

FY 2018 Annual Report

July 1, 2017 – June 30, 2018



Piping Plover Photo: Courtesy of K. Knutsen



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

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State of New Jersey
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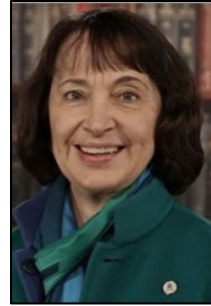
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Message from DEP Commissioner Catherine R. McCabe



I am pleased to present the Fiscal Year 2018 Annual Report for the Department of Environmental Protection's Division of Fish and Wildlife, covering the period of July 1, 2017, to June 30, 2018.

As you will see in this report, the work of the Division of Fish and Wildlife supports all five of the DEP's priorities, but especially Priority 4: "Manage and Promote Thriving Natural & Historic Resources."

Each section of the report begins with an overview of a division, bureau or office along with several highlights from the year. Highlighted is the important science-based research and work our biologists are involved in every day to protect and manage fish and wildlife and the habitats they rely upon, as well as the variety of recreational and educational opportunities associated with New Jersey's wild outdoors.

The Division of Fish and Wildlife is one of the oldest state wildlife management agencies in the nation, tracing its beginnings to March 8, 1892. For more than 125 years, the division has been evolving along with generations of New Jerseyans, adjusting to changes in population density and demographics, land use practices and technology, as well as shifting demands on our personal time and how we prefer to occupy that time.

The way we spend those hours and access the information we seek is changing at accelerated speed. To keep up with these changes and challenges, the division has recently added Instagram to complement its existing popular Facebook account, and expand its social media capabilities. It has also started to produce educational videos showing the diverse scientific work of Fish and Wildlife staff for posting on social media and the DEP's YouTube channel.

I encourage you to explore the division's website at njfishandwildlife.com and social media posts on Facebook and Instagram to learn more about the management of wildlife in New Jersey. I also encourage you to be an active participant in the conservation of New Jersey's wildlife by taking advantage of the many wildlife-related recreational opportunities that New Jersey has to offer. Together, we can lead natural resource conservation toward a future that is secure and filled with endless possibilities.

New Jersey Division of Fish and Wildlife

Larry Herrighty, Director

The New Jersey Division of Fish and Wildlife is a professional, environmental and scientific organization dedicated to the protection, management and wise use of the state's fish and wildlife resources. It is responsible for the oversight of more than 350,000 acres in the Wildlife Management Area system and is the lead agency managing all wildlife species in New Jersey. This includes game animals, freshwater and marine fish, shellfish, birds, amphibians and reptiles, and endangered and nongame species. Fish and Wildlife staff also educate the public about wildlife-related issues, and its conservation officers enforce the laws that protect wildlife.

This report contains the many accomplishments of the division's dedicated staff. These accomplishments are often made possible through cooperative efforts of our federal, state and non-government agency partners, and are primarily funded by the license fees of hunters, anglers and commercial fin and shell fishermen, as well as the federal grants derived from excise taxes on their equipment and marine fuel. The division is also grateful for the State General Appropriation that supports marine fisheries and endangered species conservation as well as many of the related services provided to the public.

Our Mission

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

Our Goals

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

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Bureau of Freshwater Fisheries

Lisa Barno, Chief

The Bureau of Freshwater Fisheries is responsible for the propagation, protection and management of the state's freshwater fisheries resources as well as promoting their recreational use. In addition to raising and distributing several million fish annually, 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 public in a variety of forums concerning the management of New Jersey's freshwater fisheries. The bureau also administers more than 600 permits annually to effectively manage and protect these important aquatic resources.

Highlights

The Charles O. Hayford Hatchery in Hackettstown experienced another *record-setting* year producing and stocking an astounding 5,082,841 fish. The total represents 14 different species, including muskies, walleyes, Northern pike, channel catfish, largemouth bass and hybrid striped bass. The production number also includes 548,000 fathead minnows, several mosquito-eating species and sunfish reared for use by county mosquito control agencies throughout the State.

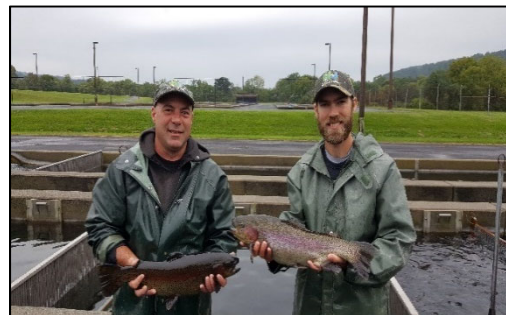


Runelvy Rodriquez with her record landlocked salmon.

additional 21,310 trout were raised for the Fall and another 5,040 for the Winter Stocking programs. In addition, several improvements were made to the facility's extensive raceway system.

Hackettstown Hatchery also stocked 4,420 landlocked salmon, averaging 13-16 ½ inches in Aeroflex, Tilcon, and Wawayanda lakes. The salmon are obtained through a special 'fish trade' agreement with the Commonwealth of Massachusetts in exchange for surplus young Northern pike. Highlighting the landlocked program's success was a new state record weighing 8 pounds, 5 ounces and measuring over 25 inches in length. It was caught from Lake Aeroflex in Sussex County and breaks the previous record taken from the same waterbody 67 years ago!

The propagation of coldwater species was equally successful with the Pequest Trout Hatchery in Oxford raising more than 606,000 catchable-sized rainbow trout for the 10-week Spring Stocking Program. An



Pequest Trout Hatchery staff, Tom Bissonnette (left) and Nick Healy displaying rainbow trout breeders slated for spring stocking.

With the New Jersey Fish and Game Council's approval, new regulations governing the state's freshwater fisheries were adopted. Among them, a new *Brook Trout Conservation Zone* was established in northwestern New Jersey where wild brook trout are most abundant. Any brook trout caught within this zone must be released immediately and unharmed. Protection measures were necessary to help counter the significant decline in New Jersey's wild brook trout populations from increasing urbanization. The newly adopted regulations also include an increased minimum size limit on muskellunge, attesting to the state's extremely successful coolwater stocking program.

