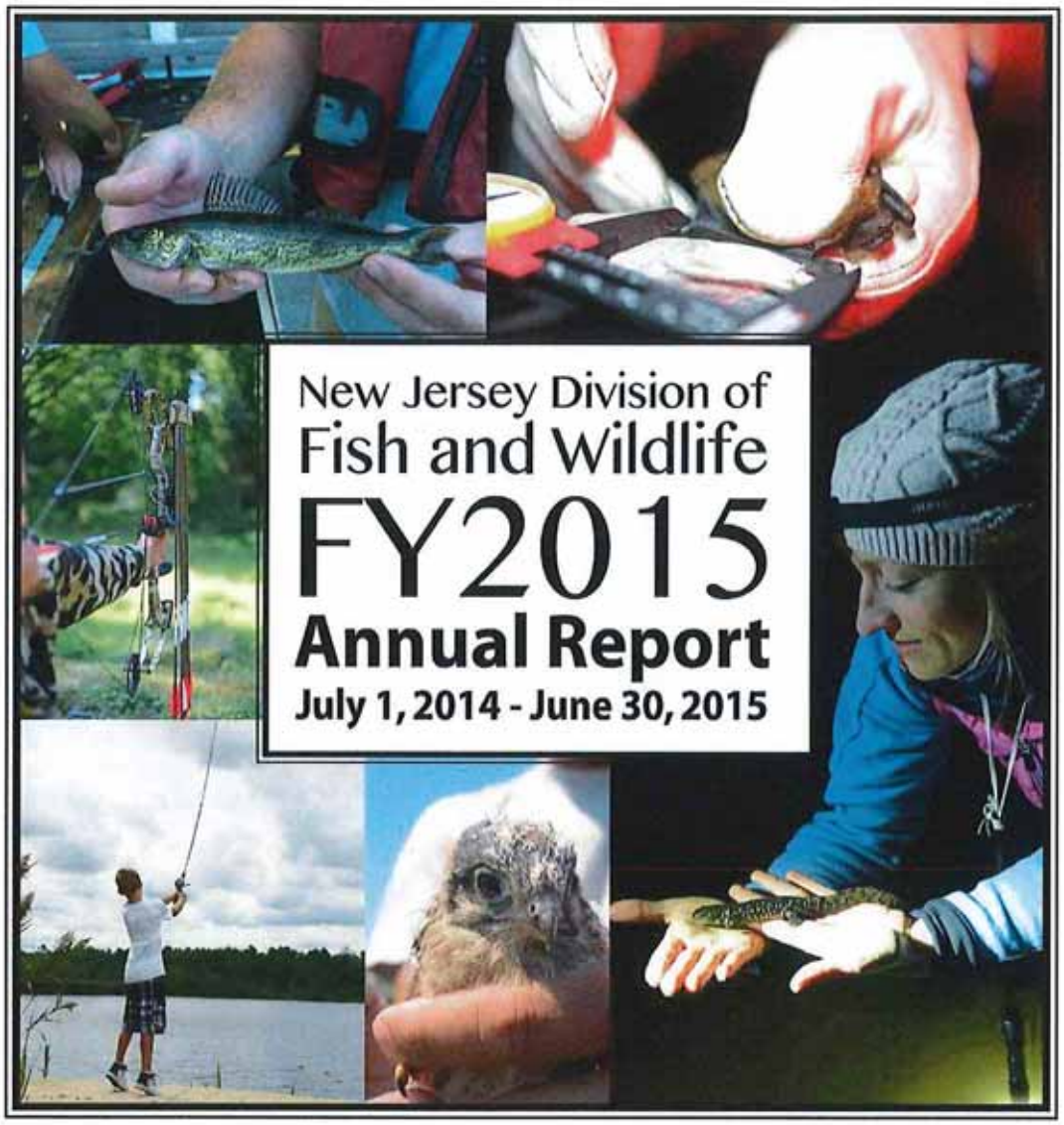

New Jersey Division of Fish and Wildlife

FY2015 Annual Report

July 1, 2014 - June 30, 2015

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State of New Jersey
Department of Environmental Protection
Division of Fish and Wilidlife

FY2015 Annual Report

State of New Jersey
Department of Environmental Protection
Division of Fish and Wildlife
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Chris Christie, Governor
Kim Guadagno, Lieutenant Governor
Bob Martin, Commissioner
Richard Boornazian, Assistant Commissioner, Natural and Historic Resources
Dave Chanda, Director

New Jersey Division of Fish and Wildlife

The New Jersey Division of Fish and Wildlife is a professional, environmental organization dedicated to the protection, management and wise use of the State's fish and wildlife resources.

Our Mission

To protect and manage the State's fish and wildlife to maximize their long-term biological, recreational and economic values for all New Jerseyans.

Our Goals

- To maintain New Jersey's rich variety of fish and wildlife species at stable, healthy levels, and protect and enhance the many habitats on which they depend.
- To maximize the wise use of New Jersey's fish and wildlife for present and future generations.
- To educate New Jerseyans on the values and needs of fish and wildlife, and to foster a positive human/wildlife co-existence.

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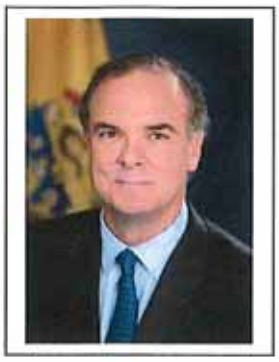


Message from DEP Commissioner Bob Martin

I am pleased to present the Department of Environmental Protection's (DEP) Division of Fish and Wildlife's Annual Report for Fiscal Year 2015 covering the period of July 1, 2014 to June 30, 2015. This report reflects the commitment Governor Christie and I share to conserving and managing these resources. As in previous years, each section begins with an overview of a Division bureau or office along with several highlights from the year. Each page features the important work our Fish and Wildlife professionals are involved in every day to protect and manage fish and wildlife, the habitats they depend upon and the variety of recreational opportunities associated with New Jersey's wild outdoors.

