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NOAA FISHERIES

WEST COAST REGION

Interior Columbia Basin Office

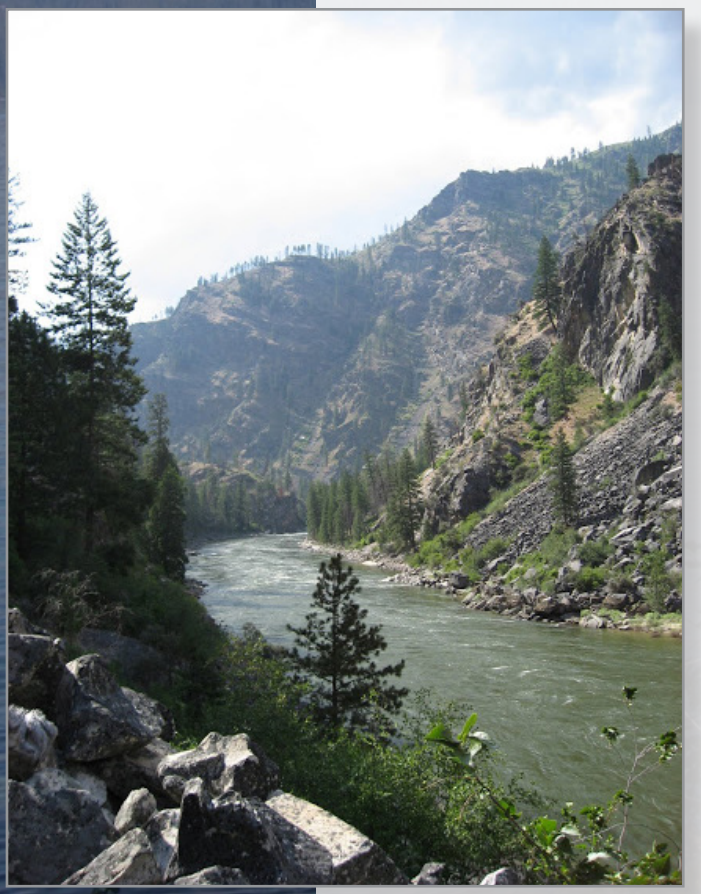
# Proposed ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Steelhead

## Frequently Asked Questions

### Why is a recovery plan needed for Snake River spring/summer Chinook salmon and Snake River steelhead?

The Snake River spring/summer Chinook salmon evolutionarily significant unit (ESU) was listed as a threatened species under the Endangered Species Act (ESA) in 1992, and Snake River steelhead, a distinct population segment (DPS), was listed as threatened under the ESA in 1997. A threated species is one that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range. The ESA requires NOAA Fisheries to develop recovery plans for all ESA listed species under the agency's jurisdiction.

Historically, the Snake River is believed to have been the Columbia River basin's most productive watershed for salmon and steelhead, supporting more than 40 percent of all Columbia River spring and summer Chinook salmon and 55 percent of summer steelhead. Strong runs of spring and summer Chinook salmon and steelhead returned each year to spawn and rear in mainstem and tributary reaches of the Snake River extending upstream to Shoshone Falls, a 212-foot-high natural barrier on the Snake River near Twin Falls, Idaho (River Mile 615). The fish also historically ranged into most Snake River tributaries stretching across the states of Oregon, Washington, Idaho, and into Nevada — including in the Owyhee, Bruneau, Boise, Payette, Weiser, Malheur, Burnt, Powder, Salmon, Clearwater, Grande Ronde, Imnaha, and Tucannon Rivers.



Today these salmon and steelhead still cover vast areas (including parts of the Snake River basin in Northeast Oregon, Southeast Washington and Idaho), and rely on habitats across a wide geographic range during their life cycle. They begin life in the gravel of freshwater streams of the Snake River basin, for some populations up to 900 miles inland from the Pacific Ocean and 6,500 feet above sea level near the headwaters of the Salmon River, and rear in these freshwater areas for their first year. As juveniles, they travel hundreds of miles downstream from their natal streams, through the Snake and Columbia Rivers to the ocean, passing up to eight major hydroelectric dams and undergoing extraordinary metabolic changes as they adapt to salt water. After one to five years

traveling long distances in the Pacific Ocean, the adult fish retrace their journey up the Columbia and Snake Rivers, and through the mainstem hydropower system, to return to their natal streams to spawn.

