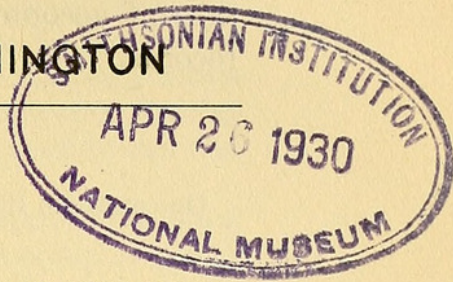


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTONFISHES FROM McKEAN, POTTER AND CAMERON
COUNTIES, PENNSYLVANIA.BY HENRY W. FOWLER AND J. GORDON CARLSON.¹

During the summer of 1926 collections of fishes from north-western Pennsylvania were made by Messrs. J. C. Galloway and J. Gordon Carlson. As several river basins diverge from this region, a word as to localities is necessary. In McKean County the collections are from the Allegheny River, Lillibridge Creek, Skinner Creek, Sartwell Creek, Comes Creek, and Portage Creek near Port Allegany and from Brewer Run near Colegrove. These represent the materials from the Allegheny River Basin. In Cameron County all are from the Susquehanna River basin in the Sinnamahoning-Portage Creek and Cawley Run near Sizerville and in North Creek near Emporium. The Genesee River was examined in the vicinity of Genesee from the State line to a few miles south of Genesee. According to Mr. Galloway's notes, the Genesee River at Gold was but a small brook a foot or two wide, some miles north it was four to eight, at Hickox ten to fifteen, and at the New York State line above Genesee, after four streams have united ten miles from Gold, it was almost as large as the Allegheny at Port Allegany. Altogether several hundred specimens were obtained and placed in the collection of The Academy of Natural Sciences of Philadelphia. We are indebted to Mr. Galloway for the use of his notes, freely modified and duly credited with his initial.

This paper has been prepared as little has been given of this interesting ichthyfauna. So many of the streams in the western section of the State have been polluted and the fishes either greatly reduced or exterminated, that it is hoped that the

¹With permission of the Academy of Natural Sciences of Philadelphia.

present account may have some value even in its incomplete records.

PETROMYZONIDAE.

Entosphenus aepypterus (Abbott).

One example 165 mm. long from Skinner Creek, May, 1924.

SALMONIDAE.

Salmo fario Linné.

Two examples 76 to 92 mm. from North Creek, September 13, 1926.

Salvelinus fontinalis (Mitchill).

One example at each of the following localities: Small pond at Port Allegany, September 9, 1926, 58 mm. long; Sinnamahoning-Portage Creek, 117 mm. long; North Creek, September 13, 1926, 146 mm. long.

ICTALURIDAE.

Ameiurus nebulosus (Le Sueur).

Eight examples from cove near Port Allegany, July 30, 1926, 25 to 164 mm. long.

Noturus flavus Rafinesque.

One from Allegheny River at Port Allegany in July, 1925, 190 mm., two June 10, 1926, 113 to 155 mm., two August 28, 1926, 73 to 90 mm.; twelve July 27, 1926, from Genesee River 140 to 230 mm. In the last locality, but not in the Allegheny, it usually swims crosswise in the stream when disturbed. One floundered out on land a foot from the water's edge, though soon wriggled back. All swim rather slow.

Schilbeodes insignis (Richardson).

Sinnamahoning-Portage Creek, September 13, 1926, six examples 68 to 95 mm.; North Creek, September 13, 1926, one 97 mm.

CYPRINIDAE.

Campostoma anomalum (Rafinesque).

Lillibridge Creek, one 178 mm. long June 2, 1925, in full spawning; one 85 mm. long June 17, 1926; four 61 to 80 mm. September 16, 1926; cove at Port Allegany, July 30, 1926, one 99 mm.; from the Genesee River July 27, 1926, six 50 to 89 mm. The Genesee examples were very much darker than those from the Allegheny.

"Plump little minnows in the ripples April 29, 1926, were a bright golden color, about 50 mm. long." (G.)

"May 9, 1926, a dozen or more associated with larger chubs, 40 or more slender dace and others, apparently long nosed dace and black nosed dace, swarm among the larger ones. The stone rollers are conspicuous and

easily identified by their white lips, white fins marked with black and yellow or orange, a distinct black bar behind opercle, and the white tubercles over the head and body. They were the most active, rooting their snouts in the gravel; their bodies often turning sidewise, their tails often flapping in the air. Their heads were always up stream and the gravel thrown that way." (G.)