Professional fish and wildlife management in our State has become more complex as wildlife and people increasingly share the same space. Responsible conservation requires well-grounded, science-based decisions that are achieved through a transparent process involving everyone who cares about New Jersey's natural resources. This is the model of decision-making used by the Division of Fish and Wildlife and throughout DEP. Accountability is the core of our mission – it was true when the Department was created in 1970 and it remains our guiding principle.

New Jersey has always been a wonderful State in which to live, work and play. Our citizens enjoy a rich diversity of plants, wildlife and habitat. I am proud to lead a team of professional biologists, conservation officers, naturalists and educators who help ensure that our children and grandchildren will enjoy the same opportunities and natural wonders that we currently do.

Message from Division Director Dave Chanda

New Jersey has a rich diversity of fish and wildlife enjoyed annually by millions of residents. Our staff members are extremely proud of their accomplishments, and with good reason. This report highlights achievements of this extremely dedicated group of professionals who manage the State's wildlife on behalf of the people of New Jersey. Whether conducting surveys, monitoring endangered species, managing public open space, or enforcing the State's wildlife laws, staff members work hard to protect and manage the State's fish and wildlife.

Following are a few highlights from Fiscal Year 2015:

- In October of 2014, the Division launched an official Facebook page, which is quickly proving to be an effective way to share information with the public. Social media has allowed the Division to engage a broader audience and provide a fresh, new interactive way to connect with this audience in a conservation-based forum.

- As part of the Division's Connecting Habitat initiative, with the assistance of the South Jersey Transportation Authority, eight motion triggered cameras were installed under the Atlantic City Expressway. The cameras monitored wildlife ledges built inside several culverts beneath the roadway to provide safe and dry corridors for terrestrial species on the move.

- Conservation officers interacted with thousands of individuals this past year. In the field, they educate and redirect the actions of recreationists to ensure that people enjoy our natural resources in safe and ethical ways.

- Data from the Division's marine fisheries sturgeon receivers revealed 40,510 detections from 297 different fish. The majority of tags detected were from Atlantic sturgeon (227) followed by 50 sand tiger sharks, 1 bull shark, 1 striped bass, 1 black tip shark and 4 horseshoe crabs. This is the first time horseshoe crab tags were ever detected by New Jersey's receivers.

- The Bald Eagle Project documented 156 bald eagle nests statewide. A total of 146 adult pairs nested successfully with a record-breaking 201 young fledging from 115 nests!

These are just but a few of the examples of the work conducted by Division staff members who work steadfastly toward the conservation and management of more than 800 species of wildlife that make New Jersey their home.

I hope you will join me as we continue to conserve the State's fish and wildlife resources.

Sincerely,
Dave Chanda, Director
New Jersey Division of Fish and Wildlife

Bureau of Freshwater Fisheries
Lisa Barno, Chief

The Bureau of Freshwater Fisheries is responsible for the protection and management of the State's freshwater fisheries resource as well as promoting its recreational use. The Bureau conducts research and management surveys, classifies the State's waterways, provides technical input on a variety of watershed and habitat based issues, facilitates habitat restoration projects, serves as a liaison to a variety of conservation groups, and provides information to the general public in a variety of forums concerning New Jersey's freshwater fisheries. The Bureau also administers more than 600 permits annually to help effectively manage and protect this important resource.

Highlights

The Bureau of Freshwater Fisheries conducted 216 surveys to address a variety of recreational and resource management needs. A total of 178 surveys were conducted at 118 waterbodies. Of the 40,000 fish collected, 70 species were identified and enumerated by State fisheries biologists. Staff trekked to the smallest of streams in search of wild brook trout, to the warmwater expanse of Lake Hopatcong assessing largemouth bass, smallmouth bass, muskellunge and walleye, to the depths of Round Valley Reservoir to monitor its reproducing lake trout population. Many of the surveys are used to monitor populations, assess stocking programs, map the distribution areas of rare native fish, and document or control populations of invasive fishes/aquatic plants.

A two-year extensive sampling effort of Lake Hopatcong, New Jersey's largest lake at 2,686 acres, was concluded and a Fisheries Management Plan completed. A total of 9,647 fish, representing 28 species were collected and analyzed.

A two-year evaluation of the 36 streams currently regulated as Wild Trout Streams was initiated. These 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.

Angler counts were conducted on the Opening Day of Trout Season, April 4th, at 38 trout stocked waterbodies. Of the 33 lakes and ponds surveyed, 2,109 anglers were observed fishing (an average of 64 anglers per waterbody). Twelve areas hosted 50 or more anglers. Spring Lake had the highest turnout with 600 individuals and Verona Park Pond continues to be a popular spot with 122 anglers. Although there were reports of great trout fishing, in many places activity was curtailed by the high winds that forced frustrated anglers to quit early. Several northern lakes

were still ice covered including Lake Musconetcong in Morris County, Mountain and Furnace Lakes in Warren County, and Stony Lake and Lake Ocquittunk in Sussex County, and these icy conditions prevented fishing on the Opening Day of Trout Season.

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 five small streams containing 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 evaluate current habitat conditions, gauge long term trends, determine if ambient water quality is consistent with surface water quality standards, and aid in the management of coldwater fisheries.

