage index estimates of Snake River steelhead passing Lower Granite Dam (DART 2018). Data are based on adult fishway counts and juvenile fish facility sampling.

2.2.5 Bull Trout

2.2.5.1 Listing History

The USFWS issued a final rule listing the Columbia River population of bull trout as threatened on June 10, 1998 (63 FR 31647), while critical habitat for this species was listed on September 30, 2010. Bull trout are currently listed throughout their range in the United States as a threatened species.

2.2.5.2 Life History/Biological Requirements

Individual bull trout may exhibit resident or migratory life history strategies. Resident bull trout carry out their entire life cycle in the stream in which they spawn and rear. Migratory bull trout spawn in tributary streams, but eventually travel to larger streams (or lakes) where they mature. Habitat components that appear to influence bull trout distribution and abundance include water temperature, cover, channel form and stability, valley form, spawning and rearing substrates and migratory corridors (with resting habitat). All life history stages of bull trout are associated with complex forms of cover, including large woody debris, undercut banks, boulders and deep pools.

Bull trout normally reach maturity in four to seven years and may live as long as twelve years. Migratory bull trout may travel over one hundred miles to their spawning grounds. They generally spawn from August to November during periods of decreasing water temperatures. Egg incubation is normally 100 to 145 days and fry remain in the substrate for several months.

Bull trout are opportunistic feeders. Their diet requirements vary depending on their size and life history strategy. Juvenile bull trout prey on insects, zooplankton and small fish while adults and migratory bull trout are dominantly piscivorous.

2.2.5.3 Distribution

In the Columbia River Basin, bull trout historically were found in about 60% of the basin. They now occur in less than half of their historic range (Figure 12). Populations remain in portions of Oregon, Washington, Idaho, Montana, and Nevada.

2.2.5.4 Local Empirical Information

The few remaining bull trout strongholds in the Columbia River Basin tend to be found in large areas of contiguous habitats in the Snake River basin of the central Idaho mountains, upper Clark Fork and Flathead Rivers in Montana, and several streams in the Blue Mountains in Washington and Oregon. Populations also exist in the Yakima and Methow River watersheds. Numbers of bull trout captured at spawning stations throughout the basin are also regularly recorded. In addition, redd counts are conducted in southeast Washington on the Tucannon River, Butte Creek, and Asotin Creek.

There are eight subbasins of the lower Snake River identified by the USFWS that contain bull trout (Barrows et al. 2015). Of these subbasins, the Tucannon River (WA), Imnaha River (OR), and Sheep Creek (ID) have migratory bull trout populations that utilize the lower Snake River, generally between October and March, before returning to spawning grounds. Four Tucannon River fish have been detected in the adult fishway at Lower Granite between the months of June and August; however, there is no documented interaction of Imnaha River or Sheep Creek bull trout with the lower Snake River dams (Barrows et al. 2015). There is no evidence of bull trout utilizing the lower Snake River from the Asotin Creek, Grande Ronde River, Clearwater River, Salmon, River, or Granite Creek subbasins, although bull trout migration from some of these subbasins has not been well studied.

Recent studies have also shown Walla Walla River subbasin bull trout migration to, from, and through Lake Wallula above McNary Dam, but very little is known about how many bull trout may migrate into or through the mainstem Columbia and Snake River throughout the year. Anglin et al. (2010) reported that bull trout dispersed into the mainstem Columbia River from the Walla Walla River, and at times, this dispersal included a relatively long migration upstream to Priest Rapids Dam and downstream to John Day Dam.

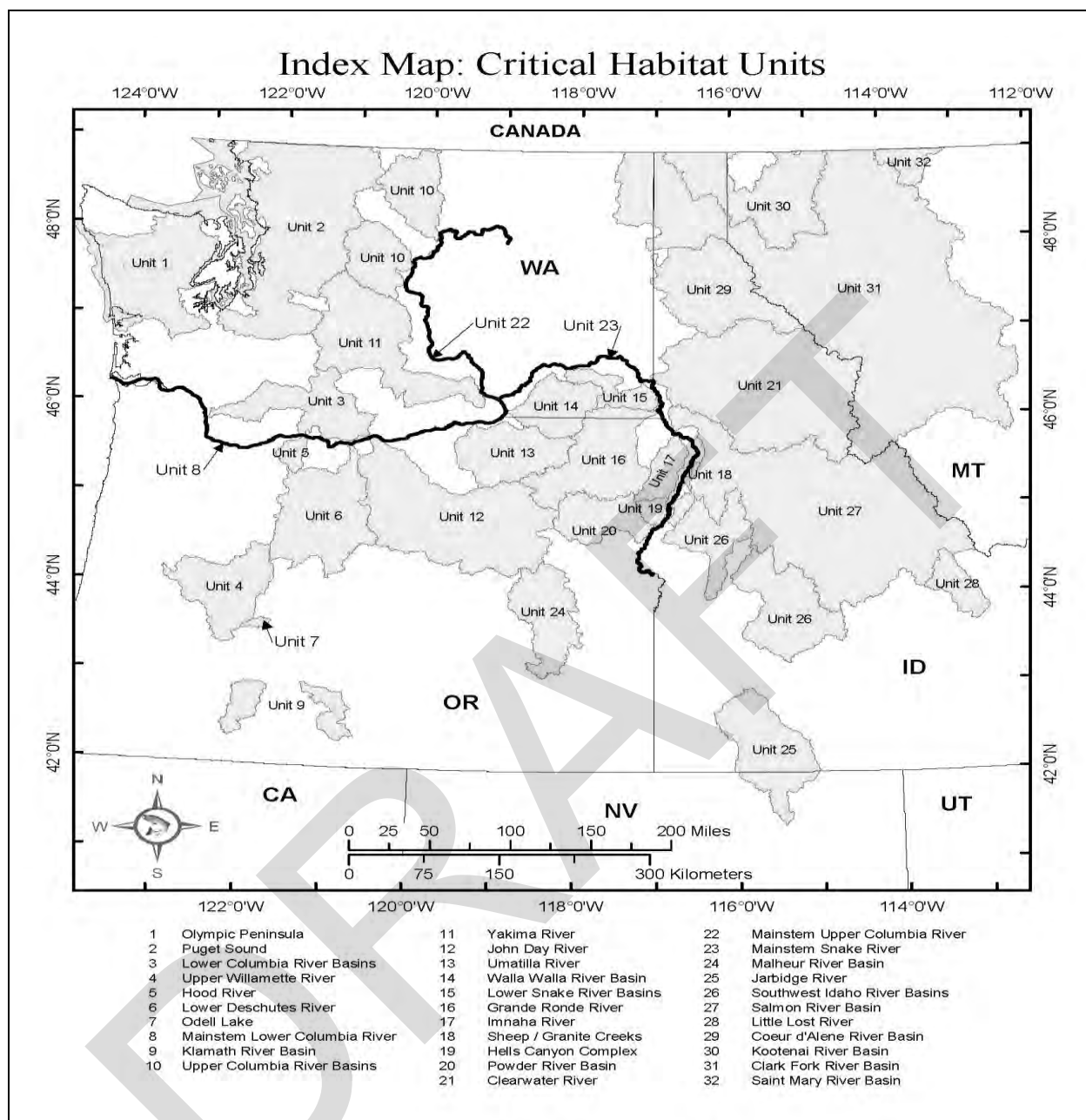


Figure 12. Bull trout distribution in the Columbia River Basin (USFWS 2014).

This data suggests that migratory bull trout from the Walla Walla River subbasin may also utilize the lower Snake River as bull trout of unknown origin are occasionally documented in the Ice Harbor south shore fishway (Barrows et al. 2015). While there is clear evidence that migratory bull trout utilize the lower Snake River and interact with Federal Columbia River Power System dams, little is known about the number of bull trout within the action area at Lower Granite at any given time, but numbers are expected to be very low based on fishway count data (Table 3). Furthermore, only four bull trout have been documented by the Smolt Monitoring Program at Lower Granite since 1998 (FPC 2017).

Table 3. Total number of bull trout observed passing the adult ladder at Lower Granite Dam monthly and annually since 2006. Length estimates were provided from ladder counts and used to estimate age class. Bull trout smaller than 12 inches in length were assumed to be sub-adult (Anglin et al. 2010). No bull trout were counted in August or September across years.

Year	# Bull Trout Observed	Adults	Sub-Adults	Monthly Observations			
				April	May	June	July
2006	2	1	1			1	1
2007	8	4	4	3	1	4	
2008	8	7	1		1	4	3
2009	4	4			2	2	
2010	8	8			2	1	5
2011	1	1					1
2012	2	2			1	1	
2013	0						
2014	1		1	1			
2015	0						
2016	7	-	-	1	1	5	
Total	41	28	8	5	8	18	10

2.2.5.5 Ongoing Monitoring

Adult salmonid passage is monitored at Lower Snake River dams between March and November, and for juveniles between April and October each year. Any bull trout observations are recorded, though few, if any, are generally seen in any year.

2.2.6 Yellow-Billed Cuckoo

2.2.6.1 Listing History

The western yellow-billed cuckoo was listed as threatened 3 October, 2014 (79 FR 59991), while critical habitat was proposed August 15, 2014, but a final designation has not been made. The western DPS includes Arizona, California (Baja California, Baja California Sur, Chihuahua, western Durango, Sinaloa, and Sonora), western Colorado, Idaho, western Montana, western New Mexico, Nevada, Oregon, western Texas, Utah, Washington, western Wyoming, and southwest British Columbia.

2.2.6.2 Life History and Biological Requirements

As summarized by Cornell University (2017): Yellow-billed cuckoos use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. In the Midwest, look for cuckoos in shrublands of mixed willow and dogwood, and in dense stands of small trees such as American elm. In the Southwest, yellow-billed cuckoos are rare breeders in riparian woodlands of willows, cottonwoods and dense stands of mesquite to breed.

Yellow-billed cuckoo prey largely on caterpillars. On the east coast, periodic outbreaks of tent caterpillars draw cuckoos to the tent-like webs, where they may eat as many as 100 caterpillars at a sitting. Fall webworms and the larvae of gypsy, brown-tailed, and white-marked tussock moths are also part of the cuckoo's lepidopteran diet, often supplemented with beetles, ants, and spiders. They also take advantage of the annual outbreaks of cicadas, katydids, and crickets, and will hop to the ground to chase frogs and lizards. In summer and fall, cuckoos forage on small wild fruits, including elderberries, blackberries and wild grapes. In winter, fruit and seeds become a larger part of the diet.

Pairs may visit prospective nest sites multiple times before building a nest together. Nest heights can range from 3 feet to as much as 90 feet off the ground, with the nest placed on a horizontal branch or in the fork of a tree or large shrub. In the central and eastern U.S., Yellow-billed cuckoo nest in oaks, beech, hawthorn, and ash. Pine, juniper, and fir are used less frequently. In the West, nests are often placed in willows along streams and rivers, with nearby cottonwoods serving as foraging sites.

The male and female yellow-billed cuckoo build a loose stick nest together, using twigs collected from the ground or snapped from nearby trees and shrubs. They construct a flat, oblong platform reaching up to 5 inches deep and 8 inches in diameter. The pair may line the nest sparingly with strips of bark or dried leaves. The finished nest cup is about 5 inches across and 1.5 inches deep. The male sometimes continues bringing in nest materials after incubation has begun. Clutch size can range from 1-5 eggs with up to 2 clutches per year.

2.2.6.3 Distribution

The breeding range of the yellow-billed cuckoo formerly included most of North America from southern Canada to the Greater Antilles and northern Mexico [AOU 1957, 1998 (Figure 13)]. In recent years, the species' distribution in the west has contracted. The northern limit of breeding in the western coastal States is now in Sacramento Valley, California, and the northern limit of breeding in the western interior States is southern Idaho (AOU 1998; Hughes 1999). East of the Continental Divide, the species breeds from southeastern Montana, the Dakotas, Minnesota, southern Ontario, southeastern Quebec and probably southern New Brunswick south to eastern Colorado, Texas, the

Gulf coast, northeastern Mexico, the Florida Keys, the Greater Antilles and the northern Lesser Antilles (AOU 1957, 1998). The species overwinters from Columbia and Venezuela, south to northern Argentina (Ehrlich et al. 1992; AOU 1998).

2.2.6.4 Local Empirical Information

In the Pacific Northwest, the species was formerly fairly common locally in willow bottoms along Willamette and Columbia Rivers in Oregon, and in the Puget Sound lowlands and along the lower Columbia River in Washington (Marshall 1996; Roberson 1980; Jewett et al. 1953; Gabrielson and Jewett, 1940). The species was rare east of the Cascade Mountains in these states and provinces. The last confirmed breeding records were in the 1930s in Washington, and in the 1940s in Oregon. It may now be extirpated from Washington (66 FR 38614).

2.2.6.5 Factors for Decline

Available data suggests that the yellow-billed cuckoo's range and population numbers have declined substantially across much of the western United States over the last 50 years. Analysis of population trends is difficult because quantitative data, including historical population estimates, are generally lacking. However, historic and recent data are sufficient to allow an evaluation of changes in the species' range in the western United States.

The greatest threat to the species has been reported to be loss of riparian habitat. It has been estimated that 90 percent of the cuckoo's stream-side habitat has been lost (USFWS 2018). Habitat loss in the west is attributed to agriculture, dams, and river flow management, overgrazing and competition from exotic plants such as tamarisk.

2.2.6.6 Ongoing Monitoring

Some western states and entities continue to monitor yellow-billed cuckoo populations with at least two relatively recent efforts. The Bureau of Reclamation has a contracted a five year study in Colorado beginning in 2013 (Tracy and McNeil 2016). The Arizona Important Bird Areas Program conducted 22 survey routes in 2017 within the Santa Catalina, Rincon, Tumacacori, Santa Rita, and Chiricahua Mountains.

The Corps does not actively monitor yellow-billed cuckoo, but Corps biologists conduct surveys prior to construction activities in the Pacific Northwest. A 2015 Corps survey in Jackson Hole, Wyoming, determined yellow-billed cuckoo were present in the cottonwood riparian along the Snake River. No nesting activity was documented.

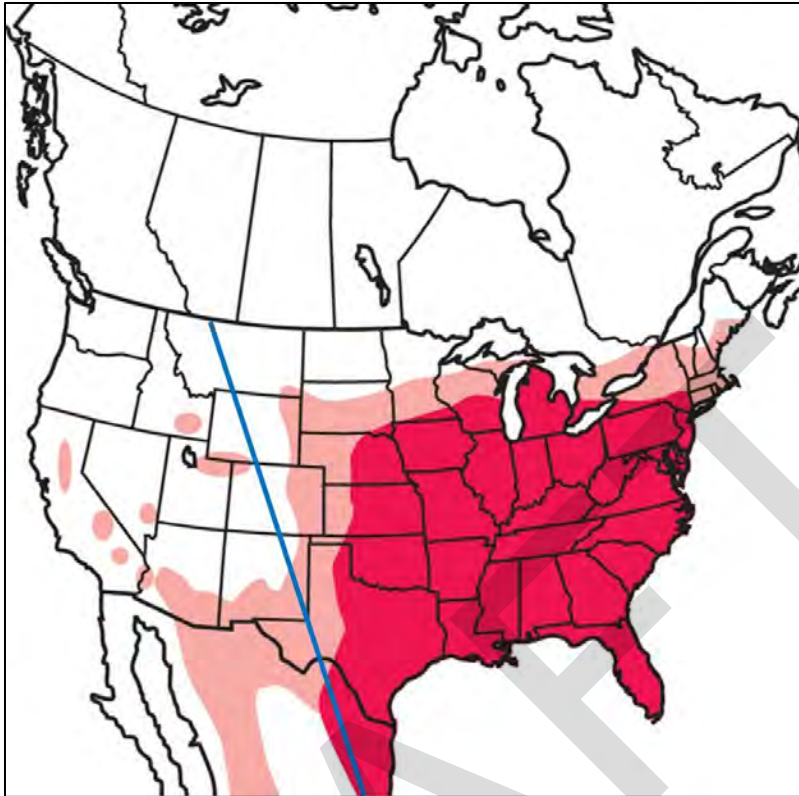


Figure 13. Yellow-billed cuckoo distribution in the North America (Audubon 2018). The blue line and areas west represent an arbitrary approximation of the western DPS. Light pink shading represents “uncommon” breeding areas.

2.2.7 Spalding’s Catchfly

2.2.7.1 Listing History

Spalding’s catchfly was listed as a threatened species under the Endangered Species Act on October 10, 2001 (66 FR 51597). On October 12, 2007 a recovery plan for Spalding’s catchfly was completed and released to the public. Spalding’s catchfly has been assigned a recovery priority number of 8C on a scale from 1C (highest) to 18 (lowest), indicating its taxonomic status as a full species, a moderate degree of threats or impacts, high potential for recovery, and potential conflict with economic activities.

2.2.7.2 Life History and Biological requirements

Spalding’s catchfly is an herbaceous perennial plant in the pink family (Caryophyllaceae). It is a long-lived species that expresses prolonged dormancy for up to six years without leaves if conditions are unfavorable (Lesica 1997; Lesica and Crone 2007). Lesica and Crone (2007) found that prolonged dormancy may increase plant fitness providing a way to obtain below-ground resources, limiting flower and fruit production.

Little is known about seed productivity, seed bank viability, or dispersal, but it can be assumed that the capsules of Spalding's catchfly serve as an open cup from which seeds are likely carried by the wind, jostled out by passing wildlife, or tossed when plants are knocked over (USFWS 2007). Seeds are small, flat, and somewhat winged. Plant height and seed characteristics suggest that short-distance wind dispersal may be common.

The plant is found at elevations ranging from 1,200 to 5,300 feet, usually in deep, productive loess soils (fine, windblown soils). Plants are generally found in swales or on northwest to northeast facing slopes where soil moisture is relatively higher.

2.2.7.3 Distribution

In 2007 there were 99 documented populations of Spalding's catchfly (USFWS 2007). Within the United States, Spalding's catchfly is known from four counties in Idaho (Idaho, Latah, Lewis, and Nez Perce), four counties in Montana (Flathead, Lake, Lincoln, and Sanders), one county in Oregon (Wallowa), and five counties in Washington (Adams, Asotin, Lincoln, Spokane, and Whitman) (Mincemoyer 2005; Oregon Natural Heritage Program 2006; Idaho Conservation Data Center 2007; Montana Natural Heritage Program 2007; Washington Natural Heritage Program 2007; summarized in USFWS 2007).

Two element occurrence records of Spalding's catchfly are known in British Columbia, Canada, both are within 1 mile of plants in Montana (British Columbia Conservation Data Center 2007), therefore we consider these plants to be within one single population. Figure 14 depicts the current rangewide distribution of Spalding's catchfly.

The distribution and habitat of Spalding's catchfly are primarily restricted to mesic slopes, flats or depressions in grassland, sagebrush-steppe, or open pine forest vegetation dominated by native perennial grasses such as *Festuca idahoensis* (Idaho fescue) or *F. scabrella* (rough fescue). Within its range, Spalding's catchfly occurs within five physiographic (physical geographic) regions: the Palouse Grasslands in west-central Idaho and southeastern Washington; the Channeled Scablands in eastern Washington; the Blue Mountain Basins in northeastern Oregon; the Canyon Grasslands of the Snake River and its tributaries in Idaho, Oregon, and Washington; and the Intermontane Valleys of northwestern Montana [USFWS 2007 (Figure 14)].

2.2.7.4 Local Empirical Information

The USFWS (2007) estimated 35 known populations in the state of Washington, which may have fluctuated due to increased survey effort since the drafting the Spalding's catchfly Recovery Plan. It is unknown how extensive or numerous the plant may have been historically because areas such as the Palouse Grasslands, centered around Pullman, Washington, and Moscow, Idaho, underwent a rapid and extensive conversion to agricultural lands around 1880 prior to significant botanical surveys of the area (USFWS 2007).

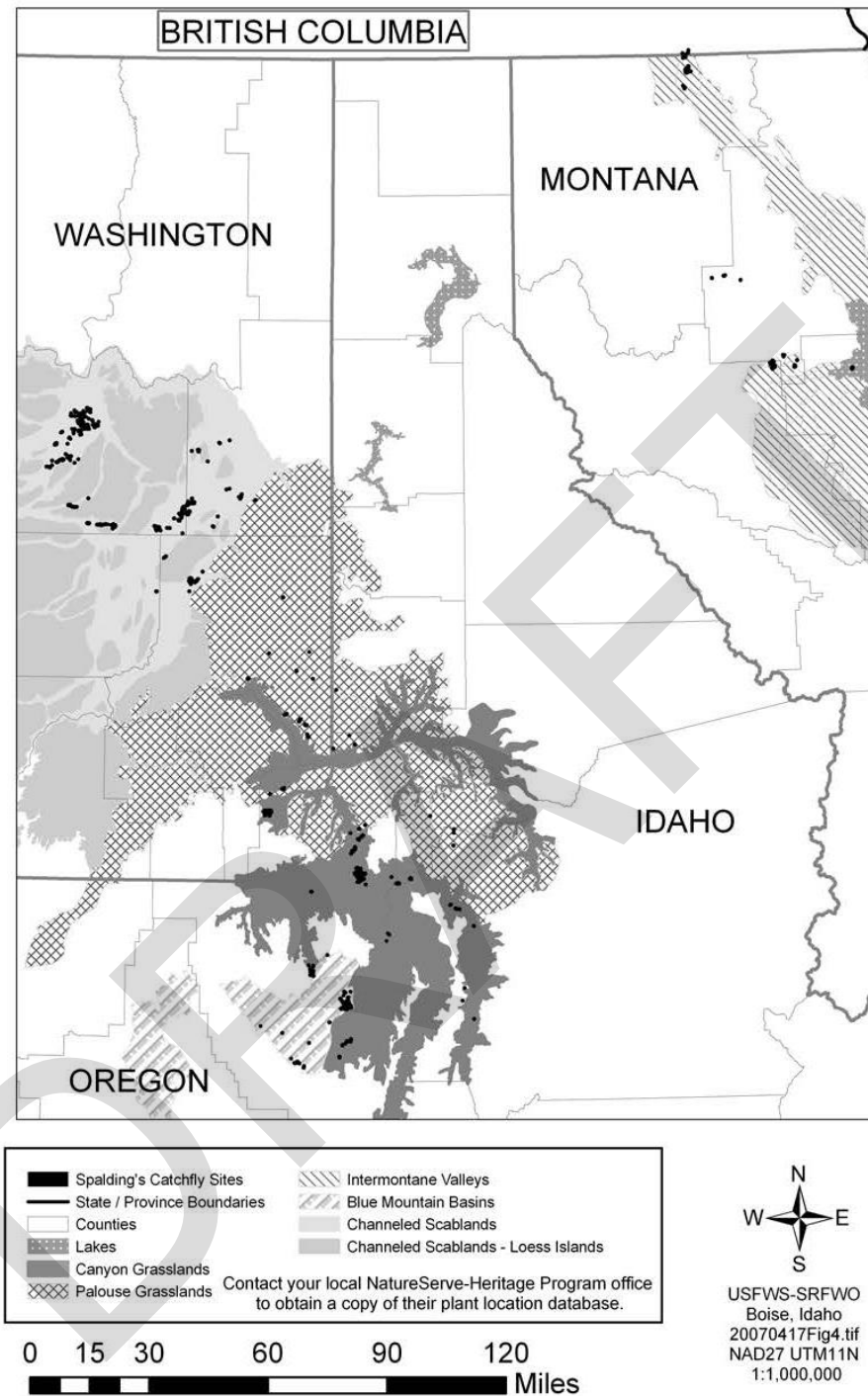


Figure 14. Distribution of Spalding's catchfly (USFWS 2007).

It is estimated that more than 99 percent of the original Palouse Prairie and 47 percent of the Channeled Scablands habitat has been lost (Noss et al. 1995).

No Spalding's catchfly were found on any Corps lands between Lyon's Ferry (RM 59) upstream to Asotin Slough (RM 147), and upstream of the confluence of the Snake and

Clearwater rivers to RM 8.2 on the Clearwater during a 2008 vascular plant survey on Corps lands in the upper Snake River (Bailey 2008a, 2008b).

2.2.7.5 Factors for Decline

Spalding's catchfly continues to be impacted by habitat loss due to human development and agriculture, habitat degradation associated with adverse grazing and trampling by domestic livestock, and invasions of aggressive nonnative plants. Other impacts include changes in fire frequency and seasonality, off-road vehicle use, and herbicide spraying and drift.

2.2.7.6 Ongoing Monitoring

The Corps conducts noxious weed and rare plant surveys within HMUs annually, although not every HMU is surveyed each year. To date, Spalding's catchfly has not been positively identified on Corps lands within the action area (Trumbo 2017).

