NJDEP Division of Fish and Wildlife
Bureau of Freshwater Fisheries

Bureau Highlights 2014

The Bureau of Freshwater Fisheries conducted 216 surveys throughout the state in 2014, to address a variety of recreational and resource management needs, including response to emerging fisheries issues. 178 surveys were conducted at 118 waterbodies in which fish were collected, with over 40,000 fish representing 70 species identified and enumerated by state fisheries biologists. These surveys were conducted to satisfy a wide variety of projects, putting staff in the smallest of our streams in search of wild Brook Trout, to the warmwater expanse of Lake Hopatcong to assess Largemouth Bass, Smallmouth Bass, Muskellunge, and Walleye, and to the depths of Round Valley Reservoir to monitor its reproducing Lake Trout population. Most surveys are used to monitor populations, provide data for potential regulation or management changes, assess stocking programs, map the distribution of rare native fishes, and document or control populations of invasive fishes/aquatic plants.

Of the 178 fisheries surveys conducted in 2014, 69 were stream electrofishing surveys. These surveys contribute valuable data used for multiple projects and fisheries management functions, including the classification of New Jersey's surface waters within the Department's Surface Water Quality Standards N.J.A.C. 7:9B. This system is the regulatory cornerstone that helps protect our critical watersheds. These assessments use important stream health indicators such as the presence of Brook, Brown, and Rainbow Trout to identify high water quality and critical habitat areas. Six surveys produced results that warrant upgrades to current classifications. The most significant of these upgrades is on the Lamington (Black) River, where documentation of trout reproduction in its headwaters and a section downstream of the existing *trout production* segment, which are currently classified as *non-trout*. Fifty surveys conducted confirmed existing stream classifications.

Fish and Wildlife has documented reproducing trout populations in nearly 200 streams (or stream segments) statewide, but only a handful of these are currently designated as *Wild Trout Streams*. These 36 streams are not stocked with hatchery trout, but rather rely upon the wild, naturally reproducing trout populations inhabiting these streams to provide a recreational fishery. The *Wild Trout Stream* regulation, which is more stringent than the statewide general trout regulation, has changed little since it was adopted in 1990. In 2014, the Bureau of Freshwater Fisheries conducted 46 electrofishing surveys on sections of all 36 designated *Wild Trout Streams*, yielding 3,137 trout, with a mean of 68 trout per survey. Brown Trout were by far the most abundant trout species caught (65% of total), followed by Brook Trout (25%), Rainbow Trout (10%). The data collected on the *Wild Trout Streams*, as well as data from other streams having naturally reproducing trout populations, will be further analyzed to evaluate the current *Wild Trout Stream* regulation and determine if changes are warranted.

In September of 2013, furunculosis, a disease primarily affecting cold water species of fish such as trout, was discovered affecting the trout in the raceways at the Division's Pequest Trout Hatchery for the first time in the hatchery's 31 year history. The disease is caused by the

bacterium *Aeromonas salmonicida* (ultimately, 220,000 trout had to be euthanized). This bacterium is considered an obligate pathogen, meaning it requires a fish host in order to survive. Osprey feeding on infected fish in the wild may have spread the bacteria through contact with trout at the hatchery.

The Division implemented a plan to control the disease at the hatchery and it was necessary to modify the trout stocking program in order to conserve and protect our wild trout resources and other year round trout fisheries. The losses, coupled with restrictions on the use of Brown Trout that were treated for the disease resulted in significant changes to the Division's 2014 Spring Trout Stocking Program. As a result, the spring baseline of 570,000 trout was not met.

In 2014, nineteen state and privately stocked waters were electrofished in late spring in response to the hatchery outbreak. Trout and warmwater fish species encountered were carefully inspected for visible lesions and symptomatic fish were submitted to Division Fish Pathologist for further inspection and/or testing. Although the South Branch of the Raritan River upstream of the Lake Solitude Dam was not stocked by the Division in 2014, a few symptomatic fish collected in the Ken Lockwood Gorge, tested positive for the bacteria. No evidence of furunculosis was found at other locations. The effort put forth monitoring fish heath reaped additional benefits, such as gathering information on bass populations. In order to minimize future impacts, the Division is currently raising all Rainbow Trout, as they were less vulnerable to succumbing to the bacterial disease than Brook and Brown Trout.