Multiple threats across their life cycles contribute to their current weakened status. These various threats need to be addressed to ensure that Snake River spring/summer Chinook salmon and steelhead can survive over the long term. This proposed recovery plan provides a strategy designed to take them to levels where they are again self-sustaining in the wild and no longer need the protections of the ESA.

### What is a recovery plan and what is in this proposed recovery plan for Snake River spring/summer Chinook salmon and steelhead?

Section 4(f) of the Endangered Species Act (ESA) directs NOAA Fisheries to develop and implement recovery plans for threatened and endangered species under its jurisdiction. This proposed recovery plan serves as a resource to organize on-the-ground action to recover threatened Snake River spring/summer Chinook salmon and steelhead. The proposed plan provides guidance to those implementing the plan, such as state, tribal, and federal resource managers. Recovery plans also need to be consistent with NOAA Fisheries' mandates to provide for sustainable fisheries and to meet tribal treaty and trust obligations.

The ESA requires that recovery plans contain, to the extent practicable:

- (1) a description of site- specific management actions necessary to achieve the plan's goal for the conservation and survival of the species;
- (2) objective, measurable criteria which, when met, would result in a determination that the species should be removed from the list; and
- (3) estimates of the time required and cost to carry out the measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal.

The Plan includes the following parts:

- Description of the context and process of plan development and how NMFS intends to use the Plan (Chapter 1);
- Background information on the Snake River spring/summer Chinook salmon and steelhead life histories, historical and current distribution, and relationship of this Plan to other programs and processes (Chapter 2);
- Recovery goals and delisting criteria (Chapter 3);
- Assessment of the current status of listed Snake River spring/summer Chinook salmon and steelhead, and gaps between the current status and viability criteria (Chapter 4);
- Summary of the threats and limiting factors for the two species (Chapter 5);
- Summary of recovery strategies and actions for the ESU and DPS and their major population groups (Chapter 6);
- An adaptive management framework (Chapters 6 and 7);
- A framework for research, monitoring and evaluation to support adaptive management (Chapter 7);
- Time and cost estimates to achieve recovery (Chapter 8); and
- Framework for implementation and coordination, including an approach for adaptive management and an implementation infrastructure (Chapter 9).

### What is an "evolutionary significant unit"?

An evolutionary significant unit, or ESU, is a distinctive group of Pacific salmon that is uniquely adapted to a particular area or environment. An ESU is considered distinct if it is discrete from and significant to the remainder of its species based on factors such as physical, behavioral, or genetic characteristics; it occupies an unusual or unique ecological setting; or its loss would represent a significant gap in the species' range. An ESU may contain multiple populations that are connected by some degree of migration, and hence may have a broad geographic range across watersheds and river basins.

### What is a "distinct population segment"?

"Steelhead" is the name commonly applied to the anadromous (migratory) form of the biological species Oncorhynchus mykiss. The common names of the non-anadromous, resident, form are "rainbow" and "redband" trout. When NMFS originally listed Snake River steelhead as threatened in 1997, it was classified as an ESU of salmonids and NMFS listed only the anadromous form of this species. Subsequently, in 2006, NMFS revised its species determination for West Coast steelhead under the ESA, delineating anadromous,

steelhead-only "distinct population segments" or DPSs. A DPS is defined based on discreteness in behavioral, physiological, and morphological characteristics, whereas the definition of an ESU emphasizes genetic and reproductive isolation. Rainbow trout and redband trout are managed by the states. This proposed recovery plan addresses steelhead and not rainbow or redband trout, as is consistent with the 2006 ESA listing update.