Bureau of Fisheries Production

Jeff Matthews, Acting Chief

The Bureau of Fisheries Production is responsible for the propagation and management of two State fish hatcheries in Warren County – the Pequest Trout Hatchery located in Oxford and the Hayford Hatchery in Hackettstown. The hatcheries combined raise sixteen different species of fish and distribute them throughout the State.

Highlights

Pequest

During the report period the Pequest Hatchery was back in full production after the disease issue in 2014 was solved. The hatchery produced 614,445 rainbow trout averaging 11.4 inches for the spring stocking program and another 26,760 trout for the fall program. The hatchery will continue to raise rainbow trout for the next few years. Staff members are taking many precautions and utilizing several sterilization methods annually to eradicate any bacterial issues from the facility before the introduction of brown and brook trout back into the system.

Hackettstown

During this same period, staff at the Hackettstown State Fish Hatchery raised and stocked a total of 2,626,280 cool and warmwater fish of 15 different species in over 130 waterbodies throughout the State. Species included: landlocked salmon, northern pike, muskellunge, tiger muskie, walleye, striped bass hybrid, channel catfish, largemouth and smallmouth bass, brown bullhead, bluegill sunfish, black crappie, fathead minnows, golden shiners, and mosquitofish. Hatchery staff stocked 50,000 fish, a mix of largemouth bass, sunfish and catfish, in ten areas of coastal water in Monmouth and Ocean counties that were impacted by salt water intrusion during

Superstorm Sandy. The hatchery also provided the State Mosquito Control Commission with 190,000 mosquitofish for distribution to counties for use as biological control.

Bureau of Land Management

Dave Golden, Acting Chief

The Bureau of Land Management (BLM) is responsible for administering the Division's Wildlife Management Area (WMA) System which now comprises more than 348,000 acres on 121 WMAs. These areas are managed for a diversity of fish and wildlife species through a variety of habitat improvement programs. Public access for wildlife-associated recreation is encouraged through the development of visitor facilities, maintenance of roads and bridges, and the construction of parking areas and boat ramps. The Bureau is also responsible for the maintenance of Division facilities including buildings, shooting ranges, and dams and other water control structures. In addition, the BLM offers technical assistance to the State's Green Acres Program in the acquisition of open space for critical fish and wildlife habitat.

Highlights

In FY15, the Commercial Township Environmental Commission adopted Lake Audrey on the Division's Millville WMA in Cumberland County as a special project. With the assistance of several local naturalists, the Commission is developing interpretive signage for the lake in the Millville WMA, boat launch and hiking trail.

This past summer, an infestation of Kudzu was eradicated from the Belvidere Boat Launch in Warren County. Kudzu, known as Japanese arrowroot, is a climbing, coiling vine that is an invasive and extremely detrimental species to native vegetation. The plant overtakes trees and shrubs rapidly, eventually killing them. Quickly and effectively controlling invasive species is extremely important to stopping the spread of non-native vegetation that can upset the delicate balance of a naturally occurring, indigenous ecosystem. Kudzu is just one of many species threatening habitat in the Garden State.

Photo by Bob Cunningham

The Bureau is currently part of a multi-partnered effort to evaluate the effectiveness of using clean dredge materials to restore protective salt marshes. If successful, the new program would ultimately allow coastal communities to become more resilient against impending storms. The Beneficial Re-use Marsh Restoration Project, as it is known, will also study the benefits of using this type of approach to create essential disposal areas for materials dredged from waterways to keep them navigable for transportation and commerce. In addition, it will create critical nesting habitat for imperiled wildlife such as the State-endangered black skimmer. The first phase of this project will occur at the Cape May Wetlands Wildlife Management Area in Stone Harbor. The entire project is made possible by a $3.4 million grant from the U.S. Department of the Interior to help states impacted

by Super Storm Sandy develop environmentally sound strategies to weather future storms. The U.S. Army Corps of Engineers and the New Jersey Department of Transportation have also contributed $2 million each toward the project. The DEP, Nature Conservancy, Green Trust Alliance, and Rutgers University will provide monitoring and analysis of the ecological and economic benefits of the restoration process.

Staff participated in a program to assist horseshoe crab spawning in the Delaware Bay by removing impediments that can disrupt their delicate reproductive cycle. Partners include several conservation organizations including Citizens United to Protect the Maurice River and its Tributaries, The Wetlands Institute, and Western Hemisphere Shorebird Reserve Network. The East Point Lighthouse Boat Ramp located on the Heislerville WMA in Cumberland County poses one such hazard. Each year during egg spawning, hundreds of horseshoe crabs become trapped between the ramp and wood pilings of the bulkhead. Staff members are working with program volunteers to alleviate the danger by using concrete rubble to fill in the gaps. A beach replenishment project is also scheduled to provide a long-term solution.

Bureau of Law Enforcement
Mark Chicketano, Acting Chief

The Bureau of Law Enforcement's conservation officers are responsible for enforcing fish and game laws and regulations in New Jersey. These officers possess full police powers on all lands and waters of the State. In addition, all conservation officers are appointed as Deputy Special Agents with both the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. These appointments mandate that each officer receive specialized training in such areas as natural resource protection, wildlife and plant identification, vessel and recreational vehicle operation, boating safety, commercial fisheries and wildlife management in addition to the statutory training that all police officers must have.

