

**Chapter: 2**

**State(s): Oregon**

**Recovery Unit Name: Klamath River**

**Region 1**

**U.S. Fish and Wildlife Service**

**Portland, Oregon**

## DISCLAIMER

Recovery plans delineate reasonable actions that are believed necessary to recover and/or protect the species. Recovery plans are prepared by the U.S. Fish and Wildlife Service and, in this case, with the assistance of recovery unit teams, State and Tribal agencies, and others. Objectives will be attained and any necessary funds made available subject to budgetary and other constraints affecting the parties involved, as well as the need to address other priorities. Recovery plans do not necessarily represent the views or the official positions or indicate the approval of any individuals or agencies involved in the plan formulation, other than the U.S. Fish and Wildlife Service. Recovery plans represent the official position of the U.S. Fish and Wildlife Service *only* after they have been signed by the Director or Regional Director as *approved*. Approved recovery plans are subject to modification as dictated by new findings, changes in species status, and the completion of recovery tasks.

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# **KLAMATH RIVER RECOVERY UNIT CHAPTER OF THE BULL TROUT RECOVERY PLAN**

## **EXECUTIVE SUMMARY**

### **CURRENT SPECIES STATUS**

Klamath River bull trout were listed as a distinct population segment in 1998 (63 FR 31647) because they are physically isolated from other bull trout by the Pacific Ocean and several small mountain ranges in central Oregon. Recovery of bull trout in the Klamath River Recovery Unit, which includes three core areas and nine currently identified local populations, will require cooperation from Federal, State, and local agencies, and Tribal and private entities. Within the Klamath River Recovery Unit, abundance has been severely reduced and remaining populations are fragmented.

### **HABITAT REQUIREMENTS AND LIMITING FACTORS**

Watershed disruption has played a major role in the decline of bull trout in the Klamath River basin. The effects of historical land use on fish habitat in the larger tributaries and mainstem rivers of the Klamath River basin have been profound. Channelization, water withdrawals, removal of streamside vegetation, and other disturbances have altered the aquatic environment by elevating water temperatures, reducing water quantity and quality, and increasing sedimentation. Changes in or disruptions to watershed processes that influence characteristics of stream channels have also influenced the dynamics and persistence of bull trout populations. Klamath River basin bull trout are threatened by habitat degradation, past and present land use management practices, agricultural water diversions, and competition or hybridization from nonnative brown and brook trout. As a result of past land and resource management practices, bull trout populations in the Klamath River Recovery Unit are small, disjunct, and face a high risk of extirpation.

## RECOVERY GOAL AND OBJECTIVES

The goal of the bull trout recovery plan is to **ensure the long-term persistence of self-sustaining, complex interacting groups of bull trout distributed across the species range, so that the species can be delisted.** In order to recover bull trout in the Klamath River, the following objectives need to be met:

- ▶ Maintain current distribution of bull trout and restore distribution in previously occupied areas within the Klamath River Recovery Unit, as noted in Appendix A.
- ▶ Maintain stable or increasing trends in abundance of bull trout within the Klamath River. This objective includes the expression of all life history strategies including resident, fluvial, and adfluvial forms in the Upper Klamath Lake core area and resident and fluvial forms in the Sycan River and Upper Sprague River core areas.
- ▶ Restore and maintain suitable habitat conditions for all bull trout life history stages and strategies. In core areas and migration corridors, stable or upward trends in habitat quality are achieved through landscape-level adjustments in land management strategies designed to maintain and/or enhance structural and functional attributes of upslope, riparian, and fluvial systems.
- ▶ Conserve genetic diversity and provide opportunity for interchange of genetic material among appropriate core populations.

## RECOVERY CRITERIA

Recovery criteria for the Klamath River Recovery Unit reflect the stated objectives and consideration of population and habitat characteristics within the recovery unit. Using four population and habitat elements, the Klamath River Recovery Unit Team categorized bull trout into three groups of relative risk:

diminished, intermediate, and increased. Team members evaluated bull trout under current and potential recovered conditions based on the number of local populations, adult abundance, population trends and variability, and connectivity of the system. These elements were derived from the best scientific information available concerning bull trout population and habitat requirements. Evaluation of these elements under a recovered condition assumed that actions identified within this chapter had been implemented.

