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Documentation of the Hudson River Fish Fauna

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ABSTRACT

Two hundred and one species of fishes have been recorded from the Hudson River basin between the Battery and its source, including the Mohawk subsystem. Rare and unusual species are documented with citations to the literature or to specimens in museum collections. Seventy-three species are represented by marine strays, these having been reported fewer than five times. Twelve of these are present as tropical marine strays. Seventeen species are marine forms with populations that are seasonally or permanently resident in the

estuary, seven species are euryhaline-estuarine, and eleven species are diadromous. Seventy-five freshwater species invaded the Hudson system after the last glacial stage from the Atlantic coast, the Mississippi refugium, or along the glacial front. Eighteen species have been introduced, deliberately or through canals. Three species have not been recorded from the Hudson but are included because they are known from contiguous waters and should be looked for in the Hudson or its tributaries.

INTRODUCTION

The Hudson River is one of the outstanding natural resources of the State of New York and, since the 1960s, there has been an increased awareness of its economic and aesthetic values. As a result of this interest, its fishes have received special attention both for their economic and recreational value and as tangible evidence of the health of the river. Spurred by major conflicts over special en-

vironmental issues, studies of the fishes of the Hudson River have been emphasized in many environmental impact assessments, most of which have focused on those few species that are of the greatest economic potential. More recently, ecologists have expanded their emphasis to a comprehensive systems approach, recognizing that species that are inconspicuous or present in low num-

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bers can play major roles in the functioning of the estuarine system. In our opinion this is a move that is long overdue.

METHODS

Documentation of records with indications of the locations of known specimens is important for several reasons. Identification of species is sometimes difficult, particularly when the only known specimens are juveniles or larvae. Actual specimens are the final arbitrators of questions about the accuracy of identifications. The systematics of fishes, even common North American species, is still developing and frequently it is found that what was considered to be one species is actually a complex of two or more forms. Since a large component of the Hudson River fauna is made up of strays, whose normal range is from some other part of the Atlantic coast, it is important that actual specimens be reexamined as new knowledge comes to light. The Hudson River fish fauna has undergone substantial changes over time and will continue to do so as conditions change and as new species are introduced, either deliberately or accidentally. Museum specimens can also provide data on the changing incidence of diseases such as tumors that might be environmentally induced. Finally, voucher specimens can sometimes provide definitive information on the presence of contaminants in fish flesh. Although some pollutants may be lost in the preservation and storage procedures, others, including possibly some that are not considered harmful at the present time, can be detected in preserved specimens.

THE RIVER

The Hudson River estuary south of the Federal Lock and Dam at Troy (River Mile 154) is completely open to the sea, without any man-made or natural barriers. The river is tidal to the dam but the salt front is nearly always downstream of River Mile 70. Because there are no barriers to fish movement, it is possible for representatives of nearly any coastal species to wander into the river. Some of this movement is undoubtedly exploratory, with a few individuals moving into the estuary for a short time, and then leaving. Individuals of other species are more or less

regular residents in the lower part of the estuary, and, as conditions in the river change, they can be expected to respond by increasing or decreasing their numbers. In this context they are indicators that reflect the quality of the environment. The introduction of foreign species that can become pests is a very real threat that has increased with modern shipping. Both the San Francisco Bay and the Great Lakes have suffered from introductions of exotics. It is therefore important to maintain a constant inventory of the local fauna.

EARLIER STUDIES

The first comprehensive surveys of the Hudson River fish fauna were conducted by the New York State Conservation Department in the 1930s (Greeley and Bishop, 1933; Greeley, 1935, 1937). Bath et al. (1977) called attention to the lack of an up-to-date inventory of the Hudson fish fauna by publishing a list of records from the 1976 collecting activities. A brief list was compiled by Smith (1977) and a thorough list, with distribution maps, was compiled by Allen Beebe but is unpublished. Smith (1986) summarized the fishes of the Hudson in a general work on the fishes of New York State. Recently, Beebe and Savidge (1988) have summarized the species composition and distribution in the lower Hudson.

LISTING METHODS

The following list includes all records known to us through the winter of 1988–1989. Each species is listed with its scientific name, author and date, and its common name. This is followed by a brief statement of its distribution within the Hudson watershed. If the species has only been recorded a few times, the records are listed, together with the location of voucher specimens known to us. Records from the New York State Conservation Department (NYSCD) surveys are cited as LH (Lower Hudson), MH (Mohawk-Hudson), and UH (Upper Hudson). Each species is classified as to its probable origin, and our assessment of the geographic origin of each species is given in square brackets, []. We use the following categories:

1. Introduced.
2. Freshwater species from the Atlantic coastal refugium.
3. Freshwater species from the Mississippi refugium.
4. Freshwater species from the Mississippi refugium, possibly canal immigrants.
5. Periglacial freshwater species.
6. Freshwater species of uncertain origin.
7. Diadromous species.
8. Estuarine species.
9. Permanent or seasonal resident marine species.
10. Temperate marine strays.
11. Tropical marine strays.

The following abbreviations are used for collectors and repositories: EA Ecological Analysts; TI Texas Instruments; QLM Quirk, Lawler and Matusky; LMS Lawler, Matusky and Skelly, Engineers; NAI Normandeau Associates, Inc.; NYDEC New York State Department of Environmental Conservation; PASNY New York Power Authority; AMNH American Museum of Natural History, New York; CU Cornell University, Ithaca; NYSM New York State Museum, Albany. Localities for specimens collected in the Hudson River are listed as River Mile (RM) or by specific locality. All localities are New York State unless otherwise indicated. Counties are given for specimens from tributary streams. Specimen lengths are Standard Lengths (SL) unless specified as total length (TL).

LIST OF SPECIES

Petromyzontidae – Lampreys

1. *Ichthyomyzon unicuspis* Hubbs and Trautman, 1937 – silver lamprey
AMNH 39529, RM 33, 3 Nov 1977, 256 mm TL, TI. AMNH 37205, RM 142, 3 Dec 1974, 270 mm, QLM. AMNH 37206, RM 142, 10 Jun 1974, 258 mm, QLM. NYSM 11618, Saratoga Co.: Hudson River near Coveville, 19 Jan 1938, R. Vickers. NYSM 11620, same locality, 31 May 1937, H. Devall and C. E. Martin. George (1981) reported it from the Stillwater sector of the Hudson. The silver lamprey was not collected by the NYSCD surveys and is probably a recent immigrant that reached the upper Hudson through the Champlain–Hudson Canal (Reider, 1979). [4]

2. *Lampetra appendix* (DeKay, 1842) – American brook lamprey
AMNH 123282, Colombia Co., 16 May 1974, 9.8 mm TL, PASNY. AMNH 35785, Dutchess Co.: mouth of Saw Kill Creek, 11 May 1974, 143 mm TL, G. J. Nelson. Recorded by Dean and Sumner (1897) from Tibbit's Brook above Van Cortlandt Lake, New York City. (LH) [2]

3. *Petromyzon marinus* Linnaeus, 1758 – sea lamprey
AMNH 38516, Roeliff-Jansen Kill at Rt. 9G, 14 May 1976, 98.2 mm, AMNH. AMNH 37208, RM 42, 11 Dec 1975, 161 mm, TI. AMNH 37251, RM 42, 20 Feb 1976, 153.5 mm, TI. AMNH 37252, RM 42, 26 Jan 1976, 164 mm, TI. AMNH 36543, RM 52, 14 Feb 1977, 153 mm, TI. NYSM 7335, Haverstraw, 5 Feb 1977. NYSM 7687, Bowline Intake, 21 Feb 1977. NYSM 11110, Bowline Intake, 6 Jan 1979. NYSM 11621, RM 42, 18 Jan 1976. NYSM 11622, RM 42, 12 Dec 1976. This anadromous species probably occurs throughout the estuary and the lower reaches of tributaries as far north as the Troy Dam. (LH, MH) [7]

