



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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Refer to NMFS No.: WCRO-2022-03148

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April 18, 2024

Cheryl Probert
Forest Supervisor
Nez Perce Clearwater National Forests
903 3rd Street
Kamiah, ID 83536

Re: Endangered Species Act Section 7(a)(2) Formal Consultation and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Revised Nez Perce-Clearwater National Forests Plan; HUC 170601, 170602, 170603; Latah, Nez Perce, Idaho, Clearwater and Lewis Counties, Idaho

Dear Ms. Probert:

Thank you for your letter dated June 23, 2023 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.) (U.S. Code) for the Final Nez Perce-Clearwater National Forests Plan. This letter contained the Draft Revised Land and Resource Management Plan with associated appendices and the Biological Assessment with appendices. This information was then supplemented with information from the November 27, 2023 Final Environmental Assessment that included the Final Land and Resource Management Plan for the Nez Perce-Clearwater National Forests.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) [16 U.S.C. 1855(b)] for this action. This document also includes the results of our analysis of the action's effects on EFH pursuant to Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA).

In this biological opinion (opinion), NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River Basin steelhead, Snake River Spring/Summer Chinook Salmon, and Snake River Fall Chinook Salmon. NMFS also determined the action will not destroy or adversely modify designated critical habitat (CH) for Snake River Basin steelhead, Snake River Spring/Summer Chinook salmon, and Snake River Fall Chinook salmon. Rationale for our conclusions is provided in the attached opinion. In this opinion, NMFS concurs with the NPCNF's determination that the proposed action is not likely to adversely affect Snake River sockeye salmon or their designated critical.



NMFS determined that the proposed action is a *framework programmatic action*, a Federal action that approves a framework for the development of future actions that will be authorized, funded, or carried out at a later time. Any take of a listed species would not occur unless and until those future action(s) are authorized, funded, or carried out and subject to further Section 7 consultation (50 C.F.R. 402.02). Therefore, NMFS is not providing an incidental take statement with this opinion.

Please contact Benjamin Matibag, Northern Snake Branch Office, at (208) 378-5694 or at benjamin.matibag@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

A handwritten signature in blue ink that reads "Nancy L. Munn". The signature is written in a cursive, flowing style.

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

Enclosure

cc: C. Savage – USFS Region 1
M. Lopez – NPT
E. Taylor – NPT
J.J. Teare – IDFG
C. Johnson-Hughes – USFWS
R. White – BLM

**Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson–Stevens
Fishery Conservation and Management Act Essential Fish Habitat Response**

Nez-Perce-Clearwater National Forests Plan Revision

NMFS Consultation Number: WCRO-2022-03148


Action Agencies: Nez Perce-Clearwater National Forests

Affected Species and NMFS’ Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
Snake River Basin steelhead (<i>Oncorhynchus mykiss</i>)	Threatened	Yes	No	Yes	No
Snake River spring/summer Chinook Salmon (<i>O. tshawytscha</i>)	Threatened	Yes	No	Yes	No
Snake River fall Chinook salmon (<i>O. tshawytscha</i>)	Threatened	Yes	No	Yes	No
Snake River sockeye salmon (<i>O. nerka</i>)	Threatened	No	N/A	No	N/A

Fishery Management Plan That Identifies EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

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

Date: April 18, 2024

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ACRONYMS

AREM	Aquatic and Riparian Energy Minerals
ARGRZ	Aquatic and Riparian Livestock Grazing
ARINF	Aquatic and Riparian Infrastructure
ARLND	Aquatics and Riparian Lands and Special Uses
ARREC	Aquatic and Riparian Recreation
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	Best Management Practice
CE	cobble embeddedness
CFR	Code of Federal Regulations
CH	critical habitat
Corps (or COE)	U.S. Army Corps of Engineers
CR	Conservation Recommendation
CWA	Clean Water Act
CWN	Conservation Watershed Network
dB	Decibels
Desired Condition	Forest Plan Components that is a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined but must not include completion dates.
DEIS	Draft Environmental Impact Statement
DPS	Distinct Population Segment
DQA	Data Quality Act
ECA	Equivalent Clearcut Area
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FMP	Fishery Management Plan
FR	Federal Register
GIS	Geographical Information Systems
Goal	Forest Plan Components that are broad statements of intent, other than desired conditions, usually related to process or interaction with the public, or in meeting common interests with other partners or government agencies.

Guideline	Forest Plan Components that is a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met.
HAPC	Habitat Area of Particular Concern
ICBEMP	Interior Columbia Basin Ecosystem Management Plan
ICTRT	Interior Columbia Technical Recovery Team
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IRA	Idaho Roadless Areas
ITS	Incidental Take Statement
LGD	Lower Granite Dam
LWD	Large Woody Debris
Management Approach	Plan component that is not required to be implemented but is additional direction that can be considered
MMBF	Million Board Feet
MPG	Major Population Group
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NEPA	National Environmental Policy Act
NPCNF	Nez Perce-Clearwater National Forests
NPT	Nez Perce Tribe
ntu	Nephelometric Turbidity unit
Objectives	Forest Plan Components that is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions.
OHV	Off-Highway Vehicle
opinion	Biological Opinion
PACFISH	Pacific Anadromous Fish Strategy
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
PED	Project Environmental Damage
PIBO	Pacific Fish Interior -Fish Biological Opinion
Restoration	Restoration of habitat and not specifically aquatic restoration
RHCA	Riparian Habitat Conservation Area
RMO	Riparian Management Objectives
RMZ	Riparian Management Zone
RPA	Reasonable and Prudent Alternative
RPM	Reasonable and Prudent Measure
SCIA	Stream Conditions Indication Assessment
SPCC	Spill Prevention, Control, and Countermeasure Plan
SRB	Snake River Basin

Standard	Forest Plan Components that is a mandatory constraint on project and activity decision-making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements
TMDL	A Total Maximum Daily Load
U.S.C.	U.S. Code
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
VSP	Viable Salmonid Population
WCF	Watershed Condition Framework
WRAP	Watershed Restoration Action Plan
WTR	Water

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

1.1 Background

National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) in accordance with Section 7(b) of the Endangered Species Act (ESA) of 1973 (U.S. Code) (16 U.S.C. 1531 et seq.), as amended, and implementing regulations at 50 CFR 402.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with Section 305(b)(2) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within 2 weeks at the NOAA Library Institutional Repository [<https://repository.library.noaa.gov/welcome>]. A complete record of this consultation is on file at the NMFS Snake Basin Office in Boise, Idaho.

1.2 Consultation History

This opinion is based on information provided in the Nez Perce-Clearwater National Forests' (NPCNF) biological assessment (BA), various email and telephone conversations, and North Idaho Level 1 Team meetings. The main exchanges in the interagency communications for this consultation are summarized below.

Discussions between NMFS, the U.S. Fish and Wildlife Service (USFWS), and the NPCNF's Level 1 and Level 2 Teams have been ongoing since early 2014 regarding the Forest Plan revision consultation. The following communications between the Forest Service (NPCNF and Region 1 Forest Service) and NMFS occurred:

- The NPCNF released a Forest Plan Assessment in 2014. From 2014 through 2017, NPCNF staff shared various iterations of draft plan components for aquatic ecosystems that were intended to replace PACFISH with a similar approach. NMFS provided suggestions on the work products as they were developed.
- December 18, 2017 - The NPCNF released an open letter soliciting comments on their Proposed Components for Developing Alternatives for the Revised Nez Perce-Clearwater National Forests Plan ("Revised Plan"), which included draft standards, guidelines and desired conditions for all forest programs.
- February 23, 2018 – NMFS sent a letter to USFS describing deficiencies in draft plan direction for protecting and restoring critical habitat for listed salmon and steelhead.
- Winter 2018 - The USFS Region 1 and the NPCNF convened a working group to revise the proposed plan direction for riparian and aquatic resources. The working group

included representatives from the Forest Service, NMFS, USFWS, Idaho Department of Fish and Game (IDFG), and the Nez Perce Tribe (NPT). The working groups developed proposed Desired Conditions, Guidelines, Standards, and goals for Revised Plan components affecting streams and riparian areas that were included in the Draft Environmental Impact Statement (DEIS).

- July 16, 2021 – NMFS received a preliminary draft BA from the NPCNF that contained a nearly complete set of standards, guidelines, and desired conditions for riparian and aquatic resources that were developed through the working group. Weekly or bi-weekly teleconferences were started to refine content in the BA and to discuss issues identified by NMFS and other parties while reviewing the BA.
- January 25, 2022 – NMFS received a final draft BA that included standards, guidelines, and desired conditions for all forest resources and the most recent version of appendices regarding monitoring and Management Approaches for riparian and aquatic resources.
- September 9, 2022 – NMFS provided NPCNF with an evaluation of, and suggestions regarding the draft Plan based on the 2014 Interior Columbia Basin Ecosystem Management Project (ICBEMP) Framework for aquatic conservation in land management plans.
- November 28, 2022 – NMFS received a request for formal consultation and NMFS responded with a December 28, 2022 letter stating there was insufficient information to initiate consultation.
- February 2023 to June 2023 – United States Forest Service (USFS) Region 1 and NMFS convened a regional technical team to address NMFS’s concerns with/suggestions for the draft Plan. NMFS accepted the final BA on June 23, 2023, and initiated consultation for both the ESA and for EFH.
- The consultation under the ESA is for the following species and their associated critical habitats: Snake River Basin steelhead (*Oncorhynchus mykiss*), Snake River spring/summer Chinook Salmon (*O. tshawytscha*), Snake River fall Chinook salmon (*O. tshawytscha*), and Snake River sockeye salmon (*O. nerka*).
- The final BA determined that the proposed action would likely adversely affect the following species and their associated critical habitats: Snake River Basin steelhead (*Oncorhynchus mykiss*), Snake River spring/summer Chinook Salmon (*O. tshawytscha*), and Snake River fall Chinook salmon (*O. tshawytscha*). The final BA also determined that the proposed action would not likely to adversely affect Snake River sockeye salmon (*O. Nerka*) and its critical habitat.
- Essential Fish Habitat consultation is for Pacific Salmon.

NMFS has determined that this is a Framework programmatic as defined in the Section 7 regulations, specifically “a Federal action that approves a framework for the development of future action(s) that are authorized, funded, or carried out at a later time, and any take of a listed species would not occur unless and until those future action(s) are authorized, funded, or carried out and subject to further Section 7 consultation” (50 C.F.R. 402.02). The rule adopting this definition (FR 26832, May 11, 2015) specifically lists land management plans prepared by the Forest Service as examples of framework programmatic actions.

The Revised Plan will provide land management direction for forest resources, using both Forest-wide direction and direction specific to management areas (e.g., Riparian Management

Areas). Management direction or Plan Components consist of goals, desired conditions, objectives, and standards and guidelines that may provide conservation benefits to listed aquatic species. The Revised Plan will not propose specific projects or activities or make decisions authorizing specific projects or activities. For example, the Revised Plan will not include decisions for specific vegetation management projects or watershed restoration projects; will not authorize or carry out campground management or other recreational activities; and will not authorize any changes to current road use, or building or closing of specific roads or trails. The Revised Plan by itself does not produce the specific projects; rather, projects will be subsequently located, designed, and implemented under the guidance of the Revised Plan. Any future project that may affect listed species will receive project-level ESA Section 7 consultation.

For a framework programmatic action, an incidental take statement is not applied at the programmatic level; any incidental take resulting from any action subsequently authorized, funded, or carried out under the program will be addressed in subsequent Section 7 consultation, as appropriate. Therefore, NMFS is not providing an incidental take statement with this opinion.

Forest Plans also called Land and Resource Management Plans (LRMPs) describe the social, economic, and ecological goals of National Forests and provide a framework for future management decisions. The National Forest Management Act of 1976 requires each National Forest to prepare a Plan and revise it every 15 years to address new economic and social conditions, new resource conditions, and new scientific information. The current Forest Plans for both the NPCNF are from 1987, and were amended in 1995 by PACFISH and INFISH. PACFISH consists of interim strategies for managing anadromous fish-producing watersheds in Eastern Oregon and Washington, Idaho, and portions of California (INFISH is a similar strategy for bull trout and other in-land fisheries). NMFS issued biological opinions on the implementation of PACFISH and effects to listed salmon and steelhead in 1995 and 1998 (NMFS 1995a, NMFS 1995b, NMFS 1998).

The Forest Service and Bureau of Land Management (BLM) developed PACFISH because they recognized that Federal land management in the Pacific Northwest had allowed activities to occur which had led to degraded fish habitat on Federally-managed lands, contributing to the decline of anadromous fish species. PACFISH was intended to be an interim strategy, expected to be in effect for approximately 18 months while long-term ecosystem-scale strategies were developed. The intent of PACFISH was to protect existing quality anadromous fish habitat and to stop habitat degradation on Federal land, thus allowing restoration of aquatic and riparian ecosystems to occur at natural rates. The Forest Service and BLM intended PACFISH to curb habitat degradation in the short term until a long-term, ecosystem-based restoration strategy could be developed to protect and restore anadromous fish-producing waters on Federal lands in the Columbia River Basin.

The listing of Snake River Basin steelhead as Threatened under the ESA in 1997 required the Forest Service to reinitiate ESA consultation on the PACFISH-amended LRMPs in the Snake Basin to address potential effects to steelhead (NMFS 1998). The Forests' planning of actions up to that point had lacked a comprehensive and coordinated approach to analyze and restore watersheds to improve survival and enable recovery of the listed anadromous species.

The Revised Plan does not completely include the measures in PACFISH or the LRMP opinions. Instead, the interagency working group and USFS worked to ensure that the Revised Plan included an aquatic conservation strategy sufficient to replace the previous interim strategies, and to ensure that management actions on Federal land carried out within the framework of the Revised Plan would minimize adverse effects to listed species as contemplated in the prior opinions.

In 2002, regional executives from the Forest Service, NMFS, and USFWS agreed that revised forest plans would include a long-term aquatic conservation strategy that would replace the PACFISH interim strategies and associated consultations. In 2003 the various agencies issued the strategy guidance for replacing PACFISH- and INFISH-amended LRMPs with more comprehensive aquatic conservation strategies. That guidance was updated with a strategy/framework, the ICBEMP in 2008 and 2014. This 2014 strategy/framework remains the current guidance among the agencies to ensure the LRMPs are comprehensive and cohesive across boundaries. It is joint interagency guidance to ensure LRMP and RMP revisions coordinate management for effective conservation of the listed fish distinct population segments (DPS), with ranges across multiple Forests and BLM Resource Areas.

The ICBEMP Framework identifies fundamental elements for revised forest plans to include when replacing PACFISH and INFISH. These elements are intended to promote and achieve conservation of aquatic and riparian resources. The elements include: (1) Designation and conservation of riparian management areas to maintain and improve riparian function; (2) designation and protection of population strongholds for listed species, proposed, or special status species; (3) multiscale analysis (i.e., watershed analysis at different spatial scales); (4) restoration priorities and guidance; (5) management direction (e.g., desired conditions, objectives, and standards and guidelines); (6) aquatic monitoring and adaptive management; and (7) consideration of climate change.

The Revised Plan contain components from the PACFISH/INFISH amended LRMPs and the 2014 strategy/framework. This includes the Conservation Watershed Network (CWN) which is a key element of the Revised Plan and included as Appendix C of the BA and management direction which provides direction similar to PACFISH/INFISH. Appendix E of the BA provides a comprehensive crosswalk between the components and direction of PACFISH versus those of the Revised Plan (e.g., comparison of standard widths for riparian habitat conservation areas bordering fish-bearing streams under PACFISH versus components in the Revised Plan) and Appendix F of the BA provides a crosswalk between the Primary Biological Factors for ESA listed aquatic species (Snake River Basin steelhead, Snake River Fall Chinook salmon, and Snake River Spring/Summer Chinook salmon) versus components in the Revised Plan.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 (“2019 Regulations,” see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court’s July 5 order. On November 14, 2022, the Northern District of California issued an order granting the government’s request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on

November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the opinion and ITS, would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

In preparing this opinion, NMFS bases its determination on information from the Revised Plan BA (NPCNF 2023), the 2023 Revised Plan, and the Final Environmental Impact Statement (EIS) for the Revised Plan provided on November 27, 2023. This information provided the basis for our determination as to whether the NPCNF can ensure their proposed action is not likely to jeopardize the continued existence of ESA-listed species, and is not likely to result in the destruction or adverse modification of designated critical habitat.

1.2.1. Coordination with Tribes

Because this action has the potential to affect tribal trust resources, NMFS and the NPT held several discussions (between Aug 2023 and Dec 2023) about the proposed action, and about NPT concerns and suggestions that NMFS and/or USFS could address through the Section 7 ESA consultation on the Revised Plan. For these discussions, NPT and NMFS referred to the same versions of the Revised Plan/proposed action the Forests had shared with us. Initially the version was June 2023 and later it was the November 2023 version published with the Final EIS and Draft Record of Decision. Some concerns that were identified by the NPT include the increase in vegetation management and the associated effects from these activities. The NPT also identified the need to continue if not increase the amount of restoration of habitat for salmon and steelhead and the need to have additional direction in the Plan Revision for tribal treaty trust with the possibility of earlier inclusion in future individual project development.

1.3 Proposed Federal Action

Under the ESA, “action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (see 50 CFR 402.02). Under the MSA, “Federal action” means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a Federal agency (see 50 CFR 600.910).

1.3.1. Overview of the Revised Plan

The proposed action is the Forest Service’s adoption and implementation of a new Revised Plan for the NPCNF. Land management plans for National Forests provide a framework and sideboards to guide decisions for all-natural resource management activities on a national forest or grassland, per the requirements of the National Forest Management Act Planning Rule. The Action Agency, the NPCNF is proposing to issue a single Land Management Plan. The existing plans for the NPCNF were completed in 1987 and have been amended multiple times. The NPCNF were consolidated in 2013. The official name of the administratively combined forests is the NPCNF. Prior to the official combination, each forest had its own land management plan. Part of implementing the consolidation included a combined Revised Plan effort, which includes the preparation of a final EIS. Revised Forest Service policies, congressional direction, court decisions, new or updated conservation agreements and recovery plans, and new scientific

findings have all highlighted that the existing forest plans are outdated and need to be revised. The Revised Plan would provide direction for the management of the Forests by guiding programs, practices, uses, and projects. The purpose of the Revised Plan is to provide an integrated set of Plan direction (or Plan components) in accordance with the 2012 Planning Rule. Activities which occur on the Forests include: Vegetation Management and the Road Network, Rangeland Management and Grazing, Minerals and Mining, Travel Management, Fire Management, Recreation Management, Lands and Special Uses, and other management direction. The Revised Plan will continue management of these various activities similar in manner to the previous plan. Although activity-specific direction is provided for each of these activities in the Revised Plan, the Revised Plan does not authorize any of these actions to occur. Therefore, detailed descriptions of these specific activities and their effects to listed species will be provided and addressed in future consultations on individual projects. Categories of activities which occur and will continue under the Revised Plan on the Forests are briefly described below. Other management direction to consider are those existing direction for specific areas (e.g. Wilderness Areas, Wild and Scenic Rivers, Idaho Roadless Areas, etc.).

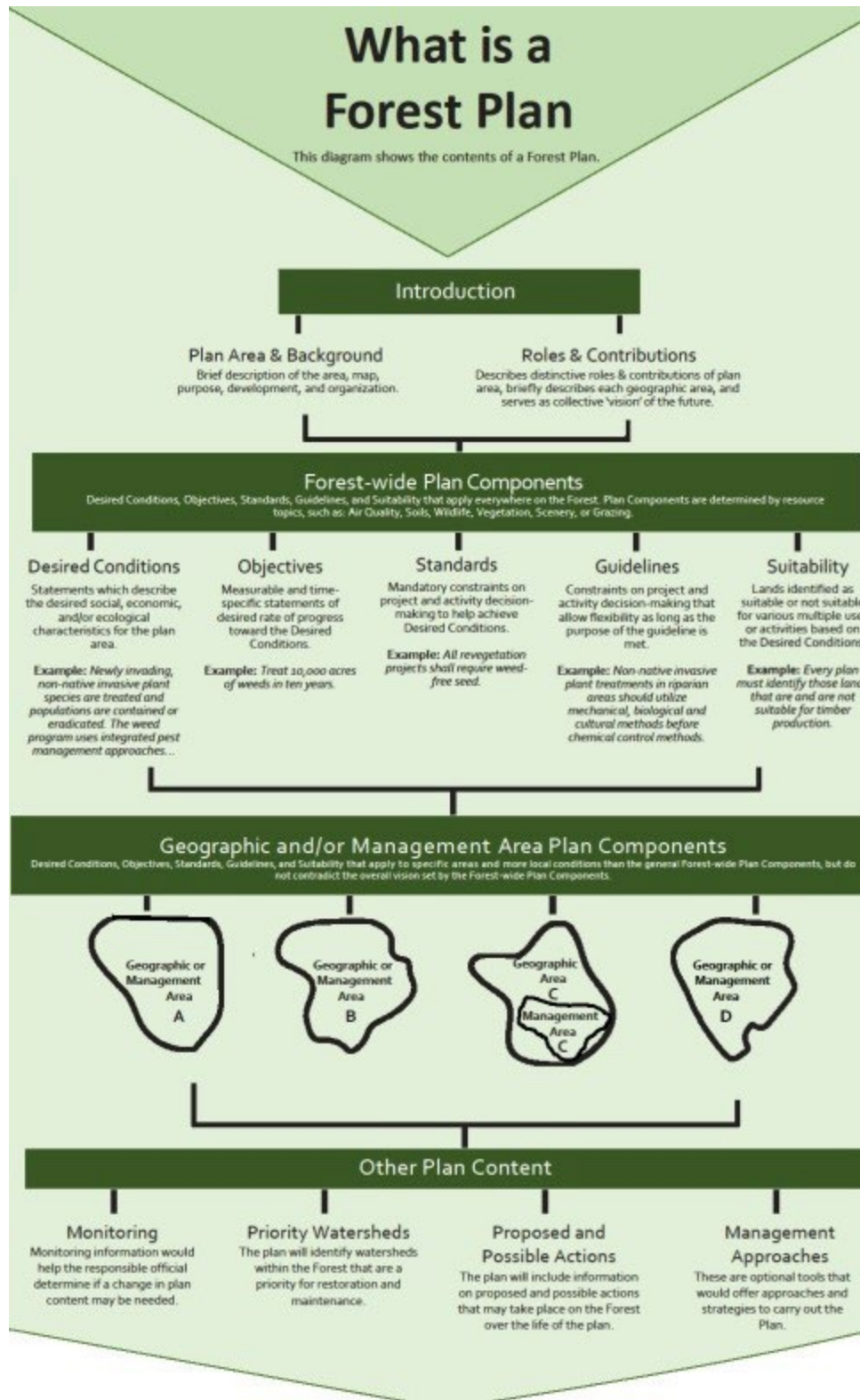


Figure 1. What is in a Forest Plan.

Vegetation Management, Fire Management, and the Road Network

- Timber harvest is being authorized up to 210 Million Board Feet (MMBF) annually with current levels of actively being 55 MMBF annually.
- Log truck trips could increase to 40,000 from 12,300 annually.
- Road miles for maintenance would increase to at least 1,400 miles annually from 1,200 miles annually with 25 percent of maintenance being performed by timber purchasers.
- Vegetation management activities would include a range of harvesting methods, temporary road construction and use, road reconstruction, and prescribed fire.
- Fire Management Activities would include non-commercial thinning, prescribed fire, and naturally ignited wildfires that would be beneficial to restoring fire adapted landscape.
- Acres for prescribed fire and broadcast burning are also anticipated to increase up to 181 percent from historical treatment acres.
- The tools the Nez Perce-Clearwater will use to move towards desired conditions include hazardous fuel reduction by mechanical treatments, such as timber harvest and hand thinning; prescribed burning; and managing natural wildfire ignitions for land management plan resource objectives. This will likely result in an increase in the amount of prescribed fire as well as an increase in the acres burned from unplanned ignitions that are characteristic for that fire regime.

Grazing

- There are 34 permittees allowed to graze 4,950 livestock on up to 612,766 acres of grazing land on the Forests on 36 active allotments.
- There are 9 vacant allotments that total 217,172 acres on the Forests.
- The primary grazing season is between June 1 through September 30.
- The Revised Plan does not include any changes to existing grazing allotment boundaries or elimination or addition of grazing allotments although the vacant allotments could become active again in the future.

Minerals and Mining

- The Forests have approximately five approved Plans of Operations for small lode and placer mining and one approved exploration activity investigating larger deposits.
- Annually, the Forests anticipate continuing to administer 40 to 50 plans of operation for suction dredging and receives 20 to 30 Notices of Intent for other types of small-scale mining. Notices of Intent generally propose small-scale mineral exploration activities that range from mineral prospecting with hand tools to small-scale placer operations.
- The Revised Plan does not propose any mineral withdrawals (mining related activities) in areas that are recommended to Congress for special designation (recommended wilderness areas and suitable wild and scenic rivers), future mineral entry withdrawals may occur in the future. Specifically, designated wilderness areas generally prohibit new mineral entry. Similarly, Wild and Scenic Rivers with a wild classification are withdrawn from new entry.

Travel Management

- The Nez Perce-Clearwater overall has 7,680 miles of forest roads accessing approximately 1,331,040 acres, or 34 percent, of the Nez Perce-Clearwater, however 49 percent of roads are maintenance Level 1 roads that are closed or in long-term storage, which means they are not currently open for motorized use. 2,003 miles, or 27 percent, are operationally maintenance Level 2 roads and are suitable for high clearance vehicles; 1,572 miles, or 20 percent, are operationally maintenance Level 3 roads and are suitable for passenger cars; 194 miles, or 3 percent, are operationally maintenance Level 4 roads and are typically two lane gravel roads suitable for passenger cars; and 113 miles, or 2 percent, are operationally maintenance Level 5 roads and are typically paved and suitable for passenger cars traveling at higher speeds.
- Routine road maintenance work, such as brushing, blading, and ditch and culvert cleaning, is periodically performed on approximately 3,900 miles of maintenance Level 2, 3, 4, and 5 roads as funding allows and, in most cases, they are kept in a drivable condition for their designed use.
- Annually, approximately 1,200 miles of road are maintained by force account, partners, and timber sales but the Revised Plan proposes to increase this maintenance rate to at least 1,400 miles per year. The approximately 3,800 miles in maintenance Level 1, which includes roads treated for intermittent stored service, do not receive routine maintenance work but may be maintained for resource protection.
- Decommissioned roads are roads that were closed permanently. Decommissioning may include recontouring, removal of the road prism, placing barriers, or other measures that ensure their closure. Since 1999 the Forests have decommissioned over 1,600 miles of roads with the majority occurring on the former Clearwater National Forest administrative unit.
- While the Revised Plan will not make any site-specific travel management decisions on the ground, the Revised Plan will provide the programmatic framework under which future travel management decisions will be made. Travel Plans and any travel decisions in individual projects would be required to be consistent with the Revised Plan direction including all desired conditions, guidelines, and suitability of uses plan components.