"May 29, 1926, spawning same place as June 2 and apparently all along the creek in favorable gravel. This time hardly any other fish were with them. They all assemble closely in the basins, eight to twelve or more. Apparently the females are only half the size of the others and they dash around at intervals. At one place there were four or five groups." (G.)

***Chrosomus erythrogaster* Rafinesque.**

One from cove near Port Allegany, September 15, 1926, 45 mm. long.

***Pimephales promelas* Rafinesque.**

Lillibridge Creek, two examples, June 17, 1926, 61 to 66 mm. long; cove near Port Allegany, three examples 45 to 50 mm., July 30, 1926, and 32 examples 29 to 59 mm., September 9, 1926. We find that this fish is more frequently met with in still or stagnant water than in the running streams.

***Pimephales notatus* (Rafinesque).**

Allegheny River, one 93 mm. in full spawning June 10, 1926, three 66 to 80 mm., June 22, 1926, also in full spawning and two 52 to 65 mm., August 28, 1926; Lillibridge Creek, one 61 mm., June 17, 1926, one 57 mm., September 16, 1926; cove at Port Allegany, one 44 mm., July 30, 1926; Genesee River, one 61 mm., July 27, 1926; Sinnamahoning-Portage Creek, one 69 mm.

***Semotilus atromaculatus* (Mitchill).**

Allegheny River, one 64 mm., July 14, 1926; Lillibridge Creek, one 111 mm., June 17, 1926, seven 53 to 91 mm., August 26, three 57 to 93 mm., September 16; small pond at Port Allegany, two 42 to 47 mm., September 9; Genesee River one 67 mm., July 27; Sinnamahoning-Portage Creek, six 41 to 79 mm., September 13; Cawley Run, one 100 mm., September 13; North Creek, two 51 to 85 mm., September 13.

"The chubs are more shy than the stone rollers, hastening to hide in deep water when approached and last to come back. They hovered in the basins but did not seem to dig gravel. They were active in chasing away the smaller fishes. They were adroit in taking advantage of the water currents in moving about. When they swim from the deep pool they merely headed up stream with pectorals expanded? and the current rapidly brought them down; then tacking they swing sidewise into their places with no apparent movement of the fins. These chubs were dusky green with no golden lines showing and their throats and lower fins were rosy or salmon color. The black spot on the dorsal showed distinctly." (G.)

***Leuciscus margaritus* (Cope).**

Eight examples from Sinnamahoning-Portage Creek, September 13, 1926, 50 to 63 mm. These are the only examples we have secured.

***Leuciscus elongatus* (Kirtland).**

Lillibridge Creek, 14 examples 59 to 97 mm., June 17, 1926, eight 48 to 82 mm., August 26, and one 78 mm., September 16; Comes Creek, two 71 to 91 mm., June 9. Evidently the most abundant species in Lillibridge Creek with *Poecilichthys flabellaris* a close second.

"May 9 the fish were working on three basins, often four stone rollers side by side in one. The slender dace swarmed among them and all about, flashing their sides so the red band shone in the sun. They showed the golden lines on the back. With them were a few long straight brown fishes, possibly long nosed dace." (G.)

***Abramis crysoleucas* (Mitchill).**

Only one example obtained, 65 mm. long, from cove near Port Allegany, February 8, 1925. It was taken by sweeping a dip net through holes in the ice. Though several subsequent attempts have been made to secure specimens, both in the same cove and in neighboring ones, all have been unsuccessful.

***Notropis deliciosus stramineus* (Cope).**

One from the Allegheny River, July 22, 1926, 71 mm. long. This is the only specimen we have ever seen. It was kindly identified for us by Mr. C. L. Hubbs.

***Notropis keimi* Fowler.**

Allegheny River, six 57 to 60 mm., July 14, 1926, two 60 to 71 mm., July 22, one 48 mm., August 28; Lillibridge Creek, six 53 to 63 mm., August 26, eleven 46 to 60 mm., September 16; Brewer Run, one 60 mm., September 13; Genesee River, six 51 to 65 mm., July 27.