Carcharhinidae – Requiem Sharks

4. *Carcharhinus* sp. – shark
Mearns (1898) reported *Carcharhinus obscurus* from as far up river as Peekskill. The identification is in doubt. [10]

Triakidae – Houndsharks

5. *Mustelus canis* (Mitchill, 1815) – smooth dogfish
Hudson River: Reported by commercial fishermen from the lower Hudson. Specimens needed. [10]

Squalidae – Dogfish Sharks

6. *Squalus acanthias* Linnaeus, 1758 – spiny dogfish
AMNH 8810 Hudson River at 155th Street, 14 Sep 1917 (discarded in 1969). AMNH 58182, Edgewater, 16 Apr 1988, 885 mm TL, taken in a shad net by Ron Ingold. [10]

Rajidae – Skates

7. *Raja laevis* Mitchill, 1818 – barndoor skate

Reported from the Hudson River by Greeley (1937) on the basis of NYSM 12280 which was received from a fisherman. Additional records are needed. (LH) [10]

8. *Raja erinacea* Mitchell, 1825 – little skate

AMNH 78929, RM 1, 25 Mar 1987, 117.5 TL, NAI. Apparently this species does not stray very far into the estuary. [10]

Acipenseridae – Sturgeons

9. *Acipenser brevirostrum* Lesueur, 1818 – shortnose sturgeon

Although on the Federal Endangered species list, the shortnose sturgeon is quite common in the river. (LH, MH) [9]

10. *Acipenser oxyrhynchus* Mitchell, 1815 – Atlantic sturgeon
Common in the lower Hudson. (LH) [7]

11. *Lepisosteus osseus* (Linnaeus, 1758) – longnose gar
One specimen, 755 mm TL, was collected on the impingement screen at Roseton Power Generating Station on 7 Dec 1989 by Normandeau Associates. Probably a canal immigrant, most likely from Lake Champlain. [4]

Amiidae – Bowfins

12. *Amia calva* Linnaeus, 1766 – bowfin
One specimen 490 mm was caught in a fyke net at RM 85 (Norrie Point), 13 Apr 1988, by Mark Warnecke. This specimen is in the collection of the Norrie Point Environmental Center. [1]

Elopidae – Tarpons

13. *Elops saurus* Linnaeus, 1766 – ladyfish
AMNH 52107, RM 66.5, 29 Oct 1982, 250 mm, Tom Lake. [11]

Congridae – Conger Eels

14. *Conger oceanicus* (Mitchill, 1818) – conger eel
AMNH 48297, RM 42, 1 Dec 1978, 544 mm, TI. NYSM 20688, RM 15, 30 Jul 1984. NYSM 20689, RM 26, 17 Jul 1984. NYSM 14250, RM 25, 7 Jul 1978. NYSM 283, RM 14, 15 Apr 1976. [10]

Anguillidae – Freshwater Eels

15. *Anguilla rostrata* (Lesueur, 1817) – American eel

Common throughout the lower Hudson and tributaries. Catadromous. (LH, MH, UH) [7]

Ophichthidae – Snake Eels

16. *Myrophis punctatus* Lütken, 1851 – speckled worm eel
AMNH 121778, RM 42, 26 Jun 1980, 72.6 mm, a leptocephalus larva collected by LMS and identified by Robert E. Schmidt. [11]

Clupeidae – Herrings

17. *Alosa aestivalis* (Mitchill, 1814) – blueblack herring
Common throughout the lower Hudson and in the Mohawk–Barge Canal to the vicinity of Rome. Anadromous, moving farther upstream than other river herrings. (LH, MH) [7]

18. *Alosa mediocris* (Mitchill, 1815) – hickory shad
AMNH 37257, RM 42, 15 Oct 1975, 220 mm, TI. AMNH 48298, RM 15, 25 Jul 1978, 235 mm, TI. AMNH 49292, Diamond Reef, 30 Aug 1981, 235 mm, Tom Lake. AMNH 55189, Tappan Zee Channel, 1 Nov 1983, 235–280 mm, Hank Bickert. Although seldom reported from the Hudson River, the hickory shad probably is present in small numbers in most years, and in the past 10 years they occasionally have been common. Tom Lake has caught them as far north as the mouth of the Catskill Creek (RM 113). [7]

19. *Alosa pseudoharengus* (Wilson, 1811?) – alewife
Abundant in the lower Hudson. Does not ascend as far as the blueblack herring. (LH, MH) [7]

20. *Alosa sapidissima* (Wilson, 1811?) – American shad
An abundant and commercially important species in the lower Hudson. (LH, MH, UH) [7]

21. *Brevoortia tyrannus* (Latrobe, 1802) – Atlantic menhaden
Common in the lower Hudson. (LH) [9]

22. *Clupea harengus harengus* Linnaeus, 1758 – Atlantic herring
AMNH 37211, NJ: RM 14, 18 Apr 1975, 36–37 mm, TI. NYSM 622, RM 39, 28 Apr 1976. NYSM 14257, RM 42, 5 May 1980. [10]

23. *Dorosoma cepedianum* (Lesueur, 1818) – gizzard shad
AMNH 37214, RM 143, 9 Sep 1975, 30.5–87.5 mm, TI. AMNH 49268, Bay at Grassy Point, 7 Nov 1977, AMNH. AMNH 52106, RM 66.5, 8 Dec 1982, 123 mm, Letts and Lake. Also 161 lots in NYSM. This species occurs in the Great Lakes and the Mohawk River as well as on the Atlantic coastal plain as far north as New York harbor and Long Island. Hudson River gizzard shad could have come from either source, but we believe the Mohawk route is most likely since the species is common there but not in the New York harbor. [4]

24. *Etrumeus teres* (DeKay, 1842) – round herring
AMNH 88331, NJ: RM 13, 22 Jul 1976, 84.9 mm, E. West. Reported from Yonkers by Beebe and Savidge, 1988. [10]

Engraulidae – Anchovies

25. *Anchoa hepsetus* (Linnaeus, 1758) – striped anchovy
AMNH 37209, NJ: RM 13, 25 Sep 1975, 53.5 mm, TI. AMNH 37212, NJ: RM 14, 18 Sep 1975, 59.5 mm, TI. NYSM 649, NJ: RM 15, 18 Sep 1975, H. C. Baker. [10]

26. *Anchoa mitchilli* (Valenciennes, 1848) – bay anchovy
Common throughout the lower estuary. (LH) [8]

Umbridae – Mudminnows

27. *Umbra limi* (Kirtland, 1841) – central mudminnow
AMNH 33536, Albany, Mar or Apr 1974, 98 mm, QLM. AMNH 36540, RM 42–43, 4 Jan 1977, 59.8–83.4 mm, A. Beebe. NYSM 6905, Bowline at Haverstraw, 21 Mar 1979. NYSM 7688, Roseton Intake, 28 Mar 1978. NYSM 14377, RM 42, 21 Apr 1977. NYSM 11672, RM 127, 6 Apr 1976. NYSM 26345–6, Albany Co.: Vly Creek, 23 Jul 1987. This midwestern species is locally abundant (e.g.,

Fort Hunter, Montgomery Co.) in the old Erie Canal and has been taken as far south as Constitution Marsh. (MH) [4]

28. *Umbra pygmaea* (DeKay, 1842) – eastern mudminnow
AMNH 37217, RM 57, 16 Apr 1975, 23–57 mm, TI. Common in the tributaries of the lower Hudson. (LH) [2]

