

Response to ISRP Comments to Project ID: 32013  
Fishery Restoration of the Gold Fork River, Idaho  
Response by Dale Allen, Idaho Department of Fish and Game  
March 15, 2002

**Question 1. What is the expected ability of Cascade Reservoir to support bull trout given the TMDL and temperature constraints?**

The Cascade Reservoir Watershed Management Plan (TMDL) is 100% directed to reducing the amount of phosphorus input into the reservoir. The TMDL goal is to reduce the level of phosphorus input to the reservoir by 37% (IDEQ 1998). The Cascade Reservoir TMDL is becoming effective and preliminary reports are encouraging with phosphorus loading being much reduced (Cascade TAC, 2002). General observation by this author is that the algal bloom problems are also reduced. The Department continues to stock large numbers of salmonids to the reservoir for sport fishery purposes and we have not observed problems with stocked trout related to nutrients.

Bull trout use of Cascade Reservoir likely would parallel bull trout use in Arrowrock, Anderson and Beulah Reservoirs in southern Idaho and Oregon. Bull trout use is confined to a post-spawn over-winter period that typically extends from September to June. Flatter (2000) found that bull trout in Arrowrock Reservoir typically returned to the reservoir either directly after spawning or at the onset of cooler stream water temperatures and over-wintered in the reservoir and returned to the Boise River during spring runoff. Bull trout in Anderson Reservoir exhibited similar patterns of movement (Stovall 2001). Beulah Reservoir on the Malheur River in Oregon has high nutrient loading and associated water quality problems with the addition of extreme water fluctuations, and supports an adfluvial population of bull trout. The bull trout in Beulah Reservoir also exhibit an over-winter use of the reservoir similar to the southern Idaho reservoirs (Rick Rieber, USBOR, personnel communication).

The largest unknown is if and when bull trout would adopt an adfluvial life history that includes Cascade Reservoir. The bull trout in the Gold Fork River have been isolated from any upstream migratory events by the Gold Fork Diversion Dam. The Gold Fork River was dammed before construction of Cascade Reservoir. Optimistically, we could hope that spawning behavior or its temperature needs would cause a given bull trout in Cascade Reservoir to move into the Gold Fork River and proceed to the headwaters if the diversion was removed. Since there has never been this opportunity for upstream movement all we can do is compare the situations to other known populations of adfluvial bull trout in the area. Given that we do see seasonal use in other local reservoirs I have to conclude that bull trout could use Cascade Reservoir at least seasonally.

**The M&E for habitat response and long-term population response needs to more thoroughly described in the response.**

**Habitat:** We have not proposed habitat modification actions other than creating fish passage at irrigation diversion structures. Any structure built or modified will have a plan for maintenance and documentation of any channel changes that could occur from construction of the structure.

**Population Response:** We will employ a level of monitoring comparable to Tier 3 to evaluate the effectiveness of introduced local bull trout population (tributaries). A stratified random sampling protocol will be used to set up sampling units in the treatment tributaries. The sampling frame is the Gold Fork River above the Gold Fork Diversion and the tributaries above the confluence of the north and South Fork Gold Fork River. Sampling units will be 100 m long randomly selected stream segments within the treatment and control reaches. The Gold Fork River below the confluence of the North and South Forks will be sampled at a larger scale (less intensively) than the tributaries because it is considered migratory and possible over-winter habitat.

Data collection will be accomplished by 3-pass electrofishing at each 100m site (sampling unit). The individual sampling unit becomes a trend site that will be visited annually for the life of the project. All fish species will be documented, and length and weights collected from all individuals. Population estimates will be calculated from each sample. Success or failure of individual introductions or treatments will be rated on population response, change in population size structure, presence of young-of-year bull trout and condition.

### **References**

Flatter, B. 2000. Life history and population status of migratory bull trout in Arrowrock Reservoir, Idaho. Masters Thesis. Boise State University. Boise, Idaho.

Stoval, S.H.,(Editor). 2001. Boise-Payette-Weiser Subbasin Summary. Prepared for the Northwest Power Planning Council.