In June, a historic and exciting milestone in river restoration was achieved when staff confirmed the return of adult American shad to the Musconetcong River. Cooperative partnerships with various conservation groups, state, and federal agencies led to the removal of several dams along the river including most recently the Hughesville Dam in Warren County. The presence of this benchmark species upstream of the former dam confirms the immediate ecological benefit derived from demolishing it the previous fall. Adult shad return from the ocean to the Delaware River each spring to spawn in freshwater, but their migration to the Musconetcong River had been blocked by multiple dams for at least a century.



The first American shad caught upstream of the former Hughesville Dam.

Research was conducted to study the movement of stocked trout using radio telemetry in the *Catch and Release Area* of the Flat Brook River. The Flat Brook is considered one of New Jersey's most popular trout streams, however, biologists were surprised at the low numbers of trout found there during electrofishing surveys in recent years. So, to better understand where stocked trout are going, radio transmitters were surgically implanted into 40 rainbow trout from the Pequest Trout Hatchery. Results showed that the fish were not moving far but were being lost to predation at extremely high rates.

A *Brook Trout Restoration Project* was initiated in Rinehart Brook, a tributary of the Black River in Hacklebarney State Park in Morris County. Non-native brown trout have become the dominant trout species over the smaller number of native brook trout existing there. One of the main objectives of this study is to determine if electrofishing could be an efficient technique to remove brown trout. Initially, brook trout represented only 7.4% of the trout population in Rinehart. However, following extensive electrofishing efforts, brook trout comprised 87% of the population. Biologists will continue to monitor the stream to determine if the brook trout rebound in response to a reduced/eliminated brown trout population.

This fiscal year, freshwater fisheries biologists conducted 199 surveys at 118 waterbodies to address a variety of recreational and resource management needs. A total of 53 rivers and streams as well as 65 ponds and lakes were surveyed. Fisheries biologists captured, identified, and counted more than 41,000 fish of 72 species.

Bureau of Land Management

Dave Golden, Chief

The Bureau of Land Management is responsible for administering the division's Wildlife Management Area System encompassing more than 350,000 acres on 122 separate areas. 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, dams and water control structures, and offers technical assistance to DEP's Green Acres Program in the acquisition of open space and critical habitat.

Highlights

Southern Region

Improvements in the southern region included the addition of a new range on the Millville Wildlife Management Area in Cumberland County. It is the first 200-yard center fire rifle range in the Garden State. The site also includes a 50-yard rifle, and multi-yardage archery and skeet ranges. Since the upgrades were performed, daily public usage has increased significantly.

Staff members also began a multi-phased restoration and enhancement project in the Pond Creek marsh area of the Higbee Beach Wildlife Management Area in Cape May County. The project site consists of the former Harbison-Walker Magnesite Plant as well as Daveys and several other smaller lakes and surrounding wetlands. Restoration efforts include reestablishing tidal flow to restore native salt marsh habitat and enhancing recreational opportunities with an expanded trail system. Other efforts include improving the habitat around the plant and protecting Daveys Lake with a dune system.

Central Region

The Bureau is partnering with the Endangered and Nongame Species Program to reconnect fragmented wetland habitats at the Assunpink Wildlife Management Area in Monmouth County. Phase One of the project was completed with the installation of two under-road tunnels to create a passage system that would deter wildlife from entering the roadway. The second phase, scheduled for next year, will be the installation of fencing to guide animals through the tunnels and away from the road. As part of the project, staff are monitoring wildlife use during and after construction to assess the effectiveness of the system.



An under-road tunnel on the Assunpink WMA.

Northern Region

Staff installed two boat docks at the Split Rock Reservoir on the Wildcat Ridge Wildlife Management Area in Morris County to improve access for boaters and anglers. Steps down to the water were completed this year over what was previously a rocky, steep and often muddy slope. The parking lot was also expanded to better accommodate visitors during the busy summer weekends.



One of the newly installed docks at the Split Rock Reservoir.

Bureau of Law Enforcement

Sean Cianciulli, Acting Chief

The Bureau of Law Enforcement is responsible for enforcing regulations that protect wildlife and its habitat. As one of the oldest organized law enforcement agencies in the state of New Jersey (created in 1871), conservation police officers have enjoyed a storied history. Originally tasked solely with fish protection in the Delaware River, officers now delve into every area of fish, wildlife and natural resource protection. They now enforce pollution laws involving New Jersey's woods and waterways, impose bans on the harvest of crabs from polluted 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 the lawful handling of exotic wildlife and the sale of legally procured marine resources.

Conservation police officers are also the primary law enforcement personnel in New Jersey who are authorized to investigate hunting accidents or hunting-related fatalities. These highly trained officers possess full law enforcement authority and patrol the state and its waters using the latest in law enforcement technology.

Conservation police officers are among the Division's most visible representatives, interacting with thousands of individuals each year. In the field, they educate and redirect the actions of recreationists to ensure compliance with Division policies, the Fish and Game codes, marine conservation measures and other land use regulations to protect the environment as well as ensure that people enjoy natural resources in safe and ethical ways.

Each year, conservation police officers provide countless hours of public outreach at educational facilities, outdoors shows and through the course of their daily patrols. Educating hunters, anglers and the public about the environment and all that makes it beneficial is a paramount assignment that conservation police officers are proud to perform.

Highlights

Northern Region

During FY18, northern region conservation police officers dedicated a tremendous amount of time and resources to enforcing striped bass regulations. Efforts were concentrated along the



Hudson River and the Newark Bay Complex in Bergen, Hudson, and Union counties. In all, officers inspected **328** striped bass fishermen and issued **181** summonses for the violations found. Charges included the possession of undersized fish; possession of fish over-the-daily limit; and possession of fish during the closed season. In addition, several individuals were charged for interfering with the duties of an officer. The amount in potential fines totals more than \$40,000.

Illegally caught striped bass seized during an FY18 patrol.