An ESU or a DPS is a group of Pacific salmon or steelhead, respectively, that is discrete from other groups of the same species and that represents an important component of the evolutionary legacy of the species. Under the Endangered Species Act, each ESU or DPS is treated as a species.

### What does "recovery" mean?

ESA recovery goals should support conservation of natural fish and the ecosystems upon which they depend. Thus, the ESA recovery goal for Snake River spring/summer Chinook salmon and steelhead is that:

> *The ecosystems upon which Snake River spring /summer Chinook salmon and steelhead depend are conserved such that the ESU and DPS are self-sustaining in the wild and no longer need ESA protection.*

Under the Endangered Species Act (ESA), recovery means the species is naturally self- sustaining and no longer needs the protection of the ESA. Therefore, it can be "delisted," or taken off the list of threatened and endangered species. A self-sustaining viable ESU or DPS depends on the status of its major population groups and populations, and the ecosystems (e.g. habitats) that support them. A self-sustaining viable population has a negligible risk of extinction due to reasonably foreseeable changes in circumstances affecting its abundance, productivity, spatial structure, and diversity characteristics over a 100- year time frame and achieves these characteristics without dependence upon artificial propagation.

Delisting also requires a determination that the threats to the species' survival have been addressed and protections are in place that would prevent further listings in the future. Recovery goes beyond ESA delisting, however, to include broad sense recovery goals that account for goals such as long-term sustainable fishing opportunity.

### What is the scientific basis for the proposed recovery plan?

The proposed recovery plan draws on the work of the Interior Columbia Technical Recovery Team (ICTRT), a diverse team of scientists brought together by NOAA Fisheries to provide the scientific foundation for the plan. It included biologists from NOAA Fisheries, states, tribes, and academic institutions. The ICTRT identified the historical populations comprising the major population groups and subsequent Snake River spring/summer Chinook salmon evolutionarily significant unit and Snake River steelhead distinct population segment, which are the listing units under the ESA. It also recommended viability criteria, or targets that are based on the biological parameters of abundance, productivity, spatial structure, and diversity, which help to define when a species is healthy enough to warrant delisting.

In addition to the work of the ICTRT, the proposed recovery plan incorporates available scientific literature, state and tribal proposed recovery strategies, studies of river and ocean conditions, and results from current scientific research. In addition to the species level recovery plan, this plan also includes three separate management unit plans that provide important specific information and direction for Snake River spring/summer Chinook salmon and steelhead in the states of Oregon, Washington, and Idaho. All three management unit plans — for Northeast Oregon, Southeast Washington, and Idaho — were developed in coordination with respective state, federal, and local agencies, tribes, and others.

This Plan also draws information from four "modules" developed to address conditions in the Columbia and Snake River mainstems, the estuary, and the ocean. The four modules summarize the following:

- *Hydropower Module* and a *Supplement for Snake River Salmon and Steelhead*: effects of federal and non-federal mainstem Snake and Columbia River hydropower programs
- *Estuary Module:* recovery actions needed in the Columbia River estuary
- *Module for the Ocean Environment:* conditions in the estuary, plume, and Pacific Ocean
- *Harvest Module:* fisheries impacts in the Snake and Columbia rivers, estuary, and ocean

### What is the goal of this proposed recovery plan?

The goal of this proposed recovery plan is to recover Snake River spring/summer Chinook salmon and Snake River steelhead and delist (remove) the species from the federal list of threatened and endangered species.

### Am I legally required to implement this proposed recovery plan?

The proposed recovery plan is not a regulatory document and implementation of the final recovery plan is voluntary. Although the ESA requires NOAA Fisheries to develop recovery plans, NOAA Fisheries relies on federal, state, tribal, and local agencies and organizations, as well as local citizens, to voluntarily implement the actions identified in the plan. In many cases, the proposed plan acknowledges and recommends coordinating the pre-existing, ongoing efforts that contribute to recovery, including conservation plans, completed ESA section 7 consultations and permits, and pre-existing laws or regulations that are expected to benefit the species and its environment.