2.3. Status of Critical Habitat

2.3.1 Anadromous Species

The designating of critical habitat focuses on certain habitat features called "physical and biological features" (PBFs) that are essential to support one or more of the salmonid life stages. The PBFs for ESA-listed salmon and steelhead in the action area are broken into two groups relative to fresh or saltwater based on these life history requirements (Table 4).

2.3.1.1 Snake River Spring/Summer Chinook salmon

Critical habitat was originally designated December 28, 1993, for spring/summer Chinook to include all presently or historically accessible stream reaches in the Hells Canyon, Imnaha, Lemhi, Little Salmon, Lower Grande Ronde, Lower Middle Fork Salmon, Lower Salmon, Lower Snake-Asotin, Lower Snake-Tucannon, Middle Salmon-Chamberlain, Middle Salmon-Panther, Pahsimeroi, South Fork Salmon, Upper Middle Fork Salmon, Upper Grande Ronde, Upper Salmon, Wallowa subbasins, and the Columbia River and Snake River migration corridor. A map of Snake River spring/summer Chinook salmon Critical Habitat is not currently available.

2.3.1.2 Snake River Fall Chinook Salmon

Critical habitat was originally designated December 28, 1993, for Snake River fall Chinook. Critical habitat includes the lower Columbia and Snake Rivers, middle and upper Snake River, and accessible Snake River tributaries (Figure 15). The mainstem Snake River includes a 300-foot riparian buffer above the ordinary high water mark on both shorelines as critical habitat. Essential habitat elements for Snake River fall Chinook are found in Table 4.

Table 4. Physical and biological features of critical habitat designated for anadromous species, and corresponding species life history events.

Physical and Biological Features		
Site Type	Site Attribute	Life History Event
Freshwater spawning	Substrate, water quality, water quantity	Adult spawning, embryo incubation, alevin development
Freshwater rearing	Floodplain connectivity, forage, natural cover, water quality, water quantity	Fry emergence, fry/parr growth and development
Freshwater migration	Free of artificial obstructions, natural cover, water quality, water quantity	Adult sexual maturation, adult upstream migration and holding, kelt seaward migration, fry/parr seaward migration
Estuarine areas	Forage, free of obstruction, natural cover, salinity, water quality, water quantity	Adult sexual maturation, adult "reverse smoltification", kelt seaward migration, fry/parr seaward migration, fry/parr smoltification, smolt growth and development, smolt seaward migration
Nearshore marine areas	Forage, free of obstruction, natural cover, water quality, water quantity	Adult sexual maturation, smolt/adult transition
Offshore marine areas	Forage	Adult growth and development

2.3.1.3 Snake River Sockeye Salmon

Critical habitat was originally designated December 28, 1993, for Snake River sockeye and includes all rivers, lakes, and reaches presently or historically accessible lakes and stream reaches in the Lower Salmon, Lower Snake, Lower Snake-Asotin, Lower Snake-Tucannon, Middle Salmon-Chamberlain, Middle Salmon-Panther, and Upper Salmon subbasins, as well as the migration corridor through the Salmon, Snake, and Columbia Rivers. A map of Snake River sockeye salmon Critical Habitat is not currently available. Essential elements of Snake River sockeye salmon critical habitat are found in Table 4.

2.3.1.4 Snake River Steelhead

NMFS designated critical habitat for Snake River steelhead September 2nd, 2005, for Snake River Steelhead to include Hells Canyon, Imnaha River, Lower Snake/Asotin,

Upper Grande Ronde River, Wallowa River, Lower Grande Ronde, Lower Snake/Tucannon, Upper Salmon, Pahsimeroi, Middle Salmon-Panther, Lemhi, Upper Middle Fork Salmon, Lower Middle Fork Salmon, Middle Salmon-Chamberlain, South Fork Salmon, Lower Salmon, Little Salmon, Upper Selway, Lower Selway, Lochsa, Middle Fork CR, South Fork CR, and CR subbasins, and the Lower Snake/Columbia River migration corridor (NMFS 2005) (Figure 16). Essential elements of Snake River steelhead critical habitat are found in Table 4.

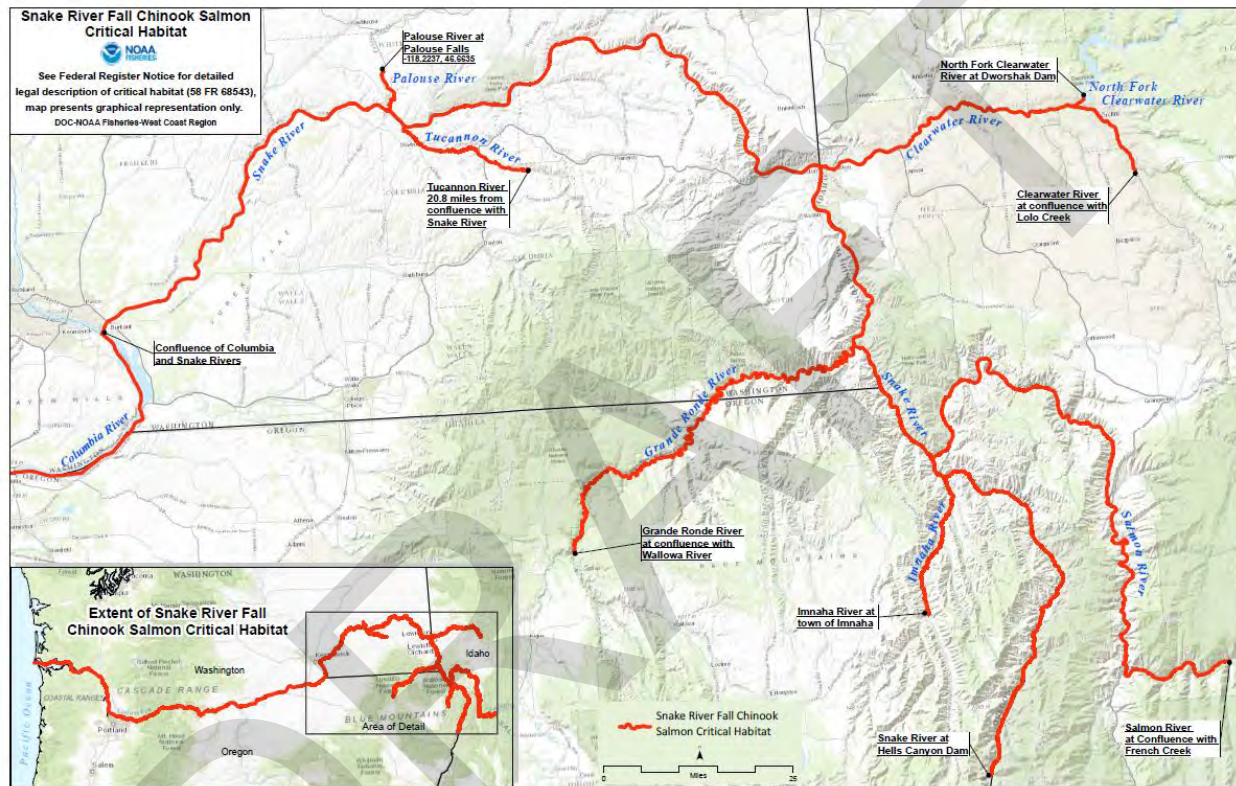


Figure15. Snake River fall Chinook salmon Critical Habitat.

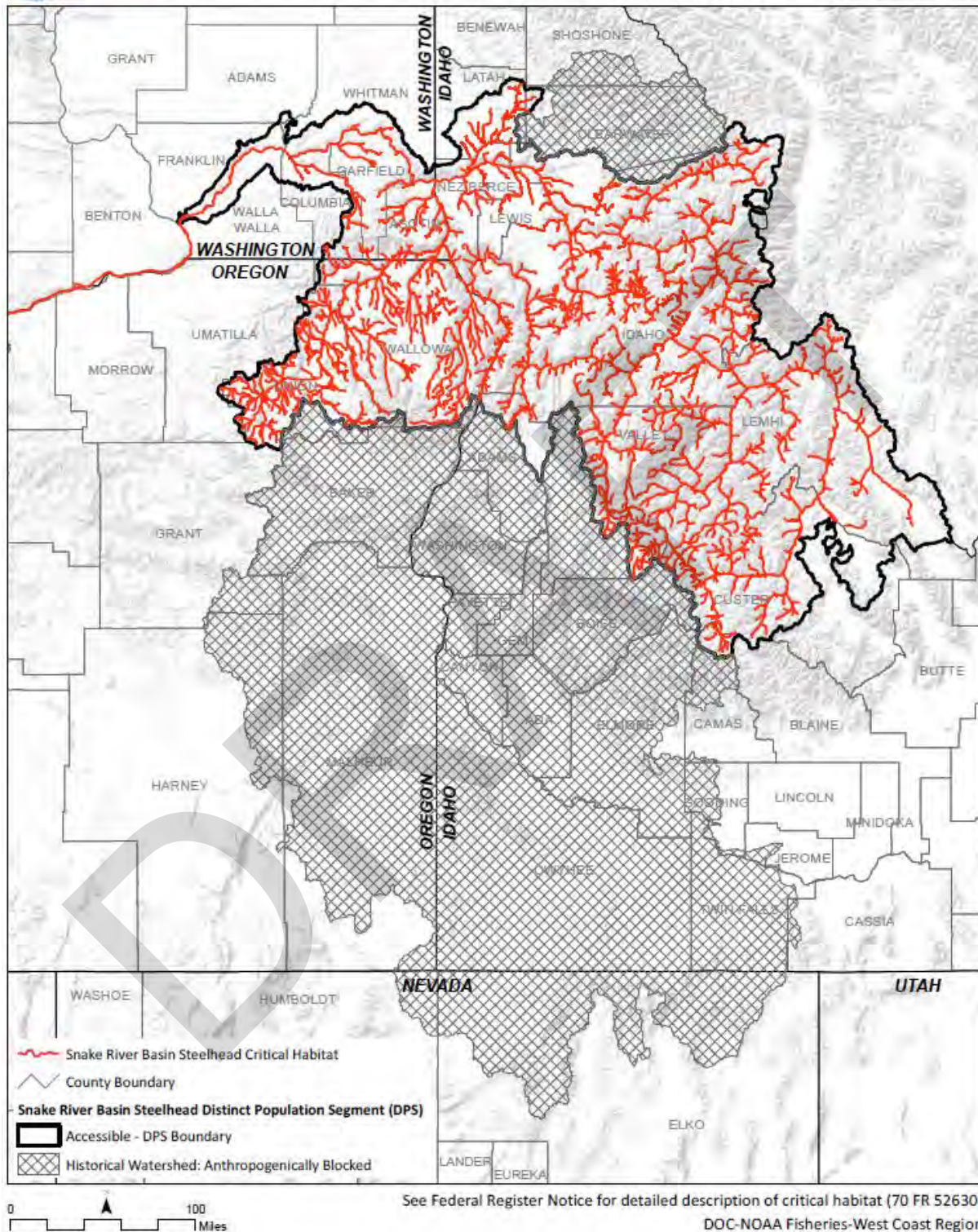


Figure 16. Snake River steelhead Critical Habitat. Not pictured is the lower Columbia River migration corridor which extends to the estuary.

2.3.2 Bull Trout

Bull trout critical habitat was designated in 2005. The USFWS revised the designation in 2010. A final rule was published on October 18, 2010, and took effect on November 17, 2010. A total of 19,729 miles of stream and 488,251 acres of reservoirs and lakes are designated as bull trout critical habitat (Figure 17). The Snake, Columbia, Yakima, and Walla Walla Rivers, which encompass the action area, are designated as bull trout critical habitat. Physical and Biological Features for bull trout critical habitat are listed in Table 5.

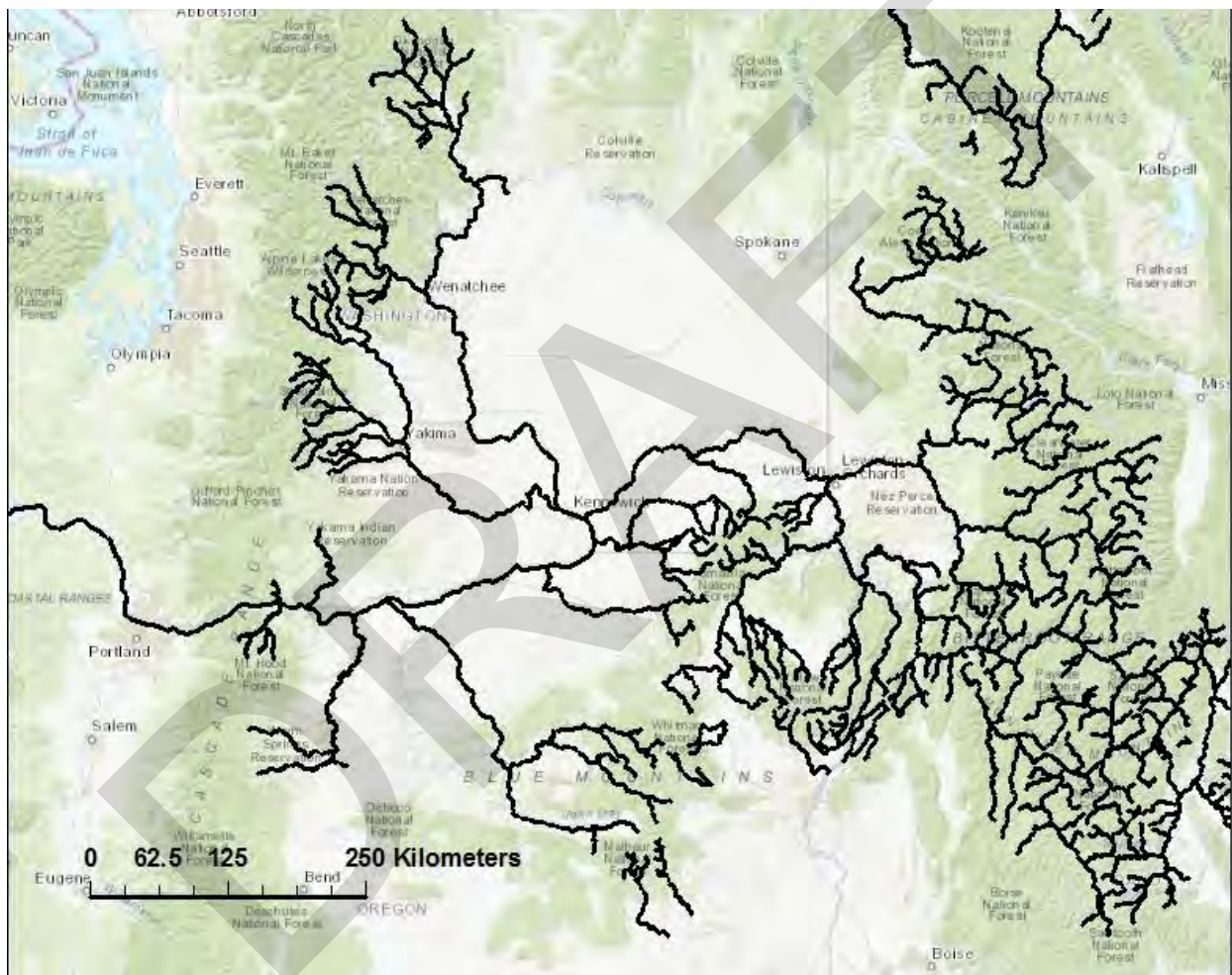


Figure 17. Bull trout critical habit in the Columbia River Basin.

Table 5. Physical and Biological Features of critical habitat designated for bull trout.

PBFs		
1	Water Quality	Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.
2	Migration Habitat	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	Food Availability	An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4	Instream Habitat	Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these environments, with features such as large wood, side channels, pools, undercut banks and clean substrates, to provide a variety of depths, gradients, velocities, and structure.
5	Water Temperature	Water temperatures ranging from 2 to 15 °C (36 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	Substrate Characteristics	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	Stream Flow	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	Water Quantity	Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9	Nonnative Species	Sufficiently low levels of occurrence of nonnative 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.

2.3.3 Yellow-billed Cuckoo and Spalding's Catchfly

Yellow-billed cuckoo critical habitat has been proposed, but is not located in the action area.

There is no designated critical habitat for Spalding's catchfly.

3 Environmental Baseline

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem within the action area. The environmental baseline is a “snapshot” of a species’ health at a specified point in time. It does not include the effects of the action under review in the consultation.

The baseline includes State, tribal, local, and private actions already affecting the species or that will occur contemporaneously with the consultation in progress. Unrelated Federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are Federal and other actions within the action area that may benefit listed species or critical habitat.

3.1. Historic Conditions

The action area was dominantly shrub-steppe and grasslands, historically, which were likely comprised of a greater density of native plant species than the present condition. Prior to construction of Lower Granite Dam, the action area would have had a small floodplain, although this area of the Snake River is characterized by steep canyon bluffs. At some time in the past, much of the action area was likely used for cattle grazing.

Recreation and habitat sites along the shoreline, which currently provide riparian habitat, were developed for their respective uses after the completion of Lower Granite Dam and the Comp Plan over forty years ago. The development and management of these areas is considered part of the environmental baseline.

3.2. Current Conditions

The Snake River shoreline is now generally vegetated with a variety of trees and shrubs within the action area. Corps wildlife lands provide undeveloped habitat; however, the corridor is heavily disturbed and developed in some urban areas. The action area encompasses the towns of Lewiston, Idaho, and Clarkston, Washington.

3.3. Matrix of Pathways and Indicators

NMFS uses the “Matrix of Pathways and Indicators” (MPI) to summarize important environmental parameters and levels of condition for each. USFWS adopted a similar strategy in 1997 based on NMFS’ matrix. The NMFS matrix is divided into six overall pathways (major rows in the matrix):

- Water Quality
- Channel Condition and Dynamics

- Habitat Access
- Flow/Hydrology
- Habitat Elements
- Watershed Conditions

Each represents a significant pathway by which actions can have potential effects on anadromous salmonids and their habitats, and could be used for analyzing bull trout habitat as well.

There has not been an action area-wide evaluation of current habitat indicators using the MPI for this project; however, after review of the proposed land use classification changes, the matrix may be used to determine the potential impacts of the proposed action. The Corps has determined that streambank condition and riparian reserves maybe improved by the proposed action, but at a minor scale within the watershed. Under the worst case scenario, the proposed action will not restore or degrade the function of habitat indicators of the environmental baseline, but will maintain existing baseline conditions within the action area (Table 6). For the purposes of the MPI checklist, "maintain" means that the function of an indicator does not change (i.e., it applies to all indicators regardless of functional level). Each indicator will be discussed in the following section.

Table 6. Checklist for documenting environmental baseline and effects of proposed actions on relevant anadromous salmonid habitat indicators

Pathways Indicators	Environmental Baseline			Effects of the Action		
	Properly Functioning	At Risk	Not Properly Functioning	Restore	Maintain	Degrade
Water Quality:						
Temperature		X			X	
Sediment		X			X	
Chem. Contam./Nut.		X			X	
Habitat Access:						
Physical Barriers		X			X	
Habitat Elements:						
Substrate		X			X	
Large Woody Debris			X		X	
Pool Frequency			X		X	
Pool Quality			X		X	
Off-Channel Habitat			X		X	
Refugia			X		X	
Channel Cond. and Dynamics:						
Width/Depth Ratio			X		X	
Streambank Condition		X			X	
Floodplain Connectivity			X		X	
Flow/Hydrology:						
Peak/Base Flows			X		X	
Drainage Network Increase		X			X	
Watershed:						
Road Density and Location		X			X	
Disturbance History		X			X	
Riparian Reserves		X			X	

3.4. Baseline Condition Justification

3.4.1 Water Quality

The *Temperature* parameter is “at risk”. Water temperatures in the action area sometimes exceed water quality standards during the summer months and temperatures vary among years. The Snake River in Hells Canyon has historically exceeded 70° Fahrenheit during summer. Cold water is released annually from Dworshak Dam, July – September, to provide cold water to the lower Snake River for upriver migrating salmonids. This proposed action would have no effect on water temperature.

The *Sediment* parameter is “at risk”. Sediment deposition and transport is expected to occur at an approximately consistent rate in the same areas within the action area. The Snake River experiences a great fluctuation of flows between low and high flow periods, and the reach characteristics dictated by the operation of Lower Granite Dam likely define where and how much sediment deposition occurs. While the reclassification of acreage to Wildlife and Mitigation would ensure that a riparian buffer will remain in much of the action area, the proposed action would have no effect on sediment transport or deposition.

The *Chemical Contaminants/Nutrients* parameter is “at risk”. Nutrient levels in the Snake River are sometimes high due to agricultural runoff, but similar to sediment transport, the proposed action would have no effect on contaminants or nutrients.

3.4.2 Habitat Access

The *Physical Barriers* parameter is “at risk” within the Snake River. The lower Snake River dams provide fish passage, but some migrants are delayed or are killed. The proposed action would not add or remove physical barriers, therefore, having no effect.

3.4.3 Habitat Elements

The *Substrate* parameter is “not properly functioning”. Similar to the sediment parameter, sand and silt may deposit in specific areas of the Snake River within the action area. While the reclassification of acreage to Wildlife and Mitigation would ensure that a riparian buffer will remain in much of the action area, the proposed action would have no effect on substrate.

The *Large Woody Debris* parameter is “not properly functioning”. Very little large woody debris deposits along the shoreline, particularly in the dam tailrace. Most is carried further downstream and collects behind Little Goose Dam. There is potential for habitat restoration projects within the action area to contribute woody debris over time, but it may not accumulate within the action area. Therefore, the proposed action would have no effect on the amount of large woody debris along the shoreline.

The *Pool Frequency* parameter is “at risk”. While the lower Snake River dams are run-of-river dams that generally pass the incoming river volume, the forebay pools act much like one large pool instead of multiple smaller pools with riffles or runs in between. This alters the characteristics of the river. The proposed action would have no effect on pool frequency in the Snake River.

The *Pool Quality* parameter is “at risk”. Pool characteristics have been greatly altered by the lower Snake River dams. The proposed action would have no effect on the pool quality of the river.

The *Off-Channel Habitat* parameter is “not properly functioning”. Little to no off channel habitats exists along the lower Snake River. The proposed action would have no effect on available off-channel habitat in the river.

The *Refugia* parameter is “at risk”. Refugia sources such as large woody debris are limited in the Snake River. There is potential for habitat restoration projects within the action area to contribute woody debris over time, but it may not accumulate within the action area. The proposed action would have no effect on the available refugia in the river.

3.4.4 Channel Condition and Dynamics

The *Width to Depth Ratio* parameter is “not properly functioning”. The reservoir is much deeper and wider than the pre-impoundment Snake River. The proposed action would have no effect on the river’s width to depth ratio.

The *Streambank Condition* parameter is “at risk”. There are areas of erosion sporadically along the shoreline. Generally only a thin band of riparian vegetation exists along the river as the natural riparian and floodplain was inundated by the lower Snake River dams. Developed streambanks within the action area may be reinforced with riprap, or otherwise stabilized with vegetation. There is potential for habitat restoration projects within the action area to improve streambank condition over time. Therefore, the proposed action may improve streambank condition, but at a minor scale relative to the watershed.

The *Floodplain Connectivity* parameter is “not properly functioning”. The reservoir level is controlled by Lower Granite Dam. In addition levees were constructed to confine the river, not allowing the river access to the floodplain. The proposed action would have no effect on the river’s floodplain connectivity.

3.4.5 Flow and Hydrology

The *Peak/Base Flows* parameter is “not properly functioning”. The river is controlled somewhat by Hells Canyon Dam and Dworshak Dam. The hydrograph has been modified from its historic condition. The proposed action would have no effect on river flows.

The *Drainage Network Increase* parameter is “at risk”. Urban development with its impervious surfaces has increased local runoff in many areas along the Snake River; however, there is relatively little development around Lower Granite Dam. The proposed action would not increase impervious surfaces, and would have no effect on the watershed’s drainage network.

3.4.6 Watershed Conditions

The *Road Density and Location* parameter is “at risk”. The road network within the Snake River Basin has expanded greatly over the past century. Many forest roads contribute sediment into streams and rivers which adds to the sedimentation problems near Lewiston. The proposed action does not require building any new roads and would, therefore, have no effect on the road density of the watershed.

The *Disturbance History* parameter is “at risk”. Large fires have increased in frequency throughout the Pacific Northwest. Runoff after a fire can carry increased amounts of sediment. Landslides due to fires and roads also affect the streams within the watershed. The proposed action would have no effect on the disturbance history of the watershed.