Lake Hopatcong, New Jersey's largest lake at 2,686 acres, was the subject of an extensive sampling and data analysis effort spanning 2013 – 2014 (22 field days). Fish capture techniques utilized include boat electrofishing, seining, trapnetting, and gillnetting. The product of this endeavor is a report that will guide a balanced management strategy for the lake's fisheries resource. Lake Hopatcong has one the highest species diversities in the state with 28 species documented during the survey. Many species have been introduced for recreational purpose (Largemouth Bass, Walleye, Muskellunge, etc.), however a few of New Jersey's rare native species still inhabit these nutrient rich waters (Bridle Shiner and Bluespotted Sunfish). Lake Hopatcong's recreational use is as diverse as the fish population. Recreational boaters, water skiers, wave runners, anglers, swimmers and lake residents all play an integral part in the management of the lake.

This year also marked the second year of the Coolwater Fisheries Assessment. This multi-year project will evaluate trophy coolwater fisheries for Muskellunge, Northern Pike, Walleye, and Hybrid Striped Bass. These fisheries are primarily maintained by annual stockings of fish reared at the Division's Hackettstown State Fish Hatchery. Four waterbodies were the selected for trap netting surveys this year. Northern Pike were targeted at Farrington Lake and Pompton Lake, while Walleye and Muskellunge were targeted at Lake Hopatcong and Monksville Reservoir. Data indicate viable fishing opportunities at all four lakes, with Lake Hopatcong standing above the rest with high numbers and large sizes of both Muskellunge and Walleye. In fact, all but 2 of the 71 Walleye exceeded the minimum harvestable size of 18 inches.

Largemouth Bass are the most popular and widely distributed of the state's game species. New Jersey has over 400 impoundments open to the general public for fishing and thousands more in

private ownership scattered throughout the state. These lentic environments offer excellent fishing opportunities for a variety of species such as bass, sunfish, crappie, and pickerel. These species naturally reproduce in these waterways and often do not require active stocking to sustain their populations. The Bureau of Freshwater Fisheries conducted electrofishing surveys at 21 lakes and ponds throughout the state to assess the status of their fisheries. Crews also collected fish with a 20 ft. seine to assess the reproductive success of warmwater species at 23 lakes and ponds.

In 2014, the Bureau's stream temperature monitoring program was expanded to 31 thermographs (instruments that continuously monitor temperature), deployed on 17 recreationally important trout streams and 5 small streams having populations of wild Brook Trout. Both water and air temperatures are recorded in wild Brook Trout streams as part of an Eastern Brook Trout Joint Venture initiative to assess climate change. The temperature data will be used to assess current habitat conditions, evaluate long term trends, determine if ambient water quality is consistent with surface water quality standards, and aid in the management of coldwater fisheries.

In 2012, eleven freshwater coastal lakes suffered the wrath of Hurricane Sandy, as record setting high tides inundated these freshwater systems with saltwater, sediment and debris, often resulting in mortality of freshwater fish. Salinity levels were monitored over time. Fortunately, abundant spring rains in 2013 greatly assisted in the recovery of several of these waters and they were re-stocked with suitable freshwater fishes. In 2013, Deal Lake, Sunset Lake, and Lake of the Lillies were able to be restocked. In 2014, salinity checks were conducted at Silver Lake, Lake Como, Spring Lake, Carteret Park Pond, and Wesley Lake. All were found to have recovered from Hurricane Sandy and were stocked with warmwater fish. Hooks Creek Lake in Cheesequake State Park did not fare as well. Water quality and reproduction checks wer repeated this year to determine its state of recovery. Salinity has decreased since the storm going from 11.8 ppt in January of 2013, to 9.6 ppt in June of 2013, to 3.8 ppt in on June 1, 1014. Biologists will continue to monitor salinity levels to determine when they are adequate to restock (<0.5 ppt).

The efforts of full-time Bureau personnel are complemented by a dedicated and talented seasonal staff, who provide incredible insight, enthusiasm, and the labor which is vital to raising fish at our fish hatcheries, conducting fisheries surveys statewide, and performing countless tasks that help maintain and enhance New Jersey's freshwater fisheries resources.

The Bureau's work is made possible by both the dedicated monies of the Hunter and Anglers Fund and the Sport Fish Restoration Program.

The Bureau's 2014 annual field report describes a host of other field work and activities conducted by the Bureau of Freshwater Fisheries, as well as, greater detail of projects highlighted above.