

FISHES OF THE LOWER SUSQUEHANNA

(and Tributaries of the Northern Chesapeake), Part I

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H.L. Mencken called "Susquehanna" the most beautiful word in the English (sic) language. The word describes the river--majestic and serene. It drains southern New York, central Pennsylvania and Maryland, and eastern Delaware. The "lower Susquehanna" is really the Chesapeake Bay itself. For our purposes, though, it will mean Lancaster, most if not all York, and most of Chester County, Pa.; parts of Cecil, Harford, and Baltimore Counties, Md.; and parts of western Delaware.

The authors will be writing a few paragraphs on each species they have encountered in the area. Essays will cover habitat types, identification, and aquarium behavior. The basic list of species is provided by a pamphlet entitled Fishes of Conowingo Pond and Connecting Waters, published by Phila. Electric Co., Muddy Run Recreation Park, R.D.#1, Holtwood, Pa. 17532. Conowingo Pond is backed up by a dam used for power generation just below the Mason-Dixon Line. Phila. Electric owns a vast tract of land and ponds, some of which are available for recreational use, along the eastern shore of the Susquehanna in Pa. and Md. A biologist with RMC Technical Services, which collects fish data for the power company, says only two species have been discovered in the area since the pamphlet was printed: The "Blue Tilapia," established in the outflow of a power plant, and the Rainbow Smelt. The authors have encountered neither.

If we are not familiar with a species from the drainage--even though we may know it well from another--we will omit it. If we do know it from our area, we'll include information that may have been gathered in other areas about the species.

This article is the first in a series; a few species will be described in each issue in which a part of the series appears. While the pamphlet and this article will follow the phylogenetic order of the Atlas of North American Freshwater Fishes, but may be out-of-order supplements if new species or information is encountered.

The Susquehanna contains nearly all the freshwater species found north and east. It also contains a number of species usually considered midwestern. Thus, this series is actually a listing of many of the characteristic species of the northeastern United States, not just the Susquehanna region, so it should be useful to many readers outside the immediate area.

Among inspirations for this series are several series written by the distinguished naturalist Henry W. Fowler for the Aquarium Society of Philadelphia around WWI. NANFA member Jare Sausaman unearthed this material, some of which we expect to publish as a separate series of reprints. Also, members John Clairmont, John Brill, John Eccleston, and Buz Allen participated in collecting expeditions which provided information for the series.

We do not want to preclude further contributions on these species or collecting in this area. Quite the opposite--we hope it will stimulate more detailed discussions. After all, these species are available to a great number of members. Further, we hope it will prompt similar and better discussions of the fishes of other drainages and areas.

EASTERN BROOK LAMPREY (*Lampetra aepyptera*)

This species is non-parasitic. Our area includes its northeasternmost thrust, northernmost of a small population found in the Coastal Plain and lower Piedmont to North Carolina. West of the Appalachians, it has an arrowhead-shaped range, the point in southwestern Pennsylvania, the barbs in southern Mississippi and southeastern Missouri.

One author (RBG) accompanied John Brill to Perch Creek south of Elkton, Md. on a cold April day. Both air and water temperatures were in the 40s. In this fast, small creek, both adults and "ammocoetes"--larval forms--were collected. The larvae spend two to seven years, mostly buried in mud, filtering small animals out of the murk. When adults emerge, they desperately search for mates, spawn, and waste away. They do not eat as adults. Neither of the authors has encountered the species otherwise. It may not come up

into the Susquehanna as far as the Conowingo Dam.* It may come somewhat further north in the Elk drainages of Chester County. The Big Elk and Little Elk Creeks merge to form the Elk River around Elkton. That river flows into the Chesapeake directly, not into the Susquehanna.

Neither author has kept the Least Brook Lamprey in the aquarium. The best account that has appeared was "Collecting and Spawning the Least Brook Lamprey" by John Brill, AMERICAN CURRENTS, February 1935, 10 ff., and we refer the reader to it. Would-be lamprey breeders should collect them early in spring as Brill did. Adult lampreys often spawn readily in aquaria; after all, they've spent up to seven years growing to an adulthood that will last only briefly, and so they won't let much stand in the way of their achievement of species destiny.

*This species is not listed in "Fishes of Conowingo Pond and Connecting Waters."

--RBG

SEA LAMPREY (Petromyzon marinus)

While Cooper (Fishes of Pennsylvania, 1983) does not report this species from the lower Susquehanna River drainage in Pennsylvania, it is well known from the Susquehanna River just 10 miles south of the Mason-Dixon line, at the foot of the Conowingo Dam in Maryland. This dam, the first of several on the lower Susquehanna, is apparently an effective obstacle against upstream movement of the Sea Lamprey.

The river at the foot of the dam is just over one half-mile wide. As is typical of the Susquehanna, it is divided into channels by islands and randomly placed boulders. Fish travelling upstream tend to find their way to the slackwater end of the dam, where a chute-and-lift arrangement (designed for the capture of American Shad, Alosa sapidissima) can collect the fish. They can then be hoisted upwards to a series of sorting and holding tanks.

