

Goose Lake Redband Trout

Oncorhynchus mykiss ssp.

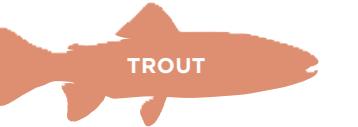


PHOTO: CALIFORNIA DEPT. OF FISH AND GAME HERITAGE TROUT PROGRAM (ROGER BLOOM)

Redband trout are inland descendants of rainbow trout found in the watersheds of the northern Great Basin. Goose Lake redband trout are closely related to the five other redband groups, but have been isolated for thousands of years.

Goose Lake is a shallow, alkaline body of water that only overflows to the Pit River in wet years. During severe droughts, the lake dries up completely. There are two forms of Goose Lake redband trout—the lake form and the stream form. The lake form grows to about 20 to 24 inches long, feeding on the superabundant fairy shrimp and tui chubs in the lake. It spawns in tributary streams and returns to the lake after spawning. The smaller stream form which, as adults, reach six to eight inches, persists in scattered populations in tributaries. The periodic desiccation of Goose Lake presumably eliminates the lake population, which becomes re-established by dispersing stream fish. Goose Lake red-

band trout appear to have a higher temperature tolerance than most trout, having evolved in small, drought prone drainages, but make use of small cool water refuges and cold springs to survive the hottest periods. However, living at the upper edge of their tolerance makes them highly vulnerable to drought and climate change.

DISTRIBUTION: Goose Lake straddles the California/Oregon border in the northeast corner of the state. In California, the main spawning streams are Willow and Lassen Creeks, as well as Cold Stream, a tributary of Lassen Creek. They are also present in a number of smaller streams such as Pine, Cottonwood, Davis, and Corral Creeks. In

Oregon, they inhabit the extensive Thomas/Bauers Creek system as well as 12 smaller streams. Joseph, Parker, and East Creeks, tributaries of the upper Pit River in California, contain redband trout genetically similar to Goose Lake redband trout.

ABUNDANCE: In the 19th century, Goose Lake redbands were so abundant in the lake that they were harvested commercially and sold to logging camps. Current populations in Lassen and Willow Creeks fluctuate with dry and wet years, but these creeks combined have the potential to support 1,000 spawning fish under optimal flow conditions. The Oregon Department of Fish and Wildlife estimates 102,000 Goose Lake redband trout live in 13 Oregon streams under normal conditions. Surveys of California streams in 1988 and 1999 show 600 to 1,600 trout per kilometer in Lassen Creek, which suggests that densities and population numbers in California and Oregon streams are roughly comparable.

FACTORS AFFECTING STATUS: The primary threats to Goose Lake redband trout include, (1) habitat modification, (2) water diversions, (3) overfishing, (4) non-native fish competitors, and (5) drought and climate change. In recent years, considerable effort has been made to restore habitats, but the drying and warming of the headwater streams is likely to be a problem for the fish in the future.

STATUS 3: Goose Lake redband trout face no immediate extinction risk because of public-private partnerships to protect the fish and their habitats. During the 1987 to 1994 drought, Endangered Species Act listing was proposed for the Goose Lake fishes. In response, the Goose Lake Fishes Working Group was formed in 1991 comprised of representatives from California and Oregon. The Group, which included private landowners, state and federal agencies, non-government organizations, and universities, sought to

protect and reestablish native fishes in the Goose Lake basin.

The stated goal was “to conserve all native fishes in Goose Lake by reducing threats, stabilizing population numbers, and maintaining the ecosystem.” Since publication of the conservation strategy in 1996, a number of projects have been completed or long-term projects begun. These include culvert improvements, diversion or passage projects, fencing of streams, habitat improvement projects, fish surveys, and road improvements to reduce sedimentation. Because of the potential effects of climate change on an arid basin, populations must be monitored closely to assure they are sustaining, given the limited habitat available. Continued protection of streams and improvements to habitat are critical to ensure survival.

CONSERVATION RECOMMENDATIONS: Management actions needed for the Goose Lake redband trout include removal of barriers to fish passage, protection of spawning and rearing habitat, elimination of livestock grazing from riparian areas, and eradicating non-native fish from redband streams.



chances for survival:
average

3

Goose Lake Redband Trout Distribution



Lassen Creek. PHOTO: PETER MOYLE

