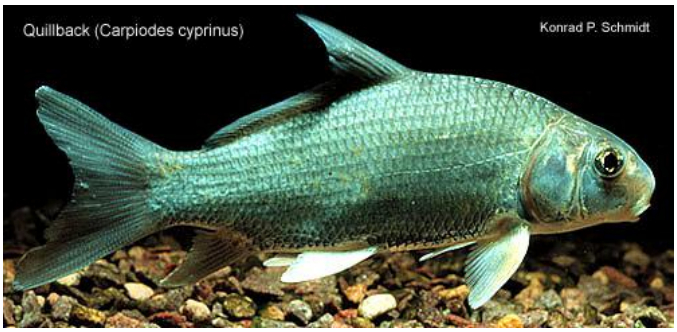
Quillback
Carpiodes cyprinus



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DESCRIPTION

Taxonomy and Basic Description

The Quillback is a member of the family Catostomidae, which is represented by 8 genera and 25 species in the mid-Atlantic region (Rohde et al. 1994). This family is characterized by soft-rayed fins, a mouth located on the underside of the head, thick fleshy distensible lips, and paired fins attached low on the body (Rohde et al. 1994).

Current taxonomic and genetic work indicates that Atlantic Slope Quillback-type fish that are found in South Carolina may represent an undescribed species. Quillback are high bodied, laterally compressed fish that range in length up to 500 mm (19.5 in.) (W. Starnes, pers. comm.). They have a long, falcate dorsal fin with 23 to 30 rays, a small conical head, a silver to golden body, large conspicuous scales about twice as high as wide, and a lateral line that runs the length of the body. Quillback lack mouth barbels as well as dorsal and anal fin spines. The Quillback's first long dorsal ray does not usually reach the full length of the dorsal fin base, while the first dorsal ray of the similar Highfin Carpsucker typically is as long as the fin (Rohde et al. 1994; Jenkins and Burkhead 1994). Quillback feed on insect larvae and other benthic organisms. They are spring spawners that can attain an age of at least 11 years (Jenkins and Burkhead 1994).

Status

Quillback populations are considered to be stable by Warren et al. (2000) and common, widespread, and abundant by NatureServe (2004). The status of Quillback in South Carolina is under review and will likely change if the Quillback-type fish on the southern Atlantic slope are described as a new species.

POPULATION SIZE AND DISTRIBUTION

In the broad sense, the Quillback is distributed from the Great Lakes region in the St. Lawrence River, Hudson Bay, and Mississippi River Basins from Quebec to Alberta, Canada, south to Louisiana, and west to Wyoming in the United States. It also occurs on the Atlantic Slope from the Delaware River, New York, to the Altamaha River, Georgia. In Gulf Slope drainages, it occurs from the Apalachicola River in Florida and Georgia to the Pearl River in Louisiana (Page and Burr 1991). The southern Atlantic slope populations in South Carolina are reported in the upper portions of the three major South Carolina drainages: the Pee Dee, Santee, and Savannah. Fish from these populations are likely distinct from those of the interior basin and Gulf Slope drainages (Nature Serve 2004).

The Quillback is commonly encountered during non-directed sampling efforts. Populations with abundant numbers are observed in the upper Santee and Savannah River drainages while Quillback are rare in the Pee Dee (SCDNR unpublished data). Population declines in the Pee Dee River may be related to introduced, non-native species like Buffalo.

HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Quillback is found in warm, low- to moderate-gradient reaches of most major rivers, including upper portions of associated reservoirs (Rohde et al. 1994; Jenkins and Burkhead 1994). Quillback occur over varied substrates in rivers, but seldom over mud. They tend to occupy calm water; however, Quillback may shift to swifter and deeper depths during times of low water. Quillback reportedly spawn in riffles, calm stream reaches, and in floodplain bayous, laying eggs on gravel, sand, mud, and organic matter (Scott and Crossman 1973; Jenkins and Burkhead 1994).

CHALLENGES

Quillback populations are likely stable throughout their range. However, habitat degradation from deforestation and urbanization remains as much a challenge to this native species as it does to most other riverine animal species.

CONSERVATION ACCOMPLISHMENTS

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

- Identify the distribution of Quillback throughout South Carolina.
- Resolve taxonomic relationships of Atlantic Slope, Interior Basin and Gulf Slope Quillback populations.
- Identify and protect critical habitats from future development and further habitat degradation by following Best Management Practices (BMPs) 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

Determining the distribution, life history, habitat needs, and Southeastern population structure and trends would represent a measure of success for this species. Methods that protect water quality are also likely to protect this species and others. In the event that more protective BMPs are implemented, population studies of these fish could assist in determining the effectiveness of those measures. 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. The preservation of large tracts of forested landscapes would represent a major accomplishment.

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