

Bear Lake Sculpin (*Cottus extensus*)

Species Status Statement.

Distribution

Bear Lake sculpin is one of four fish species found only in Bear Lake, which straddles the Utah-Idaho border. These fish live nowhere else in the world, naturally (Sigler and Sigler 1987). Bear Lake sculpin was introduced into Flaming Gorge Reservoir decades ago. The species may still occur there, or it may not; it has not been detected in sampling there in the past 25-odd years. Table 1 does not include Daggett County.

Table 1. Utah counties currently occupied by this species.

Bear Lake Sculpin
RICH

Abundance and Trends

The Utah Division of Wildlife Resources (UDWR), Idaho Department of Fish and Game (IDFG) and Utah State University have monitored the Bear Lake sculpin population since 1991 (Wurtsbaugh and Luecke 1997; Tolentino 2007). The primary sampling method is bottom trawling. The population of sculpin in Bear Lake has been relatively stable over the intervening three decades. However, during extended drought periods managers have observed significant reductions in catch rate (Tolentino 2007 and IDFG unpublished data). In these instances, the population has recovered within three years of lake levels rising and inundating spawning habitat.

Statement of Habitat Needs and Threats to the Species.

Habitat Needs

Bear Lake sculpin spawns in unembedded rock and cobble substrates of near-shore areas less than 30 feet in depth (Sigler and Sigler 1987, Robinson 2006). Potential spawning at other depths and substrates, and relationships to water quality require additional study.

Threats to the Species

The primary threat to this species is the dewatering of rocky, littoral, spawning habitat from extended droughts (Utah WAP 2015, Glassic and Gaeta 2019). The lake bottom of the top 40 feet of Bear Lake consists of less than 1% cobble & gravel, yet managers believe this is the only spawning habitat of the sculpin (Robinson 2006, Tolentino 2007, Glassic 2018, Glassic and

Gaeta 2019). Although short-term fluctuation of lake levels can be beneficial (rising and falling lake levels coupled with wind action scours rocky shoreline habitat and prevents sediment accumulation and algal growth), extended low water periods caused by drought can dewater most spawning habitat. Bear Lake Sculpin evolved in a dynamic environment with variable climatic conditions and may be able to adapt somewhat to these drought scenarios through genetic selection, but is at higher risk from the type of alterations in water level commonly observed with dam and hydropower operation, water allocation and groundwater pumping.

Bear Lake sculpin is an important prey species for Bear Lake cutthroat trout, Bonneville whitefish, and lake trout (Sigler and Sigler 1987); therefore, it is imperative to monitor predators that use the sculpin as part of their diet. Since their first stocking into the lake in 1911, managers have believed that lake trout are unable to maintain their population in Bear Lake through natural reproduction. This is likely due to several factors including predation by native fish, lake trout eggs suffocating from the unique water chemistry in Bear Lake, and limited spawning habitat (Martinez et. al. 2009). To ensure control of lake trout numbers, beginning in 2001 the UDWR and Idaho Department of Fish and Game (IDFG) began stocking only sterile (triploid) lake trout. If managers observe that Bear Lake sculpin populations remain below a density threshold for six consecutive years, UDWR and IDFG will reduce the number of lake trout and Bear Lake cutthroat trout stocked (Tolentino et. al. 2015).

Table 2. Summary of a Utah threat assessment and prioritization completed in 2014. This assessment applies to the species' entire distribution within Utah. For species that also occur elsewhere, this assessment applies only to the portion of their distribution within Utah. The full threat assessment provides more information including lower-ranked threats, crucial data gaps, methods, and definitions (UDWR 2015; Salafsky et al. 2008).

Bear Lake Sculpin
Very High
Dam / Reservoir Operation
Hydro Power Facilities
Power Generation
Water Allocation Policies
High
Groundwater Pumping
Unauthorized Species Introductions
Medium
Invasive Wildlife Species - Non-native

Rationale for Designation.

Bear Lake sculpin is one of the four species of fish found nowhere else in the world but the unique Bear Lake of northern Utah and southern Idaho. This fish community is a unique wildlife resource that could be vulnerable to loss or degradation of their habitat. Sensitive species

designation will help state management of this resource and prevent the need for federal Endangered Species Act listing. Measures to conserve Bear Lake sculpin would also benefit other Bear Lake fishes: Bonneville cisco, Bonneville whitefish, and Bear Lake whitefish.

Economic Impacts of Sensitive Species Designation.

Sensitive species designation is intended to facilitate management of this species, which is required to prevent Endangered Species Act listing and lessen related economic impacts. The listing of Bear Lake sculpin as endangered would have impacts on water resource management at Bear Lake, including reservoir operation, power generation, and groundwater pumping in the surrounding areas. There would also be costs associated with preventing and mitigating unauthorized species introductions and increased costs of regulatory compliance for many land-use decisions and mitigation costs.

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