Bluehead Sucker - Catostomus discobolus

Abundance: Extremely rare

Status: NSS1 (Aa) NatureServe: G4 S3

Population Status: Greatly restricted in numbers and distribution and extirpation is possible.

Limiting Factor: Genetics: species declining in genetic purity over the majority of its range in Wyoming due to introgression with nonnative sucker species.

Comment:

Introduction

Bluehead sucker, along with flannelmouth sucker Catostomus latipinnis, and roundtail chub Gila robusta are all relatively large-bodied species of imperiled Colorado River fish. The three are collectively called "the three species" and their conservation is a cooperative effort which spans state lines (Colorado River Fish and Wildlife Council 2004). Bluehead suckers are native to the Colorado River Basin, and the Upper Snake, Weber, and Bear Rivers of Idaho, Wyoming, and Utah (Sigler and Miller 1963). This species currently occupies 50% of its historic Upper Colorado River basin range (Bezzerides and Bestgen 2002). Hybridization with native and nonnative sucker species poses the greatest risk to the persistence of Wyoming populations (Douglas and Douglas 2008; McDonald et al. 2008; Gelwicks et al. 2009). Although genetically pure individuals still exist throughout the Green River drainage in Wyoming, Ringdahl Reservoir contains the only population in this drainage that is isolated from non-native, hybridizing sucker species (Gelwicks 2009). This represents one of the only known lentic populations of bluehead sucker, but its low genetic diversity makes it unsuitable for transplants or brood stock development (Douglas et al. 2008). At the current time, populations in the Bear and Snake River drainages are presumed to be free from non-native, hybridizing sucker species. Adult and juvenile bluehead suckers are benthic algivores and use chisel-like mouth parts to scrape algae, organic and inorganic debris, and aquatic invertebrates from hard substrates (Muth and Snyder 1995). Spawning occurs from mid to late summer at higher elevations (Bezzerides and Bestgen 2002). Eggs are deposited into shallow redds (Maddux and Kepner 1988), and larvae drift downstream to backwater nursery habitat (Childs et al. 1998). Within larger rivers, bluehead suckers exhibit both downstream movement and sedentary patterns (Cavalli 2000; Beyers et al. 2001). Similar observations have been made in smaller systems (Beatty 2005; Compton 2007; Sweet 2008).

Habitat

Bluehead suckers occupy the mainstem and tributaries of large rivers. They are more frequently found in headwaters than flannelmouth suckers (Baxter and Stone 1995). Large adults are associated with deep pools, undercut banks, moderate to fast current velocities, and rocky substrates (Sigler and Miller 1963).

Problems

- Competition with and predation by nonnative species (i.e., Catostomus sp., creek chub Semotilus atromaculatus, redside shiner Richardsonius balteatus, burbot Lota lota, brown trout Salmo trutta, and lake trout Salvelinus namaycush) further limit three species populations.
- The effects of water development and reservoir construction exacerbated by drought have cut off this species' migratory corridors, degraded its habitat, and encouraged the spread of nonnatives.
- Hybridization between native flannelmouth and bluehead sucker, and non-native white sucker Catostomus commersoni, longnose sucker Catostomus catostomus, and Utah sucker Catostomus ardens is occurring. Some combinations are fertile and will lead to introgression.

Conservation Actions

- Continue mechanical removal of nonnative species from Big Sandy River, and Little Sandy and Muddy (tributary to Little Snake River) Creeks.
- Develop methods for salvage, transport, holding, and repatriation of native species during chemical treatments.
- Chemically treat Big Sandy River, Little Sandy and Muddy Creeks to remove nonnative species and reduce the risk of hybridization.
- Construct a barrier upstream of Big Sandy reservoir to prevent recolonization of treated stream reaches by nonnative fish.
- Continue to partner with other agencies and conservation organizations (e.g., BLM, Little Snake River Conservation District, and Trout Unlimited) to address conservation needs for this species.

Monitoring/Research

Continue regular monitoring of drainages containing the three species to track population trends, hybridization rates, and the abundance and ranges of nonnative species.

Conduct monitoring before and after chemical treatments and transplants to determine the success of removal efforts.

A Colorado State University graduate study is underway to determine the jumping and swimming abilities of burbot and white sucker in order to design effective barriers to prevent their spread in the Green River drainage of Wyoming.

The Colorado State University Larval Fish Lab is conducting a larval drift study to determine the abundance and seasonality of Catostomid larvae which drift downstream to Big Sandy Reservoir.

Conduct a project to investigate the spawning, habitat use and movement of bluehead suckers in the Snake River.

Recent Developments

Wyoming became a signatory to the "Rangewide Conservation Agreement for Roundtail Chub, Bluehead Sucker and Flannelmouth Sucker" (Colorado River Fish and Wildlife Council 2004).

A survey from 2002-2006 of the three species throughout the Green River drainage in Wyoming has been completed and summarized in an Administrative Report (Gelwicks et al. 2009). Surveys indicate that the most imminent threat to the persistence of bluehead suckers in the Green River drainage is genetic introgression with white suckers.

Recent genetics analyses reveal that Wyoming populations of the three species contain unique haplotypes not found in downstream populations (Douglas and Douglas 2008), and that hybridization with white suckers enables further backcrossing among native and nonnative sucker species (Douglas and Douglas 2008; McDonald et al. 2008).

Five graduate studies were completed describing three species populations, habitat, and/or movement in Big Sandy River, and Little Sandy and Muddy Creeks (Bower 2005; Beatty 2005; Compton 2007; Sweet 2008; Banks 2009).

Nonlethal methods for precisely aging native and nonnative sucker species and their hybrids were developed (Quist et al. 2007) and used to age bluehead and flannelmouth suckers in Big Sandy River, and Little Sandy and Muddy Creeks (Sweet et al. 2009).

A publication describing distinguishing meristic and morphometric characteristics of bluehead, flannelmouth, white suckers and their hybrids has been published (Quist et al. 2009).

Drafts of long-term (Cavalli 2006) and short-term (Senecal et al. 2010) management plans for Wyoming's three species have been completed.

Nonnative sucker species and hybrids were mechanically removed from Big Sandy River, Little Sandy and Muddy Creeks (Garner et al. In Preparation) as well as from Halfmoon and Burnt lakes (WGFD 2010).

Depletion population estimates for the three species were conducted on Muddy Creek (Garner et al. In Preparation).

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