Mountain Whitefish - Prosopium williamsoni

Abundance: Common

Status: NSS4 (Bc) NatureServe: G5 S5

Population Status: Native to the Green, Snake and Bighorn/Wind river drainages in Wyoming. Population size and distribution is declining, but extirpation is not imminent. Populations in the Green River drainage are fragmented and anecdotal information suggests that these populations have declined significantly.

Limiting Factor: Habitat is vulnerable, but not currently restricted. Stream channelization, impoundments, and changes in flow regime would result in additonal habitat loss.

Comment:

Introduction

Mountain whitefish are a prominent salmonid of the northwest regions of Canada and the U.S. They are widespread in drainages west of the continental divide in states of the central Rockies, including Montana, Wyoming, Idaho, Utah, and northwestern Colorado (Behnke 2002). In Wyoming, mountain whitefish are common in the Snake, Green, and Bear rivers west of the Continental Divide, and reside in the Madison, Yellowstone, Big Horn–Wind, and Tongue rivers east of the Divide (Baxter and Stone 1995).

The mountain whitefish cohabits with all four cutthroat trout species in Wyoming, but spawns in the fall, usually from September to November. Complex, annual movements of this species among habitats used for spring and summer feeding, fall congregating and spawning, and overwintering are well documented in large river systems (Davies and Thompson 1976, Behnke 2002). Spawning activity is nocturnal, without the building of redds, and not followed with parental care (Northcote and Ennis 1994). Aquatic invertebrates compose the bulk of the mountain whitefish diet, but this fish sometimes feeds on terrestrial invertebrates at the surface, fish eggs, and small fish (Laasko 1951, Pontius and Parker 1973, Behnke 2002).

Population monitoring and management of mountain whitefish is minimal in Wyoming, owing to their mild popularity as a game fish and seemingly robust abundance in many locations. Wyoming's populations of mountain whitefish appeared stable until recent years, when anecdotal reports suggested potential declines in portions of their range, such as the Shoshone and Clark's Fork rivers (Obrecht 2008). Documented declines in relative abundance have occurred in the Upper Green River drainage, and mountain whitefish were extirpated from three of the "finger lakes" with previously reported populations.

Habitat

Mountain whitefish prefer large, deep, clear, cold rivers, but are tolerant of warmer water and higher turbidity than cutthroat trout (Behnke 2002). In a large scale study of the Snake River basin of Idaho, mountain whitefish were most likely to inhabit low-gradient, main stem streams at least 50 feet wide (Meyer et al 2009). They were associated with habitats having pools greater than four feet deep at base flow in Utah streams (Sigler 1951). In contrast to most trout, mountain whitefish do not seek cover and often inhabit open channel habitats (Behnke 2002).

Problems

- Water management and impoundments alter spawning, rearing, feeding, and overwintering habitats of the mountain whitefish and can reduce their populations (Northcote and Ennis 1994). Water management influences on habitat were exacerbated by nearly a ten-year drought period across Wyoming at the turn of the 21st century.
- Documented cases of whirling disease infection have occurred in mountain whitefish inhabiting the Snake, Salt, and Green rivers, and may have resulted in population level impacts.
- Anecdotal reports suggest that population declines may be occurring in portions of the Clark's Fork, Shoshone, and Green rivers of Wyoming and need investigation.

Conservation Actions

- A statewide, baseline assessment of mountain whitefish distribution and population structures is needed in Wyoming to identify the need for, and nature of, potential actions.

Monitoring/Research

Population monitoring methods need to be established and initiated on a statewide scale to keep fishery managers apprised of local mountain whitefish status, which will contribute to potential range-wide assessments in the future.

Recent Developments

A major, multi-year project was initiated by the Wyoming Game and Fish Department in 2009 to assess the status of mountain whitefish and identify appropriate methods to monitor populations. Initial investigations tested the applicability of existing salmonid monitoring methods and will be expanded in 2009 to identify population parameters of interest. Once a suite of assessment techniques are established, this project will proceed systematically across the native range of mountain whitefish in Wyoming to evaluate distribution and establish baseline reference data.

References

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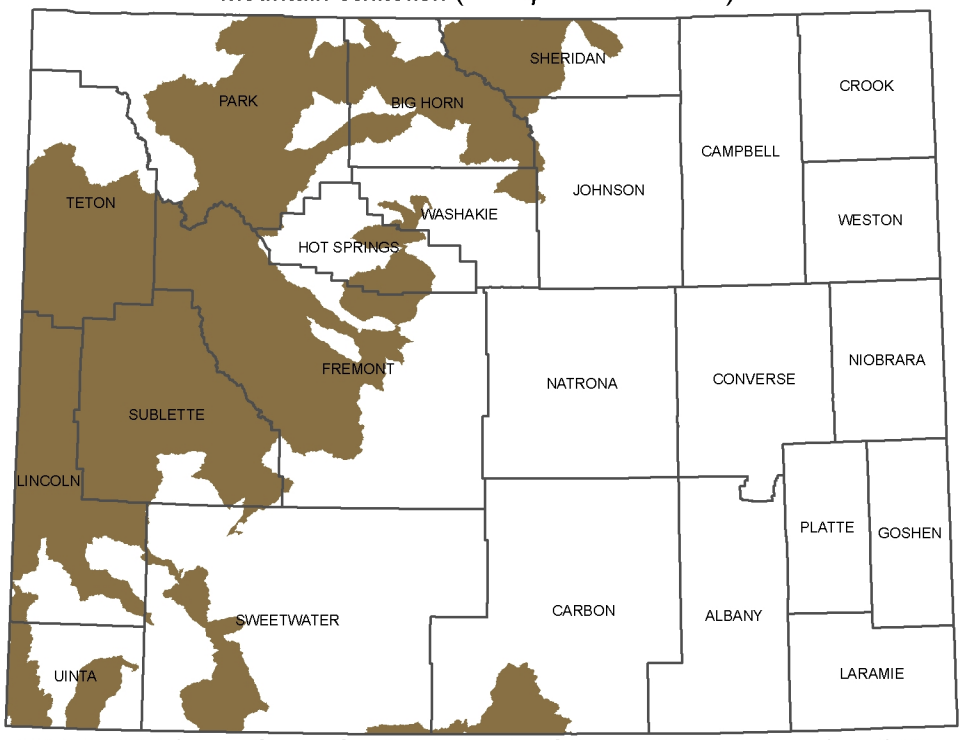

SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: April 2010. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.