Central Region

A notable example of teamwork was showcased in the central region during a recent investigation. An individual visited the office in Robbinsville to inquire when his license revocation would expire. Upon checking the Division's electronic licensing system, it was discovered that the man had two separate customer profiles. Under one account, the individual had been actively purchasing freshwater fishing licenses for the past two years; purchases in direct violation of his license revocation. Upon receiving this *questionable* information regarding the suspect, officers worked with the Division's Licensing Section and the licensing system vendor to determine exactly what transpired. It was revealed that several months after his revocation period began, the man unsuccessfully attempted to purchase a fishing license on two consecutive occasions, only to be blocked due to his revocation status. On the third attempt, he falsified his information and in so doing, created a new profile *attempting to circumvent the system*. In a subsequent interview, the suspect eventually confessed to the wrongdoing. The individual was issued two summonses for providing false information to a licensing agent.

Southern Region

In December 2017, southern region officers working with DEP Compliance and Enforcement staff, initiated a solid waste dumping investigation at the Cohansey River Wildlife Management Area in Cumberland County. Several years prior, the Division acquired property consisting of an old golf course with the intent to transform the land into a wildlife management area. The property was subsequently subdivided, and the main buildings sold to a private individual. The new owner had plans to reopen the grounds on his property as a banquet hall along the banks of the Cohansey River. However, after the sale, the new owner usurped his property's boundaries and cut down dozens of trees on Division land to enhance the view of the river for future banquet hall patrons. The owner was also responsible for dumping solid waste from his demolition efforts onto Division land. After a lengthy investigation, charges for damage to state property, dumping on Division lands and discarding solid waste were filed against the owner. In March of 2018 the owner pled guilty and the case was settled for \$10,000 in fines.



Photo depicts some of the damage caused to the Cohansey River WMA.

Marine Region



One of the commercial vessels involved in the black sea bass investigation.

A Cape May County commercial fisherman was charged with exceeding commercial black sea bass trip limits during the January-February season. Through surveillance operations and assessment of federally required reports, conservation police officers discovered that the individual attempted to disguise the excess fish by attributing the catch to one of his other permitted vessels; one that did not engage in black sea bass fishing that day. To achieve the deception, the suspect transferred the illegal fish between the two vessels while

at sea and at the dock. After the secret dock transfer occurred, the vessel that did not actually catch the fish left the area the following day with the bogus harvest only to return several hours later with the same fish to suggest that they had recently been caught. The vessel operator then unlawfully documented that he had just caught the fish. When confronted with the facts of the investigation, the individual confessed to the illegal harvest and claimed that a series of financial

hardships motivated him to commit the crime. In addition to state violations including exceeding commercial trip limits and interference, multiple federal violations were processed for falsifying records, possessing an invalid operator permit and submitting federally required reports either late or not at all.

Administrative Unit



Enabled by the passage of A2763, New Jersey became the 47th state to join the *Interstate Wildlife Violator Compact*. Membership signifies that an agency is committed to holding users of wildlife resources accountable for their adherence to *fish and game law* in all states. Conservation officers review wildlife license suspensions imposed by member states for reciprocity and provide information on suspensions and convictions for wildlife violations prosecuted in New Jersey. All suspensions entered into the database are reviewed and where applicable under state law, the individual's privileges are suspended in New Jersey.

Marine Fisheries Administration **Joseph Cimino, Administrator**

The Marine Fisheries Administration includes the Bureaus of Marine Fisheries and Shellfisheries. It supervises and coordinates the planning, organization, operation and management of the marine and estuarine finfish and shellfish resources of New Jersey, estimated to be worth more than \$2 billion. The Marine Fisheries Administration also coordinates New Jersey's fishery management activities on a coastwide basis with the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council.

Highlights

The Bureau of Ocean Energy Management is leading a federal initiative to find lands along the Outer Continental Shelf in the Mid-Atlantic region that could serve as potential sites for commercial wind leases. Information is being sought regarding site conditions, natural resources present and possible impacts of wind-related activities to those areas. On behalf of the DEP, Marine Fisheries Administration staff have taken a prominent role to ensure that the health of our marine resources and the communities dependent upon them for livelihoods are *priorities* when considering any areas deemed potentially suitable for wind leases.



Several areas are currently under review within the New York Bight, a region representing the waters between Long Island and the South Jersey coast. Staff have raised concerns about potential impacts to critical marine habitat and the health of fish and shellfish stocks as well as the potential effect on existing commercial and recreational fisheries. The Marine Fisheries Administration will continue to work with the Bureau of Ocean Energy Management and industry representatives to make sure New Jersey's voice is heard during the discussions.

The New York Bight region.

BUREAU OF MARINE FISHERIES

Jeffrey Brust, Acting 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 on a coastwide basis by the Atlantic States Marine Fisheries Commission and/or the Mid-Atlantic Fishery Management Council. The Bureau of Marine Fisheries plays a vital role in representing New Jersey's fisheries and fishermen, both commercial and recreational, through these organizations.

Federal legislation mandates that states implement every fishery management plan approved by the Atlantic States Marine Fisheries Commission. 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 their state for those species covered.

Highlights

Summer Flounder

In 2017, the Atlantic States Marine Fisheries Commission ordered New Jersey to implement a 19-inch minimum size limit for the recreational summer flounder, or fluke fishery to achieve *mandated* harvest reductions. New Jersey argued hard against this requirement, maintaining that the increased size limit would negatively impact fishing and result in more dead/discarded fish than were harvested. Marine Fisheries Administration staff presented an analysis revealing that a similar reduction could be achieved by retaining the existing 18-inch minimum size and reducing

the length of the fishing season. Although the Atlantic States Marine Fisheries Commission did not accept New Jersey's revised proposal, the U.S. Secretary of Commerce overruled them, and New Jersey was granted approval to implement its own management measures.

To foster public awareness on the best practices for handling fish to reduce discard mortality, a massive outreach campaign was launched. The *"If You Can't Keep It, Save It"* campaign included a wealth of website information, news releases, a special podcast and the free distribution of large gauge hooks to emphasize the message. The actual hooks, donated by the Eagle Claw Fishing Tackle Company, were paired with an informational card detailing the best practices for releasing fish to reduce discard mortality. In fact, the reviews were so favorable the sample fishing tackle pack won the award for the *Fish Smart Category* at the prestigious 2017 International Convention of Allied Sportfishing Trades in Orlando, Florida.