### What is the anticipated timeframe for recovering Snake River spring/summer Chinook salmon and steelhead?

We anticipate it taking 50 to 100 years to recover Snake River spring/summer Chinook salmon and Snake River steelhead to self-sustaining levels. This timeframe takes into consideration the fact that many recovery actions take time to have their benefits fully realized for salmon recovery. For example, it takes considerable time for river riparian and floodplain areas to be restored and for natural ecosystem processes to improve over time. For another example, implementing water quality improvements can take years to show the full ecological benefits of these recovery actions.

### Who makes the decision to delist Snake River spring/summer Chinook salmon and/or Snake River steelhead from the Endangered Species List?

Under the ESA, the listing and delisting of Pacific salmon and steelhead are the responsibility of NOAA Fisheries. A species can be delisted when it has improved to the point that it is naturally self-sustaining and no longer threatened with extinction.

The delisting decision must be based on the best available science concerning the current status of the species and its prospects for long-term survival. Delisting criteria include not only biological criteria but also criteria that address the threats to a species.

### Who worked with NOAA Fisheries to develop this proposed recovery plan?

NOAA Fisheries collaborated with state, tribal, and federal biologists and resource managers, each of whom helped to provide the technical foundation for this proposed plan. Each management unit plan was developed by or in coordination with state, tribal and federal partners. For example, the Southeast Washington management unit plan was produced by the Snake River Recovery Board based in Dayton, Washington. In addition, NOAA Fisheries established a multi-state (Idaho, Oregon, and Washington), tribal, and federal partners' regional forum called the Snake River Coordination Group that addresses the four ESA-listed Snake River salmon and steelhead species listed under the Endangered Species Act.

### What recovery strategies are proposed to restore Snake River spring/summer Chinook salmon and Snake River steelhead throughout their life cycle?

Our overall recovery strategy aims to establish self-sustaining, naturally spawning populations of Snake River spring/summer Chinook salmon and steelhead that are sufficiently abundant, productive, and diverse, and no longer need ESA protection. Achieving species recovery will require coordinated and collaborative management and implementation of actions at local, watershed, and regional levels. Because of the vast geographic area covered by this recovery plan and varied factors affecting these species across their life cycle, we cannot describe all strategies in this response and provide an overview below. Please refer to Section 6 of the proposed recovery plan and the individual management unit plans for more detail.

Section 6 of the proposed recovery plan describes recovery strategies and actions to address limiting factors and threats at the regional level (tributaries, mainstem river, estuary, plume, and ocean). The associated three management unit plans identify site-specific actions to address local-level and tributary-level limiting actions and threats.

### *Strategies and Actions for Tributary Habitat*

Protecting existing high quality and good quality tributary habitat, and restoring impaired habitats will specifically benefit spring/summer Chinook salmon and steelhead in the spawning and juvenile rearing life stages. Investigations and habitat restoration actions are also needed to improve habitat conditions and to reduce mortalities during outmigration to the Snake River, especially in lower mainstem reaches and key production areas. Improved tributary spawning, rearing, and migration conditions means that more fish will reproduce, more juveniles will survive and migrate, and consequently more adults will return to the area.

### *Strategies and Actions for Estuary, Plume, and Ocean Habitat*

Since spring/summer Chinook salmon and summer steelhead are stream-type fish and generally prefer deeper estuarine waters, the characteristics of these areas can be important to the growth and survival of these species. Actions that affect the estuary and plume, decrease exposure to toxicants, and decrease predation should improve the abundance, productivity, and diversity of the Snake River spring/summer Chinook salmon ESU and steelhead DPS.

