

Draft Long-Term Plan for Protecting Late Summer Adult Salmon in the Lower Klamath River



Following a significant fish die-off event in the lower Klamath River in 2002, the Bureau of Reclamation implemented several flow augmentation actions during years when the salmon have been at risk in the lower Klamath River. In light of the need for continued actions, Reclamation drafted the *Long-Term Plan for Protecting Late Summer Adult Salmon in the Lower Klamath River* (http://www.usbr.gov/mp/kbao/docs/long-term_plan_protect_lower_klamath_04-2015.pdf), which was issued in April 2015. Reclamation is now initiating the process to prepare an Environmental Impact Statement (EIS) to obtain public input on the

alternatives under consideration in the Plan and evaluate those alternatives and their related impacts.

Chinook salmon are widely distributed throughout the Klamath River Basin and spawn and rear in virtually all accessible tributaries as well as in the mainstream Klamath and Trinity Rivers. The fall run accounts for the largest proportion of returning adults since the construction of Trinity and Lewiston dams on the Trinity River as well as Iron Gate Dam on the mainstem Klamath River. Creation of these dams degraded habitat below Lewiston Dam and eliminated access to vast quantities of habitat above these dams.

Background

The Trinity and Klamath rivers once supported large populations of fall- and spring-run Chinook salmon, as well as smaller runs of Coho salmon and steelhead. In 1958, a plan was executed to increase water supplies in California's Central Valley, in part by transferring water from the Trinity River into the Sacramento River. Completed in 1964, the Central Valley Project Trinity River Division (CVP-TRD) began a decades-long era wherein up to 90 percent of the Trinity River flow was exported each year. The Trinity River Basin Fish and Wildlife Task Force was initiated in 1984 to restore and maintain the fish and wildlife stocks of the Trinity River Basin to levels that existed just prior to construction of the CVP-TRD.

Despite continued efforts to restore and protect the various salmon and steelhead runs in the Klamath River Basin through flow releases and other habitat improvement measures, an unforeseen and unprecedented die-off occurred during a two-week period beginning in late September 2002. A subsequent U.S. Fish and Wildlife Service (USFWS) report indicated that out of the approximately 34,000 anadromous salmonids estimated to have perished during this event, nearly all (98.4 percent) were adult salmonids. Of this total, 97 percent (~33,000) were fall-run

Chinook salmon, 1.8 percent (~630) were steelhead, and 1.0 percent (344) were Coho salmon. The two fish disease pathogens leading to the die-off were identified as *Ichthyophthirius multifiliis* (*Ich*) and *Flavobacter columnare* (*Columnaris*). Due to the relatively large run size (approximately 170,000), low flows, and relatively high water temperatures, high fish densities were identified as causative factors to the rapid spread of disease. Although a larger number of Klamath River fall-run Chinook died, a greater proportion of the Trinity River run was lost because the die-off occurred during the peak of the Trinity run.

Restoring salmon and steelhead populations

The impacts of land use, dams, and very low flows combined to push the river past its regenerative capacity. By 1970, less than 10 years after the dams were completed, the extent of habitat alteration and decline in salmon and steelhead populations became evident.

Intent on reversing the decline, the USFWS, Hoopa Valley Tribe, and other agencies began studies that culminated in the *Trinity River Flow Evaluation Study*. Completed in June 1999, this study is the foundation of the Trinity River Restoration Program (TRRP), which is designed to restore the Trinity River and its populations of salmon, steelhead, and other fish and wildlife.

In 2003, 2004, 2012, 2013, and 2014, predictions of large runs of fall-run Chinook salmon to the Klamath River Basin and drier-than-normal hydrologic conditions prompted Reclamation to arrange for late-summer flow augmentation, which would increase water volumes and velocities in the lower Klamath River and reduce the probability of a disease outbreak in those years. Thirty-eight thousand acre-feet (TAF) of supplemental water was released from Trinity Reservoir in 2003, 36 TAF in 2004, 39 TAF in 2012, 17.5 TAF in 2013, and 64 TAF in 2014. In support of the need in 2014, approximately 16 TAF was also released from Iron Gate Dam on the Klamath River. While documentation of the effectiveness of these events is limited, general observations were that implementation of the sustained higher releases from mid-August to mid-September in each year coincided with no significant disease or adult mortalities. Plans for 2015 are part of a separate Environmental Assessment.

The planned EIS for the Long-Term Plan will evaluate the impacts of using increased flows from Trinity Reservoir to again provide preventative flow augmentation, as needed in the lower

Key Milestones

1955: Congress authorized CVP-TRD.

