Summer 2015

WEST COAST REGION

Recovering Snake River Sockeye Salmon

Overview

Snake River sockeye salmon are among twenty-eight species of Pacific salmon and steelhead that are in danger of extinction and protected under the Endangered Species Act (ESA). This species was listed as endangered in 1991, at which point fewer than 10 fish returned annually. Today, the last remaining Snake River sockeye salmon spawn in Sawtooth Valley lakes, high in the Salmon River watershed of central Idaho. A captive broodstock hatchery program for the sole remaining Redfish Lake population has successfully prevented the extinction of this species and preserved its genetic legacy. Though this program is a success, Snake River sockeye will only recover once greater numbers of wild fish survive their seaward migration and return to spawn in the wild. To achieve this goal, NOAA Fisheries worked with local partners to develop a plan to recover Snake River sockeye salmon. The agency adopted a final recovery plan in June 2015.

Snake River Sockeye. Photo courtesy Mike Peterson, Idaho Fish & Game

Snake River sockeye spawn and rear in the freshwater lakes of Idaho's Sawtooth Valley, from which they migrate to and from the Pacific Ocean. Today, only the Redfish Lake population remains.

Historically, Alturas and Stanley lakes supported thriving sockeye populations, and Pettit and Yellowbelly lakes may have as well.

To recover and consider delisting Snake River sockeye, at least two of these populations must be highly viable and another population must attain viable status.

An introduction to the recovery plan

The ESA directs NOAA Fisheries to develop recovery plans for listed species within the agency's jurisdiction. Recovery plans serve as a resource to organize on-the-ground action based on the biological needs of the species. The goal of this recovery plan is to recover Snake River sockeye salmon and delist the species from the federal list of threatened and endangered species.

The recovery plan for Snake River sockeye salmon includes:

- biological background about the species and its natal lakes in Idaho's Sawtooth Valley;
- an assessment of the species' current status, factors limiting survival, and current threats;
- recovery goals and biological viability criteria;
- recovery strategies and site-specific actions;
- estimates of time and costs to achieve recovery; and
- research, monitoring, and evaluation metrics to track progress.

Recovering Snake River Sockeye Salmon

The scientific foundation of the recovery plan

The recovery plan is based on the most current science about Snake River sockeye salmon, including the threats they face and their biological needs. It draws on the work of the Interior Columbia Technical Recovery Team (ICTRT), a team of scientists from NOAA Fisheries, states, tribes, and academic institutions. The ICTRT identified the historical populations comprising the major population group and subsequent Snake River sockeye salmon evolutionarily significant unit, which is the listing unit under the ESA. It also recommended biological 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 recovery plan incorporates available scientific literature, state and tribal proposed recovery strategies, studies of Sawtooth Valley lake conditions, and results from the captive broodstock program, which began in 1991. It also draws information from four "modules" developed to address conditions in the Columbia and Snake rivers, the estuary, and the ocean. The four modules summarize the following:

- *Hydropower Module* and *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

Strategies to recover Snake River sockeye

The recovery plan identifies the factors limiting survival of Snake River sockeye, such as low abundance, impaired fish passage, low flows, and high water temperatures, and outlines a series of actions to address them.

The plan identifies three phases in the recovery process:

- Phase 1: prevent extinction and build genetic resources using the captive broodstock program
- Phase 2: secure the Redfish Lake population and develope strategies to reintroduce sockeye into Pettit and Alturas lakes
- Phase 3: build capacity of the stock to transition from the hatchery program to a local natural population

The program is poised to transition from Phase 1 to Phase 2, with an emphasis on supporting relatively high levels of spawners in Redfish Lake.

In addition to these activities, the plan includes actions to protect sockeye during their downstream and upstream migrations. These include:

- protecting and enhancing tributary and watershed habitat in the Salmon River;
- implementing the actions identified in the Federal Columbia River Power System Biological Opinion to reduce mortalities associated with passage through the mainstem Columbia and Snake River hydroelectric projects;
- increasing stream flows by implementing water conservation measures, improving water delivery, and improving water storage function of riparian areas and wetlands;
- managing risks from mainstem Columbia River and Snake River fisheries;
- investigating relatively high losses of juvenile and adult sockeye in the Salmon River and identifying actions to reduce these losses;
- implementing the Idaho Department of Agriculture, U.S. Forest Service, and Idaho Department of Fish and Game's invasive species monitoring and control programs;
- responding to climate change threats by implementing research and monitoring to track indicators and by preserving biodiversity; and
- carrying out research, monitoring and evaluation actions that will provide critical information for assessing fish health and be used to make adaptive management decisions.

Review the recovery plan and accompanying documents:

http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/snake_river/snake_river_salmon_recovery_subdomain.html

For more information & ways to get involved in recovery, contact:

Rosemary Furfey, NOAA Fisheries West Coast Region:

Rosemary.Furfey@noaa.gov or (503) 231-2149