Swampfish

Chologaster cornuta

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DESCRIPTION

Taxonomy and Basic Description

The Swampfish is one of 6 known species of cavefishes (Amblyopsidae) and the lone representative in South Carolina (Rohde et al. 2009). It is placed in its own genus, *Chologaster*.

Adult Swampfish are small, ranging in total length from 23 to 68 mm (0.9 to 2.7 in.) (Rohde et al. 2009). The Swampfish has a very unique appearance: coloration contrasts sharply from brown dorsally to creamy white–yellow ventrally, with 3 dark longitudinal stripes on each side. The scales are cycloid and are absent from the head. It is dorso-ventrally compressed anteriorly and laterally compressed posteriorly. It has very small eyes, a supraterminal mouth, and lacks pelvic fins. The caudal fin is clear along its base and black in its center. In adults, the anus is located in a jugular position and is usually covered by the branchiostegal membranes. Short rows of neuromasts—small protruding papillae—are present on the head, body, and caudal fin (Rohde et al. 2009).

Status

The Swampfish is considered secure (G5) on a global scale and is not currently ranked in South Carolina (SNR) (NatureServe 2013). It is currently stable according to Warren et al. (2000).

POPULATION SIZE AND DISTRIBUTION

The Swampfish occurs in the Southern Atlantic Coastal Plain from the Roanoke River, Virginia to the Altamaha River, Georgia (Warren et al. 2000; Rohde et al. 2009). It is found across the Coastal Plain of South Carolina in all river basins. Based on South Carolina Stream Assessment data (2006-2011), the mean statewide density estimate for Swampfish in wadeable streams was 0.01 per 100 m^2 (95% confidence interval: 0.004 – 0.017).

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Swampfish occurs primarily in calm, acidic blackwater swamps, sloughs and streams in association with organic matter and aquatic vegetation (Rohde et al. 2009).

CHALLENGES

Primary threats to the Swampfish include loss of forested land and especially the removal of riparian cover along Coastal Plain streams. Mature forest and riparian vegetation is an important source of large woody debris in Coastal Plain streams, which provides critical habitat for many

endemic Southern Atlantic Coastal Plain species including the Swampfish (Marion 2008). Land development, siltation, and hydrologic alterations such as channelization and construction of impoundments also threaten this species. The conversion of naturally stagnant lowland swamps and streams into channelized, shallow drainage ditches with consistently high current velocities represents a principal threat to Swampfish habitat.

CONSERVATION ACCOMPLISHMENTS

South Carolina Stream Assessment data have facilitated the calculation of standardized abundance (density) estimates for this species at multiple spatial strata including statewide, river basin, level-IV ecoregion, and "ecobasin" (ecoregion x river basin). These estimates for the first time provide an objective measure of current population status that will serve as a baseline for following future population trends and gauging the effectiveness of conservation actions.

Educational materials have been developed in order to raise public awareness of nongame species and their ecological importance to the natural history of South Carolina's aquatic habitats, including:

- The Reel Art program creates a topic for secondary school students and judges the artists' submissions (e.g. a list of the Piedmont Fishes of SC to select from as subjects for drawing or painting).
- We compiled information and photographs for the development of nongame fish description web pages which are currently in development.
- We developed the Blackwater River Guide and interactive Powerpoint. http://www.dnr.sc.gov/education/pdf/BlackwaterInteractivePoster.pdf http://www.dnr.sc.gov/education/pdf/BlackwaterRivEdGuide.pdf
- We developed and printed the Fish Species of Concern Coloring Book (2009). http://www.dnr.sc.gov/aquaticed/pdf/SCFishesofConcernColoringBook.pdf

CONSERVATION RECOMMENDATIONS

- Use South Carolina Stream Assessment decision-support GIS modeling tools to identify levels and spatial distributions of critical habitat factors to sustain the species in geographic areas of interest.
- Use South Carolina Stream Assessment decision-support GIS modeling tools to identify priority regions and watersheds at greatest risk of decline in stream integrity.
- Protect critical habitats from future development and further habitat degradation by following Best Management Practices and protecting and purchasing riparian areas.
- Promote land stewardship practices through educational programs both within critical habitats with healthy populations and in other areas that contain available habitat.
- Encourage responsible land use planning.
- Consider this species' needs when participating in the environmental permit review process.
- Continue to develop educational materials in order to raise public awareness of nongame species and their ecological importance to the natural history of South Carolina's aquatic habitats.

- Educate motor vehicle operators of the negative effects of crossing streams at multiple locations and using stream bottoms as trails.

MEASURES OF SUCCESS

Successful conservation of Swampfish habitats would produce expected population densities comparable to or exceeding those observed in the South Carolina Stream Assessment (2006 – 2011) for given ecoregions, river basins, and ecobasins. A success criterion would be the cooperation of SC landowners in achieving the foremost goal of the Southeastern Aquatic Resource Partnership's 2008 Southeast Aquatic Habitat Plan which states that 85% of lands within 30 m (100 ft.) of streams or rivers be maintained in natural vegetation. Preservation of large tracts of forested Coastal Plain landscapes would represent a major accomplishment.

LITERATURE CITED

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