Recreation

- The Forests provide and manage a variety of recreational opportunities: campsites, vistas, parking areas, dispersed camping, boating, mushroom and berry picking, hunting, and fishing.
- Recreation activities are distributed across most areas of the Forests and are often categorized into two descriptions: developed recreation and dispersed recreation.
- Developed recreation occurs in settings that have been created or constructed for specific recreational purposes on the national forest, such as overnight campgrounds, picnic sites, rental cabins, visitor centers, interpretive trails with display panels, organizational camps, and special use permitted recreation residence tracts.
- Dispersed recreation occurs across the NPCNF where there is little or no infrastructure or facilities except roads and trails. Activities include hiking, bird watching, driving for pleasure, rock and ice climbing, boating, hunting, fishing, horseback riding, berry picking, backcountry skiing, snowmobiling, camping, and motorized and mechanized

trail use. Dispersed camping occurs in the general NPCNF area that has little, or no Forest Service facilities provided, often where there is repeated dispersed use.

- Recreation trends will continue to evolve over time and visitor use will likely increase as the population increases.

Lands and Special Uses

- The Nez Perce-Clearwater administers multiple types of non-recreation lands uses authorized by permits, term-permits, leases, and easements ranging from research activities to more extensive uses such as water systems, communications facilities, roads, and utilities. Over half of the 389 currently issued land use authorizations are for transportation purposes, such as highways and roads for private land access, and water systems serving private property, such as ditches and water lines.
- Other land use authorizations include: agriculture, public meetings/events, industry, energy and gas transmission, communication uses, water or water transmission, and cultural resources and /or historical feasibility.

Other Management

The Wilderness Act and Designated Wilderness

- Approximately 1,139,059 acres, just under 30 percent, of the Nez Perce-Clearwater National Forest is within three designated wildernesses. Portions of the Frank Church–River of No Return, portions of the Selway-Bitterroot, and the Gospel Hump wilderness areas lie within the Nez Perce-Clearwater.

The National Wild and Scenic Rivers Act and Designated Wild and Scenic Rivers

- Congress passed the National Wild and Scenic Rivers System Act in 1968 for the purpose of preserving rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The act promotes river management across political boundaries and public participation in developing goals for river protection. Management of the existing Wild and Scenic Rivers enhances and protects habitats for future grizzly bear occupancy within wild and scenic river corridors. Designated wild and scenic river distribution will not change in the Revised Plan. Instead, the Revised Plan will set management direction for these rivers and their corridors.
- The Nez Perce-Clearwater has three designated Wild and Scenic Rivers: Middle Fork Clearwater River, Salmon River, and Rapid River. The Middle Fork Clearwater includes portions of the Lochsa and Selway Rivers. On the Nez Perce-Clearwater, designated rivers include 64 miles of the Lochsa River from the Powell Ranger Station to Lowell, Idaho; 58 miles of the Selway River from the Nez Perce National Forest boundary with the Bitterroot National Forest near Goat Creek to Lowell, Idaho; and 23 miles of the Middle Fork Clearwater River from Lowell, Idaho, to the Upper Kooskia Bridge in Kooskia, Idaho.

Idaho Roadless Rule Areas

- Idaho Roadless Areas contribute substantially to the continued existence of large, intact forested ecosystems in the lower 48 states. The USFS adopted a state-specific, final rule establishing management direction for designated roadless areas in the State of Idaho.

The final rule designated 250 Idaho Roadless Areas (IRAs) and establishes five management themes that provide prohibitions with exceptions or conditioned permissions governing road construction, timber cutting, and discretionary mineral development. The NPCNF contains approximately 1,481,565 acres of Idaho Roadless Rule area.

The Revised Plan includes Plan Components, or management direction, in the form of goals, desired conditions, objectives, management areas and suitable uses, standards and guidelines, and monitoring and evaluation. Appendix A of the BA and Appendix 4 of the Revised Plan also describe Management Approaches such as the Multiscale Analysis and the Stream Condition Indicators. Management Approaches are not a commitment by the Forests to implement actions but a voluntary process that might assist in maintaining and/or moving towards a Desired Condition. Appendix C describes the CWN, and Appendix D contains specific information from the Monitoring Plan for the Revised Plan. Together the information contained in relevant Plan Components and these appendices to the BA describe the full management direction of the Revised Plan. A Final Plan was provided for public objection on November 27, 2023 (this contained updated information in the form of Appendixes and Plan Components) and is located on the following website:

<https://www.fs.usda.gov/detail/nezperceclearwater/landmanagement/planning/?cid=fseprd1150054>

The Interior Columbia Basin Strategy (BLM et al. 2014) or ICBEMP Framework is a long-term strategy that has several key components: (1) designation and conservation of riparian management areas to maintain and improve riparian function; (2) designation and protection of population strongholds for listed species, proposed, or special status species; (3) multiscale analysis; (4) restoration priorities and guidance; (5) management direction; (6) aquatic monitoring and adaptive management; and (7) consideration of climate change. NMFS believes that these components are important for the conservation of listed anadromous species. In this section we summarize the components of the Revised Plan, focusing on the elements described in the ICBEMP Framework 2014.

We focus our description of the Proposed Action on the various Plan Components with a focus on the management direction because they contain direction or sideboards that determine the level and type of impacts that future site-specific projects developed under the Revised Plan could have on listed fish and their habitat. Management approaches are option tools that would offer approaches and strategies to carry out the plan and could provide conservation benefits when implemented. The BA and the Final Forest Plan (November 2023) and their associated appendixes provide more detail on all components of the Revised Plan.

1.3.2. Riparian Management Zones

Management areas—such as Wilderness, Wild and Scenic Rivers, or General Forest—are spatially distinct areas within the Forests with unique direction and desired conditions under the Revised Plan. For ESA-listed salmon and steelhead, the most important management area designation is Riparian Management Zones (RMZs). The Revised Plan’s approach to riparian area management involves establishment of RMZs to protect and restore water quality, habitat for a wide range of aquatic and terrestrial species, and critical ecological processes. In the Revised Plan, proposed RMZs predominately remain the same as riparian habitat conservation

areas (RHCAs) in PACFISH/INFISH, although Category 4 RMZs can provide a larger buffer than what was offered in PACFISH/INFISH.

Riparian Management Zones are defined as and shall be delineated on the ground based on the following site conditions:

Category 1 - Fish-bearing streams: Riparian Management Zones consist of: the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge; or to the outer edges of the 100-year floodplain; or to the outer edges of riparian vegetation; or to a distance equal to the height of two site-potential trees; or 300 feet slope distance equaling 600 feet total, including both sides of the stream channel, whichever is greatest. If a stream contains fish at any time of the year, then this riparian management zones definition would be applied to that stream.

Category 2 - Permanently flowing non-fish bearing streams: Riparian Management Zones consist of: the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge; or to the outer edges of the 100-year floodplain; or to the outer edges of riparian vegetation; or to a distance equal to the height of one site-potential tree; or 150 feet slope distance equaling 300 feet total, including both sides of the stream channel, whichever is greatest.

Category 3 - Constructed ponds and reservoirs, and wetlands greater than one acre: Riparian Management Zones consist of: the body of water or wetland and the area to the outer edges of the riparian vegetation; or to the extent of seasonally saturated soil; or the extent of unstable and potentially unstable areas; or to a distance equal to the height of one site-potential tree; or 150 feet slope distance from the edge of the wetland greater than one acre; or the maximum pool elevation of constructed ponds and reservoirs, whichever is greatest.

- Lakes and natural ponds: Riparian Management Zones consist of: The body of water and the area to the outer edges of the riparian vegetation; or to the extent of seasonally saturated soil; or to the extent of unstable and potentially unstable areas; or to a distance equal to the height of one site-potential tree; or 150 feet slope distance, whichever is greatest.

Category 4 - Seasonally flowing or intermittent streams, wetlands, seeps, and springs less than one acre, and unstable or potentially unstable areas:

This category applies to features with high variability in size and site-specific characteristics. At a minimum, the riparian management zones should include:

- The extent of unstable and potentially unstable areas including earthflows.
- The stream channel extending to the top of the inner gorge.
- The stream channel or wetland, and the area from the edges of the stream channel or wetland to the outer edges of the riparian vegetation to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest. A site-potential tree height is the average maximum height of the tallest dominant trees for a given site class.
- Intermittent streams are defined as any non-permanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two physical criteria. Fish-

bearing intermittent streams are distinguished from non-fish-bearing intermittent streams by the presence of any species of fish for any duration. Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams, or travel routes for fish emigrating from lakes. In these instances, the guidelines for fish-bearing streams would apply to those sections of the full-extent of intermittent stream used by the fish from the mouth to the upper-most point of fish use.

There are specific Plan Components that are discussed in more detail below, in 1.3.6 Management Direction, that promote the conservation of RMZs. Riparian Management Zones are not 'exclusion zones' but areas where potential management actions could occur if needed to move the riparian area towards a desired condition. This could be accomplished by plan components that establish an inner zone and an outer zone within RMZs to refine management options and still meet RMZ desired conditions. Specific Plan Components to conserving RMZs are provided below:

FW-DC-RMZ-01. Riparian Management Zones reflect a natural composition of native flora and fauna and a distribution of physical, chemical, and biological conditions as compared to reference conditions. The species composition and structural diversity of native plant communities in riparian management zones provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration. Nutrients, large woody debris, and fine particulate organic matter are supplied in amounts and distributions sufficient to sustain physical complexity and stability.

FW-DC-RMZ-02. Riparian Management Zones feature key riparian processes and conditions that function consistent with local disturbance regimes, including slope stability and associated vegetative root strength, wood delivery to streams and within the riparian management zones, input of leaf and organic matter to aquatic and terrestrial systems, solar shading, microclimate, and water quality.

FW-OBJ-RMZ-01. Improve 300 to 700 acres of riparian habitat every 5 years, through improvements that are intended to meet desired conditions for riparian management zones, such as road obliteration, riparian planting, hardwood restoration, post assisted log structures, beaver dam analogs, and reconnecting floodplains by removing road prisms or berms.

FW-OBJ-RMZ-02. On an annual basis, a minimum of 10 percent of trees harvested in the portions of the RMZ beyond 150 feet (RPZ Category 1) and beyond 100 feet (RMZ Categories 2 and 3) from the edge of the active stream channel are used for aquatic stream restoration either on-site or off-site to contribute large wood to stream channels.

FW-STD-RMZ-01. Vegetation management shall only occur, in riparian management zones from the edges of the active stream channel to within 150 feet within RMZ Category 1 and to the edges of the active stream channel to 100 feet within RMZ Category 2, 3, and 4, in order to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, small

diameter (e.g., sapling, pole) conifer thinning, may be authorized as long as aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer RMZs to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer RMZ including sediment filtering, large wood recruitment to streams, and protection of the inner RMZ from windthrow. Vegetation management in RMZ shall not retard attainment of aquatic and riparian desired conditions.

FW-STD-RMZ-02. Staging of vehicles or heavy equipment, refueling, and fuel storage shall be located outside of riparian management zones to avoid water contamination. If no other location is appropriate and refueling or storage is needed within riparian management zones, locations must be approved by the Timber Contracting Officer, Contracting Officer, or their designee and have an approved spill containment plan.

FW-STD-RMZ-03. Herbicides, pesticides, and other toxicants and chemicals shall only be applied within riparian management zones when the activity does not retard attainment of aquatic and riparian desired conditions.

FW-STD-RMZ-04. Fuelwood cutting shall not be authorized within 150 feet of the stream edge.

FW-STD-RMZ-05. Trees felled for safety shall be retained onsite unless in excess of what is needed to achieve aquatic and riparian desired conditions. Trees shall be directionally felled towards or into streams, where it is safe and practical to do so. Trees felled within developed recreation sites or administration sites may be moved but must still remain within the RMZ. If aquatic and riparian desired conditions for wood are met at the site, surplus wood can be transported to other aquatic and riparian restoration project sites. Exceptions to this standard are allowed in developed recreation and administrative sites where needed to address concerns for human safety or infrastructure and when not practicable to leave on site.

FW-STD-RMZ-06. Direct ignition of low severity prescribed fire in RMZ is allowed to achieve or maintain desired conditions so long as:

- direct ignition within the RMZ will not retard attaining water, aquatic and riparian desired conditions;
- direct ignition within the RMZ maintains or enhances existing stream conditions, and effects to threatened or endangered species and their designated critical habitat are considered.

FW-STD-RMZ-08. New road and landing construction, including temporary roads and mechanical trail construction, shall not be constructed in riparian management zones except where:

- needed for the implementation of restoration projects, or
- necessary for stream crossings, or

- a road or trail relocation contributes to attainment of aquatic and riparian desired conditions, or
- a road or trail inside the RMZ would greatly reduce the total ecological, cultural or social impacts of an existing or proposed route outside the RMZ, or
- Forest Service authorities are limited by law or regulation (e.g., General Mining Act of 1872).

FW-STD-RMZ-09. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum shall be avoided in mapped aerial retardant avoidance areas.

FW-STD-RMZ-10. New incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities shall be located outside of riparian management zones. When no practical alternative exists, measures shall be taken to restore riparian features that were impacted by the activities.

FW-GDL-RMZ-01. New landings, skidding, staging, or decking and machine burn piling should be located outside riparian management zones to minimize effects to riparian and aquatic resources. Where new activities inherently must occur in riparian management zones, locate them so that they do not degrade or retard aquatic and riparian desired conditions.

FW-GDL-RMZ-03. To prevent damage to stream channels, yarding activities should achieve full suspension over the active channel.

FW-STD-RMZ-09. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should be avoided in mapped aerial retardant avoidance areas in order to minimize impacts to the riparian management zones and aquatic resources.

FW-STD-RMZ-10. To minimize adverse effects to ESA listed species, riparian areas, aquatic habitat, and riparian dependent species, new incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities should be located outside of RMZs. When no practical alternative exists, measures to maintain, restore, and enhance riparian areas, stream habitat, and riparian dependent species should be used.

FW-GDL-RMZ-06. To minimize sediment delivery and adverse effects to stream channels, construction of machine fire line in riparian management zones should be avoided, except where needed to cross streams.

FW-GDL-RMZ-07. To reduce sediment delivery to streams during or after fire suppression activities, disturbed areas in riparian management zones, such as fire lines, drop-points, camps, roads, and trails, should be restored by actions such as scattering slash piles, replacing logs and boulders, scarifying soils, re-contouring terrain, and reseeded with native species.

FW-GDL-RMZ-08. To maintain water quality, pumping directly from a stream channel should be avoided if chemical products are to be directly mixed with water being

withdrawn. When chemicals are used, pumping should be conducted from a fold-a-tank that is located outside the riparian management zones.

FW-GDL-RMZ-09. New saleable sand and gravel mining and extraction should not occur within riparian management zones, to minimize ground disturbance and sediment inputs, and avoid adverse effects to riparian vegetation and water temperature.

There is additional direction that can promote conservation of RMZs for each resource type, program, or activity and are discussed in more detail in 1.3.6 Management Direction.

1.3.3. Conservation Watershed Network

The CWN plan components are intended to provide a pattern of protection across the landscape in which the habitat of listed salmon and steelhead and species of conservation concern receives special attention and treatment. Hydrologic unit code 12 (HUC12) sub-watersheds in the CWN form a network of existing or historic population strongholds and habitats with high potential for productivity and fish abundance. There are 245 HUC12 sub-watersheds within or directly adjacent to the Forests. Eighty-one of these sub-watersheds were identified as CWNs because they met three or more of the inclusion criteria. A list of the sub-watersheds in the CWN are in Appendix C of the BA or Appendix K of the Final Environmental Impact Statement. Criteria used to identify CWN sub-watersheds include (must meet at least three of the five):

1. A major or minor spawning area for Snake River Basin steelhead or Snake River spring and summer Chinook salmon or both identified in the Snake River Recovery Plan.
2. Designated critical habitat for one or more ESA listed fish species occurs in at least 25 percent of the stream (HUC12) network. Examples include the Columbia River bull trout, Snake River steelhead trout, and Snake River fall Chinook Salmon.
3. Climate Shield modeled reaches that have a year 2040 bull trout probability of occurrence greater than 25 percent.
4. A local bull trout population identified in the final Columbia River Bull Trout Recovery Plan.
5. Important spawning and rearing habitat for species of conservation concern.

The CWNs were designed to include important areas for listed fish and important connectivity between these areas to create a network of aquatic conservation emphasis.

The Revised Plan has an additional element of smaller, but special emphasis areas called priority watersheds. These were identified through a different set of criteria and for a different purpose from the CWN. These five HUC12 sub-watersheds identified as priority watersheds are identified for a combination of terrestrial and aquatic restoration emphasis from the outset of the Revised Plan. Additional priority watersheds will be identified later after work in these five is completed. There are specific Plan Components that are discussed in more detail in 1.3.6 Management Direction that promote the conservation of population strongholds. Specific Plan Components for conserving CWN are provided below.

FW-DC-CWN-01. Conservation Watershed Networks have functionally intact ecosystems that provide high-quality water and contribute to and enhance the conservation of aquatic species of conservation concern and recovery of threatened or endangered fish species.

FW-DC-CWN-02. Streams within the CWN provide habitat that supports robust native fish populations, which can expand to and recolonize adjacent unoccupied habitats. These areas conserve key demographic processes likely to influence the sustainability of aquatic species.

FW-DC-CWN-03. Roads in the CWN present minimal risk to aquatic resources.

FW-OBJ-CWN-01. Conservation Watershed Networks are the highest priority for restoration actions for native fish and other aquatic species. Assess 500 miles of roads every 5 years to identify those roads, regardless of maintenance level, that may negatively impact streams, such as contributing excessive sediment or altering riparian areas or floodplains.

FW-OBJ-CWN-02. Stormproof 15 percent of roads in CWN prioritized for restoration every 5 years as funding allows to benefit threatened and endangered aquatic species. Emphasize roads with greatest risk of erosion and road prism failure, including maintenance Level 1 and 2 roads.

FW-STD-CWN-01. In CNWs not meeting aquatic and riparian desired conditions, activities shall be designed and implemented in a manner that supports and/or contributes towards the recovery of federally listed species and the achievement of these desired conditions and does not retard them when evaluated at the HUC12 sub-watershed scale. Short-term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species.

1.3.4. Multiscale Analysis – Management Approach

Multiscale analysis is included as part of Appendix A of the BA and also in Appendix 4 of the Revised Plan. Management Approaches are not a commitment by the Forests to implement actions but a voluntary process that might assist in maintaining and/or moving towards a Desired Condition. The use of Multiscale Analysis could provide the context and identify needs for project activities to restore aquatic and riparian habitat, as well as the context and the role those activities play in the recovery of federally listed aquatic species. Multiscale Analysis could result in recommendations for conservation measures for aquatic species by considering data from different spatial scales and informing project effects analyses.

The Stream Conditions Indicator Assessment (SCIA) is intended to be integrated into the Multiscale Analysis, at the HUC12 scale, and be incorporated into recommendations for conservation measures for aquatic species by considering data from different spatial scales and informing project effects analyses. A short discussion is provided in Appendix A of the BA with a longer discussion in Appendix 4 of the Revised Plan.

The SCIA is intended to be used during project development and provides an assessment of project effects to assist in determining whether projects meet a standard or not. During project development, use of the SCIA would provide an indication of whether or not aquatic and riparian habitats are meeting desired conditions, as well as describe the existing hydrologic and sediment regimes and floodplain function. Current conditions would be assigned to one of the three categories of Functioning at High Level, Function at Moderate Level, or Functioning at Low Level.

The six-step framework for implementing Multiscale Analysis consists of the following steps:

1. Identify and map locations of listed native fish and species of conservation concern fish populations, and critical habitat to determine areas of greatest concern within the project area.
2. Coarse Filter - Identify Limiting Factors within Project Area
3. Medium Filter – Stream Condition Indicator Assessment (SCIA)
4. Fine Filter – Field Verification of Conditions & Multiscale Analysis Questions
5. Identify Conservation/Restoration Actions
6. Effectiveness Monitoring

1.3.5. Aquatic Restoration Priorities and Guidance

Aquatic restoration priorities and guidance are inherently embedded in Objectives in the CWN, Priority Watersheds, and the Revised Plan Components that promote the conservation of RMZs.

Identification of priority watersheds is a requirement of the 2012 planning rule and the NPCNF has chosen to use the Watershed Condition Framework (WCF) to inform that prioritization. The WCF was designed in 2011 to establish a nationally consistent method for evaluating watersheds and provide a comprehensive approach for proactively implementing integrated restoration (terrestrial and aquatic) on priority watersheds on national forests and grasslands. A watershed restoration action plan (WRAP) must be completed for every watershed identified as a priority watershed under the WCF program that specifically identifies restoration actions needed to improve the overall watershed rating. The scope of the WCF program is broad and encompasses all Forest Service activities that contribute to improved watershed condition, including soil and water improvements, vegetation management, invasive species treatment, range management, wildlife and fisheries habitat restoration, road improvements, road decommissioning, and other activities. The intent is to utilize a holistic approach to treat whole sub-watersheds from “ridge-top to ridge-top” to improve overall watershed condition. Priority areas for potential restoration activities could change quickly because of events such as wildfire or the introduction of invasive species. Therefore, the 2012 planning rule includes priority watersheds as plan content, so that an administrative change could be used to quickly respond to changes in priority. Watersheds that are designated as a priority for maintenance or restoration in the Revised Plan include:

- Upper Elk Creek (Hydrologic Unit Code (HUC) 12 #170603080701)
- Upper Clear Creek (HUC12 #170603040102)
- Upper Little Slate Creek (HUC12 #170602090301)
- Musselshell Creek (HUC12 # 170603060202)
- Lower Crooked River (HUC12 # 170603050302)

Future priority watersheds will be determined throughout the life of this plan. Priority watersheds identified would require the development of a watershed restoration action plan as well as other restorations.

Below are examples of Objectives in the Revised Plan's Water, Riparian Management Zone and Conservation Watershed Network sections. Examples of objectives that directly support restoration are identified below.

FW-OBJ-WTR-02. Enhance or restore 50 to 100 miles of stream habitat within naturally unconfined channels every 5 years to maintain or restore structure, composition, and function of habitat for fisheries and other aquatic species in streams with legacy effects that caused channels to become straightened or incised, impaired beaver habitat, or diminished floodplain capacity. Activities include, but are not limited to, berm removal, large woody debris placement, streamside road decommissioning, riparian planting, beaver dam analogs, and process-based restoration/floodplain restoration.

FW-OBJ-WTR-03. Enhance or restore stream habitat on 5 miles, every 5 years, in naturally confined channels to maintain or restore step pool structure, composition, and function of habitat for fisheries and other aquatic species. Activities include, but are not limited to improving stream complexity, large wood debris or boulder placement, and riparian planting.

FW-OBJ-WTR-04. Reconnect 10 to 20 miles of habitat in streams every 5 years where passage barriers created by roads or culverts are limiting the distribution of fish or other aquatic species of concern.

FW-OBJ-WTR-05. Improve soil and watershed conditions on 3,000-4,000 acres every 5 years, emphasizing actions in priority watersheds and CWN watersheds. This includes non-system road decommissioning.

FW-OBJ-RMZ-01. Improve 300 to 700 acres of riparian habitat every 5 years, through improvements that are intended to meet desired conditions for riparian management zones, such as road obliteration, riparian planting, hardwood restoration, post assisted log structures, beaver dam analogs, and reconnecting floodplains by removing road prisms or berms.

FW-OBJ-CWN-01. Conservation Watershed Networks are the highest priority for restoration actions for native fish and other aquatic species. Assess 500 miles of roads every 5 years to identify those roads, regardless of maintenance level, that may negatively impact streams, such as contributing excessive sediment or altering riparian areas or floodplains.

There are various objectives that identify active restoration of stream habitat with a minimum of either stream miles restored or acres of riparian habitat restored every 5 years. In addition, for those sub-watersheds identified as part of the CWN, roads would be assessed to assist in identifying potential restoration actions for native fish and other aquatic species.

1.3.6. Management Direction – Plan Components

Management Direction or Plan Components consist of goals, desired conditions, objectives, and standards and guidelines. Most Plan Components that promote conservation of listed aquatic species are found in the Water (WTR), RMZ, CWN, or Aquatic and Riparian Infrastructure (ARINF) plan components. Additional Plan Components that promote the conservation of listed aquatic species can be found in other plan components such as Aquatic and Riparian Energy and Minerals (AREM), Aquatics and Riparian Livestock Grazing (ARGRZ), Aquatics and Riparian Lands and Special Uses (ARLND), and Aquatics and Riparian Recreation (ARREC).

Goals/Desired Conditions

A plan may include goals as plan components. Goals are broad statements of intent, other than desired conditions, usually related to process or interaction with the public, or in meeting common interests with other partners or government agencies. Goals are expressed in broad, general terms, but do not include completion dates. Below are examples of Goals, a complete list of Goals can be found in specific Ecosystems or Programs identified in the November 2023 Final Plan.

FW-GL-WTR-02. The Nez Perce-Clearwater builds and maintains partnerships to fund and implement projects that result in improved water quality and watershed and stream conditions.

FW-GL-CWN-01. The Nez Perce-Clearwater works with the Nez Perce Tribe, State of Idaho, NMFS, USFWS, and other governmental organizations to plan and implement projects that contribute to recovery goals for aquatic species listed under the Endangered Species Act and their designated critical habitat, such that protective measures under the Act are no longer necessary.

A desired condition is a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined but must not include completion dates (36 CFR 219.7(e)(1)(i)). Desired conditions are not commitments or final decisions approving projects and activities. The desired condition for some resources may currently exist, but for other resources they may only be achievable over a long time period.

Examples of Desired Conditions are provided below. A complete list of Desired Conditions can be found in specific Ecosystems or Programs identified in the November 2023 Final Plan.

FW-DC-WTR-01. National Forest System lands provide the distribution, diversity, and complexity of watershed and landscape-scale features including natural disturbance regimes and the aquatic and riparian ecosystems to which species, populations, and communities are uniquely adapted. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity.

FW-DC-WTR-06. Sediment delivery to streams is of the types, quantities, and rates that support the natural instream sediment transport and storage rates and instream sediment substrate composition. The sediment regime in water bodies is not chronically affected by management activities to the extent that the availability of functioning spawning areas and interstitial spaces are reduced.

FW-DC-RMZ-01. Riparian Management Zones reflect a natural composition of native flora and fauna and a distribution of physical, chemical, and biological conditions as compared to reference conditions. The species composition and structural diversity of native plant communities in riparian management zones provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration. Nutrients, large woody debris, and fine particulate organic matter are supplied in amounts and distributions sufficient to sustain physical complexity and stability.

FW-DC-CWN-03. Roads in the CWN present minimal risk to aquatic resources.

Objectives

An objective is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets. Objectives describe the focus of management in the Revised Plan area within the plan period. Objectives will occur over the life of the Revised Plan, considered to be over the first 15 years of plan implementation, unless otherwise specified. Objectives can be forest wide or specific to management areas or geographic areas.

