

## Humpback Chub (*Gila cypha*)

### Species Status Statement.

#### Distribution

Humpback chub is a long-lived fish endemic to the warm, turbid waters of the Colorado River Basin. Historically, it populated discrete, canyon-bound reaches throughout the basin, from the Upper Green, Upper Colorado and Yampa Rivers downstream through the Lower Colorado River. The species now occurs in only five populations, three of which are in Utah (USFWS 2017). The Utah populations are in Westwater Canyon, Cataract Canyon (both on the Colorado River), and the adjoining Desolation and Gray Canyons (on the Green River). The other two remaining populations are in Colorado (Black Rocks) and Arizona (Grand Canyon), both on the Colorado River.

Table 1. Utah counties currently occupied by this species.

<b>Humpback Chub</b>	
CARBON	KANE
DAGGETT	SAN JUAN
EMERY	UINTAH
GARFIELD	WAYNE
GRAND	

#### Abundance and Trends

Among the earlier population losses due to water development projects, the construction of Flaming Gorge and Hoover Dams eliminated two historic populations (Hideout and Black Canyon). A third population (Yampa Canyon) has been undetected since 2004 and managers consider it functionally extirpated.

While the reduction in its overall distribution is undisputed, monitoring abundance and trends in the remaining humpback chub populations is challenging. Conclusions and management decisions based on abundance estimates should be made with caution (Howard and Caldwell 2018). The Grand Canyon population is the largest population, and has maintained a stable trend for the past decade. The remaining Upper Basin populations have experienced periods of significant decline, but continue to persist with some recent signs of potential stabilization (USFWS 2017). Managers have documented recruitment in all Utah populations, and – repeating the previous caveat about abundance estimates – for now, they do not appear to require hatchery augmentation.

### Statement of Habitat Needs and Threats to the Species.

### Habitat Needs

Humpback chub prefers the swift canyon reaches of the mainstem Colorado River and its larger tributaries. Good habitat offers a wide range of flows, and warm, turbid water free of nonnative fishes. Adults need a rocky substrate and warm water for spawning. Adults live in large eddies and deep pools, sometimes moving to shallow shoreline areas to feed (USFWS 2017). Larvae and juveniles use sheltered, complex shoreline habitats that persist at a wide range of flows. While movement between populations is sufficient to maintain genetic diversity, humpback chub exhibit a high level of site fidelity, frequently spending their entire lives within only a few river miles (Howard and Caldwell 2018).

### Threats to the Species

Loss of habitat extent and connectivity, persistent drought, and the introduction of nonnative fishes have had profoundly negative effects on humpback chub. Water development, with its resulting reduced water availability, changes in water temperature, and altered flow regimes, and the expanding presence of competitive and predatory nonnative fishes threaten the long-term viability of the species (USFWS 2017). Management actions such as nonnative fish removal and adaptive flow management have helped curb the effects of these stressors, but the rarity and longevity of the humpback chub make it difficult to reliably monitor and predict the effectiveness of these management interventions.

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).

<b>Humpback Chub</b>
<b>Very High</b>
Droughts
Invasive Wildlife Species - Non-native
<b>High</b>
Dam / Reservoir Operation
Inappropriate Fire Frequency and Intensity
Oil Shale
Problematic Animal Species – Native
Spills and Production Water
Tar Sands
Water Allocation Policies
<b>Medium</b>
Agricultural / Municipal / Industrial Water Usage
Atmospheric Deposition
Increasing Stream Temperatures
Small Isolated Populations
Pipelines / Powerlines - Energy Development
Presence of Dams
Sediment Transport Imbalance
Storms and Flooding

### **Rationale for Designation.**

The species received full protection under the federal Endangered Species Act, and Utah state law, in 1973. Decades of management have partially mitigated permanent reductions in extent and quality of habitat, and the effects of non-native fish species. The resiliency and persistence of this species also contributed to the 2018 recommendation by the USFWS to reclassify the humpback chub from Endangered to Threatened. Nonetheless, the threats to the species remain and require ongoing management. These factors warrant its designation as a Sensitive Species. Measures to conserve humpback chub would also benefit Colorado pikeminnow, razorback sucker, bonytail, roundtail chub, flannelmouth sucker, and bluehead sucker.

### **Economic Impacts of Sensitive Species Designation.**

Sensitive species designation is intended to facilitate management of this species, which is required to reverse Endangered Species Act Listing and lessen related economic impacts. Humpback chub is currently listed as endangered under the Endangered Species Act. This listing has resulted in extensive costs to mitigate water development and manage water resources in the Colorado River Basin in Utah. It has also resulted in costly efforts to mitigate impacts from nonnative fish introductions, and has impacted the management of recreational fisheries in the basin. There have also been increased costs of regulatory compliance for many

land-use decisions including oil and gas development, especially due to habitat impacts from associated infrastructure and water use, and potential contamination during production. These costs will remain as long as the species is listed under the Endangered Species Act. If the species is downlisted or delisted, continued efforts will be required to mitigate threats and maintain stronger populations.

### **Literature Cited.**

Howard, J. and J. Caldwell. 2018. Population estimates for humpback chub (*Gila cypha*) in Desolation and Gray Canyons, Green River, Utah 2001-2015. Final Report of Utah Division of Wildlife Resources to Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado, USA.

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