"We found this brown backed, silvery sided shiner, with a golden glint, in the deeper holes in the creek and it has lately appeared more common. At times it shows scintillating light in a line from the dorsal fin to the caudal medially on the back. It also shows the golden glow within the forward sides of the back even more than in the young of *Leuciscus elongatus*. Many 50 mm. in length appear to contain eggs." (G.)

We have examined the types of this species and compared them with cotypes of *Notropis gilberti* from the Des Moines River at Ottumwa, Iowa, and find that they differ constantly in certain respects. *N. keimi* is a more slender minnow, the depth less in proportion to the length of the body than in *N. gilberti*. *N. keimi* has one less dorsal ray, the number usually iii, 6, i, while in *N. gilberti* it is usually iii, 7, i. The eye in *N. keimi* averages slightly larger than in *N. gilberti*.

Notropis cornutus (Mitchill).

Allegheny River, five 53 to 66 mm., July 14, 1926, nine 30 to 40 mm., August 28; Lillibridge Creek, two 93 to 107 mm. in full spawning June 3, 1925, two 94 to 103 mm., in full spawning June 17, 1926, thirteen 50 to 112 mm., August 26, and two 50 to 72 mm., September 16; Brewer Run, three 47 to 58 mm., September 13; Genesee River, 46 examples 35 to 134 mm., July 27; Sinnamahoning-Portage Creek, 101 examples 45 to 122 mm., September 13; North Creek, 10 examples 42 to 90 mm., September 13.

"May 28 found a small school in one of the larger pools, in Lillibridge Creek, with the finest slender dace met with. The red fins were as usual with gold, silver and blue on the sides, a few scattered dark scales and rosy below and on the fins. In the water it appears as a green shiner with three golden lines and a black lateral stripe. The lower fins and dorsal are salmon color, shaded medially with dusky; likewise the pectorals, their forward margins solid white." (G.)

Notropis rubrifrons (Cope).

Allegheny River, four examples 48 to 70 mm., in full spawning dress June 10, 1926, nine examples 57 to 66 mm., July 14, four examples 56 to 68 mm., July 22. The first four when captured had the snout and pectoral bases rosy; largest with 23 predorsal scales; one with deformed mandible so that snout appears strongly protruded. In the second lot of specimens the predorsal scales average 19, eye $3\frac{1}{2}$ to 4 in head and shorter than snout; formaline specimens show dark lateral band becoming blackish brown on tail to hind caudal peduncle.

Rhinichthys cataractae (Valenciennes).

Allegheny River, four examples 58 to 91 mm., August 28, 1926; Lillibridge Creek, two examples 57 to 89 mm., September 16; Genesee River eight examples 70 to 115 mm., July 27; Sinnamahoning-Portage Creek, nine examples 53 to 76 mm., September 13; Cawley Run, six examples 59 to 112 mm., September 13.

"One cataract dace, a female with eggs, was taken in the ripples April 29. Last September they swarmed in the ripples in narrow channels of Lillibridge Creek, where we find none at all now. The female noted showed a salmon tint on the dorsal and caudal fins, but no reddish elsewhere; dark above, white below, slightly creamy where it merged into peppered gray sides. Much of the dark color seemed to belong to the presence of immature trematode worms." (G.)

Rhinichthys atronasus (Mitchill).

Allegheny River, one example 47 mm., July 22, 1926; Lillibridge Creek, one 76 mm., June 4, 1925, eleven 49 to 74 mm., June 17, 1926, eleven 61 to 75 mm., June 23, three 44 to 60 mm., August 26, three 55 to 64 mm., September 16; Brewer Run, two 66 to 71 mm., September 13; Genesee River, seven 53 to 73 mm., July 27; Sinnamahoning-Portage Creek, 18 examples 40 to 68 mm., September 13; Cawley Run, one 65 mm., September

13; North Creek, three 59 to 62 mm., September 13. Genesee specimens were very dark and parasitized; those from the Susquehanna basin were light colored, scarcely parasitized at all.

"Several taken in Lillibridge Creek April 16 showed no breeding colors; sides creamy silver, the lateral band showing black with red; upper parts brown as usual, mottled with darker.

"Apparently spawning May 29 in the swift channels of Lillibridge Creek, where the gravel was coarse; found among the stones and constantly swimming in circles.