Esocidae – Pikes

29. *Esox americanus americanus* Gmelin, 1788 – redbfin pickerel
Common in tributaries and some ponds in the lower Hudson. (LH, MH, UH) [2]

30. *Esox lucius* Linnaeus, 1758 – northern pike
Freshwater species reported from the Lower Hudson. One was caught in a menhaden net at the Tappan Zee Bridge, 7 Nov 1978 by William Dovel and Tom Lake. (MH, UH) [5]

Esox lucius × *E. masquinongy* – tiger muskellunge

Hybrids of northern pike and muskellunge (tiger muskies) are stocked in some ponds in the Hudson drainage. A 37 in. individual was caught by Ray Bickert in a shad gillnet at RM 29, on 12 Apr 1987. Also in the Mohawk River. [1]

31. *Esox niger* Lesueur, 1818 – chain pickerel
Common in the lakes and most tributaries of the lower Hudson and in bays in the main river. Beebe and Savidge recorded this species as far south as the Tappan Zee. (LH, MH, UH) [2]

Ictaluridae – Bullhead Catfishes

32. *Ictalurus catus* (Linnaeus, 1758) – white catfish
Common in the lower Hudson. (LH, MH) [2]

33. *Ictalurus natalis* (Lesueur, 1819) – yellow bullhead
Less common but has been taken in the Wallkill and Ramapo Rivers and in some ponds (LH, MH, UH) [6]

34. *Ictalurus nebulosus* (Lesueur, 1819) – brown bullhead
Abundant throughout the drainage. (LH, MH, UH) [6]

35. *Ictalurus punctatus* (Rafinesque, 1818)
– channel catfish

AMNH 48287, RM 77, 10 Oct 1979, 110 mm, TI. On 8 Jul 1976 Tom Lake caught several, one of which measured 14 in. TL, at RM 56. [4]

36. *Noturus flavus* Rafinesque, 1818 – stonecat
(MH, UH). [3]

37. *Noturus gyrinus* (Mitchill, 1817) – tadpole madtom

Recorded from a few lakes in the Lower Hudson and from Hackensack, Ramapo Rivers, Quassaic Creek and tributaries of the Wallkill. R. Schmidt was unable to find them in Quassaic Creek in 1985. (LH, MH, UH) [2]

38. *Noturus insignis* (Richardson, 1836) – margined madtom

AMNH 78938, RM 110, 20 Oct 1987, 36.8 mm, NAI. It probably reached the Shawangunk Kill via the Delaware Hudson Canal. (LH, MH) [2]

39. *Noturus miurus* Jordan, 1877 – brindled madtom

Reported from the Mohawk River at lock 7 of the NYS Barge Canal. Dr. Carl George reports that it is taken in modest numbers in winter sampling to lock 9. (LH) [4]

Catostomidae – Suckers

40. *Catostomus catostomus* (Forster, 1773)
– longnose sucker

Common in tributaries as far south as the Kinderhook and Esopus Creek. (LH, MH, UH) [5]

41. *Catostomus commersoni* (Lacepède, 1803) – white sucker
(LH, MH, UH). [6]

42. *Erimyzon oblongus* (Mitchill, 1815) – creek chubsucker

Common throughout the lower Hudson watershed. (LH, MH) [2]

43. *Hypentelium nigricans* (Lesueur, 1817)
– northern hog sucker

Known from the Roeliff-Jansen Kill and Kaaterskill Creek in the upper part of the Hudson estuary. (LH, MH) [6]

44. *Moxostoma macrolepidotum* (Lesueur, 1817) – shorthead redhorse

Mohawk drainage. AMNH 45659, Schoharie

Creek, 18 May 1977, 63–345 mm, AMNH. (MH) [3]

Cyprinidae – Minnows

45. *Carassius auratus* (Linnaeus, 1758) – goldfish

Introduced; formerly very common in parts of the river. (LH, MH) [1]

46. *Ctenopharyngodon idella* (Valenciennes, 1844) – grass carp

NYSM 35119, Columbia Co.: Claverack, 14 Sep 1988, W. Keller. Illegally stocked in a few ponds in the lower Hudson drainage. [1]

47. *Cyprinus carpio* Linnaeus, 1758 – common carp

Common in the freshwater parts of the Hudson. A mirror carp (a genetic variant with a reduced number of scales) was taken at RM 52, on 20 May 1982, by Christopher Letts and Tom Lake. Carp-goldfish hybrids are occasionally taken in the Hudson. (LH, MH, UH) [1]

48. *Rhodeus sericeus* (Pallas, 1776) – bitterling

This species was common in the Sawmill River but has not been reported recently. Still present in the Bronx River (Schmidt et al., 1981). NYSM 11744, Saw Kill, 10 Jul 1936, R. M. Bailey. NYSM 11746, Bronx River, 17 Jul 1936, R. M. Bailey. AMNH 39116, Bronx River at Bronxville, 10 and 14 Aug 1979, 29.5–36.8 mm, Schmidt et al. AMNH 39117, Bronx River at Bronxville, 18 Oct 1979, 43.4–48.1 mm, Schmidt et al. AMNH 42444, Creek along Sawmill Parkway, 27 Aug 1951, 20–41 mm, H. Evans. (LH) [1]

49. *Scardinius erythrophthalmus* (Linnaeus, 1758) – rudd

Introduced into Copake Lake and the Roeliff-Jansen Kill. AMNH 58445 and NYSM 25122, 4 Jul 1988, 293–317 mm, R. E. Schmidt. (LH) [1]

50. *Camptostoma anomalum* (Rafinesque, 1820) – central stoneroller

This distinctive species was not recorded by the survey and appears to be a recent barge canal immigrant. Now quite common in Schoharie Creek. AMNH 38685, Schoharie Creek, 7 Oct 1976, 60 mm, AMNH. AMNH 41203, Otsquago Brook, 7 Sep 1978, 34.5–44.0 mm, AMNH. AMNH 41252, Schoharie

Co.: Cobbleskill Creek, 7 Sep 1975, 54 mm, AMNH. AMNH 42740, Oriskany Creek, 28 Jun 1979, 16–55 mm, AMNH. [4]

51. *Exoglossum maxilingua* (Lesueur, 1818) – cutlips minnow
Abundant in streams. (LH, MH, UH) [2]

52. *Notemigonus crysoleucas* (Mitchill, 1814) – golden shiner
Abundant. (LH, MH, UH) [6]

53. *Couesius plumbeus* (Agassiz, 1850) – lake chub
(MH, UH). [5]

54. *Nocomis biguttatus* (Kirtland, 1840) – hornyhead chub
AMNH 42729, Mohawk drainage, 28 Jun 1979, 63 mm, AMNH. (MH) [4]

55. *Rhinichthys atratulus* (Hermann, 1804) – eastern blacknose dace
Abundant. (LH, MH, UH) [2]

56. *Rhinichthys cataractae* (Valenciennes, 1842) – longnose dace
Common. (LH, MH, UH) [6]

57. *Semotilus atromaculatus* (Mitchill, 1818) – creek chub
Common. (LH, MH, UH) [6]

58. *Semotilus corporalis* (Mitchill, 1817) – fallfish
Common. (LH, MH, UH) [2]

59. *Semotilus margarita* (Cope, 1868) – pearl dace
AMNH 41016, 41998, 48179, Albany Co.: Vly Creek at Tygert Road, 1976–1979, 22–80 mm, AMNH. Also in Schoharie Creek. (MH, UH) [5]