It is important to recognize that objectives were developed considering historic and expected budget allocations as well as professional experience with implementing various resource programs and activities. It is possible that objectives could either exceed or not meet a target based upon a number of factors, including budget and staffing increases or decreases, increased or decreased planning efficiencies, and unanticipated resource constraints. Some objectives have been discussed above as part of restoration but the Revised Plan contains other objectives that promote the conservation of ecological function. Below are examples of Objectives, a complete list can be found in specific Ecosystems or Programs identified in the November 2023 Revised Plan.

FW-OBJ-TBR-01. Offer 190-210 million board feet timber per year.

FW-OBJ-TE-01. Restore hardwood overstory and understory species or allow disturbance processes, such as fire or other disturbance, on 3,000 to 4,200 acres of riparian areas every 5 years.

FW-OBJ-WTR-01. Complete the actions identified in watershed restoration action plans for 15 priority watersheds as identified under the Watershed Condition Framework process every 15 years.

FW-OBJ-CWN-02. Stormproof 15 percent of roads in Conservation Watershed Network prioritized for restoration every 5 years as funding allows to benefit threatened and endangered aquatic species and municipal watersheds. Emphasize roads with greatest risk of erosion and road prism failure, including maintenance Level 1 and 2 roads.

FW-OBJ-ARREC-01. Remove, relocate, or mitigate two existing dispersed recreation sites, outside of riparian management zones every 5 years.

FW-OBJ-INF-01. Complete 600 miles of road work, such as reconstruction; re-routing; road improvements; decommissioning; or placing roads in intermittent stored service, every 5 years. Priorities shall include reducing effects on desired aquatic and riparian conditions from chronic sediment delivery or potential future road prism failures, including previously decommissioned roads where drainage features have failed.

FW-OBJ-INF-02. Annually maintain 1,400 miles of operational maintenance Level 2 through 5 roads.

FW-OBJ-CWN-01. Conservation Watershed Networks are the highest priority for restoration actions for native fish and other aquatic species. Assess 500 miles of roads every 5 years to identify those roads, regardless of maintenance level, that may negatively impact streams, such as contributing excessive sediment or altering riparian areas or floodplains.

Various Objectives identified an amount of activities that are expected to occur on a regular basis and can indicate a level of effects would occur (see FW-OBJ-TBR-01). Objectives can also identify a level of conservation effort that could occur.

Standards and Guidelines

A standard is a mandatory constraint on project and activity decision-making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements [36 CFR 219.7(e)(1)(iii)]. Standards can be developed for forest wide application or be specific to a management area or geographic area. A project or activity must be consistent with all standards applicable to the type of project or activity and its location in the planning area. A project or activity is consistent with a standard when its design is in exact accord with the standard; variance from a standard is not allowed except by Forest Plan amendment.

A guideline is a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements [36 CFR 219.7(e)(1)(iv)]. A guideline can be forest wide or specific to a management area or a geographic area. Guidelines serve the same purpose as standards, but they differ from standards in that they provide flexibility in defining compliance, whereas standards are absolute constraints.

A project or activity is consistent with a guideline in either of two ways:

1. The project or activity is designed exactly in accord with the guideline; or,
2. When the project design varies from the exact wording of a guideline, project documentation must specifically explain how the project design is as effective in meeting the purpose of the guideline. Under this circumstance, a plan amendment is not required. However, if a project or activity is not designed to meet the purpose of a guideline, an amendment to the plan is required.

Provided below is a selection of important standards and guidelines for the conservation of aquatic listed species. A complete list of standards and guidelines can be found in specific Ecosystems or Programs identified in the November 2023 Final Plan.

FW-STD-WTR-04. Where aquatic and riparian desired conditions are being achieved, projects shall maintain those conditions. Where aquatic and riparian desired conditions are not yet achieved, and to the degree that project activities would contribute to those conditions, projects shall restore or not retard attainment of desired conditions. Short-term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species. Exceptions to this standard include situations where Forest Service authorities are limited (1872 Mining Law, state water right, etc.). In those cases, project effects shall not retard attainment of desired conditions for watersheds, to the extent possible within Forest Service authorities.

FW-STD-WTR-07. Large woody debris shall not be removed from stream channels or floodplains unless it threatens public safety, such as fire ingress/egress; critical infrastructure, such as mid-channel bridge piers; or for the implementation of restoration projects when there will be a net increase in the amount of woody debris in the RMZ post project.

FW-STD-RMZ-01. Vegetation management shall only occur, in riparian management zones from the edges of the active stream channel to within 150 feet within RMZ Category 1 and to the edges of the active stream channel to 100 feet within RMZ Category 2, 3, and 4, in order to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, small diameter (e.g., sapling, pole) conifer thinning, may be authorized as long as aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer RMZs to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer RMZ including sediment filtering, large wood recruitment to streams, and protection of the inner RMZ from windthrow. Vegetation management in RMZs shall not retard attainment of aquatic and riparian desired conditions.

FW-STD-CWN-01. In Conservation Network Watersheds not meeting aquatic and riparian desired conditions, activities shall be designed and implemented in a manner that supports and/or contributes towards the recovery of federally listed species and the

achievement of these desired conditions and does not retard them when evaluated at the HUC12 sub-watershed scale. Short-term adverse effects from project activities may occur when these activities support the long-term recovery of aquatic and riparian desired conditions and federally listed species.

Riparian Management Zones

FW-STD-RMZ-01. Vegetation management shall only occur, in riparian management zones from the edges of the active stream channel to within 150 feet within RMZ Category 1 and to the edges of the active stream channel to 100 feet within RMZ Category 2, 3, and 4, in order to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, small diameter (e.g., sapling, pole) conifer thinning, may be authorized as long as aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer RMZs to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer RMZ including sediment filtering, large wood recruitment to streams, and protection of the inner RMZ from windthrow. Vegetation management in RMZs shall not retard attainment of aquatic and riparian desired conditions

FW-STD-RMZ-02. Staging of vehicles or heavy equipment, refueling, and fuel storage shall be located outside of riparian management zones to avoid water contamination. If no other location is appropriate and refueling or storage is needed within riparian management zones, locations must be approved by the Timber Contracting Officer, Contracting Officer, or their designee and have an approved spill containment plan.

FW-STD-RMZ-03. Herbicides, pesticides, and other toxicants and chemicals shall only be applied within riparian management zones when the activity does not retard attainment of aquatic and riparian desired conditions.

FW-STD-RMZ-04. Fuelwood cutting shall not be authorized within 150 feet of the stream edge.

FW-STD-RMZ-05. Trees felled for safety shall be retained onsite unless in excess of what is needed to achieve aquatic and riparian desired conditions. Trees shall be directionally felled towards or into streams, where it is safe and practical to do so. Trees felled within developed recreation sites or administration sites may be moved but must still remain within the RMZ. If aquatic and riparian desired conditions for wood are met at the site, surplus wood can be transported to other aquatic and riparian restoration project sites. Exceptions to this standard are allowed in developed recreation and administrative sites where needed to address concerns for human safety or infrastructure and when not practicable to leave on site.

FW-STD-RMZ-06. Direct ignition of low severity prescribed fire in RMZ is allowed to achieve or maintain desired conditions so long as:

- direct ignition within the RMZ will not retard attaining water, aquatic and riparian desired conditions;
- direct ignition within the RMZ maintains or enhances existing stream conditions, and effects to threatened or endangered species and their designated critical habitat are considered.

FW-STD-RMZ-08. New road and landing construction, including temporary roads and mechanical trail construction, shall not be constructed in riparian management zones except where:

- needed for the implementation of restoration projects, or
- necessary for stream crossings, or
- a road or trail relocation contributes to attainment of aquatic and riparian desired conditions, or
- a road or trail inside the RMZ would greatly reduce the total ecological, cultural or social impacts of an existing or proposed route outside the RMZ, or
- Forest Service authorities are limited by law or regulation (e.g., General Mining Act of 1872).

FW-STD-RMZ-09. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum shall be avoided in mapped aerial retardant avoidance areas.

FW-STD-RMZ-10. New incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities shall be located outside of riparian management zones. When no practical alternative exists, measures shall be taken to restore riparian features that were impacted by the activities.

FW-GDL-RMZ-01. New landings, skidding, staging, or decking and machine burn piling should be located outside riparian management zones to minimize effects to riparian and aquatic resources. Where new activities inherently must occur in riparian management zones, locate them so that they do not degrade or retard aquatic and riparian desired conditions.

FW-GDL-RMZ-03. To prevent damage to stream channels, yarding activities should achieve full suspension over the active channel.

FW-GDL-RMZ-04. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should be avoided in mapped aerial retardant avoidance areas in order to minimize impacts to the riparian management zones and aquatic resources.

FW-GDL-RMZ-06. To minimize sediment delivery and adverse effects to stream channels, construction of machine fire line in riparian management zones should be avoided, except where needed to cross streams.

FW-GDL-RMZ-07. To reduce sediment delivery to streams during or after fire suppression activities, disturbed areas in riparian management zones, such as fire lines, drop-points, camps, roads, and trails, should be restored by actions such as scattering

slash piles, replacing logs and boulders, scarifying soils, re-contouring terrain, and reseeded with native species.

FW-STD-RMZ-09. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should be avoided in mapped aerial retardant avoidance areas in order to minimize impacts to the riparian management zones and aquatic resources.

FW-STD-RMZ-10. To minimize adverse effects to ESA listed species, riparian areas, aquatic habitat, and riparian dependent species, new incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities should be located outside of riparian management zones. When no practical alternative exists, measures to maintain, restore, and enhance riparian areas, stream habitat, and riparian dependent species should be used.

FW-GDL-WTR-06. Fireline's should be located and configured to minimize sedimentation to waterbodies, limit capture of overland and stream flows, and restrict development of unauthorized roads and trails. Fireline's should be restored following suppression or prescribed fire activities.

Road Use

FW-GDL-RMZ-02. To reduce the likelihood of sediment input to streams, avoid new road, trail, and landing construction, including temporary roads, in riparian management zones except where:

- a. necessary for stream crossings, or
- b. a road or trail relocation contributes to attainment of aquatic and riparian desired conditions,
- c. or Forest Service authorities are limited by law or regulation (e.g., General Mining Act of 1872). Temporary roads should be managed to protect aquatic and riparian desired conditions.

FW-STD-ARINF-01. Road maintenance and new road construction shall be designed to minimize adverse effects to threatened, endangered, proposed, or candidate aquatic species and their habitat.

FW-STD-ARINF-02. Best management practices shall be used during dust abatement applications on roads, and ensure chemicals are not applied directly to watercourses; water bodies such as ponds and lakes; or wetlands

FW-STD-ARINF-03. To reduce or prevent sediment delivery to water, on roads other than out sloped roads, road surface and fill materials shall not be side cast into streams during road construction or reconstruction, when occurring within or adjacent to riparian management zones.

FW-STD-ARINF-04. New, replacement, and reconstructed stream crossing sites such as culverts, bridges and other stream crossings shall accommodate at least the 100-year flow, including associated bedload and debris.

FW-STD-ARINF-05. When constructing or reconstructing roads, incorporating woody debris into the fill portion of the road prism shall be avoided.

FW-STD-ARINF-06. In fish bearing streams, construction, reconstruction, or replacement of stream crossings shall not impair passage of any life stages of native aquatic organisms, unless barriers are desired to maintain or prevent spread or invasion of non-native species in alignment with fish management agencies.

FW-STD-ARINF-07. In the Conservation Watershed Network and HUC12 sub-watersheds with Endangered Species Act critical habitat or listed aquatic species, when constructing or reconstructing roads, projects shall result in a net decrease in the hydrologic connectivity of the road system and stream channel network unless no further decreases are needed to meet desired conditions for Water and Aquatic Resources or Conservation Watershed Network. Treatment priority shall be given to roads or road segments that pose the greatest relative ecological risk to riparian and aquatic ecosystems. The net decrease is measured by project area.

FW-STD-ARINF-08. Culverts and bridges in fish-bearing and perennial streams shall allow for passage of fish and other aquatic and riparian dependent species through the establishment of banks inside or beneath the crossing structure and mimicking the natural channel features, unless precluded by site characteristics such as bedrock or high channel gradient.

FW-GDL-ARINF-01. Construction, reconstruction, and maintenance activities of roads, skid trails, temporary roads, and airstrips, should hydrologically disconnect the drainage system from delivering water, sediment, and pollutants to water bodies, and to prevent concentrated water from directly entering streams.

FW-GDL-ARINF-02. To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or closing roads for longer than one year, roads should be left in a hydrologically stable condition where road drainage is routed away from water resources and landslide prone areas and towards stable areas of the forest floor to provide filtering and infiltration.

FW-GDL-ARINF-03. To reduce the risk of sediment delivery from gully formation or mass wasting when closing travel routes such as roads, skid trails, and temporary roads with physical barriers (e.g., berms), drainage features should be left in a condition that will function without any maintenance for the planned duration of the closure.

FW-GDL-ARINF-04. To reduce road-related mass wasting and sediment delivery to watercourses, new and relocated roads, including skid trails and temporary roads, and other linear features should not be constructed on lands with high mass wasting potential.

FW-GDL-ARINF-05. To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites, such as culverts, bridges and other stream crossings, should be constructed to prevent diversion of stream flow out of the channels and down the road in the event the crossing is plugged or has a flow greater than the crossing was designed.

FW-GDL-ARINF-06. To maintain channel stability and reduce sediment delivery to watercourses, when reconstructing roads, fords should be hardened to protect the stream bed, banks, and approaches.

FW-GDL-ARINF-07. To reduce sediment delivery from maintenance activities, such as road blading and snow plowing, avoid side casting into streams. Care should be taken when plowing snow so as not to include road soil. Breaks should be incorporated in the snow berms to direct water off the plowed surface.

FW-GDL-ARINF-08. To avoid adverse effects to water resources, wetlands and seasonally wet meadows should be avoided when constructing new roads and landings, including temporary roads. For all roads, and where reconstruction of existing roads cannot avoid water courses and wetlands drainage features should maintain wetland functions and characteristics.

FW-GDL-ARINF-09. When constructing, reconstructing, or maintaining roads, including temporary roads, road drainage should be routed away from potentially unstable channels, fills, and hillslopes, to prevent destabilization of channels and hillslopes.

FW-GDL-ARINF-10. Transportation infrastructure should be designed to maintain natural hydrologic flow paths, including interception of surface and subsurface flow, to the extent practical. For example, streams and seeps upslope from roads should have cross-drains or relief culverts with sufficient capacity to ensure water is not routed down ditches.

Grazing

FW-STD-ARGRZ-01. Livestock grazing shall be authorized or reauthorized only when measures are included in the authorization to avoid or mitigate adverse effects to fish and riparian habitat that may result from grazing practices. Where livestock grazing is found to prevent or retard attainment of aquatic and riparian desired conditions, grazing practices shall be modified by practices such as adjusting accessibility of riparian areas to livestock, length of grazing season, stocking levels, or timing of grazing.

FW-STD-ARGRZ-02. Where livestock trailing, bedding, watering, salting, loading, off road vehicle use for managing or gathering livestock, and other related activities in RMZs are adversely affecting aquatic resources, annual operating instructions shall include measures to mitigate or relocate to other areas or times.

FW-STD-ARGRZ-03. During livestock grazing authorizations, reauthorizations, or updates to annual operating instructions, include measures to prevent trampling of fish redds of federally listed fish species and species of conservation concern.

FW-STD-ARGRZ-04. Water to new or reconstructed spring developments shall be protected from livestock trampling.

FW-GDL-ARGRZ-01. To maintain or improve riparian and aquatic conditions and achieve riparian desired conditions over time through adaptive management, new grazing authorizations and reauthorizations that contain low gradient, alluvial channels should require that end-of-season stubble height be 10 to 15 cm (4 to 6 inches) along the green line. However, application of the stubble height numeric value range should only be applied where it is appropriate to reflect existing and natural conditions for the specific geo-climatic, hydrologic, and vegetative conditions where it is being applied. Other indicators more sensitive to detecting changes to streams, including those in current ESA consultation documents, may be used if they are based on current science and monitoring data and meet the purpose of this guideline. Long-term monitoring and evaluation should be used to adapt this numeric range or the use of other indicators.

FW-GDL-ARGRZ-02. To maintain water quality and minimize the sediment that is generated and delivered to watercourses from active livestock trailing, new grazing authorizations and reauthorizations should include measures for livestock trail stream crossings and approaches to be hardened or relocated, where needed, to achieve aquatic desired conditions.

Mining

FW-STD-AREM-01. Plans of Operation that propose activities in riparian management zones shall include a reclamation plan and a reclamation bond that address the cost of removing facilities, equipment, and materials; re-contouring disturbed areas to pre-mining topography; isolating and neutralizing or removing toxic materials; salvaging or replacing topsoil; and revegetating with trees and shrubs or native plant seed to move toward attainment of aquatic and riparian desired conditions and avoid adverse effects on native fish.

FW-STD-AREM-02. Mine waste with the potential to generate hazardous material as defined by the Comprehensive Environmental Response, Compensation, and Liability Act shall not be authorized within riparian management zones where groundwater contamination is possible. The exception is temporary staging of waste during abandoned mine cleanup.

FW-STD-AREM-03. Mineral activities on National Forest System lands shall avoid or minimize adverse effects to aquatic threatened or endangered species and populations or their designated critical habitat.

FW-STD-AREM-04. Mineral exploration, processing, and extraction projects, except for suction dredging, shall not have direct water flow paths to streams, lakes, or wetlands. Projects shall install barriers between streams, lakes, wetlands, or groundwater dependent ecosystems and construction- related pollutant hazards such as sumps, processing pits, fuel storage, latrines, adits and shafts, underground workings, open pits, overburden, development rock and waste rock dumps, tailings impoundments, leach pads, mills, and process water ponds or natural pollutant hazards such as acidity, metals, sulfate, cyanide, or nitrate or a combination of the preceding.

FW-STD-AREM-05. Mineral operations shall minimize adverse effects to aquatic and riparian- dependent resources in riparian management areas. Best management practices and other appropriate conservation measures shall be included in plans of operation to mitigate potential mine operation effects.

FW-GDL-AREM-01. To prevent adverse effects to streams, wetlands, and other riparian dependent resources, all proposed mineral operations should avoid riparian management zones. If the RMZ cannot be avoided, plan of operations should include practicable measures to maintain, protect, and rehabilitate water quality and habitat for fish and wildlife and other riparian-dependent resources affected by the operations. Operations should not retard or prevent attainment of aquatic and riparian desired conditions. Exceptions to this guideline include situations where Forest Service has limited discretionary authorities. In those cases, project effects should not prevent or retard attaining aquatic and riparian desired conditions to the extent possible within those authorities.

FW-GDL-AREM-02. Mineral operations should reuse existing access routes and processing sites left from previous entries as long as they are not causing unacceptable impacts to aquatic and riparian dependent resources. Where new construction or relocation is necessary, to the maximum extent possible, construct and locate new structures, support facilities, and roads outside of riparian management zones. If new structures, support facilities and roads cannot be constructed outside riparian management zones because of site limitations, then construct and manage them to minimize adverse effects to aquatic and riparian dependent resources. When no longer required for mineral activities, structures and support facilities should be removed, and roads should be decommissioned or placed into intermittent stored service to achieve aquatic and riparian desired conditions.

FW-GDL-AREM-03. To minimize harm to listed fish and their critical habitat from suction dredge mining, Plans of Operations should be required of miners for proposed dredging in streams with ESA listed fish species or critical habitat. The Plans of Operations should include provisions consistent with Idaho Department of Water Resources to limit mining activities to specified times and methods that serve to avoid or minimize, where feasible, adverse effects such as: dewatering streams or blocking fish passage; destabilizing or undermining stream banks and large wood; and excavating potential spawning areas or covering them with spoils.

FW-GDL-RMZ-09. New saleable sand and gravel mining and extraction should not occur within riparian management zones, to minimize ground disturbance and sediment inputs, and avoid adverse effects to riparian vegetation and water temperature.

FW-GDL-ARREC-01. To protect aquatic and riparian resources, new and reconstructed solid and sanitary waste facilities should not be located within 100 feet of water, unless no other alternative exists.

Recreation

FW-GDL-ARREC-01. To protect aquatic and riparian resources, new and reconstructed solid and sanitary waste facilities should not be located within 100 feet of water, unless no other alternative exists.

FW-GDL-ARREC-02. To reduce potential adverse effects to water quality and aquatic resources, construction of new facilities or infrastructure within floodplains should be avoided. Where new activities inherently must occur in riparian management zones (e.g., at road and trail stream crossings, boat ramps, or docks), they should be located and designed to minimize adverse effects to floodplains and other riparian-dependent resource conditions (e.g., within geologically stable areas and avoiding major spawning areas).

FW-GDL-ARREC-03. To reduce the risk of sediment delivery when closing trails with physical barriers (e.g. berms) for longer than one season, drainage features should be left in a condition that will function without any maintenance for the planned duration of the closure.

FW-GDL-ARREC-04. To reduce trail-related mass wasting and sediment delivery to watercourses, new and relocated trails should not be constructed on lands with high mass wasting potential.

FW-GDL-ARREC-05. Trail construction, reconstruction, and maintenance activities should prevent concentrated water from directly entering streams, by hydrologically disconnected the trails from delivering water, sediment, and pollutants to water bodies.

FW-GDL-ARREC-06. To maintain channel stability and reduce sediment delivery to watercourses, when constructing or reconstructing trails, fords should be hardened to protect the stream bed, banks, and approaches.

FW-STD-WTR-07. Large woody debris shall not be removed from stream channels or floodplains unless it threatens public safety, such as fire ingress/egress; critical infrastructure, such as mid-channel bridge piers; or for the implementation of restoration projects when there will be a net increase in the amount of woody debris in the RMZ post project.

FW-GDL-WTR-05. To maintain quality and quantity of water flows to, within, or between groundwater dependent ecosystems, new or reconstructed groundwater use developments such as recreation and administrative sites, drinking water wells, or wastewater facilities should not:

- Be developed in riparian management zones (unless no alternatives exist);
- Measurably lower river flows, lake levels, or flows to wetlands or springs;
- or Discharge pollutants directly to surface water or groundwater unless covered by a National Pollutant Discharge Elimination System permit.

Lands and Special Uses

FW-STD-ARLND-01. When authorizing new lands special uses, or reauthorizing existing uses, include conditions to avoid adverse effects to fish, water, and riparian resources. If adverse effects are unavoidable to ESA listed fish, species of conservation concern, impaired water bodies, or stream habitat conditions, authorizations shall require actions that result in the re-establishment, restoration, mitigation, or improvement of conditions and ecological processes to ensure that projects that degrade conditions also include measures to improve conditions to the extent practicable. These processes include in-stream flow regimes, physical and biological connectivity, water quality, and integrity and complexity of riparian and aquatic habitat.

FW-STD-ARLND-02. Locate new hydropower support facilities outside of riparian management zones to reduce effects to fish, water, and riparian resources. Support facilities include any facilities or improvements such as workshops, housing, switchyards, staging areas, or transmission lines not directly integral to its operation or necessary for the implementation of prescribed protection, mitigation, or enhancement measures.

FW-STD-ARLND-03. In the CWN and sub-watersheds with ESA critical habitat or listed aquatic species, hydroelectric and other surface water development authorizations shall include requirements for instream flows and habitat conditions that maintain or restore native fish and other desired aquatic species populations, riparian dependent resources, favorable channel conditions, and aquatic connectivity.

FW-STD-ARLND-04. In the CWN and in sub-watersheds with ESA critical habitat or listed aquatic species, new hydroelectric facilities and water developments should not be constructed unless it can be demonstrated that there are no substantial adverse effects to critical habitat or listed aquatic species. Exceptions to this standard include situations where Forest Service authorities are limited such as the Alaska National Interest Lands Conservation Act, 1872 Mining Law, or valid state water rights. In those cases, project effects shall not retard attainment of desired conditions for watershed function, to the extent possible within Forest Service authorities.

FW-GDL-ARLND-01. If existing hydropower support facilities are located within the riparian management zones at time of permit reissuance, reduce impacts on aquatic and

riparian resources, such as moving support facilities outside of riparian management zones or further from water bodies where feasible.

FW-STD-WTR-01. New stream diversions and associated ditches shall have screens placed on them to prevent capture of fish and other aquatic organisms, using criteria established by the USFWS or the NMFS, when listed fish may be present.

The most important Plan Components in the Revised Plan for aquatic and riparian conservation are in Water (WTR), RMZ, CWN, ARINF, AREM, ARGZR, ARLND. These elements state and support that when watershed and riparian desired conditions are being achieved, projects shall maintain those conditions; and where desired conditions are not yet achieved, projects shall restore or not retard attainment of desired conditions. If the baseline was outside desired conditions, then the action would need to restore or not retard attainment of desired conditions before it could proceed. Not every project, even in a degraded baseline, will be restorative. Some management actions proposed will result in short-term adverse effects. These management actions are appropriate under the Revised Plan as long as they do not retard the attainment of aquatic and riparian desired conditions.

Every project and activity must be consistent with the applicable plan components. A project or activity approval document must describe how the project or activity is consistent with applicable plan components by meeting the following criteria (36 Code of Federal Regulations 219.15(d)):

2. Goals, desired conditions, and objectives. The project or activity contributes to the maintenance or attainment of one or more goals, desired conditions, or objectives, or does not foreclose the opportunity to maintain or achieve any goals, desired conditions, or objectives, over the long term.
3. Standards. The project or activity complies with applicable standards.
4. Guidelines. The project or activity:
 - a. Complies with applicable guidelines as set out in the plan; or
 - b. Is designed in a way that is as effective in achieving the purpose of the applicable guidelines [§ 219.7(e)(1)(iv)].
5. Suitability. A project or activity would occur in an area:
 - a. That the Revised Plan identifies as suitable for that type of project or activity;
 - b. Or For which the Revised Plan is silent with respect to its suitability for that type of project or activity.

It should also be recognized that some projects designed to contribute to some goals, desired conditions, and objectives may have consequences considered adverse to the achievement of other desired conditions and objectives. In this situation, the responsible Forest Service official needs to identify and disclose those effects and determine whether those effects will appreciably reduce the opportunity to maintain or desired conditions over the life of the plan. If the project or activity is found to appreciably reduce opportunities to maintain or achieve desired conditions over the long term, then the project is not consistent with the Plan.

1.3.7. Monitoring and Adaptive Management

There are two categories of monitoring under the Revised Plan: (1) “broad scale,” which is monitoring that occurs across many Forests, Pacific-Fish Interior-Fish Biological Opinion (PIBO) Monitoring; and (2) monitoring specific to the NPCNF Plan coupled with site specific project level monitoring National Environmental Policy Act (NEPA). These categories of monitoring will assist the Forests in determining: (1) whether Revised Plan objectives are being attained; (2) whether water quality best management practices (BMPs) and other standards and guidelines are being implemented; (3) the status and trend of watershed conditions and aquatic ecosystems. The NPCNF has discretion to add additional PIBO monitoring sites if there is a need.