"Many large ones in Lillibridge Creek June 17 with the orange red lateral band. Others similarly as large and many smaller, without the red. A few were seen without either the red or black lateral stripe, the body rather pale brown. Those with red lateral band were taken in the stony shallows, the others associated as well as in the smaller pools." (G.)

***Hybopsis kentuckiensis* (Rafinesque).**

Allegheny River, two 57 to 84 mm., July 14, one 62 mm., July 22, one 43 mm., August 28; Sinnamahoning-Portage Creek, five 64 to 114 mm., September 13; Cawley Run one 92 mm., September 13.

***Exoglossum maxillingua* (Le Sueur).**

Allegheny River, one 76 mm., July 14, two 42 to 48 mm., August 28; Genesee River, nine 51 to 113 mm., July 27; Sinnamahoning-Portage Creek, nine 47 to 83 mm., September 13; North Creek, one 62 mm., September 13.

CATOSTOMIDAE.

***Catostomus commersonnii* (Lacépède).**

Allegheny River, two 165 to 230 mm., July, 1925; Lillibridge Creek, one 118 mm., June 17, 1926, one 91 mm., August 26, one 48 mm., September 16; cove near Port Allegany, one 72 mm., July 30; Brewer Run, two 70 to 72 mm., September 13; Sinnamahoning-Portage Creek, 23 examples 31 to 82 mm., September 13.

"The fins pale orange. Underparts shining satiny white and the sides brassy with salmon tints. Back mottled brown and olive green." (G.)

***Catostomus nigricans* Le Sueur.**

Allegheny River, two 74 to 180 mm., June 10; Lillibridge Creek, two 55 to 60 mm., September 16; small pond at Port Allegany, one 43 mm., September 9; Brewer Run, one 280 mm., September 13; Sinnamahoning-Portage Creek, three 41 to 82 mm., September 13.

***Moxostoma aureolum* Le Sueur.**

Two examples were taken in the Allegheny River July 14, 1926, which measure 62 to 75 mm. They are the only ones we have for the region.

PERCOPSIDAE.

Percopsis omiscomaycus (Walbaum).

In the Allegheny River, three 35 to 45 mm., in the late summer of 1925, six July 14, 1926, 25 to 77 mm., and also six 28 to 40 mm., July 22.

GASTEROSTEIDAE.

Eucalia inconstans (Kirtland).

Six examples, 38 to 45 mm., from a small pond at Port Allegany, September 9, 1926.

CENTRARCHIDAE.

Ambloplites rupestris (Rafinesque).

One from cove near Port Allegany, July 30, 1926, 57 mm. long.

Pomotis gibbosus (Linné).

Eight from cove near Port Allegany, July 30, 1926, 18 to 97 mm. long.

Micropterus dolomieu Lacépède.

One from the Allegheny River 260 mm., July 15, 1926, and one 37 mm., July 22.

PERCIDAE.

Percina caprodes (Rafinesque).

One from the Allegheny River 124 mm., June 10, 1926, and one 131 mm., July 15; one from Portage Creek 143 mm., June 18, 1926. The first example was secured by holding a hand net below a large stone in swift water, suddenly raising and then dropping the stone. The other two were obtained by bait with hook and line.

Hadropterus aspro (Jordan).

Allegheny River, three 51 to 78 mm., August, 1925, one 47 mm., June 10, 1926, six 51 to 65 mm., June 14, one 59 mm., July 22, one 47 mm., August 28. It is usually found in pools two or more feet in depth and with less swift water than in the river generally. We have not yet obtained it in the smaller creeks. It swims rapidly, darter fashion, and it is difficult to capture with a net.

Etheostoma blennioides Rafinesque.

Allegheny River, two 77 to 80 mm., August, 1925, three 63 to 80 mm., June 10, 1926, five 52 to 67 mm., July 14, three 65 to 73 mm., July 22, six 49 to 79 mm., August 24; Genesee River, three 60 to 89 mm., July 27.

"Two large adults in full color May 5, one dark green as though soaked in dark green ink." (G.)

***Boleosoma nigrum* (Rafinesque).**

Allegheny River, two 52 mm., May 15, 1926, 27 examples 20 to 57 mm., July 14, two 54 to 56 mm., August 28; Lillibridge Creek, six 45 to 55 mm., September, 1925, six 42 to 56 mm., June 17, 1926, two 48 to 51 mm., August 26, two 47 mm., September 16; Comes Creek, one 53 mm., June 9; Genesee River, four 32 to 73 mm., July 27.