60. *Clinostomus elongatus* (Kirtland, 1838) – reddsides dace
AMNH 43757, Fulton Co.: Crum Creek, 32–67 mm, AMNH. AMNH 43759, Fulton Co.: East Canada Creek, 12 Aug 1979, 31 mm, AMNH. NYSM 9612, Albany Co.: Fox Creek, 3 Aug 1982. NYSM 10181, Albany Co.: Switzkill, 3 Aug 1982. NYSM 10108 and 10114, Schoharie Co.: Minekill, 12 Aug 1982. Common in some Mohawk tributaries. (MH) [3]

61. *Hybognathus hankinsoni* Hubbs, 1929 – brassy minnow

AMNH 48160, Albany Co.: Black Creek, 29 Jul 1977, 37–54 mm, AMNH. (MH, UH) [5]

62. *Hybognathus regius* Girard, 1857 – eastern silvery minnow
Moderately common. (LH, MH, UH) [2]

63. *Notropis amoenus* (Abbott, 1874) – comely shiner
Present in some southern tributaries including the Wallkill River. (LH, MH) [2]

64. *Notropis atherinoides* Rafinesque, 1818 – emerald shiner
AMNH 40754, Newburgh, 13 Apr 1978, 45–55 mm, AMNH. Numerous other records from the lower Hudson. This species is presently common in the Mohawk River but was not recorded from the lower Hudson by the survey and appears to have expanded its range southward since 1937. (MH, UH) [4]

65. *Notropis rubellus* (Agassiz, 1850) – rosyface shiner
(LH, MH, UH). [3]

66. *Notropis analostanus* (Girard, 1860) – satinfin shiner
(LH, MH). [2]

67. *Notropis cornutus* (Mitchill, 1817) – common shiner
Common. Greeley (1937) also listed *Notropis cornutus chrysocephalus* now recognized as a separate species, but the real *chrysocephalus* is a midwestern form that does not occur in the Hudson. Greeley's specimens were undoubtedly large-scaled *cornutus*. (LH, MH, UH) [6]

68. *Notropis spilopterus* (Cope, 1868) – spotfin shiner
(LH, MH, UH). [3]

69. *Notropis bifrenatus* (Cope, 1869) – bridle shiner

70. *Notropis heterodon* (Cope, 1865) – blackchin shiner
(UH). [3]

71. *Notropis heterolepis* Eigenmann and Eigenmann, 1893 – blacknose shiner
(MH, UH). [3]

72. *Notropis hudsonius* (Clinton, 1824) – spottail shiner
Greeley (1937) recognized two subspecies of

the spottail. There are two forms which appear quite different although subspecies are not recognized at this time. (LH, MH, UH) [6]

73. *Notropis stramineus* (Cope, 1865) – sand shiner

This species is very probably an introduction. Its absence in the Delaware drainage indicates that it did not reach the Schawangunk Kill via the Delaware–Hudson Canal. AMNH 39482, Ulster Co.: Shawangunk Kill at Mckinstry Road, 9 Sep 1978, 29–54 mm, Allen Beebe. AMNH 40766, 41863, 45600, 35769 same locality, 1977–1978, 22–58 mm, AMNH. [1]

74. *Phoxinus eos* (Cope, 1862) – northern redbelly dace

AMNH 41996, 48173, 48183, NYSM 14455, Albany Co.: Vly Creek, 1977, 1979, 28–51 mm, AMNH. NYSM 8540, Schnectady Co.: Walker Brook, 29 Jun 1982. NYSM 8802, 8811, 8815, Montgomery Co.: Fly Creek, 6 Jul 1982. (MH, UH) [5]

75. *Phoxinus neogaeus* Cope, 1868 – fine-scale dace
(UH). [5]

76. *Pimephales notatus* (Rafinesque, 1820) – bluntnose minnow
(LH, MH, UH). [3]

77. *Pimephales promelas* Rafinesque, 1820 – fathead minnow
(LH, MH, UH). [3]

Salmonidae – Trouts

78. *Coregonus artedii* Lesueur, 1818 – cisco or lake herring
(UH). [5]

79. *Coregonus clupeaformis* (Mitchill, 1818) – lake whitefish
Gleneida Lake (Greeley, 1937). (LH, MH, UH) [5]

80. *Prosopium cylindraceum* (Pallas, 1784) – round whitefish
(MH, UH). [5]

81. *Oncorhynchus mykiss* (Walbaum, 1792) – rainbow trout
Widely introduced. (LH, MH) [1]

82. *Oncorhynchus nerka* (Walbaum, 1792) – kokanee

AMNH 37207, Danskammer Pt., RM 66, 17 Dec 1974, 222 mm, QLM. AMNH 88302, Danskammer Pt., 5 Dec 1986, 347 mm, LMS. [1]

83. *Oncorhynchus tshawytscha* (Walbaum, 1792) – chinook salmon
AMNH 78921, RM 42, 15 Jan 1988, 272 mm, EA. [1]

84. *Salmo salar* Linnaeus, 1758 – Atlantic salmon
The presence of a native population of Atlantic salmon in the Hudson is dubious; however, the species was stocked in the 1880s and 1890s, with some success. (LH, MH, UH) [7]

85. *Salmo trutta* Linnaeus, 1758 – brown trout
Introduced. (LH, MH, UH) [1]

86. *Salvelinus fontinalis* (Mitchill, 1815) – brook trout
(LH, MH, UH). [5]

87. *Salvelinus namaycush* (Walbaum, 1792) – lake trout
(LH, MH, UH). [5]

Osmeridae – Smelts

88. *Osmerus mordax* (Mitchill, 1815) – rainbow smelt
(LH, MH, UH). [7]

Synodontidae – Lizardfishes

89. *Synodus foetens* (Linnaeus, 1766) – in-shore lizardfish
AMNH 123239, RM 26, 17 Jul 1974, 18.9 mm, LMS. Tabery et al., 1978 recorded this species from RM 17–26. [10]

Batrachoididae – Toadfishes

90. *Opsanus tau* (Linnaeus, 1766) – oyster toadfish
AMNH 55717, RM 27, 1 Jun 1985, 221 mm TL, Tom Lake. AMNH 78923, 11 Nov 1987, 150 mm, NAI. [10]

Percopsidae – Trout-perches

91. *Percopsis omiscomaycus* (Walbaum, 1792) – trout-perch
AMNH Uncat., RM 148, 13 Jul 1976. Reported from Rondout Creek (Greeley, 1937). (LH, MH, UH) [5]

Lophiidae – Goosefishes

92. *Lophius americanus* Valenciennes, 1837
– goosefish

Taken in R. Ingold's shad nets in 1974 and 1975 (C. Letts, personal commun.). [10]

Gadidae – Codfishes

93. *Enchelyopus cimbrius* (Linnaeus, 1766)
– fourbeard rockling

AMNH 39527, RM 42–43, 17 Jun 1988, 145–158 mm TL, J. S. Hutlock. NYSM 14096, RM 42, 23 Apr 1978, R. V. Caruso and B. T. Hamm. NYSM 14097, RM 42, Mar 1973, TI. [10]

94. *Gadus morhua* Linnaeus, 1758 – Atlantic cod

AMNH 49497SD, RM 34, 3 Dec 1982 (head only), Tom Lake. [10]

95. *Microgadus tomcod* (Walbaum, 1792)
– Atlantic tomcod

Common in the lower Hudson. (LH, MH) [7]

96. *Pollachius virens* (Linnaeus, 1758) – pollock

AMNH 48284, RM 42, 28 Apr 1980, 53 mm, TI. [10]

97. *Urophycis chuss* (Walbaum, 1792) – red hake

AMNH 37269, RM 42, 17 Jan 1976, 125–142 mm, TI. NYSM 14330, RM 42, 10 Apr 1975. NYSM 14274, RM 14, 12 Dec 1977. NYSM 2506, 12 Apr 1975. NYSM 2059, RM 22, 18 May 1976. NYSM 2511, RM 42, 22 Nov 1976. NYSM 9969, Bowline, 28 Feb 1980. NYSM 10988, Bowline, 1 Jan 1979. [10]