The *Riparian Reserves* parameter is “at risk”. In general there is only a thin band of riparian vegetation along the Snake River. In many places no riparian trees are present, often replaced by levees and riprap. There is potential for habitat restoration projects within the action area to improve riparian reserves over time. The proposed action may improve riparian reserves, but at a minor scale relative to the watershed.

4 Effects of the Action

This section includes an analysis of general project-related effects of the proposed action, as well as specific effects on the species and critical habitat PBFs. Effects from any interrelated and interdependent activities are also discussed.

The primary effect on listed species and critical habitats would be beneficial in the form of habitat enhancement or preservation. Discussion of beneficial effects is presented below for fishes, wildlife, and plants, separately.

Specific, programmatic actions not already covered under prior ESA consultation (see Section 1.3.3.1) include food plot planting and maintenance in HMUs, and infrastructure maintenance and lawn grass reseeding in developed recreation areas. The effects of these actions are discussed below as well.

4.1 Effects on Listed Species

4.1.1 Anadromous Fishes and Bull Trout

Habitat enhancement and preservation along the Snake River corridor would benefit ESA-listed fishes by ensuring that riparian habitat would either be improved, or at

minimum, remain undeveloped within the action area. Habitat preservation would ensure no development of impervious surfaces or clearing of existing shoreline vegetation, and a vegetated buffer would separate the river from any private land uses (aside from designated cattle watering corridors). Benefits that may be realized from habitat enhancement would be increased shade, shoreline refugia, and food sources.

Therefore, habitat enhancement and preservation associated with land use classification changes may affect, but is not likely to adversely affect anadromous fishes or bull trout.

Food plot planting and maintenance would include ground surface disturbance. Discing would open the soil completely, while drill seeding would only scratch the surface. These actions would have little potential to contribute sediment to the Snake or Clearwater Rivers. Food plots are generally less than one acre in size and are spatially separated from the water such that any runoff would be filtered by grasslands.

Therefore, food plot planting and maintenance would have no effect on anadromous fishes or bull trout.

Native lawn and grass reseeding or turf replacement would involve minor ground surface disturbance with weed-free straw or silt fence applied as a best management practice. Seed would be broadcast and turf would be cut, removed, and replaced. Sediment inputs to the Snake River or Clearwater Rivers is highly unlikely. ***Therefore, native lawn and grass reseeding or turf replacement would have no effect on anadromous fishes or bull trout.***

Infrastructure maintenance such as picnic shelter painting and reroofing, sidewalk or parking lot repair, or other maintenance internal to a structure would not result in any material entering the Snake or Clearwater Rivers. All material would be disposed of in accordance with appropriate laws. ***Therefore, infrastructure maintenance would have no effect on anadromous fishes or bull trout.***

4.1.2 Yellow-billed Cuckoo

Preservation and enhancement of wooded riparian areas within the action area would provide a benefit to yellow-billed cuckoo. Although the species has not been documented in the action area in an unknown number of years, retaining and enhancing cottonwood stands within the river corridor would provide this species suitable food and shelter sources if any individuals found their way into the action area. Native, fruiting trees and shrubs that may be planted would also provide a food source benefit.

Therefore, habitat enhancement and preservation associated with land use classification changes may affect, but is not likely to adversely affect yellow-billed cuckoo.

Food plot planting and maintenance would include ground surface disturbance. Discing would open the soil completely, while drill seeding would only scratch the surface. Food plots would not require removal of any native riparian habitat capable of sustaining yellow-billed cuckoo. Food plots would contain crop species such as corn that may

attract insect prey. ***Therefore, food plot planting may affect, but is not likely to adversely affect yellow-billed cuckoo.***

Native lawn and grass reseeding or turf replacement would involve minor ground surface disturbance with weed-free straw or silt fence applied as a best management practice. Seed would be broadcast and turf would be cut, removed, and replaced. Turf and lawn maintenance would occur in developed areas and would not disrupt habitat or food sources. Some noise disturbance may occur from operating small equipment, but given the developed nature and location of recreation areas, effects would be discountable. ***Therefore, native lawn and grass reseeding or turf replacement may affect, but is not likely to adversely affect yellow-billed cuckoo.***

Infrastructure maintenance such as picnic shelter painting and reroofing, sidewalk or parking lot repair, or other maintenance internal to a structure may lead to some noise disturbance, but given the developed nature and location of recreation areas and facilities, effects would be discountable. ***Therefore, infrastructure maintenance may affect, but is not likely to adversely affect yellow-billed cuckoo.***

4.1.3 Spalding's Catchfly

Habitat preservation would be the greatest benefit to Spalding's catchfly. While a plant doesn't necessarily have habitat, limiting disturbances on Wildlife and Mitigation lands to habitat management activities only would protect Spalding's catchfly. Disturbances that the proposed action would minimize or eliminate are those caused by cattle trampling or grazing, all-terrain vehicle use, potentially less human foot traffic where Recreation acres and practices are reduced, and potentially enhanced invasive species control in newly designated habitat acres. ***Therefore, habitat enhancement and preservation associated with land use classification changes may affect, but is not likely to adversely affect Spalding's catchfly.***

Spalding's catchfly have not been found on Corps lands in recent years (Trumbo 2017) and are unlikely to occur in areas where food plots have been established or in developed recreation areas. ***Therefore, food plot planting and maintenance, native lawn and grass reseeding or turf replacement, and infrastructure maintenance would have no effect on Spalding's catchfly.***

4.2 Effects on Critical Habitat

4.2.1 Anadromous Fishes

The proposed action may provide benefits to freshwater rearing and freshwater migration; therefore, those PBFs will be discussed further. The proposed action would have no effect on the other PBFs (Table 7).

Freshwater rearing: Riparian habitat enhancement may improve rearing habitat by providing shade, woody debris, and food sources where tree species such as cottonwood, willow, and alder are planted. Undeveloped shoreline within the action area

generally provides appropriate depths, flow, and substrates, which would remain unaffected, or enhanced by the removal of invasive species as a result of the proposed action. Energy inputs would support macroinvertebrates as a prey item for juvenile salmonids. Due to food plot spatial separation from the water and best management practices for lawn and turf maintenance, sediment input from these activities is unlikely. ***Therefore, the proposed action is not likely to adversely affect freshwater rearing.***

Freshwater migration: Riparian habitat enhancement may improve freshwater migration corridors within the action area by providing shade and woody debris to serve as refugia from predators for both adult and juvenile salmonids. The benefits to juvenile rearing also apply for juvenile migration habitat. ***Therefore, the proposed action is not likely to adversely affect freshwater migration.***

Table 7. Effect determinations for the proposed action to the PBFs critical habitat designated for anadromous fish and corresponding species life history events.

Physical and Biological Features	
Site Type	Site Attribute
Freshwater spawning	No Effect
Freshwater rearing	Not Likely to Adversely Affect
Freshwater migration	Not Likely to Adversely Affect
Estuarine areas	No Effect
Nearshore marine areas	No Effect
Offshore marine areas	No Effect

4.2.2 Bull Trout

The proposed action may provide benefits to water quality, migration habitat, food sources, and instream habitat, those PBFs will be discussed further. The proposed action would have no effect on the other PBFs (Table 8).

Water quality: Water quality is not likely to be improved in the grand scheme of the Snake River, but preserving and enhancing riparian habitat ensures a runoff buffer to reduce fine sediment and nutrient inputs. Due to food plot spatial separation from the water and best management practices for lawn and turf maintenance, sediment input from these activities is unlikely. ***Therefore, the proposed action is not likely to adversely affect water quality.***

Migration habitat: Riparian habitat enhancement may improve migration corridors within the action area by providing shade and woody debris to serve as refugia from predators for both adult and sub-adult. **Therefore, the proposed action is not likely to adversely affect the bull trout migration corridor.**

Food sources: Riparian habitat enhancement would improve food sources for bull trout by providing woody debris and energy inputs that would support macroinvertebrates, as well as attract smaller nongame fish species as forage. **Therefore, the proposed action is not likely to adversely affect the bull trout food sources.**

Instream habitat: Riparian habitat enhancement may provide a minor benefit to instream habitat in the form of woody debris inputs. **Therefore, the proposed action is not likely to adversely affect instream habitat.**

Table 8. Effect determinations for the proposed action to the PBFs of critical habitats designated for bull trout.

PBFs		
1	Water Quality	Not likely to adversely affect
2	Migration Habitat	Not likely to adversely affect
3	Food Availability	Not likely to adversely affect
4	Instream Habitat	Not likely to adversely affect
5	Water Temperature	No effect
6	Substrate Characteristics	No effect
7	Stream Flow	No effect
8	Water Quantity	No effect
9	Nonnative Species	No effect

4.2.3 Yellow-billed Cuckoo and Spalding's Catchfly

Yellow-billed cuckoo critical habitat has been proposed, but is not located in the action area.

There is no designated critical habitat for Spalding's catchfly.

4.3 Effects Determinations

4.3.1 Listed Species

The Corps determined that the proposed action may affect, but is not likely to adversely affect all associated ESA-listed species. Effects determinations for listed species are summarized in Table 9.

4.3.2 Critical Habitat

Due to the neutral or positive effects of the proposed action on the environment, the PBFs of anadromous fish and bull trout critical habitat in the action area are likely to remain functional, or retain their current ability to become functionally established, and to serve the intended conservation role for these species. Therefore, the Corps has determined that the proposed action is not likely to adversely affect critical habitat for any of the affected ESA-listed fishes (Table 9). The proposed action would have no effect on yellow-billed cuckoo proposed critical habitat as there is none in the action area.

Table 9. Effect determinations for listed species and critical habitat that may occur in the action area.

Species	USFWS Species Determination	Critical Habitat Determination
Snake River Sockeye Salmon	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Snake River Spring/Summer Chinook	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Snake River Fall Chinook	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Snake River Steelhead	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Bull Trout	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Yellow-Billed Cuckoo	May Affect, Not Likely to Adversely Affect	No Effect
Spalding's Catchfly	May Affect, Not Likely to Adversely Affect	None Designated

4.3.3 Environmental Baseline

While the Corps proposes to change land use classifications for Granite Lake lands, the proposed changes reflect how the land has been managed for over forty years. There would be no degradation of the environmental baseline as a result of Corps land management actions. The proposed increase in acreage under wildlife and mitigation classifications would only ensure habitat enhancements and maintenance precluding development. ***Therefore, the proposed action would maintain or improve the environmental baseline within the action area.***

5 Magnuson-Stevens Act - Essential Fish Habitat

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations 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 to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

Due to the neutral or positive effects of the proposed action on the environment, the proposed action would not adversely affect EFH.

6 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) authorizes the USFWS to evaluate the impacts to fish and wildlife species from proposed Federal water resource development projects that could result in the control or modification of a natural stream or body of water that might have effects on the fish and wildlife resources that depend on that body of water or its associated habitats.

The proposed action does not modify a natural body of water, but the construction of the Snake River hydropower dams did drastically modify the Snake River. For this reason, to comply with FWCA, the Comp Plan was drafted by the Corps. The proposed action supports the Comp Plan and FWCA. Furthermore, habitat management priorities are developed cooperatively among the Corps, USFWS, and Washington Department of Fish and Wildlife. Under the Comp Plan, the State of Idaho requested acreage only as mitigation, and does not participate in management of Corps lands.

Because the proposed action does not modify a natural body of water and supports both FWCA and the Lower Snake River Fish and Wildlife Compensation Plan, FWCA coordination is not required.

7 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.

The proposed action would benefit migratory birds by protecting and enhancing riparian habitat. This would sustain and improve available food and shelter availability. Should habitat disturbance occur from any actions presented in this document, nesting surveys would be conducted by a trained wildlife biologist prior to taking action and nests would be avoided with appropriate buffers.

Therefore, the Corps has determined that there would be no take of migratory birds as a result of the proposed action.

8 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions, primarily for Native American Tribes. Take under the BGEPA includes both direct taking of individuals and take due to disturbance. Disturbance is further defined in 50 CFR 22.3.

Bald eagles are known to nest throughout Corps managed lands in the Walla Walla District. While all nest sites have not been documented, locations of some are known. Bald eagles can be found roosting and hunting along the Columbia River during the winter months.

Golden eagles are distributed worldwide and occupy habitats from alpine meadows to arid deserts. Washington supports nesting golden eagles east and west of the Cascade Mountains, as well as a winter migratory population from nesting populations in Canada and Alaska. The species has been identified as a state candidate for listing due to declines in the number of nesting pairs at historic nests.

Bald eagle nesting sites have been documented within the action area within in the past few years, and roosting or foraging eagles may be present at any given time in HMUs. The proposed action would protect and enhance bald and golden eagle habitat. Any potential for disturbance from habitat enhancement projects has been considered prior consultations and biological assessments referenced at the beginning of this document.

Therefore, the Corps has determined that there would be no disturbance or take of bald or golden eagles as a result of the proposed action.

9 State-Listed Threatened, Endangered, and Sensitive Species

The action area includes species listed as either Threatened, Endangered, Sensitive, or a Species of Concern by state agencies. There are 147 species listed by the State of Idaho, and 65 species listed by the State of Washington that are not listed under the ESA (See Appendix B). While the Corps is not required to consult with the state agencies on effects of the proposed action to these species and their respective habitats, it should be noted that effects determinations for these species are similar to those made for federally endangered species.

Due to the neutral or positive effects of the proposed action on fish and wildlife habitat, the proposed action is not likely to adversely affect state-listed Threatened, Endangered, and Sensitive Species of Concern, and would further protect these species from physical disturbance within the Lower Granite Project boundaries.

10 Culturally Significant Plants

Similar to consultation with the Services on endangered species, The Corps consults with local tribal entities to ensure their cultural interests are respected relative to any given federal action. The Corps is obligated to promote the welfare of federally recognized Tribes under the Trust Responsibility, a doctrine developed throughout U.S. history by Treaty, statute, case law (including Supreme Court decisions), regulation and policy.

Considering Tribal Trust Resources, the Corps land management actions have the potential to affect culturally significant plant species. The Corps has inventoried plant species across Walla Walla District lands for this, among other purposes. Martin et al. (2012) drafted a *Traditional Plant Study* report for the Corps including 50 culturally important plants (See Appendix C) selected based on three main criteria. First, the plants had to be of past or present cultural importance to most of the five Native American groups that traditionally inhabited the Corps Project areas. Second, regardless of traditional use, plants that do not inhabit any of the Corps lands under study, and plants with broader distributions in the interior Northwest, and most likely to be found across Corps lands, were given priority. Finally, only native plants were included in the study.

Of the 50 species identified by Martin et al. (2012), Shippentower (2017) confirmed 15 species plus nine additional species of cultural significance that occur on Corps lands along the lower Snake River.

Considering the variety of culturally significant plant species that may occur within the action area, the Corps determined that the proposed action is not likely

to adversely affect, and would further protect these species from physical disturbance within the boundaries of Granite Lake.

11 Effects Summary

The Corps has determined that this action, as proposed, **may affect**, but is **not likely to adversely affect** any associated ESA-listed species. The proposed action **may affect**, but is **not likely to adversely affect** critical habitat for ESA-listed fishes, and would have **no effect** on proposed yellow-billed cuckoo critical habitat (Table 10).

It should be noted that the Corps will initiate consultation with the Services prior to taking action for any specific construction or land management activity under the proposed land use classification changes that may affect ESA-listed species or critical habitat.

Table 10. Effect determinations summary for listed species, critical habitats, and other pertinent environmental considerations potentially affected by the proposed action.

Common Name	USFWS Species Determination	Critical Habitat Determination
Snake River Sockeye Salmon	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Snake River Spring/Summer Chinook	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Snake River Fall Chinook	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Snake River Steelhead	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Bull Trout	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Yellow-billed Cuckoo	May Affect, Not Likely to Adversely Affect	No Effect
Spalding's Catchfly	May Affect, Not Likely to Adversely Affect	None Designated
MSA		
No Adverse Effects		
FWCA		
Not Applicable		
MBTA		
No Take		
BGEPA		
No Disturbance or Take		
State-Listed T&E Species		
No Adverse Effects		
Culturally Significant Plants		
No Adverse Effects		
Environmental Baseline		
Maintain or Improve		

12 References

- Anglin, DR, D Gallion, MG Barrows, SL Haeseker, RC Koch, and CN Newlon. 2010. Monitoring the use of the mainstem Columbia River by bull trout from the Walla Walla Basin. Final Report to the US Army Corps of Engineers, Walla Walla District, Walla Walla, WA.
- AOU (American Ornithologists' Union). 1957. Checklist of North American Birds. 5th edition. Lord Baltimore Press, Baltimore, Maryland.
- AOU 1998. Checklist of North American birds. 7th ed. American Ornithologists' Union, Washington, DC
- Audubon. 2018. Yellow-billed cuckoo *Coccyzus americanus*. Available at <http://www.audubon.org/field-guide/bird/yellow-billed-cuckoo>. 9 March 2018.
- Bailey, P. 2008a. Vascular Plant Survey for Upper Snake River, Walla Walla District, Washington. Environmental Laboratory, US Army Engineer Research and Development Center. Vicksburg, MS.
- Bailey, P. 2008b. Vascular Plant Survey for Lower Snake River, Walla Walla District, Washington. Environmental Laboratory, US Army Engineer Research and Development Center. Vicksburg, MS.
- Barrows, MG, PM Sankovich, DR Anglin, JM Hudson, RC Koch, JJ Skalicky, DA Willis, and BP Silver. 2015. Use of the mainstem Columbia and Snake Rivers by migratory bull trout. Draft Report, US Fish and Wildlife Service, Vancouver, Washington.
- Bell, M. 1990. Fisheries Handbook of Engineering Requirements and Biological Criteria. Third. US Army Corps of Engineers, North Pacific Division. Portland, Oregon.
- Bennett, DH, TJ Dressler Jr., and M Madsen. 1997. Habitat use, abundance, timing, and factors related to the abundance of subyearling Chinook salmon rearing along the shorelines of the lower Snake River pools. Report of the University of Idaho, College of Fish and Wildlife, to the US Army Corps of Engineers, Walla Walla District, Walla Walla, Washington.
- Blenden, ML, RS Osborne, and PA Kucera. 1996. Spring outmigration of wild and hatchery Chinook salmon and steelhead trout smolts from the Imnaha River, Oregon, February 6 - June 20, 1995. Annual project report to the Bonneville Power Administration. Nez Perce Tribe Department of Fisheries Resources Management, Lapwai, Idaho.
- British Columbia Conservation Data Centre. 2007. Element occurrence records for *Silene spaldingii*.

- Busack, C. 1991. Genetic evaluation of the Lyons Ferry Hatchery stock and wild Snake River fall chinook. Report submitted to the ESA Administrative Record for fall chinook salmon. National Marine Fisheries Service, Portland, Oregon.
- Connor, WP, JG Sneva, KF Tiffan, RK Steinhorst, and D Ross. 2005. Two alternative juvenile life history types for fall Chinook salmon in the Snake River Basin. *American Fisheries Society* 134:291-304.
- Cornell University. 2017. All about birds: Yellow-billed cuckoo identification. Available at https://www.allaboutbirds.org/guide/Yellow-billed_Cuckoo/. 3 March 2018. Cornell Lab of Ornithology, Ithaca, New York.
- DART (Columbia River DART) 2018. Adult Passage Graphics & Text. Columbia Basin Research, University of Washington. Available at: http://www.cbr.washington.edu/dart/query/adult_graph_text. 7 March 2018.
- Ehrlich, PR, DS Dobkin, and D Wheye. 1992. *Birds in jeopardy*. Stanford University Press, Stanford, CA.
- FPC (Fish Passage Center). 2017. Bull trout at Smolt Monitoring Program sites, 1998-2017. Fish Passage Center. Portland, Oregon.
- Gabrielson, IN and SG Jewett. 1940. *Birds of the Pacific Northwest, with special reference to Oregon*. Oregon State College. 1970 reprint by Dover Publications, New York, NY.
- Good, TP, RS Waples, and P Adams (eds). 2005. Updated status of Federally listed ESUs of West Coast salmon and steelhead. National Marine Fisheries Service Technical Memorandum, NMFS-NWFSC-66
- Healey, MC. 1991. Life history of Chinook salmon (*Oncorhynchus mykiss*). Pages 311-398 in C Groot and L Margolis (eds). *Pacific Salmon Life Histories*. UBC Press, Vancouver.
- Hughes, JM 1999. Yellow-billed cuckoo (*Coccyzus americanus*) in *The birds of North America*, No. 418 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.
- ICBTRT (Interior Columbia Basin Technical Recovery Team). 2003. Independent Populations of Chinook, Steelhead, and Sockeye for Listed Evolutionarily Significant Units within the Interior Columbia River Domain. Working Draft, July 2003. Northwest Fisheries Science Center, Seattle, Washington.
- ICBTRT. 2007. Viability Criteria for Application to Interior Columbia Basin Salmonid ESUs. Review draft March 2007. Available at: http://www.nwfsc.noaa.gov/trt/trt_viability.cfm. 7 March 2018.
- Jewett, SG, WP Taylor, WT Shaw, and JW Aldrich. 1953. *Birds of Washington State*. University of Washington Press, Seattle, Washington.

- Lesica, P. 1997. Demography of the endangered plant, *Silene spaldingii* (Caryophyllaceae) in northwest Montana. *Madrono* 44:347-358.
- Lesica, P, and EE Crone. 2007. Causes and consequences of prolonged dormancy for an iteroparous geophyte, *Silene spaldingii*.
- Marshall, DB 1996. Species at risk: sensitive, threatened and endangered vertebrates of Oregon, 2nd ed. Prepared for Wildlife Diversity Program, Oregon Department of Fish and Wildlife, Portland, Oregon.
- Martin, E, C Romulo, J Sepanik, P Rucks, and K Robson. 2012. Traditional plant study: Report and GID database. Report of Mangi Environmental Group to the US Army Corps of Engineers, Walla Walla District, Walla Walla, Washington.
- Meyers, JM, RG Kope, GJ Bryant, D Teel, LJ Lierheimer, TC Wainwright, WS Grant, FW Waknitz, K Neely, ST Lindley, and RS Waples. 1998. Status review of Chinook Salmon in Washington, Idaho, Oregon, and California. National Marine Fisheries Service Technical Memorandum NMFS-NWFSC-35, Seattle, Washington.
- Mueller, RP, DL Ward, and PS Titzler. 2010 Survey and characterization of fall Chinook salmon spawning areas downstream of Lower Monumental and McNary Dams, 2009. Report to the U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, Washington.
- Mueller, RP 2009. Survey of Fall Chinook Salmon Spawning Downstream of Lower Snake River Hydroelectric Projects, 2009. Report of Battelle Memorial Institute to the US Army Corps of Engineers, Walla Walla District, Walla Walla, Washington.
- Noss, RF, ET LaRoe III, and JM Scott. 1995. Endangered ecosystems of the United States: a preliminary assessment of loss and degradation. Biological Report 28. U.S. Department of the Interior, National Biological Service, Washington, DC.
- NMFS (National Marine Fisheries Service). 2005. Endangered and Threatened Species: Final Listing Determinations for 16 ESUs of West Coast salmon, and Final 4(d) Protective Regulations for Threatened Salmonid ESUs. Final Rule. Federal Register 70 (123):37160-37204.
- NMFS. 2015. ESA recovery plan for Snake River sockeye salmon (*Oncorhynchus nerka*). National Marine Fisheries Service, Portland, Oregon.
- NMFS. 2017. ESA recovery plan for Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*). National Marine Fisheries Service, Portland, Oregon.
- Normandeau Associates, Inc. 2013. Investigation for fall Chinook salmon redds in the tailwater of Lower Granite Dam on the Lower Snake River, November –

- December 2013. Report of Normandeau Associates to the US Army Corps of Engineers, Walla Walla District, Walla Walla, Washington.
- Ricker, WE. 1972. Heredity and environmental factors affecting certain salmonid populations. Pages 27-160 in The stock concept of in Pacific salmon. HR MacMillan Lectures in Fisheries, University of British Columbia.
- Roberson D. 1980. Rare birds of the west coast of North America. Woodcock Publications. Pacific Grove, California.
- Shippentower, C. 2017. First foods management recommendations for the US Army Corps of Engineers, Walla Walla District, Habitat Management Units. Report of the Confederated Tribes of the Umatilla Indian Reservation to the US Army Corps of Engineers, Walla Walla District, Walla Walla, Washington
- Spence, BC, GA Lomnický, RM Hughes, and RP Novitzki. 1996. An Ecosystem Approach to Salmonid Conservation. TR-4501-96-6057. ManTech Environmental Research Services Corporation, Corvallis, Oregon.
- Taylor, EB. 1991. A review of local adaptation in Salmonidae, with particular reference to Pacific and Atlantic salmon. Aquaculture 98:185–207.
- Tracy, D, and SE McNeil. 2016. Yellow-billed cuckoo surveys and population monitoring on the lower Colorado River and tributaries, 2015 annual report. Report of the Southern Sierra Research Station, Weldon, California, and Parametrix, Inc., Albuquerque, New Mexico.
- Trumbo, BA. 2017. Characterization of Corps managed lands for Washington State-listed noxious weeds and rare plants. Report of the US Army Corps of Engineers, Walla Walla District, Walla Walla, Washington.
- USFWS (US Fish and Wildlife Service). 2007. Recovery Plan for *Silene spaldingii* (Spalding's Catchfly). Portland, Oregon.
- USFWS. 2014. Bull trout critical habitat units – index map (Washington, Oregon, Idaho, Montana, Nevada). Available at https://www.fws.gov/pacific/bulltrout/finalcrithab/FR_Maps_CHUs.jpg. 10 March 2018.
- USFWS. 2018. Yellow-billed cuckoo (western population). Available at: <https://www.fws.gov/oregonfwo/articles.cfm?id=149489511>. 5 March 2018.
- Waples, RS, RP Jones, BR Beckman, and GA Swan. 1991. Status review for Snake River fall Chinook salmon. National Marine Fisheries Service Technical Memo. NMFS-NWFSC.
- NMFS (National Marine Fisheries Service). 2008. Endangered Species Act Section 7(a) (2) Consultation Biological Opinion And Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on

Remand for Operation of the Federal Columbia River Power System, 11 Bureau of Reclamation Projects in the Columbia Basin and ESA Section 10(a) (I) (A) Permit for Juvenile Fish Transportation Program (Revised and reissued pursuant to court order, *NWF v. NMFS*, Civ. No. CV 01-640-RE. (D. Oregon)) May 5, 2008. Portland, Oregon.