1963: Trinity/Lewiston Dams completed.

1981: Interior Secretary increased flows and initiated Trinity River Flow Study.

1984: Congress enacted Trinity River Basin Fish and Wildlife Management Act to implement salmon restoration.

1992: Congress enacted Central Valley Project Improvement Act, making 340,000 acre-feet available to the Trinity River.

1999: Trinity River Flow Evaluation Study completed, used as preferred alternative in EIS/Environmental Impact Report.

2002: Fish die-off documented. Up to 34,000 adult salmon die in the lower Klamath River.

2003, 2004, 2012, 2013, and 2014: Reclamation implements preventative flow.

2015: Reclamation issues Draft Long-Term Plan for Protecting Late Summer Adult Salmon in the Lower Klamath River.

2015: August Reclamation initiates scoping process prior to preparing an EIS on the long-term plan.

Klamath River, in late-summer to reduce the likelihood of a disease outbreak among returning adult fall-run salmon that could result in a large-scale fish die-off.

HYDROLOGY

In addition to generating hydropower at Trinity and Lewiston reservoirs, Trinity Reservoir water is important for meeting a variety of needs in the Trinity and Klamath rivers. Releases from deep portions of the reservoir ensure release of suitably cold water throughout the year in support of TRRP goals. Water is occasionally released from the Trinity Reservoir to augment flows in the lower Klamath River in years when risk of a potential die-off of adult salmon could occur during late summer.

The Trinity Reservoir is the primary water storage facility in the CVP-TRD. Water released from Trinity Reservoir flows to Lewiston Reservoir, a re-regulating reservoir formed by Lewiston Dam. From Lewiston Reservoir, water can be diverted for use in the Sacramento River Basin via the Clear Creek Tunnel, or pass through Lewiston Dam to flow 112 miles to the Klamath River, which then flows approximately 43 miles before entering the Pacific Ocean.

Water diverted from Trinity Reservoir to the Sacramento River Basin supports environmental, irrigation, and municipal and industrial needs of the Sacramento River Valley, extending through the Sacramento-San Joaquin Delta. The period of greatest temperature reduction need in the Sacramento River Basin occurs during the warmer months when irrigation, municipal, and industrial demands are highest and water temperature concerns of the main stem Sacramento River exist for several fish species listed under the Endangered Species Act.

Socioeconomics and Indian trust assets

Socioeconomic resources that may be impacted by the proposed action in the Long-Term Plan include commercial, agricultural, recreational, and tribal use of the Trinity and Klamath rivers and surrounding area. In addition, the Plan could impact water dedicated to consumptive use and hydroelectric power.

Existing Federal and State Storage and Conveyance Systems in California



The EIS will evaluate the risk of disease susceptibility to the large run of adult salmon returning to the Klamath River in the late summer and, in turn, the potential for adverse effects to fisheries-related socioeconomic resources. Recreational activities in the Trinity River that may be influenced by the proposed action include pleasure rafting, fishing (boating), and recreational fishing.

The EIS will also evaluate impacts to Indian Trust Assets. Specifically, the EIS will analyze how the proposed action would affect the risk of disease vulnerability to the large returning run of adult salmon to the lower Klamath River in the late summer, and therefore how the tribal trust fishery, as well as commercial and recreational fisheries and the associated environmental justice, would be affected.

Predictive tools

Predictive tools are mathematical models that can help forecast potential impacts and reactions. To evaluate the complex issues related to the proposed action, the EIS may use a variety of predictive tools, such as:

- Hydrology
- Hydropower
- Biology
- Water Temperature
- Socioeconomics

Public involvement

As part of the environmental review process, the public is provided opportunities to submit their comments on the proposed action and the Draft EIS. Public input is solicited beginning at the public scoping period and again when the Draft EIS is issued, which is currently planned for 2016. Public scoping meetings are being held at the following locations:

- August 5, Arcata, California
- August 6, Weaverville, California
- August 11, Klamath Falls, Oregon
- August 12, Sacramento, California

Written comments on the Plan will be accepted at the meetings or can be e-mailed to sha-slo-klamath-LTP@usbr.gov, faxed to 530-275-2441, or mailed to:

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Comments are due by Thursday, August 20, 2015. The Draft Plan is available at http://www.usbr.gov/mp/kbao/docs/long-term_plan_protect_lower_klamath_04-2015.pdf.

For more information:

For additional information, please contact Paul Zedonis at the above address or at 530-275-1554 (TTY 800-877-8339).