Created in 1871, the Bureau is one of the oldest organized law enforcement agencies in the Garden State. Originally tasked with fish protection in the Delaware River, conservation officers are now involved in every area of fish, wildlife and natural resource protection. Officers enforce pollution laws involving New Jersey's woods and waterways, impose bans on the harvest of crabs from contaminated waters, enforce clamming and oystering regulations designed to safeguard public health, assist with efforts to control nuisance bears, enforce commercial and recreational saltwater fishing regulations, protect State lands from illegal timber sales and off-road vehicle usage, and ensure lawful handling of exotic wildlife. Enforcing fish and game laws ensures that the State's wildlife populations are not harvested in excess or illegally exploited for commercial gain, which could result in the decline of a species or even extinction. Through the enforcement of fish and game laws and regulations, conservation officers help to maintain healthy populations of wildlife species for future generations to enjoy.

Among the Division's most visible representatives, conservation officers interact with thousands of individuals in the field each year through the course of their daily patrols. They provide countless hours of public outreach at educational facilities and outdoors shows. Educating

hunters, anglers, and the general public about the environment and its benefit is a paramount assignment that conservation officers are proud to perform.

Highlights

In August, conservation officers investigated a whale harassment complaint reported by employees of a whale watching vessel in Cape May. Preliminary interviews with the witnesses of the incident indicated that the operator of a small, privately owned, jet-powered craft repeatedly disregarded their warnings that he was getting too close to a humpback whale when he drove over the top of it to take photographs. The suspect has since been identified and the case is currently under investigation. Aside from being extremely dangerous, it is a federal offense to harass marine mammals in the wild under the Marine Mammal Protection Act (MMPA). If prosecuted for violating the MMPA, civil penalties could include fines of up to $11,000, and criminal penalties could include up to one year in prison plus criminal fines and/or forfeiture of the vessel involved. Criminal penalties of up to $25,000 may also be assessed.

In the spring, southern region conservation officers broke up a major wild turkey poaching ring consisting of four Alabama residents who allegedly killed 13 turkeys illegally in Cumberland and Atlantic counties. None of the turkeys were checked in and were being stored at a local farmer's barn. A total of 45 summonses were issued to all involved. The case is still pending in municipal court, however, a settlement with all involved parties is anticipated.

Marine Fisheries Administration

Brandon Muffley, Administrator

The Marine Fisheries Administration (MFA) includes the Bureaus of Marine Fisheries and Shellfisheries. The MFA supervises and coordinates the planning, organization, operation and management of the marine and estuarine finfish and shellfish resources of New Jersey. The marine fisheries have a combined commercial net worth of more than $2 billion. The MFA also coordinates New Jersey's fishery management activities with the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council.

Bureau of Marine Fisheries
Russ Allen, Chief

The Bureau of Marine Fisheries is responsible for developing and implementing management programs that protect, conserve and enhance New Jersey's marine fisheries resources. To formulate sound State management plans, the Bureau conducts studies to gather information about New Jersey's marine species as well as the user groups that rely upon them. This research is combined with information from other Atlantic states and federal management agencies to support coastwide management plans.

Since many marine fisheries species are migratory in nature, they are managed regionally by the Atlantic States Marine Fisheries Commission (ASMFC) and/or the Mid-Atlantic Fishery Management Council. The Bureau plays a vital role in representing New Jersey's fisheries and fishermen (both commercial and recreational) through these two organizations.

Federal legislation mandates that states implement every fishery management plan approved by the ASMFC. Each plan requires that states employ the required management measures, enforce those rules and monitor the status of the fishery population. States failing to comply with the requirements of the plan risk a federally imposed moratorium in those states for the species covered by the plan.

Highlights

In July 2014, staff added a spearfishing category to the New Jersey Record Fish Program due to the growing popularity of the activity. These anglers routinely harvest exceptional fish that equal or exceed current marine state records for rod and reel. Just five days after the modification to the Program, a 15 pound, 5-ounce summer flounder (fluke) was harvested using a spear from Barnegat Inlet. The fish was such an exceptional specimen it was recognized by the International Underwater Spearfishing Association as a new World Record.

In August 2014, monthly data downloaded from the Bureau's sturgeon receivers revealed 40,510 detections from 297 different fish. The majority of tags detected in 2014 were from Atlantic sturgeon (227) followed by 50 sand tiger sharks, 1 bull shark, 1 striped bass, 1 black tip shark and 4 horseshoe crabs. This is the first time horseshoe crab tags were ever detected by New Jersey's receivers. The horseshoe crabs were tagged in Delaware by Delaware State University staff in June 2013.

This past spring, the Bureau received approximately 6,000 tons of donated concrete bridge rubble for placement on the Axel J. Carlson, Jr. Reef (off Mantoloking) and the Sea Girt Reef. The material and all costs associated with it (i.e., marine towing and deployment) were paid by Reicon Group, LLC. Under the

direction of marine fisheries biologists, bridge pilings were cut into large pieces to maximize surface area and ensure that the structures stay in place during storm events. The material will attract more than 150 species of marine life as well as afford recreational anglers excellent fishing opportunities at the reefs for years to come. The Division maintains a network of 15 artificial reefs along the coast from Sandy Hook to Cape May.

Between June and November, 2014, biologists conducted the Division's annual Delaware River Seine Survey. Over the course of six months, staff hauled in 284 individual seine nets for a total of 45,178 fish. The five most abundant species caught were: American shad, blueback herring, white perch, Eastern silvery minnow and bay anchovy.

Bureau of Shellfisheries
Russ Babb, Acting Chief

The Bureau of Shellfisheries directs shellfish harvest and production programs on the Atlantic Coast and in Delaware Bay. Biologists work with other Division bureaus as well as various State and federal agencies on marine habitat conservation and shellfish management. Staff works closely with the New Jersey Shellfisheries Council, an advisory board to the Commissioner, on issues related to the protection and enhancement of New Jersey's shellfisheries. Staff members are actively engaged in fostering aquaculture development and reviewing coastal development activities to protect critical habitat. They are also managing surf clams in the Atlantic Ocean and oysters in Delaware Bay as well as examining the impacts of offshore sand mining. In addition, the Bureau is responsible for administering a licensing program for recreational and commercial shellfishermen as well as the State's Shellfish Aquaculture Program.