NMFS (National Marine Fisheries Service). 2010. Supplemental Consultation on Remand for Operation of the Federal Columbia River Power System (FCRPS), 11 Bureau of Reclamation Projects in the Columbia Basin and ESA Section 10(a)(1)(A) Permit for Juvenile Fish Transportation Program. Portland, Oregon. Available at: [https://pcts.nmfs.noaa.gov/pls/pcts-pub/biop_results_detail?reg_inclause_in=\('NWR'\)&idin=124302](https://pcts.nmfs.noaa.gov/pls/pcts-pub/biop_results_detail?reg_inclause_in=('NWR')&idin=124302)

NMFS (National Marine Fisheries Service). 2014. Endangered Species Act Section 7(a) (2) Supplemental Biological Opinion. Consultation on Remand for Operation of the Federal Columbia River Power System. 17 July 2014. Portland, Oregon

Appendix A

USFWS and NMFS Prior Consultation

Only cover letters appended for Biological Opinions

DRAFT



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Eastern Washington Field Office
11103 East Montgomery Drive
Spokane, Washington 99206



In Reply Refer To:
01EWF00-2017-I-0294

Michael S. Francis, Chief
Environmental Compliance Section
Walla Wall District Office
U.S. Army Corps of Engineers
201 North Third Avenue
Walla Walla, Washington 99362-1876

APR 12 2017

Dear Mr. Francis:

Subject: Lower Snake River Wildlife Habitat Planting

This responds to your December 28, 2016, letter and associated supplemental biological assessment (BA) requesting informal consultation on the Lower Snake River Wildlife Habitat Planting (WHP). You requested our concurrence with your determinations that the activities proposed in the WHP “may affect, but are not likely to adversely affect” the bull trout (*Salvelinus confluentus*) or its critical habitat. The WHP addresses anticipated planting approaches for two Habitat Management Units (HMU) administered by the U.S. Army Corps of Engineers, Walla Walla District (Corps) along the lower Snake River. The U.S. Fish and Wildlife Service (Service) previously consulted on 12 other HMU plantings in 2013, (01EWF00-2013-I-0446) which are similar to, and associated with, the WHP presented here. In addition, use of herbicides associated with HMUs this WHP, and the HMUs addressed in the 2013 consultation, are addressed in the Corps 2012, Pest Management Program consultation with the Service (01EWF00-2012-I-0378). The plantings addressed in this current BA represent the final plantings under the Lower Snake River Fish and Wildlife Compensation Plan (Comp Plan).

The Corps has determined that this project will have “no effect” on Spalding’s catchfly (*Silene spaldingii*) and the Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). There is no requirement for Service concurrence on “no effect” determinations. Therefore, those determinations rest with the action agency.

The additional HMU plantings discussed here were also identified and discussed in the Corps’ on August 21, 2013 Environmental Assessment (EA) for the overall Comp Plan planting project, developed pursuant to the National Environmental Policy Act. This EA contained additional information relevant to this consultation. This response to your request is based on the information

provided in your letter, the accompanying Supplemental BA, and the 2013 Project EA. This consultation has been conducted in accordance with section 7(a)(2) of the Act.

Project Location

This WHP addresses a stretch of the Snake River in Washington from the Town of Central Ferry (Central Ferry HMU), upstream approximately 10 river miles to the Rice Bar HMU near Swift, between the Little Goose and Lower Granite dams. Project areas extend up to approximately 2000 feet inland from the banks of the Snake River.

Project Summary

During the mid-1970s, the Corps developed the Lower Snake River Fish and Wildlife Compensation Plan to help address mitigation for impacts to fish and wildlife habitats due to construction of four Federal dams along the lower Snake River, which are the Ice Harbor (RM 9.5), Lower Monumental (RM 41), Little Goose (RM 70), and Lower Granite (RM 107) Dams. The Corps began implementing the Comp Plan in 1978 by identifying and initiating habitat management activities on 54 HMUs. Consistent with adaptive management practices, and in cooperation with the Service and Washington Department of Fish and Wildlife, the Corps updated management objectives for some of the HMUs to better address the enhancement and maintenance of appropriate riparian and upland habitats along the lower Snake River (Corps 2013a). The work consulted on in 2013, and the additional work proposed here, are designed to help fulfill the updated terrestrial and avian wildlife mitigation objectives established for the Comp Plan.

The proposed work in the WHP would entail implementing planting arrangements within the seasonal inundation, lower transition, upper transition, and xeric upland zones within the Plan's two HMUs. Appropriate plant species mixes, site preparation needs, and planting techniques have been developed to address the habitat enhancement objectives within each zone (Corps 2013b). The proposed activities at each site include the following: mechanical (e.g., mowing), manual (e.g., hand-pulling), biological, or chemical control of invasive plant species; site preparation (e.g., disking to scarify soil surface, grading with heavy equipment); planting (e.g., shoveling / auguring, seeding); mulching; short-term irrigation; and placing temporary wire mesh or fencing around individual or small groups of plantings. The proposed enhancement activities are planned for January to March 2017, October 2017 to March 2018, October to December 2018, and final demobilization in April 2019. Brief summaries of the conditions found at the WHP HMUs follows.

Central Ferry HMU: Approximately 4,000 plants on 10 riparian acres, and 12,000 plants on 30 adjacent upland acres. In riparian areas an excavator would be used to contour and prepare soils for plantings. Following contouring and planting, soils will be stabilized and re-seeded with native grasses. This site is transitioning from a previous campground/recreation area.

Rice Bar HMU: Approximately 8,000 plants on 20 riparian acres. This site requires minimal surface soil/vegetation disturbance beyond that needed to expose soils for effective planting, and reseeded with native grasses.

Current Condition of Bull Trout in and Near the Project Area

Spawning and rearing habitats for bull trout occur in the upper reaches of major tributaries to the Snake and Columbia Rivers, while migration, overwintering, and foraging habitats primarily occur in the middle and lower reaches of the major tributaries and in the main stem of the rivers. There are no major tributaries used by bull trout in the project area. Nearby tributaries used by bull trout include the Tucannon River, which enters the Snake River at RM 63, roughly half way between the Ayer HMU and two upstream HMUs; the Walla Walla River system, which is even further downstream of the project area; and the Clearwater and Asotin Creek systems, which are far upstream of the project area (Asotin is roughly 37 miles above Lower Granite Dam).

Limited studies of acoustic-tagged bull trout in the mainstem Columbia River indicate bull trout utilize deep, slow water habitat, and move rapidly over a large area. It is unclear how and whether they use other near-shore habitat (Barrows et al 2015 p.15, p.56, p.61-62). Subadult bull trout migrate from their respective subbasins to the mainstem Columbia and lower Snake Rivers during the fall and winter months (i.e., October – February (most common)), or during the spring and early summer (i.e., April – June). Following the spawning period, adult bull trout migrate from their respective subbasins to the mainstem in the fall. Movement from some subbasins to the mainstem rivers has been documented during other months, but these observations are much less common (Barrows et al. 2015). Subadult bull trout may stay in the mainstem until reaching spawning size, then return to the tributaries. Juvenile bull trout are not known to use the action area.

The Corps regularly conducts fish counts at passage facilities at McNary Dam on the Columbia River and on all four of the lower Snake River dams to monitor various salmonid populations. The Corps' salmonid monitoring program does not specifically address bull trout and does not continue throughout the year, notably excluding December through February when overwintering bull trout would be expected to occur in the mainstems. Nevertheless, from 2006 through 2014, a total of 2, 4, 136, 418, and 36 bull trout were documented in the fish ladders at the McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Dams, respectively (Table 1). While the collection of these data was relatively consistent and can be considered comparable among the Dams, they should be viewed with some caution as individual fish were not marked and some may have been counted more than once. Bull trout detected at McNary Dam are documented from the Walla Walla River watershed and the Tucannon River watershed (Barrows et al 2015 p.153)

From 1998 through 2013, a total of 9, 3, and 2 bull trout were also opportunistically documented in juvenile bypass structures during anadromous smolt monitoring activities at the Lower Monumental, Little Goose, and Lower Granite Dams, respectively (Barrows et al. 2015). Finally, the USFWS has also monitored individual bull trout in the lower Snake River that were marked using passive integrated transponder (PIT) tags (Barrows et al. 2015). Between 2006 and 2011, a total of 8 PIT-tagged bull trout were detected on 19 separate occasions, including the detection of the same two fish at the Ice Harbor and Lower Monumental Dams, five individuals at Little Goose Dam, and three at Lower Granite Dam (including two in common with the Little Goose Dam detections). Bull trout from the Tucannon River have been confirmed at the four listed Snake River dams, and also at McNary Dam on the Columbia River (Barrows et al 2015

p.153). Genetic assessments of 12 bull trout collected at Little Goose Dam from 2006 to 2011 also determined that the most likely population of origin for 11 of the bull trout was the Tucannon River, and one was the Imnaha River (Barrows et al 2015 p.202).

Table 1. Fish ladder counts of bull trout at Corps dams on the mid-Columbia and lower Snake River (2006 – 2013).

Dam Facilities	Total Number of Bull Trout Recorded by Year						Total
	2006-09	2010	2011	2012	2013	2014	
McNary	2	0	0	0	0	0	2
Ice Harbor	0	0	3	0	1	0	4
Lower Monumental	13	12	47	27	26	11	136
Little Goose	73	73	161	42	64	5	418
Lower Granite	24	8	1	2	0	1	36
Total	112	93	212	71	91	17	596

Studies have also documented bull trout originating from local populations in the upper Clearwater River watershed migrating downstream as far as Lewiston, Idaho (USFWS 2008, p. 33), which is just above the confluence of the Snake and Clearwater Rivers. The mainstem of the lower Clearwater River provides potential connectivity of these local populations to occupied areas within the broader region of the Snake and Columbia Rivers. Migratory corridors such as these also provide bull trout in the broader region with possible access to unoccupied, but suitable habitats, enhanced foraging areas, and refuge from disturbances in other watersheds (Saunders et al. 1991).

Both fluvial and resident bull trout spawn in cold, headwater tributaries sometime between late-August and November, though the specific dates vary from year-to-year and stream-to-stream based on local conditions. After spawning, fluvial bull trout return to overwintering areas in the mainstem river habitat until the following spring when the upstream migration begins, presumably in response to increasing water temperatures. Fluvial bull trout typically spend the summer months slowly working their way up to the headwater tributaries to spawn.

Current Condition of Bull Trout Critical Habitat in and Near the Project Area

The Primary Constituent Elements (PCEs) associated with bull trout critical habitat that support the essential reproduction, feeding, sheltering, and dispersal life history components of bull trout populations (70 FR 63898) include: subsurface water sources (#1), migration habitat components (#2), food availability (#3), structural components of the aquatic environment (#4), water temperatures (#5), spawning and rearing substrates (#6), river hydrograph (#7), water quality (#8), and the occurrence of non-native predatory or competitive fish species (#9).

Numerous baseline factors have impacted critical habitat in the WHP project area, as described in this BA, and numerous Service Biological Opinions for other regional projects. In general, reservoir environments and flow regimes that are currently present in the mid-Columbia and lower Snake and Clearwater Rivers within the action area are significantly altered from the

historic riverine conditions that existed. Generally, the reservoirs have streambanks characterized by cliffs and talus, and some shorelines have been extensively armored with riprap resulting in diminished aquatic and riparian habitat complexity in many areas. However, shoreline habitat complexity associated with the HMUs discussed here is somewhat better. Water and sediment quantity and quality is also relatively good in the mainstem portion of the Program area. However, in warmer months, temperature and dissolved oxygen periodically do not meet State standards (Washington Department of Ecology Water Quality Atlas, <https://fortress.wa.gov/ecy/waterqualityatlas>). Overall, however, the conditions and processes (e.g., seasonal flow patterns, channel complexity, large wood recruitment, litter fall, etc.) that supported the historic riverine environments within the action area have been replaced with more simplified reservoir habitats since construction of the dams.

Project Effects to Bull Trout

Potential WHP impacts to bull trout could result from very slight increases in local turbidity and disturbance levels, due to actual planting and related enhancement activities (e.g., transporting and staging equipment), invasive species and pest control activities (chemical and mechanical), and the inadvertent release of toxic chemicals into the watercourse associated with the operation of heavy equipment. With regard to invasive species and pest control, the Corps will conduct these activities in accordance with the Corps' Pest Management Program for Columbia River, Snake River, and Mill Creek, which the Service has previously consulted on (01EWF00-2012-1-0378). That consultation concluded that the proposed activities "may affect, but are not likely to adversely affect" the bull trout or its critical habitat.

Other potential WHP impacts will be minimized if not eliminated via use of numerous Best Management Practices described in detail in section 1.3.3 of the BA. Measures include only conducting activities within the seasonal inundation zone at low water levels (when no standing water is present); implementing appropriate set-backs for heavy equipment fueling, cleaning, and staging areas; and spill prevention, containment, and clean up procedures. In addition, any turbidity plumes that may result from the planting operations would quickly dissipate considering the water volume and flow characteristics of the Snake River at the work sites.

Furthermore, there are no spawning and rearing habitats or high-quality overwintering and foraging habitats in the general vicinity of the HMUs addressed here, and the adjacent river segments are likely used only occasionally by a small number of migrating bull trout. In the unlikely event that an individual or a small number of bull trout are present in the river in the immediate area and at the time of the enhancement operations, potential effects from the proposed activities would be of short duration and limited to very local, shallow, and relatively warm near-shore habitat, while the vast majority of the overall project area would remain unaffected. In addition, the proposed project would be partly undertaken to prevent further expansion of invasive plant species and to ultimately improve the areas' riparian and upland habitats, potentially resulting in slight long-term beneficial effects to bull trout. Considering the above, any potential negative impacts to bull trout from the WHP would be expected to be insignificant.

Project Effects to Bull Trout Critical Habitat

The proposed WHP activities, beyond those previously considered under the Corps' Pest Management Program (see above), would have no effect on seven of the identified PCEs, including those related to subsurface water sources (#1), migration habitat components (#2), food availability (#3), water temperatures (#5), spawning and rearing substrates (#6), river hydrograph (#7), and the occurrence of non-native predatory or competitive fish species (#9). The proposed activities may have some minor effect on two PCEs, including those related to structural components of the aquatic environment (#4) and water quality (#8). As discussed above, the WHP may result in very slight, longer-term improvements in the quality of aquatic structural components and very slight, short-term increases in turbidity within the immediate area of the proposed activities. However, these potential effects would not be expected to result in any measureable impacts to bull trout critical habitat and would be insignificant.


Concurrence

Based on the above information and the WHP project description, the proposed actions would not impact any high-quality habitats potentially used by bull trout or create any significant disturbance in areas likely to be occupied by bull trout at the time of the proposed actions. Furthermore, the proposed actions would not significantly impact any PCEs of bull trout critical habitat. For these reasons, the effects from the proposed actions are expected to be insignificant to the bull trout and bull trout critical habitat. Therefore, considering the current status of this species, its critical habitat, and project effects, the Service concurs that the WHP may affect, but is not likely to adversely affect the bull trout or bull trout critical habitat.

This concludes informal consultation pursuant to section 7(a) (2) of the Act. Concurrence by the Service is contingent upon implementing the Project as described in the BA and related documents. In addition, the Project should be re-analyzed if new information reveals that effects of the action may affect listed species or critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by the Project.

If you have further questions about this letter or your responsibilities under the Act, please contact Russ MacRae at our Eastern Washington Field Office in Spokane at (509) 893-8001.

Sincerely,


for Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

cc: NMFS, Boise, ID (Troyer)

REFERENCES:

- Barrows, M.G., P.M. Sankovich, D.R. Anglin, J.M. Hudson, R.C. Koch, J.J. Skalicky, D.A. Wills, and B.P. Silver. 2015. Use of the Mainstem Columbia and Lower Snake Rivers by Migratory Bull Trout. Data Synthesis and Analysis. Draft Report. U.S. Fish and Wildlife Service, Columbia River Fisheries Program Office, Vancouver, WA. Draft Report 4-1-2015.
- Corps. 2013a. Lower Snake River Compensation Plan: 2013 Study Plan and Justification. Corps of Engineers planning document. Walla Walla, Washington. 9 pp.
- Corps. 2013b. Restoration Planting Design Alternatives for Habitat Management Units in Support of the Lower Snake River Fish and Wildlife Compensation Plan. Planning document developed for the Corps of Engineers. Walla Walla, Washington. 60 pp. plus appendices.
- Saunders, D.A., R.J. Hobbs, and C.R. Margules. 1991. Biological Consequences of Ecosystem Fragmentation: A Review. *Conservation Biology*. 5:18-32.
- USFWS. 2008. Bull Trout Distribution, Movements and Habitat Use in the Walla Walla and Umatilla River Basins. U.S. Fish and Wildlife Service planning document. Vancouver, Washington. 92 pp.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Eastern Washington Field Office
11103 East Montgomery Drive
Spokane Valley, Washington 99206

In Reply Refer To:
01EWF00-2014-F-0335

MAY 22 2017

Michael Francis
Chief, Environmental Compliance Section
Department of the Army
Walla Walla District, Corps of Engineers
201 North Third Ave
Walla Walla, Washington 99362-1876

Dear Mr. Francis:

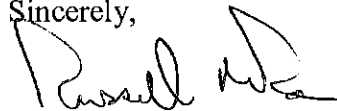
This letter transmits the U. S. Fish and Wildlife Service's Biological Opinion on the proposed Aquatic Pesticides Management Program located in aquatic and riparian areas throughout the Walla Walla District in several counties in southeast Washington, northeast Oregon, and northern Idaho, and its effects on bull trout (*Salvelinus confluentus*), and critical habitat for the bull trout. Formal consultation on the proposed action was conducted in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your initial request for formal consultation was received on March 25, 2014, and your final revised proposed action was received on January 27, 2017.

The enclosed Biological Opinion is based on information provided in the March 7, 2014, Biological Assessment (BA), subsequent revisions of that BA and proposed action, telephone conversations, meetings, and other sources of information cited in the Biological Opinion. A complete record of this consultation is on file at the Eastern Washington Field Office in Spokane, Washington.

Your biological assessment also includes "no effect" determinations for several additional species and their critical habitat. There is no requirement for concurrence by the Service on "no effect" determinations. Therefore, your determinations rest with the action agency.

If you have any questions regarding the enclosed Biological Opinion, our response to your concurrence request(s), or our shared responsibilities under the Act, please contact Russ MacRae at 509-893-8001, or Michelle Eames at 509-893-8010.

Sincerely,



for

Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

Enclosure

DRAFT



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to NMFS No: WCR-2014-688

April 19, 2016

Lt. Col. Timothy R. Vail
U.S. Army Corps of Engineers
Walla Walla District
201 North Third Ave.
Walla Walla, Washington 99362

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Aquatic Pest Management Program in the Walla Walla District, HUCs 17020016, 17030003, 17070101, 17070102, 17060103, 17060107, 17060108, 17060110, 17060306, Washington, Oregon, and Idaho

Dear Lt. Col. Vail:

Thank you for your email of January 5, 2016, amending the February 2, 2015, biological assessment and requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 *et seq.*) for the Aquatic Pest Management Program. The enclosed document contains a biological opinion (Opinion) prepared by NMFS on the effects of the U.S. Army Corps of Engineers' Aquatic Pest Management Program. In this Opinion, NMFS concludes that the action, as described, is not likely to jeopardize the continued existence of Snake River Basin steelhead, Snake River Basin spring/summer Chinook salmon, Snake River fall Chinook salmon, Snake River sockeye salmon, Upper Columbia River spring Chinook salmon, Upper Columbia River steelhead, Middle Columbia River steelhead, nor result in the destruction or adverse modification of designated critical habitat for these species.

As required by section 7 of the ESA, NMFS provided an incidental take statement with the Opinion. The incidental take statement describes reasonable and prudent measures NMFS considers necessary or appropriate to minimize incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the Federal agency and any person who performs the action must comply with to carry out the reasonable and prudent measures. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.



This document also includes the results of our analysis of the action's likely effects on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes five conservation recommendations to avoid, minimize, or otherwise offset potential adverse effects on EFH. These conservation recommendations are not identical to the ESA terms and conditions. Section 305(b)(4)(B) of the MSA requires Federal agencies to provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH conservation recommendations, the COE must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, we ask that you clearly identify the number of conservation recommendations accepted.

Please contact David Arthaud, Snake Basin Office, (208) 378-5696, david.arthaud@noaa.gov if you have any questions concerning this section 7 consultation, or if you require additional information.

Sincerely,



for William W. Stelle, Jr.
Regional Administrator

Enclosure

cc: R. MacRae – FWS
R. Hennekey – IDFG
B. Tice – COE
G. James – CTUIR
S. Parker – YIN
A. Rogerson – NPT
C. Colter – SBT
A. Pleus – WDFW
R. Boatner – ODFW



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Eastern Washington Field Office
11103 East Montgomery Drive
Spokane Valley, Washington 99206

In Reply Refer To:
01EWF00-2013-I-0446

Michael S. Francis, Chief
Environmental Compliance Section
Walla Walla District Office
U.S. Army Corps of Engineers
201 North Third Avenue
Walla Walla, Washington 99362-1876

Dear Mr. Francis:

Subject: Lower Snake River Planting Project

This responds to your July 10, 2013, letter requesting informal consultation on the Lower Snake River Programmatic Planting Plan (Plan). Your letter and accompanying biological assessment (BA) for the Plan were received in this office on July 22, 2013, and requested our concurrence with your determinations of effect for the bull trout (*Salvelinus confluentus*) and bull trout critical habitat. Your BA concluded that the activities proposed in the plan "may affect, but are not likely to adversely affect" the bull trout or its critical habitat. The Plan addresses anticipated planting schemes for twelve Habitat Management Units (HMU) administered by the U.S. Army Corps of Engineers (Corps) along the lower Snake River. We received information addressing an additional area to be considered in the Plan, the Swift Bar HMU, on August 19, 2013.

Through follow-up communications with Mr. Ben Tice of your staff on August 19, 2013, we understand that the Corps is currently only requesting consultation on the portion of the Plan that is likely to be implemented within the next year, and would include the Ayer, Willow Bar, and Swift Bar HMUs, which occur in Walla Walla, Garfield, and Whitman Counties, Washington. For purposes of this consultation, proposed activities on these three HMUs constitute the Lower Snake River Planting Project (Project). Through follow-up communications, the Corps also concluded that the Project would have "no effect" on the pygmy rabbit (*Brachylagus idahoensis*), Canada lynx (*Lynx canadensis*), Ute ladies' tresses (*Spiranthes diluvialis*), or Spalding's catchfly (*Silene spaldingii*). There is no requirement for U.S. Fish and Wildlife Service (Service) concurrence on "no effect" determinations and, therefore, those determinations rest with the action agency. In addition, the Corps determined that the proposed Plan "may affect, but is not likely to adversely affect" the Washington ground squirrel (*Urocitellus washingtoni*), which is currently considered a candidate species for possible listing under the Endangered Species Act of 1973 (Act), as amended

(16 U.S.C. 1531 *et seq.*). The Corps confirmed by E-mail, dated August 19, 2013, that they are not requesting conferencing for the Project with respect to the Washington ground squirrel. Finally, we received the Corps' Environmental Assessment (EA) for the Project, developed pursuant to the National Environmental Policy Act, on August 21, 2013, which contained additional information relevant to this consultation.