***Boleosoma nigrum olmstedii* (Storer).**

Sinnamehoning-Portage Creek, 18 examples 52 to 68 mm., September 13, 1926; North Creek, four 48 to 58 mm., September 13.

***Poeciliichthys variatus* (Kirtland).**

Allegheny River, two 44 to 46 mm., September, 1925, one May 15, 1926, of 76 mm., four 64 to 80 mm., August 28.

"June 2 in the river, main ripples, in gravel a darter hit the net by accident. Brown back with four brown bars and sides below lateral line flamed brilliant orange red. Second dorsal and caudal sooty black over orange dot rows, also the anal green with a splash of orange red at tip. Pectorals and ventrals dusky, latter almost black with anterior edge white. The whole fish in formaline becomes much duskier and orange sides more brilliant.

"Color in life, brown, shading to golden below; four dark cross bars on back, one predorsal, one at junction of dorsals, one at middle of second dorsal and one between second dorsal and caudal. Sides unmarked before front of second dorsal; beginning below front of second dorsal row of seven or eight green squares (broken near caudal) and separated by eight or nine rows of scarlet dots, three in first rows, two and irregular near caudal. Breast orange yellow, shading to white. First dorsal with outer edge red, then amber, finally black and white next to body. Second dorsal edge dusky blue and base lighter blue, barred between with four rows of orange spots or dots. Caudal light blue, irregularly barred with about six rows of orange dots. Anal barred light blue and orange, like caudal. Pectoral similarly light blue, with eight orange bars. Ventral streaked parallel to rays, orange and light blue." (G.)

***Poeciliichthys zonalis* Cope.**

Allegheny River, nine 36 to 53 mm., June 10, 1926, and six 42 to 51 mm., August 28. The latter lot were obtained by sweeping a hand net through small clusters of water plants. Their dark green color blended with the plants they frequented.

***Poeciliichthys flabellaris* (Rafinesque).**

Allegheny River, four 55 to 68 mm., August, 1925, eight 34 to 60 mm., June 10, 1926, four 37 to 49 mm., July 14, five 40 to 48 mm., July 22, 21 examples 33 to 52 mm., August 28; Lillibridge Creek, 15 examples 35 to 63 mm., June 17, one 48 mm., June 23, one 48 mm., August 26, six 44 to

55 mm., September 16; Comes Creek, two 58 to 60 mm., June 9; Sartwell Creek, six 46 to 62 mm., April 29, 1925; small pond at Port Allegany, three 60 to 67 mm., September 9, 1926; Brewer Run, one 58 mm., September 13; Genesee River, six 45 to 70 mm., July 27.

"April 16, in the swift waters of Lillibridge Creek, by lifting stones a number of this darter were caught in a hand net. Most were black, with the color pattern more or less distinct. Their fins were unchanged, barred as usual and the body without any bloom.

"June 17 found adults not quite so large as in the river. Apparently many females have a darker irregular mottled coloring. None were in extreme breeding dress, spawning being over. Under a large flat stone a cluster of eggs about six by two inches was found. The shape of the cluster was irregular, but the eggs laid closely joined in a single cluster and were a little smaller than hempseed. They were on the point of hatching. After scraping some into a bottle some freed young were seen." (G.)

COTTIDAE.

Cottus bairdi Girard.

Lillibridge Creek, two 81 to 87 mm., May 1, 1926, three 53 to 96 mm., June 17, seven 40 to 85 mm., June 23; Brewer Run, one 72 mm., September 13; Comes Creek, one 48 mm., June 9; Sartwell Creek, one 64 mm., April 29; Genesee River, 28 examples 48 to 80 mm., July 27.

"April 29 we tried hook and line in one pool without any sign of life. We then took the net to the ripples where we scooped two miller's thumbs from under the stones in the shallows and where the water was less rapid. They were tadpole blobs of mud but showed much brighter colors when placed in formaline.

"May 1st, took seven of all sizes, from young of an inch to adults of four inches with red edges to the dorsal fin. They were colored tan, spotted darker, much like the creek bottom. They were under stones in water so swift they could not be seen or their habits noted." (G.)



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