98. *Urophycis regia* (Walbaum, 1792) – spotted hake

AMNH 48283, RM 20, 2 Jun 1980, 111 mm, TI. NYSM 2516, RM 2, 28 May 1975. NYSM 7336, Piermont Shallows, 6 Dec 1978. [10]

99. *Urophycis tenuis* (Mitchill, 1815) – white hake

Included on the basis of several reports, but we have not seen a specimen to verify the identification. Reported by EEA, Inc. (1988). [10]

100. *Merluccius bilinearis* (Mitchill, 1814) – silver hake

AMNH 39525, Haverstraw Bay, 13 Apr 1976, 312 mm, TI. AMNH 37270, RM 42, 15 Dec

1975, 62–68 mm, TI. NYSM 2517, RM 33, 14 Apr 1976. NYSM 2520, RM 14, 10 Dec 1975. NYSM 11235, Bowline, 11 Dec 1978. NYSM 14305, RM 22, 17 Mar 1975. [10]

Ophidiidae – Cusk-eels

101. *Ophidion marginatum* (DeKay, 1842)
– striped cusk-eel

AMNH 48292–3, RM 42, 29 Apr 1980, 224–287 mm, TI. NYSM 35721, RM 24–42, Summer 1988, NYDEC. [10]

Belonidae – Needlefishes

102. *Strongylura marina* (Walbaum, 1792)
– Atlantic needlefish

Fairly common in the lower Hudson as far north as Poughkeepsie (Lake, 1983). Everett Nack collected one 130 mm TL at the Rip Van Winkle Bridge (RM 113.5) in 1986. (LH) [9]

103. *Tylosurus crocodilus* (Peron and Lesueur, 1821) – houndfish

A specimen of this species was collected by NYDEC at RM 21 on 21 Sep 1989. [11]

Cyprinodontidae – Killifishes

104. *Cyprinodon variegatus* Lacepède, 1803
– sheepshead minnow

AMNH 33558, Danskammer Pt., 16 Oct 1974, 34.5 mm, QLM. [1]

105. *Fundulus diaphanus* (Lesueur, 1817) – banded killifish

(LH, MH, UH). [2]

106. *Fundulus heteroclitus* (Linnaeus, 1766)
– mummichog

(LH, MH). [8]

107. *Fundulus majalis* (Walbaum, 1792) – striped killifish

NYSM 11820, RM 14, 14 Apr 1976, 71 mm, S. F. Tacopina, K. A. Kachura, and R. V. Caruso. Listed by Beebe and Savidge, 1988. [10]

Atherinidae – Silversides

108. *Labidesthes sicculus* (Cope, 1865) – brook silverside

Mohawk. (MH) [3].

109. *Membras martinica* (Valenciennes, 1835) – rough silverside

AMNH 37375, RM 42, 25 Aug 1975, 39–58

mm, TI. NYSM 3073, RM 40, 10 Jun 1975. NYSM 3074, RM 32, 11 Aug 1976. NYSM 6131, Bowline, 30 Aug 1979. NYSM 7207, Bowline, 14 Aug 1979. Seven additional lots from Bowline. NYSM 9254, Lovett, 13 Sep 1979. [8]

110. *Menidia beryllina* (Cope, 1869) – inland silverside

AMNH 39216, Rockland Co.: Sparkill Creek at Piermont, 20 Aug 1975, 22–22.5 mm, AMNH. AMNH 38901, Rockland Co.: north end of Grassy Point Bay, 30 Jul 1975, 17–27.5 mm, AMNH. AMNH 37374, RM 34, 24 Sep 1975, 31–42 mm, TI. (LH) [8]

111. *Menidia menidia* (Linnaeus, 1766) – Atlantic silverside (LH). [10]

Fistulariidae – Cornetfishes

112. *Fistularia tabacaria* Linnaeus, 1758 – bluespotted cornetfish
One specimen collected in 1981 (Young et al., 1982). [10]

Gasterosteidae – Sticklebacks

113. *Apeltes quadracus* (Mitchill, 1815) – fourspine stickleback
Common in the lower Hudson. (LH, MH) [8]

114. *Culaea inconstans* (Kirtland, 1840) – brook stickleback
Common in the old Erie Canal at Fort Plain. (MH) [5]

115. *Gasterosteus aculeatus* Linnaeus, 1758 – threespine stickleback
AMNH 37959, Bowline Road, RM 37.5, 21 Feb 1985, 41.8–55.3 mm, LMS. NYSM, 67 lots from main channel near Haverstraw, mostly from 1979. (LH) [9]

116. *Pungitius pungitius* (Linnaeus, 1758) – ninespine stickleback
CU 26314, Haverstraw beach just south of Haverstraw, 21 Jun 1954, Raney, Wolcott, Rathjen, and Miller. Greeley (1937) included it on the basis of a specimen from a tributary of Long Island Sound near Mamaroneck. (LH) [5]

Syngnathidae – Pipefishes

117. *Hippocampus erectus* Perry, 1810 – lined seahorse

AMNH 39526, RM 42, 20 Apr 1978, 104 mm TL, L. Perry. AMNH 48306, RM 42, 27 Apr 1980, 84 mm, TI. AMNH 44677, Tappan Zee Bridge. Occasional in the vicinity of the George Washington Bridge and north to Indian Point. (LH) [10]

118. *Syngnathus fuscus* Storer, 1839 – northern pipefish

Common in the lower Hudson. (LH) [9]

Serranidae – Sea Basses

119. *Centropristis striata* (Linnaeus, 1758) – black sea bass

AMNH 78927, RM 42, 4 Nov 1986, 66 mm, NAI. AMNH 78926, RM 42, 1 Nov 1986, 74 mm, NAI. NYSM 14265, RM 42, 1 Dec 1978. NYSM 14293, RM 42, 17 Oct 1978. NYSM 14316, RM 42, 30 Nov 1978. [10]

120. *Mycteroperca microlepis* (Goode and Bean, 1879) – gag

AMNH 78922, RM 42, 10 Dec 1987, 117 mm, EA. [11]

Moronidae – River Basses

121. *Morone americana* (Gmelin, 1789) – white perch

Common throughout the estuary and lower reaches of the freshwater tributaries. (LH, MH) [8]

122. *Morone chrysops* (Rafinesque, 1820) – white bass

AMNH 37281, RM 42, 18 Jan 1976, 89–110 mm, TI. AMNH 42442, Newburgh area, 2 Oct 1977, 65–68 mm, J. E. Demers. AMNH 42443, RM 41, 27–28 Mar 1980, 229 mm, D. Kassell and R. Lyons. Specimens are taken occasionally in the estuary and it was quite common in 1977 and in the fall of 1988. All three species of *Morone* were taken by Chris Lake on successive casts at Danskammer, 16 Nov 1988. (MH) [4]

123. *Morone saxatilis* (Walbaum, 1792) – striped bass

Very common throughout the tidal reach of the Hudson. Formerly significant commercial species, now the subject of coastwide moratorium on harvesting. (LH, MH) [7]

Centrarchidae – Sunfishes

124. *Ambloplites rupestris* (Rafinesque, 1817) – rock bass

Abundant in fresh waters of all parts of the watershed. (LH, MH, UH) [3]

125. *Enneacanthus gloriosus* (Holbrook, 1855) – bluespotted sunfish

Listed from a number of ponds in the Lower Hudson by Greeley (1937). Field crews from Cornell collected it in Popolopen Lake in the summer of 1988 (David Green, personal commun.). (LH) [2]