### *Strategies and Actions for Mainstem Snake and Columbia River -Hydropower System and Fish Passage*

The recovery strategy proposes a number of actions to improve Snake River spring/summer Chinook salmon and steelhead viability by addressing the mainstem effects of Columbia and Snake River hydropower operations. The hydropower strategy contains three components: (1) improving passage survival at mainstem Columbia and Snake River dams, (2) addressing impacts in tributaries by implementing actions prescribed in Federal Energy Regulatory Commission agreements regarding operation of individual tributary dams, and (3) implementing mainstem flow management operations to benefit fish migrating to and from the Snake River. The actions are designed to improve juvenile and adult fish passage and survival, reduce predation, and address flow and temperature concerns. In addition, hydropower system Action Agencies are funding tributary habitat actions to improve survival of salmon and steelhead in the Columbia River basin as part of the 2008 Federal Columbia River Power System Biological Opinion.

The management strategy builds on ongoing efforts to address hydropower-related limiting factors. Specific actions include structural improvements, changes in configuration and operations, development and implementation of fish passage plans, and storage and release of water to enhance migratory conditions for juvenile and adult migrants (e.g., flow, temperature, etc.). NMFS expects that the changes in flow management operations to increase spring flows will have benefits downstream, improving survival in the estuary and, potentially, the plume.

### *Strategies and Actions for Fisheries Management*

Harvest strategies and actions aim to protect Snake River spring/summer Chinook salmon and steelhead in the mainstem Columbia River, ocean, and tributaries by maintaining low impact fisheries. This section summarizes overall harvest strategies and actions for the two species. The management unit plans provide more detailed discussions.

The mainstem Columbia River fisheries that affect Snake River spring and summer Chinook salmon and steelhead are under the jurisdiction of *U.S. v. Oregon* and have been managed to reduce impacts on ESA-listed species since adoption of the May 2008 *U.S. v. Oregon* Management Agreement. The *U.S. v. Oregon* Management Agreement for 2008-2017 provides a framework for managing the mainstem fisheries. Harvest limits defined in the management agreement are thought to be sufficiently protective to allow for the recovery of ESA-listed species. The management agreement calls for the implementation of an abundance-based management framework for Columbia River fisheries, such that allowable ESA mortality rates may increase or decrease in proportion to the abundance of natural-origin fish forecast to return each year.

### *Strategies and Actions for Hatchery Management*

The central challenge of recovery planning with respect to hatchery programs is finding a balance between the risks and benefits of hatchery production in working to achieve recovery goals. The path to determining the appropriate role of hatchery programs in recovery is complicated by the requirements of the Endangered Species Act, legal agreements regarding production levels, agreements regarding mitigation levels, harvest agreements, tribal trust responsibilities, and scientific uncertainty.

Hatchery programs exist for many of the Snake River spring/summer Chinook salmon and steelhead populations, with the dual purpose of providing fish for fisheries and supplemental spawners to help rebuild depressed natural populations. Recovery plan actions need to be integrated with hatchery management to maintain the genetic diversity of natural-origin populations and habitats that support their resilience, while supporting the conservation and utilization benefits of the programs.

### *Strategies and Actions for Predation, Competition, Disease, and Exposure to Toxic Pollutants*

Strategies and actions to address concerns presented by predation, competition, disease, and toxic pollutants are discussed in the management unit plans, Estuary Module, Hydro Module, and this recovery plan. The documents also direct additional research, monitoring, and evaluation activities to quantify the impacts of predation, competition, disease, and toxic pollutants on Snake River spring/summer Chinook salmon and steelhead recovery efforts.

Actions are ongoing to reduce predation and increase survival of Snake River spring/summer Chinook salmon and steelhead. For the Columbia River estuary and mainstem and the lower Snake River, the Estuary Module and Hydro Module call for programs to reduce bird, fish, and marine mammal predation on listed salmon and steelhead through relocation, hazing, and bounties, guided by an ongoing research program. For Snake River steelhead, such actions include reducing avian predation by moving two Caspian tern colonies and reducing the number of double-crested cormorants.