This response to your request is based on the information provided in your letter, the accompanying Plan BA, the Project EA, and several follow-up telephone conversations and electronic mail correspondences between Mr. Tice and Mr. Chris Warren from our Eastern Washington Field Office in Spokane. This consultation has been conducted in accordance with section 7(a)(2) of the Act.

Project Location

The Project is located in southeastern Washington along the lower Snake River from roughly river mile (RM) 51 near Ayer, Washington, upstream to RM 98, which is several miles east of Penawawa, Washington. The Ayer HMU (RM 51 – 55) is located on the south bank of the river approximately 12 miles upstream of Lower Monumental Dam and 10 miles below the confluence of the Snake and Tucannon Rivers. The Willow Bar HMU (RM 86 - 89), located on the south bank of the river, and Swift Bar HMU (RM 94 – 98), located on the north bank of the river, are located approximately 17 miles and 26 miles upstream of Little Goose Dam, respectively.

Project Summary

During the mid-1970s, the Corps developed the Lower Snake River Fish and Wildlife Compensation Plan (Comp Plan) to help address mitigation for impacts to fish and wildlife habitats due to construction of four Federal dams along the lower Snake River, which are the Ice Harbor (RM 9.5), Lower Monumental (RM 41), Little Goose (RM 70), and Lower Granite (RM 107) Dams. The Corps began implementing the Comp Plan in 1978 by identifying and initiating habitat management activities on 54 HMUs. Consistent with adaptive management practices, and in cooperation with the Service and Washington Department of Fish and Wildlife, the Corps recently updated management objectives for some of the HMUs to better address the enhancement and maintenance of appropriate riparian and upland habitats along the lower Snake River (Corps 2013a). The proposed Project, as well as the broader Plan, are designed to help fulfill the updated terrestrial and avian wildlife mitigation objectives established for the Comp Plan.

The proposed work would entail implementing planting schemes within the seasonal inundation, lower transition, upper transition, and xeric upland zones within the three Project HMUs. Appropriate plant species mixes, site preparation needs, and planting techniques have been developed to address the habitat enhancement objectives within each zone (Corps 2013b). The proposed activities at each site could include the following: mechanical (e.g., mowing), manual (e.g., hand-pulling), biological, or chemical control of invasive plant species; site preparation (e.g., disking to scarify soil surface, grading cut banks with heavy equipment); planting (e.g., shoveling / auguring, hydro-seeding, aerial seeding); mulching; short-term irrigation; and placing temporary wire mesh or fencing around individual or small groups of plantings. The proposed enhancement activities would begin during fall 2013. Brief summaries of the conditions found at each of the

Project HMUs follows.

The Ayer HMU encompasses 185 acres adjacent to the Snake River, none of which are irrigated. Four separate shoreline sites within the HMU, totaling approximately 40 acres, have been identified for enhancement measures, all of which would entail enhancement of riparian habitats within the seasonal inundation, lower transition, and upper transition zones. The Willow Bar HMU encompasses 309 acres adjacent to the Snake River, of which 18 acres are irrigated. Three separate shoreline sites within the HMU, totaling approximately 48.3 acres, have been identified for enhancement measures, including 8.8 acres of riparian habitat enhancement and 39.5 acres of xeric upland habitat enhancement. The Swift Bar HMU encompasses 442 acres adjacent to the Snake River, of which 74 acres are irrigated. Eight separate shoreline sites within the HMU, totaling approximately 32.5 acres, have been identified for enhancement measures, including 1 acre of riparian habitat enhancement and 31.5 acres of xeric upland habitat enhancement.

Bull Trout

Spawning and rearing habitats for bull trout occur in the upper reaches of major tributaries to the Snake and Columbia Rivers, while migration, overwintering, and foraging habitats primarily occur in the middle and lower reaches of the major tributaries and in the main stem of the rivers. The major tributary used by bull trout in the Project area is the Tucannon River, which enters the Snake River at RM 63, roughly half way between the Ayer HMU and two upstream HMUs. Two other major tributaries used by bull trout in the broader Project area include the Walla Walla River system, which is downstream of the Project and enters the Columbia River roughly 12 miles below its confluence with the Snake River, and the Asotin Creek system, which is upstream of the Project and enters the Snake River roughly 37 miles above Lower Granite Dam.

The Corps regularly conducts fish counts at passage facilities on all four of the lower Snake River dams to monitor various salmonid populations. From 2008 through 2012, a total of 3, 87, 338, and 25 bull trout have been documented at the Ice Harbor, Lower Monumental, Little Goose, and Lower Granite facilities, respectively. Relative to other salmonids, very few bull trout occur within the lower Snake River and relatively little is known about their movements and habitat use in the main stem of the river. However, recent information indicates that there is currently little mixing of bull trout originating from the Tucannon River and those from other populations that occur both above and below the Project area (Kassler and Mendel 2008; USFWS 2008). The available information indicates that a relatively small number of bull trout may occur in the Project area and that these fish likely represent occasional migrants traveling among the major tributaries within the broader Snake River system.

With regard to potential impacts to bull trout due to the proposed weed control activities, the Project would be conducted in accordance with the Corps' Pest Management Program for Columbia River, Snake River, and Mill Creek, which the Service has previously consulted on (Reference #: 01EWF00-2012-I-0378). That consultation concluded that the proposed activities "may affect, but are not likely to adversely effect" the bull trout or its critical habitat. Other potential Project impacts to bull trout could result from very slight increases in local turbidity and disturbance levels, due to actual planting and related enhancement activities (e.g., transporting and staging equipment), and the inadvertent release of toxic chemicals into the watercourse associated with the operation of

heavy equipment. To further reduce these risks, various measures have been identified and would be taken to avoid or control them. These measures include only conducting activities within the seasonal inundation zone at low water levels (when no standing water is present); implementing appropriate set-backs for heavy equipment fueling, cleaning, and staging areas; and spill prevention, containment, and clean up procedures. In addition, any turbidity plumes that may result from the planting operations would quickly dissipate considering the water volume and flow characteristics of the Snake River at the work sites.

There are no spawning and rearing habitats or high-quality overwintering and foraging habitats in the general vicinity of the proposed actions, although the action area could be used occasionally by a small number of migrating bull trout. In the unlikely event that an individual or a small number of bull trout are present in the river in the immediate area and at the time of the enhancement operations, potential effects from the proposed activities would be of short duration and limited to very local, shallow, and relatively warm near-shore habitat, while the vast majority of the overall project area would remain unaffected. In addition, the proposed project would be partly undertaken to prevent further expansion of invasive plant species and to ultimately improve the areas' riparian and upland habitats, potentially resulting in slight long-term beneficial effects to bull trout. Considering the above, any potential negative impacts to bull trout from the proposed activities would be expected to be insignificant.

Bull Trout Critical Habitat

Critical habitat for bull trout is defined by nine primary constituent elements (PCEs) that support the essential reproduction, feeding, sheltering, and dispersal life history components of bull trout populations (70 FR 63898). The proposed project activities, beyond those previously considered under the Corps' Pest Management Program (see above), would have no effect on seven of the identified PCEs, including those related to subsurface water sources (#1), migration habitat components (#2), food availability (#3), water temperatures (#5), spawning and rearing substrates (#6), river hydrograph (#7), and the occurrence of non-native predatory or competitive fish species (#9). The proposed activities may have some minor effect on two PCEs, including those related to structural components of the aquatic environment (#4) and water quality (#8). As discussed above, the Project may result in very slight, longer-term improvements in the quality of aquatic structural components and very slight, short-term increases in turbidity within the immediate area of the proposed activities. However, these potential effects would not be expected to result in any measureable impacts to bull trout critical habitat and would be insignificant.


Concurrence

Based on the above information and the Project description, the proposed actions would not impact any high-quality habitats potentially used by bull trout or create any significant disturbance in areas likely to be occupied by bull trout at the time of the proposed actions. Furthermore, the proposed actions would not significantly impact any PCEs of bull trout critical habitat. For these reasons, the effects from the proposed actions are expected to be insignificant to the bull trout and bull trout critical habitat. Therefore, considering the current status of this species, its critical habitat, and Project effects, the Service concurs that the Project may affect, but is not likely to adversely affect the bull trout or bull trout critical habitat.

This concludes informal consultation pursuant to section 7(a) (2) of the Act. Concurrence by the Service is contingent upon implementing the Project as described in the BA and related documents. In addition, the Project should be re-analyzed if new information reveals that effects of the action may affect listed species or critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by the Project.

If you have further questions about this letter or your responsibilities under the Act, please contact Chris Warren at our Eastern Washington Field Office in Spokane at (509) 893-8020.

Sincerely,


for Ken S. Berg, Manager
Washington Fish and Wildlife Office

cc: NMFS, Ellensburg, WA (Driscoll)

References:

- Corps. 2013a. Lower Snake River Compensation Plan: 2013 Study Plan and Justification. Corps of Engineers planning document. Walla Walla, Washington. 9 pp.
- Corps. 2013b. Restoration Planting Design Alternatives for Habitat Management Units in Support of the Lower Snake River Fish and Wildlife Compensation Plan. Planning document developed for the Corps of Engineers. Walla Walla, Washington. 60 pp. plus appendices.
- Kassler, T.W., and G. Mendel. 2008. Genetic Characterization of Bull Trout from the Asotin and North Fork Wenaha River Basins. Study report issued by the Washington Department of Fish and Wildlife, Olympia, Washington.
- USFWS. 2008. Bull Trout Distribution, Movements and Habitat Use in the Walla Walla and Umatilla River Basins. U.S. Fish and Wildlife Service planning document. Vancouver, Washington. 92 pp.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

NMFS Tracking No.:
NWR-2013-10331

September 19, 2013

Michael Francis
Chief, Environmental Compliance Section,
Walla Walla District, Corps of Engineers
210 North Third Avenue
Walla Walla, Washington, 99362-1876

Re: Endangered Species Act Section 7 Consultation and Magnuson-Stevens Essential Fish Habitat Response for the Lower Snake River Wildlife Habitat Programmatic Planting Plan, Asotin, Garfield, Whitman, Columbia, Walla Walla and Franklin Counties, Washington and Nez Perce County, Idaho (1706010302 George Creek – Asotin Creek; 1706010303 Captain John Creek – Snake River; 170601070201 Steptoe Canyon-Snake River; 170601070105 Alpowa Creek; 1706010708 Penawawa Creek-Snake River; 1706010703 Deadman Creek; 170601070406 Flat Creek; 170601080806 Willow Creek-Palouse River; 170601100102 Walker Creek-Snake River; 1706011004 McCoy Creek-Snake River).

Dear Mr. Francis:

On July 22, 2013, the National Marine Fisheries Service (NMFS) received your request for written concurrence that the subject action “may affect,” but is “not likely to adversely affect” Snake River (SR) spring/summer-run and fall-run Chinook salmon (*Oncorhynchus tshawytscha*), SR sockeye salmon (*O. nerka*) and SR Basin steelhead (*O. mykiss*) and their designated critical habitat. NMFS has considered the determination of effects under section 7(a)(2) of the ESA, and its implementing regulations (50 CFR Part 402).

This response to your request was prepared by NMFS pursuant section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.¹

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Act (MSA), including conservation measures and any determinations made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance

¹ Memorandum from D. Robert Lohn, Regional Administrator, to ESA consultation biologists (guidance on informal consultation and preparation of letters of concurrence) (January 30, 2006).



for use of the ESA consultation process to complete EFH consultation.² In this case, NMFS concluded that the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

This letter complies with section 515 of the Treasury and General Government Appropriations Act of 2001 (Data Quality Act) (44 U.S.C. 3504 (d) (1) and 3516), and underwent pre-dissemination review using standards for utility, integrity and objectivity.

Consultation History

On July 22, 2013, NMFS received a Biological Assessment (BA) describing the Corp's proposal to help mitigate the effects of the four Lower Snake River Dams on wildlife by improving vegetation in riparian and upland areas on Corps owned and managed lands at various sites along the Lower Snake River between Asotin Slough (RM 147) and the confluence with the Columbia River. The Corps requested concurrence with its finding of "may affect," but is "not likely to adversely affect" SR spring/summer-run and fall-run Chinook salmon, SR sockeye salmon, and SR Basin steelhead and their designated critical habitat. Additional information was received on August 21, 2013 and consultation was initiated at that time.

Description of the Proposed Action

Under the U.S. Fish and Wildlife Coordination Act (FWCA) the Corps is required to mitigate the loss of terrestrial wildlife habitat that resulted from construction of the four lower Snake River dams and the subsequent reservoirs. Under the Lower Snake River Fish and Wildlife Compensation Plan (Comp Plan), fish and wildlife habitat units (HMUs) were designated in 1976 and the Corps began developing these areas for wildlife habitat with mixed success. The Corps has now developed the current planting proposal that will take place over several years on portions of the 31,636 acres of Corps owned property; 23,620 acres of HMU lands, 973 acres of recreation areas and 7,043 acres not associated with an HMU or recreation area. These proposed actions are being analyzed as a programmatic activity because there is a well-defined type of action with potential effects that are repetitive and predictable.

Work will be conducted at each site as plans are developed based site specific soil characteristics, aspect, topography, and hydrology. All work will be performed above the water line. Any work in areas that experience inundation will only occur when the water level is lower than the planting area.

Site work at each planting area could consist of one or more of the following:

- Use of shovel, auger, stinger or similar equipment to create planting holes.
- Fencing individual trees or the perimeter of the planting area for protection from beavers.
- Wire caging/mesh screens around trees to protect them from voles.

² Memorandum from William T. Hogarth, Acting Administrator for Fisheries, to Regional Administrators (national finding for use of Endangered Species Act section 7 consultation process to complete essential fish habitat consultations) (February 28, 2001).

- Biological control of weeds (e.g., planting tall growing species to shade out reed canary grass).
- Chemical control of noxious weeds following the Corps recent Integrated Management Plan guidelines (NMFS NWR-2012-00353; NLAA determination for non-aquatic treatment).
- Temporary Irrigation.
- Mulch.
- Removal of competing vegetation with mechanical equipment (mowers, tractors).
- Clearing of nonnative woody vegetation mechanically or with hand tools.
- Installation of riparian tree species between riprap.
- Hydroseeding, potential aerial application if over large areas.
- Grading a cut bank with equipment to create a gentler slope.

Ground disturbance will be minimized for cultural reasons and to reduce the potential for additional non-native or noxious weed establishment. Replacement of non-native plants in intensively planted areas of irrigated HMUs will occur over time during normal maintenance events or when non-native plants die and need replacement. Over the long term, establishing native plants will result in a more sustainable vegetative ecosystem. Selection of plants and planting methods will be determined by the Corps on a site specific basis.

Action Area

The proposed action will take place on lands and facilities owned and administered by the Corps on both sides of lower Snake River from Asotin Slough at approximately RM 147 downstream to the confluence with the Columbia River. The mainstem of the Snake River in the action area functions primarily as a migratory corridor for all ESA-listed species however; periodically some fall-run Chinook salmon spawning occurs in the tailrace areas of the mainstem dams and some juvenile fall-run Chinook salmon rear in the mainstem reservoirs.

Sneaker River Basin steelhead were listed as threatened on August 18, 1997 (62 FR 43937). Snake River spring/summer-run Chinook salmon were listed as threatened on April 22, 1992 (57 FR 14653). Snake River fall-run Chinook salmon were listed as threatened on April 22, 1992 (57 FR 14653). Snake River sockeye salmon were listed as endangered on November 20, 1991 (56 FR 58619). The status of each species was reaffirmed on August 15, 2011 (76FR50448).

NMFS designated critical habitat for Snake River Basin steelhead on September 2, 2005 (70 FR 52630); Snake River spring/summer-run Chinook salmon on October 25, 1999 (64 FR 57399); Snake River fall-run Chinook and Snake River sockeye salmon on December 28, 1993 (58 FR 68543). Critical habitat for all listed Snake River salmon includes the bottom and water of the waterways and the adjacent riparian zone. The riparian zone includes those areas within 300 feet of the ordinary high water line (OHWL). For Snake River Basin steelhead critical habitat includes the stream channels within the designated stream reaches, and includes a lateral extent as defined by the OHWL (33 CFR 319.11).

Because the project will occur near freshwater habitat, applicable Primary Constituent Elements³ (PCEs) for critical habitat of Snake River steelhead, Snake River spring/summer-run Chinook salmon, and Snake River fall-run Chinook salmon are those associated with freshwater rearing and migration; and the essential features of critical habitat for Snake River sockeye salmon critical habitat are those associated with freshwater migration.

As stated above, all actions will take place above the wetted edge of the river and as site specific plans are developed. Activities in the inundation zone are most likely to occur in the fall when the reservoir levels are lowest, by which time juvenile salmonids in the reservoirs have moved into the pelagic zone of the reservoirs.

Effects of the Action

For purposes of the ESA, “effects of the action” means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is NLAA listed species is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial.⁴ Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

Because there will be no work below the water line, and the timing of work closest to the water’s edge would be late summer and fall when the reservoirs are low and any juveniles rearing in the reservoirs have moved into the pelagic zone, NMFS expects effects from turbidity and noise to be insignificant to each of the listed species. Because only relatively low toxicity herbicides will be used in riparian areas and because they will be applied in a manner to keep them out of the water, the effects of herbicides are expected to be insignificant. Work will only occur in a few places each year and actions within the terrestrial portion of critical habitat will occur only in areas that are either poorly vegetated or infested with endangered species. Planting of these areas to native species is not expected to significantly reduce the function critical habitat in the short term but is expected to improve habitat function in the long term.

NMFS does not expect the proposed project to appreciably reduce the function of any PCEs for migration or rearing. This assessment is based on the types of actions, the timing relative to the river level, the duration of disturbance in any one site, and the overall area of each watershed that will be treated. Over the long term the proposed action should result in increased shoreline shade and slope stability, increased allochthonous inputs, decreased need for treatments that disturb areas to remove non-native and noxious plants, and a healthier self-sustaining native vegetation ecosystem.

³ When critical habitat was designated for SR Chinook and SR sockeye, the term “essential habitat features” was used. The term Primary Constituent Elements (PCEs) is now used and refers to the same type of habitat and its corresponding function necessary for the conservation of the species.

⁴ U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Act consultation handbook: procedures for conducting section 7 consultations and conferences. March. Final. P. 3-12.

NMFS does not expect that the migrations or rearing movements of any of the subject species will be negatively affected by the proposed action. Accordingly, NMFS concurs that the proposed action is not likely to adversely affect critical habitat for any of the aforementioned species.

Conclusion

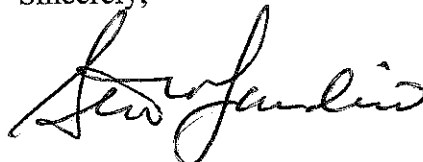
When the preceding factors are taken into consideration and executed properly, NMFS concludes that all effects of the proposed action are NLAA for Snake River spring/summer-run Chinook salmon, Snake River fall-run Chinook salmon, Snake River sockeye salmon, or Snake River Basin steelhead or their designated critical habitats. Concurrence is based on the information in the BA and additional information received electronically from the applicant and is contingent on the action being conducted as described in the BA and emails and full implementation of the effect minimization measures.


Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Federal agency, or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

Please direct questions regarding this letter to Diane Driscoll of the Washington State Habitat Office at (509) 962-8911 x227 or email at Diane.Driscoll@noaa.gov.

Sincerely,



 William W. Stelle, Jr.
Regional Administrator



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Eastern Washington Field Office
11103 East Montgomery Drive
Spokane, Washington 99206

In Reply Refer To:
01EWF00-2012-I-0378

NOV 30 2012

Michael S. Francis
Chief, Environmental Compliance Section
Walla Walla District, Corps of Engineers
201 North Third Avenue
Walla Walla, Washington 99362-1876

Dear Mr. Francis:

Subject: Pest Management Program for Columbia River, Snake River, and Mill Creek,
Walla Walla District, U.S. Army Corps of Engineers

In a letter dated June 28, 2012, and received in the Eastern Washington Field Office on July 2, 2012, the Walla Walla District of the Army Corps of Engineers (Corps) requested concurrence with the U.S. Fish and Wildlife Service (Service) that the proposed Pest Management Program (Program) is not likely to adversely affect the bull trout (*Salvelinus confluentus*) or its designated critical habitat. The Corps proposes the Program on Federal lands managed by the Corps within the Walla Walla District (District), generally described as lands along the Columbia and Snake Rivers and tributaries, including lands associated with dams owned and operated by the U.S. Army Corps of Engineers in Idaho, Oregon, and Washington. The goals of the Program are to improve habitat conditions and ensure public health and safety using traditional mechanical, biological, and chemical pest control techniques. The Corps included several independent subactions within the broader Program applicable across the District. While the broader Program and the Biological Assessment (BA) address issues and species across the District for all Corps-managed lands and facilities, it is appropriate, and the Corps requested, that we address these geographically distinct areas separately due to the independent nature of Program implementation across the District. In this light, letters of concurrence were previously provided by the Idaho Fish and Wildlife Office for the Lucky Peak (01EIFW00-2012-I-0405; dated August 9, 2012) and the Dworshak portions of the project (01EIFW00-2012-I-0422; dated

September 17, 2012). The Eastern Washington Field Office is addressing the remaining portion of the broader Pest Management Program: the Snake River, Columbia River, and Mill Creek portions. The Corps proposes to institute a "check-in" with the Service and the National Marine Fisheries Service (NMFS) at 5 years to evaluate whether reinitiation of consultation is necessary. The Corps agreed with the Service (Jason Achziger, Corps, pers. comm., October 31, 2012) that 10 years is a reasonable duration for this consultation. This informal consultation has been conducted in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(ESA).

In addition to the effect determination for bull trout and bull trout critical habitat, relevant to the Lower Snake River, Columbia River and Mill Creek component of the Program, the Corps determined that the proposed project is not likely to adversely affect the Washington ground squirrel (*Urocitellus washingtoni*), a candidate species. The Corps confirmed in an E-mail dated July 30, 2012, that they are not requesting conferencing on this candidate species at this time. The Corps further determined that the Program would have no effect on the pygmy rabbit (*Brachylagus idahoensis*), Canada lynx (*Lynx Canadensis*), gray wolf (*Canis lupus*), Ute ladies'-tresses (*Spiranthes diluvialis*); and two candidate species, the greater sage grouse (*Centrocercus urophasianus*), and North American wolverine (*Gulo gulo luteus*). There is no requirement for Service concurrence on "no effect" determinations. Therefore, your determinations rest with the action agency.

Michelle Eames, of the Eastern Washington Field Office attended a project site-visit with the Corps on August 22, 2012. We received additional information and clarification on the BA in telephone conversations and E-mails, including E-mails dated August 13 and 27, 2012. An E-mail received from the Corps on September 5, 2012, confirmed several changes to the BA. Our consultation start date was September 5, 2012. We received an additional E-mail on September 27, 2012, clarifying acreages for chemical applications.

Action Area

The proposed action activities, project elements, and treatment methods described in the BA applies across the District, but the amount of each treatment employed in each geographic area may differ. The total area covered by the proposed action is 72,027 acres of land (28,406 in forest habitat around Dworshak, and 35,117 acres in shrub/steppe around the rest of the projects, as well as 8,444 park/recreation acres). The Corps has broken the proposed action into five geographical areas within the District. Two of the areas, Lucky Peak and Dworshak, have already completed section 7 consultation as described above. The remaining three areas include:

Columbia River Geographic Area

- Operating Projects: McNary Lock and Dam (including McNary Levees in the Tri-Cities). The I-82 Bridge (downstream of McNary Dam) [approximately river mile (RM) 290.5] upstream in the Columbia River past the mouth of the Yakima River to approximately 10 miles upstream (including widely spaced parcels) of Leslie Grove Park

in the City of Richland, Washington (approximately RM 356.5). Up the Yakima River from its mouth through the City of Richland approximately 5.5 miles to the Van Giesen Street bridge in the City of West Richland (approximately RM 6.5).

