

FISHES OF THE LOWER SUSQUEHANNA & TRIBUTARIES OF THE UPPER CHESAPEAKE TRIBUTARIES, Maybe Part VII
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Reintroduction

This series began in the Nov 86 AC. It is designed to cover species from Susquehanna tributaries of York and Lancaster Counties in southern Pennsylvania; the Big and Little Elk Creek drainages of Lancaster and Chester Counties, Pa., constituents of the Elk River, which flows into Chesapeake Bay east of the Susquehanna's mouth; and counties in Delaware and Maryland around the Upper Chesapeake Bay--provided the authors encountered the species in the Lower Susquehanna area.

The Susquehanna River begins in New York State and curls down through northeast Pa. (Scranton, Wilkes-Barre). There is a western branch and parallel tributaries that flow north and east in Appalachian valleys to drain large sections of central Pennsylvania. After the two major branches join, the river flows south (east of the middle of the state). Harrisburg is the only large city along this stretch; unfortunately, its suburbs are spreading over the drainage area just above what we have called the Lower Susquehanna.

While the river traverses a great distance without too many metropolitan areas on its banks, agricultural pollution is a big problem. This contributes to the overnutrition of the Chesapeake, one of that body's problems; the degree to which the Susquehanna is to blame, however, is controversial.

A list of species in the Lower Susquehanna and its tributaries appeared in a little pamphlet--FISHES OF CONOWINGO POND AND CONNECTING WATERS, RMC Environmental Services, Muddy Run Ecological Laboratory, Muddy Run Recreation Park, RD #3, Box 730, Holtwood, PA 17532, 717-284-4325. There has been at least a second edition. We are using it as a species outline. Muddy Run Recreation Park and the "connecting waters" are immense areas in Lancaster County, properties of the Philadelphia Electric Company. The utility owns property down into Maryland. Pennsylvania Power and Light Co. owns a similar stretch beginning at the north end of Phila. Electric's property. There are a number of publicly accessible landings and recreation facilities on both shores of the Susquehanna in this area.

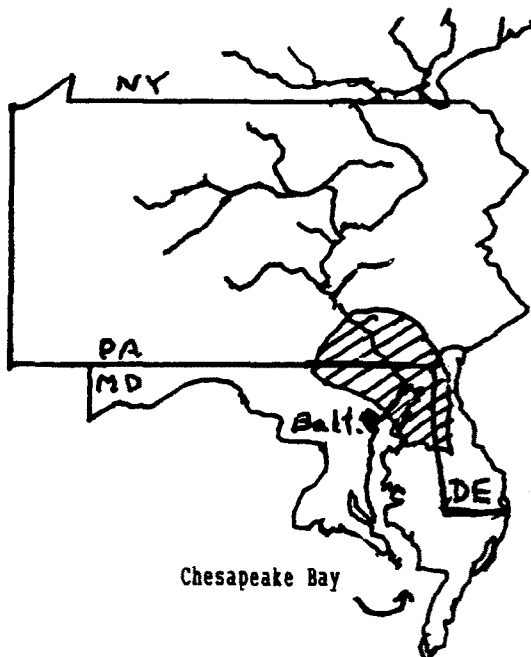
We are well into the series. There have been six installments so far in these issues of AMERICAN CURRENTS:

- Part I. Nov 1986, p. 12: Eastern Brook Lamprey, Sea Lamprey, Gizzard Shad
- Part II. Mar/Apr 1987, 13: (Central) Stoneroller, Goldfish, Rosyside Dace
- Part III. Oct/Dec 1987, 16: (Common) Carp, Cutlips Minnow, River Chub
- Part III [sic]. Jan 1988, 19: River Chub (duplicate), Golden Shiner
- Part IV [sic]. Mar/Apr/May/June 1988, 25: Comely Shiner, Satinfin & Spotfin Shiner, Common Shiner, Spottail Shiner, Swallowtail Shiner
- Part V [sic] Nov-Dec 88-Jan 89, 19: Rosyface Shiner, Bluntnose & Fathead Minnows

As you can see, we duplicated Part III. Subsequent parts were thus wrongly numbered. The computerized version of the NANFA AC 82-89 index (printed version in the Jun-Aug 90 AC) has helped us straighten things out. So this is Part VII.

The Susquehanna ichthyofauna deserves all this AC space for a number of reasons. It summarizes fish of all the Atlantic drainages north and east, where a large number of NANFA members live. At the same time, it introduces to the east a lot of midwestern species with large ranges. Further, virtually all the Chesapeake is an extension of the Susquehanna; therefore, the species mix is similar, though not identical, in other Chesapeake tributaries, some of which are large rivers, including the Potomac and the James. Many of the species extend to yet farther areas of North America. The series should thus be directly useful to members over a large area. (Text continues after map.)