Broad-scale monitoring is generally authorized and funded by the Regional Forester and focuses on significant issues occurring over broad areas (i.e., many Forests). The key broad-scale monitoring program for aquatic resources on the NPCNF is the PACFISH/INFISH Biological Opinion Monitoring Program (PIBO) in the Interior Columbia River Basin, commonly referred to as PIBO monitoring. PIBO monitoring is a long-term monitoring program that is designed to support implementation and effectiveness monitoring in the Interior Columbia Basin, with regards to instream habitat and riparian conditions. The PIBO monitoring program assesses the condition of stream habitat in reaches with management activities compared to reference reaches. Periodic monitoring of these reaches started in 2001 and will continue during the life of the Revised Plan. The 2020 PIBO monitoring report for the NPCNF evaluated data from an average of 64 managed sites and 40 local reference sites (depending on the metric)

Use of long-term monitoring, such as PIBO, supports adaptive management actions that would generally be taken by local line officers (i.e., District Rangers or Forest Supervisors). Use of these datasets could include increasing or decreasing the type, scope, scale, or location of different activities (e.g., watershed restoration, timber harvest, road building or decommissioning, fuels treatment, or livestock grazing) or the implementation of other Revised Plan components (e.g., standards and guidelines).

The second category of monitoring in the Revised Plan is monitoring specific to the implementation of the Revised Plan through projects annually or at another time interval (dependent on what information will be collected).

Examples of Plan Implementation questions to answer through monitoring include (A more detailed list is located in Appendix D of the BA):

MON-WTR-03 What management actions have been designed and implemented to contributed to the maintenance or improvement of hydrologic connectivity and aquatic habitat connectivity?

MON-WTR-06 Are watershed and aquatic restoration projects being implemented at a rate consistent with Land Management Plan objectives?

MON-WTR-07 Are appropriate BMPs incorporated in project decision documents?

MON-CWN-01 What management actions have been designed and implemented to contribute to reduced impacts of system roads on aquatic resources in CWNs?

MON-CWN-02 Is progress being made towards reducing road impacts that are near streams supporting ESA listed fish as described in objectives FW-CWN-OBJ-01 and FW-CWN-OBJ-02?

MON-RMZ-01 What activities have occurred in riparian management zones?

MON-RMZ-02 Has attainment of aquatic and riparian desired conditions been retarded by management actions within the Riparian

The Forests can use PIBO effectiveness monitoring to answer the question, “What is the status and trend of riparian vegetation condition,” based on 5-year monitoring data and annual monitoring data. To answer the question, “What is the status and trend of aquatic habitat?” the Forests can use both PIBO effectiveness monitoring data and implementation monitoring such as miles of stream habitat improved, measured annually or every five years. Measures or Indicators that will be used for monitoring to track movement towards Goals/Desired Conditions are discussed in more detail in Table 8 in Appendix 3 of the Revised Plan. Some measures/indicators are identified below:

- Status and Trend in measured stream metrics collected primarily through PIBO monitoring and summarized at the subbasin and Forest scale (residual pool depth, pool percent, median substrate size (D50), pool fines, wood frequency, bank angle, aquatic macroinvertebrates)
- Amount and types of restoration activities targeted towards improvement of aquatic habitat, stream complexity, channel structure, and side channel and floodplain conditions
- Amount and types of projects to increase thermal refugia and improve wetland/floodplain function (e.g., relocating roads located in meadows and floodplains to keep subsurface water storage and flow for as long as possible before it enters the stream channel)

1.3.8. Consideration of Climate Change

Climate change is already occurring on the NPCNF and throughout the western United States, and it is expected to continue to affect listed salmon and steelhead. In recognition of climate change, the Forest Plan revision has focused attention on ways to increase resilience of aquatic ecosystems. The Forests will provide additional protections for aquatic habitat in the CWN which includes all watersheds with listed aquatic species. Examples of stream habitat restoration actions and management activities under the Revised Plan that address climate change include: reducing flood peaks by disconnecting roads from streams; reconnecting isolated aquatic habitats by removing anthropogenic barriers; managing riparian forests to provide shade; and actions aimed at improving water quality. Climate adaptation strategies recommended by Halofsky et al (2018) focus on effects of climate induced changes in two primary ways with regard to aquatic organisms: 1) Addressing expected changes in hydrology, and 2) addressing expected threats to cold water fishes and aquatic organisms. These strategies address hydrologic changes by focusing on restoring the function of watersheds, connecting floodplains, reducing drainage

efficiency, maximizing valley storage, and reducing hazardous fuels. Adaptation tactics include adding wood to streams, restoring beaver populations, modifying livestock management, and reducing surface fuels and forest stand densities. The Revised Plan considers climate change using these concepts in many Plan Components that would promote the conservation of listed aquatic species. Examples include:

FW-DC-ARINF-01. The transportation system has minimal impacts on aquatic and riparian conditions through reduced hydrologic connectivity of roads to streams, lower sediment delivery to streams, reduced road impact to floodplains, and improved aquatic organism passage, where transportation infrastructure affects these features.

FW-STD-ARINF-04. New, replacement, and reconstructed stream crossing sites, such as culverts, bridges, and other permanent stream crossings, shall accommodate at least the 100-year flow, including associated bedload and debris.

FW-GDL-ARINF-05. To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites, such as culverts, bridges, and other stream crossings, should be constructed to prevent diversion of stream flow out of the channels and down the road in the event the crossing is plugged or has a flow greater than the crossing was designed.

FW-OBJ-WTR-02. Enhance or restore 50 to 100 miles of stream habitat within naturally unconfined channels every five years to maintain or restore connectivity, structure, composition, and function of habitat for fisheries and other aquatic species in streams with legacy effects that caused channels to become straightened or incised, impaired beaver habitat, or diminished floodplain capacity. Activities include, but are not limited to, berm removal, large woody debris placement, streamside road decommissioning, riparian planting, beaver dam analogs, and process-based restoration and floodplain restoration.

FW-OBJ-CWN-02. Stormproof 15 percent of roads in CWN prioritized for restoration every 5 years as funding allows to benefit threatened and endangered aquatic species. Emphasize roads with greatest risk of erosion and road prism failure, including maintenance Level 1 and 2 roads.

FW-OBJ-ARREC-01. Mitigate, remove, or relocate a minimum of two existing dispersed recreation sites from within riparian management zones to outside of riparian management zones every five years.

FW-OBJ-INF-02. Annually maintain 1,400 miles of operational maintenance Level 2 through 5 roads.

FW-OBJ-INF-03. Every 2 years, complete one facilities project to improve energy efficiency or safety.

FW-DC-ARINF-02. The transportation network is resilient to the effects of climate change, including the ability to accommodate increased runoff and peak flows that may exceed historic streamflow events.

Climate Change is addressed by modifying infrastructure where possible; for example, increasing culvert size, improving road drainage, and relocating vulnerable campgrounds or road segments.

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would not.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by Section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS and Section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, Section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

The NPCNF determined the proposed action is not likely to adversely affect Snake River Sockeye Salmon or its critical habitat. Our concurrence is documented in the "Not Likely to Adversely Affect" Determinations section (Section 2.11).

2.1 Analytical Approach

This opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This opinion also relies on the regulatory definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designations of critical habitat for Snake River Basin steelhead (*Oncorhynchus mykiss*), Snake River spring/summer Chinook Salmon (*O. tshawytscha*), and Snake River fall Chinook salmon (*O. tshawytscha*) use the term primary constituent element (PCE) or essential features.

The 2016 final rule (81 FR 7414; February 11, 2016) that revised the critical habitat regulations (50 CFR 424.12) replaced these terms with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a “destruction or adverse modification” analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The ESA Section 7 implementing regulations define effects of the action using the term “consequences” (50 CFR 402.02). As explained in the preamble to the final rule revising the definition and adding this term (84 FR 44976, 44977; August 27, 2019), that revision does not change the scope of our analysis, and in this opinion, we use the terms “effects” and “consequences” interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the range wide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their critical habitat using an exposure–response approach.
- Evaluate cumulative effects.
- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species; or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, suggest a reasonable and prudent alternative (RPA) to the proposed action.

2.2 Rangewide Status of the Species and Critical Habitat

This opinion examines the status of each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species’ likelihood of both survival and recovery. The species status section also helps to inform the description of the species’ “reproduction, numbers, or distribution” for the jeopardy analysis. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds that make up the designated area, and discusses the function of the PBFs that are essential for the conservation of the species. The Federal Register notices and notice dates for the species and critical habitat listings considered in this opinion are included in Table 1.

Table 1 Listing status, status of critical habitat designations and protective regulations, and relevant Federal Register decision notices for ESA-listed species considered in this opinion.

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)			
Snake River spring/summer-run	T 4/22/92; 57 FR 14653	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Snake River fall-run	T 4/22/92; 57 FR 14653	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Steelhead (<i>O. mykiss</i>)			
Snake River Basin	T 8/18/97; 62 FR 43937	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status ‘T’ means listed as threatened under the ESA.

¹The listing status for Snake River spring/summer Chinook salmon was corrected on 6/3/92 (57 FR 23458).

²Critical habitat for Snake River spring/summer Chinook salmon was revised on 10/25/99 (64 FR 57399).

2.2.1. Status of the Species

This section describes the present condition of the Snake River spring/summer Chinook salmon and Snake River fall Chinook salmon evolutionarily significant units (ESUs), and the Snake River Basin steelhead distinct population segment (DPS). NMFS expresses the status of a salmonid ESU or DPS in terms of likelihood of persistence over 100 years (or risk of extinction over 100 years). NMFS uses McElhany et al.’s (2000) description of a viable salmonid population (VSP) that defines “viable” as less than a 5 percent risk of extinction within 100 years and “highly viable” as less than a 1 percent risk of extinction within 100 years. A third category, “maintained,” represents a less than 25 percent risk within 100 years (moderate risk of extinction). To be considered viable, an ESU or DPS should have multiple viable populations so that a single catastrophic event is less likely to cause the ESU/DPS to become extinct, and so that the ESU/DPS may function as a metapopulation that can sustain population-level extinction and recolonization processes (ICTRT 2007). The risk level of the ESU/DPS is built up from the aggregate risk levels of the individual populations and major population groups (MPGs) that make up the ESU/DPS.

Attributes associated with a VSP are: (1) abundance (number of adult spawners in natural production areas); (2) productivity (adult progeny per parent); (3) spatial structure; and (4) diversity. A VSP needs sufficient levels of these four population attributes in order to: safeguard the genetic diversity of the listed ESU or DPS; enhance its capacity to adapt to various environmental conditions; and allow it to become self-sustaining in the natural environment (ICTRT 2007). These viability attributes are influenced by survival, behavior, and experiences throughout the entire salmonid life cycle, characteristics that are influenced in turn by habitat and other environmental and anthropogenic conditions. The present risk faced by the ESU/DPS informs NMFS’ determination of whether additional risk will appreciably reduce the likelihood that the ESU/DPS will survive or recover in the wild.

The following sections summarize the status and available information on the species and designated critical habitats considered in this opinion based on the detailed information provided by the ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Basin Steelhead (NMFS 2017a); ESA Recovery Plan for Snake River Fall Chinook Salmon (NMFS 2017b); Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest (Ford 2022); 2022 5-Year Review:

Summary & Evaluation of Snake River Spring/Summer Chinook Salmon (NMFS 2022a); 2022 5-Year Review: Summary & Evaluation of Snake River Fall Chinook Salmon (NMFS 2022b); 2022 5-Year Review: Summary & Evaluation of Snake River Basin Steelhead (NMFS 2022c)]. These five documents are incorporated by reference here.

2.2.1.1 Snake River Spring/Summer Chinook Salmon

A summary of the current status of the Snake River spring/summer Chinook salmon ESU can be found on NMFS' publicly available intranet site (<https://www.fisheries.noaa.gov/s3/2023-02/feb-2023-status-snake-r-spring-summer-chinook.pdf>), and is incorporated by reference here (NMFS 2023a). Overall, the species is at a moderate-to-high risk of extinction.

We also considered the most recent update estimate on overall adult abundance for the ESU. The 2022 overall wild adult abundance at the Lower Granite Dam (LGD) was 17,285 and 6,508 for 2021 (ODFW and WDFW 2023).

Populations that may be affected by the proposed action include: The Salmon River Lower Mainstem (Upper Salmon River MPG) and the Little Salmon River (South Fork Salmon River MPG). The Salmon River Lower Mainstem population VSP parameters for Abundance/Productivity is rated as High Risk, for Spatial Structure/Diversity it is rated Low Risk, and its 2022 Viability rating was rated as High Risk. The Little Salmon River VSP parameters for Abundance/Productivity is rated as High Risk, for Spatial Structure/Diversity it is rated Low Risk, and its 2022 Viability rating was rated as High Risk.

2.2.1.2 Snake River Fall-run Chinook Salmon

A summary of the current status of the Snake River Fall-run Chinook salmon ESU can be found on NMFS' publicly available intranet site (<https://www.fisheries.noaa.gov/s3/2023-02/feb-2023-status-snake-r-fall-chinook.pdf>), and is incorporated by reference here (NMFS 2023b). We also considered the most recent update estimate on overall adult abundance for the ESU. The 2022 overall wild adult abundance at LGD was 13,300 and for 18,943 2021 (ODFW and WDFW 2023). There is only one population that might be affected by the proposed action, the Lower Snake Population, and while the ESU is currently considered viable, it is not meeting its recovery goals. The overall current risk rating for the extant Lower Snake River fall Chinook salmon population is Viable. This risk rating is based on a low risk rating for abundance/productivity and a moderate risk rating for spatial structure/diversity (Ford 2022).

2.2.1.3 Snake River Basin Steelhead

A summary of the current status of the Snake River Basin steelhead DPS can be found on NMFS' publicly available intranet site (<https://www.fisheries.noaa.gov/s3/2023-02/feb-2023-status-snake-r-steelhead.pdf>), and is incorporated by reference here (NMFS 2023c). Overall, available information suggests that Snake River Basin steelhead continue to be at a moderate risk of extinction within the next 100 years. We also considered the most recent update estimate on overall adult abundance for the ESU. The 2022 overall wild adult abundance at LGD was 15,613 and 9,603 for 2021 (ODFW and WDFW 2023). Populations that may be affected by the proposed action include:

1. Lower Mainstem Clearwater River (Clearwater MPG)
2. Lolo Creek (Clearwater MPG)
3. Lochsa River (Clearwater MPG)
4. Selway River (Clearwater MPG)
5. South Fork Clearwater River (Clearwater MPG)
6. Little Salmon River (Salmon River MPG)
7. Chamberlain Creek (Salmon River MPG)
8. Panther Creek (Salmon River MPG)

The Lower Mainstem Clearwater River population VSP parameters for Abundance/Productivity is rated as Very Low Risk, for Spatial Structure/Diversity it is rated Low Risk, and its 2022 Viability rating was rated as Highly Viable. The Lolo Creek population VSP parameters for abundance/productivity is rated as High Risk, for spatial structure/diversity it is rated Moderate, and its 2022 Viability rating was rated as High Risk. The Lochsa River population VSP parameters for Abundance/Productivity is rated as Moderate Risk, for Spatial Structure/Diversity it is rated Low Risk, and its 2022 Viability rating was rated as Maintained. The Selway River population VSP parameters for Abundance/Productivity is rated as Moderate Risk, for Spatial Structure/Diversity it is rated Low Risk, and its 2022 Viability rating was rated as Maintained. The South Fork Clearwater River population VSP parameters for Abundance/Productivity is rated as Very Low Risk, for Spatial Structure/Diversity it is rated Moderate Risk, and its 2022 Viability rating was rated as Viable. The Little Salmon River population VSP parameters for Abundance/Productivity is rated as Very Low Risk, for Spatial Structure/Diversity it is rated Moderate Risk, and its 2022 Viability rating was rated as Viable. The Chamberlain Creek population VSP parameters for Abundance/Productivity is rated as Moderate Risk, for Spatial Structure/Diversity it is rated Low Risk, and its 2022 Viability rating was rated as Maintained.

2.2.2 Status of Critical Habitat

In evaluating the condition of designated critical habitat, NMFS examines the condition and trends of PBFs which are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBFs essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 2).

Table 2 Types of sites, essential physical and biological features (PBFs), and the species life stage each PBF supports.

Site	Essential Physical and Biological Features	Species Life Stage
Snake River Basin steelhead^a		
Freshwater spawning	Water quality, water quantity, and substrate	Spawning, incubation, and larval development
Freshwater rearing	Water quantity and floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage ^b	Juvenile development
	Natural cover ^c	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover ^c	Juvenile and adult mobility and survival
Snake River spring/summer Chinook salmon and Snake River fall Chinook		
Spawning and juvenile rearing	Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only)	Juvenile and adult
Migration	Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food ^d , riparian vegetation, space, safe passage	Juvenile and adult

^a Additional PBFs pertaining to estuarine areas have also been described for Snake River steelhead. These PBFs will not be affected by the proposed action and have therefore not been described in this opinion.

^b Forage includes aquatic invertebrate and fish species that support growth and maturation.

^c Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

^d Food applies to juvenile migration only.

Table 3 describes the geographical extent of critical habitat within the Snake River basin for each of the three ESA-listed salmon and steelhead species. Critical habitat includes the stream channel and water column with the lateral extent defined by the ordinary high-water line, or the bank full elevation where the ordinary high-water line is not defined. In addition, critical habitat for the two salmon species includes the adjacent riparian zone, which is defined as the area within 300 feet of the line of high water of a stream channel or from the shoreline of standing body of water (58 FR 68543). The riparian zone is critical because it provides shade, streambank stability, organic matter input, and regulation of sediment, nutrients, and chemicals.

Table 3 Geographical extent of designated critical habitat within the Snake River basin for ESA-listed salmon and steelhead.

Evolutionarily Significant Unit (ESU)/ Distinct Population Segment (DPS)	Designation	Geographical Extent of Critical Habitat
Snake River spring/summer Chinook salmon	58 FR 68543; December 28, 1993 64 FR 57399; October 25, 1999	All Snake River reaches upstream to Hells Canyon Dam; all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Salmon River basin; and all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Hells Canyon, Imnaha, Lower Grande Ronde, Upper Grande Ronde, Lower Snake–Asotin, Lower Snake–Tucannon, and Wallowa subbasins.
Snake River fall Chinook salmon	58 FR 68543; December 28, 1993	Snake River to Hells Canyon Dam; Palouse River from its confluence with the Snake River upstream to Palouse Falls; Clearwater River from its confluence with the Snake River upstream to Lolo Creek; North Fork Clearwater River from its confluence with the Clearwater River upstream to Dworshak Dam; and all other river reaches presently or historically accessible within the Lower Clearwater, Hells Canyon, Imnaha, Lower Grande Ronde, Lower Salmon, Lower Snake, Lower Snake–Asotin, Lower North Fork Clearwater, Palouse, and Lower Snake–Tucannon subbasins.
Snake River Basin steelhead	70 FR 52630; September 2, 2005	Specific stream reaches are designated within the Lower Snake, Salmon, and Clearwater River basins. Table 21 in the Federal Register details habitat areas within the DPS’s geographical range that are excluded from critical habitat designation.

Spawning and rearing habitat quality in tributary streams in the Snake River varies from excellent in wilderness and roadless areas to poor in areas subject to intensive human land uses (NMFS 2015; NMFS 2017a). Critical habitat throughout much of the Interior Columbia (which includes the Snake River and the Middle Columbia River) has been degraded by intensive agriculture, alteration of stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, livestock grazing, dredging, road construction and maintenance, logging, mining, and urbanization. Reduced summer streamflows, impaired water quality, and reduction of habitat complexity are common problems for critical habitat in non-wilderness areas. Human land use practices throughout the basin have caused streams to become straighter, wider, and shallower, thereby reducing rearing habitat and increasing water temperature fluctuations.

In many stream reaches designated as critical habitat in the Snake River basin, stream flows are substantially reduced by water diversions (NMFS 2015; NMFS 2017a). Withdrawal of water, particularly during low-flow periods that commonly overlap with agricultural withdrawals, often increases summer stream temperatures, blocks fish migration, strands fish, and alters sediment transport (Spence et al. 1996). Reduced tributary streamflow has been identified as a major limiting factor for Snake River spring/summer Chinook and Snake River basin steelhead in particular (NMFS 2017a).

Many stream reaches designated as critical habitat for these species are listed on the Clean Water Act 303(d) list for impaired water quality, such as elevated water temperature (IDEQ 2022). Many areas that were historically suitable rearing and spawning habitat are now unsuitable due to high summer stream temperatures, such as some stream reaches in the Upper Grande Ronde. Removal of riparian vegetation, alteration of natural stream morphology, and withdrawal of water for agricultural or municipal use all contribute to elevated stream temperatures. Water quality in spawning and rearing areas in the Snake River has also been impaired by high levels of sedimentation and by heavy metal contamination from mine waste (e.g., IDEQ and USEPA 2003; IDEQ 2001).

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the eight run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor. Hydro-system development modified natural flow regimes, resulting in warmer late summer and fall water temperature. Changes in fish communities led to increased rates of piscivorous predation on juvenile salmon and steelhead. Reservoirs and project tailraces have created opportunities for avian predators to successfully forage for smolts, and the dams themselves have created migration delays for both adult and juvenile salmonids. Physical features of dams, such as turbines, also kill out-migrating fish. In-river survival is inversely related to the number of hydropower projects encountered by emigrating juveniles. However, some of these conditions have improved. The Bureau of Reclamation and U.S. Army Corps of Engineers have implemented measures in previous Columbia River System hydropower consultations to improve conditions in the juvenile and adult migration corridor including 24-hour volitional spill, surface passage routes, upgrades to juvenile bypass systems, and predator management measures. These measures are ongoing and their benefits with respect to improved functioning of the migration corridor PBFs will continue into the future.

2.2.3. Climate Change Implications for ESA-listed Species and their Critical Habitat

One factor affecting the range-wide status of Snake River salmon and steelhead, and aquatic habitat at large is climate change. As observed by Siegel and Crozier in 2019, long-term trends in warming have continued at global, national, and regional scales. The five warmest years in the 1880 to 2019 record have all occurred since 2015, while 9 of the 10 warmest years have occurred since 2005 (Lindsey and Dahlman 2020). The year 2020 was another hot year in national and global temperatures; it was the second hottest year in the 141-year record of global land and sea measurements and capped off the warmest decade on record. Events such as the 2014-2016 marine heatwave (Jacox et al. 2018) are likely exacerbated by anthropogenic warming, as noted in the annual special issue of Bulletin of the American Meteorological Society on extreme events (Herring et al. 2018). The U.S. Global Change Research Program (USGCRP) reports average warming in the Pacific Northwest of about 1.3°F from 1895 to 2011, and projects an increase in average annual temperature of 3.3°F to 9.7°F by 2070 to 2099 (compared to the period 1970 to 1999), depending largely on total global emissions of heat-trapping gases (predictions based on a variety of emission scenarios including B1, RCP4.5, A1B, A2, A1FI, and RCP8.5 scenarios). The increases are projected to be largest in summer (USGCRP 2018).

Climate change generally exacerbates threats and limiting factors, including those currently impairing salmon and steelhead survival and productivity. The growing frequency and

magnitude of climate change related environmental downturns will increasingly imperil many ESA-listed stocks in the Columbia River basin and amplify their extinction risk (Crozier et al. 2019, 2020, 2021). This climate change context means that opportunities to rebuild these stocks will likely diminish over time. As such, management actions that increase resilience and adaptation to these changes should be prioritized and expedited. For example, the importance of improving the condition of and access and survival to and from the remaining functional, high-elevation spawning and nursery habitats is accentuated because these habitats are the most likely to retain remnant snow packs under predicted climate change (Tonina et al. 2022).

Climate change is already evident. It will continue to affect air temperatures, precipitation, and wind patterns in the Pacific Northwest (ISAB 2007, Philip et al. 2021), resulting in increased droughts and wildfires and variation in river flow patterns. These conditions differ from those, under which native anadromous and resident fishes evolved and will likely increase risks posed by invasive species and altered food webs. The frequency, magnitude, and duration of elevated water temperature events have increased with climate change and are exacerbated by the Columbia River hydro-system (EPA 2020a, 2020b; Scott 2020). Thermal gradients (i.e., rapid change to elevated water temperatures) encountered while passing dams via fish ladders can slow, reduce, or altogether stop the upstream movements of migrating salmon and steelhead (Caudill et al. 2013). Additional thermal loading occurs when mainstem reservoirs act as a heat trap due to upstream inputs and solar irradiation over their increased water surface area (EPA 2020a, 2020b, 2021). Consider the example of adult sockeye salmon in 2015, when high summer water temperatures contributed to extremely high losses of Columbia River and Snake River stocks during passage through the mainstem Columbia and Snake River (Crozier et al. 2020), and through tributaries such as the Salmon and Okanogan rivers, below their spawning areas. Some stocks are already experiencing lethal thermal barriers during a portion of their adult migration. The effects of longer or more severe thermal barriers in the future could be catastrophic. For example, Bowerman et al. (2021) concluded that climate change will likely increase the factors contributing to prespawn mortality of Chinook salmon across the entire Columbia River basin.

Columbia River basin salmon and steelhead spend a significant portion of their life-cycle in the ocean, and as such the ocean is a critically important habitat influencing their abundance and productivity. Climate change is also altering marine environments used by Columbia River basin salmon and steelhead. This includes increased frequency and magnitude of marine heatwaves, changes to the intensity and timing of coastal upwelling, increased frequency of hypoxia (low oxygen) events, and ocean acidification. These factors are already reducing, and are expected to continue reducing, ocean productivity for salmon and steelhead. This does not mean the ocean is getting worse every year, or that there will not be periods of good ocean conditions for salmon and steelhead. In fact, near-shore conditions off the Oregon and Washington coasts were considered good in 2021. However, the magnitude, frequency, and duration of downturns in marine conditions are expected to increase over time due to climate change. Any long-term effects of the stressors that fish experience during freshwater stages that do not manifest until the marine environment will be amplified by the less-hospitable conditions there due to climate change. Together with increased variation in freshwater conditions, these downturns will further

impair the abundance, productivity, spatial structure, and diversity of the region's native salmon and steelhead stocks (ISAB 2007, Isaak et al. 2018). As such, these climate dynamics will reduce fish survival through direct and indirect impacts at all life stages.

All habitats used by Pacific salmon and steelhead will be affected by climate dynamics. However, the impacts and certainty of the changes will likely vary by habitat type. Some changes affect salmon at all life stages in all habitats (e.g., increasing temperature), while others are habitat specific (e.g., stream-flow variation in freshwater, sea-level rise in estuaries, upwelling in the ocean). How climate change will affect each individual salmon or steelhead stock also varies widely, depending on the extent and rate of change and the unique life-history characteristics of different natural populations (Crozier et al. 2008). The continued persistence of salmon and steelhead in the Columbia basin relies on restoration actions that enhance climate resilience (Jorgensen et al. 2021) in freshwater spawning, rearing, and migratory habitats, including access to high elevation, high quality cold-water habitats, and the reconnection of floodplain habitats across the interior Columbia River basin.

2.3 Action Area

“Action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The action area consists of streams and riparian areas that support listed salmon and steelhead within the NPCNF; the action area extends to stream reaches and riparian areas downstream from the NPCNF boundaries which could be affected by activities conducted on the Forests and developed under the direction of the Revised Plan. For example, a short-term turbidity plume from a culvert replacement could extend several hundred feet downstream from the NPCNF boundaries. These stream reaches occur in the Clearwater and Salmon basins. The action area is also EFH for Chinook salmon and coho salmon (PFMC 2014), and is in an area where environmental effects of the proposed project may adversely affect EFH for these species.