- The action area also includes multiple Habitat Management Units (HMUs; some are irrigated to emulate riparian habitat) and recreation areas in the Columbia River geographic area; these are listed on page 27 of the BA.

Snake River Geographic Area

- Operating Projects: Ice Harbor Lock and Dam, Lower Monumental Lock and Dam, Little Goose Lock and Dam, and Lower Granite Lock and Dam (including Lewiston Levees). From the confluence of the Columbia and Snake Rivers (RM 0) upstream to the Snake River to Asotin Slough (approximately RM 147.5), just outside (upstream) of the city of Asotin, Washington, and upstream to the Clearwater River, 8.9 miles (RM 8.9) from its confluence with the Snake River (RM 0) in the City of Lewiston, Idaho. This also includes the Tucannon River from RM 0 to approximately RM 3.5 and all surrounding Corps lands.
- Operations Areas: The areas around Ice Harbor Lock and Dam, Lower Monumental Lock and Dam, Little Goose Lock and Dam, Lower Granite Lock and Dam, Clarkston Natural Resource Office, and the Lewiston Levees and associated operational facilities and structures.
- The action area also includes multiple HMUs and recreation areas in the Snake River geographic area; these are listed on page 31 of the BA.

Mill Creek Geographic Area

- District Headquarters: The District office is a landscaped area that contains ornamental lawn, shrubs, trees, and a parking lot, located at 201 N. Third Avenue, Walla Walla, Washington. The Headquarters occupies two city blocks.
- Mill Creek: The Mill Creek Project is approximately 3 mi east of the City of Walla Walla, Washington. It is composed of two major units: 1) the Mill Creek channel (RM 10.4 to RM 11.5); and 2) the off-channel reservoir – Bennington Lake – and the lands surrounding and adjacent to these two units.
- Operations, recreation areas, and HMUs: The Corps areas of the Mill Creek channel, Bennington Lake, and surrounding Corps lands, totaling approximately 697 acres. The areas where pest management activities occur in proximity to ESA-listed species or critical habitat at Mill Creek are limited to areas adjacent to Mill and Yellowhawk Creeks.

Project Description

The Corps proposes to implement an adaptive pest management strategy. Treatments will include manual, mechanical, biological, and chemical control methods to control or eliminate nuisance and noxious species on Corps managed lands in the District. Components and considerations for the action include the following.

The Corps proposes to utilize the following as initial triggers for pest treatment.

- Threat to human health or safety
- Threat to property
- State designated noxious species
- Non-native nuisance species

The Corps proposes to conduct control for the following broad categories of pests (specific pests are identified in the BA).

- Vegetation
- Mammals and Birds
- Arthropods

Each project activity could involve one, two, or three elements. The Corps will treat pests on Corps-managed lands throughout the District using the following project activity elements.

- Manual and Mechanical Control
- Biological Control
- Chemical Control

The Corps proposes to undertake an assessment of all plants proposed for treatment in the District, considering their relative abundance, the likelihood of eradication, availability of biological controls, and effects of an increase in abundance levels or maintenance at existing levels. When completed, each plant will be placed in one of the following categories for future control.

- Eradication
- Aggressive control
- Maintenance near existing levels
- Reduced control by chemical or biological methods
- Cessation of all control

The Corps will classify each plant pest species encountered by one or more of the methods of the control measures based on plant numbers, acres infested, deleterious effects of continued or increased populations, and resistance to certain treatments.

- No Control
- Manual and mechanical control only
- Biological control only
- Chemical control only (this is the default starting point based on past management strategies and budgetary constraints)
- Restoration of vegetation with native or naturalized species (competition)
- A combination of control methods

At least every 5 years weed treatments will be reevaluated, based on previous treatments, professional observations, and coordination with local and state weed boards and personnel, for movement to a different level of treatment. Generally, a 20 percent increase in abundance, despite adequate treatment efforts, will trigger a review for possible movement to a reduced or changed treatment scheme, with a goal of maintaining existing levels, while a 20 percent decrease in abundance will trigger a review for possible movement to an increased treatment scheme, with a goal of further reductions or possible eradication.

Vegetation control will be implemented in uplands, including lands managed specifically for wildlife (i.e., HMUs), park lands including campgrounds and picnic areas, and operational lands such as those found in proximity to dams and other structures. Vegetation control will occur in riparian areas. Vegetation controls will not occur within or over water; however, aquatic weeds such as *Phragmites* sp. and purple loosestrife (*Lythrum salicaria*) could be treated if found outside the water and treated with chemicals and Best Management Practices as described in the BA (included as Appendix A in this letter).

In addition to manual or mechanical control and biological control, the Corps will only use certain herbicides and chemicals. The list of potential chemicals was narrowed through early consultation with the Service and the NMFS. The BA lists the proposed herbicides in Table 10, proposed adjuvants in Table 11, and buffers and wind speed restrictions by application method in Table 12. In an E-mail dated September 5, 2012, the Corps narrowed the wind speed limit from less than 10 miles per hour (mph), to less than 5 mph for aerial applications. Aerial applications will only occur further than 300 feet from the ordinary high water mark.

The Corps included numerous conservation measures as part of the Program (p. 72 to 75 in BA, and attached as Appendix A). These conservation measures make it unlikely that chemicals will enter water, and if they do, it will be unlikely to cause significant effects to listed species. For example, hand or manual chemical application methods that are directed to specific plants will be used for those areas within 15 feet of water. In addition, chemical treatments within 15 feet of "live" waters and in areas of shallow water tables will only use herbicides approved for aquatic use. The methods to be used, depending on the plants and conditions, are wicking and wiping (herbicide wiped onto plants), basal bark (herbicide applied to girdle the plant), frill (also known

as “hack and squirt” where herbicide is inserted into a cut on the plant), stem injection (injection of herbicide into plant stem via specialized equipment), and cut-stump (herbicide applied to vegetative stump after plant is cut). Hand methods are plant specific, have no drift from sprays, and are the most controlled method of herbicide application.

In some cases, the Corps anticipates more than one pest treatment in a year might be necessary, and treatments may be repeated over time until the pest species are eradicated or controlled. Annual reports submitted to the Service will address areas needing multiple and/or on-going treatment.

The proposed action also includes small mammal control along levees, in or around recreational facilities, in shrub/tree plots within irrigated HMUs, and other areas where small mammals may become a nuisance or cause damage to structures, vegetation, etc. The Corps contracts nuisance animal control to the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Wildlife Services. Small mammal control will include non-lethal methods, cage traps, body-gripping traps, suitcase traps, spotlighting, shotguns, center fire and rim fire rifles, and hazing and harassment utilizing pyrotechnics. Mammal control will include the use of EPA-approved toxicants (rodenticides). The Corps will use zinc phosphide (e.g. Grant’s Mole Bait) and strychnine alkaloid (strychnine treated oats) for small mammal control. The Corps has included measures to minimize effects or avoid impacts to Washington ground squirrel. Surveys have been conducted on Corps HMUs for small mammals and have found no Washington ground squirrels (Achziger, Corps, pers. comm. 2012). There are outgranted areas where rodenticides may be used where surveys have not been conducted, however these areas are not likely to contain the species (landscaped areas in the Tri-Cities, parks, etc.). Nonetheless, the Corps has proposed surveys prior to rodenticide use to minimize effects. Surveys for Washington ground squirrel will be conducted in treatment areas where rodenticides will be used in Columbia, Franklin, Walla Walla, and Umatilla Counties prior to treatment to determine if the species is present. The Corps will coordinate with a qualified state biologist trained in identification of Washington ground squirrels and their habitat for the surveys, using approved state procedures and protocols. Rodenticides will only be used in areas where Washington ground squirrel may occur after surveys for the species have confirmed no presence or if suitable habitat does not exist in the treatment area. After further discussion on November 26, 2012 (Achziger, Corps, pers.com. 2012), the Corps agreed that after rodenticide applications there will be follow-up surveys and removal efforts to decrease the likelihood of secondary poisoning of raptors or other migratory birds.

In some areas, the Corps will addle Canada goose (*Branta canadensis*) eggs where these birds are a nuisance in parks or recreation areas. This is done pursuant to the APHIS-WS Migratory Bird Treaty Act permit number MB-089914. The Corps will use food grade oils to addle the eggs. Because this activity is done under a separate permit, and the Service does not anticipate effects to bull trout from the addling activity, it will not be addressed further in this informal consultation.

The Corps treats arthropods (such as spiders and hornets) where they are a safety threat to the public or Corps employees in and on facilities on Corps-managed lands. Much of the chemical control for insects in and on buildings and facilities, such as restrooms, administration buildings,

Corps' hydroelectric facilities, structures within the District, etc., will be isolated from water and have no effect on listed species or critical habitat. Treatments will also include manual, mechanical, and chemical control methods to control nuisance insects such as spiders and hornets that pose a threat to the public and Corps employees on Corps managed lands. The Corps will follow label directions and, in addition, will not spray for arthropods closer than 15 feet from the water's edge, but further than 15 feet from the water's edge will apply Skidoo (butane and propane), Dursban Pro (chlorpyrifos), and Tempo SC ultra (beta-cyfluthrin) (Appendix A, conservation measure 32; BA p. 68). Use of insecticides will occur inside and outside of structures and facilities, and in park and leased areas. Most insecticide use in parks and leased areas occurs along the Columbia and Snake Rivers near Ice Harbor Dam and around the Tri-Cities.

Reseeding and site restoration would not typically be needed for most vegetation management; however, the Corps does include a process when necessary to prevent erosion, restore native vegetation, and stop the proliferation of noxious weeds. This process is described on page 75 of the BA.

The Program also includes a work Planning and Annual Reporting process. Through incorporation of the Work Plan, the Corps will notify the Service of annual acre estimates for vegetation, small mammal, and arthropod treatment, although accurate estimates require reconnaissance which may not occur until March each year. Estimates will also include the application technique that is expected to be used. The Corps will notify the Service if large-scale aerial applications of herbicides are proposed to prevent large weed infestations or damage to native vegetation following a wildfire or other natural disaster, and if these exceed the application acreage estimates provided in the BA, they may need additional consultation. The Corps will also forward annual application reports to the Service in February of each year.

Project Description Columbia River

The Corps anticipates conducting chemical treatments within a total of approximately 560 acres in the Columbia River geographic area; however, some of the acres will receive multiple treatments in the same locations at different times totaling approximately 595 treatment acres (Table 19 in the BA) between March and October of each year. The 560 acres is less than 1 percent of the total land in the action area in the District.

Project Description Snake River

The Corps anticipates making chemical application treatments to approximately 7,200 acres in the Snake River geographic area, with a total acres annually treated (including multiple treatments in the same locations at different times) of approximately 16,500 acres (Table 20 in the BA) between March and October of each year. The 7,200 acres is approximately 10 percent of the total land in the action area in the District.

Project Description Mill Creek

The Corps anticipates chemically treating 400 acres in the Mill Creek geographic area, with a total amount annually treated (including multiple treatments in the same locations or overlapping treatments) of 1,700 acres (Table 24 in the BA) between March and October of each year. Not all areas will be treated every year. As described in the BA, data for specific locations of past treatments at Mill Creek was somewhat lacking, but the Corps expects applications will generally be made along the levee roads, along other roads, along trails, at Bennington Dam, around operational structures, and at administration sites. These are all developed areas, and mostly used for operations or recreation. The 400 acres is less than 1 percent of the total land in the action area in the District.

Bull Trout Status in Action Area

There are no bull trout spawning areas within the action area. Recent surveys continue to show evidence of bull trout use in the Columbia River (Anglin et al 2010), including PIT-tagged bull trout moving downstream near the mouth of the Walla Walla River and one bull trout moving upstream at the mouth in June, indicating that Walla Walla River bull trout overwinter in the Columbia River. Two bull trout were detected at McNary Dam; one moving downstream in the juvenile bypass, and one in the Oregon shore adult fish ladder. One fish was detected moving upstream through the adult fish ladder at Priest Rapids Dam. These detections at mainstem dams indicate Walla Walla River bull trout are using the Columbia River as a migratory corridor and for rearing and overwintering. A Tucannon River bull trout study (Faler et al 2008) tracked bull trout to the mouth of the Tucannon River and into the McNary Pool portion of the Snake River, an area with no barriers to the Columbia River portion of the McNary Pool.

During much of the year, adult and subadult bull trout are expected to be foraging, migrating, and overwintering in the mainstem Snake River. However, total abundance at any one time appears to be small. As evidenced by Faler et al (2008) and Corps fish passage data, bull trout are present in small numbers throughout the mainstem Snake River. The Corps collects data on fish passage at Ice Harbor, McNary, Lower Granite, and Lower Monumental Dams.

Approximately 33 observations of bull trout at the Lower Granite Dam fish ladder have occurred since 2006 (D. Wills, Columbia River Fisheries Program Office, in litt. 2012). Downstream of Little Goose Dam, over 300 observations of bull trout were documented during the same period (D. Wills in litt. 2012). Bull trout observed in the Little Goose and Lower Granite Reservoirs (Snake River) likely originate from two primary core areas: Asotin Creek (upstream) and the Tucannon River (downstream). It is unknown to what extent migratory forms of bull trout use the Snake River between these two core areas. Bull trout observation data suggests the area is important for rearing and foraging subadults and some adults. The majority of observations at the ladders indicate bull trout are less than 20 inches in length (D. Wills in litt. 2012). The Corps fish-passage observations were documented during anadromous salmon monitoring at the dams occurring between February and December of each year. Data for bull trout presence outside the monitoring season or outside of the passage facilities is less clear, with fewer than 10 bull trout observed since 2000 in the fish separators and during loading of juvenile salmon onto the transport barges between April and August.

Fluvial bull trout adults and subadults migrate upstream and downstream from headwater spawning areas through the project area in Mill Creek, and to the Walla Walla River and/or the Columbia River. Adult or subadult bull trout may be present in the project area through most months of the year, though high water temperatures may preclude their use from about mid-August through much of September, depending on the weather and water conditions.

Based on the above information, and the programmatic approach of the proposed action, the Service assumes that bull trout could be in the action area at any time of the year.

Bull Trout Effects

Riparian Vegetation

Riparian and emergent aquatic vegetation provides hiding cover for bull trout or their prey, and support terrestrial and aquatic insects that provide a food base for bull trout. Riparian vegetation may be affected by invasive plant treatment. Some emergent aquatic or riparian vegetation is invasive (such as common reed grass (*Phragmites* sp.) and purple loosestrife) and can take over native vegetation, resulting in an undesirable monoculture. Manual and biological treatment methods do not typically affect large trees that provide large woody debris for habitat structure. The proposed action and treatment methods including implementation of the conservation measures will ensure that the application areas are not extensive or intensive enough to significantly affect the ability of riparian areas to hold soil, help create overhanging banks, or provide hiding cover or refuge. Herbicide treatment of invasive plants in riparian areas is intended to change the vegetative structure to improve the function of riparian areas. Significant loss or reduction in riparian vegetation due to treatment of invasive plants is not expected, and the length of time before suitable vegetation replaces treated weed species to perform important riparian functions will vary considerably across the District. In general, improved riparian function due to invasive plant treatment will benefit bull trout, although there could be localized, short-term effects to their habitat which is likely to be insignificant or discountable. The potential short-term effects from sediment and turbidity, water temperatures, and chemicals are discussed below.

Sediment and Turbidity

Generally, bull trout may be affected by turbidity entering water from upslope activities. Manual, mechanical, or herbicide treatments that are extensive, intensive, and immediately adjacent to a stream course may cause fine sediment delivery, resulting in localized sediment deposition or stream turbidity increases. Turbidity could be caused by ground treatments where vegetation is pulled up, rooted-out mechanically, or by similar, ground-disturbing measures. It could also be caused by vehicle travel or persons disturbing soil, which could then be washed into streams.

Hand pulling of emergent vegetation could result in localized turbidity increases and mobilization of fine sediments. The degree of effect will be in proportion to the extent of the infestation treated, type of substrate in which the plants are rooted, rooting depth, and other

factors. Treatment of streamside invasive species with herbicides is likely to result in short-term increases in localized fine sediment deposition or turbidity only when treatment of locally extensive streamside monocultures occurs. Localized turbidity increases could cause injury to bull trout or displace them into alternative habitat, which is likely to contain suboptimal cover and juvenile forage. However, the treatment methods that the Corps plans to implement (manual, mechanical, and herbicide [limited to cut-stump, and wicking and wiping within 15 feet of water]) are unlikely to cause fine sediment or turbidity increases. Seed clipping, stabbing, girdling, and cutting typically do not involve ground disturbance or result in bare ground. Noxious vegetation is typically found in areas with native vegetation, therefore completely clearing an area of vegetation would not normally occur. If treatments are large and will result in large areas of bare ground, the impact will be minimized by reseeding as described in the BA (p. 75). All invasive non-native riparian vegetation that is treated with herbicides will be monitored for two years following treatment, and if desirable vegetation does not reestablish itself naturally, the Corps will plant or seed new native riparian vegetation.

Because of the limited scope of sediment-producing activities that might result in turbidity and deposition of fine sediment, the scale of the activity relative to the overall land base in the area, the judicious use of buffers near water bodies where only hand methods will be used, the duration and magnitude of turbidity-producing events being limited, and the proposed conservation measures, effects from turbidity on bull trout are likely to be small and would be insignificant to the bull trout.

Water Temperatures

In general, stream temperatures could be affected by the treatment of invasive riparian and emergent vegetation. The Corps has a goal to maintain riparian habitat, especially in HMUs since this is required mitigation from the dams and they do not want to lose mitigation credit (Achziger, pers. comm., October 31, 2012). Dead or removed riparian vegetation provides less shade and cooling effect, than does the same vegetation when it is alive. Stream temperature can be affected by the scope and scale of the project; however, the amount of shade reduction is expected to be limited and short-term until plant regrowth occurs, and the overall amount of shaded area impacted by invasive plant removal would be small compared to the total surface area exposed to the heat-producing effects of the sun on the Columbia River, the Snake River, and Mill Creek. Other factors outside the scope of the project (e.g. topographic shading, elevation, weather, and aspect, tributary temperatures, channel geometry, and ambient air temperature) also affect stream temperature. Shade loss that measurably affects water temperature will be unlikely as a result of the proposed action. The Snake and Columbia Rivers in the action area are extremely wide, and the influence of riparian vegetation that produces enough effective shade to moderate mainstem temperatures that would be treated/removed is de minimus. Baseline conditions at Mill Creek include levees where past management practices have resulted in the removal of woody vegetation, and further treatments would likely not decrease stream shade over baseline conditions.

Due to the generally arid environment within the action area, the large river widths, the limited influence of riparian vegetation along the Columbia River and the Snake River on water temperature, and the existing condition of the Mill Creek action area (most of the potential

riparian area is taken up by an existing levee, roads, and trails), and implementation of the conservation measures that will minimize effects to riparian areas and potentially result in long term beneficial effects from removal of invasive weeds and reestablishment of native woody vegetation, the effects on bull trout from temperature changes due to riparian impacts will be insignificant.

Disturbance

Disturbance of fish can result from the pest management program (i.e. physical presence, movement, sounds, and vibrations of equipment and people). Activities with the most potential to disturb bull trout, such as equipment use, will be at least 15 feet from water. Boats may be used to access a few areas on the Snake River that can't be accessed by vehicles, but the potential disturbance to bull trout from the use of boats is likely to be of short duration and bull trout should be able to move away from the disturbance. Because of minimal use of machinery or boats, and the distance from water, the effects of disturbance on bull trout will be insignificant.

Chemical Exposure and Toxicity

Generally, with pesticide/herbicide applications, chemicals may enter water indirectly via precipitation, run-off, and by being attached to soil particles or vegetative matter that is washed into water. Chemicals could be directly introduced into water bodies by chemical drift caused by wind, spills, or mis-applications. There is uncertainty regarding chemical toxicity effects of the chemicals that may be applied, as some of the active ingredients have not been thoroughly studied (e.g., tests were made on non-salmonids and in laboratory conditions), there is often limited disclosure of the composition of inert ingredients, the fate of the ingredients is often unclear (e.g., degradates, and synergistic and cumulative effects), and the effectiveness of pesticide application best management practices have not been fully tested. Despite these uncertainties, the Corps worked with the Service and NMFS to narrow the list of chemicals in the proposed action to those that are less toxic to fish, and proposes to apply them infrequently and at low rates, and to apply them in limited geographic areas with conservation measures implemented to minimize chemical movement to water.

The Service expects that based on the conservation measures, chemicals will be unlikely to enter the water. The action area receives low rainfall (the Columbia River receives an average of 16 inches of precipitation annually (BA); the Snake River generally experiences 11 to 23 inches of precipitation, and Mill Creek receives about 18 inches of precipitation per year (<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wa5387>)). The upland soils are primarily silty loam soils; the bench-type soils tend to be sandy loam with slow runoff characteristics and slight erosion hazards because they tend to be on less steep slopes. Alluvial soils found in the valley bottom, are excessively drained, and range from cobbly coarse sand underlain by stratified cobbles, boulders, gravels, and sand. The Corps has some information regarding sediment quality and herbicide levels in the Snake River from Ice Harbor Dam upstream to Clarkston (p. 162 BA). Although data was not collected in the Columbia River for the tests, it is likely similar to the Snake River. The chemicals 2,4-D, dicamba, glyphosate, and picloram were included in the testing, while aminopyralid, chlorsulfuron, clopyralid, imazapic, imazapyr, metasulfuron-

methyl, sethoxydim, sulfometuron-methyl, and triclopyr were not included. Glyphosate was the only tested herbicide that was detected in the Snake River sediments at a number of sites with concentrations up to 68.9 µg/kg (at Snake RM 78). Therefore, if chemicals did enter the water there may be additive effects, however given the Program and conservation measures, the Service expects that surface or groundwater runoff from upland chemical treatments is unlikely to occur.

Operation of equipment such as ATVs, pick-ups, mowers, and tractors requires the use of petroleum-based fuel and lubricants, which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Mowers and herbicide application equipment will be staged outside of riparian zones, and all equipment will be cleaned and fueled only in these staging areas. Equipment will be inspected and cleaned prior to any application of herbicides within 150 feet of open water. The conservation measures stated above are expected to reduce the risk of chemical contamination to a level that is not reasonably certain to occur, and therefore, the effects are considered discountable.

The use of rodenticides may occur in close proximity to water (e.g., levees), but never in water; the method of application is typically bait placed directly into burrows. The rodenticides are, therefore, not likely to be translocated to areas where it would adversely affect aquatic species or habitats. Therefore, exposure to this stressor is discountable to bull trout.

The risk of any direct effects to spawning bull trout resulting from Program implementation is discountable because no bull trout spawning occurs in the action area. Foraging, migration, and overwintering habitat does occur in the action area, and the Service assumes that bull trout may be present in the Columbia River, Snake River, and Mill Creek during the proposed action. Due to implementation of the conservation measures, the Service anticipates that bull trout individuals are unlikely to be exposed, therefore the effects to the bull trout are discountable.

Buffer distances from live water, limitations of chemicals used near water (aquatic approved only), limiting chemical applications to prescribed wind speeds by application method, and other conservation measures, serve to minimize the potential for direct exposure to effects of chemical toxicity. The Service believes that based on these measures, that exposure to bull trout is unlikely to occur. Nonetheless, the Corps included an ecological risk assessment discussion in the BA. The risk assessment analysis explores a worst-case scenario including the assumption that the chemicals will reach the water potentially through a spill. However, due to the short duration of exposure to pesticides coupled with the high exchange rate and dilution capacity of water in the Columbia and Snake Rivers, and because hazard quotients for all chemicals proposed for use are less than one (ambient toxicant concentrations would not exceed the no-observed effect level), the Corps determined that the effects to the bull trout would be minimal. While the Service agrees that this type of analysis of a worst case is instructive, due to the many conservation measures the Service believes that a spill near water is unlikely and not reasonably certain to occur, and the potential effects to bull trout from a spill is therefore discountable.

The risk assessment for this action was based on typical chemical application rates and 50 inches of rain per year. The highest average rainfall in the action area is about 23 inches per year, thus that part of risk assessment is conservatively determined. The Service anticipates that a sudden

rain storm washing chemicals into a water body is unlikely due to the arid environment and the predictability of precipitation events in the area. Along the Snake and Columbia Rivers there is typically 10 to 13 inches of precipitation per year, and about 18 inches near Mill Creek, and most precipitation is during winter and spring, outside the application season. Conservation measures and buffers further decrease the likelihood of chemicals reaching the water. Chemicals used immediately adjacent to water bodies must be approved for aquatic use, and are typically less toxic to fish, which minimizes the risk of adverse effects in the event that chemicals reach a stream. One of the conservation measures prevents applications from being made 24 hours prior to a predicted precipitation event sufficient to cause runoff.