SUSQUEHANNA RIVER SYSTEM
& area covered by series



Part of the original plan was that we would update as we encountered species new to us in the region. Since we began, however, we have not been to the region as often as before and are not aware of any such species. When the series is completed, it will be edited into a single document.

Each species covered receives 1/2 to 1-1/2 pages, in most cases, though in some cases we have combined similar species. The species accounts include habitat, sometimes specific locations, collection and identification hints, and aquarium experience.

BLACKNOSE DACE (*Rhinichthys atratulus*)

This is the classic hardwater aquarium fish of the east--numerous, widespread, elegant, hardy, and handsome (if not pretty, though some assuredly are). Adults are easy to identify: brown-to-gray back, dark black mid-lateral stripe with a gold strip on top of it, and shiny white underparts. Scales are very fine. The mouth is just a little subterminal. Pectorals jut out flatly.

The only species that the adult Blacknose can be confused with is the Longnose Dace (*R. cataractae*); that species has less distinct markings and a mouth well behind the snout, whereas the Blacknose's mouth is just under the tip. Sometimes Longnoses, mainly small ones, have a sort of gold filigree overwriting the dark horizontal stripe. Longnoses usually inhabit only the fastest water of streams; Blacknoses sometimes accompany them, but prefer less challenging water, though it must be flowing. Small Creek Chubs can resemble Blacknoses, though closer examination of young chubs will reveal a stouter, blunter head; larger, somewhat darkly outlined scales; and often a black spot at the front of the dorsal-fin base.

In this area, male Blacknoses frequently sport gaudy pectorals--orange throughout or concentrated in a clown spot, often quite reddish and bright. This probably becomes more prominent in breeding season, but one can find bright-finned males throughout the year. Females are likely to have pale yellow or clear fins. Their bodies tend to be chubbier.

It's uncertain to this author (BG) just what the color phases of the males signify, for there is a rare color combination that surely means breeding season; yet it is so rare that males in normal color--albeit with bright pectorals--must also be breeders. The rare coloration, which I have not seen written about, I call "palomino." The back and lower side are orange-gold to yellow-gold; the normally

black stripe is replaced with metallic carrot orange. Fantastic!

Then there are "semi-palomino's." In this phase, typically the black stripe is turned to reddish-brown, overlaid with considerable orange. The pectorals are tinted with red-orange. Sometimes there is an iridescent green tint in the iridescent stripe atop the black one.

There is one unaesthetic characteristic of many Blacknoses in this area--they are often infested with "black spot," molluscan larvae. Some aquarists are convinced that it is contagious and lethal. It is normally neither, though it may lead to secondary infections in heavy cases.

In the aquarium, Blacknoses are undemanding. They eat anything, from the moment they're introduced to the tank. They even adjust to reduced oxygen and a bit of abuse. On the way home, however, it is necessary to treat them with care and cooling.

They live a long time in aquaria. They have been tank-bred, but are quite particular. One set-up is a roomy tank with pebble-strewn substrate sloped up towards the back, and stiff water circulation. Males press females against the pebbly slope and literally squeeze eggs out of them.

Blacknoses are graceful, rapid swimmers, a joy to watch. Sometimes it takes fast-water dace a week or so to adjust to aquarium conditions; they swim clumsily until they find their "tank fins." Usually peaceful, they sometimes get a little rambunctious--but not enough to deter anyone from keeping these wonderful little fish. --BG

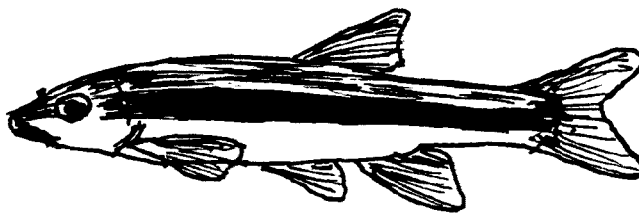
LONGNOSE DACE (*Rhinichthys cataractae*)

The Longnose Dace has a coast-to-coast distribution and is common in much of Pennsylvania. In the lower Susquehanna, it is often collected along with darters, under rocks in the fastest riffles of our cleanest streams. We have often collected this interesting fish in Chester County, Pa., in both the Big and Little Elk Creeks; in Lancaster Co., Pa., in Muddy Run, the West Branch of Octoraro Creek, and Fishing Creek. One AC author (BG) reported it from Little Gunpowder River, Md.