Highlights

Bureau staff completed sampling for the 2014 New Jersey Surf Clam Inventory Project. A total of 165 stations were sampled from Great Egg Harbor Inlet to Shark River Inlet. The estimated stock was calculated at 411,406 bushels, which is an all-time low. Cape May County was not sampled as virtually no clams have been found in these waters over the past few years. In addition, no surf clams were found off Absecon Island and there was almost a complete absence of surf clams off Brigantine and Long Beach Island. As per current surf clam regulations, the harvest cannot exceed 10-percent of the estimated stock.

The Bureau finalized the hard clam stock assessment report for Barnegat Bay. The data were collected in 2012 and compared with the previous stock assessment of 1985-1986. Results showed a 23% decrease in the 2012 stock compared with the previous survey. The report also included the results of an investigation that was performed in Barnegat and Little Egg Harbor after Superstorm Sandy (data collected 2013). Those data were

compared with the 2012 Barnegat data and the 2011 Little Egg Harbor data. Analysis showed no significant difference in hard clam abundances or mortality before and after the storm.

In October 2014, Bureau staff along with colleagues in the Shellfish Aquaculture Regulatory Workgroup hosted a public workshop at the Rutgers Lifelong Learning Center in Mays Landing. The workshop was part of DEP's ongoing efforts to solicit input from industry constituents regarding New Jersey's current shellfish aquaculture policies and regulations. Working together through this cooperative approach, policymakers and those affected by these policies are developing acceptable and effective guidelines regarding aquaculture in New Jersey.

In February, 2015, staff attended the "*Living Shorelines and Coastal Restoration Summit*" held at the Rutgers Eco-Complex in Bordentown. The meeting brought together individuals from state and federal governments, non-profit organizations and universities to discuss current shoreline restoration projects in New Jersey. Much of the discussion focused on establishing building guidelines, which are often based solely on engineering principles with little or no emphasis on the ecological impacts produced by various structural options. While the engineering component is critical, staff members are committed to making sure ecological factors are addressed as well.

In June, 2015, staff participated in an interstate, interagency conference entitled "*Two States: One Bay – a Bi-State Conversation About the Future of Raritan Bay*" at Rutgers University in New Brunswick. The event was hosted by the NY/NJ Harbor Estuary Program and the Sustainable Raritan River Initiative with assistance from several government agencies including the U.S. EPA, NJDEP and the New York State Department of Environmental Conservation. The discussion brought together representatives from leading government, educational institutions, non-profit organizations and businesses from both states in an effort to address opportunities and challenges regarding water quality, pollution, habitat restoration, public access, and marine and shellfisheries management in Raritan Bay.

Bureau of Wildlife Management
Carole Stanko, Acting Chief

The Bureau of Wildlife Management provides the scientific information and recommendations necessary to develop conservation plans for New Jersey's game species. It also manages breeding operations for the Division's Pheasant Stocking Program and assists the public in reducing damage caused by wildlife. Biologists work with other agencies and local governments to develop cooperative management programs throughout the State. These professionals also monitor wildlife population numbers and health conditions. The information collected is of critical importance to the Fish and Game Council, which relies on the information to determine New Jersey's annual hunting and trapping regulations.

Highlights

Staff completed New Jersey's portion of the annual Atlantic Flyway Breeding Waterfowl Survey. All Atlantic Flyway states from New Hampshire to Virginia have participated in the survey since 1989. Results are used to document changes in the abundance and distribution of waterfowl species in the area to help determine management objectives. The 2015 estimates were: 15,310 mallard, 1,825 black duck, 9,839 wood duck and 22,314 Canada goose pairs. The number of individual Canada geese totaled 62,908. The mallard estimate was 34% below the 1993-2014 long-term average (LTA) of 23,210 pairs. The New Jersey mallard pair estimate has persisted below 20,000 pairs since 2010. Mallards are down throughout the eastern United States due to unknown causes. The black duck pair estimate was 75% below the LTA. In 2015, black ducks were only observed in the salt marsh survey areas, which is partially responsible for the low estimate; during all other years, black ducks were observed in other survey areas. The black duck pair estimate has remained below 5,000 pairs since 2010. The loss of salt hay farms on Delaware Bay as well as the loss of high marsh throughout the coastal environment contribute to the decline in breeding black ducks. The wood duck estimate was 18% above the LTA. The Canada goose pair and total population estimates were about 23% below their LTA and were the lowest estimates observed since 1994. Canada goose estimates peaked during the early 2000s at about 95,000 birds and have declined since that time due to expanded hunting seasons and an increase in other management methods.

The Bureau's Waterfowl Program conducts preseason banding efforts annually between July and September. Banding is conducted during this time to target locally breeding and previously hatched ducks (particularly mallards). The information gathered is used in conjunction with other waterfowl population data to guide management decisions and set waterfowl hunting seasons. This year, staff teamed up with volunteers as well as federal, State, county and other local employees to assist with capture, banding and release efforts. A total of 716 ducks were banded: 649 mallards, 3 American black ducks, 2 mallard/black duck hybrids, 44 wood ducks, 12 green-winged teal, and 6 pintails.