When harvest estimates for the 2017 fishing season were released, it was evident that New Jersey's management measures were successful in limiting the harvest to the required reduction, while preserving a positive experience for recreational anglers. Later surveys to anglers, retailers and other stakeholders suggested the extensive outreach efforts motivated a sizeable audience and that the attempts to reduce mortality of released summer flounder were successful. In fact, the program was so successful that the Atlantic States Marine Fisheries Commission allowed New Jersey to **extend** the recreational summer flounder season by **19 days** in 2018.

Sturgeon



A shortnose sturgeon after receiving a transmitter.

For several years, the Bureau of Marine Fisheries has partnered with various universities and government agencies to develop a multi-year plan to restore endangered Atlantic and shortnose sturgeon populations in the mid-Atlantic region. FY18 marked the final year of a three-year grant funding initiative that

included developing a conservation plan, maintaining electronic receiver monitors to track occurrences in Delaware Bay, and adding that information to the Endangered and Nongame Species Program's Landscape Project database. In 2017, the receivers detected 195 Atlantic sturgeon in Delaware Bay. Since the first attempts to study sturgeon in 2012, the average number of detections each year has been 193. In addition to sturgeon, receivers also identified other species including striped bass and sand tiger sharks as well as blacktip sharks, bull sharks, cownose rays and loggerhead sea turtles. The receiver data has had an enormous impact on sturgeon restoration efforts and in May 2017, enabled Atlantic sturgeon habitat to be documented for the **first** time. The plan will be finalized over the next several months. The Bureau has also created a web-based reporting system that the public can use to record sturgeon sightings. Fortunately, critical research on these species will continue in FY19 for an additional three years with the award of another grant.

Artificial Reefs

New Jersey's Artificial Reef Program, re-established in 2016, is currently funded through a special federal tax on recreational fishing equipment. To be eligible to utilize this type of funding, use of the reef network is limited to recreational anglers only; commercial fishing on these sites is prohibited in state waters. Nevertheless, to work out an agreeable compromise between local commercial and recreational fishermen, limited commercial use was granted on a *small* percentage of *two* reefs. In 2017, two recreational fishing-only reefs were added to the network. By this time, it was also necessary to simplify the current fishing arrangements. So, to make it easier to follow federal fiscal guidelines and better manage the marine resources in and around the reef system, the Division petitioned the Mid-Atlantic Fishery Management Council and the National Marine Fisheries Service to designate New Jersey's entire artificial reef network a *Special Management Zone*. Only fishing by handline, rod and reel, or spear fishing is allowed within such an area. Special Management Zone status was ultimately granted and is expected to take effect July 31, 2018.

BUREAU OF SHELLFISHERIES

Russ Babb, 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 members work closely with the New Jersey Shellfisheries Council, an advisory board to the DEP Commissioner, on issues related to the protection and enhancement of New Jersey's shellfisheries. The Bureau is also committed to fostering aquaculture development and reviewing coastal development activities to protect critical habitat. Staff members manage surf clams in the Atlantic Ocean and oysters in Delaware Bay as well as examine the impacts of offshore sand mining. In addition, they are responsible for administering a licensing program for recreational and commercial shellfishermen, as well as the state's *Shellfish Aquaculture Program*.



Aerial view of a commercial-scale oyster farm located directly offshore of the Green Creek property.

Highlights

In FY18, the DEP purchased bay front property adjacent to the Delsea Woods Community in Green Creek, Cape May County. The richly diverse, nearly 207-acre area consists of various habitat types including a 167-acre mix of salt marsh, wetlands and uplands as well as 40 acres of riparian land in Delaware Bay. The purchase will provide critical access between the bay shore to New Jersey's only nearshore *Aquaculture Development Zone*, a key area used for oyster farming and aquaculture. A new

access route was necessary to mitigate the environmental disturbances caused by the previous upland entry site, particularly to migrating shorebirds like the federally threatened red knot. Because of its vulnerable status, the Division was federally required to create a biological assessment for oyster aquaculture in the area and its potential impact on the birds. This review contains a suite of conservation measures that all growers must follow to avoid or minimize any disturbance to red knots during the spring migratory stopover. The guidelines also required the DEP to provide *direct land access* to the zone. The new property provides a single point of ingress for aquaculture development zone leaseholders that not only protects the red knot but allows economically valuable shellfish aquaculture operations to continue. In addition, the public can still access the bay for outdoor recreation via a newly created road from Route 47, which has become part of the Dennis Creek Wildlife Management Area.

Staff participated in the 20th *Stock Assessment Workshop* for the Delaware Bay oyster resource and fishery. The annual meeting is attended by members of the Stock Assessment Review Committee, which comprises mainly scientists from Rutgers University and the division's Bureau of Shellfisheries as well as several members of the oyster industry. This year, the committee determined that New Jersey's stocks are a sustainable fishery and assigned a final harvest quota of 120,000 bushels. This allocation ranks among the largest ascribed in 20 years. Further evidence of success is an industry-wide shift in size toward larger, marketable oysters in daily catches and significant increases in the daily harvest for each vessel. In addition, the amount of time fished per day has decreased over the last several years indicating that market oysters have been easier to catch. Long term trends in size and health will continue to be monitored as part of an active, sustainable management program.

Bureau staff completed sampling efforts for the 2017 *New Jersey Surf Clam Inventory Project*. A total of 202 stations were sampled from Cape May to Shark River Inlet with an estimated stock calculated at 145,656 bushels. Although small "seed" surf clams continue to be documented at several stations between the Little Egg Harbor and Shark River inlets, large surf clams have been conspicuously scarce in this area. Unfortunately, the total estimated stock of surf clams has continued to decline and is currently at an *all-time low*. To help curtail this trend, current surf clam regulations dictate a harvest that *cannot* exceed 10-percent of the estimated stock.

