

# Delaware River Seine Survey: 2010 Sampling Summary



Fish and Wildlife employees recording catch data during 2010 sampling

From June 14 to November 15, 2010, biologists conducted the Delaware River Seine Survey. Over the course of these six months, crews hauled 320 individual seines. In total, 48,637 fish were caught, averaging 151 fish per haul. The five most abundant species caught were: Atlantic menhaden, Eastern silvery minnow, white perch, banded killifish and blueback herring.

| <b>Common Name</b>      | <b>Total Number</b> | <b>Relative Abundance</b> | <b>Frequency of Occurrence</b> |
|-------------------------|---------------------|---------------------------|--------------------------------|
| Atlantic Menhaden       | 11,974              | 24.619%                   | 26.563%                        |
| Eastern Silvery Minnow  | 7,725               | 15.883%                   | 43.125%                        |
| White Perch             | 5,194               | 10.679%                   | 65.313%                        |
| Banded Killifish        | 4,995               | 10.270%                   | 54.688%                        |
| Blueback Herring        | 3,203               | 6.586%                    | 34.063%                        |
| American Shad           | 2,994               | 6.156%                    | 54.688%                        |
| Spottail Shiner         | 2,735               | 5.623%                    | 44.375%                        |
| Bay Anchovy             | 1,741               | 3.580%                    | 28.125%                        |
| Mummichog               | 1,552               | 3.191%                    | 36.250%                        |
| Striped Bass            | 1,445               | 2.971%                    | 67.500%                        |
| Atlantic Silverside     | 1,242               | 2.554%                    | 32.500%                        |
| Spot                    | 737                 | 1.515%                    | 26.875%                        |
| Gizzard Shad            | 727                 | 1.495%                    | 28.750%                        |
| Rough Silverside        | 565                 | 1.162%                    | 15.313%                        |
| Inland Silverside       | 374                 | 0.769%                    | 16.250%                        |
| Hogchoker               | 299                 | 0.615%                    | 16.250%                        |
| Tessellated Darter      | 205                 | 0.421%                    | 17.500%                        |
| Blue Crab               | 201                 | 0.413%                    | 25.625%                        |
| Bluefish                | 161                 | 0.331%                    | 15.938%                        |
| Bluegill Sunfish        | 139                 | 0.286%                    | 13.438%                        |
| Channel Catfish         | 101                 | 0.208%                    | 19.375%                        |
| Pumpkinseed Sunfish     | 78                  | 0.160%                    | 9.063%                         |
| Atlantic Croaker        | 54                  | 0.111%                    | 2.813%                         |
| Atlantic Needlefish     | 23                  | 0.047%                    | 4.688%                         |
| Golden Shiner           | 21                  | 0.043%                    | 2.813%                         |
| Carp                    | 18                  | 0.037%                    | 5.000%                         |
| Alewife                 | 17                  | 0.035%                    | 3.750%                         |
| American Eel            | 16                  | 0.033%                    | 3.125%                         |
| White Sucker            | 15                  | 0.031%                    | 3.125%                         |
| Largemouth Bass         | 10                  | 0.021%                    | 2.188%                         |
| Brown Bullhead          | 9                   | 0.019%                    | 1.563%                         |
| Striped Anchovy         | 9                   | 0.019%                    | 0.938%                         |
| Yellow Perch            | 8                   | 0.016%                    | 2.188%                         |
| Black Bullhead          | 7                   | 0.014%                    | 0.313%                         |
| Black Drum              | 7                   | 0.014%                    | 1.875%                         |
| Striped Killifish       | 6                   | 0.012%                    | 0.938%                         |
| Four-spined Stickleback | 4                   | 0.008%                    | 0.938%                         |
| Smallmouth Bass         | 4                   | 0.008%                    | 1.250%                         |
| Crevalle Jack           | 3                   | 0.006%                    | 0.938%                         |
| Comely Shiner           | 2                   | 0.004%                    | 0.313%                         |
| Hickory Shad            | 2                   | 0.004%                    | 0.625%                         |
| Northern Pipefish       | 2                   | 0.004%                    | 0.313%                         |
| Summer Flounder         | 2                   | 0.004%                    | 0.625%                         |
| Weakfish                | 2                   | 0.004%                    | 0.625%                         |
| White Catfish           | 2                   | 0.004%                    | 0.625%                         |
| Brown Trout             | 1                   | 0.002%                    | 0.313%                         |
| Fallfish                | 1                   | 0.002%                    | 0.313%                         |
| Goldfish                | 1                   | 0.002%                    | 0.313%                         |
| Naked Goby              | 1                   | 0.002%                    | 0.313%                         |
| Spotfin Shiner          | 1                   | 0.002%                    | 0.313%                         |
| Sunfish Species         | 1                   | 0.002%                    | 0.313%                         |
| Walleye                 | 1                   | 0.002%                    | 0.313%                         |
| <b>Grand Total</b>      | <b>48,637</b>       | <b>100.000%</b>           |                                |

The primary target species of this survey is striped bass. In 2010, this species was the tenth most abundant fish caught. In total, 1,445 striped bass were caught and 1,317 of those were young-of-year striped bass. This means that 91% of the striped bass caught were less than 1 year old.



Young-of-Year striped bass

During 2010, several species yielded higher than normal catches. Atlantic menhaden catches ranked third highest in the time series with 11,974 fish. This was nearly four times the catch in 2009. Bluefish catches doubled from 2009, with a total of 161 fish caught. This was the fourth highest catch in the time series. Spot catches are gradually increasing across the time series. Total numbers went from 13 in 2009 to 737 in 2010, which was sixth highest in the time series.

Two unique fish, which had never been caught during the history of this survey, were caught during the 2010 sampling period: a fallfish and a brown trout. Both are species of freshwater fish. Both fish were caught in Region 3 on October 6, 2010. The fallfish was caught at the Cornwells Heights station, and the brown trout was caught at the Burlington Island station. Below are some distinguishing characteristics of each species:

## FALLFISH

- large scales
- large eyes
- moderately compressed body
- long, rounded snout slightly overhanging a large mouth
- dorsal fin over or slightly behind pelvic fin
- 8 dorsal and anal rays
- young: black stripe on side, dark caudal spot
- olive/gold-brown above
- dark stripe along back
- bright silver sides
- black bar along back of gill cover
- grow up to 20 ¼ inches
- largest native minnow in eastern North America



98 mm fallfish caught during 2010 sampling

## BROWN TROUT

- dark spots (brown on upper body, orange on sides and red & black on head) surrounded by pale halos (typically bluish)
- olive/dark brown above, white to yellow below
- some spots on upper part of caudal fin
- nearly straight edge caudal fin
- orange/red adipose fin
- adults: mouth reaches center of eye, extends well behind rear of eye in larger fish
- teeth present
- typically 9-11 anal rays
- grow up to 4 ½ feet, 110 pounds (rarely more than 10 pounds)
- natural occurrence is rare in New Jersey



75 mm brown trout caught during 2010 sampling

All water quality parameters for 2010 were within normal range. Water temperatures ranged from 8.8 to 30.9 degrees Celsius. Dissolved oxygen levels ranged from 2.1 to 11 milligrams per liter. Salinity values ranged from 0 to 12 parts per thousand.

Overall, 2010 was a typical survey year. There were no drought or flooding conditions to affect the catches, and other outside environmental influences were at a minimum. Hopefully 2011 will be another successful sampling year!