Endangered and Nongame Species Program
Dave Jenkins, Chief

The Endangered and Nongame Species Program (ENSP) was created in response to the enactment of the New Jersey Endangered and Nongame Species Conservation Act of 1973. More than 80 endangered and threatened species inhabit the Garden State, and many more stop here to rest and refuel during their migrations. To protect these species, the ENSP is committed to conserving New Jersey's biological diversity by working to maintain and foster endangered and threatened populations as well as protect the unique habitats on which they depend. The ENSP is also responsible for administering the State Tax Check-Off for Wildlife, which benefits these species.

Highlights

As part of the Division's Connecting Habitat Across New Jersey ("CHANJ") initiative and with the assistance of the South Jersey Transportation Authority, eight motion triggered cameras were installed under the Atlantic City Expressway. The cameras will monitor wildlife shelves (i.e., ledges) built inside several culverts beneath the roadway to provide safe and dry corridors for terrestrial species on the move. Biologists hope that wildlife, particularly threatened/endangered reptile and amphibian species, will utilize these alternative, safe crossings instead of the heavily trafficked blacktop. The cameras join an existing array of devices that are assisting biologists in evaluating the effectiveness of using shelving to help wildlife travel from one place to another. So far, thirteen mammalian species have demonstrated activity near the monitors (see photo of a raccoon utilizing the culvert ledge). The information collected will be used to inform the Statewide CHANJ mapping and guidance document recommendations that transportation planners can reference when designing new highway development projects in areas that intersect wildlife movement corridors.

ENSP biologists initiated a head start and assisted breeding program to foster a dwindling population of little brown bats at the Hibernia Mine in Morris County. The decline is the result of a deadly fungus that causes a condition known as White-nosed Syndrome (WNS), which has devastated bat populations, especially little browns, over the past several years. To aid recovery efforts, 30 infected bats were taken into temporary captivity and given supportive care to bolster their immune systems. Twenty of them were eventually released back into the mine. The remaining individuals were kept to determine if they could reproduce in captivity and ultimately, three females gave birth. Of the offspring, two survived (one male and one female) and were released back into the mine in August along with the remaining adults. Biologists will compare the survival rate of the "*Head Start*" bats with a randomly selected, comparable group from the

site to see if there is any benefit to providing temporary palliative care to WNS-infected bats. If so, this type of support and the potential to start a captive breeding program may play an important role in restoring bat populations at Hibernia mine and elsewhere.

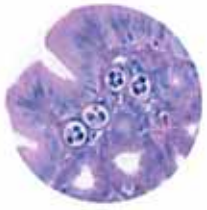
The Bald Eagle Project report for 2014 was finalized with 156 nests documented statewide. A total of 146 adult pairs nested successfully with a record-breaking 201 young fledgings from 115 nests. Also during this time period, 420 osprey nests were documented, of which 339 fledged young for a higher than average rate of two chicks per nest. Another of New Jersey's top avian predators, the peregrine falcon, also had improved numbers with 29 nesting pairs that produced 49 young.

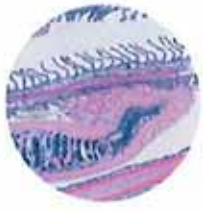
This past winter, staff hosted a Statewide meeting on piping plover conservation. In New Jersey, the population hit an all-time low in 2014 and the discussion concentrated on ways to reverse this unfortunate trend. Potential recovery strategies emphasized predation management and habitat improvement projects. The meeting also highlighted research on post-Sandy habitat changes (which were beneficial to the birds), flight behavior and migration. Early indications from the 2015 field season were promising as a result of implementing some of these strategies.

Office of Fish and Wildlife Health and Forensics

William Stansley, Research Scientist

The Office of Fish and Wildlife Health and Forensics (OFWHF) conducts surveillance and research on diseases and chemical contaminants that affect New Jersey's fish and wildlife. Scientists in this office also recommend measures to combat diseases in the Division's fish hatcheries and in free-ranging fish and wildlife populations. These scientists are the only experts in New Jersey State government to specialize in wildlife pathology, fish pathology, and fish and wildlife toxicology. As a result, when fish and wildlife are dying in the Garden State, the public and other government agencies turn to this Office to determine the cause and develop a response strategy.





Highlights

Research on intestinal parasites in landlocked and anadromous alewives (fish species such as herring and shad) was completed. Anadromous (traveling from saltwater to freshwater to spawn) alewives from the Maurice River and landlocked populations from Lake Hopatcong were sampled and found to contain a high occurrence of an unknown parasite. Though commonly found in the intestines of fish, the new parasite species, named *Goussia ameliae*, discovered by our biologists had not been previously identified. Remarkably, *G. ameliae* is identical in both the anadromous and landlocked populations, and was likely introduced to Lake Hopatcong during the 1800s when alewives from the Delaware River were released there. A manuscript is currently being prepared on this new parasite and its prevalence in New Jersey alewives.

Over the winter, four fish kills were reported that appeared to be related to "winter kill." Winter kill is common during long, cold winters when there are prolonged periods of ice cover. Shallow lakes and ponds with excess vegetation are especially vulnerable during this time. Under such conditions, the ice and snowpack prevent sunlight from penetrating the water, which can prohibit aquatic vegetation from producing oxygen. This eventually causes death and decay of plant life which strips the oxygen from the water under the ice. As a result, fish suffocate from inadequate oxygen availability.

In the spring, two large fish kills of bluegill and pumpkinseed sunfish occurred in Assunpink and Swartswood Lakes. Both of these kills were related to a bacterial infection of the blood caused by *Pseudomonas fluorescens*. This is a bacterium naturally present in the environment and not commonly associated with kills in the wild. The infection was likely triggered by stressful conditions after a long winter and the fast warming of water temperatures. In addition to bacterial infection, several heavy parasitic infections were detected in the fish that may have been an added stressor in these populations. Further research is being conducted on the strains of bacteria isolated from these kills to better understand the prevalence of parasites in the fish within these lakes.