Staff continued to work with the Atlantic Coast Section of the New Jersey Shellfisheries Council to refine New Jersey's *Shellfish Aquaculture Leasing Policy*, a document designed to provide guidelines for managing shellfish aquaculture leases in the state's tidal waters along the Atlantic Coast. This guide, the first of its kind, is the product of a two-year collaborative effort between the Bureau of Shellfisheries, Council and the Council's Standing Leasing Committee. The new leasing policy was developed to restructure the cumbersome and inefficient case-by-case leasing process of the past to a streamlined, definitive one. Since it is intended to be a "living" document, the policy will be revised as often as necessary to reflect the changing needs of the shellfish aquaculture industry as well as current regulations and statutes.

Bureau of Wildlife Management

Carole Stanko, 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 assists with stocking operations for the Division's Pheasant Stocking Program and aids 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 biologists also monitor wildlife population numbers and health conditions. The information collected is of critical importance to the Fish and Game Council, which relies on it to determine New Jersey's annual hunting and trapping regulations.

Highlights

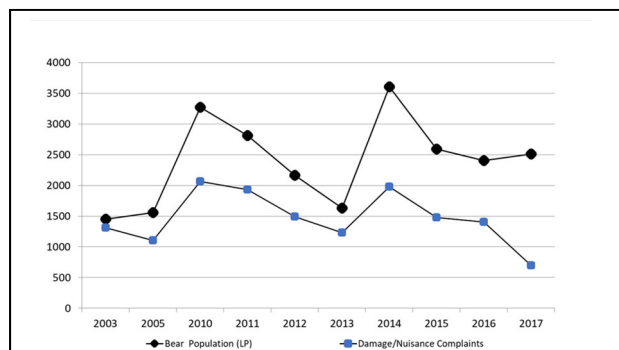
In accordance with the integrated management approach of the State's 2015 revised Comprehensive Black Bear Management Policy, New Jersey held its second modern archery hunt for black bears in 2017. The sex ratio in the 2017 season was 51% female and 49% male, indicating a genetically robust population within bear range. It also shows that the expanded hunt is beginning to achieve the desired objective – reducing the population density to a level that can be sustained within the habitat available.



Bears will frequent an area that has proven to be a reliable food source.

bears harvested. Coupled with the December segment's 138-bear harvest, the rate only reached 15.6%, thus triggering the four-day season extension. By the end of the extended season on December 16, 2017, the harvest rate increased to 16.3% demonstrating that these "contingency" days could be successfully used to help achieve a specific management objective. Bear complaints continued to decrease between 2016 and 2017 while the bear population remained relatively stable during this time frame.

The first segment in October is designed to target bears at a time when agricultural damage is greatest. The harvest rate reached 11.9% with 244 tagged



Black bear population size and damage/nuisance complaints in New Jersey. Black bear population estimates were calculated using a Lincoln-Petersen Index and represent the bear population on the day before the hunting season of the year estimated. Data are from 2003, 2005, and 2010 through 2017.

In partnership with staff from the Division's Endangered and Nongame Species Program, East Stroudsburg University and numerous volunteers, the first of a three-year project designed to assess the bobcat population and further define habitats critical to their survival was completed. A relatively new methodology utilizing hair snares for DNA collection and field cameras will enable staff to genetically and visually identify individual bobcats and other elusive species of interest such as fishers.

A study on Atlantic brant was initiated. With nearly 50% of the North American population wintering here, Atlantic brant are one of the most prevalent migratory bird species in New Jersey. The continental population is small however, with about 150,000 birds and population size has declined in recent years largely due to several consecutive years of poor reproduction.

Since Atlantic brant breed, raise their young, and migrate through mostly arctic wilderness, much of their ecology is still poorly understood. This project will fit Atlantic brant with Global Positioning System tracking devices during 2018-19 on both the wintering grounds in New Jersey and breeding grounds in Nunavut, Canada. The data obtained from these instruments should provide insight into many of the questions that have challenged Atlantic brant management for decades.

A bobwhite quail restoration project with the New Jersey Audubon Society continues to be monitored. This was the last year of a multi-year project in which wild quail caught in Georgia were relocated to the New Jersey Pine Barrens to study the survivability and breeding habits of these translocated birds. Biologists are also studying three additional locations in the Garden State to find suitable habitat for a full-scale restoration effort.



A deer herd seen grazing in a Garden State farm field.

Deer herds can cause severe damage to private acreage. To help farmers and other landowners protect their properties from deer-imposed devastation, the Division issues farmer depredation permits. Based on the data collected to date, a total of 2,508 deer were culled through these permits during the first half of FY18.

Additionally, four Community-Based Deer Management Permits were issued with almost 400 deer culled. The Division also assisted 18 municipalities, one college, two county park systems, and one federal property with developing plans to help control deer.

Staff members' research resulted in the following publications in FY18:

Harvest rates and cause-specific mortality of American black bears in the wildland–urban interface of the Mid-Atlantic region, USA. Andrew N. Tri1, John W. Edwards, Christopher W. Ryan, Colin P. Carpenter, Patrick C. Carr, Mark A. Ternent, Michael P. Strager, and J. Todd Petty. *Ursus* 28(2):1–13 (2017).

Estimating Waterfowl Carrying Capacity at Local Scales: A Case study from Edwin B. Forsythe National Wildlife Refuge, New Jersey. Kevin Ringelman with the co-authorship of Dr. Chris Williams, Paul Castelli, Mason Sieges, Rebecca Longenecker, Ted Nichols and Steve Earsom. *Journal of Fish and Wildlife Management* 9(1):106-116 (2018).

Endangered and Nongame Species Program

Dave Jenkins, Chief

The Endangered and Nongame Species Program was created in response to the New Jersey Endangered Species Act of 1973. More than 80 endangered and threatened species inhabit the Garden State. The program is committed to conserving New Jersey's biological diversity by working to maintain and foster endangered and threatened populations, as well as protecting the unique habitats on which they depend. The program is also responsible for administering the State Income Tax Check-Off for Wildlife, which benefits these species.

Highlights



A spotted salamander crosses a road to reach its breeding pool. CHANJ is committed to establishing safe travel corridors for migrating wildlife.