1. **Distribution criteria will be met when current distribution of bull trout in the 12 local populations is maintained and distribution is expanded by establishing bull trout in areas identified as suitable for potential local populations.** The number of existing local populations by core area are as follows: Upper Klamath Lake, 3; Sycan River, 2; and Upper Sprague River, 7. Achieving criterion 1 entails maintaining existing local populations and establishing additional potential local populations in all core areas in the recovery unit to maintain current and recovered distribution. To achieve criterion 1 and to ensure a core area population of no fewer than 100 adult bull trout, establishing at least 5 to 7 local populations in the Klamath Lake core area among 15 potential local populations (2 to 5 new local populations), at least 5 to 7 local populations in the Sycan River core area from among 15 potential local populations (3 to 5 new local populations), and at least 10 to 12 local populations in the Upper Sprague River core area from among 25 potential local populations (3 to 5 new local populations) is necessary.
2. **Abundance criteria will be met when the estimated number of adult bull trout is at least 8,250 individuals distributed among the Upper Klamath Lake, Sycan River, and Upper Sprague River core areas, based on 10 years of monitoring data.**
3. **Trend criteria will be met when adult bull trout exhibit stable or increasing trends in abundance in the Upper Klamath Lake, Sycan River, and Upper Sprague River core areas, based on 2 generations (10 years) of monitoring data.**

4. **Connectivity criteria will be met when specific barriers to bull trout migration in the Klamath River Recovery Unit have been addressed.** In the Klamath River Recovery Unit, this objective means addressing passage: 1) existing culverts that impede passage should be replaced, including those on Threemile Creek at U.S. Forest Service Road 110 crossing, Brownsworth Creek at U.S. Forest Service Road 34 crossing, and Brownsworth Creek both 0.75 mile and 1.25 miles above U.S. Forest Service Road 34; the culvert 0.25 mile below U.S. Forest Service Road 34 (to prevent repeated washout); the large-diameter culvert at the Boulder Creek road crossing; culverts in the upper Sycan River watershed that are identified in the Fremont National Forest inventory; and several in the North Fork Sprague River drainage, namely, on North Fork Sprague River (2), Boulder Creek (1), Dead Cow Creek (1), and Sheepy Creek (1); 2) fish passage structures should be installed at water diversions on bull trout streams, and barriers should be removed, including on Cherry, Sevenmile, Sun, and Threemile Creeks; 3) fish screens should be installed to prevent fish from entering diversion canals or pipes, including on Long, Deming, Threemile, Sun, Sevenmile, and Cherry Creeks; 4) manmade barriers and entrainment should be evaluated and remedied to promote migratory bull trout; priority watersheds include Threemile, Long, Deming, Sevenmile, Cherry, Sun, and Long Creeks.

The Klamath River Recovery Unit team expects that the recovery process will be dynamic and will be refined as more information becomes available. Future adaptive management will play a major role in recovery implementation and refinement of recovery criteria. The recovery unit criteria listed above will be used to determine when the Klamath River Recovery Unit is fully contributing to recovery of the Klamath River population segment.

## **ACTIONS NEEDED**

Recovery for bull trout will entail reducing threats to the long-term persistence of populations and their habitats, ensuring the security of multiple interacting groups of bull trout, and providing habitat and access to conditions that allow for the expression of various life history forms. The seven categories are listed in Chapter 1; tasks specific to this recovery unit are provided in this chapter.

## **ESTIMATED COST OF RECOVERY**

Total cost of bull trout recovery in the Klamath River Recovery Unit is estimated at about \$26 million spread over a 25-year recovery period. Successful recovery of bull trout in the recovery unit is contingent on removing threats from nonnative species, eliminating barriers to fish movement, and improving habitat conditions within the Klamath River basin. Total cost includes estimates of expenditures by local, Tribal, State, and Federal governments and by private business and individuals. Cost estimates are not provided for tasks which are normal agency responsibilities under existing authorities. The estimated costs are attributed to bull trout conservation, but other aquatic species will also benefit.

## **ESTIMATED DATE OF RECOVERY**

Time required to achieve recovery depends on bull trout status, factors affecting bull trout, implementation and effectiveness of recovery tasks, and responses to recovery tasks. A tremendous amount of work will be required to restore impaired habitat, reconnect habitat, and eliminate threats from nonnative species. Three to five bull trout generations (15 to 25 years), or possibly longer, may be necessary before identified threats to the species can be significantly reduced and bull trout can be considered eligible for delisting.