2.4 Environmental Baseline

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

The action area is used by all freshwater life history stages of Snake River Basin steelhead, Snake River Spring/Summer Chinook salmon, and Snake River Fall Chinook salmon. Streams within the action area are designated critical habitat for Snake River Basin steelhead, Snake

River Spring/Summer Chinook salmon, and Snake River Fall Chinook salmon. The condition of the listed species and designated critical habitats in the action area are described further below.

Based on the Nez Perce-Clearwater 2011 Watershed Condition Class assessment, 56 percent (140) of the 220 sub-watersheds classified in the action area were rated as ‘Functioning Properly.’ Approximately 26 percent (73) of sub-watersheds were determined to be ‘Functioning at Risk’ and 18 percent (7) of sub-watersheds were rated as ‘Impaired.’

In addition to the classifications above, the Forests also used PIBO monitoring data to assess stream habitat baseline conditions. PACFISH and INFISH were implemented in 1995 with the intent of protecting, conserving, and managing riparian habitats for protected anadromous and resident fish species, respectively. Monitoring of the effectiveness of these measures, called PIBO monitoring, began in 2001 as required by NMFS’ 1998 PACFISH LRMP Opinion. The PIBO monitoring program assesses the condition of stream habitat in sampled reaches compared to habitat characteristics of streams likely to be functioning properly (i.e., reference conditions), and assesses the trend in habitat conditions over time. The watersheds are divided into two groups, either “reference” (minimally managed) or “managed”, based on management history (such as livestock grazing, mining, or roads). Reference sites are primarily located in wilderness areas or in sub-watersheds with no obvious mining, no recent grazing (within 30 years), minimal timber harvest and minimal road density. PIBO stream habitat metrics include: bank condition, substrate composition, pool habitat quantity and quality, abundance of woody debris, macroinvertebrates, and an overall indicator score for stream habitat condition.

The Forest Service has completed repeat PIBO sampling at over 104 monitoring reaches (64 in managed sites and 40 on local reference sites) on the NPCNF between 2001 and 2019. This monitoring information indicates that there are differences between managed and reference sites. PIBO data also suggest that the overall stream habitat conditions in managed sites that contain listed species on the NPCNF are outside the range of natural variability and that some habitat parameters such as residual pool depth, pool fines, pool percent, and large wood frequency are degraded in much of the action area. Many of the habitat parameters that are below PIBO reference condition values, are also identified by recovery plans as limiting factors for recovery of individual salmon and steelhead populations in the action area. These parameters include lack of large wood and habitat complexity, high stream temperatures, high percentages of fine sediment, and lack of pools. (NMFS 2022a; NMFS 2017a; NMFS 2009). At the sub-basin scale only, a few basins (six) had sufficient data to determine trends using the Overall Index in the PIBO monitoring. Two appear to have increasing trend (Lower Selway and South Fork Clearwater) with only the Upper North Fork Clearwater showing negative trends. Three sub-basins (Clearwater, Lower Salmon, and the Lochsa) showed no changes in trend. The remaining sub-basins did not have sufficient data points to determine trends (Lower NF Clearwater, Palouse, Lower Selway, Middle Salmon-Chamberlain, and Upper Selway).

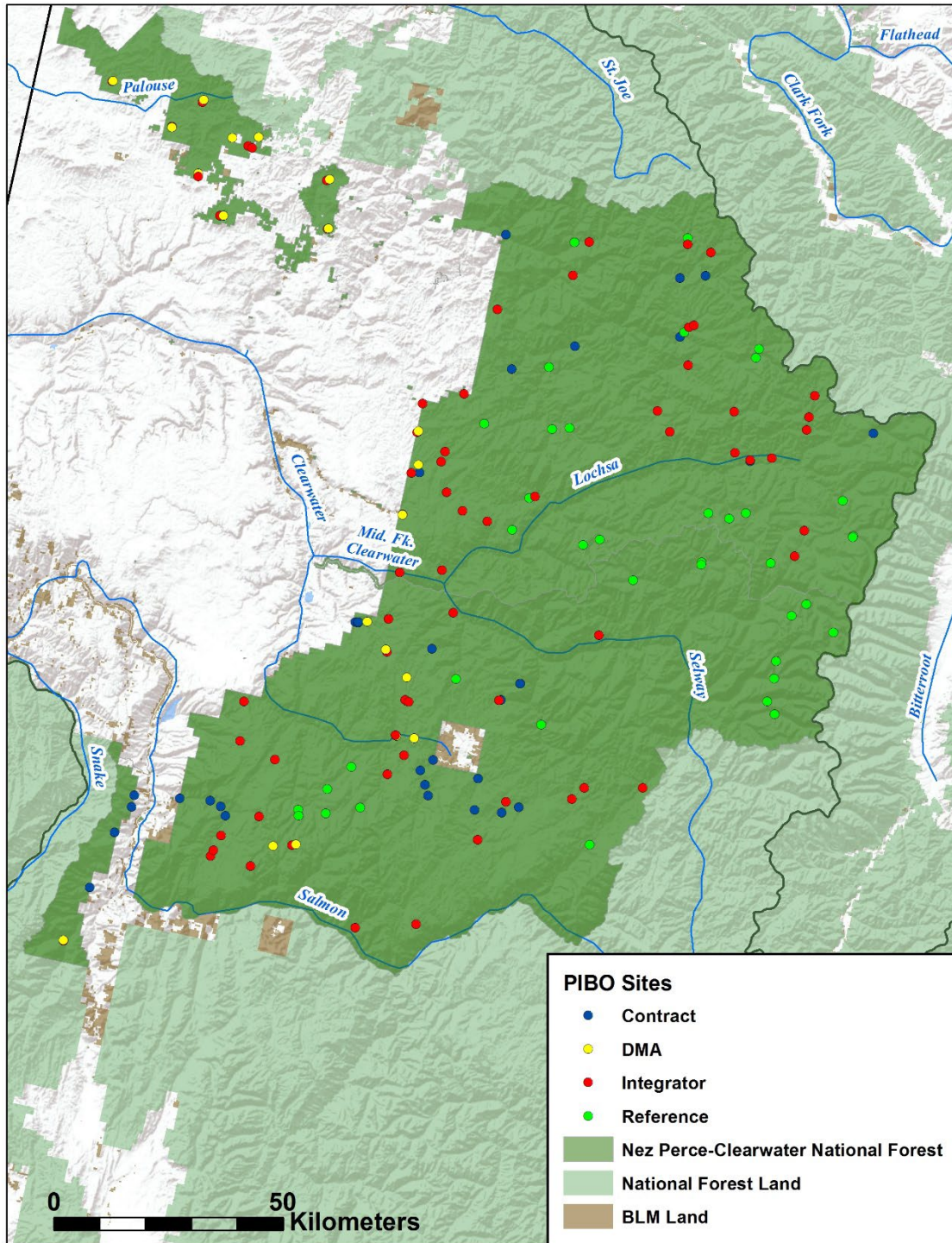


Figure 2. PIBO Sampling Sites. Contract Sites (temporary), DMA – Designated Monitoring Area long term monitoring for grazing), Integrator - Long Term Monitoring for management actions, Reference – Long Term Monitoring)

2.5 Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action (see 50 CFR 402.02). A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered the factors set forth in 50 CFR 402.17(a) and (b).

2.5.1. Effects on ESA-listed Species

The NPCNF Revised Plan will direct how a broad range of projects and activities will be implemented in the future on the NPCN Forests, but the Revised Plan itself will not authorize, fund, or carry out any of these individual projects. Individual future projects developed under the framework of the proposed Plan will be subject to individual Section 7 consultations and analysis, and the projects will not take place until these individual consultations are complete. We therefore analyze the effects of the Revised Plan and its direction, focusing on the components of the Revised Plan which most influence how Plan Components will affect listed species and their habitats. The Revised Plan is not expected to carry forward all of the direction identified in PACFISH and its associated biological opinion or from the ICBEMP Framework. These two documents contained concepts that we have determined are important to consider and these concepts have demonstrated conservation value to ESA listed anadromous fish populations.

To analyze the effects of the Revised Plan, we first identify potential adverse effects from the different categories of activities that the Forests will implement under direction from the Revised Plan (Section 1.3.1). We then use the framework laid out in the Interior Columbia Basin Strategy (BLM et al. 2014) which used information gathered by ICBEMP to assess the effectiveness of the existing Forest Plan in leading to future site-specific projects on the Forests that avoid or minimize these potential adverse effects, and in many cases cause beneficial effects for listed species. In the Interior Columbia Basin Strategy, experts from the Forest Service, NMFS, BLM, USFWS, and the U.S. Environmental Protection Agency identified seven fundamental elements that revised forest plans should include to promote and achieve conservation of aquatic and riparian resources. To identify these seven elements, the interagency experts used various reliable sources, including the Integrated Scientific Assessment for Ecosystem Management (PNW-GTR-382, September 1996), An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins (Volumes I through IV - PNW GTR-405, 1997), and more recent work (see BLM et al. 2014). The seven elements are:

1. Designation and conservation of riparian areas to maintain and improve riparian function.
2. Designation and protection of population strongholds for listed species.
3. Multiscale analysis.
4. Restoration priorities and guidance.

5. Management direction.
6. Monitoring and adaptive management.
7. Consideration of climate change.

After first summarizing the potential adverse effects of future site-specific activities implemented under direction from the Plan, we analyze the overall effects of the Revised Plan by assessing the Plan’s treatment and inclusion of the seven elements identified by the Interior Columbia Basin Strategy.

Table 4 Summary of potential adverse effects from future site-specific actions, by activity category.

Activity Category	Potential Adverse Effects from Future Site-Specific Actions
Vegetation Management, Fire Management, and the Road Network	Vegetation management through timber sales for timber production or as a fuel treatment (e.g., thinning and prescribed fire) and managing wildfires to reduce the potential for uncharacteristically severe wildfires can adversely affect watershed processes and aquatic and riparian habitat (Spence et al. 1996, Mehan 1991). Removal of large trees through timber harvest or prescribed fire within RMZ can reduce large wood input to stream channels, reducing the complexity of aquatic habitat. Removal of trees shading streams can result in increased summer stream temperatures. Accelerated erosion from ground disturbing activities associated with vegetation management, such as skid roads, can increase sediment delivery to stream channels. It is important to note that for the Plan the NPCNF is authorizing up to 210 MMBF annually which may result in a possible increase in timber volume on an annual basis when compared to historic activities.
Rangeland Management and Grazing	The potential effects of livestock grazing on fish habitat have been well documented (e.g., Platts 1991, Spence et al. 1996, Goss and Roper 2018). The potential adverse effects of grazing include soil erosion and sediment delivery to streams; soil compaction; alteration or removal of riparian vegetation that provides shade, cover, a terrestrial food source, and which stabilizes stream banks; and altered channel morphology including channel widening, increased bank instability, and loss of undercut banks. Salmonid species are especially vulnerable to grazing during early development stages, when fish are less mobile, and large numbers of embryos or young are concentrated in small areas. Livestock entering spawning areas can trample redds and destroy or dislodge embryos and fry.
Minerals and Mining	In general, mining activities can increase sediment delivery, cause changes in the substrate, and increase streambed and streambank stability. Mining activities may alter the way water and sediment are transported, altering the erosional and depositional processes changing channel configuration. Increased turbidity can not only affect salmonids but also the macroinvertebrate community. Mining activities can also alter hydrology, alter water temperatures, result in habitat modification and loss, and lead to pollution (Seargent et al 2022), Mining operations can damage streamside vegetation that shades streams and stabilizes streambanks. Toxic effects of materials used in mining or metals released into the stream environment can affect growth, reproduction behavior, and migration of salmonids, and can degrade macroinvertebrate habitat.

Activity Category	Potential Adverse Effects from Future Site-Specific Actions
Travel Management	<p>Geomorphic impacts of roads include chronic sediment delivery to streams; accelerated mass failures of road cuts and fills, depositing large quantities of sediment in streams and altered channel morphology if the roads confine streams and prevent connection to the floodplain. Roads constructed in riparian areas damage or remove vegetation, thus reducing stream shade and large woody debris input. Roads constructed in the floodplain may inhibit natural stream channel migration processes (Gucinski et al. 2001). Meredith et al. (2014) found that in the interior Columbia Basin, the presence of near-stream roads resulted in reduced amounts of large woody debris in streams. Roads directly change the hydrology of slopes and stream channels (Trombulak and Frissell 2000). Roads intercept shallow groundwater flow paths, diverting the water along the roadway and routing it to streams at stream crossings. This can cause or contribute to changes in the timing and routing of runoff, the effects of which may be more evident in smaller streams than in larger rivers. Roads can deliver pollutants to aquatic habitat as the chemicals applied to roads or from vehicles run off a road into a stream (Gucinski et al. 2001). Roads can create passage barriers for fish at culverts at road/stream crossings. Chemical contamination of surface water from equipment leaks or roadside herbicide applications is also possible when roads cross or are adjacent to streams.</p>
Recreation Management	<p>The concentrated human use of developed and dispersed camping and recreation sites can lead to soil compaction and trampled vegetation, exposing soils to erosion and accelerating sediment delivery to streams. Riparian vegetation may be damaged or destroyed and the resultant increase in solar radiation reaching a stream can increase water temperatures. Large wood recruitment, important for providing complex aquatic habitat and instream cover for fish, may be lost when hazard trees are felled in developed sites and by unauthorized firewood cutting in dispersed sites. Loss of streamside vegetation can result in destabilizing streambanks as the roots holding the banks together are damaged, causing accelerated bank erosion that contributes excess sediment to the stream system and causes channel widening. Camping and other recreation uses may also cause harassment of spawning fish, especially Chinook salmon that spawn in the late summer and fall. Redds may be damaged, resulting in egg and alevin mortality, if disturbed by campers.</p>
Lands and Special Uses	<p>Effects from the most common permit activities include:</p> <ul style="list-style-type: none"> • Disturbance and stress to fish from in-water or shoreline activities. • Entrainment and impingement of fish from improperly screened water diversions. • Impacts to water quality, quantity, and fish and their habitat from water diversions. • Clearance of vegetation along power lines and telephone lines to reduce risks to the infrastructure causing impacts to stream shade, streambank vegetation, and in-channel woody debris. • Sediment and turbidity from issuance of road use permits or granting of rights-of-way. Activities such as rocking, and culvert and ditch maintenance, which are intended to prevent erosion in the long term, often produce some short-term sediment delivery. Hauling of logs, heavy traffic, or heavy equipment use on non-paved roads during wet weather can damage the road surface, causing runoff that carries fine sediment particles. This is of particular concern where haul roads and other access routes closely parallel and cross streams containing fish. • Chemical contamination from equipment leaks, refueling, and septic systems associated with cabins, solid waste sites, and group use of other sites.

Riparian Management Zones

The Forest's proposed RMZs carry forward the requirements of PACFISH and possibly larger buffers for Category 4 RMZs. The scientific literature suggests that these proposed stream buffers are highly protective of streams. Reeves et al. (2016) provide a review of the current science surrounding riparian functions and processes. They conclude, in agreement with an earlier assessment by BLM et al (2014), that most of the key ecological processes within RMZs occur within a distance equal to one site potential tree height from a stream or the floodplain (when present). These processes include root strength for bank stability, shading to moderate water temperature, litter fall, delivery of coarse wood to streams, and filtration of sediment from overland erosion. Similarly, an extensive literature review by Sweeney and Newbold (2014) of stream-side buffers concluded that buffers equal to or greater than roughly 100 feet wide are needed to protect the physical, chemical, and biological integrity of small streams. The purpose of riparian reserve boundaries of two site-potential tree heights on fish-bearing streams has generally been to enhance the microclimate of the riparian ecosystem within the first tree-height (Reeves et al. 2016).

The RMZs for the proposed Plan will be identified as one of four categories as listed in Section 1.3.2. Riparian Management Zones.

The proposed RMZs are not “no touch,” and management activities are allowed within RMZ boundaries. However, any management within RMZs, as defined in the Plan, would have to be designed to not retard attainment of aquatic and riparian desired conditions. For example:

FW-STD-RMZ-01. Vegetation management shall only occur in riparian management zones from the edges of the active stream channel to within 150 feet within Riparian Management Zone Category 1 and to the edges of the active stream channel to 100 feet within Riparian Management Zone Category 2, 3, and 4 to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, small diameter (e.g., sapling, pole) conifer thinning, may be authorized if aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer Riparian Management Zones to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer Riparian Management Zone, including sediment filtering, large wood recruitment to streams, and protection of the inner Riparian Management Zone from windthrow. Vegetation management in Riparian Management Zones shall not retard attainment of aquatic and riparian desired conditions.

FW-STD-RMZ-03. Herbicides, pesticides, and other toxicants and chemicals shall only be applied within riparian management zones when the activity does not retard attainment of aquatic and riparian desired conditions.

FW-STD-RMZ-07. The RMZ definitions in the introduction of Section 2.2.2 (Riparian Management Zones) shall be used for all actions and projects.

Appendix B of the BA contains the full suite of Plan Components which apply to management activities in riparian areas, such as minimizing roads in RMZs and applying herbicides and other

chemicals only to maintain, protect, or enhance aquatic and riparian resources or to restore native plant communities in a manner that does not harm aquatic or riparian resources. Elements limiting effects on and in RMZs are found both with the RMZ section of the Revised Plan and in several other sections, such as Infrastructure (ARINF), Grazing (ARGRZ), Energy and Minerals (AREM), and Recreation (ARREC). For instance, FW-STD-AREM-03 states that mining operations will minimize adverse effects to aquatic and riparian- dependent resources in RMZs.

Because the RMZs are conservatively wide and because the Revised Plan includes desired conditions, standards, and guidelines qualifying activities within RMZs, the Revised Plan represents a precautionary approach to managing RMZs. The RMZs serve as a buffer from effects originating outside the RMZ, and also are managed to avoid or reduce adverse effects to listed species and their habitat from activities near streams, such as timber harvest, road work and use, and chemical application.

We anticipate that future project activities in RMZs may lead to an increase in project related effects compared to past and present implementation of the PACFISH amended LRMP, due to the Revised Plan setting a higher volume timber target than recent past and present timber output. This increase in timber target is assumed to also lead to an increase in associated road-related short-term effects (page 32-34 of BA) outside and within RMZs. Historically timber targets on the NPCNF has not been achieved but this value of 210 MMBF is the highest allowable volume to occur and therefore is a core assumption of this analysis. In addition, the Revised Plan, by allowing more harvest within inner and outer portions of the RMZ where needed to achieve desired conditions (refer to FW-STD-RMZ-01), may result in more vegetation management within RMZs than has been occurring under the present PACFISH-amended LRMP. While we cannot quantify these increased project related effects, the identification of RMZs and limitations on activities within the RMZs are expected to keep the level of effects within any one RMZ from affecting the maintenance or attainment of desired conditions.

Conservation Watershed Network

Population strongholds, as defined by the Interior Columbia Basin Strategy are areas where robust populations occupy high quality habitat that will support expansion and recolonization of the species into adjacent watersheds (BLM et al. 2014). These areas should conserve key processes likely to influence the persistence of populations or metapopulations (Rieman and Dunham 2000). In addition, the continued persistence of salmon and steelhead in the Columbia basin relies on restoration actions that enhance climate resilience (Jorgensen et al. 2021) in freshwater spawning, rearing, and migratory habitats, including access to high elevation, high quality cold-water habitats, and the reconnection of floodplain habitats across the interior Columbia River basin. To protect and maintain population strongholds, the Interior Columbia Basin Strategy recommends that forest plans identify watersheds or sub-watersheds to be managed to emphasize protection of populations of listed aquatic species. For salmon and steelhead, these watersheds would be identified at the species' subpopulation scale and would contribute to the conservation and recovery of individual populations. A network of watersheds managed to serve as refugia is crucial for maintaining and recovering habitat for listed salmon and steelhead (FS et al 1993).

The Revised Plan helps protect salmon and steelhead population strongholds through the designation and management of the CWN. The CWN is intended to provide a pattern of protection across the landscape in which the habitat of ESA listed fish and species of conservation concern receives special attention and treatment. Hydrologic Unit Code 12 (HUC12) watersheds in the CWN form a network of existing or historic population strongholds and habitats with high potential for productivity and fish abundance. There are 245 HUC12 Sub-watersheds on the NPCNF and 81 have been designated as part of the CWN because they met 3 or more of the five inclusion criteria listed in Section 1.3.3. Designation and Conservation of Population Strongholds.

Relevant Conservation Watershed Network direction is provided below which may assist in addressing the anticipated increase of potential road related effects.

FW-GL-CWN-01. The Nez Perce-Clearwater works with the Nez Perce Tribe, State of Idaho, National Marine Fisheries Service, U. S. Fish and Wildlife Service, and other governmental organizations to plan and implement projects that contribute to recovery goals for aquatic species listed under the Endangered Species Act and their designated critical habitat, such that protective measures under the Act are no longer necessary.

FW-GL-CWN-02. The Nez Perce-Clearwater partners with federal agencies, including Section 7 consultation, as required; state agencies; tribes; counties; interested groups; and interested private landowners to recover threatened and endangered species.

FW-DC-CWN-01. Conservation Watershed Networks have functionally intact ecosystems that provide high-quality water and contribute to and enhance the conservation of aquatic species of conservation concern and recovery of threatened or endangered fish species.

FW-DC-CWN-02. Streams within the Conservation Watershed Network provide habitat that supports robust native fish populations, which can expand to and recolonize adjacent unoccupied habitats. These areas conserve key demographic processes likely to influence the sustainability of aquatic species.

FW-DC-CWN-03. Roads in the Conservation Watershed Network present minimal risk to aquatic resources.

FW-OBJ-CWN-01. Conservation Watershed Networks are the highest priority for restoration actions for native fish and other aquatic species. Assess 500 miles of roads every 5 years to identify those roads, regardless of maintenance level, that may negatively impact streams, such as contributing excessive sediment or altering riparian areas or floodplains.

FW-OBJ-CWN-02. Stormproof 15 percent of roads in Conservation Watershed Network prioritized for restoration every 5 years as funding allows to benefit threatened and endangered aquatic species. Emphasize roads with greatest risk of erosion and road prism failure, including maintenance Level 1 and 2 roads.

FW-STD-CWN-01. In Conservation Network Watersheds not meeting aquatic and riparian Conservation Strategy desired conditions, activities shall be designed and implemented in a manner that supports, and/or contributes towards the recovery of federally listed species and the achievement of these desired conditions and does not retard them when evaluated at the HUC12 sub-watershed scale. Short-term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species.

Standard FW-STD-CWN-01 states that in those watersheds not meeting aquatic and riparian desired conditions, activities shall be designed and implemented so that those activities support and/or contribute towards the recovery of listed species and short-term adverse effects may occur when they support the long-term recovery. Objectives FW-OBJ-CWN-01 and FW-OBJ-CWN-02 identify the need to inspect roads on a regular basis and to stormproof (reduce the likelihood of sediment) some of these, with emphasis on addressing greatest risks of erosion and failure, to reduce road related impacts.

The Desired Conditions for watersheds classified as part of the CWN are intended to be used in conjunction with Desired Conditions for Water and Aquatic Resources and RMZs. These watersheds are intended to maintain multi-scale connectivity for ESA-listed fish and species of conservation concern, identifying important areas needed for conservation and/or restoration and ensuring ecosystem components needed to sustain long-term persistence of these species. Aquatic restoration actions will focus on conditions not meeting desired conditions. The goal of the CWN is to sustain the integrity of key aquatic habitats to maintain long-term persistence of native aquatic species and help make habitat conditions more resilient to climate change. Designation of the CWN is expected to protect native fish and help maintain and restore healthy watersheds and river systems. These watersheds are the highest priority for restoration actions for the aquatic environment. Aquatic restoration is also encouraged in HUC12 sub-watersheds outside of the CWN that are important for achieving recovery of listed species. A full list of watersheds in the CWN is included in Appendix C of the BA.

Watersheds in the CWN have a wide range of habitat conditions. Some of the CWN watersheds for listed anadromous fish are largely undeveloped and in near-natural states, while others are in areas with relatively high road densities and altered conditions from effects of past actions. There is no prioritization that focuses on listed anadromous populations within designated CWNs. Watersheds with listed anadromous populations needing restoration are not currently stratified/prioritized in the Revised Plan into different categories based on specific restoration needs and their relative importance for the recovery of listed fish populations. The CWN network from a present stronghold and restoration perspective treats each CWN watershed equally.

The designation of CWN watersheds may increase the rate of aquatic restoration in those watersheds but the rate of restoration is unknown and there is no requirement that aquatic restoration in any given CWN watershed would benefit listed anadromous fish species as the criteria for identification of CWN watersheds includes other factors and was not strictly based on the presence of ESA listed anadromous species. The CWN includes many populations of salmon and steelhead but it does not identify important populations and it does not have directed

conservation and restoration of habitat networks throughout a large basin where listed anadromous fish populations occur. The current restoration objectives for CWN is to assess 500 miles of roads every 5 years and then stormproof 15 percent of roads in those watersheds. In addition, there are additional objectives that promote the conservation of listed species in CWN designated watershed:

FW-OBJ-WTR-01. Complete the actions identified in watershed restoration action plans for 15 priority watersheds as identified under the Watershed Condition Framework process every 15 years.

FW-OBJ-CWN-02. Stormproof 15 percent of roads in Conservation Watershed Network prioritized for restoration every 5 years as funding allows to benefit threatened and endangered aquatic species and municipal watersheds. Emphasize roads with greatest risk of erosion and road prism failure, including maintenance Level 1 and 2 roads.

FW-OBJ-ARREC-01. Remove, relocate, or mitigate two existing dispersed recreation sites, outside of riparian management zones every 5 years.

FW-OBJ-INF-01. Complete 600 miles of road work, such as reconstruction; re-routing; road improvements; decommissioning; or placing roads in intermittent stored service, every 5 years. Priorities shall include reducing effects on desired aquatic and riparian conditions from chronic sediment delivery or potential future road prism failures, including previously decommissioned roads where drainage features have failed.

FW-OBJ-INF-02. Annually maintain 1,400 miles of operational maintenance Level 2 through 5 roads.

FW-OBJ-CWN-01. Conservation Watershed Networks are the highest priority for restoration actions for native fish and other aquatic species. Assess 500 miles of roads every 5 years to identify those roads, regardless of maintenance level, that may negatively impact streams, such as contributing excessive sediment or altering riparian areas or floodplains.

Below are some standards relevant to CWN:

FW-SRD-CWN-01. In Conservation Network Watersheds not meeting aquatic and riparian desired conditions, activities shall be designed and implemented in a manner that supports and/or contributes towards the recovery of federally listed species and the achievement of these desired conditions and does not retard them when evaluated at the HUC12 sub-watershed scale. Short-term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species.

FW-STD-ARINF-07. In the Conservation Watershed Network and HUC12 sub-watersheds with Endangered Species Act critical habitat or listed aquatic species, when constructing or reconstructing roads, projects shall result in a net decrease in the

hydrologic connectivity of the road system and stream channel network. Treatment priority shall be given to roads or road segments that pose the greatest relative ecological risk to riparian and aquatic ecosystems. The net decrease is measured by project area.