Over the past year staff have been working to finalize the *Connecting Habitat Across New Jersey* project slated for public release in the fall of 2018. This project is the collective effort of a multi-partner, multi-disciplinary working group representing more than 40 different agencies/organizations across the state to address the importance of connecting habitat fragments by developing safe corridors for migrating wildlife. The public can download a series of maps, also available as a web app, identifying core terrestrial wildlife habitats and key linkages across the state. It will also provide guidance by highlighting the actions needed to restore and maintain those areas through strategic land preservation, habitat management and road barrier mitigation. The

materials are intended to encourage individuals in the land use, conservation, and transportation planning fields to share their skills by collaboratively investing in the long-term sustainability of New Jersey's terrestrial wildlife.



A black bear and a bobcat seen using under-road culvert passages during the night.

The piping plover, a New Jersey endangered and federally threatened beach nesting bird species, has once again returned to Island Beach State Park in Ocean County. Their recent appearance is the result of a successful partnership between the DEP's Divisions of Fish and Wildlife, and Parks and Forestry, as well as the U.S. Fish and Wildlife Service to carefully manage and monitor the birds. Seen nesting in the park's southern natural area in 2016 and 2017 - the last documented beachfront nesting since 1989 - the birds have recently begun to utilize the northern natural area for the first time since the early 1980s. The population has grown from one fragile



Photographer Kevin Knudsen captures a tiny plover chick surveying the world around it.

pair to four with another two males searching for mates. Through the commitment of staff and a dedicated group of volunteers, the 2018 season is beginning to appear just as successful with all the birds colonizing the northern area where the risk of human disturbance is much lower.

In early 2018, Endangered and Nongame Species Program biologists completed their revisions to New Jersey's *State Wildlife Action Plan* for U.S. Fish and Wildlife Service approval. The USFWS must approve the plan every 10 years if New Jersey is to receive critical federal *State Wildlife Grant* funding, a subsidy that helps sustain ENSP's important work. The plan is a comprehensive review of New Jersey's *species of greatest conservation need*. It also identifies potential impacts to each species' survival and the actions required to successfully conserve those populations. In this revised edition, biologists identified **107 focal species** representing some of the most imperiled fish and wildlife species in the state. This index, combined with a list of associated conservation *focal areas* of New Jersey's most critical wildlife habitats, will allow biologists to better assess at-risk populations and determine the best way to keep this diverse array of species a permanent part of the Garden State.

Office of Fish and Wildlife Health and Forensics

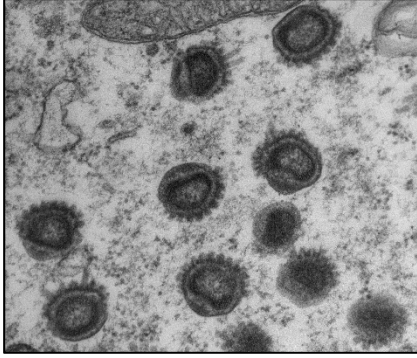
Dr. Jan Lovy, Research Scientist

The Office of Fish and Wildlife Health and Forensics 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 available 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 the Office of Fish and Wildlife Health and Forensics to determine the cause and develop a response strategy.

Highlights

Freshwater Fish

Annual health inspections of New Jersey's two state fish hatcheries – Pequest and Hackettstown were completed, and all fish were certified **free** of any *pathogens of concern*. Testing was conducted for eight significant pathogens (*Aeromonas salmonicida*, *Yersinia ruckeri*, *Edwardsiella ictalurid*, *Edwardsiella tarda*, *hemorrhagic septicemia*, *infectious pancreatic necrosis*, *infectious hematopoietic virus* and *spring viremia of carp*). In addition, 60 rainbow trout from the Pequest Hatchery were tested for whirling disease and found healthy. Pequest did experience a mild outbreak in FY18 though, caused by the bacterium *Flavobacterium psychrophilum*, which resulted in several mortalities until it was diagnosed and successfully treated. Unfortunately, this is a widespread bacterium, historically known to afflict hatchery-reared trout.



Carp edema virus, responsible for the fish kill in Mill Pond.

During this reporting period, the ***first*** instance of *carp edema virus* was detected in Mill Pond (Bergen County) causing significant mortality in the pond's wild population of adult Common carp. This is a serious disease specific to this species and in addition to being the first recognized occurrence in New Jersey, it is the first record of this virus causing mortality in a North American wild carp population.

Marine Fish

The first genetic detection of *viral hemorrhagic septicemia* in New Jersey was discovered in an Atlantic herring sampled from an ocean trawl survey. This is a lethal disease, most commonly affecting marine fish species in the Northern Hemisphere. Genetic testing revealed the genotype of this virus was originally known to occur along the coast of the Pacific Northwest, although in the past several years it has been documented in Maine and eastern Canada. Surveillance will continue to determine the incidence and distribution of the disease in New Jersey's marine waters.

In September, *ulcerative mycosis* was detected in young Atlantic menhaden from the Delaware River. The infection is caused by the fungus *Aphanomyces invadans*. Previously reported in the area, low salinity is known to play a significant role in advancing the disease and an extended period of heavy rainfall is most likely what caused the outbreak.

Wildlife

The annual survey for Chronic Wasting Disease (CWD) was completed. CWD is a serious threat to the health of white-tailed deer populations. A total of 543 hunter-killed deer were sampled statewide and **all** tested free of the disease.

In October, *Epizootic hemorrhagic disease* was detected in white-tailed deer in the Wallkill River National Wildlife Refuge in Sussex County. A total of 21 dead deer were observed in a 5-mile stretch of the river. Though it has been occurring sporadically since 1955, it is the first report of the *serotype-6* strain of this disease in New Jersey. This common viral disease is caused by a biting insect and usually ends with the first significant frost.