While visiting the dam in April of 1985, I saw a 15" Sea Lamprey that had attached itself to an 11" Gizzard Shad (Dorosoma cepedianum). These fish were among those collected during the sampling survey conducted by the utility company that operates the dam. A conversation with the biologist heading the operation that day revealed that the Sea Lamprey is frequently found during their sampling, and that its host is frequently the Gizzard Shad.

--WME

BOWFIN FAMILY--Amiidae

Bowfin--Amia calva--NFA

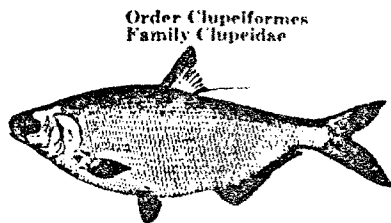
HERRING FAMILY--Clupeidae

Blueback Herring--Alosa aestivalis --NFA

Alewife--A. pseudoharengus--NFA

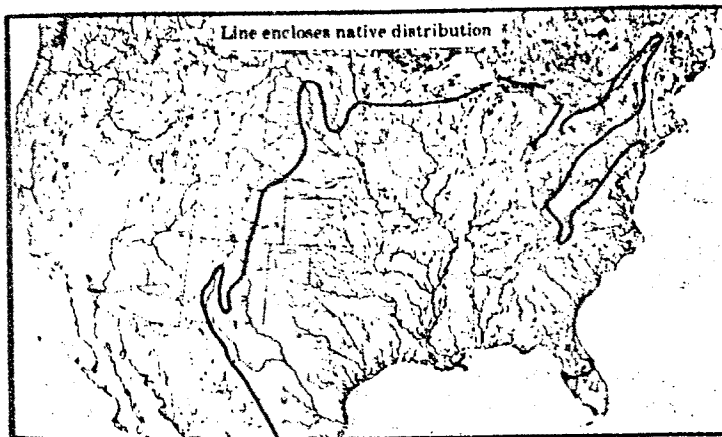
American Shad--A. sapidissima--NFA

GIZZARD SHAD (*Dorosoma cepedianum*)



Order Clupeiformes
Family Clupeidae

Jordan and Evermann 1900



The Gizzard Shad is historically a fish of the southeastern United States. Warming trends are believed to be responsible for its range expansion that has made it a common fish of the lower Susquehanna. It is also possible that it has been introduced as forage for introduced game fish.

Adults, often a foot in length or better, can frequently be seen by the hundreds swimming against the swirl of the boiling turbulence at the base of the Conowingo Dam. Here they are often caught by fishermen who prize them only as cut-up bait for the Channel Catfish (*Ictalurus punctatus*) caught here in great numbers.

In July of 1986, I saw a school of approximately 20 adult Gizzard Shad upstream in the much more restricted confines of Muddy Run, on the Lancaster County (east) side of the river in Pennsylvania. This stream, where these fish were observed, is approximately six feet wide and about 10" deep. The substrate is mud that a little further upstream yields to fine sand. There is coarse gravel in its shallowest riffles.

In October, young of these fish (2-3" long) are occasionally seen in schools that number hundreds of fish, particularly in the Susquehanna just below the Holtwood Dam. At this time, they can be seen swarming from one pool to the next in the mostly dry river bed between Holtwood Dam and the Norman Wood Bridge.

On October 6, 1984, hundreds of young Gizzard Shad (approximately 1-2") were found dead amid the rocks of the spillway located at the lake at Muddy Run Recreation Park. Hundreds more were netted alive and apparently alright from the small rocky pools along the spillway. However, some of the living fish and many of the dead ones had grossly distended abdomens that contained a milky white fluid.

As aquarium fish, the Clupeidae seem to be difficult to transport and maintain (this based on limited personal experience with this and other fish of this family). Gizzard Shad that did make it home soon developed fungus-type infections that killed them within a day or two.

Picture & map reduced from Atlas.

--WME

TROUT FAMILY--Salmonidae

RAINBOW, BROWN, & BROOK TROUTS (Salmo gairdneri, S. trutta, Salvelinus fontinalis)

Due to the relatively good quality of many of the streams that feed the lower Susquehanna in Pennsylvania, the Fish Commission has found some suitable for stocking with Brown Trout (Salmo trutta, a European species originally) and Brook Trout (Salvelinus fontinalis). In fact, some of these tributaries have native Brook Trout

Due to the relatively good quality of many of the streams that feed the lower Susquehanna in Pennsylvania, the Fish Commission has stocked some with three species of trout: Brown (Salmo trutta, a European species originally), Rainbow (Salmo gairdneri), and Brook (Salvelinus fontinalis). In fact, there are native populations of Brook Trout in the area, according to a biologist at Muddy Run Park. Further, Browns are known to breed successfully in Pennsylvania's clearer streams.

In April of 1985 and again in July of 1985, I seined several young trout approximately 2-3" long in Anderson Run, a small (mostly 3-6'-wide), beautiful, boulder-strewn, cold stream that enters the river from a rocky hillside just above the river. Anderson Run is just upstream from the Holtwood Bridge on the York County side of the Susquehanna. No attempt was made to identify these fish, as they were immediately returned. The only other species of fish found here was the Blacknose Dace (Rhinichthys atratulus).

--WME