Multiscale Analysis – Management Approach

In the 2014 ICBEMP Framework, Multiscale Analysis is an interdisciplinary analysis of the status and trends of watershed and aquatic ecosystem conditions. This information serves as a foundation for Plan implementation through the development of strategic and integrated programs and projects that protect and restore aquatic resources, while enabling informed and sustainable resource use and management. In the Revised Plan the current direction is to have Multiscale Analysis as a Management Approach which is optional as briefly described in Appendix A of the BA with a more detailed discussion in Appendix 4 of the Revised Plan.

The 2014 ICBEMP Framework identifies the recommendation to use Multiscale Analysis in forest plan revisions and also recommended that analysis scales be used at the appropriate scale of the management issue (3-6 field HUCs). It further identifies that forest plans should be analyzed at the scale of the land management unit, normally a subbasin or group of subbasins.

The Revised Plan highlights that Multiscale Analysis can be utilized to help determine consistency with standards FW-STD-WTR-04, FW-STD-RMZ-01, FW-STD-RMZ-06, and FW-STD-CWN-01. The use of Multiscale Analysis could provide the context and identify needs for project activities to protect and restore aquatic and riparian habitat. In Appendix 4 of the Revised Plan, multi-scale analysis was identified to be used for specific projects in various instances (Aquatic Ecosystems, Flow Regimes, Priority Watersheds, Riparian Management Zones, and Conservation Watershed Networks). Multiscale Analysis could result in recommendations for conservation measures for aquatic species by considering data from different spatial scales and informing project effects analyses. Using the SCIA is a key step in the Multiscale Analysis. The SCIA can be used during project development to evaluate the existing condition of stream and riparian indicators and their status versus a range of desired conditions. SCIA is methodology intended to provide consistent documentation and approach for evaluating conditions and departures and how project actions may influence aquatic and riparian desired conditions. The methodology allows current conditions to be assigned to one of the three categories of Functioning at High, Moderate, or Low Levels. This methodology may be particularly useful for helping target proposed aquatic restoration actions designed to restore or maintain aquatic and riparian desired conditions, especially where indicators are determined to be functioning at moderate or low levels.

The six-steps for implementing Multiscale Analysis as described in the Revised Plan consists of the following steps:

1. Identify and map locations of listed native fish and species of conservation concern fish populations, and critical habitat to determine areas of greatest concern within the project area.
2. Coarse Filter - Identify Limiting Factors within Project Area.
3. Medium Filter – Stream Condition Indicator Assessment (SCIA).
4. Fine Filter – Field Verification of Conditions & Multiscale Analysis Questions.

5. Identify Conservation/Restoration Actions.
6. Effectiveness Monitoring.

Management Approaches, such as multiscale analysis, are possible actions and strategies the NPCNF might undertake to maintain or make progress towards achieving the desired conditions described in the Revised Plan. If implemented they can help clarify how the planned outcomes (i.e., objectives, desired conditions) in the Revised Plan might be achieved. Multiscale Analysis, as a Management Approach, may be used to inform future proposed and possible actions. It does not commit the NPCNF to implement actions or suggest expected locations or dates of implementation.

The SCIA is also proposed as a Management Approach in the Final Plan and is described in more detail in Appendix 4 of the Revised Plan. As mentioned above, SCIA can be used during project development to evaluate the existing condition of stream and riparian indicators and their status versus a range of desired conditions. SCIA provides the link between the descriptive Desired Condition language and actual quantitative habitat parameters that would be measured and used to track movement towards Desired Conditions. The Final Plan recommends the use of SCIA for certain projects in specific instances (always for Multiscale Analysis, Watershed Restoration, Sediment Delivery, Riparian Management Zones, Vegetative Management in Riparian Management Zones, and Conservation Watershed Networks). A list of potential stream indicators for use are shown in Table 34 of Appendix 4 of the Revised Plan. Again, since both Multi-scale analysis and SCIA are Management Approaches they are optional but can be used at the future project level. If implemented these management approaches would provide an additional level of analysis that would increase the likelihood of additional conservation to listed fish populations. Historically, the NPCNF has rarely used watershed analysis but did use the NMFS matrix of pathways and indicators (precursor of SCIA) in the past, both components of PACIFSH. Unfortunately, we do not know the extent that these now optional tools would be used and therefore assume that they would only be used sparingly if at all.

Watershed Restoration Priorities and Guidance

The Interior Columbia Basin Strategy concluded that to be successful at protecting aquatic and riparian resources, forest plans should identify restoration priorities by type of restoration and geographic areas, and restoration under Plan direction should address limiting factors identified in recovery plans (BLM et al. 2014). The Revised Plan identifies aquatic restoration priorities by including a list of objectives, which are measurable and time-specific statements of a desired rate of progress toward a desired condition or conditions. Relevant objectives in the Revised Plan include but are not limited to:

FW-OBJ-WTR-02. Enhance or restore 50 to 100 miles of stream habitat within naturally unconfined channels every 5 years to maintain or restore structure, composition, and function of habitat for fisheries and other aquatic species in streams with legacy effects that caused channels to become straightened or incised, impaired beaver habitat, or diminished floodplain capacity. Activities include, but are not limited to, berm removal, large woody debris placement, streamside road decommissioning, riparian planting, beaver dam analogs, and process-based restoration/floodplain restoration.

FW-OBJ-WTR-03. Enhance or restore stream habitat on 5 miles, every 5 years, in naturally confined channels to maintain or restore step pool structure, composition, and function of habitat for fisheries and other aquatic species. Activities include, but are not limited to, improving stream complexity, large wood debris or boulder placement, and riparian planting.

FW-OBJ-WTR-04. Reconnect 10 to 20 miles of habitat in streams every 5 years where passage barriers created by roads or culverts are limiting the distribution of fish or other aquatic species of concern.

FW-OBJ-WTR-05. Improve soil and watershed conditions on 3,000-4,000 acres every 5 years, emphasizing actions in priority watersheds and Conservation Watershed Network watersheds. This includes non-system road decommissioning.

FW-OBJ-RMZ-01. Improve 300 to 700 acres of riparian habitat every 5 years, through improvements that are intended to meet desired conditions for riparian management zones, such as road obliteration, riparian planting, hardwood restoration, post assisted log structures, beaver dam analogs, and reconnecting floodplains by removing road prisms or berms.

FW-OBJ-RMZ-02. On an annual basis, a minimum of 10 percent of trees harvested in the portions of the Riparian Management Zone beyond 150 feet (Riparian Management Zone Category 1) and beyond 100 feet (Riparian Management Zone Categories 2 and 3) from the edge of the active stream channel are used for aquatic stream restoration either on-site or off-site to contribute large wood to stream channels.

FW-OBJ-CWN-01. Conservation Watershed Networks are the highest priority for restoration actions for native fish and other aquatic species. Assess 500 miles of roads every 5 years to identify those roads, regardless of maintenance level, that may negatively impact streams, such as contributing excessive sediment or altering riparian areas or floodplains.

FW-OBJ-CWN-02. Stormproof 15 percent of roads in Conservation Watershed Network prioritized for restoration every 5 years as funding allows to benefit threatened and endangered aquatic species. Emphasize roads with greatest risk of erosion and road prism failure, including maintenance Level 1 and 2 roads.

FW-OBJ-WTR-01. Complete the actions identified in watershed restoration action plans for priority watersheds as identified under the Watershed Condition Framework process every 15 years

If implemented, these restoration objectives could address limiting factors for the salmon and steelhead populations which overlap with the Forests and may lead to improved habitat conditions, potentially increasing population abundance and productivity. Various Plan Components mention species recovery plans (NMFS 2015; NMFS 2017a) and the need to promote the recovery of listed species. As part of the Monitoring Component of the Revised

Plan, project planners would have access to information to consider opportunities to implement actions that would promote conservation of these species during project planning. There are also several objectives that would promote habitat restoration, which if implemented would most likely improve habitat conditions thus addressing threats to listed anadromous populations. Some of the Objectives address limiting factors for salmon and steelhead populations as identified in various recovery plans (NMFS 2015; NMFS 2017a). FW-WTR-OBJ-02 identifies the importance of the naturally unconfined channels and identifies ways to restore management-impaired floodplain connectivity, including through removal of berms and riparian roads, and use of beaver dam analogs. In addition, FW-CWN-OBJ-01/02 identifies the need to assess and address road issues with emphasis on erosion and potential failure, key sources of chronic and episodic management caused sediment delivery and substrate impairments.

The 2012 planning rule required that forest plans identify watersheds that are a priority for restoration and maintenance. These are special management areas identified by the NPCNF for the sole purpose of restoration and maintenance.

Watersheds that are a priority for maintenance or restoration include under the 2012 planning rule include:

- Upper Elk Creek (Hydrologic Unit Code (HUC) 12 #170603080701)
- Upper Clear Creek (HUC12 #170603040102)
- Upper Little Slate Creek (HUC12 #170602090301)
- Musselshell Creek (HUC12 # 170603060202)
- Lower Crooked River (HUC12 # 170603050302)

Future priority watersheds will be determined throughout the life of this plan. Identification of a watershed as a priority watershed would require the development of a watershed restoration action plan. The open-ended nature of designating priority watersheds and developing watershed actions plans can provide an opportunity to focus future action on recovery of listed anadromous populations, but priority watersheds do not necessarily focus on implementing actions that are important to listed anadromous populations.

The Final Plan does not provide further prioritization for aquatic restoration within the CWN. This does not help project planners consider and plan future projects based on which species and populations are most impaired in terms of habitat or in terms of current abundance/productivity and distribution. It also does not recommend or identify what habitat restoration work best addresses those key problems or associated limiting factors. The Final Plan also does not articulate or provide language that would lead to and guide modifications or prioritization of watersheds after issuance of the Plan. The Revised Plan also does not have direction that would allow project planners to consider aquatic species habitat restoration priorities that would address limiting factors for salmon and steelhead within project areas when planning multi-use projects. On future projects planners could consider reducing and offsetting activity effects (e.g. road work and use) on the listed species and address limiting factors identified in NMFS 5-year Reviews.

The Revised Plan does not prioritize restoration at a meaningful scale for listed anadromous species as described in the 2014 ICBEMP Framework. The Revised Plan also does not prioritize watersheds based on habitat conditions and/or population status within the CWN, nor does it assist in identifying future actions that would address key limiting factors. There are also no Plan Components that articulate how restoration priorities can change in the future; these concepts will be discussed more in 2.5.6 Monitoring and Adaptive Management.

Management Direction (Plan Components - Desired Conditions, Standards, and Guidelines)

The Interior Columbia Basin Strategy stated that a forest plan should identify desired conditions for aquatic and riparian resources in order to be successful in conserving listed salmon and steelhead (BLM et al. 2014). Desired conditions can be described for the different components of aquatic resources, such as water quality (e.g., temperature) and stream habitat components (e.g., pools). Desired Conditions are descriptions of specific social, economic, or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired Conditions in the Revised Plan that are particularly relevant to salmon and steelhead and their habitat are provided below:

FW-DC-WTR-01. National Forest System lands provide the distribution, diversity, and complexity of watershed and landscape-scale features including natural disturbance regimes and the aquatic and riparian ecosystems to which species, populations, and communities are uniquely adapted. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity.

FW-DC-WTR-02. Spatial connectivity exists within or between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These network connections provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic, riparian-associated, and many upland species of plants and animals.

FW-DC-WTR-03. Aquatic habitats contribute to ecological conditions capable of supporting self-sustaining populations of native species and diverse plant, invertebrate, and vertebrate aquatic and riparian-dependent species. Aquatic habitats are key contributors to the recovery of threatened and endangered fish species and provide important habitat components for all native aquatic species.

FW-DC-WTR-04. Instream habitat conditions for managed watersheds move in concert with or towards reference conditions. Aquatic habitats are diverse, with channel characteristics and water quality reflective of the climate, geology, and natural vegetation of the area. Instream habitat conditions across the forest, such as large woody material, percent pools, residual pool depth, median particle size, and percent fines are within reference ranges as defined by agency monitoring (e.g., PIBO) and match the frequency distribution of comparable reference sites for a given channel type, channel size, climate, and geomorphic setting.

FW-DC-WTR-06. Sediment delivery to streams is of the types, quantities, and rates that support the natural instream sediment transport and storage rates and instream sediment substrate composition. The sediment regime in water bodies is not chronically affected by management activities to the extent that the availability of functioning spawning areas and interstitial spaces are reduced.

FW-DC-WTR-07. Instream flows are sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained. Stream flow regimes maintain riparian ecosystems and natural channel and floodplain dimensions. Stream channels transport sediment and woody material over time while maintaining reference dimensions (e.g., bank full width, depth, entrenchment ratio, slope, and sinuosity).

FW-DC-WTR-10. Critical habitat components (physical and biological features) provide the ecological conditions necessary to achieve species recovery. Spawning, rearing, and migratory habitats are widely available and inhabited. Listed aquatic species have access to historic habitat and appropriate life history strategies (e.g., bull trout resident, fluvial, adfluvial, and anadromy) are supported.

FW-DC-RMZ-01. Riparian Management Zones reflect a natural composition of native flora and fauna and a distribution of physical, chemical, and biological conditions as compared to reference conditions. The species composition and structural diversity of native plant communities in riparian management zones provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration. Nutrients, large woody debris, and fine particulate organic matter are supplied in amounts and distributions sufficient to sustain physical complexity and stability.

FW-DC-RMZ-02. Riparian Management Zones feature key riparian processes and conditions that function consistent with local disturbance regimes, including slope stability and associated vegetative root strength, wood delivery to streams and within the riparian management zones, input of leaf and organic matter to aquatic and terrestrial systems, solar shading, microclimate, and water quality.

FW-DC-CWN-01. Conservation Watershed Networks have functionally intact ecosystems that provide high-quality water and contribute to and enhance the conservation of aquatic species of conservation concern and recovery of threatened or endangered fish species.

FW-DC-CWN-02. Streams within the Conservation Watershed Network provide habitat that supports robust native fish populations, which can expand to and recolonize adjacent unoccupied habitats. These areas conserve key demographic processes likely to influence the sustainability of aquatic species.

FW-DC-CWN-03. Roads in the Conservation Watershed Network present minimal risk to aquatic resources.

The Revised Plan describes desired conditions for many aspects of aquatic and riparian resources, including aquatic function, water quality, riparian management areas, and stream channel function. As mentioned above, the SCIA can be used during project development to evaluate the existing condition of stream and riparian indicators and their status versus a range of desired conditions. SCIA provides the link between the descriptive Desired Condition language and actual quantitative habitat parameters that would be measured and used to track movement towards Desired Conditions. The Final Plan recommends the use of SCIA for certain projects in specific instances (always for Multiscale Analysis, Watershed Restoration, sediment delivery, Riparian Management Zones, vegetative management in Riparian Management Zones, and Conservation Watershed Networks). A list of potential stream indicators for use are shown in Table 34 of Appendix 4 of the Revised Plan.

Standards and guidelines differ slightly, Standards must be complied with during future projects or activities (unless there is a plan amendment). Guidelines may or may not be complied with as long as an action is designed in a way that achieves the purpose of the guideline. The Revised Plan includes standards and guidelines that support conserving or achieving desired conditions. Below are the most important standards and guidelines regarding ensuring conservation of salmon and steelhead:

FW-STD-WTR-04. Where aquatic and riparian desired conditions are being achieved, projects shall maintain those conditions. Where aquatic and riparian desired conditions are not yet achieved, and to the degree that project activities would contribute to those conditions, projects shall restore or not retard attainment of desired conditions. Short term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species. Exceptions to this standard include situations where Forest Service authorities are limited (1872 Mining Law, state water right, etc.). In those cases, project effects shall not retard attainment of desired conditions for watersheds, to the extent possible within Forest Service authorities.

FW-STD-RMZ-01. Vegetation management shall only occur in riparian management zones from the edges of the active stream channel to within 150 feet within Riparian Management Zone Category 1 and to the edges of the active stream channel to 100 feet within Riparian Management Zone Category 2, 3, and 4 to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, small diameter (e.g., sapling, pole) conifer thinning, may be authorized if aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer Riparian Management Zones to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer Riparian Management Zone, including sediment filtering, large wood recruitment to

streams, and protection of the inner Riparian Management Zone from windthrow. Vegetation management in Riparian Management Zones shall not retard attainment of aquatic and riparian desired conditions.

FW-STD-CWN-01. In Conservation Network Watersheds not meeting aquatic and riparian desired conditions, activities shall be designed and implemented in a manner that supports, and/or contributes towards the recovery of federally listed species and the achievement of these desired conditions and does not retard them when evaluated at the HUC12 sub-watershed scale. Short term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species.

Each of these three standards requires that when watershed and riparian desired conditions are being achieved, projects shall maintain those conditions; and where desired conditions are not yet achieved, projects shall restore or not retard attainment of desired conditions. A project may have short-term adverse effects if it maintains or makes progress towards desired conditions over the long term.

While these three are the most important standards for the protection of aquatic resources, many of the Plan's activity-specific standards and guidelines also address riparian and aquatic protection. Most Plan Components that promote conservation of listed aquatic species are found in the Water (WTR), Riparian Management Zones (RMZ), Conservation Watershed Network (CWN), or Aquatic and Riparian Infrastructure (ARINF) plan components. Additional Plan Components that promote the conservation of listed aquatic species can be found in other plan components such as Aquatic and Riparian Energy and Minerals (AREM), Aquatics and Riparian Livestock Grazing (ARGRZ), Aquatics and Riparian Lands and Special Uses (ARLND), and Aquatics and Riparian Recreation (ARREC). The following is a list of other management direction standards that are particularly important for aquatic conservation as identified in the proposed action:

Riparian Management Zones

FW-STD-RMZ-01. (see above)

FW-STD-RMZ-02. Staging of vehicles or heavy equipment, refueling, and fuel storage shall be located outside of riparian management zones to avoid water contamination. If no other location is appropriate and refueling or storage is needed within riparian management zones, locations must be approved by the Timber Contracting Officer, Contracting Officer, or their designee and have an approved spill containment plan.

FW-STD-RMZ-03. Herbicides, pesticides, and other toxicants and chemicals shall only be applied within riparian management zones when the activity does not retard attainment of aquatic and riparian desired conditions.

FW-STD-RMZ-04. Fuelwood cutting shall not be authorized within 150 feet of the stream edge.

FW-STD-RMZ-05. Trees felled for safety shall be retained onsite unless in excess of what is needed to achieve aquatic and riparian desired conditions. Trees shall be directionally felled towards or into streams, where it is safe and practical to do so. Trees felled within developed recreation sites or administration sites may be moved but must still remain within the RMZ. If aquatic and riparian desired conditions for wood are met at the site, surplus wood can be transported to other aquatic and riparian restoration project sites. Exceptions to this standard are allowed in developed recreation and administrative sites where needed to address concerns for human safety or infrastructure and when not practicable to leave on site.

FW-STD-RMZ-06. Direct ignition of low severity prescribed fire in RMZ is allowed to achieve or maintain desired conditions so long as:

- direct ignition within the RMZ will not retard attaining water, aquatic and riparian desired conditions;
- direct ignition within the RMZ maintains or enhances existing stream conditions, and effects to threatened or endangered species and their designated critical habitat are considered.

FW-STD-RMZ-08. New road and landing construction, including temporary roads and mechanical trail construction, shall not be constructed in riparian management zones except where:

- needed for the implementation of restoration projects, or
- necessary for stream crossings, or
- a road or trail relocation contributes to attainment of aquatic and riparian desired conditions, or
- a road or trail inside the RMZ would greatly reduce the total ecological, cultural or social impacts of an existing or proposed route outside the RMZ, or
- Forest Service authorities are limited by law or regulation (e.g., General Mining Act of 1872).

FW-STD-RMZ-09. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum shall be avoided in mapped aerial retardant avoidance areas.

FW-STD-RMZ-10. New incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities shall be located outside of riparian management zones. When no practical alternative exists, measures shall be taken to restore riparian features that were impacted by the activities.

FW-GDL-RMZ-01. New landings, skidding, staging, or decking and machine burn piling should be located outside riparian management zones to minimize effects to riparian and aquatic resources. Where new activities inherently must occur in riparian management zones, locate them so that they do not degrade or retard aquatic and riparian desired conditions.

FW-GDL-RMZ-03. To prevent damage to stream channels, yarding activities should achieve full suspension over the active channel.

FW-GDL-RMZ-04. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should be avoided in mapped aerial retardant avoidance areas in order to minimize impacts to the riparian management zones and aquatic resources.

FW-GDL-RMZ-06. To minimize sediment delivery and adverse effects to stream channels, construction of machine fire line in riparian management zones should be avoided, except where needed to cross streams.

FW-GDL-RMZ-07. To reduce sediment delivery to streams during or after fire suppression activities, disturbed areas in riparian management zones, such as fire lines, drop-points, camps, roads, and trails, should be restored by actions such as scattering slash piles, replacing logs and boulders, scarifying soils, re-contouring terrain, and reseeded with native species.

FW-STD-RMZ-09. Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should be avoided in mapped aerial retardant avoidance areas in order to minimize impacts to the riparian management zones and aquatic resources.

FW-STD-RMZ-10. To minimize adverse effects to Endangered Species Act listed species, riparian areas, aquatic habitat, and riparian dependent species, new incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities should be located outside of riparian management zones. When no practical alternative exists, measures to maintain, restore, and enhance riparian areas, stream habitat, and riparian dependent species should be used.

FW-GDL-WTR-06. Fireline's should be located and configured to minimize sedimentation to waterbodies, limit capture of overland and stream flows, and restrict development of unauthorized roads and trails. Fireline's should be restored following suppression or prescribed fire activities.

Road Use

FW-GDL-RMZ-02. To reduce the likelihood of sediment input to streams, avoid new road, trail, and landing construction, including temporary roads, in riparian management zones except where:

- a. necessary for stream crossings,
- b. a road or trail relocation contributes to attainment of aquatic and riparian desired conditions,
- c. or Forest Service authorities are limited by law or regulation (e.g., General Mining Act of 1872). Temporary roads should be managed to protect aquatic and riparian desired conditions.

FW-STD-ARINF-02. Best management practices shall be used during dust abatement applications on roads, and ensure chemicals are not applied directly to watercourses; water bodies such as ponds and lakes; or wetlands

FW-STD-ARINF-03. To reduce or prevent sediment delivery to water, on roads other than out sloped roads, road surface and fill materials shall not be side cast into streams during road construction or reconstruction, when occurring within or adjacent to riparian management zones.

FW-STD-ARINF-04. New, replacement, and reconstructed stream crossing sites such as culverts, bridges and other stream crossings shall accommodate at least the 100-year flow, including associated bedload and debris.

FW-STD-ARINF-05. When constructing or reconstructing roads, incorporating woody debris into the fill portion of the road prism shall be avoided.

FW-STD-ARINF-06. In fish bearing streams, construction, reconstruction, or replacement of stream crossings shall not impair passage of any life stages of native aquatic organisms, unless barriers are desired to maintain or prevent spread or invasion of non-native species in alignment with fish management agencies.

FW-STD-ARINF-07. In the Conservation Watershed Network and HUC12 sub-watersheds with Endangered Species Act critical habitat or listed aquatic species, when constructing or reconstructing roads, projects shall result in a net decrease in the hydrologic connectivity of the road system and stream channel network unless no further decreases are needed to meet desired conditions for Water and Aquatic Resources or Conservation Watershed Network. Treatment priority shall be given to roads or road segments that pose the greatest relative ecological risk to riparian and aquatic ecosystems. The net decrease is measured by project area.

FW-STD-ARINF-08. Culverts and bridges in fish-bearing and perennial streams shall allow for passage of fish and other aquatic and riparian dependent species through the establishment of banks inside or beneath the crossing structure and mimicking the natural channel features, unless precluded by site characteristics such as bedrock or high channel gradient.

FW-GDL-ARINF-01. Construction, reconstruction, and maintenance activities of roads, skid trails, temporary roads, and airstrips, should hydrologically disconnect the drainage system from delivering water, sediment, and pollutants to water bodies, and to prevent concentrated water from directly entering streams.

FW-GDL-ARINF-02. To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or closing roads for longer than one year, roads should be left in a hydrologically stable condition where road drainage is routed away from water resources and landslide prone areas and towards stable areas of the forest floor to provide filtering and infiltration.

FW-GDL-ARINF-03. To reduce the risk of sediment delivery from gully formation or mass wasting when closing travel routes such as roads, skid trails, and temporary roads

with physical barriers (e.g., berms), drainage features should be left in a condition that will function without any maintenance for the planned duration of the closure.

FW-GDL-ARINF-04. To reduce road-related mass wasting and sediment delivery to watercourses, new and relocated roads, including skid trails and temporary roads, and other linear features should not be constructed on lands with high mass wasting potential.

FW-GDL-ARINF-05. To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites, such as culverts, bridges and other stream crossings, should be constructed to prevent diversion of stream flow out of the channels and down the road in the event the crossing is plugged or has a flow greater than the crossing was designed.

FW-GDL-ARINF-06. To maintain channel stability and reduce sediment delivery to watercourses, when reconstructing roads, fords should be hardened to protect the stream bed, banks, and approaches.

FW-GDL-ARINF-07. To reduce sediment delivery from maintenance activities, such as road blading and snow plowing, avoid side casting into streams. Care should be taken when plowing snow so as not to include road soil. Breaks should be incorporated in the snow berms to direct water off the plowed surface.

FW-GDL-ARINF-08. To avoid adverse effects to water resources, wetlands and seasonally wet meadows should be avoided when constructing new roads and landings, including temporary roads. For all roads, and where reconstruction of existing roads cannot avoid water courses and wetlands drainage features should maintain wetland functions and characteristics.

FW-GDL-ARINF-09. When constructing, reconstructing, or maintaining roads, including temporary roads, road drainage should be routed away from potentially unstable channels, fills, and hillslopes, to prevent destabilization of channels and hillslopes.

FW-GDL-ARINF-10. Transportation infrastructure should be designed to maintain natural hydrologic flow paths, including interception of surface and subsurface flow, to the extent practical. For example, streams and seeps upslope from roads should have cross-drains or relief culverts with sufficient capacity to ensure water is not routed down ditches.

Grazing

FW-STD-ARGRZ-01. Livestock grazing shall be authorized or reauthorized only when measures are included in the authorization to avoid or mitigate adverse effects to fish and riparian habitat that may result from grazing practices. Where livestock grazing is found to prevent or retard attainment of aquatic and riparian desired conditions, grazing practices shall be modified by practices such as adjusting accessibility of riparian areas to livestock, length of grazing season, stocking levels, or timing of grazing.

FW-STD-ARGRZ-02. Where livestock trailing, bedding, watering, salting, loading, off road vehicle use for managing or gathering livestock, and other related activities in riparian management zones are adversely affecting aquatic resources, annual operating instructions shall include measures to mitigate or relocate to other areas or times.

FW-STD-ARGRZ-03. During livestock grazing authorizations, reauthorizations, or updates to annual operating instructions, include measures to prevent trampling of fish redds of federally listed fish species and species of conservation concern.