Office of Environmental Review

Kelly Davis, Principal Biologist

The Office of Environmental Review studies wildlife, marine fisheries, shellfisheries, freshwater fisheries and endangered species concerns related to state and federal permitting programs. Data is gathered of any development projects that could potentially cause negative impacts to these resources, and is used to protect, maintain and enhance fish and wildlife species and their habitats. Biologists also review and provide recommendations for the DEP's Land Use Regulation Program as well as the Bureau of Dam Safety and Flood Control, and the Solid and

Hazardous Waste Program. In addition, the Office of Environmental Review offers input to federal agencies including the United States Army Corps of Engineers, Federal Energy Regulatory Commission, United States Department of Interior’s Bureau of Ocean Energy Management, Federal Aviation Administration and the Department of Defense.

Highlights

During this reporting period, staff conducted a total of **382** environmental review assessments and attended **145** meetings on proposed development projects throughout the state.



Map of the Warren County District Landfill property transfer.

Staff spent a significant amount of time reviewing and evaluating a proposed expansion project submitted by the Warren County District Landfill. Upon examining the development *history* of the site, it was determined that the original mitigation requirements were never performed, and that the permittee submitted several plans for review over the years but failed to make any of the assigned modifications. Now with a recent request for landfill expansion, the office has again required the applicant to implement specific mitigation caveats and is committed to making sure the

landfill complies. After extensive deliberation, the county finally agreed to make the necessary reforms and donate 53.42 acres of land to the DEP.

Staff met with representatives of the Clean Harbors Bridgeport Disposal Waste Water Treatment Plant to discuss the potential impacts of a recently submitted discharge proposal on the area’s existing shad and herring run. After a thorough review of the research provided, Office of Environmental Review staff and Bureau of Marine Fisheries staff concluded that the proposed discharge activity would change the chemical make-up of nearby Raccoon Creek, which is a key thoroughfare used for spawning, and ultimately impair the shad and herring migration. At present, New Jersey’s existing shad and herring stocks are extremely low requiring a harvest moratorium to assist recovery of the two species. After careful consideration, a permit to allow the proposed discharge activities was denied.

In FY18, staff began a crucial revision of the *2008 Guidance Manual for the Processing of Land Use Regulation Permits & Protection of Fish and Wildlife Resources*. This important document assists government officials in developing land use regulations and mitigation measures to safeguard fish and wildlife populations from potential impacts caused by altering the environment. The revised manual is slated for completion next year.

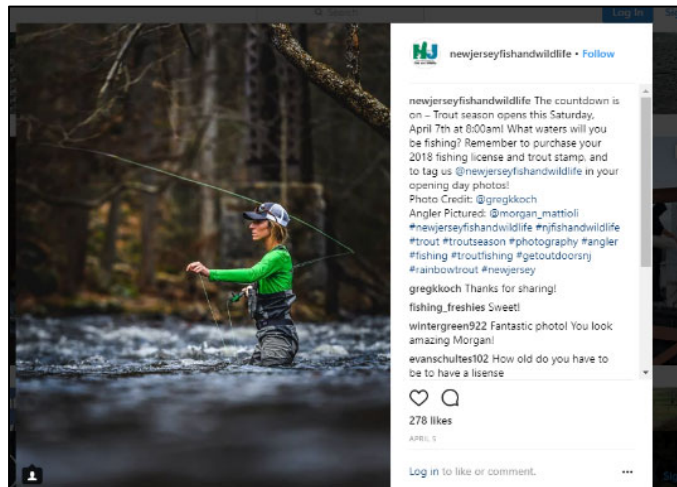
Bureau of Information and Education

Al Ivany, Chief

The Bureau of Information and Education educates New Jerseyans on the needs and value of fish and wildlife. To do this, staff interprets information on biology, ecology and conservation to help the public better understand the unique needs of each species, as well as their environmental, recreational, aesthetic and economic values. Outreach efforts also promote the wise use of these resources and the need to safeguard them for future generations.

Highlights

In FY18, staff created a Division *Instagram* account (@newjerseyfishandwildlife) to help engage new audiences through social media. Photographs and captions representing the wildlife of New Jersey, hunting and fishing opportunities, record fish catches, law enforcement efforts, unique events and educational programs have all been posted. Bureau staff members administer the account, which has been growing steadily. To date, more than 1,400 people are following the Division on *Instagram*.



The Division is now on Instagram.

During FY18, the Bureau of Information and Education upgraded its electronic messaging capabilities by entering into a contract with one of the leading companies in government technology, *Granicus/GovDelivery*. Granicus/GovDelivery provides an email platform exclusively engineered to connect government entities with the public. Far superior to the Division's previous platform, email messages can now be sent more efficiently *with* attachments and photographs as well as seasonally attractive, changeable headers. A pop-up screen on the Division's website inviting visitors to sign up for any of the fish and wildlife topics offered has greatly increased visibility and subscribership.

Development of a new Mobile Conservation Outreach Trailer continued throughout FY18. The project is now in the construction stage with completion slated for fall 2018. The trailer will be an integral part of the Division's focus on community outreach and its goal to increase public awareness of the beneficial partnership between our agency and the U.S. Fish and Wildlife Service's Wildlife and Sportfish Restoration program.

Staff coordinated and held the annual WILD Outdoor Expo at the Colliers Mills Wildlife Management Area in Ocean County on September 9-10, 2017. The event was an outstanding success with a total attendance of nearly 8,500 people. Feedback from attendees and vendors was extremely positive.

Office of Mosquito Control Coordination

Scott C. Crans, Administrator

Created in 1974, the New Jersey State Mosquito Control Commission's Office of Mosquito Control Coordination is based in the Division's Trenton office. The office coordinates programs funded by the New Jersey State Mosquito Control Commission and serves as a public face on all state mosquito control matters. Actively collaborating with different bureaus in the Division and across DEP is a priority, as is maintaining existing standards and developing new methods of mosquito control. These efforts ensure that county-based mosquito control agencies across the state are improving the public's quality of life by reducing mosquito populations in an environmentally sound manner.

Highlights

Throughout the summer, the Office of Mosquito Control Coordination continued to partner with several state, county and university labs to screen mosquito, equine and avian blood samples for mosquito borne viruses that are of veterinary importance and of risk to public health. The office is funding and overseeing the collaborative effort, which involves labs from the New Jersey Department of Health, New Jersey Department of Agriculture, Cape May County Department of Mosquito Control and New Jersey Agricultural Experiment Station at Rutgers University. Ongoing surveillance provides an early warning system for local mosquito control programs.