126. *Enneacanthus obesus* (Girard, 1854) – banded sunfish

Reported from Spruce Lake and Cranberry Pond by Greeley (1937). (LH) [2]

127. *Lepomis aurita* (Linnaeus, 1758) – red-breast sunfish

Common throughout the Hudson Basin. (LH, MH, UH) [2]

128. *Lepomis cyanella* Rafinesque, 1819 – green sunfish

AMNH 39507, Westchester Co.: Pocantico River, 12 Sep 1978, 35.5 mm, C. A. Beebe. AMNH 39498, same locality, 23 Sep 1978, 31–36 mm, C. A. Beebe. AMNH 45765, Orange Co.: Wallkill River, 16 Jun 1977, 53–101, AMNH. NYSM 10262, Westchester Co.: Campfire Creek Pond, 1.5 mi S of Millwood, 25 Jul 1936, R. M. Bailey, U. B. Stone, and K. F. Lagler. Introduced into the New Croton Reservoir (Greeley, 1937). (LH) [1]

129. *Lepomis gibbosa* (Linnaeus, 1758) – pumpkinseed

Common throughout the Hudson River watershed. (LH, MH, UH) [6]

130. *Lepomis gulosus* (Cuvier, 1829) – war-mouth

AMNH 48296, Orange Co.: RM 57, 2 Sep 1976, 135 mm, TI. AMNH 40735, Orange Co.: Woodbury Creek, 4 Apr 1978, 54.5 mm, AMNH. NYSM 11857, Orange Co.: Woodbury Creek, 12 Apr 1978. NYSM 11242, Bowline, 23 Nov 1977. NYSM 3974, Dutchess Co.: Saw Kill, 2 mi SE of Annandale, 14 Aug 1936, M. A. Hall. Introduced into Woodbury Creek, tributary of Moodna Creek, and the Saw Kill near Tivoli. (LH) [1]

131. *Lepomis macrochirus* Rafinesque, 1818 – bluegill

Possibly introduced. (LH, MH, UH) [1]

132. *Micropterus dolomieu* Lacepède, 1802 – smallmouth bass

Possibly introduced. (LH, MH, UH) [1]

133. *Micropterus salmoides* (Lacepède, 1802) – largemouth bass

Possibly introduced. (LH, MH, UH) [1]

134. *Pomoxis annularis* Rafinesque, 1818 – white crappie

Common in the Mohawk and upper part of the Hudson estuary. (MH) [4]

135. *Pomoxis nigromaculatus* (Lesueur, 1829) – black crappie

Possibly introduced. (LH, MH, UH) [4]

Percidae – Perches

136. *Etheostoma blennioides pholidotum* Miller, 1968 – greenside darter

AMNH 38677, 33–71 mm; 41092, 40 mm; 41982, 36.5–48 mm; 45663, 36.0 mm. All from Schoharie Creek, Schoharie Co., 1976–1979, AMNH. Recorded from a few localities in the Mohawk drainage, now quite common in Schoharie Creek. (MH) [3]

137. *Etheostoma flabellare* Rafinesque, 1819 – fantail darter

Mohawk. (MH) [3]

138. *Etheostoma olmstedii* Storer, 1842 – tessellated darter

Common throughout the drainage. (LH, MH, UH) [2]

139. *Perca flavescens* (Mitchill, 1814) – yellow perch

(LH, MH, UH). [5]

140. *Percina caprodes* (Rafinesque, 1818) – logperch

Reported from a few streams in the lower Hudson (Greeley, 1937). Common in the Great Sacandaga reservoir (C. George, personal commun.). (LH, MH, UH) [3]

141. *Percina peltata* (Stauffer, 1864) – shield darter

AMNH 41830, Ulster Co.: Rondout Creek, 19 Apr 1979, 53.5 mm, AMNH. AMNH 45619, same locality, 3 May 1977, 35.5–60 mm, AMNH. AMNH 45788, same locality, 16 Jun 1977, 54 mm, AMNH. Probably reached the lower Hudson through the Delaware–Hudson Canal. (LH) [2]

142. *Stizostedion vitreum* (Mitchill, 1818) – walleye
AMNH 48299, RM 38, 18 May 1977, 300 mm, TI. Although an important sportfish in the Mohawk River, especially below locks, it is scarce in the lower Hudson. (LH, MH) [1]

Priacanthidae – Bigeyes

143. *Pristigenys alta* (Gill, 1862) – short big-eye
AMNH 78937, RM 5, 24 Nov 1985, 34.2 mm, NAI. AMNH 78940, RM 5, 10 Nov 1987, 50.2 mm, NAI. [10]

Pomatomidae – Bluefishes

144. *Pomatomus saltatrix* (Linnaeus, 1758) – bluefish
According to Beebe and Savidge (1988), young-of-the-year are common in the lower estuary from Yonkers to just below Poughkeepsie and were taken as far north as Castleton in 1979 and 1980. (LH) [9]

Rachycentridae – Cobias

145. *Rachycentron canadum* (Linnaeus, 1766) – cobia
Known from one specimen from the mouth of the Croton River, RM 35 (Fisher, 1891). (LH) [10]

Echeneidae – Remoras

146. *Echeneis naucratis* Linnaeus, 1758 – sharksucker
NYSM 11429, Westchester Co.: Hudson River at Sing Sing, Set 1854, collector unknown. NYSM 35120, Rockland Co.: Piermont, Aug 1988, 2.5 ft, Dennis Hardy. AMNH 58771, Rockland Co.: Hudson River at Tompkins Cove, 26 Aug 1989, 485 mm, Joe Morgan. [10]

Carangidae – Jacks

147. *Caranx hippos* (Linnaeus, 1766) – crevalle jack
Common to RM 67–68 in late summer. (LH) [9]

148. *Selene setapinnis* (Mitchill, 1815) – Atlantic moonfish
AMNH 88327, RM 42, 4 Oct 1976, 58.8 mm, C. A. Beebe, TI. AMNH 88328, RM

42, 6 Oct 1978, 56.4 mm, TI. NYSM 14334, RM 42, 4 Oct 1978. NYSM 12007, RM 15, 7 Oct 1976. Occasional in the Hudson. [10]

149. *Selene vomer* (Linnaeus, 1758) – look-down
AMNH 37240, RM 14, 4 Sep 1975, 39–74 mm, TI. AMNH 20138, RM 28, Tarrytown, Aug 1953, 40 mm, D. Stramer. NYSM 14371, RM 42, 4 Oct 1978. NYSM 14333, same locality. NYSM 14266, NJ: RM 15, 16 Sep 1976. NYSM 11998, RM 13, 29 Sep 1976. Reported by Aleveras (1973) from Indian Point. [10]

150. *Trachinotus falcatus* (Linnaeus, 1758) – permit
AMNH 58772, Yonkers, $\frac{1}{3}$ mile N of City Pier, 14 Aug 1989, 22 mm, C. Letts. AMNH 59033, RM 27, 7 Aug 1989, 28.5 mm, NAI. [10]

Lutjanidae – Snappers

151. *Lutjanus griseus* (Linnaeus, 1758) – gray snapper
AMNH 29819, RM 36, 30 Sep 1967, 27 mm, Robert H. Boyle. AMNH 48303–4, RM 42, 27 Oct 1980, 66–71 mm, TI. AMNH 48305, RM 28, 21 Aug 1980, 34 mm, TI. AMNH 78925, RM 42, 4 Jun 1986, 40 mm, NAI. [11]

Gerreidae – Mojarras

152. *Eucinostomus argenteus* Baird, 1855 – spotfin mojarras
Indian Point and Bowline. LMS Reference Coll. Bowline Pond, RM 37.5, 11 Sep 1980, 53 mm, LMS. [10]