Adverse effects to bull trout from exposure and toxicity are unlikely because the conservation measures make exposure to pesticides unlikely to occur. Conservation measures include, but are not limited to: (1) only hand methods of herbicide applications within 15 feet of “live” water; (2) 300 foot buffers for aerial spraying; 50 to 300 foot buffers for broadcast methods; 15 to 300 foot buffers for spot spraying, (3) wind speed restrictions minimizing and avoiding contamination by wind drift; (4) herbicides used within 15 feet of water must be approved for aquatic use by EPA or state water quality agency; (5) herbicides proposed for use are restricted to chemicals with relatively well-documented fish effects and which are known to have moderate or low toxicity to fish; (6) the relatively small amount of acreage treated compared to the overall action area; (7) the dispersed nature of the applications, and (8) large volumes of water in many of the water bodies (e.g., Columbia River). Considering these conservation measures and others listed in Appendix A, effects on bull trout are likely to be insignificant or discountable.

Summary

The Corps includes conservation measures in the proposed action that minimize effects to the bull trout to the point that the proposed action would have insignificant and discountable effects on bull trout.

Critical Habitat Effects

The Columbia River, the Snake River, and Mill Creek are designated as critical habitat for the bull trout. The final revised rule designating bull trout critical habitat (75 FR 63898 [October 18, 2010]) identifies nine Primary Constituent Elements (PCEs) essential for the conservation of the species. The function of the habitat within the action area is foraging, migration and overwintering. Four of the nine PCEs for designated bull trout critical habitat may be affected within the project action area: PCE 3 (abundant food base), PCE 4 (complex river environments), PCE 5 (water temperatures), and PCE 8 (sufficient water quality and quantity).

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

As described above, riparian vegetation may have small changes in the short-term, with benefits in the long term due to management of invasive weeds. Effects to terrestrial organisms of riparian origin are likely to be insignificant.

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.

Riparian and emergent aquatic vegetation provide hiding cover or refuge for aquatic organisms and fish such as bull trout. Some emergent aquatic or riparian vegetation is invasive (such as common reed grass and purple loosestrife) and can take over native vegetation resulting in an undesirable monoculture. Proposed herbicide treatment of invasive plants in riparian areas is intended to change the vegetative structure to improve the function of riparian areas. Significant loss or reduction in riparian vegetation due to treatment of invasive plants is not expected, and the length of time before suitable vegetation replaces treated weed species to perform important riparian functions will vary across the District. In general, improved riparian function due to invasive plant treatment will benefit bull trout, and maintain or improve the existing shoreline complexity. Effects to riparian areas are expected to be beneficial or insignificant.

PCE 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.

The 10 year average water temperature on the Columbia River in Pasco between August 1 and September 1 is between 68°F (20°C) and approximately 69.8°F (21°C), the lethal limit for juvenile bull trout. On the Snake River the preferred temperature range for bull trout is exceeded from mid-May to mid-October at the upstream end of , and near the lower end of , Corps managed lands. Temperatures within the mid- and lower Mill Creek, especially downstream of the Corps facilities, are generally above 59 degrees Fahrenheit from about early June to mid-September (USFWS 2011), although bull trout have been detected in Mill Creek into July and August. Shade loss that measurably affects water temperature will be unlikely as a result of the proposed action. The Snake and Columbia rivers in the action area are extremely wide, and the influence of riparian vegetation that produces enough effective shade to moderate mainstem temperatures would be small. Baseline conditions at Mill Creek include existing levies that support little vegetation, and further treatments would not likely decrease stream shade from baseline conditions. The effects to water temperatures from the proposed action are insignificant.

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

As described above, proposed activities could cause sediment entry into rivers and creeks; however the conservation measures that will be implemented should minimize that likelihood.

Runoff of pesticides or rodenticides into the aquatic system is also unlikely due to the conservation measures. There should be no contamination from machinery because equipment will be staged outside of riparian zones, inspected, cleaned and fueled in these staging areas.

The conservation measures will likely reduce the risk of chemical contamination to a level that is not reasonably certain to occur, and is, therefore, discountable.

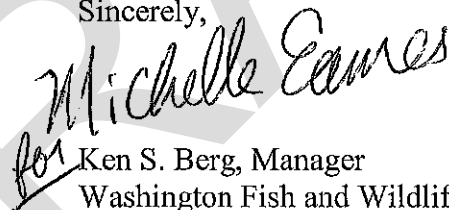
In summary, the potential effects to the listed PCEs from the proposed action are considered discountable or insignificant, and the critical habitat will continue to provide foraging, migration, and overwintering habitat for the bull trout similar to the current condition.

Concurrence Summary

The Service concurs that the Pest Management Program for the Columbia River, the Snake River, and the Mill Creek portions of the proposed action is not likely to adversely affect the bull trout, or designated critical habitat for the bull trout. This letter also confirms that the project as a whole, including the Lucky Peak and Dworshak portions of the Pest Management Program, has been considered, and informal consultation is concluded pursuant to section 7(a)(2) of the ESA. This project should be re-analyzed if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; and/or, if a new species is listed or critical habitat is designated that may be affected by this project.

If you have further questions about this letter or your responsibilities under the ESA, please contact Michelle Eames of this office at 509-893-8010.

Sincerely,


for Ken S. Berg, Manager
Washington Fish and Wildlife Office

cc:

FWS-LFO, LaGrande, WA (G. Miller)
FWS-IFO, Boise, ID (M. Robertson)

LITERATURE CITED

- Anglin, D.R., D. Gallion, M. Barrows, R. Koch, and C. Newlon. 2010. Monitoring the Use of the Mainstem Columbia River by Bull Trout from the Walla Walla Basin. Annual Report 2009 (October 1, 2008 – September 30, 2009), Final. Prepared by U.S. Fish and Wildlife Service, Columbia River Fisheries Program Office, for the The U.S. Army Corps of Engineers, Walla Walla District. MIPR Agreement Number W68SBV90271448. 30 pp.
- Faler, M.P., G. Mendel, and C. Fulton. 2008. Evaluation of Bull Trout Movements in the Tucannon and Lower Snake Rivers. Project Completion Summary (2002 through 2006). Project Number 2002-006-00, Final Report. United States Fish and Wildlife Service, Idaho Fishery Resource Office, and Washington Department of Fish and Wildlife. 34 pp.
- U.S. Fish and Wildlife Service. 2011. Biological Opinion for the Forebay Clean-out Project at the Mill Creek Flood Control Project, near Walla Walla, Walla Walla County, Washington.

Appendix A

Conservation Measures (p. 72 BA)

The Corps proposes the following conservation measures as part of the proposed action in order to reduce potential adverse effects related to implementation of the proposed action. These conservation measures are not mean to be mitigation for the proposed action, but are integral to the reduction of impacts (potential adverse effects) that may be incidental to the proposed action, and must be considered when analyzing the potential effects of the proposed action.

The following impact minimization measures will be implemented by the Corps as part of the proposed action.

1. All applicators shall be state licensed or certified, or under the direct visual supervision of a state licensed or certified applicator.
2. All application equipment (e.g. booms, back packs, etc.) shall be properly calibrated according to the chemical manufacturer's suggested application rates printed on the chemical label prior to use. Equipment and settings shall be properly maintained for the duration of the contract performance period.
3. Dyes shall be used to reduce the potential for over-application.
4. Appropriate sized nozzles shall be used to maximize droplet size and reduce the potential for drift.
5. All concentrated or mixed solution pesticides shall be placed in locked storage in closed containers with watertight lids, placed in secondary containment vessels of 125 percent [capacity] when not in use.
6. All mixing for spray bottles, and backpack sprayers shall be done within secondary containment of 125 percent capacity of the liquid.
7. Wind speeds identified in Table 12 by chemical shall be adhered to. [In an E-mail dated September 5, 2012, the Corps narrowed the wind speed limit from less than 10 miles per hour (mph), to less than 5 mph for aerial applications further than 300 feet from the ordinary high water mark.]
8. Buffers from water identified in Table 12 shall be adhered to.
9. All applications shall be made in temperatures of 90 degrees Fahrenheit or less, unless the label conditions are more restrictive.

10. Applications shall not be made 24 hours prior to a predicted precipitation event sufficient to cause runoff (using NOAA's [National Oceanic and Atmospheric Administration] National Weather Service¹ to determine probability of a major precipitation event).
11. All applications will be recorded on Corps' pesticide application record (NWW Form 1130-8) (Appendix D) or equivalent state form, including GPS coordinates or a GIS polygon (including treatment area/acreage) of application, and compiled at the end of the season for use in reporting, monitoring, and planning for the following year. An annual report will be produced by all contractors, outgrantees, or other applicators by 1 February of the following year summarizing area of weeds treated by species, chemical used, and amount used (concentrate). This summary report will be forwarded to the Services by the District's Environmental Compliance Section.
12. ATV storage tanks shall be limited to 30 gallons.
13. A spill kit will be available to all persons making applications within 150 feet from the site of the application.
14. Refueling of equipment in areas not designed for refueling (i.e. in HMUs) will not occur within 100 feet of open water. This includes ATVs, trucks, tractors, aircraft, etc.
15. All applicators will develop and carry a Spill Prevention and Control Plan approved by the District, or detailed requirements will be explicitly spelled out in contract specifications by the Corps prior to contractor personnel or equipment operation near any stream drainage. The Plan will provide detailed descriptions on how to prevent a spill or ensure effective and timely containment of any chemical spill. The Spill Prevention and Control Plan will include spill control, containment, clean up, and reporting procedures.
 - 15.1. Each Contractor vehicle carrying herbicides shall be equipped with a spill cleanup kit. The cleanup kit shall be capable of containing and holding at least 125 percent of the total mixture and concentrate that are present on the work site. The Contractor shall report all details of herbicide spills, exposure incidents, or accidents and/or worker health complaints, if any occur, to the Corps as soon as practicable.
 - 15.2. No herbicide mixing will be authorized within 100 ft from any body of water or stream channels. Equipment will have either an anti-back siphon valve or an air break on tank fill connections or openings to prevent contamination of on-site water sources.
 - 15.3. Mixing (other than that of equipment that mixes internally as applications are being made) will be performed within a temporary structure made of impermeable material such as plastic that is capable of containing at least 125 percent of the capacity of the spray tank that is being used, or on appropriate absorbent materials of sufficient capacity to absorb the entirety of that volume of the tank being mixed. Examples of the temporary mixing structure will be a wooden frame lined with plastic sheeting or a child's wading pool.

¹ <http://www.weather.gov>

- 15.4. Equipment will be inspected for leaks and cleaned prior to crossing any stream. Any detected leaks will be repaired before the equipment crosses the stream or near open water when not on an existing road.
- 15.5. Equipment will be inspected and cleaned prior to any application of herbicides within 150 feet of open water.
16. Application equipment will be maintained to ensure proper application rates, to minimize leakage potential, reduce the potential for drift, and ensure applicator safety. Equipment will be maintained and visually inspected prior to each application includes, but is not limited to: hoses, nozzles, backpacks, and booms.
17. The Corps has selected chemicals based on the need in the District, as well as what has been consulted on in the region with known effects, and will be applied in a manner consistent with other Federal agencies in the Northwest and with what has been identified in standing BOs from NMFS and USFWS [Service], to include buffers and wind speeds (Table 12), as well as in accordance with label requirements.
18. All applicators shall comply with all applicable Federal, State (Oregon, Idaho, and Washington) and herbicide manufacturer's directions and requirements for handling herbicides and insecticides, including storage, transportation, application, container disposal, and cleanup of spills.
19. Herbicide treatments to foliage of weed species shall be according to the chemical manufacturer's recommendations for best results. Applicators shall use caution to minimize the application of herbicides to non-target species and structures within the application areas.
20. Although surveys indicate that there are no ESA-listed plants on Corps lands (Bailey 2008a, 2008b [as referenced in BA]), any ESA-listed plant that is found will be inventoried, and its location captured either in GIS or by GPS, or both, and put into the District's inventory for future avoidance and planning purposes. Herbicides shall not be applied with aircraft within 300 feet, broadcast within 100 feet, or spot sprayed within 15 feet of ESA-listed plant locations identified during applications. Spraying of targeted species is limited to vinegar or similar within 300 feet or closer to known ESA-listed plant locations.
21. Crossing any open water body with spray equipment (i.e. floating vessels or land vehicles) or chemicals will be avoided if there is any land access (e.g., road or ATV trail) to the proposed treatment areas. If land access is not available or inaccessible due to steep terrain, all concentrated or mixed chemicals shall be transported within floating secondary containment vessels of 125 percent capacity of the liquid.
22. Disposal of waste materials shall [be] in accordance with the label and in accordance with all applicable Federal, State, and county laws regulations, as well as label restrictions and instructions.

23. All invasive, non-native riparian vegetation that is treated with herbicides will be monitored for two years following treatment. If desirable vegetation does not reestablish itself naturally, the Corps will plant or seed new native riparian vegetation in order to reduce the need for future chemical application in the area, and to improve shade and cover for listed fish and their habitat.
24. Motorized herbicide application equipment will not be operated on slopes greater than 25 percent (if not on existing roads) in order to minimize risk of soil erosion, spills, or chemical runoff, as well as for safety reasons.
25. No more than one application of picloram will be made on an area in any given year to reduce the potential for picloram accumulation in the soil.
26. No spraying of picloram will be authorized within 100 feet of any flowing waters or areas with shallow water tables. Avoid application of picloram within dry ephemeral stream channels and dry roadside ditches that drain directly into fish bearing streams.
27. The Corps will not spray if snow or ice covers the target foliage.
28. Nozzles and pressures which create droplet sizes of 176 microns or less shall not be used.
29. All aerial applications will be done on the contour. No turns would be allowed over "live" waters (e.g., flowing ditches, streams, ponds, springs, etc.) even though the booms are turned off at the end of each run.
30. Only aquatic approved herbicides and surfactants will be authorized for use within 15 feet of "live" waters or areas with shallow water tables. For example, only the aquatic formulations of 2,4-D and glyphosate will be used within 15 ft of water.
31. Only non-ester forms of 2,4-D will be used (no use of 2,4-D ester formulations will be authorized).
32. Skidoo (pyrethrins, piperonyl butoxide, butane, and propane) and Tempo SC ultra (beta-cyfluthrin) (insecticide) applications will be limited to spot spraying no closer than 15 feet from the water's edge. Applications will not be made when the wind is blowing toward the water, or when the insecticide has the potential to enter the water through drift or run-off.
33. Surveys for Washington ground squirrel will occur prior to using rodenticides in those areas where they are listed as candidates for listing under the ESA. Rodenticides will only be used in areas where Washington ground squirrel may occur after surveys for the species have confirmed no presence, or if suitable habitat does not exist in the treatment area. If the species is confirmed in an area, the Corps will work with the USFWS and local state wildlife agencies to minimize the potential impacts to Washington ground squirrel.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

NMFS Tracking No.:
2012/00353

August 29, 2012

Michael S. Francis
Chief, Environmental Compliance
Walla Walla District, Corps of Engineers
201 North Third Avenue
Walla Walla, Washington, 99362-1876

Re: Endangered Species Act Section 7 Consultation and Magnuson-Stevens Essential Fish Habitat Response for the Pest Management Program for Corps of Engineers Managed Lands in the Walla Walla District in Oregon, Idaho, and Washington.

Dear Mr. Francis:

On July 5, 2012, the National Marine Fisheries Service (NMFS) received your request for written concurrence that the proposed Pest Management Program for Corps of Engineers (COE) Managed Lands in the Walla Walla District in Oregon, Idaho, and Washington is not likely to adversely affect (NLAA) species listed as threatened or endangered, or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.¹

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Act (MSA), including conservation measures and any determinations made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.² In this case, NMFS concluded that the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

This letter is in compliance with section 515 of the Treasury and General Government Appropriations Act of 2001 (Data Quality Act) (44 U.S.C. 3504 (d) (1) and 3516), and underwent pre-dissemination review using standards for utility, integrity and objectivity.

¹ Memorandum from D. Robert Lohn, Regional Administrator, to ESA consultation biologists (guidance on informal consultation and preparation of letters of concurrence) (January 30, 2006).

² Memorandum from William T. Hogarth, Acting Administrator for Fisheries, to Regional Administrators (national finding for use of Endangered Species Act section 7 consultation process to complete essential fish habitat consultations) (February 28, 2001).



Consultation History

The COE has made infrequent requests for ESA consultation related to pest management, though they note in the Biological Assessment (BA) they have been treating pests for between 30 and 40 years. NMFS concurred May 13, 2010 with the consultation request for the Treatment of Aquatic Vegetation at Levee Pond 12-1 Adjacent the Columbia River at Pasco, Franklin County, Washington (NMFS, 2010/00613). Given the lack of consultations and time span between Levee Pond 12-1 consultation and this one; there is no established recent pattern of practice.

NMFS received a request for consultation from the Walla Walla District of the COE on February 8, 2010 concerning its pest management program. NMFS determined the request contained insufficient information to initiate consultation. The COE evaluated its goals and program, and a coordination meeting was held between the COE and NMFS at the Department of Ecology Yakima office on December 2, 2010. Staff discussions between the COE and NMFS continued. To clarify its concerns, NMFS sent a letter to the COE on April 7, 2011. On February 8, 2012, NMFS received an updated and revised request for consultation, using the EPA Pesticides General Permit (PGP) and related NMFS' Biological Opinion as a partial basis for the request. Staff discussions continued, and on April 9, 2012 NMFS sent a letter to the COE noting insufficient information on which to initiate consultation in the latest consultation request, suggesting changes and additions, and dropping the use of the PGP as a basis for the consultation due to the PGP not yet being suitable for this type of consultation. A conference call was held on June 19, 2012 with the COE, Fish and Wildlife Service, and NMFS participating. A modified consultation request was received from the COE by NMFS on July 5, 2012. NMFS staff reviewed the submitted biological assessment and related materials, discussed them with COE staff and participated in a COE-sponsored site visit on August 22, 2012. NMFS concluded on August 23, 2012 sufficient information was presented to initiate consultation. A complete record of this consultation is on file at the Washington State Habitat Office in Lacey, Washington.

Description of the Proposed Action and the Action Area

The Army Corps of Engineers proposes a management program for animal and plant pests on COE-controlled lands within the Walla Walla District, generally described as lands along the Columbia and Snake Rivers associated with dams and in Idaho, Oregon, and Washington. The goals of the program are to improve habitat conditions and ensure public health and safety using traditional mechanical, biological, and chemical techniques. These techniques will be employed by COE personnel or contractors, from March through September of each year. , Of the total 154,313 District acres, up to five percent (8,000 acres) will be treated annually and there will be no treatment of aquatic vegetation or animals. The COE typically treats 3,200 to 3,600 acres of terrestrial vegetation each year using mechanical, biological, and/or chemical practices. The BA describes pests and areas covered, treatments and associated practices, conservation measures, and provides justification for program proposals. Neither vegetation management on levees nor grazing is part of the proposed action.

The COE proposes to ensure that chemicals will not enter water in amounts capable of causing significant effects to listed species. They will employ conservation and protection measures that become more stringent as risks to ESA-listed fish and their designated critical habitats increase.

With prior notification to NMFS, helicopters will aerial apply a maximum of 1,350 acres every two years in areas greater than 300 feet from water or pathways to water. Aerial application will be used in inaccessible areas and areas where it is impractical to use other methods (such as crew safety).

Broadcast spraying includes vehicle-mounted booms, boomless nozzles, and backpack sprayers and the COE estimates about 18 percent of these treatments will be from ground-based motorized vehicles and 35-to-40 percent using backpack sprayers. Spot spraying is the COE's most commonly used application method and is done with variations of backpack tanks or tanks mounted on vehicles (like trucks, quads, or tractors). These methods would be used between 15 and 300 feet from water and with conservation measures as described in the BA, and the NMFS' and FWS' BOs.

Hand or manual methods are directed to specific plants, directly applying chemicals to those plants. Hand methods will be used for those areas within 15 feet of water with ESA-listed fish or their critical habitat. Mechanical methods can include hand-work or equipment, and involve practices like pulling, digging-up plants using hand tools, or disking by implements being pulled by a motorized vehicle. These methods generally involve disturbing soil.

Chemical treatments within 15 feet of "live" waters and in areas of shallow water tables will only use herbicides approved for aquatic use. The methods to be used, depending on the plants and conditions are wicking and wiping (herbicide wiped onto plants), basal bark (herbicide applied to girdle the plant), frill (also known as "hack and squirt" where herbicide inserted into a cut on the plant), stem injection (injection of herbicide into plant stem via specialized equipment), and cut-stump (herbicide applied to vegetative stump after plant is cut). Hand methods are plant specific, with no drift from sprays, and are the most "controlled" method of herbicide application. During the site visit, the COE estimated within this 15 foot band they will be treating a total of two-three acres each year and up to 15 miles along tributaries out of the 861 total (about 1.7 percent).

Biological controls typically work slowly and are designed to work only on the target species. Native vegetation is expected to recolonize areas where invasives were treated and died, becoming reestablished and preventing soil erosion and loss of stream shade while stabilizing banks with their roots.

In some cases, the COE anticipates more than one pest treatment in a year might be necessary, and also treatments might have to occur over time until the pest species are eradicated or controlled. Annual reports will address areas needing multiple and/or on-going treatment. The related action of routine operation and maintenance for pest management purposes along roaded areas, park lands, other developed areas, and administrative complexes, carried out with proposed conservation measures and due to their limited and de minimus nature, are not expected to affect ESA-listed fish or their critical habitats. Related to operations which the COE itself carries out, the COE sometimes "subcontracts" pest management to mosquito control districts, cities and counties, weed control districts and others. These other entities, acting as agents of the COE, are subject to this consultation.

Action Area

The COE provides substantial description of the action area in the BA. The action area includes all lands and other facilities owned and administered by the Corps, and includes lands in 12 counties in three states:

- Counties in Idaho: Ada, Boise, Clearwater, Elmore, Nez Perce
- Counties in Oregon: Umatilla
- Counties in Washington: Asotin, Benton, Columbia, Garfield, Walla Walla, Whitman

The COE divides the Walla Walla District into five operating areas, describing stream reaches and identified hydrological unit codes (HUCs), and primary facilities (dams, locks, parks, reservoirs, and district offices). The operating areas are:

1. Columbia River
2. Snake River
3. Dworshak
4. Lucky Peak
5. Mill Creek

The action area is 154,313 acres and the area covered by the BA is a nominal 72,000 acres, of which 28,406 is forest habitat around Dworshak, 35,117 in shrub/steppe around the rest of the projects, and 8,444 park/recreation acres. (While not part of the land-base, the District also has 84,343 acres of reservoirs and 861 miles of river, ponds, and ditches.) Anadromous, ESA-listed fish under NMFS' jurisdiction do not occur throughout the action area. They are not found in the COE's Lucky Peak operating area or above Dworshak Dam. Fish passage in the Snake River ends at river mile (RM) 247 at Hell's Canyon Dam and at about RM 1.7 on the North Fork of the Clearwater River at Dworshak Dam.

ESA-listing and critical habitat designations are shown in Table 1. Many of the streams or stream reaches throughout the action area were also designated EFH for Chinook salmon (*O. tshawytscha*) and coho salmon (*O. kisutch*) by the Pacific Fishery Management Council in 1999.

Table 1 ESA Listing Status, Date of Listing, and Federal Register Notice Date and Critical Habitat Designation Date and Federal Register Notice Date.

Species	Listing Status, Date and Federal Register Notice	Critical Habitat Designation Date and Federal Register Notice
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)		
Upper Columbia River spring-run	Endangered 6/28/05; 70 FR 37160; Status reaffirmed 8/15/11 76FR50448	9/2/05; 70FR52630
Snake River spring/summer run	Threatened 6/28/05; 70 FR 37160; Status reaffirmed 8/15/11 76FR50448	10/25/99; 64FR57399
Snake River fall-run	Threatened 6/28/05; 70 FR 37160; Status reaffirmed 8/15/11 76FR50448	12/28/93; 58FR68543
Sockeye salmon (<i>O. nerka</i>)		
Snake River	Endangered 6/28/05; 70 FR 37160; Status reaffirmed 8/15/11 76FR50448	12/28/93; 58FR68543
Steelhead (<i>O. mykiss</i>)		
Middle Columbia River	Threatened 1/05/06; 71 FR 834. Status reaffirmed 8/15/11 76FR50448	9/2/05; 70FR52630
Upper Columbia River	Threatened 6/18/09; court decision. Status reaffirmed 8/15/11 76FR50448	9/2/05; 70FR52630
Snake River Basin	Threatened 1/05/06; 71 FR 834. Status reaffirmed 8/15/11 76FR50448	9/2/05; 70FR52630

Effects of the Action

For purposes of the ESA, “effects of the action” means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find a proposed action is NLAA listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial.³ Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Pest management activities covered in this

³ U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Act consultation handbook: procedures for conducting section 7 consultations and conferences. March. Final. P. 3-12.

consultation are manual and mechanical methods, biological methods, and chemical methods. This effects analysis pertains only to those areas with ESA-listed fish or their critical habitat.

