

Colorado Pikeminnow (*Ptychocheilus lucius*)**Species Status Statement.**Distribution

Colorado pikeminnow is a large-bodied, migratory fish that was historically widespread throughout the major streams of the Colorado River basin (Tyus 1991). In Utah, wild, self-sustaining populations of Colorado pikeminnow currently exist in the Green River and upper Colorado River sub-basins. Additionally, a hatchery-supported population occurs in the San Juan River, where limited natural reproduction has occurred (USFWS 2002).

Table 1. Utah counties currently occupied by this species.

Colorado Pikeminnow	
CARBON	GRAND
DAGGETT	SAN JUAN
EMERY	UINTAH
GARFIELD	WAYNE

Abundance and Trends

Long-term monitoring of Colorado pikeminnow populations indicates an increase in adults occurring throughout the 1990's and a subsequent decrease in adults beginning in the early 2000's in the Green River sub-basin (Bestgen et al. 2018; Miller 2018). Similar trends have been documented in the upper Colorado River sub-basin with an apparent decline in adults beginning in the mid 2000's (Osmundson and White 2014; Miller 2018). High numbers of juvenile and recruit-sized fish observed in the Green River in 2011 largely failed to recruit to adult sizes in 2012 or 2013 (Bestgen et al. 2018). Increased abundance of fish sized 150-299 mm in the lower Green River could help to replenish adult populations in 2-4 years, if continued survival occurs (Bestgen et al 2018).

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

Adult Colorado pikeminnows migrate long distances to established spawning sites with suitable cobble substrates (Tyus and McAda 1984). Spawning occurs as spring flows recede and larvae drift downstream to low-velocity reaches, where backwaters provide nursery habitat necessary for growth (Bestgen and Hill 2016). The migratory nature and downstream larval transport components of this species' life cycle necessitate protection of a variety of habitats throughout the majority of the Green, Colorado, White, Yampa and San Juan rivers in Utah. Cobble

spawning substrates require periodic high flow events to clean sediments from the interstitial spaces used for egg incubation. Adequate summer base flows must be present, to transport larvae into downstream reaches, maintain backwaters, and disadvantage nonnative fishes that eat and compete with young Colorado pikeminnow (Bestgen and Hill 2016). To maintain viable populations, this species requires connectivity between the diverse, far-flung habitats used during all its life stages.

Threats to the Species

As with nearly all other native fishes of Utah, habitat issues and nonnative species are the largest categories of threats to the Colorado pikeminnow. Altered flow regimes, especially in conjunction with droughts, reduce channel maintenance services provided by high spring flows, which clean gravel and cobble spawning substrates of fine sediment, and create backwaters and other channel features used by the larval and all other life stages of Colorado pikeminnow (USFWS 2002). Water diversions and regulated flows are drivers of altered flow regimes, and can lead to inadequate base flows for recruitment (Bestgen and Hill 2016). Diversion structures may also entrain and kill juvenile and adult fish in demographically important numbers.

Though it is a large piscivore in its own right, this species still suffers the effects of nonnative fishes through direct predation on its young, and competition with adults for forage and habitat. Of particular concern, populations of walleye have increased steadily since the mid 2000's (Michaud et al. 2018).

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).

Very High
Droughts
Invasive Wildlife Species - Non-native
High
Dam / Reservoir Operation
Hydro Power Facilities
Inappropriate Fire Frequency and Intensity
Oil Shale
Presence of Diversions
Spills and Production Water
Tar Sands
Water Allocation Policies
Medium
Agricultural / Municipal / Industrial Water Usage
Atmospheric Deposition
Channelization / Bank Alteration (direct, intentional)
Increasing Stream Temperatures
Invasive Plant Species – Non-native
Nuclear Power Facilities
Pipelines / Powerlines - Energy Development
Presence of Dams
Sediment Transport Imbalance
Storms and Flooding

Rationale for Designation.

Colorado pikeminnow was one of the first species listed under the Endangered Species Protection Act of 1966 (the precursor to the modern Endangered Species Act), and it remains federally listed as Endangered today. Despite considerable efforts undertaken, recovery goals (USFWS 2002) remain unmet. Point estimates of adults have undertaken a downward trend (Bestgen et al. 2018; Miller 2018) and recruitment of young-of-year into the fall has been limited (Bestgen and Hill 2016). Current and anticipated threats require ongoing, responsive management to prevent the extinction of this species. Measures to conserve Colorado pikeminnow would also benefit humpback chub, 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. Colorado pikeminnow 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.

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