Local transmission of West Nile Virus and Eastern Equine Encephalitis Virus pose the greatest risk in New Jersey, although the travel associated introduction of Zika, Chikungunya and Dengue viruses is also a significant concern. To date, there have been **no** occurrences of these three exotic viruses in the state.

Analysis of FY18 sampling efforts indicate an active year for West Nile Virus. Out of 182,759 mosquitoes tested, 861 samples comprised of nine mosquito species were found positive. Regarding Eastern Equine Encephalitis Virus, sampling efforts revealed an average year with 18 positive samples. The unusual occurrences in North Jersey equines as well as one human last year, prompted additional surveillance of mosquito populations suspected of transmitting the disease. Intensive monitoring will continue to screen for presence of the virus.

As part of the DEP's continued Zika virus initiative, public awareness and various outreach activities were introduced to prepare residents for the potential introduction of the disease. These educational efforts as well as the surveillance and control of exotic mosquito species are being funded through a series of federal grants specially earmarked for county use. Controlling exotic container inhabiting mosquitoes is such a time and resource intensive undertaking that few states have experienced long-term success, so sustaining these efforts in New Jersey will be a challenging prospect.

A workshop sponsored by the Centers for Disease Control and Prevention was offered to all agencies in the region with an interest in screening the exotic mosquito species (*Aedes*

albopictus) for the development of insecticide resistance. Sixty-five individuals attended with representatives from 19 New Jersey counties, the Department of Health and Rutgers University as well as New York, Pennsylvania and Delaware’s state mosquito control operations. New Jersey’s current insecticide monitoring program, recently reinstated by the State Agricultural Experiment Station at Rutgers, will continue under Office of Mosquito Control Coordination guidance.

The office continued its collaboration with the Division’s Bureau of Freshwater Fisheries to supply multiple species of mosquito larvae-eating fish to county mosquito control agencies throughout the state. Biological control of mosquito populations is part of the state’s *Integrated Vector Management Plan* and helps limit mosquito larvicide and adulticide use in certain areas.



Aerial mosquito control via helicopter.

The *State Airspray Program*, which is primarily directed at controlling immature mosquitoes, treated **39,087** acres in 26 separate missions. Eight county commissions were assisted through these contracted services.

Office of Business Administration

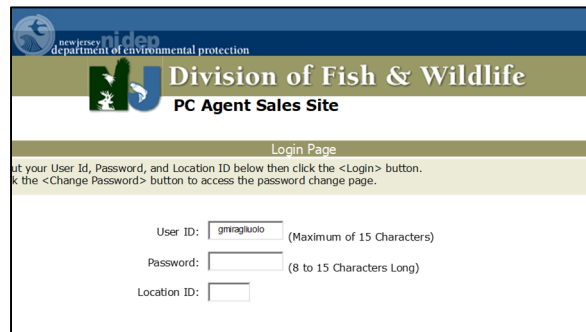
Paulette Nelson, Assistant Director

The Office of Business Administration is responsible for the Division’s licensing, accounting, budgeting, purchasing and billing functions. This office has three primary elements:

- *Licenses and Revenue*
- *Permits*
- *Budget and Procurement*

These three sections work together to provide fiscal services for the Division. In addition, Office of Business Administration staff administered 36 federal grants during this report period for the benefit of New Jersey’s wildlife.

The following chart illustrates revenue, appropriations and expenses for FY18.



Purchasing licenses and permits online is convenient and easier than ever before.

FY18 DFW ANNUAL REPORT

RESOURCES

General State Fund Appropriation Hunters & Anglers	3,212,000
General State Fund Appropriation Shellfish and Marine Fisheries	3,540,000
General State Fund Appropriation Endangered Species	206,000
Subtotal GSF Appropriations	6,958,000
Hunters & Anglers Licenses/Permits	13,132,384
Lease Revenue	2,188,315
Endangered Species Revenue (License plates and Tax check-off)	309,571
Waterfowl Stamp Revenue	66,059
Miscellaneous Dedicated Account Revenue (Exotics, Sedge Island, Hooked on Fishing, Pump Out)	423,014
Shellfish and Marine Licenses/Permits	601,047
Subtotal Revenues	16,720,390
Federal Salary & Fringe Reimbursements	4,244,713
Federal Operating Funds	4,342,703
Carryforward funds available from prior years- Recurring Non-Federal accounts	4,484,576
Non-Federal reimbursements and transfers	(156,050)
Subtotal Federal & Other funding	12,915,942
TOTAL RESOURCES	36,594,332

EXPENDITURES

Hunters & Anglers Salaries (Includes seasonals, overtime, clothing allowances)	11,360,898
Shellfish and Marine Fisheries Salaries (Includes seasonals, overtime, clothing allowances)	3,027,096
Endangered Species Salaries (Includes seasonals, overtime, clothing allowances)	1,192,955
Hunters & Anglers Fringe Benefit costs assessed by Treasury Office of Management & Budget	5,860,042
Miscellaneous Dedicated Expenditures (Exotics, Sedge Island, Hooked on Fishing, Pump Out)	287,354
Waterfowl Stamp Expenditures	119,392
Hunters & Anglers Operating (equipment, repairs, fuel, utilities, licensing vendor...)	2,795,483
Shellfish and Marine Operating (equipment, repairs, fuel, utilities...)	1,081,816
ENSP Operating (equipment, repairs, fuel, utilities...)	90,226
Federal Operating Expenditures	4,233,571
DEP Assessments (Deputy Attorney General's Office, DEP Division of Information Technology, Office of Administrative Law, Environmental Research Library, NJ Office of Information Technology, Rent, Training Office)	921,470
TOTAL EXPENDITURES	30,970,303
*BALANCE	5,624,029

*Reflected balance includes funds in recurring nonfederal accounts dedicated for specific purposes. It is anticipated that a portion of the available balance will be needed for retroactive salary, fringe and clothing payments per employee contracts. Information as of 8/24/18.