

Goldeye - *Hiodon alosoides*

Abundance: Rare

Status: NSS3 (Bb)

NatureServe: G5 S2

Population Status: Extirpated from the North Platte River. Remaining populations are in the Powder and Little Missouri River drainages. Young-of-year have never been found in Wyoming. Migratory patterns are unknown.

Limiting Factor: Habitat: impoundments are most likely responsible for the extirpation of this species from major drainages. Impoundments block migrations, fragment populations, alter temperature and flow regimes, and disrupt life cycles. Habitat is limited, but loss is not increasing significantly.

Comment: Changed from NSS2 in 2005 due solely to changes in the matrix.

Introduction

The goldeye's native range spans from the Hudson Bay drainage through the Missouri and Mississippi (Scott and Crossman 1973). Goldeye were once found in Wyoming's North Platte, Big Horn, Little Missouri, Little Powder and Powder Rivers, but have only been sampled from the latter two in recent years (Peterson et al. 2009; McGree et al. 2010; Barrineau et al. in press). Goldeye are active, crepuscular feeders. While aquatic and terrestrial invertebrates make up the majority of their diet, they have also been known to feed on small fish, mammals, and amphibians (Baxter and Simon 1970; Pflieger 1997). The goldeye's large eye enables it to locate food items in highly turbid environments. Although never observed, spawning is thought to take place in the water column in early spring (late April to early June; Hill 1966). Semi-buoyant eggs and larvae are transported downstream to suitable nursery and rearing habitat (Battle and Sprules 1960; Pflieger 1997). Seasonal movement of goldeye during their spring spawning period has been documented in Montana's Teton River where marked fish moved as many as 68 miles in 13 days (Hill 1966). Similar seasonality is apparent in the Powder River. The Powder River population is likely composed of immigrating adults as juveniles have never been observed (Baxter and Simon 1970).

Habitat

Goldeye prefer large rivers and their associated backwaters and marshes (Baxter and Simon 1970). These fishes are also commonly associated with deep pools (Weitzel 2002). Goldeye were not sampled from riffles, backwaters, or shoals during 2005 and 2006 sampling of the mainstem of the Powder River (Peterson et al. 2009). Connectivity among habitat types and river systems is important for this species to be able to complete spawning and rearing life history stages (Hill 1966).

Problems

- h Lack of connectivity resulting from low flows or other physical barriers (natural and man made) may significantly limit access to upstream habitats.
- h Infrastructure that creates physical barriers or changes water quality by making water cooler and less turbid can negatively affect the distribution, abundance, recruitment, growth, and survival of the species.

Conservation Actions

- h Complete construction of the Kendrick Diversion dam bypass channel on Clear Creek, a tributary to the Powder River, to allow fish passage for spawning migrations.
- h Develop native fish conservation areas within the Little Powder River basin (McGree et al. 2010).

Monitoring/Research

- Conduct regular sampling of the Above Crazy Woman site (P7) for monitoring presence/absence of goldeye and associated species, such as sturgeon chub.
- Monitor use of the Kendrick Diversion dam bypass channel on Clear Creek, a tributary to the Powder River, by large-bodied, migratory fishes.
- Develop a larval drift proposal to study the use of the Powder River by adult and larval goldeye.

Recent Developments

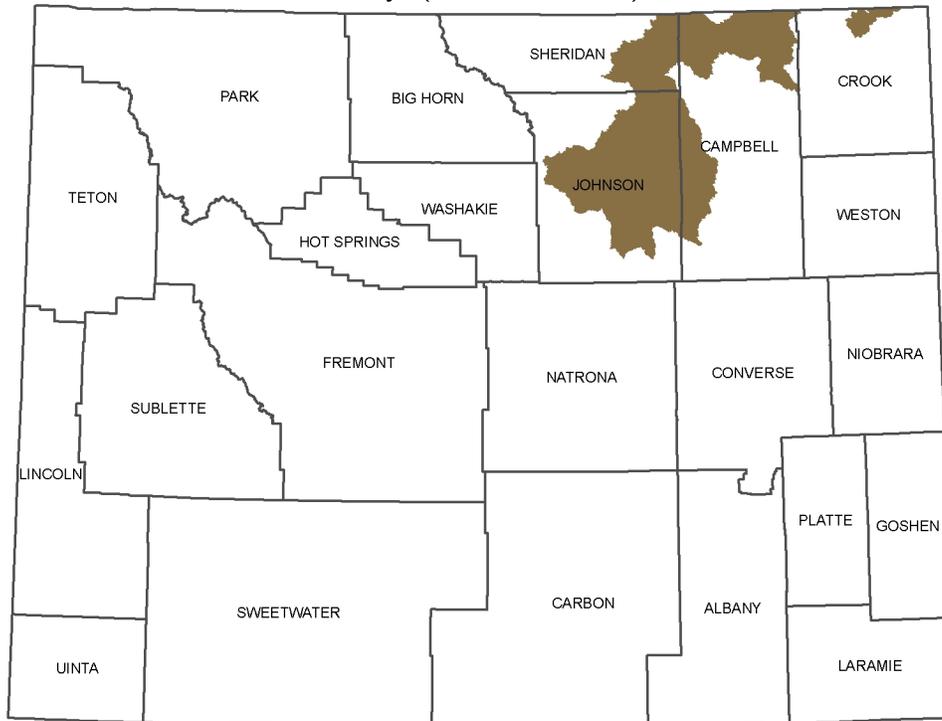
Goldeye may be declining in the Little Powder River basin which has been listed as a conservation priority (McGree et al. 2010).

Reports from other WGFD surveys: (1) prairie stream surveys (Barrineau et al. 2007; Bear and Barrineau 2007; Barrineau et al., In press); and (2) Powder River surveys conducted in conjunction with the Aquatic Task Group (Peterson et al. 2009) suggest that goldeye are stable throughout their remaining Wyoming range.

Completed construction of the Kendrick Diversion dam bypass channel on Clear Creek, a tributary to the Powder River, to allow fish passage for spawning migrations. A project to determine which species are utilizing the bypass channel will be initiated in 2011.

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.