### *Strategies and Actions for Climate Change*

Likely changes in temperatures, precipitation, wind patterns, and sea-level height due to climate change have profound implications for survival of Snake River spring/summer Chinook salmon and steelhead. All other threats and conditions remaining equal, future alteration of water quality, water quantity, and/or physical habitat due to climate change can be expected to cause a reduction in the number of naturally produced adult spring/summer Chinook salmon and steelhead returning to populations across the ESU and DPS. For example, it is possible that increased late summer and early fall water temperatures could cause migrating adult summer Chinook salmon and steelhead to delay passage (through reservoirs or adult fish ladders), or suffer higher losses through the mainstem migration corridor, or in the lower reaches of natal tributaries. This could lead to increased mortality or reduced spawning success and increased susceptibility to predators, disease, and pathogens. It is also possible, as has been shown in recent years, that responses of other species, such as California sea lions, to changes in ocean temperatures and food supplies could affect survival. Such possibilities reinforce the importance of implementing research, monitoring, and evaluation to track indicators and adapt actions to respond to climate change. It also reinforces the importance of maintaining habitat diversity and achieving survival improvements throughout the entire life cycle, and across different populations since neighboring populations with differences in habitat may show different responses to climate changes.

## How does NOAA Fisheries propose to restore Snake River spring/summer Chinook salmon and Snake River steelhead beyond the rivers where they spawn?

The full suite of recovery strategies, actions, and research, monitoring and evaluation actions are found in sections 6 and 7 of the proposed recovery plan and in the individual management unit plans. The proposed recovery plan addresses the needs of Snake River spring/summer Chinook salmon and Snake River steelhead throughout their entire life cycle, which includes their migration through the Snake and Columbia River mainstems, estuary, plume, and ocean.

Adaptive management and research, monitoring, and evaluation are essential to this recovery process. Research, monitoring, and evaluation will to gather the information that is most useful in tracking and evaluating implementation and action effectiveness, and assessing the status of these two listed species. State, tribal, and federal managers then need to use the information collected to guide and refine recovery strategies and actions over time. This adaptive management process is crucial for salmon and steelhead recovery because of the complexity of the species' life cycle, the range of factors affecting survival, and the limits to our understanding of how specific actions affect species' characteristics and survival.

**Adaptive Management**

Adaptive management works by coupling decision making with data collection and evaluation. It provides an explicit process through which alternative approaches and actions can be proposed, prioritized, implemented, and evaluated. The results from research, monitoring, and evaluation provide feedback to resource managers on the design, revision, and implementation of recovery actions. The figure to the left illustrates the role of research, monitoring, and evaluation in this adaptive management process.

### What is the relationship between a recovery plan and Endangered Species Act consultations under section 7, as well as other types of regulatory decisions?

Recovery plans provide important context and guidance which NOAA Fisheries, action agencies, and permittees can use in section 7 consultations and other regulatory decisions. Recovery plans may incorporate actions from consultations and permits because those actions are likely to contribute to recovery. Because of the consultations and permits in place, those recovery actions are reasonably certain to occur and may provide a foundation for other actions called for by the recovery plan.

### How can I submit comments on the proposed recovery plan and what are the next steps?

NOAA Fisheries released a proposed recovery plan for Snake River spring/summer Chinook salmon and Snake River steelhead on October 27, 2016 for a 60-day public comment period and is now accepting comments on the proposed plan. We will accept comments through December 25, 2016. The public may submit comments one of three ways:

1. **Electronically:** Please e-mail comments to subject line "Comments on Snake River spring summer Chinook Salmon and Snake River Steelhead Recovery Plan" to: nmfs_snakeriver_ssch_st_plan.wcr@noaa.gov
2. **Mail:** Rosemary Furfey, NOAA Fisheries West Coast Region, 1201 N.E. Lloyd Boulevard, Suite 1100, Portland, OR 97232
3. **Facsimile:** 503-230-5441

Once the public comment period closes, NOAA Fisheries will review comments and revise the recovery plan accordingly. We anticipate releasing a final recovery plan for Snake River spring/summer Chinook salmon and Snake River Steelhead in 2017.