Haemulidae – Grunts

153. *Orthopristis chrysoptera* (Linnaeus, 1766) – pigfish
AMNH 78936, RM 42, Nov 1985, 111.5 mm, NAI. [10]

Sparidae – Porgies

154. *Lagodon rhomboides* (Linnaeus, 1766) – pinfish
Reported by Bath et al., 1977. Tompkins Cove, RM 40.5, 15 Sep 1969. (Allen Beebe, personal commun.). [10]

155. *Stenotomus chrysops* (Linnaeus, 1766)
– scup
RM 29 and 31, 26 Jul 1976 (Allen Beebe,
personal commun.). [10]

Sciaenidae – Drums

156. *Aplodinotus grunniens* Rafinesque, 1819
– freshwater drum
AMNH 59035, RM 84, 17 Aug 1989, 53.7
mm, NAI. [4]
157. *Bairdiella chrysoura* (Lacepède, 1803)
– silver perch
AMNH 36483, RM 36, Senasqua Beach, 1
Oct 1967, 38 mm, Robert H. Boyle. AMNH
37293, RM 42, Oct 1972, 42–46 mm, TI.
NYSM 14362, RM 42, Oct 1972. [10]
158. *Cynoscion regalis* (Bloch and Schnei-
der, 1801) – weakfish
Common summer resident. [9]
159. *Leiostomus xanthurus* Lacepède, 1802
– spot
Common in some years. (LH) [9]
160. *Menticirrhus saxatilis* (Bloch and
Schneider, 1801) – northern kingfish
AMNH 123145, RM 28, 22 Sep 1984, 15.9
mm, C. Letts. NYSM 12016, RM 14, 9 Sep
1976. [10]
161. *Micropogonias undulatus* (Linnaeus,
1766) – Atlantic croaker
AMNH 37248, RM 38, 16 Nov 1973, 215
mm, TI. AMNH 35955, RM 33, 19 Oct 1976,
12–20 mm, R. C. Roberts. AMNH 55878SD,
RM 12, 25 Apr 1979, A. Beebe. NYSM 3537,
RM 39, 27 Nov 1979. NYSM 8560, Bowline,
25 Oct 1979. NYSM 13593, RM 29, 19 Oct
1976, NYSM 14267, RM 27, 20 Nov 1977.
NYSM 14311, RM 42, 3 Nov 1973. [10]

Chaetodontidae – Butterflyfishes

162. *Chaetodon capistratus* Linnaeus, 1758
– foureye butterflyfish
Reported by Cathy Drew from Pier 26, Man-
hattan, Jul 1989, verified by John Waldman,
Hudson River Foundation. [11]
163. *Chaetodon ocellatus* Bloch, 1787 –
spotfin butterflyfish
AMNH 88333, Pier 26, 16 Sep 1988, tail
damaged, Cathy Drew. Two more were col-

lected on 6 Oct 1988 at Pier 23 by Cathy
Drew. [11]

Labridae – Wrasses

164. *Tautoga onitis* (Linnaeus, 1758) – tau-
tog
AMNH 39542, RM 42–43, 9 Jun 1977, 260
mm, R. Rodgers and B. Rees. NYSM 14304,
RM 42, Feb 1973. [10]
165. *Tautoglabrus adspersus* (Walbaum,
1792) – cunner
AMNH 48289, RM 42, 29 Nov 1980, 73 mm
TL, TI. [10]

Mugilidae – Mulletts

166. *Mugil cephalus* Linnaeus, 1758 – striped
mullet
AMNH 35957, RM 36, 23 Sep 1976, 212
mm, TI. AMNH 43062, Bowline Point, 29
Jul 1977, 114–121 mm, LMS. Also six lots
in NYSM. [9]
167. *Mugil curema* Valenciennes, 1836 –
white mullet
AMNH 37243, RM 15, 2 Oct 1975, 92 mm.
AMNH 37244, RM 15, 17 Oct 1975, 63.5
mm, both collected by TI. Also 15 lots in
NYSM. [9]

Uranoscopidae – Stargazers

168. *Astroscopus guttatus* Abbott, 1860 –
northern stargazer
AMNH 39531, RM 24, 1 Oct 1974, 23.5
mm, TI. AMNH 88330, Hudson River near
Piermont, 5 Aug 1980, 15.8 mm. NYSM
14103, RM 42, 7 Sep 1980. An additional
individual was collected by C. Letts at Kings-
land Point Park, North Tarrytown in Nov
1985. [10]

Blenniidae – Combtooth Blennies

169. *Hypsoblennius ionthas* (Jordan and
Gilbert, 1882) – freckled blenny
AMNH 57015, RM 43, 22–23 Nov 1985,
Paul Geoghegan, 54 mm, NAI. [11]

Pholidae – Gunnels

170. *Pholis gunnellus* (Linnaeus, 1758) – rock
gunnel

AMNH 78928, RM 42, 11 Feb 1985, 100 mm, NAI. [10]

Ammodytidae – Sand Lances

171. *Ammodytes americanus* DeKay, 1842 – American sand lance
AMNH 48285, RM 42, 26 Jan 1979, 130 mm. AMNH 48205, RM 42, 13 Apr 1979, 107 mm, both collected by TI. [9]

Eleotridae – Sleepers

172. *Dormitator maculatus* (Bloch, 1785) – fat sleeper
AMNH 37295, RM 52, 1 Nov 1973, 53.5 mm, TI. NYSM 14252, RM 42, 19 Nov 1973. [11]

Gobiidae – Gobies

173. *Gobiosoma bosc* (Lacepède, 1798) – naked goby
AMNH 78924, RM 42, 8 Dec 1986, 34.1 mm. AMNH 78941, RM 38, 23 Sep 1987, 36.2–37.0 mm. AMNH 78942, RM 39, 23 Sep 1987, 34.9–36.9 mm. AMNH 78943, RM 42, 24 Sep 1987, 36.2–38.5 mm. AMNH 79844, RM 34, 24 Sep 1987, 33.1 mm. AMNH 78945, RM 43, 24 Sep 1987, 32.4 mm. AMNH 78946, RM 44, 24 Sep 1987, 30.2 mm, all collected by NAI. [9]
174. *Gobiosoma ginsburgi* Hildebrand and Schroeder, 1928 – seaboard goby
AMNH 88325, RM 31, 18 Nov 1974, 24.7 mm, TI. AMNH 88326, RM 36, 13 Nov 1980, 17.7 mm. Recorded by Bath et al., 1977. Beebe and Savidge reproted this species from Croton-Haverstraw. [10]

Trichiuridae – Cutlassfishes

175. *Trichiurus lepturus* Linnaeus, 1758 – Atlantic cutlassfish
AMNH 78934, RM 42, 19 Aug 1985, 165 mm TL, NAI. [10]

Scombridae – Mackerels

176. *Scomber scombrus* Linnaeus, 1758 – Atlantic mackerel
AMNH 48307, RM 44, 16 Jun 1977, 440 mm TL, TI. AMNH 29812, Stony Point, 9 Dec 1969, 193 mm, A. Lent and C. White. AMNH 88332, RM 42, 13 Aug 1979, 147.5–

150.0 mm. NYSM 23691, Bowline, 12 Jul 1979. [10]

177. *Scomberomorus maculatus* (Mitchill, 1815) – Spanish mackerel
AMNH 59034, RM 25, 19 Sep 1989, 165 mm SL, NAI. A second specimen was collected at RM 16, 21 Sep 1989 by NYDEC. [10]