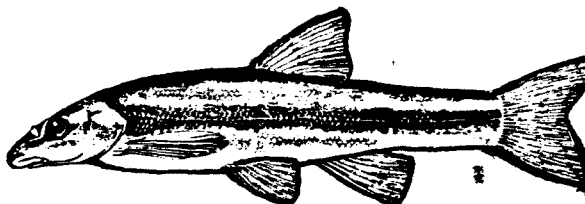
Stream size doesn't seem particularly important so long as the stream is medium- to high-gradient with rocky riffles and is relatively clean. While the Longnose can be found hiding under rocks and debris throughout riffles, this fish is

(Text cont'd after sketches)

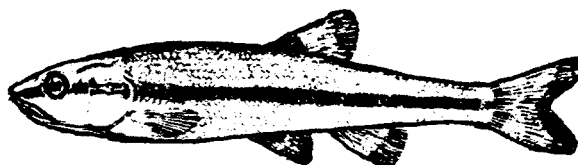
BLACKNOSE DACE (*Rhinichthys atratulus*)
Sharp, dark mid-lateral stripe; gray-brown back; soft, silver-white belly. Mouth just below end of snout. Male's pectorals usually bear orange. Scales very fine, feels soft.



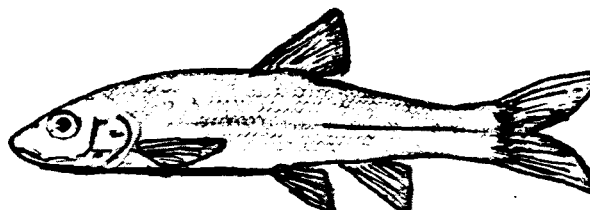
LONGNOSE DACE (*Rhinichthys cataractae*)
Longer nose; mouth back from tip of snout; stripe usually rough-edged, sometimes dusky rather than black. Lives almost exclusively in fastest water. Male's pectorals orange to pinkish or reddish. Scales like Blacknose's.



CREEK CHUB (*Semotilus atromaculatus*)
Small ones distinguished from *Rhinichthys* by larger scales, some outlined darkly. Often with dark spot at front of dorsal-fin base.



FALLFISH (*Semotilus corporalis*)
somewhat slimmer than Creek Chub, body mostly dull silvery.



Sketches modified from Atlas of North American Freshwater Fishes.

often collected at the head of the riffle, occasionally in water as shallow as one inch deep. It is also common in current-swept pools below riffles. It probably inhabits the shallower, high-gradient sections of the Susquehanna itself, but we are unable to sample those areas.

This fish is said to reach 7" in total length, and we've collected them approaching 6".

The Longnose Dace is a handsome, variable fish. Laterally and dorsally, it is, in our area, dark gray to black with a darker lateral band. Often the dark areas are mottled. Smaller specimens, sometimes a bit greenish, may display gold filigree along the usually dusky lateral band. The ventral surface and that area from below the eye to the snout are, in non-breeding fish, whitish or yellowish. In breeding adults and in the fall (at least in western Pennsylvania, far west of our area), these lighter ventral areas, as well as the fins, take on an attractive orange-red to pink coloration. Western Pa. (Crawford County) specimens caught in November showed brilliant orange in these areas, and were quite startling when first viewed in the collecting net.

In our area, the Longnose Dace, along with its more-or-less sympatric cousin the Blacknose Dace (Rhinichthys atratulus), are often victims of "blackspot," especially in Little Elk Creek.

In the aquarium, the Longnose Dace, despite its everyday black-and-white suit, is one of the most satisfying of native fishes. It is hardy, acclimates quickly, is not shy, takes most foods, and is peaceful. It utilizes all strata of the tank, though it rests frequently on the bottom. It needs a current to "take off" into; without one it is sort of clumsy. It is an attractive fish, fascinating to watch as it moves almost sharklike around the tank or noses into the current from a filter output tube. It doesn't appear to move its pectoral fins and it often looks awkward, especially as it descends to the lower strata of the tank, when it seems to glide downward like a Remora. It readily comes to the surface to take floating foods such as flakes, frozen daphnia, and bloodworms.

This fish requires a relatively cool, well-aerated tank. Frequent water changes should be made to keep it healthy. A fish highly recommended for the community tank.

--WME

CREEK CHUB (*Semotilus atromaculatus*)

The Creek Chub commonly attains 8"-10" in length and probably tops a foot occasionally. It is indeed stouter than other minnows. The head is broad. The mouth is large and trouty.

The only significant year-round markings are (1) a dark horizontal stripe, top and bottom edges of which may appear saw-toothed, and (2) a dark spot at the front of the dorsal-fin base. The latter is usually prominent, but sometimes absent or not displayed. Some scales are partially dark-edged.

Overall year-round "colors": gray-to-yellow-brown back, broad, dusky stripe, and whitish belly. In spring, males transform, assuming a variety of pastels. Fins may become yellow or orange, belly and underparts rose, and the back slate-blue to greenish. There may be orange around the dark dorsal spot.