In cooperation with the U.S. Department of Agriculture, NJ Department of Agriculture, and Garden State Wildlife Rehabilitators, the Division has established a surveillance program to test raptors for Highly Pathogenic Avian Influenza (HPAI). Birds of prey that die or are euthanized within 72 hours of submission to a rehabilitation facility and exhibit neurological or respiratory symptoms will be tested for the disease. Unlike waterfowl that can be infected with the HPAI virus without developing any clinical signs, raptors are susceptible to the virus currently circulating throughout the country.

Office of Environmental Review
Kelly Davis, Biologist

The Office of Environmental Review (OER) coordinates wildlife, marine fisheries, shellfisheries, freshwater fisheries, and endangered species concerns related to State and federal permitting programs. The input provided protects, maintains, and enhances fish and wildlife species and their habitats through environmental review of any development projects that may pose negative impacts to fish and wildlife species. Prior to construction, OER provides recommendations to eliminate or minimize these impacts. Biologists regularly review and provide comments or recommendations for the DEP's Land Use Regulation Program as well as the Bureau of Dam Safety & Flood Control, and the Solid & Hazardous Waste Program. OER also offers input on federal agencies' projects including projects of the Army Corps of Engineers, Federal Energy Regulatory Commission, Bureau of Ocean Energy Management, Federal Aviation Administration, and the Department of Defense.

Highlights

During this reporting period, staff conducted a total of 178 environmental review assessments on projects throughout the State.

Staff met with representatives from the American Littoral Society to discuss several projects along the Delaware River. Future joint endeavors will include restoring horseshoe crab habitat at the Heislerville (Thompson's Beach) and Fortescue Wildlife Management Areas in Cumberland County, as well as habitat monitoring and conducting a sand movement study.

Staff met with representatives from State and federal agencies as well as Pennsville Township officials (Salem County) to discuss constructing a dock along the Delaware River at the end of West Pittsfield Drive. The structure would include boat slips and a ferry access area. Project timing and potential concerns were also considered. Once completed, the area would offer excellent fishing and boating opportunities. The recreational attractions would also help foster local tourism and conservation awareness.

Office of Information and Education
Al Ivany, Chief

The Office of Information and Education educates thousands of New Jerseyans on the needs and benefits of fish and wildlife. As more and more families choose to reside in rural areas of the State, education is critical if residents and wildlife are to successfully coexist together. To do this, staff members educate the public on biology, ecology, and conservation so they better understand the unique needs of each species. Outreach efforts also promote the wise use of these resources and the need to safeguard these resources for future generations.

Highlights

Since the Division launched its *Official New Jersey Fishing, Hunting & Wildlife Guide Mobile App* in January of 2013, more than 125,000 downloads have been recorded. This free innovative outdoor guide, powered by Pocket Ranger® technology, affords outdoor enthusiasts the ability to locate New Jersey's premier hunting, fishing and wildlife viewing sites as well as access species profiles, regulations, and important licensing information. The GPS technology even allows users to record trails and wildlife sightings.

To complement the mobile app, the Division began a pilot program placing Quick Response (QR) codes throughout its Hunting and Trapping Digest as well as various other printed materials. The codes allow smartphone users access to everything from hunting tips and harvest trends to maps, stocking schedules, and recipes. Utilizing QR codes requires no additional cost to the agency and provides a quick and convenient bridge from printed media to mobile web access. By using QR codes, the Division can effectively supplement printed information with additional web-based data. Since the first codes where printed in the August 2014 *Hunting & Trapping Digest*, they have been scanned 3,056 times. Most frequently scanned codes were the 2015 Spring Trout Allocation Chart, which was printed on posted trout regulation signs, and the Deer Hunting Location Map, which was published in the aforementioned *Digest*.

In October of 2014, the Division launched an official Facebook page, which is quickly proving to be an effective way to share information with the public. In April, the Division posted a video highlighting the Bonus Broodstock Program. It was extremely popular and surpassed anything previously posted, reaching 45,312 people and receiving 724 likes, 130 comments and 141 shares. Shortly thereafter, the Division shared information on its Bear Research Project that appealed to 123,264 people, received 6,875 likes, and 1,781 comments, and was shared 1,254 times across Facebook. The possibilities of reaching many people about different topics are far-reaching and virtually endless with social media. Social media has allowed the Division to

engage a broader audience and provide a fresh, new, interactive way to connect with that audience in a conservation-based forum.

The Division received two awards for its highly successful National Archery in the Schools Program. The *One Hundred Century Award* was earned for reaching the benchmark of enrolling 100 schools in the program Statewide, and the *Gold Medal Award* was received for the largest percentage of growth over the two-year reporting period from 2012-2014. New Jersey showed a 170-percent increase in school enrollment during this time, which was the highest rate out of 47 states, 7 Canadian provinces, and 10 countries.

A *Beginner Guide to Fishing in New Jersey* is nearly complete. The publication will highlight New Jersey-specific salt and freshwater game fish species, regulations, and safety measures. It will also feature pictorial instructions on casting, filleting, and knot-tying. The reference guide will be targeted for youth, but offers an excellent introduction for anyone interested in learning how to fish.

