

Least Chub (*Lotichthys phlegethontis*)**Species Status Statement.**Distribution

Least chub is a relict species of ancient Lake Bonneville, and as such its historical and current distribution follow the lake's pattern of recession. After Lake Bonneville receded, least chub persisted in streams, ponds, and swamps around Utah Lake and the Great Salt Lake (Sigler and Sigler 1987). Farther south, it also survived in the Beaver River, Parowan Creek, Clear Creek, Clear Lake, and Sevier Lake tributaries. In the West Desert, it was able to persist in springs in Snake Valley (Sigler and Sigler 1987). Many of these populations have been extirpated in historic times, by human agency. The species' current distribution is limited to six naturally occurring populations. These include the Mona Springs and Mills Valley populations along the Wasatch Front, the Gunnison population along the San Pitch River, the Clear Lake population in the Sevier River Drainage, and the Leland Harris, Gandy Salt Marsh and Bishop Springs populations in Snake Valley.

Table 1. Utah counties currently occupied by this species.

Least Chub	
BOX ELDER	MILLARD
CACHE	RICH
DAVIS	SALT LAKE
IRON	TOOELE
JUAB	UTAH

Abundance and Trends

Based on recent surveys it appears that the modern distribution of least chub began to contract sometime during the 1960's and 1970's (e.g. Workman et al. 1979). This reduction in distribution is very notable along the Wasatch Front, and even more so for the more southern and western populations (e.g. Beaver River, Parowan Creek, and Clear Creek), which, except for those in the Snake Valley and Clear Lake, have all been extirpated. Abundance of least chub in the remaining natural distribution seems to be stable in the Snake Valley, Clear Lake and Mills Valley. The Mona Springs population has declined and may face eventual extirpation due to a variety of threats. Based on recent observations, the recently-discovered Gunnison population may be in a precarious situation during drier years.

With the exception of the Gunnison population and the Leland Harris population (located in Snake Valley), managers have now established captive or ex situ "wild" refuge populations for each genetically distinct naturally occurring population. This was done in accordance with the Conservation Agreement and Strategy for least chub (Bailey et al. 2005), a multi-agency

document drafted in 2005 to help guide conservation of the species and prevent the need for listing under the Endangered Species Act.

Statement of Habitat Needs and Threats to the Species.

Habitat Needs

These fish typically utilize seasonally inundated areas or shallower margins of springs and ponds to spawn and deposit their eggs primarily during spring (Grover 2016). This habitat type is important as a nursery area for eggs and newly hatched larvae. Adults typically favor deeper pool areas of springs and ponds during the remainder of the year. Both habitat types usually contain submerged, emergent and floating vegetation (Bailey et al. 2005) and both habitat types are important for stable recruiting populations of least chub.

Threats to the Species

The primary threats to least chub are negative interactions with nonnative species, and habitat loss and degradation. Nonnative fishes co-occur with least chub in all natural populations outside of the Snake Valley. Of these nonnative fish species, western mosquitofish (*Gambusia affinis*) likely pose the most significant threat as they have been shown to prey on eggs and young-of-year least chub and to harass larger juveniles and adults (Priddis et al. 2009). The main threat of habitat loss and degradation to the remaining natural populations of least chub is groundwater withdrawal.

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).

Least Chub
Very High
Droughts
Invasive Wildlife Species - Non-native
High
Groundwater Pumping
Small Isolated Populations
Unauthorized Species Introductions
Medium
Improper Grazing (current)
Invasive Plant Species – Non-native

Rationale for Designation.

Least chub suffers from a reduced distribution, substantial current threats under present management, and potential future threats. For example, the stronghold for least chub is in the Snake Valley. However, the probability of future groundwater withdrawal there is very high, and if left unmanaged would have significant impacts on these populations by reducing seasonally available nursery habitat (Grover 2016). A reduction in these populations could result in a federal listing in the future. All these reasons contribute to the need to designate least chub a Utah Sensitive Species. Measures to conserve least chub would also benefit some populations of Columbia spotted frog, as well as several species of springsnail.

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 least chub would impact management and development of groundwater resources throughout the range of least chub in Utah, especially in the Snake Valley region. It could also impact management of nonnative species, including legally and illegally introduced ones. There would also be increased costs of regulatory compliance for many land-use decisions and mitigation costs.

Literature Cited.

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