Chemicals (active and inert ingredients) may enter water indirectly via precipitation, run-off, and by being attached to soil particles or vegetable matter that is washed into water. Chemicals could be directly introduced into water bodies by chemical drift caused by wind, spills, or mis-application. There is uncertainty regarding chemical effects as some of the active ingredients have not been thoroughly studied (e.g. tests were made on non-salmonids and in laboratory conditions), there is often limited disclosure of the composition of inert ingredients (Often cited as “Other” or citing proprietary interests as a reason for nondisclosure), the fate of the ingredients is often unclear (e.g. degrades, and synergistic and cumulative effects), and the effectiveness of pesticide application best management practices has not been fully tested. Despite uncertainty, taken together, the chemicals in the proposed action are among herbicides least toxic to fish, applied infrequently at low rates, and applied in relatively small geographic areas at any given time. Moreover, the uncertainty does not come into play as chemicals will be kept out of water.

Turbidity could be caused by ground treatments where vegetation is pulled up, rooted-out mechanically, or by similar, ground-disturbing measures. It could also be caused by vehicles or persons traveling disturbing soil, which could then be washed into streams. Because of the limited scope of sediment-producing activities that might result in turbidity and deposition of fine sediment, the scale of the activity relative to the overall land base in the area, the judicious use of buffers near water bodies where only hand methods will be used, the duration and magnitude of turbidity-producing events being limited, and the proposed conservation measures; NMFS is reasonably certain effects from turbidity on ESA-listed fish or designated critical habitat are extremely unlikely and effects would be insignificant.

Stream temperatures could be affected by the treatment of riparian vegetation. Dead or removed riparian vegetation provides less shade, and the related cooling effect, than does the same vegetation when it is alive. Stream temperature can be affected by the scope and scale of the project, the amount of shade reduction expected to be limited and short-term until plant regrowth occurs, and the overall amount of shaded area on these huge river systems being minute compared to the total surface area exposed to the heat-producing effects of the sun on many of the streams. Other factors outside the scope of the project (e.g. topographic shading, elevation and aspect) also affect stream temperature. Considering these factors and the conservation measures, NMFS is reasonably certain any temperature effects on ESA-listed fish or their critical habitat will be insignificant and short-term as native vegetation is re-established.

Disturbance of fish can result from pest management program (i.e. physical presence, movement, sounds, and vibrations of equipment and people). Activities with potential to disturb ESA-listed fish, such as equipment use, will be at least 15 feet from water and at least a modicum of riparian vegetation between. Because of this factor and the small scale, scope, duration, and intensity of the activity, NMFS is reasonably certain the effects of disturbance will be insignificant.

Proposed manual and mechanical methods can potentially affect riparian vegetation and structure (and instream habitat from things such as wood inputs) thus reducing shade (and accompanying

stream temperature increases) and food while increasing turbidity and water temperature. NMFS expects effects from these procedures to be insignificant because they are of low intensity, short-duration, geographically dispersed, of limited scope, and they would not remove native, non-invasive plants. Disturbed areas will undergo site preparation (re-contouring to pre-work relief and seed bed preparation) and be seeded or planted with locally appropriate native species during February when soil moisture is highest. Accordingly, when considering these factors coupled with conservation measures, NMFS believes these effects are insignificant.

The COE's BA denotes chemicals will not enter water bodies in amounts known or suspected of causing adverse effects to ESA-listed fish. Specific chemical preparation, storage, use, reporting and monitoring, and related measures are described in the BA. Considering these measures, significant effects from exposure to chemicals are unlikely.

Hazard quotient risk assessment for this action was based on typical chemical application rates and 50 inches of rain per year. The highest average rainfall in the area is about 27 inches per year, thus that part of risk is conservatively assessed. In the case of a sudden rain storm washing chemicals into a water body or chemical binding to soil/vegetation, NMFS believes this is unlikely based on past experience and conservation measures. In most cases, receiving waters in the areas being treated have large volumes, and the relatively minute amounts of chemicals have short half-lives, and would quickly dissipate. Chemicals used adjacent to water bodies must be approved for aquatic use, which minimizes the risk of adverse effects in the event that chemicals reach a stream. Uncertainties encompass chemical use due to such things as non-disclosure on inert ingredients, chemical fates, synergistic and cumulative effects and the like. There are no described chemicals in the proposed action that have no-effect on ESA-listed fish. However, the COE is committed to ensuring that chemicals will not reach concentrations known to cause adverse effects in waters occupied by any of the subject ESA-listed fish species.

Adverse effects are unlikely because these primary conservation measures nearly eliminate the potential exposure of ESA-listed fish to pesticides and the concentrations of chemicals that may occur will be too low to cause harmful effects: (1) Only hand methods within 15 feet of "live" water for herbicides not approved for aquatic use; (2) 300 foot buffers for aerial spraying; 50-300 foot buffers for broadcast methods; 15-300 foot buffers for spot spraying, (3) Wind speed restrictions minimizing and avoiding contamination by wind drift; (4) Herbicides used within 15 feet of water must be approved for aquatic use by EPA or state water quality agency; (5) Herbicides proposed for use are restricted to chemicals with relatively well-documented fish effects and which are known to have moderate or low toxicity to fish; (6) The small amount of acreage treated relative to the overall action area; (7) The dispersed nature of the applications, and (8) Large volumes of water in many of the water bodies (e.g. Columbia River). Considering these conservation measures and those mentioned in the BA, effects on ESA-listed species or their designated habitats are likely to be insignificant.

Conclusion

Accordingly, based on proper execution of the minimization measures in the proposed action and the preceding, NMFS concurs with the COE's determination of "may affect, not likely to adversely affect" for the species and critical habitats in the action area. Concurrence is based on

the information in the Biological Assessment; meetings, e-mail and telephone conversations, and is contingent on the full implementation of the conservation measures.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the COE, or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

Thank you for your efforts to protect these salmonids and their critical habitat. The NMFS has determined there are no adverse effects on salmon essential fish habitat, under the Magnuson-Stevens Fishery Conservation and Management Act. If you have any questions regarding either the ESA or EFH consultation, please contact Dale Bambrick of the Washington State Habitat Office at (509) 962-8911 x221 or email at Dale.Bambrick@noaa.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "Matthew Lytle for", is written over a large, light gray "DRAFT" watermark.

William W. Stelle, Jr.
Regional Administrator

cc: Michelle Eames, US Fish and Wildlife Service

Appendix B

State-Listed Threatened, Endangered, and Sensitive Species

DRAFT

Species	Scientific Name	US*	ID**	WA***
Plants				
Palouse milk-vetch	<i>Astragalus arrectus</i>		T	T
Arthur's milk-vetch	<i>Astragalus arthurii</i>			S
Asotin milk-vetch	<i>Astragalus asotinensis</i>		E	E
Piper's milk-vetch	<i>Astragalus riparius</i>			E
Sagebrush mariposa-lily	<i>Calochortus macrocarpus</i> , <i>Douglas var. maculosus</i>			E
Broad-fruit mariposa	<i>Calochortus nitidus</i>		Co	E
Palouse Thistle	<i>Cirsium brevifolium</i>		T	
Spacious Monkeyflower	<i>Mimulus ampilatus</i>		E	
Tufted evening-primrose	<i>Oenothera cespitosa</i> vssp. <i>Marginata</i>			T
Whitebark Pine	<i>Pinus albicaulis</i>	C	Co	
Palouse Goldenweed	<i>Pyrrocoma liatriformis</i>		T	
Northwest Raspberry	<i>Rubus nigerrimus</i>	Co		E
Spalding's Catchfly	<i>Silene spaldingii</i>	T	E	T
Purple Thick-leaved Thelypody	<i>Thelypodium laciniatum</i> var. <i>streptanthoides</i>		T	
Fish				
White Sturgeon	<i>Acipenser transmontanus</i>		T	
Mountain Sucker	<i>Catostomus platyhynchus</i>			C
Pacific Lamprey	<i>Entosphenus tridentatus</i>		E	
River Lamprey	<i>Lampetra ayresi</i>	Co		C
Peamouth	<i>Mylocheilus caurinus</i>		Co	
Snake River Basin Steelhead	<i>Oncorhynchus mykiss</i>	T	T	C
Snake River Sockeye	<i>Oncorhynchus nerka</i>	E	E	C
Snake River Spring/Summer-Run Chinook	<i>Oncorhynchus tshawytscha</i>	T	E	C
Snake River Fall-Run Chinook	<i>Oncorhynchus tshawytscha</i>	T	E	C
Sand Roller	<i>Percopsis transmontana</i>		E	
Leopard dace	<i>Rhinichthys falcatus</i>		Co	C
Bull Trout	<i>Salvelinus confluentus</i>	T		C
Amphibians & Reptiles				
Western Toad	<i>Anaxyrus boreas</i>		T	C
Woodhouse's Toad	<i>Anaxyrus woodhousii</i>		T	
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>		Co	C
Ring-necked Snake	<i>Diadophis punctatus</i>		Co	
Desert Nightsnake	<i>Hypsiglena chlorophaea</i>		Co	
Striped Whipsnake	<i>Masticophis taeniatus</i> <i>taeniatus</i>			C

Columbia Spotted Frog	<i>Rana luteiventris</i>		T	C
Sagebrush Lizard	<i>Sceloporus graciosus</i>			C
Common Gartersnake	<i>Thamnophis sirtalis</i>		Co	
Birds				
Common redpoll	<i>Acanthis flammea</i>		Co	
Northern Goshawk	<i>Accipiter gentilis</i>		Co	C
Spotted Sandpiper	<i>Actitis macularius</i>		Co	
Western grebe	<i>Aechmophorus occidentalis</i>		T	C
Grasshopper Sparrow	<i>Ammodramus savannarum</i>		Co	
Sagebrush Sparrow	<i>Amphispiza nevadensis</i>			C
Green-winged Teal	<i>Anas crecca</i>		Co	
Cinnamon Teal	<i>Anas cyanoptera</i>		Co	
Eurasian Widgeon	<i>Anas Penelope</i>		E	
Gadwall	<i>Anas strepera</i>		Co	
American Pipit	<i>Anthus rubescens</i>		Co	
Golden Eagle	<i>Aquila chrysaetos</i>		Co	C
Great Egret	<i>Ardea alba</i>		T	
Great Blue Heron	<i>Ardea herodias</i>			
Short-eared Owl	<i>Asio flammeus</i>		Co	
Western Burrowing Owl	<i>Athene cunicularia</i>			C
Lesser Scaup	<i>Aythya affinis</i>			
Canvasback	<i>Aythya valisineria</i>		Co	
Upland Sandpiper	<i>Bartramia longicauda</i>		E	C
Bufflehead	<i>Bucephala albeola</i>		E	
Barrow's Goldeneye	<i>Bucephala islandica</i>		Co	
Ferruginous Hawk	<i>Buteo regalis</i>		Co	T
Sanderling	<i>Calidris alba</i>		E	
Dunlin	<i>Calidris alpina</i>		E	
Baird's Sandpiper	<i>Calidris bairdii</i>		T	
Western Sandpiper	<i>Calidris mauri</i>		Co	
Pectoral Sandpiper	<i>Calidris melanotos</i>		T	
Least Sandpiper	<i>Calidris minutilla</i>		Co	
Semipalmated Sandpiper	<i>Calidris pusilla</i>		E	
Veery	<i>Catharus fuscescens</i>		Co	
Vaux's Swift	<i>Chaetura vauxi</i>		Co	C
Semipalmated Plover	<i>Charadrius semipalmatus</i>		E	
Ross's Goose	<i>Chen rossii</i>		Co	
Black Tern	<i>Chlidonias niger</i>		T	
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>		Co	
American Dipper	<i>Cinclus mexicanus</i>		Co	
Long-tailed Duck	<i>Clangula hyemalis</i>		E	
Olive-sided Flycatcher	<i>Contopus cooperi</i>		Co	
Blue Jay	<i>Cyanocitta cristata</i>		E	
Trumpeter Swan	<i>Cygnus buccinator</i>		E	

Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	T	E	C
Bobolink	<i>Dolichonyx oryzivorus</i>		T	
Pileated Woodpecker	<i>Dryocopus pileatus</i>			C
Prairie Falcon	<i>Falco mexicanus</i>			M
Peregrine Falcon	<i>Falco peregrinus</i>		T	T
Wilson's Snipe	<i>Gallinago delicata</i>		Co	
Common Loon	<i>Gavia immer</i>		E	S
Northern Pygmy-Owl	<i>Glaucidium gnoma</i>		Co	
Sandhill Crane	<i>Grus canadensis</i>		Co	E
Bald Eagle	<i>Haliaeetus leucocephalus</i>			
Harlequin Duck	<i>Histrionicus histrionicus</i>		E	
Caspian Tern	<i>Hydroprogne caspia</i>		E	
Pileated Woodpecker	<i>Hylatomus pileatus</i>			C
Northern Shrike	<i>Lanius excubitor</i>		Co	
Loggerhead Shrike	<i>Lanius ludovicianus</i>		Co	C
Herring Gull	<i>Larus argentatus</i>		T	
California Gull	<i>Larus californicus</i>		T	
Ring-billed Gull	<i>Larus delawarensis</i>		T	
Glaucous-winged Gull	<i>Larus glaucescens</i>		E	
Franklin's Gull	<i>Leucophaeus pipixcan</i>		Co	
Marbled Godwit	<i>Limosa fedoa</i>		T	
Hooded Merganser	<i>Lophodytes cucullatus</i>		T	
Western Screech-Owl	<i>Megascops kennicottii</i>		E	
Lewis's Woodpecker	<i>Melanerpes lewis</i>		Co	C
Red-breasted Merganser	<i>Mergus aerator</i>		E	
Common Merganser	<i>Mergus merganser</i>		Co	
Northern Mockingbird	<i>Mimus polyglottos</i>		E	
Clark's Nutcracker	<i>Nucifraga columbiana</i>		T	
Long-billed Curlew	<i>Numenius americanus</i>		T	
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		T	
Mountain Quail	<i>Oreortyx pictus</i>		T	
Sage Thrasher	<i>Oreoscoptes monanus</i>		Co	C
Flammulated Owl	<i>Otus flammeolus</i>		Co	C
Ruddy Duck	<i>Oxyura jamaicensis</i>		T	
American white pelican	<i>Pelecanus erythrorhynchos</i>		Co	E
Gray Jay	<i>Perisoreus canadensis</i>		T	
Red-necked Phalarope	<i>Phalaropus lobatus</i>		Co	
White-headed Woodpecker	<i>Picoides albolarvatus</i>		T	C
Black-backed Woodpecker	<i>Picoides arcticus</i>		Co	C
White-faced Ibis	<i>Plegadis chihi</i>		T	
Pied-billed Grebe	<i>Podilymbus podiceps</i>		Co	
American Golden-Plover	<i>Pluvialis dominica</i>		E	

Black-bellied Plover	<i>Pluvialis squatarola</i>		E	
Horned Grebe	<i>Podiceps auritus</i>		T	
Ring-necked Grebe	<i>Podiceps grisegena</i>		T	
Eared Grebe	<i>Podiceps nigricollis</i>		E	
Sora	<i>Porzana Carolina</i>		E	
Virginia Rail	<i>Rallus limicola</i>		T	
American Avocet	<i>Recurvirostra americana</i>		Co	
American Redstart	<i>Setophaga ruticilla</i>		T	
Western Bluebird	<i>Sialia Mexicana</i>		Co	
American Tree Sparrow	<i>Spizella arborea</i>		Co	
Foster's Tern	<i>Sterna forsteri</i>		T	
Great Gray Owl	<i>Strix nebulosi</i>		Co	
Bewick's Wren	<i>Thryomanes bewickii</i>		Co	
Lesser Yellowlegs	<i>Tringa flavipes</i>		T	
Greater Yellowlegs	<i>Tringa melanoleuca</i>		Co	
Willet	<i>Tringa semipalmata</i>		Co	
Solitary Sandpiper	<i>Tringa solitaria</i>		E	
Sharp-tailed Grouse	<i>Tympanuchus phasinellus</i>		Co	
White-throated Sparrow	<i>Zonotrichia albicollis</i>		E	
Mammals				
Pallid Bat	<i>Antrozous pallidus</i>		Co	
Gray wolf	<i>Canis lupus</i>			E
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>		Co	C
Big Brown Bat	<i>Eptesicus Fuscus</i>		Co	
Spotted Bat	<i>Euderma maculatum</i>		Co	M
Wolverine	<i>Gulo gulo</i>	C	E	C
Silver-haired Bat	<i>Lasionycteris noctivagans</i>		Co	
Hoary Bat	<i>Lasiurus cinereus</i>		Co	
Snowshoe Hare	<i>Lepus americanus</i>		Co	
Black-tailed Jackrabbit	<i>Lepus californicus</i>			C
White-tailed Jackrabbit	<i>Lepus townsendii</i>			C
Long-eared Myotis	<i>Myotis evotis</i>		Co	
Little Brown Myotis	<i>Myotis lucifugus</i>		Co	
Long-legged Myotis	<i>Myotis Volans</i>		Co	
Yuma Myotis	<i>Myotis yumanensis</i>		Co	
Fringed Myotis	<i>Myotis thysandodes</i>		Co	M
Canyon Bat	<i>Parastrellus Hesperus</i>		Co	
Fisher	<i>Pekania pennant</i>	Co	T	Co
Merriam's Shrew	<i>Sorex merriami</i>			C
Preble's Shrew	<i>Sorex preblei</i>			C
Washington Ground Squirrel	<i>Uroditellus washingtoni</i>	Co		C
American Mink	<i>Vison vison</i>		Co	
Gastropods				
Dry Land Forestsnail	<i>Allogona ptychophora solida</i>		T	

California Floater	<i>Anadonta californiensis</i>		T	C
Poplar/Cottonwood Oregonian	<i>Cryptomastix populi</i>		E	C
Kingston Oregonian	<i>Cryptomastix sanburni</i>		Co	
Shortface Lanx	<i>Fisherola nuttalli</i>		Co	C
Columbia Pebblesnail	<i>Fluminicola Columbiana</i>			C
Ashy Pebblesnail	<i>Fluminicola fuscus</i>		Co	
Salmon Coil	<i>Helicodiscus salmonaceus</i>		T	
Costate Mountainsnail	<i>Oreohelix idahoensis</i>		T	
Striate Mountainsnail	<i>Oreohelix strigose goniogyra</i>		E	
Rotund Physa	<i>Physella columbiana</i>		E	
Insects				
Silver-bordered fritillary	<i>Boloria selene atrocotalis</i>			C
Columbia River tiger beetle	<i>Cincindela columbica</i>			C
Monarch Butterfly	<i>Danaus plexippus</i>		T	
Gillette's Checkerspot	<i>Euphydryas gillettii</i>		T	
Black Needlefly	<i>Perlomyia collaris</i>		E	
Juniper hairstreak	<i>Mitoura grynea barryi</i>			C
Shepard's Parnassian	<i>Parnassius clodius shepardi</i>			C
Mann's Mollusk-eating Ground Beetle	<i>Scaphinotus mannii</i>			C
Worms				
Giant Palouse Earthworm	<i>Drilloleirus americanus</i>			C

*Federal: E-Endangered, T-Threatened, C-Candidate, Co-Concern

**Idaho: E-Endangered, T-Threatened, Co-Concern/Sensitive

***Washington: E-Endangered; T-Threatened, C-Candidate, S-Sensitive, M-Monitored

Idaho species ranking interpretation for the above tables:

S1: Critically imperiled = Endangered

S2: Imperiled = Threatened

S3: Vulnerable = Species of Concern

S4: Apparently Secure = not listed

S5: Secure = not listed

Appendix C

Culturally Significant Plant List Associated With Corps Lands

DRAFT

Common Name	Scientific Name
Alder	<i>Alnus</i> spp.
Arrowleaf Balsamroot	<i>Balsamorhiza sagittata</i>
Basin Big Sagebrush	<i>Artemisia tridentata</i>
Bigseed Biscuitroot	<i>Lomatium macrocarpum</i>
Bitter Cherry	<i>Prunus emarginata</i> Var. <i>Emarginata</i>
Bitterroot	<i>Lewisia rediviva</i> Var. <i>Rediviva</i>
Black Hawthorn	<i>Crataegus douglasii</i>
Black Tree/Fremont's Horsehair Lichen	<i>Bryoria fremontii</i>
Broadleaf Cattail	<i>Typha latifolia</i>
Canby's Biscuitroot	<i>Lomatium canbyi</i>
Carey's Balsomroot	<i>Balsamorhiza careyana</i>
Chokecherry	<i>Prunus virginiana</i>
Common Sunflower	<i>Helianthus Annuus</i>
Common Yarrow	<i>Achillea millefolium</i>
Cous/Cous Biscuitroot	<i>Lomatium cous</i>
Cow Parsnip	<i>Heracleum maximum</i>
Coyote Tobacco	<i>Nicotiana attenuata</i>
Coyote Willow	<i>Salix exiuga</i>
Douglas' Brodiaea	<i>Triteleia grandifolia</i>
Douglas Maple	<i>Acer glabrum</i> Var. <i>Douglasii</i>
Elderberry	<i>Sambucus nigra cerulea</i>
Fernleaf Desert-Parsley or Biscuitroot	<i>Lomatium dissectum</i>
Gairdner's Yampah/Indian Carrot	<i>Perideridia gairdneri</i> spp. <i>borealis</i>
Golden Currant	<i>Ribes aureum</i>
Gray's Biscuitroot or Desert-Parsley; Spring Gold	<i>Lomatium Grayi</i> Var. <i>Grayi</i>
Great Basin Wildrye	<i>Leymus cinereus</i>
Hardstem Bullrush (Tule)	<i>Schoenoplectus acutus</i>
Horetail	<i>Equisetum</i> spp.
Indian Hemp/Hemp Dogbane	<i>Apocynum cannabinum</i>
Indian Ricegrass	<i>Achnatherum hymenoides</i>
Lanceleaf Springbeauty/Indian Potatoe	<i>Claytonia lanceolata</i>
Lewis' Mock Orange/Syringa	<i>Philadelphus lewisii</i>
Manroot	<i>Marah organus</i>
Mule-Ears/Northern Mule-Ears	<i>Wyethia amplexicaulis</i>
Neatleaf Hackberry	<i>Celtis laevigata</i> Var. <i>reticulata</i>
Peachleaf Willow	<i>Salix amygdaloides</i>
Ponderosa Pine	<i>Pinus ponderosa</i>
Red Edlerberry	<i>Sambucus racemosa</i>
Redosier/Redtwig Dogwood	<i>Cornus sericea</i>
Rubber Rabbitbrush	<i>Ericameria nauseosa</i>
Russet Buffaloberry/Soopolallie/Soapberry	<i>Shepherdia canadensis</i>
Sagebrush Mariposa-Lily	<i>Calchortus macrocarpus</i>

Common Name	Scientific Name
Saskatoon Serviceberry	<i>Amelanchier alnifolia</i>
Showy Milkweed	<i>Asclepias speciosa</i>
Slamonflower Biscuitroot	<i>Lomatium salmoniflorum</i>
Small/Common Camas	<i>Camissa quamash</i>
Starvation Prickly Pear	<i>Opuntia polyacantha</i>
Stinging Nettle	<i>Urtica dioica</i>
Tapertip/Hooker's Onion	<i>Allium acuminatum</i>
Thimbleberry	<i>Rubus parviflorus</i> Var. <i>Parviflorus</i>
Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>
Turpentine Wavewing	<i>Pteryxia terebinthinus terebinthina</i>
Water Birch	<i>Betula occidentalis</i>
White Sagebrush	<i>Artemisia ludoviciana</i>
Whitebark Raspberry/Blackcap	<i>Rubus leucodermis</i> Var. <i>Leucodermis</i>
Wild Hyacinth/Largeflower Tritelia	<i>Triteleia grandiflora</i>
Woods Rose	<i>Rosa woodsii</i> Var. <i>Ultramontana</i>
Yellow Fritillary/Yellow Bells	<i>Fritillaria pudica</i>
Yellow rabbitbrush	<i>Chrysothamnus viscidiflorus</i> <i>P. t. foeniculaceus</i>