Office of Mosquito Control Coordination

Eric Williges, Administrator

Created in 1974, the New Jersey State Mosquito Control Commission's Office of Mosquito Control Coordination (OMCC) is based in the Division's main office in Trenton. Funding provided to the State Mosquito Control Commission is utilized by the OMCC to coordinate programs integral to protecting public health and reducing statewide mosquito populations. The OMCC also serves as a public face on all State mosquito control matters. Collaborating with different bureaus in the Division and the Department is a priority, as well as maintaining existing standards and developing new methods of mosquito control. These efforts ensure that county mosquito control agencies across the State are improving the public's quality of life by reducing mosquito populations in an environmentally sound manner.

Highlights

During the summer of 2014, the Office of Mosquito Control Coordination continued to fund and oversee an ongoing collaboration between the New Jersey Department of Health's Public Health and Environmental Laboratory, the Cape May County Department of Mosquito Control, and Rutgers University Center for Vector Biology to test mosquito samples from across the State for multiple arboviruses of interest to public health. County mosquito control agencies collected and tested over 7,700 mosquito samples Statewide. A total of 660 samples from eight species of mosquito tested positive for West Nile virus and twelve tested positive for Eastern Equine

encephalitis. Surveillance has been ongoing through the summer of 2015. This surveillance would not be possible without the dedicated work of county mosquito control agencies across the State, and the OMCC continues to work closely with all county agencies to provide support and funding for their efforts.

The OMCC continued to work in collaboration with the Division's Bureau of Fisheries Production to supply multiple species of fish to county mosquito control agencies to serve as predators of mosquito larvae. This biological control of mosquito populations is part of the State's Integrated Mosquito Management Plan (IMMP) and helps to reduce mosquito larvicide use in target areas. In FY15, over 238,000 fish were stocked across the State by county mosquito control agencies. The OMCC continues to promote and improve the Plan so that more counties will take advantage of it. As part of these efforts, the OMCC worked in conjunction with the Middlesex County Mosquito Extermination Commission on a pilot study to examine the effectiveness of different fish species as mosquito larvae predators. The long term goal of this study will determine which available species are most effective, and the State will then concentrate its resources on raising and stocking this species of fish.

The OMCC also worked with five county mosquito control agencies, Downstown Aero Crop Services and Helicopter Applicators, to evaluate a new bio-rational product for controlling mosquito larvae. The testing involved calibrating equipment to ensure proper application and efficacy analysis to confirm that the product could effectively control mosquito larvae across the Garden State's various types of habitat. This ongoing project will help introduce successful new products to county mosquito control agencies and give these agencies more tools to combat mosquito populations in their areas.

Also in FY15, the OMCC's Super Storm Sandy grant programs were finalized and administrative efforts have begun. The programs are provided in collaboration with the State's Department Of Community Affairs using federal funding sources. To date, 11 counties have taken advantage of multiple programs from aerial surveillance of mosquito habitat created by Sandy to funding for temporary employees specifically tasked with finding and treating habitats created by the Storm. These programs will continue over the course of the next year and will expand to as many counties as possible.

Office of Business Administration

Paulette Nelson, Assistant Director

The Office of Business Administration is responsible for the Division's licensing, accounting, budgeting, purchasing, and billing functions. The Office has three primary elements: *Licenses and Revenue*, *Permits*, and *Procurement*. These sections work together to provide fiscal services for the Division. The following chart illustrates revenue, appropriations and expenses for FY15.

FY 15 Revenue / Expenditures for DFW Recurring Accounts

Description		
Revenue Generated		
Licenses/Permits		$13,631,488.00
Federal Aid (Via federal tax on hunting and fishing equipment)		$6,550,699.00
State and Tribal Wildlife Grants Program		$660,973.00
Marine & Shellfish Licenses		$571,078.00
Marine Federal Grants (Includes USFWS, NOAA and JEA Grants)		$2,449,933.00
Lease Revenue		$369,189.00
Waterfowl Stamp		$72,063.00
ENSP (license plate and tax check-off)		$378,249.00
Miscellaneous (Exotics, Sedge Island, Hooked on Fishing)		$271,063.00
Carry forward from FY14		$97,730.00
		$25,052,465.00
Appropriations		
General Fund Appropriation - H & A		$2,032,000.00
General Fund Appropriation - Marine		$1,980,000.00
General Fund Appropriation - ENSP		$350,000.00
Division CBT Reimbursement for Ed Mulvan's staff		$86,000.00
	Appropriations/Reimbursements	**$4,448,000.00**
	Total Resources	**$29,500,465.00**
Expenses		
H&A Salaries - includes Seasonals, Overtime - clothing allowances		$11,931,703.00
Fringe Benefit Assessment (H & A only. Marine & ENSP are exempted from paying fringe) (Based on new provisional fringe rate)		$4,760,427.00
Fringe Refund Received		$ -
Marine Salaries - includes Seasonals, Overtime - clothing allowances		$3,437,719.00
ENSP salaries - includes Seasonals, Overtime - clothing allowances		$1,128,434.00
Miscellaneous (Exotics, Sedge Island, Hooked on Fishing)		$168,950.00
DEP Assessments (DAG,OIRM,OIT,OAL,LIBRARY,RENT)		$639,885.00
H&A Operating Expenses (Equipment, repairs, utility payments, fuel purchases, and clothing)		$2,414,468.00
Marine and Shellfisheries Operating Expenses (Equipment, repairs, utility payments, fuel purchases, and clothing)		$596,132.00
ENSP Operating Expenses (Equipment, repairs, utility payments, fuel purchases, and clothing)		$172,380.00
Federal Aid Expenses H&A ($863,708 in indirect expenses are included in projected operating expenditures)		$2,519,512.00
ENSP Federal Grants Expenses		$466,818.00
Marine Federal Grants Expenses		$1,165,699.00
	Total Expenses	**$29,402,127.00**
	BALANCE:	**$98,338.00**