

NJDEP Division of Fish and Wildlife Bureau of Freshwater Fisheries

Bureau Highlights 2015

The Bureau of Freshwater Fisheries conducted 243 surveys throughout the state in 2015, to address a variety of recreational and resource management needs, including response to emerging fisheries issues. A total of 225 surveys were conducted at 127 waterbodies in which fish were collected. Of the 127 waterbodies, 71 were streams/rivers, while 56 were ponds/lakes. Over 59,000 fish representing 73 species were identified and enumerated by state fisheries biologists in 2015. Surveys were conducted to satisfy a wide variety of projects, ranging from electrofishing surveys at 27 lakes to evaluate Largemouth Bass populations to the assessment of 47 streams as candidates for Wild Trout Stream regulations. Coolwater fisheries assessments were conducted at 8 lakes, while a fisheries management inventory was conducted at Union Lake. Most surveys are used to monitor populations, assess stocking programs, map the distribution of rare native fishes, provide data for potential management or regulatory changes, and to document or control populations of invasive fishes/aquatic plants.

Of the 225 fisheries surveys conducted in 2015, 81 were standardized 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 Brook, Brown, and Rainbow Trout to identify high water quality and critical habitat areas. Thirteen surveys produced results that warrant upgrades to current classifications, 12 of which are recommendations to *Trout Production*. Fifty-two surveys conducted confirmed existing stream classifications.

NJDFW has documented reproducing trout populations in nearly 200 streams (or stream segments) statewide, but only a handful of these (36) 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. Data collection efforts continued in 2015 and an additional 47 surveys were conducted on 38 streams. 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 NJDFW's Pequest Trout Hatchery for the first time in the hatchery's 31 year history. Although the disease resulted in significant changes to NJDFW's 2014 Spring Trout Stocking Program, the 2015 season was back on track

as the spring baseline of 570,000 trout and the 25,000 trout were stocked in the fall and winter. In order to minimize future impacts, NJDFW is currently raising all Rainbow Trout, as they were less vulnerable to succumbing to the bacterial disease than the hatchery's Brook and Brown Trout.

The effort put forth conducting various research and management activities enables the Bureau to monitor fish health across the state. Trout and warmwater fish species encountered during sampling are carefully inspected for visible lesions and symptomatic fish were submitted to NJDFW's Fish Pathologist for further inspection and/or testing. No evidence of furunculosis or any other significant pathogens were found by Bureau staff during the 2015 field season.

In 2015, the Bureau's stream temperature monitoring program was expanded to 39 thermographs (instruments that continuously monitor temperature), deployed on 17 recreationally important trout streams (page 37) and 14 small streams having reproducing trout populations (page 40). 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, including evaluation of stocking practices and fishing regulations.

This year also marked the third 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 NJDFW's Hackettstown State Fish Hatchery. In 2015 seven waterbodies were selected for trap netting surveys (Canistear Reservoir, Furnace Lake, Manasquan Reservoir, Mercer Lake, Monksville Reservoir, Spruce Run Reservoir, and Swartswood Lake). Target species included Muskies, Northern Pike, Walleye, and Hybrid Striped Bass. A total of 73 trap nets, 9 overnight gill net sets, and 5 nights of boat electrofishing were utilized to capture the target species of interest from each waterbody. Furnace, Monksville, Spruce Run, and Swartswood, produced the highest numbers of target species, while additional data are necessary to assess the status of the fisheries at Canistear, Manasquan, and Mercer.

Union Lake, the largest lake in southern New Jersey at 898 acres, was the subject of an extensive sampling and data analysis effort spanning 2015 (11 field days). Fish capture techniques utilized include boat electrofishing, seining, and gill netting. The product of this endeavor is a report that will guide a balanced management strategy for the lake's fisheries resource. Union Lake has one of the highest species diversities for impoundments in the state. Twenty-five species, representing thirteen families and ten orders were collected during the 2015 sampling at this lake. Many of the species have been introduced for recreational purposes, however, a few of New Jersey's rarer native species (i.e. Bluespotted Sunfish, Pirate Perch, and Swamp Darter) also inhabit these waters. The most abundant species collected during seining was Largemouth Bass, representing 22% of the total catch. Largemouth Bass were also the most abundant game species collected during electrofishing. Panfish (Bluegill, Yellow Perch, and White Perch) were found in similar abundance during electrofishing surveys.

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, however, does conduct periodic sampling to assess current populations. The Bureau of Freshwater Fisheries conducted electrofishing surveys at 27 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 21 lakes and ponds. These data are used to determine if supplemental stockings are warranted.

Significant progress was made this year in the assessment and protection of our state's native fishes. A formal review process led by the NJDFW's Endangered and Nongame Species Program was conducted in 2014 and 2015 to determine the status of our native freshwater fishes, known as the Delphi Technique. This is a systematic method for reaching consensus among experts by incorporating all available data and disseminating those data among all participants. Results will be used to support the listing of state Endangered, Threatened, and Special Concern, as well as identifying species that are considered to be stable and secure. The Delphi will assist NJDFW's efforts towards updating New Jersey's State Wildlife Action Plan

The Bureau of Freshwater Fisheries participated in the ten-year revision of the State Wildlife Action Plan (SWAP). The SWAP is a strategic and cost-effective mechanism to preserve the state's wildlife resources for the future. Recovery of species that have reached threatened or endangered status is typically more costly than preventative actions that keep species populations from reaching such declines. Proactive management actions identified in the SWAP are intended to keep species from becoming federally (and state) threatened and endangered. NJDFW is currently updating the New Jersey's Wildlife Action Plan (2005) as required by Congress to continue to receive federal Wildlife Grants. More importantly, New Jersey's update will serve as a blueprint for conserving our wildlife heritage. The plan will identify priority actions addressing known threats facing our targeted species and habitats that we, as a conservation community, can implement in the next ten years.

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. By 2014, with the exception of Hooks Creek Lake, all were found to have recovered from Hurricane Sandy and were stocked with warmwater fish. The salinity of Hooks Creek Lake in Cheesequake State Park finally returned to suitable levels to stock freshwater fish in the fall of 2015, as it gradually decreased from 11.8 ppt in January of 2013 to 1.12 ppt. in August of 2015. Although the effects of Hurricane Sandy will have lasting impacts on many residents of New Jersey for years to come, the current status of eleven of the twelve freshwater lakes (all but Lake Takanassee) impacted by this extreme weather event are on there way to a full recovery, as salinity levels have returned to suitable levels to support freshwater fish populations.

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, 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 2015 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.