Sphyraenidae – Barracudas

178. *Sphyraena borealis* DeKay, 1842 – northern sennet
AMNH 78931, RM 18, 15 Jul 1986, 59.2 mm, James Reichle, NAI. [10]
179. *Sphyraena gauchancho* Cuvier, 1829 – guaguanche
AMNH 78935, RM 42, 8 Nov 1987, 142 mm, NAI. [10]

Stromateidae – Butterfishes

180. *Peprilus triacanthus* (Peck, 1804) – butterfish
AMNH 55718, RM 28, 12 May 1985, 216 mm TL, Tom Lake. AMNH 55606, Tappan Zee Bridge, 22 Aug 1984, 87–89 mm, J. O'Connor. AMNH 37299, RM 30, 24 Aug 1972, 80 mm, TI. NYSM 13594, RM 33, 5 Oct 1976. NYSM 14107, RM 35, 28 May 1980. (LH) [10]

Cottidae – Sculpins

181. *Cottus cognatus* Richardson, 1836 – slimy sculpin
In colder parts of tributary streams. (LH, MH, UH) [5]
182. *Hemitripterus americanus* (Gmelin, 1789) – sea raven
Listed from West Point by Beebe and Savidge (1988). Specimens needed. [10]
183. *Myoxocephalus aeneus* (Mitchill, 1814) – grubby
AMNH 36541, RM 42.3, 24 Jan 1977, 88 mm, TI. AMNH 36542, RM 42, 8 Jan 1977, 67 mm, TI. [9]
184. *Myoxocephalus octodecemspinosus* (Mitchill, 1815) – longhorn sculpin
AMNH 29814, Rockland Co.: Stony Point, 12 Dec 1967, 215 mm, A. Lent and C. White.

AMNH 29821, same locality, 29 Nov 1966, 220 mm, A. Lent and Robert H. Boyle. [10]

Triglidae – Searobins

185. *Prionotus carolinus* (Linnaeus, 1771) – northern searobin

AMNH 39528, RM 42–43, 20 Sep 1977, 225 mm TL, TI. NYSM 12099, RM 15, 8 Aug 1975. NYSM 14264, NJ: RM 15, 17 Aug 1978. NYSM 14277, RM 13, 17 Aug 1978. NYSM 14346, RM 42, 2 Jul 1977. [10]

186. *Prionotus evolans* (Linnaeus, 1766) – striped searobin

AMNH 37279, RM 42, 25 Aug 1972, 77 mm, TI. Also 13 lots in NYSM. [10]

Cyclopteridae – Snailfishes

187. *Liparis atlanticus* (Jordan and Evermann, 1898) – seasnail

Specimens needed. [10]

Dactylopteridae – Flying Gurnards

188. *Dactylopterus volitans* (Linnaeus, 1758) – flying gurnard

Reported by Beebe and Savidge (1988) from Indian Point. [11]

Bothidae – Lefteye Flounders

189. *Citharichthys arctifrons* Goode, 1880 – Gulf Stream flounder

Bath et al., 1977. [10]

190. *Etropus microstomus* (Gill, 1865) – smallmouth flounder

AMNH 48300, RM 42, 10 Dec 1978, 72 mm, TI. AMNH 48301, NJ: RM 16, 3 Sep 1980, 42 mm TL, TI. AMNH 88329, RM 29, 8 Aug 1979, 12.5 mm. NYSM 14104, RM 42, 12 Jul 1978. [10]

191. *Paralichthys dentatus* (Linnaeus, 1766) – summer flounder (fluke)

Common in the lower Hudson. (LH) [9]

192. *Paralichthys oblongus* (Mitchill, 1815) – fourspot flounder

AMNH 59044, NJ: Edgewater, RM 13, 25 Apr 1990, 336 mm TL, R. Ingold. NYSM 14258, RM 42, 29 Apr 1975. There is a photograph by Tom Lake of an individual caught at RM 27, 12 May 1985, in a crab trap owned

by Hank Bickert. Beebe and Savidge (1988) reported this species from Tappan Zee. [10]

193. *Scophthalmus aquosus* (Mitchill, 1814) – windowpane

Bath et al., 1977. Beebe and Savidge recorded it from Yonkers to Kingston. [9]

Pleuronectidae – Righteye Flounders

194. *Pseudopleuronectes americanus* (Walbaum, 1792) – winter flounder

Common in the Lower Hudson. (LH) [9]

195. *Limanda ferruginea* (Storer, 1839) – yellowtail flounder

AMNH 48288, RM 16, 18 May 1974, 11 mm, TI. [10]

Soleidae – Soles

196. *Trinectes maculatus* Bloch and Schneider, 1801 – hogchoker

AMNH 78930, 3 spec., RM 136, 11 Nov 1986, 50.9–71.1 mm, NAI. AMNH 78932, 3 spec., RM 138, 11 Nov 1986, 46.3–47.3 mm, NAI. AMNH 78947, RM 138.5, 11 Nov 1986, 43.1 mm, NAI. Common in the lower Hudson, north to Albany. [8]

Balistidae – Leatherjackets

197. *Aluterus schoepfi* (Walbaum, 1792) – orange filefish

AMNH 21552SD, New York Co.: Hudson River, 21 Aug 1966, C. Rubens. AMNH 88324, RM 29, 9 Sep 1987, 149.1 mm, NAI. [10]

198. *Monacanthus hispidus* (Linnaeus, 1766) – planehead filefish

AMNH 78933, RM 42, 16 Nov 1985, 77.2 mm, NAI. [11]

Tetraodontidae – Puffers

199. *Lagocephalus laevis* (Linnaeus, 1766) – smooth puffer

NYSM 2441, Hudson River off Sing Sing, 1848, Joakin Urmey. [11, 10?]

200. *Sphoeroides maculatus* (Bloch and Schneider, 1801) – northern puffer

AMNH 39532, RM 34, 12 Aug 1975, 13.5 mm TL. AMNH 88301, Edgewater, Jun 1988, 193 mm, R. Ingold. [10]

Diodontidae – Porcupinefishes

201. *Chilomycterus schoepfi* (Walbaum, 1792) – striped burrfish

Reported from the river in 1981, specimens needed. [10]

The following species have been recorded from waters contiguous to the Hudson River drainage.

Notropis chalybaeus (Cope, 1869) – iron-color shiner

Hackensack River (Greeley, 1937). (LH) [2]

Acantharchus pomotis (Baird, 1855) – mud sunfish

Reported by Greeley (1937) from the Hackensack River. (LH) [2]

Percina maculata (Girard, 1860) – blackside darter

This species has been recorded from tributaries of Oneida Lake very close to the upper Mohawk River. AMNH 42712, Oneida Co., trib. to Wood Creek at Seifert Corners, 28 Jun 1979, 14–29 mm, AMNH. AMNH 43695, Oneida Co., West Br. Fish Creek 2 mi N McConnellsville, 13 Aug 1979, 33.5–38 mm, AMNH. [4]

Several reports have listed johnny darters, black bullheads, and longear sunfishes from the Hudson basin. The johnny darter, *Etheostoma nigrum*, is a midwestern species of which the tessellated darter was formerly considered a subspecies. The true *E. nigrum* does not occur in the Hudson. The black bullhead, *Ictalurus melas*, is also a midwestern species that reaches its northeastern limit in Lake Ontario drainage. There is a remote possibility that the black bullhead has been introduced into the Hudson, but we have been unable to find specimens for verification. The longear sunfish, *Lepomis megalotis*, reaches its eastern limit in western New York State. Records from the Hudson are probably based on hybrids between *Lepomis aurita* and *L. gibbosa* which resemble longear sunfish. Also, the redbreast sunfish is sometimes known as the eastern longear although this name is not recognized by the American Fisheries Society.

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We dedicate this paper to Robert H. Boyle, whose love of the river has been an inspiration to us all.

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