FW-STD-ARGRZ-04. Water to new or reconstructed spring developments shall be protected from livestock trampling.

FW-GDL-ARGRZ-01. Livestock grazing shall be authorized or reauthorized only when measures are included in the authorization to avoid or mitigate adverse effects to fish and riparian habitat that may result from grazing practices. Where livestock grazing is found to prevent or retard attainment of aquatic and riparian desired conditions, grazing practices shall be modified by practices such as adjusting accessibility of riparian areas to livestock, length of grazing season, stocking levels, or timing of grazing.

FW-GDL-ARGRZ-02. To maintain water quality and minimize the sediment that is generated and delivered to watercourses from active livestock trailing, livestock trail stream crossings and approaches should be hardened or relocated, where needed, to achieve aquatic desired conditions.

FW-GDL-ARGRZ-03. To maintain quality and quantity of water flows to, within, or between groundwater dependent ecosystems, water to new or reconstructed spring developments should be protected from livestock trampling.

Mining

FW-STD-AREM-01. Plans of Operation that propose activities in riparian management zones shall include a reclamation plan and a reclamation bond that address the cost of removing facilities, equipment, and materials; re-contouring disturbed areas to pre-mining topography; isolating and neutralizing or removing toxic materials; salvaging or replacing topsoil; and revegetating with trees and shrubs or native plant seed to move toward attainment of aquatic and riparian desired conditions and avoid adverse effects on native fish.

FW-STD-AREM-02. Mine waste with the potential to generate hazardous material as defined by the Comprehensive Environmental Response, Compensation, and Liability Act shall not be authorized within riparian management zones where groundwater contamination is possible. The exception is temporary staging of waste during abandoned mine cleanup.

FW-STD-AREM-03. Mineral activities on National Forest System lands shall avoid or minimize adverse effects to aquatic threatened or endangered species and populations or their designated critical habitat.

FW-STD-AREM-04. Mineral exploration, processing, and extraction projects, except for suction dredging, shall not have direct water flow paths to streams, lakes, or wetlands. Projects shall install barriers between streams, lakes, wetlands, or groundwater dependent ecosystems and construction- related pollutant hazards such as sumps, processing pits, fuel storage, latrines, adits and shafts, underground workings, open pits, overburden, development rock and waste rock dumps, tailings impoundments, leach pads, mills, and process water ponds or natural pollutant hazards such as acidity, metals, sulfate, cyanide, or nitrate or a combination of the preceding.

FW-STD-AREM-05. Mineral operations shall minimize adverse effects to aquatic and riparian- dependent resources in riparian management areas. Best management practices and other appropriate conservation measures shall be included in plans of operation to mitigate potential mine operation effects.

FW-GDL-AREM-01. To prevent adverse effects to streams, wetlands, and other riparian dependent resources, all proposed mineral operations should avoid riparian management zones. If the riparian management zone cannot be avoided, plan of operations should include practicable measures to maintain, protect, and rehabilitate water quality and habitat for fish and wildlife and other riparian-dependent resources affected by the operations. Operations should not retard or prevent attainment of aquatic and riparian desired conditions. Exceptions to this guideline include situations where Forest Service has limited discretionary authorities. In those cases, project effects should not prevent or retard attaining aquatic and riparian desired conditions to the extent possible within those authorities.

FW-GDL-AREM-02. Mineral operations should reuse existing access routes and processing sites left from previous entries as long as they are not causing unacceptable impacts to aquatic and riparian dependent resources. Where new construction or relocation is necessary, to the maximum extent possible, construct and locate new structures, support facilities, and roads outside of riparian management zones. If new structures, support facilities and roads cannot be constructed outside riparian management zones because of site limitations, then construct and manage them to minimize adverse effects to aquatic and riparian dependent resources. When no longer required for mineral activities, structures and support facilities should be removed, and roads should be decommissioned or placed into intermittent stored service to achieve aquatic and riparian desired conditions.

FW-GDL-AREM-03. To minimize harm to listed fish and their critical habitat from suction dredge mining, Plans of Operations should be required of miners for proposed dredging in streams with ESA listed fish species or critical habitat. The Plans of Operations should include provisions consistent with Idaho Department of Water Resources to limit mining activities to specified times and methods that serve to avoid or

minimize, where feasible, adverse effects such as: dewatering streams or blocking fish passage; destabilizing or undermining stream banks and large wood; and excavating potential spawning areas or covering them with spoils.

FW-GDL-RMZ-09. New saleable sand and gravel mining and extraction should not occur within riparian management zones, to minimize ground disturbance and sediment inputs, and avoid adverse effects to riparian vegetation and water temperature.

FW-GDL-ARREC-01. To protect aquatic and riparian resources, new and reconstructed solid and sanitary waste facilities should not be located within 100 feet of water, unless no other alternative exists.

Recreation

FW-GDL-WTR-05. To maintain quality and quantity of water flows to, within, or between groundwater dependent ecosystems, new or reconstructed groundwater use developments such as recreation and administrative sites, drinking water wells, or wastewater facilities should not:

- Be developed in riparian management zones (unless no alternatives exist);
- Measurably lower river flows, lake levels, or flows to wetlands or springs; or
- Discharge pollutants directly to surface water or groundwater unless covered by a National Pollutant Discharge Elimination System permit.

FW-GDL-ARREC-01. To protect aquatic and riparian resources, new and reconstructed solid and sanitary waste facilities should not be located within 100 feet of water, unless no other alternative exists.

FW-GDL-ARREC-02. To reduce potential adverse effects to water quality and aquatic resources, construction of new facilities or infrastructure within floodplains should be avoided. Where new activities inherently must occur in riparian management zones (e.g., at road and trail stream crossings, boat ramps, or docks), they should be located and designed to minimize adverse effects to floodplains and other riparian-dependent resource conditions (e.g., within geologically stable areas and avoiding major spawning areas).

FW-GDL-ARREC-03. To reduce the risk of sediment delivery when closing trails with physical barriers (e.g. berms) for longer than one season, drainage features should be left in a condition that will function without any maintenance for the planned duration of the closure.

FW-GDL-ARREC-04. To reduce trail-related mass wasting and sediment delivery to watercourses, new and relocated trails should not be constructed on lands with high mass wasting potential.

FW-GDL-ARREC-05. Trail construction, reconstruction, and maintenance activities should prevent concentrated water from directly entering streams, by hydrologically disconnected the trails from delivering water, sediment, and pollutants to water bodies.

FW-GDL-ARREC-06. To maintain channel stability and reduce sediment delivery to watercourses, when constructing or reconstructing trails, fords should be hardened to protect the stream bed, banks, and approaches.

FW-STD-WTR-07. Large woody debris shall not be removed from stream channels or floodplains unless it threatens public safety, such as fire ingress/egress; critical infrastructure, such as mid-channel bridge piers; or for the implementation of restoration projects when there will be a net increase in the amount of woody debris in the RMZ post project.

Lands and Special Uses

FW-STD-ARLND-01. When authorizing new lands special uses, or reauthorizing existing uses, include conditions to avoid adverse effects to fish, water, and riparian resources. If adverse effects are unavoidable to Endangered Species Act listed fish, species of conservation concern, impaired water bodies, or stream habitat conditions, authorizations shall require actions that result in the re-establishment, restoration, mitigation, or improvement of conditions and ecological processes to ensure that projects that degrade conditions also include measures to improve conditions to the extent practicable. These processes include in-stream flow regimes, physical and biological connectivity, water quality, and integrity and complexity of riparian and aquatic habitat.

FW-STD-ARLND-02. Locate new hydropower support facilities outside of riparian management zones to reduce effects to fish, water, and riparian resources. Support facilities include any facilities or improvements such as workshops, housing, switchyards, staging areas, or transmission lines not directly integral to its operation or necessary for the implementation of prescribed protection, mitigation, or enhancement measures.

FW-STD-ARLND-03. In the Conservation Watershed Network and sub-watersheds with Endangered Species Act critical habitat or listed aquatic species, hydroelectric and other surface water development authorizations shall include requirements for instream flows and habitat conditions that maintain or restore native fish and other desired aquatic species populations, riparian dependent resources, favorable channel conditions, and aquatic connectivity.

FW-STD-ARLND-04. In the Conservation Watershed Network and in sub-watersheds with Endangered Species Act critical habitat or listed aquatic species, new hydroelectric facilities and water developments shall not be located in the Conservation Watershed Network unless it can be demonstrated that there are no substantial adverse effects to the fish and water resources used as rationale for the watershed being included in the Conservation Watershed Network. Exceptions to this standard include situations where Forest Service authorities are limited such as the Alaska National Interest Lands Conservation Act, 1872 Mining Law, or valid state water rights. In those cases, project effects shall not retard attainment of desired conditions for watershed function, to the extent possible within Forest Service authorities.

FW-GDL-ARLND-01. If existing hydropower support facilities are located within the riparian management zones at time of permit reissuance, reduce impacts on aquatic and riparian resources, such as moving support facilities outside of riparian management zones or further from water bodies where feasible.

FW-STD-WTR-01. New stream diversions and associated ditches shall have screens placed on them to prevent capture of fish and other aquatic organisms, using criteria established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, when listed fish may be present.

As noted in the Proposed Action section above and appendix E of the BA (Crosswalk of Standards and Guidelines Between PACFISH/INFISH and the Land Management Plan Aquatic Ecosystem Plan Components), the Revised Plan contains these and many other important prescriptive and outcome-based directives limiting effects on and encouraging improvement of riparian areas and streams which is generally quite similar to PACFISH. However, the Proposed Action also sets a higher target for vegetation management than what presently occurs.

FW-OBJ-TBR-01. Offer 190-210 million board feet timber sale per year

We anticipate that this Objective will likely increase associated effects on streams, particularly from the road work and road use. Management direction addressing the potential effects of this increase in Vegetation Management and its associated actions (timber harvest and sediment delivery from roads) are particularly important given the increase in volume of harvest during the life of the Revised Plan. As noted in the BA, the Revised Plan proposes to potentially increase acres harvested annually from 4,300 acres to 10,000 acres, increase the authorized Timber Sale Quantity to 210MMBF on an annual basis (recent history has only shown 55MMBF), potentially increase log truck trips from 12,300 up to 40,000 trips on an annual basis. Projects are anticipated to generate short term adverse effects but may also result in long term beneficial effects (e.g. reduction in overall sediment delivery) but these beneficial effects are typically only realized after a project has been fully completed. Projects are identified and anticipated to be larger in size and may affect larger areas concurrently than in the past.

Management direction attempts to address two major concepts: 1) projects shall restore or not retard attainment of desired conditions and 2) road-related effects will be considered and reduced during project activities. There are also specific standards and guidelines at the program level that set sideboards to avoid or reduce any negative effects to listed salmon and steelhead from specific activities. Standard and Guidelines that would address vegetation management and potential road related impacts include:

Vegetation Management:

FW-STD-RMZ-01. (see above)

FW-STD-RMZ-04. Fuelwood cutting shall not be authorized within 150 feet of the stream edge.

FW-STD-RMZ-05. Trees felled for safety shall be retained onsite unless in excess of what is needed to achieve aquatic and riparian desired conditions. Trees shall be directionally felled towards or into streams, where it is safe and practical to do so. Trees felled within developed recreation sites or administration sites may be moved but must still remain within the RMZ. If aquatic and riparian desired conditions for wood are met at the site, surplus wood can be transported to other aquatic and riparian restoration project sites. Exceptions to this standard are allowed in developed recreation and administrative sites where needed to address concerns for human safety or infrastructure and when not practicable to leave on site.

FW-STD-RMZ-07. The RMZ definitions in the introduction of Section 2.2.2 (Riparian Management Zones) shall be used for all actions and projects.

FW-GDL-RMZ-01. New landings, skidding, staging or decking, and machine burn piling should be located outside RMZs to minimize effects to riparian and aquatic resources. Where new activities inherently must occur in RMZs, locate them so that they do not degrade or retard aquatic and riparian desired conditions.

FW-GDL-RMZ-02. To reduce the likelihood of sediment input to streams, avoid new road, trail, and landing construction, including temporary roads, in RMZs except where: a) necessary for stream crossings, or b) a road or trail relocation contributes to attainment of aquatic and riparian desired conditions, or c) Forest Service authorities are limited by law or regulation (e.g., General Mining Law of 1872). Temporary roads should be managed to protect aquatic and riparian desired conditions.

FW-GDL-RMZ-03. To prevent damage to stream channels, yarding activities should achieve full suspension over the active channel.

FW-GDL-ARINF-01. Construction, reconstruction, and maintenance activities of roads, skid trails, temporary roads, and airstrips, should hydrologically disconnect the drainage system from delivering water, sediment, and pollutants to water bodies, to prevent concentrated water from directly entering streams.

FW-GDL-ARINF-03. To reduce the risk of sediment delivery from gully formation or mass wasting when closing travel routes such as roads, skid trails, and temporary roads with physical barriers (e.g., berms), drainage features should be left in a condition that will function without any maintenance for the planned duration of the closure.

FW-GDL-ARINF-04. To reduce road-related mass wasting and sediment delivery to watercourses, new and relocated roads, including skid trails and temporary roads, and other linear features should not be constructed on lands with high mass wasting potential.

Road Related Impacts:

FW-STD-RMZ-08. New road and landing construction, including temporary roads and mechanical trail construction, shall not be constructed in riparian management zones except where:

- needed for the implementation of restoration projects, or
- necessary for stream crossings, or
- a road or trail relocation contributes to attainment of aquatic and riparian desired conditions, or
- a road or trail inside the RMZ would greatly reduce the total ecological, cultural or social impacts of an existing or proposed route outside the RMZ, or
- Forest Service authorities are limited by law or regulation (e.g., General Mining Act of 1872).

FW-STD-ARINF-02. Best management practices shall be used during dust abatement applications on roads, and ensure chemicals are not applied directly to watercourses; water bodies such as ponds and lakes; or wetlands.

FW-STD-ARINF-03. To reduce or prevent sediment delivery to water, on roads other than out sloped roads, road surface and fill materials shall not be side cast into streams during road construction or reconstruction, when occurring within or adjacent to riparian management zones.

FW-STD-ARINF-04. New, replacement, and reconstructed stream crossing sites such as culverts, bridges and other stream crossings shall accommodate at least the 100-year flow, including associated bedload and debris.

FW-STD-ARINF-05. When constructing or reconstructing roads, incorporating woody debris into the fill portion of the road prism shall be avoided.

FW-STD-ARINF-06. In fish bearing streams, construction, reconstruction, or replacement of stream crossings shall not impair passage of any life stages of native aquatic organisms, unless barriers are desired to maintain or prevent spread or invasion of non-native species in alignment with fish management agencies.

FW-STD-ARINF-07. In the Conservation Watershed Network and HUC12 sub-watersheds with Endangered Species Act critical habitat or listed aquatic species, when constructing or reconstructing roads, projects shall result in a net decrease in the hydrologic connectivity of the road system and stream channel network unless no further decreases are needed to meet desired conditions for Water and Aquatic Resources or Conservation Watershed Network. Treatment priority shall be given to roads or road

segments that pose the greatest relative ecological risk to riparian and aquatic ecosystems. The net decrease is measured by project area.

FW-GDL-ARINF-01. Construction, reconstruction, and maintenance activities of roads, skid trails, temporary roads, and airstrips, should hydrologically disconnect the drainage system from delivering water, sediment, and pollutants to water bodies to prevent concentrated water from directly entering streams.

FW-GDL-ARINF-02. To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or closing roads for longer than one year, roads should be left in a hydrologically stable condition where road drainage is routed away from water resources and landslide prone areas and towards stable areas of the forest floor to provide filtering and infiltration.

FW-GDL-ARINF-03. To reduce the risk of sediment delivery from gully formation or mass wasting when closing travel routes such as roads, skid trails, and temporary roads with physical barriers (e.g. berms), drainage features should be left in a condition that will function without any maintenance for the planned duration of the closure.

FW-GDL-ARINF-04. To reduce road-related mass wasting and sediment delivery to watercourses, new and relocated roads, including skid trails and temporary roads, and other linear features should not be constructed on lands with high mass wasting potential.

FW-GDL-ARINF-05. To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites, such as culverts, bridges and other stream crossings, should be constructed to prevent diversion of stream flow out of the channels and down the road in the event the crossing is plugged or has a flow greater than the crossing was designed.

FW-GDL-ARINF-06. To maintain channel stability and reduce sediment delivery to watercourses, when reconstructing roads, fords should be hardened to protect the stream bed, banks, and approaches.

FW-GDL-ARINF-07. To reduce sediment delivery from maintenance activities, such as road blading and snow plowing, avoid side casting into streams. Care should be taken when plowing snow so as not to include road soil. Breaks should be incorporated in the snow berms to direct water off the plowed surface.

FW-GDL-ARINF-08. To avoid adverse effects to water resources, wetlands and seasonally wet meadows should be avoided when constructing new roads and landings, including temporary roads. For all roads, and where reconstruction of existing roads cannot avoid water courses and wetlands drainage features should maintain wetland functions and characteristics.

FW-GDL-ARINF-09. When constructing, reconstructing, or maintaining roads, including temporary roads, road drainage should be routed away from potentially unstable channels, fills, and hillslopes, to prevent destabilization of channels and hillslopes.

FW-GDL-ARINF-10. Transportation infrastructure should be designed to maintain natural hydrologic flow paths, including interception of surface and subsurface flow, to the extent practical. For example, streams and seeps upslope from roads should have cross-drains or relief culverts with sufficient capacity to ensure water is not routed down ditches.

FW-GDL-ARINF-11. Culverts and bridges in fish-bearing and perennial streams should allow for passage of fish and other aquatic and riparian dependent species through the establishment of banks inside or beneath the crossing structure and mimicking the natural channel features, unless precluded by site characteristics such as bedrock or high channel gradient.

The Revised Plan provides a crosswalk between Plan direction and direction identified in PACFISH (refer to Appendix E of the BA). The Revised Plan contains many of the components from PACFISH and therefore provides a certain level of conservation and provides additional conservation for the Category 4 RMZs. Throughout the Columbia River basin, PIBO monitoring has indicated that conditions in many managed watersheds that applied PACFISH management direction have improved since their implementation, but some areas are still degraded including areas on the NPCNF. The Revised Plan also indicates that there may be up an increase in Vegetation Management. When combined with legacy effects from past projects, this increase in activity is anticipated to result in effects that are both longer in duration and larger in spatial extent.

The Revised Plan also includes management direction by program area or activity. There are standards or guidelines for programs such as grazing, mining, recreation, and lands and special uses. These measures include promoting the movement towards attaining desired aquatic and riparian desired conditions and avoiding adverse effects on native fish (STD-ARGRZ-01 to 04, GDL-ARGRZ-01 and 03, STD-AREM-01 to 05, GDL-AREM-01 to 03, GDL-ARREC-01 to 06, STD-ARLND-01 to 04, GDL-ARLND-01) which are similar in nature to existing PACFISH direction for these forest activities.

The Revised Plan fully adopts some components of PACFISH and subsequent PIBO monitoring indicates that implementation of PACFISH and its associated opinion have resulted in improved conditions across the range but not everywhere. The Revised Plan does include a larger buffer for Category 4 RMZs as compared to PACFISH. The Revised Plan has various restoration objectives for aquatic restoration particularly relating to road effects but it is not clear if these increase the restoration comparably with the associated increase in activity level. Applying the aquatic restoration effectively for listed anadromous fish production and survival, including using aquatic restoration to offset negative effects from harvest/road projects, will be increasingly important; however, the Revised Plan does not develop these priorities nor set out an objective to do that. Many of the current aquatic and restoration objectives identify actions associated with a numerical target (e.g. miles of streams, acres of habitat restored, etc.) but do

not identify or consider either the condition of habitat or status of a population; therefore, these actions might occur in areas that do not need any additional restoration efforts.

Even with these omissions and substantial potential for increase in road effects, the Revised Plan's management direction does require that projects must either protect properly functioning riparian conditions and watershed function, or promote or not retard attainment of desired conditions. There are numerous aquatic conservation efforts described in the Revised Plan but meeting that commitment may become more challenging for future projects and project-level Section 7 consultation. There will also be opportunities at the project level to incorporate Management Approaches or additional conservation measures that could further reduce potential negative effects from a project, however the extent to which such opportunities will be taken is uncertain.

Monitoring and Adaptive Management

As described by the Interior Columbia Basin Strategy, the purpose of including monitoring and adaptive management in a forest plan is to determine if the Revised Plan is being implemented correctly and is achieving desired results, and to provide a feedback loop so that the Revised Plan's management direction may be evaluated and modified if necessary.

There are two categories of monitoring under the Revised Plan: (1) "broad scale," which is monitoring that occurs across many Forests, PIBO Monitoring; and (2) monitoring specific to the NPCNF Plan coupled with site specific project level monitoring (NEPA). These categories of monitoring will assist the Forests in determining: (1) whether Revised Plan objectives are being attained; (2) whether water quality best management practices (BMPs) and other standards and guidelines are being implemented; (3) the status and trend of watershed conditions and aquatic ecosystems.

The Revised Plan has a large reliance on PIBO monitoring which has a large data set and has been implemented since 2001. The PIBO monitoring occurs on a 5-year interval at sampling sites throughout a large area to evaluate trend in stream conditions in reaches affected by USFS land management. However, PIBO monitoring may not address the level of monitoring that is needed for the Revised Plan in regards to adaptive management of ESA-listed fish species and designated critical habitat. For example, PIBO sites were chosen for making a Columbia Basin level comparison of un-managed sites and managed sites but were not specifically selected to address concerns related to specific populations of listed fish or levels of different types of management activities. Not all sub-watersheds on the NPCNF have sufficient numbers of sampling sites to track trends in stream conditions. In addition, sites are sampled every 5 years and some Desired Conditions rely on these data to track movement towards (or away) from a Desired Condition: therefore, the sampling interval may be too long to have sufficient data to assess trend in time for management adjustments until at/near the end of the Revised Plan period.

The Revised Plan monitoring also relies on annual data collected by the NPCNF through analysis for NEPA documents, annual program monitoring, and project monitoring reports. Metrics to be used include tallying the number of projects/actions implemented and/or the miles or acres of habitat that was treated or restored. There is not a clear explanation of how Forest-level

monitoring would assess actual stream conditions in response to specific management actions taken under this Plan especially since SCIA and Multiscale Analysis are proposed as Management Approaches which are optional processes.

Lack of sufficient monitoring (appropriate scale, frequency, and metrics) will make it difficult for the NPCNF and its partners to determine if actions are resulting in positive movement towards desired conditions that are beneficial for ESA listed anadromous fish species. There will still be an opportunity on future project level consultations to address some of these concerns by including site specific monitoring and the decision to use Management Approaches such as Multiscale Analysis or SCIA. A program to monitor habitat trends on the NPCNF may entail the need for additional sampling methodologies that might also include the need for additional sampling sites as well as having a more frequent survey interval than what is currently applied.

Consideration of Climate Change

Climate change generally exacerbates threats and limiting factors, including those currently impairing salmon and steelhead survival, recovery, and productivity. The growing frequency and magnitude of climate change related environmental downturns will increasingly imperil many ESA-listed stocks in the Columbia River basin and amplify their extinction risk (Crozier et al. 2019, 2020, 2021). This climate change context means that opportunities to rebuild these stocks will likely diminish over time. As such, management actions that increase resilience and adaptation to these changes should be prioritized and expedited. For example, the importance of improving the condition of, and access and survival to and from, the remaining functional, high-elevation spawning and nursery habitats is accentuated because these habitats are the most likely to retain remnant snow packs under predicted climate change (Tonina et al. 2022).

Addressing climate change in the Revised Plan is therefore an important component for promoting the survival and recovery of listed salmon and steelhead on the NPCNF. In recognition of climate change, the Revised Plan has focused attention on ways to increase resilience of aquatic ecosystems. Climate adaptation strategies recommended by Halofsky et al. (2018) include addressing expected changes in hydrology, and expected threats to cold water fishes and aquatic organisms. These strategies address hydrologic changes by focusing on restoring the function of watersheds, connecting floodplains, reducing drainage efficiency, maximizing valley storage, and reducing hazardous fuels. Adaptation tactics include adding wood to streams, restoring beaver populations, modifying livestock management, and reducing surface fuels and forest stand densities. Potential strategies for infrastructure include increasing the resilience of stream crossings, culverts, and bridges to higher peak flows and facilitating response to higher peak flows by reducing the road system and disconnecting roads from streams. Other strategies include restoring structure and function of streams and providing more connectivity for native fish.

The CWN identifies areas of cold water refugia that are likely to persist into the future. Focusing restoration actions in the CWN will likely be important to listed salmon and steelhead in the future. Maintaining and improving connectivity of watersheds in the CWN will maximize the potential for genetic variability, thus allowing for natural selection of advantageous adaptations among listed salmon and steelhead (Siegel and Crozier 2019). In addition, the Revised Plan is built around a concept of promoting the restoration of natural landscapes, and natural upland and fluvial

processes, that will cultivate population resilience. Where progress toward restoration of the natural processes and conditions is made, this in turn will promote the survival and recovery of listed salmon and steelhead in watersheds on the Forests.

Plan Components that potentially address Climate Change include:

FW-DC-WTR-01. National Forest System lands provide the distribution, diversity, and complexity of watershed and landscape-scale features including natural disturbance regimes and the aquatic and riparian ecosystems to which species, populations, and communities are uniquely adapted. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity.

FW-OBJ-WTR-02. Enhance or restore 50 to 100 miles of stream habitat within naturally unconfined channels every 5 years to maintain or restore structure, composition, and function of habitat for fisheries and other aquatic species in streams with legacy effects that caused channels to become straightened or incised, impaired beaver habitat, or diminished floodplain capacity. Activities include, but are not limited to, berm removal, large woody debris placement, streamside road decommissioning, riparian planting, beaver dam analogs, and process-based restoration/floodplain restoration.

FW-OBJ-WTR-03. Enhance or restore stream habitat on 5 miles, every 5 years, in naturally confined channels to maintain or restore step pool structure, composition, and function of habitat for fisheries and other aquatic species. Activities include, but are not limited to, improving stream complexity, large wood debris or boulder placement, and riparian planting.

FW-OBJ-WTR-04. Reconnect 10 to 20 miles of habitat in streams every 5 years where passage barriers created by roads or culverts are limiting the distribution of fish or other aquatic species of concern.

FW-STD-WTR-07. To maintain channel forming processes and aquatic habitat, large woody debris should not be cut or removed from stream channels or floodplains unless it threatens public safety or critical infrastructure, such as mid-channel bridge piers.

FW-OBJ-RMZ-01. Improve 300 to 700 acres of riparian habitat every 5 years, through improvements that are intended to meet desired conditions for riparian management zones, such as road obliteration, riparian planting, hardwood restoration, post assisted log structures, beaver dam analogs, and reconnecting floodplains by removing road prisms or berms.

FW-OBJ-RMZ-02. On an annual basis, a minimum of 10 percent of trees harvested in the portions of the Riparian Management Zone beyond 150 feet (Riparian Management Zone Category 1) and beyond 100 feet (Riparian Management Zone Categories 2 and 3) from the edge of the active stream channel are used for aquatic stream restoration either on-site or off-site to contribute large wood to stream channels.

