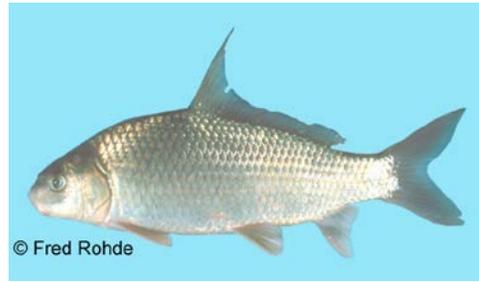


## Highfin Carpsucker

*Carpionodes velifer*

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### DESCRIPTION

#### Taxonomy and Basic Description

The Highfin Carpsucker 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).

The genus *Carpionodes* contains primitive, deep bodied, silver-colored Carpsuckers with a long dorsal fin (Jenkins and Burkhead 1994). The taxonomic status of the Highfin Carpsucker on the Atlantic slope is in question (Lee et al. 1980). Current work suggests that the fish is an undescribed species, similar to but distinct from the true Highfin Carpsucker of the Mississippi drainage. The Highfin Carpsucker resembles the Quillback (*Carpionodes cyprinus*), but the former has a steeper forehead. Highfin Carpsuckers range in length up to 50 cm (19.7 in.) (Rohde et al. 1994).

#### Status

The Highfin Carpsucker is not listed in South Carolina; however its limited distribution and questionable taxonomic status likely warrants listing in South Carolina.

#### POPULATION SIZE AND DISTRIBUTION

The Highfin Carpsucker, in the broad sense, is distributed throughout the Lake Michigan drainage and Mississippi River Basin from Pennsylvania south to Louisiana (NatureServe 2004). It also occurs on the Atlantic Slope from the Cape Fear River to Savannah River drainages and Gulf Slope drainages from Choctawhatchee River, Alabama and Florida to the Pearl River, Louisiana and Mississippi (Page and Burr 1991). The Atlantic Slope and Gulf Slope populations likely differ at the species level from those of the Mississippi and Lake Michigan drainages. In South Carolina, the Highfin Carpsucker occurs in the Broad and Congaree Rivers in the upper Santee River Basin and the Savannah River. Historically the Highfin Carpsucker also occurred in the Pee Dee River; however, that population may have since been extirpated (H. Bart, pers. comm.).

Highfin Carpsucker population size and trends are not well known. There appear to be healthy populations with recruitment in the Broad River, Congaree River, and Savannah River. If the Highfin Carpsucker does still exist in the Pee Dee River, it would have to be considered a

remnant population. Preservation of populations in the Santee River is extremely important to the global preservation of the species given declining populations in the Cape Fear River and Pee Dee River (W. Starnes, pers. comm.).

## HABITAT OR NATURAL COMMUNITY REQUIREMENTS

The Highfin Carpsucker inhabits rivers in areas with moderate or swift current over sand or a gravel substrate (Rohde et al. 2009).

## CHALLENGES

Habitat loss and disruption of spawning migrations resulting from dams and impoundments; predation and competition by introduced nonnative species like buffalo, flathead catfish and blue catfish; and significant deterioration of water quality due to sedimentation and pollution are believed to be major challenges as it is with conservation of 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

- Complete work on genetic relationships of existing wild populations of the Highfin Carpsucker.
- Identify and 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.

## 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 and other species. In the event that more protective BMPs are implemented, population studies of this 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. Preservation of large tracts of forested landscapes would represent a major accomplishment.

## LITERATURE CITED

- Jenkins, R.E., and N.M. Burkhead. 1994. *Freshwater Fishes of Virginia*. American Fisheries Society. Bethesda, Maryland. 1079 pp.
- NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.0. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: September 1, 2004).
- Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister and J.R. Stauffer, Jr. 1980. *Atlas of North American Freshwater Fishes*. Publication #1980-12 of the North Carolina Biological Survey. North Carolina State Museum of Natural History. 867 pp.
- Page, L.M. and B.M. Burr. 1991. *A field guide to freshwater fishes: North America north of Mexico*. Houghton Mifflin Company. Boston, Massachusetts. 432 pp.
- Rohde, F.C., R.G., Arndt, D.G. Lindquist and J.F. Parnell. 1994. *Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware*. The University of North Carolina Press. Chapel Hill, North Carolina. 222 pp.
- Rohde, F. C., R. G. Arndt, J. W. Foltz and J. M. Quattro. 2009. *Freshwater Fishes of South Carolina*. The University of South Carolina Press, Columbia. 544 pp.