An even more startling spring change is development of hook 'em horns on the male's head. They account for the alternate vernacular name Horned Dace. The horns are shaped and sized like small rose thorns, and, while not sharp enough to hurt (us), they can give an incautious handler a real start--enough for the fish to escape his grasp.

The large size of these fish is the more remarkable for where they often live--tiny streams, usually in deeper pools. They do sometimes inhabit larger streams. In one typical small, high-gradient stream in the Lower Susquehanna area, three to eight feet wide, there are some areas as deep as a foot; but between pools, in riffles, depth is hardly sufficient to float an adult Creek Chub. Nevertheless, they're there, usually in the rubble along the side or under the banks. Stream-mates include Rosyside Dace, Common Shiners, Blacknose Dace, and, less commonly, Tesselated Darters, Longnose Dace, and even White Suckers.

The Creek Chub is one of the most widespread North American fish--Florida to New Mexico and Colorado, Manitoba to Prince Edward Island, north to near Hudson's Bay. There's some thought that the southeastern subspecies is a separate species, Semotilus thoreauianus, traditionally S. atromaculatus. t.

For spawning, the male constructs a pit, moving stones and gravel by mouth and nose upstream until it forms a long ridge. There is a classic description of spawning in Jacob E. Reighard, 1910, "Methods of Studying the Habits of Fishes, with an Account of the Breeding Habits of the Horned Dace," Bull. U.S. Bur. Fish. 28(2): 1111-1146. Extensive excerpts appear in Modes of Reproduction in Fishes by Charles M. Breder, Jr., and Donn Eric Rosen (TFH Publications: Jersey City, NJ), 1966, 200-202. I believe there was a summary in "The Creek Chub," by Vernon B. Hunt, AC, Sept. 85, 9. Other texts condense the Reighard account.

They do distressingly well in aquaria. They aren't actually very aggressive except males to each other in

spawning season, but they are extraordinarily voracious, capable of eating fish at least half their size. It is not uncommon to see a Creek Chub with two prize fish you didn't think it could possibly eat protruding from its mouth, to be digested pencil-sharpener-fashion over the next few hours. Lacking good-sized fish, however, the Creek Chub will eat whatever you offer.

--BG

FALLFISH (*Semotilus corporalis*)

The Fallfish is the largest native minnow of the east, reaching nearly 17" in total length. It has a northeastern distribution, ranging from New Brunswick to Virginia. In Pennsylvania, it inhabits clear, clean streams and small rivers east of the Allegheny drainage. The Fallfish is, apparently, a common fish throughout its range except, it seems, within our area in the Lower Susquehanna. We have collected this fish in Lancaster County, Pa., east of the river, in the spillway of the Muddy Run reservoir and the West Branch of Octoraro Creek. In York County, Pa., on the west side of the river, we have found it in Muddy Creek.

In the West Branch of the Octoraro and Muddy Creek, this fish is at best only a lucky catch for us, as it is a powerful swimmer and has considerable room to maneuver. Our standard collecting tool, the 4'x4' minnow seine (largest allowed under a Pa. fishing license), is an inefficient method for these fish in these streams. The fish we caught were holed up under rocks in a medium-gradient sector, and darted into our waiting seines as we lifted the rocks.

In Muddy Creek, other fishes collected with the Fallfish have included the Shield Darter (*Percina peltata*), Tesselated Darter (*Etheostoma olmstedi*), Margined Madtom (*Noturus insignis*), River Chub (*Nocomis micropogon*), White or Common Sucker (*Catostomus commersoni*), and the occasional Northern Hogsucker (*Hypentelium nigricans*). These Fallfish were small, approx. 5-6" in total length.

Except dorsally, where they take on a slight yellow tint, none of the Fallfish we've collected exhibited any color other than the silver of many of the "cyps."

Fallfish have a rather deeply forked tail and lack a dorsal spot. Both characters are useful in distinguishing the species from the Creek Chub (*Semotilus atromaculatus*), which is commonly found in the Lower Susquehanna area. Fallfish, when small, seem shinier than Creek Chubs and a bit more lithe and streamlined. Breeding males are reported to take on a pinkish tinge on the operculum and pectoral fins, and develop tubercles. The males build large mound nests made up of

stones and gravel. These mounds are said to be quite impressive.

These fish do well for the wealthy native-fish enthusiast if kept in a large, well-aerated aquarium and fed copiously. In fact, they even do well in a smaller tank on slimmer rations, except that they stunt.

Remember that this is a fish that often provides trout fishermen with considerable sport when offered, among other items, cheese, corn, worms, and various smaller baitfish.

--WME

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