FW-DC-ARINF-02. The transportation network is resilient to the effects of climate change, including the ability to accommodate increased runoff and peak flows that may exceed historic streamflow events.

FW-STD-ARINF-04. New, replacement, and reconstructed stream crossing sites, such as culverts, bridges, and other permanent stream crossings, shall accommodate at least the 100 year flow, including associated bedload and debris.

FW-GDL-ARINF-10. Transportation infrastructure should be designed to maintain natural hydrologic flow paths, including surface and subsurface flow, to the extent practical. For example, streams and seeps upslope from roads should have cross-drains or relief culverts with sufficient capacity to ensure water is not routed down ditches.

FW-GDL-ARINF-11. Culverts and bridges in fish-bearing and perennial streams should allow for passage of fish and other aquatic and riparian dependent species through the establishment of banks inside or beneath the crossing structure and mimicking the natural channel features, unless precluded by site characteristics such as bedrock or high channel gradient.

Summary of Effects to Species

The Revised Plan will substantially direct and limit project characteristics and activities on the NPCNF the Revised Plan which can have various effects on streams and salmon and steelhead as noted above in Table 4. We evaluated the Plan's effects and effectiveness for aquatic conservation of salmon and steelhead in terms of the seven components of the ICBEMP Strategy/Framework 2014: (1) designation and conservation of riparian management areas to maintain and improve riparian function; (2) designation and protection of population strongholds for listed species, proposed, or special status species; (3) multiscale analysis; (4) restoration priorities and guidance; (5) management direction; (6) aquatic monitoring and adaptive management; and (7) consideration of climate change.

The Revised Plan designates and conserves riparian areas through the creation and management of Riparian Management Zones (RMZ). The Revised Plan contains direction to conserve RMZs, particularly FW-STD-RMZ-01 and FW-WTR-STD-04 identifying the need to ensure that aquatic and riparian desired conditions are considered for future projects. Where desired conditions are not yet achieved projects should restore or not retard attainment of desired conditions. The Revised Plan also identifies a level of restoration in acres of riparian habitat restored every 5 years. The Revised Plan also limits certain activities in RMZs including the staging of vehicles, fuel storage, use of herbicides, livestock use, fuelwood cutting, direct ignition for prescribed fire, new road and landing construction, mineral activities, incident bases, camps, helicopter bases, and other centers for incident activities. Delineations of RMZs and the associated direction for RMZs would provide conservation to listed anadromous populations by limiting potential adverse effects from those activities.

The Revised Plan designates many watersheds with listed anadromous populations as part of the CWN but they do not further prioritize the watersheds or identify associated actions based on the status of the population or the current habitat conditions. There are no specific watersheds that

are designated as strongholds for any particular listed species and it appears that all CWN watersheds have equal status. The CWN does provide an additional level of conservation for designated watersheds in the form of additional Plan direction in the form of specific restoration objectives that could benefit list anadromous fish populations but the amount of conservation may be limited.

Multiscale Analysis and the use of the SCIA are included as part of the Revised Plan as Management Approaches which may or may not be implemented to inform design of future projects. Aquatic habitat restoration goals are actively provided in the Revised Plan in the form of quantitative metrics (miles, acres, number, etc.) that must be reached on a regular basis. However, these metrics do not take into account the existing quality of the habitat or population status of listed fish species and it appears that the locations of future restoration work will be driven by the location of future projects. Pieces of plan direction are similar to PACFISH Riparian Management Objectives, Standards, and Guidelines.

The aquatic monitoring and adaptive management rely on PIBO monitoring which by itself appears insufficient for monitoring plan level effects, most notably effects from roads. Current PIBO monitoring does not have sufficient sample sites to provide trend data for all sub-watersheds and would need additional sample sites to address this. The status of habitat across the NPCNF varies, from properly functioning to areas that are highly degraded or functioning at risk. PIBO sites are also only sampled every 5 years and would result in only a few data points during a 15-year period as not all sites are sampled every 5 years. Forest level monitoring appears to lack the scale and scope that is needed to ensure that habitat conditions will improve in watersheds that need improvement. Monitoring is needed to assess how conditions are improving or possibly degrading over time and sampling methods should assist in making this assessment. The use of SCIA would provide a link between Desired Conditions and actual instream habitat conditions, but the Plan includes SCIA as an optional measure. SCIA could be used in assessments to ensure that projects are not retarding the movement towards Desired Conditions. The Revised Plan contains both Multiscale Analysis and SCIA as management approaches which are optional in nature and their actual use on future projects are unknown. The proposed monitoring program also does not appear sufficient to guide restoration or allow the modification of future activities.

The Revised Plan identifies and authorizes an increase in timber harvest when compared to recent activity levels. This increases the potential duration, intensity, and distribution of road effects on streams, and resultant fish effects. Importantly, the Revised Plan has specific management direction committed to not retarding the attainment of specific Desired Conditions for, and also avoiding and minimizing adverse effects to, listed fish and their habitat. This commitment will be more vital than ever, given the substantial potential for increases in effects on fish. It appears that movement towards (or away) from Desired Conditions as well as ensuring that they will not be retarded will be determined at the project level. However, the Revised Plan does not provide techniques and expectations, such as sediment modeling and delivery increase thresholds, to ensure that projects and their related effects would allow progression toward Desired Conditions. Instream monitoring does not appear arrayed sufficiently to evaluate stream conditions and progress toward Desired Conditions. Similarly, the implementation monitoring is not designed to shed light on sediment delivery quantification as a surrogate to meet the do not

retard requirement. The Revised Plan presents challenges for ensuring projects do not retard stream substrate improvement, greater need for habitat restoration to offset those effects, and better identification and stratification of aquatic restoration priorities to be effective for salmon and steelhead in the course of such offsets.

When taken collectively, the Revised Plan has elements that are adequately protective of anadromous fish populations (e.g., RMZs, Standards, and Guidelines). Other elements are either not adequate to ensure adequate protection (e.g., monitoring) or not reasonably certain to occur, and thus cannot be relied on at the Plan scale to ensure adequacy. The Revised Plan does provide direction to reduce and/or avoid adverse effects to listed anadromous species. The Revised Plan also contains Objectives which may also promote restoration of habitat that listed anadromous fish populations depend on, although the amount of conservation may be limited. While a higher potential for adverse effects is expected with the higher level of timber harvest and road use, such adverse effects will be limited by the sideboards in the Revised Plan. The commitment from the NPCNF to use the combined available tools would result in conservation of anadromous fish populations.

2.5.2 Effects to Critical Habitat

Effects to designated critical habitat are similar to the discussion above in the species effects section. Future projects governed by the Revised Plan have the potential to degrade, slow improvement, maintain, or improve the various salmon and steelhead Primary Biological Features (PBFs).

All PBFs identified in Table 2 can be affected by the Revised Plan. For Snake River Basin steelhead critical habitat, this includes water quality, water quantity, substrate, water quantity and floodplain connectivity to form and maintain physical habitat conditions, water quality and forage, natural cover, and areas free of artificial obstructions. For Snake River spring/summer Chinook salmon and Snake River fall Chinook critical habitat this includes spawning gravel, water quality and quantity, cover/shelter, food, riparian vegetation, space, substrate, water temperature, water velocity, food, riparian vegetation, space, and safe passage.

The Revised Plan carries forward direction that is very similar to PACFISH with RMZ delineations, activity specific management direction for a network of watersheds, and a requirement that future projects do not degrade conditions or slow their improvement. The Revised Plan also sets forth a higher level of harvest and road activity than has been tested yet in this geography under PACFISH. This could result in greater effects than presently occur (particularly related to the road work, road use, and sediment delivery) which would also affect the stream substrate PBF. Nevertheless, the Revised Plan's commitment is to not retard the attainment of aquatic and riparian Desired Conditions, and to implement projects that promote stream improvements toward Desired Conditions. This approach, if implemented correctly, will assist in conserving all the PBFs, because there are desired conditions in the Revised Plan that cover all the stream components that provide the PBFs for Snake River salmon and steelhead.

There are additional ways to address the concern with increased effects of roads on streams from the greatly increased timber harvest target, better analysis of and in some cases offsetting of these effects will be needed. This can be accomplished through more discerning monitoring and

evaluation of the road effects, and having a better understanding and application of habitat restoration priorities to reduce and offset effects on habitat-limiting PBFs. These enhancements can increase the effectiveness of the Revised Plan in protecting and restoring the PBFs of the salmon and steelhead critical habitat.

We expect the Revised Plan's protective RMZs and standards and guidelines will avoid or keep small any adverse effects that future site-specific projects could have on PBFs. The three key standards:

FW-STD-WTR-04. Where aquatic and riparian desired conditions are being achieved, projects shall maintain those conditions. Where aquatic and riparian desired conditions are not yet achieved, and to the degree that project activities would contribute to those conditions, projects shall restore or not retard attainment of desired conditions. Short term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species. Exceptions to this standard include situations where Forest Service authorities are limited (1872 Mining Law, state water right, etc.). In those cases, project effects shall not retard attainment of desired conditions for watersheds, to the extent possible within Forest Service authorities.

FW-STD-RMZ-01. Vegetation management shall only occur in riparian management zones from the edges of the active stream channel to within 150 feet within Riparian Management Zone Category 1 and to the edges of the active stream channel to 100 feet within Riparian Management Zone Category 2, 3, and 4 to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, small diameter (e.g., sapling, pole) conifer thinning, may be authorized if aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer Riparian Management Zones to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer Riparian Management Zone, including sediment filtering, large wood recruitment to streams, and protection of the inner Riparian Management Zone from windthrow. Vegetation management in Riparian Management Zones shall not retard attainment of aquatic and riparian desired conditions.

FW-STD-CWN-01. In Conservation Network Watersheds not meeting aquatic and riparian desired conditions, activities shall be designed and implemented in a manner that supports, and/or contributes towards the recovery of federally listed species and the achievement of these desired conditions and does not retard them when evaluated at the HUC12 sub-watershed scale. Short term adverse effects from project activities may occur when they support the long-term recovery of aquatic and riparian desired conditions and federally listed species.

These three standards apply to all management activities and require aquatic and riparian baselines that are within desired conditions to be maintained. When baselines are not within desired conditions, projects must restore or not retard attainment of desired conditions to the

degree that the project contributes to attainment of desired conditions. Several of the Revised Plan Components have the potential to enhance PBFs and the value of critical habitat. These components include focusing the Forests' habitat restoration efforts in Conservation Watershed Network watersheds and providing objectives for the amount of habitat restoration that the Forests will accomplish in the future. The proposed action therefore will not reduce the conservation value for critical habitat at the designation scale for any of the three DPSs/ESUs.

2.6 Cumulative Effects

“Cumulative effects” are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation [50 CFR 402.02 and 402.17(a)]. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline versus cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described earlier in the discussion of environmental baseline (Section 2.4).

Across the action area in the NPCNF, in some areas the Forests manage entire watersheds whereas in other watersheds non-Federal lands are interspersed with or adjacent to Federal lands. Many different activities occur on State, tribal, and private lands directly upstream or downstream from the boundaries of the Forests. These activities include livestock grazing, timber harvest, mining, development, and road-building—as well as stream habitat restoration projects addressing limiting factors in the recovery plans. The effects of these activities all contribute to the condition of stream habitat in the action area, as described in 2.4 Environmental Baseline.

Non-Federal actions are likely to continue affecting ESA-listed fish species. The cumulative effects in the action area are difficult to analyze, considering the broad geographic landscape covered by the action area, the uncertainties associated with non-Federal actions, and ongoing changes to the region's economy. Whether those effects will increase or decrease in the future is not known. Stream habitat restoration projects are likely to continue at their current rate if not increase due to recent government legislation (Infrastructure Investment and Jobs Act and Inflation Reduction Act) as entities such as the Nez Perce Tribe, State of Idaho, and the county Soil and Water Conservation Districts implement the high-priority stream restoration projects identified in planning documents (e.g., ATLAS process for Lolo Creek). These projects will address limiting factors identified in recovery plans and benefit listed species and their habitat. Increased human population in the region will lead to increased activities which adversely affect species and their habitat, such as road-building and development near streams. Based on population growth, adverse effects of non-Federal actions to listed species and their habitat are likely to increase.

2.7 Integration and Synthesis

The Integration and Synthesis section is the final step assessing the risk that the proposed action poses to species and critical habitat. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

2.7.1 Species

- For all three DPSs/ESUs, many individual populations (including several for each species that overlap with the Forests) are not meeting recovery plan abundance and productivity targets, such that each species remains threatened with extinction.
- Climate change factors will likely make it more challenging to increase abundance and recover each species by reducing the suitable rearing areas and leading to more limited run-timing under the warmer future conditions. The goal of the CWN is to sustain the integrity of key aquatic habitats to maintain long-term persistence of native aquatic species and help make habitat conditions more resilient to climate change.
- Many past and present land uses, including road-building in floodplains, timber harvest, mining, livestock grazing, barriers, stream channelization, and recreation, have contributed to current degraded habitat conditions in many non-wilderness parts of the action area (NMFS 2017a). PIBO data indicates that overall there has been some recovery of habitat conditions on the NPCNF from past damaging land-use practices but many areas are still degraded.
- Many of the activities (Vegetation Management, Road Use, Grazing, Mining, Recreation, and Lands and Special Uses) conducted on the Forests have potential adverse effects to listed salmon and steelhead and their habitat, and in particular the Revised Plan sets an objective of a significantly higher level of timber harvest than has occurred in the recent past, which will be accompanied by increased road use. The Revised Plan provides a suite of protective desired conditions, standards, guidelines, and RMZs aimed at avoiding or minimizing these adverse effects. Plan guidance directs the Forests to develop individual activities which either maintain, restore, or do not retard attainment of desired riparian and aquatic conditions. Plan guidance also provides direction to reduce and/or avoid adverse effects to listed species. While a higher potential for adverse effects is expected with the higher level of timber harvest and road use, such adverse effects will be limited by the sideboards in the Revised Plan.
- Some components of the Revised Plan, such as the designation of Conservation Watershed Network watersheds, Priority Watersheds, and various aquatic restoration Objectives may result in activities that improve stream habitat on the Forests over time but the amount of conservation that would occur for listed anadromous populations and their habitats may be limited.
- The Revised Plan does not require a quantifiable basis (e.g. measured habitat conditions) to support the concept of “do not retard attainment of desired conditions” for project level

activities. The Stream Condition Indicator Assessment (SCIA) is proposed as a Management Approach (optional) but is not required to be used to assess effects from future projects. SCIA provides a quantitative link between stream habitat and Desired Conditions which are qualitative descriptors.

- The Revised Plan provides sideboards on future projects that follow similar direction identified in both PACFISH and the 2014 ICBEMP Framework that are known to assist in conserving both salmon and steelhead and the habitat they depend on. Unfortunately, some direction from these two efforts was not fully brought forward or were omitted from the Revised Plan (e.g. population strongholds, multi-scale analysis, restoration priorities and guidance, and adaptive management).
- With the increase in vegetation management and level of road use compounded with future issues from Climate Change, conservation of aquatic habitats may compete with other restoration as identified in other Desired Conditions.
- There still is a concern in regards to increased sediment from increased road use. Existing PIBO monitoring does not appear to be sufficient to monitor these types of sediment effects from road use due to not having enough sample sites and not sampling at a high enough frequency to assess trends for adaptive management.
- Monitoring relies on the use of the existing PIBO monitoring protocol to collect and analyze data and it also relies on Forest level monitoring. The current monitoring does not appear sufficient to adequately support for the Forest Plan. There are not sufficient sample sites for all major watersheds on the NPCNF, and the frequency of sampling of 5 years might be insufficient. The framework for project level monitoring takes an approach of recording the number of projects that are completed, but appears to be lacking in determining if effects will be minimized, and does not focus on monitoring effects to the species or their habitat

Based primarily on the Revised Plan's protective suite of standards and guidelines, aquatic restoration types, and metrics (e.g., miles, acres, etc.) expressed in various Objectives, and that future projects may include project specific conservation measures, we do not expect implementation of the Revised Plan to reduce the viability of any of the populations of listed species on the Forests. Revised Plan components such as the use of Management Approaches (e.g. Multiscale Analysis and SCIA) are not required in the plan and this could limit the ability to assess the effectiveness of Plan Components. The Plan's elements regarding conservation and restoration will likely help to maintain and restore aquatic habitat in some areas, however their effectiveness will likely be limited by the lack of priorities and guidance, and effective monitoring. Taken together, however, the Plan provides sufficient sideboards to ensure management of the NPCNF does not reduce the viability of any of the populations of listed species on the Forests. Because the Revised Plan will not reduce the viability of any populations, the Revised Plan will maintain the current status of all affected MPGs.

In conclusion, it is NMFS' opinion based on the status of the species, environmental baseline, and the anticipated effects, that the effects of the action will not cause reductions in reproduction, numbers, or distribution that would reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of Snake River spring/summer Chinook Salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead.

2.7.2 Critical Habitat

- The action area contains designated critical habitat for Snake River spring/summer Chinook Salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead. Critical habitat within the action area has an associated combination of PBFs essential for supporting freshwater rearing, migration, and spawning these species.
- Effects to designated critical habitat are similar to the discussion above in the species effects section. Future projects governed by the Revised Plan have the potential to degrade, maintain, slow improvement, or improve the various salmon and steelhead Primary Biological Features (PBFs).
- Many past and present land uses, including road-building in floodplains, timber harvest, mining, livestock grazing, barriers, stream channelization, and recreation, have contributed to current degraded habitat conditions in many non-wilderness parts of the action area (NMFS 2017a). PIBO data indicates that overall there has been some recovery of habitat conditions on the NPCNF from past damaging land-use practices but many areas are still degraded.
- Many of the activities conducted on the Forests have potential adverse effects on all PBFs identified in Table 2. The Revised Plan provides a suite of protective desired conditions, standards, guidelines, and RMZs aimed at avoiding or minimizing these adverse effects. Plan guidance directs the Forests to develop individual activities which either maintain, restore, or do not retard attainment of desired riparian and aquatic conditions.
- Considering the baseline condition of the critical habitat and anticipated effects, the proposed action is not expected to appreciably diminish the conservation value of the these PBFs in the action area. Scaling up from the action area to the designation of critical habitat for each species, the proposed action is not expected to appreciably reduce the conservation value of the designated critical habitat for Snake River spring/summer Chinook Salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead.

2.8 Conclusion

After reviewing and analyzing the current status of the listed species and CH, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and the cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of Snake River spring/summer Chinook Salmon, Snake River fall Chinook salmon, and Snake River Basin steelhead and is not likely to destroy or adversely modify their respective designated CH.

2.9 Conservation Recommendations

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

- Consider identifying specific strongholds for anadromous fish populations, consider having a smaller subset of current CWN watersheds or a new list of sub-watersheds. Consider using the NPCNF 2011 Watershed Condition Class assessment to identify the status of habitat conditions with listed anadromous fish and work with partners (IDFG, Office of Species Conservation, NPT, and NMFS, etc.) to rank them based on both habitat conditions and population viability as described in the NMFS 5-year reviews.
- Consider providing a mechanism that allows the evaluation of the CWN and restoration priorities on a regular basis. The Revised Plan identifies that designation of CWN can occur but it would be beneficial for the NPCNF to have regular meetings with partners (e.g. IDFG, Office of Species Conservation, NPT, NMFS, and USFWS, etc.) to determine if there are opportunities for either restoration or changes in priority.
- Consider prioritizing aquatic restoration by need and potential of specific sub-watersheds and associated fish populations. Currently the Revised Plan does not make distinctions within watersheds and there are 81 HUC12s that are part of the CWN and it appears that all will be treated equally. Consider using the Watershed Condition Class assessment to determine where the highest priority areas for aquatic restoration are and what actions best address the limiting factors as described in the NMFS 5-year reviews for fish populations in those areas.
- During project design and planning consider assessing the opportunities for aquatic restoration within the project watershed or affected fish population and not just the project location.
- For any future project, consider having a list of actions that would also promote the conservation of listed species by addressing known limiting factors for specific populations. Consider working with partners such as the Nez Perce Tribe and NMFS to identify opportunities during project planning and design. For those projects that the NPCNF and NPT can collaborate on, consider making it a priority to complete NEPA, and ESA and EFH consultation, to ensure that projects can be implemented.
- Consider strengthening the monitoring plan by including monitoring that would address the increased road work/use/potential sediment delivery. The number of PIBO sites are not sufficient for plan level monitoring. The current PIBO sampling does not have sufficient sample sites to monitor trends in sub-watersheds, or all watersheds where projects are implemented: therefore, the current PIBO monitoring does not have sufficient sample sites to monitor road effects. The NPCNF should work with partners to identify sufficient monitoring protocols (additional sample sites, increased sample frequency, etc.) to enhance the current monitoring program to address potential effects from increase road use. Additional PIBO sites should be considered and selected based on location and effects from future projects. Forest Level monitoring should also focus on techniques to measure movement towards Desired Conditions and not be solely reliant on PIBO data or assume that implementation of projects (number, location, miles, acres, etc.) is effectively moving towards Desired Conditions.
- For monitoring Desired Conditions (DC) consider using both the Watershed Condition Class assessment and the Stream Condition Indicator Assessment (SCIA) on future projects to track progress towards DC. The SCIA appears to be a useful as a link between a qualitative description (DC) and quantitative metric (SCIA).
- To address future road related effects, consider developing future project offsets that would address project related effects at the appropriate size and scale.

- Consider developing a long-term monitoring plan to address sediment delivery that has been implemented in other areas of Idaho. Long term sediment monitoring has occurred on both the Boise and Payette National Forests.
- In all project planning, minimize sediment delivery to streams using the following considerations:
 - Plan additional changes to road drainage that go beyond road protection and minimize sediment delivery to streams;
 - plan to identify and fix high sediment delivery road features that are not planned for timber haul but are within watersheds with planned road work and haul; and
 - for temporary roads, minimize overwintering and direct connection to streams.
- To expedite consultation with the services:
 - Create and encourage training in Streamlining;
 - include the Services in early project planning;
 - prioritize the creation and use of programmatic consultations; and
 - encourage new and creative ideas for drafting BAs that leverage standard formats and involvement of the Services.

2.10 Reinitiation of Consultation

This concludes formal consultation for the NPCNF Revised Plan.

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

2.11 “Not Likely to Adversely Affect” Determinations

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b). When evaluating whether the proposed action is NLAA listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Effects are considered discountable if they are extremely unlikely to occur.

The NPCNF determined that the action as proposed may affect, but is not likely to adversely affect Snake River sockeye salmon (*O. nerka*) and their critical habitat.

Snake River sockeye salmon may occur within the action area. Sockeye salmon are not known to occur within the Clearwater River but occur in the Salmon River, from its mouth to the lakes in the Upper Salmon watershed. The Salmon River is designated critical habitat for the species. The majority of NPCNF tributaries to the Salmon River occur in, or are adjacent to, designated wilderness (Gospel Hump and the Frank Church Wilderness of No Return). Most of the life history of Snake River sockeye take place outside of the NPCNF, however a portion of the migration corridor for adults and juveniles (mainstem Salmon River) forms the southern border of the forest. Snake River sockeye salmon migrate from the ocean, up the Salmon River, passing through the NPCNF on their way to natal, lacustrine habitats to spawn. There is no spawning or rearing habitat on the NPCNF and the critical habitat in the Salmon River that forms the southern boundary of the action area is used for migration. The effects of the proposed action are reasonably likely to include those effects as discussed in Section 2.5 of this opinion. The proposed action could also affect designated Snake River sockeye critical habitat through the same habitat-related effects. Similar effects to those described in Section 2.5. of this opinion for other salmonids and their associated PBFs as would be anticipated for sockeye salmon and its designated critical habitat. However, due to the presence of only migratory habitat in the action area and the low likelihood of activities occurring within the southern border of the NPCNF, there is a low likelihood of exposure to Plan-related effects. However, if sockeye salmon were exposed to effects of the Plan, the exposure would be very short-term and is not likely to alter their behavior or ability to migrate through the action area. Thus, NMFS concludes that any effects to Snake River sockeye and their critical habitat would be insignificant. NMFS concurs with the NCPNF that the proposed action is NLAA Snake River sockeye salmon and its designated critical habitat.

3. MAGNUSON–STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE

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

This analysis is based, in part, on the EFH assessment provided by the NPCNF and descriptions of EFH for Pacific Coast salmon (PFMC 2014) contained in the Fishery Management Plan (FMP)s developed by the Pacific Fishery Management Council (PFMC) and approved by the Secretary of Commerce.

3.1 Essential Fish Habitat Affected by the Project

The action area, as described in Section 2.3 of the above opinion, is also EFH for Chinook salmon and coho salmon (PFMC 2014). The PFMC designated the following five habitat types as habitat areas of particular concern (HAPCs) for salmon: complex channel and floodplain habitat, spawning habitat, thermal refugia, estuaries, and submerged aquatic vegetation (PFMC 2014). The proposed action may adversely affect the following HAPCs: (1) Complex channels and floodplain habitats; (2) thermal refugia; and (3) spawning habitat. All three could be affected in streams in the action area.

3.2 Adverse Effects on Essential Fish Habitat

Adverse effects to EFH in the action area are described in the opinion. The Revised Plan will not authorize any individual projects. Individual future projects developed under the framework of the proposed Plan will be subject to individual EFH consultations. Analysis of the effects of individual projects to EFH will occur at that later time, and projects will not take place until these individual consultations are complete. However, direction from the Revised Plan will influence the types of projects that the Forests develops, the frequency and location of proposed projects, and some of the conservation measures aimed at EFH associated with each project. The accumulation of effects to EFH at the landscape level from numerous projects—in the event they are not sufficiently minimized at the project-specific level through individual consultation—could adversely affect the three HAPCs (complex channels and floodplain habitats; thermal refugia; and spawning habitat). On the other hand, direction from the Revised Plan could benefit EFH by leading to projects across the landscape which protect the best remaining habitat, restore damaged habitat, and minimize adverse effects to EFH from management activities.

3.3 Essential Fish Habitat Conservation Recommendations

NMFS has identified the following conservation recommendations for the proposed action to address adverse effects to Essential Fish Habitat.

- For any proposed project that would conserve HAPCs, the NPCNF should prioritize completion of National Environmental Policy Act requirements and ESA consultation, and determine if those projects can be expedited through the use of Section 7 programmatic opinions.

3.4 Statutory Response Requirement

As required by Section 305(b)(4)(B) of the MSA, NPCNF must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the Federal agency have agreed to use alternative timeframes for the Federal agency response. The

response must include a description of the measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects [50 CFR 600.920(k)(1)].

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, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of Conservation Recommendations accepted.

3.5 Supplemental Consultation

The NPCNF must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH CRs [50 CFR 600.920(l)].

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

4.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion is the NPCNF. Individual copies of this opinion were provided to the NPCNF. The document will be available within 2 weeks at the NOAA Library Institutional Repository (<https://repository.library.noaa.gov/welcome>). The format and naming adhere to conventional standards for style.

4.2 Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

4.3 Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion and EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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