

Delaware River Seine Survey: 2011 Sampling Summary



Fish and Wildlife employees recording catch data during 2011 sampling

From June 13 to November 22, 2011, biologists conducted the Delaware River Seine Survey. Over the course of these six months, crews hauled 291 individual seines. In total, 41,326 fish were caught, averaging 142 fish per haul. The five most abundant species caught were: blueback herring, white perch, American shad, banded killifish and Atlantic menhaden.

Common Name	Total Number	Relative Abundance	Frequency of Occurrence
Blueback Herring	11,429	27.656%	61.512%
White Perch	6,150	14.882%	72.165%
American Shad	5,478	13.256%	69.759%
Banded Killifish	2,901	7.020%	50.859%
Atlantic Menhaden	2,816	6.814%	13.402%
Bay Anchovy	2,735	6.618%	25.773%
Striped Bass	1,983	4.798%	62.199%
Spottail Shiner	1,899	4.595%	45.361%
Eastern Silvery Minnow	1,574	3.809%	37.113%
Gizzard Shad	833	2.016%	28.522%
Atlantic Silverside	812	1.965%	19.931%
Mummichog	713	1.725%	34.364%
Rough Silverside	443	1.072%	10.653%
Tessellated Darter	354	0.857%	16.838%
Alewife	325	0.786%	11.684%
Hogchoker	311	0.753%	18.213%
Bluegill Sunfish	97	0.235%	11.684%
Channel Catfish	92	0.223%	16.495%
Blue Crab	69	0.167%	14.433%
Bluefish	57	0.138%	6.873%
Pumpkinseed Sunfish	43	0.104%	7.904%
Atlantic Croaker	23	0.056%	1.375%
Golden Shiner	21	0.051%	5.155%
Yellow Perch	18	0.044%	4.467%
American Eel	17	0.041%	3.436%
White Sucker	14	0.034%	3.093%
Weakfish	13	0.031%	2.062%
Herring Species	12	0.029%	0.344%
Atlantic Needlefish	11	0.027%	2.749%
Shiner/Minnow Species	11	0.027%	0.344%
Hickory Shad	10	0.024%	2.405%
Carp	8	0.019%	2.405%
Brown Bullhead	7	0.017%	1.718%
Spot	7	0.017%	1.031%
Inland Silverside	5	0.012%	1.031%
Largemouth Bass	5	0.012%	1.375%
Striped Anchovy	5	0.012%	0.687%
Goldfish	4	0.010%	1.031%
Silver Perch	4	0.010%	0.687%
Comely Shiner	3	0.007%	0.344%
Crevalle Jack	3	0.007%	1.031%
Summer Flounder	2	0.005%	0.344%
Black Crappie	1	0.002%	0.344%
Black Drum	1	0.002%	0.344%
Fallfish	1	0.002%	0.344%
Four-spined Stickleback	1	0.002%	0.344%
Green Sunfish	1	0.002%	0.344%
Rock Bass	1	0.002%	0.344%
Smallmouth Bass	1	0.002%	0.344%
Striped Killifish	1	0.002%	0.344%
Walleye	1	0.002%	0.344%
Grand Total	41,326	100.000%	

The primary target species of this survey is striped bass. In 2011, this species was the seventh most abundant fish caught. In total, 1,983 striped bass were caught and 1,892 of those were young-of-year striped bass. This means that 95% of the striped bass caught were less than 1 year old.



Young-of-Year striped bass

During 2011, several species yielded significantly lower catches than in 2010. The table below shows which species had the most significant decreases:

Species	Total Number Caught		
	2010	2011	% Decrease
Atlantic Menhaden	11,974	2,816	76.5%
Bluefish	161	57	64.6%
Spot	737	7	99.1%

These decreases **do not** mean that the species are at risk – these species had higher than normal catches during 2010. Another detail that could have contributed to these lower numbers is the fact that in 2010 biologists sampled 320 hauls, but only 291 hauls in 2011.

During 2011, several species yielded higher than normal catches. The table below lists the species with the greatest increases:

Species	Total Number Caught	
	2010	2011
Alewife	17	325
Blueback Herring	3,203	11,429
Hickory Shad	2	10

Additional species, which nearly doubled their catches from 2010, included: American shad, bay anchovy, gizzard shad, hickory shad and striped bass.

All water quality parameters for 2011 were within normal range. Water temperatures ranged from 9.2 to 33.1 degrees Celsius. Dissolved oxygen levels ranged from 4.1 to 10.7 milligrams per liter. Salinity values ranged from 0 to 17.1 parts per thousand.

Hurricane Irene made its second landfall in New Jersey on August 28, 2011. Most of the heaviest rains and winds were felt inland from the coast. While it struck with less intensity than predicted, it led to major flooding of streams and rivers in north and central New Jersey. Grounds that were already saturated from a wetter than normal summer, could not absorb the amount of rain that fell during the storm. Debris and high water levels filled the Delaware River basin. This led to a period of 3 weeks that biologists could not sample on the river.

Overall, 2011 was an average survey year. A few normal setbacks occurred while sampling – blowout tides, flooding rains and heavy winds. These issues, combined with flooding and damage from Hurricane Irene, produced only 291 hauls, instead of the typical 320 hauls.

Hopefully 2012 will be another successful sampling year!