

FY 2020 Annual Report

July 1, 2019 – June 30, 2020



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

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Department of Environmental Protection
Division of Fish and Wildlife
Mail Code 501-03
P.O. Box 420
Trenton, NJ 08625-0420
www.njfishandwildlife.com

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Message from DEP Commissioner Catherine R. McCabe



I am pleased to present the Fiscal Year 2020 Annual Report for the Department of Environmental Protection’s Division of Fish and Wildlife covering July 1, 2019 to June 30, 2020. Each section of the report begins with an overview of the work of each of the Division’s bureaus and offices along with several highlights from the year.

Division of Fish and Wildlife staff dedicate their careers to fostering healthy fish and wildlife populations and protecting the habitats on which they depend. The critically important work they do managing our wildlife brings species back from the brink of extinction, protects wildlife habitat and provides outstanding wildlife-oriented recreation.

Fish and Wildlife staff are also committed to providing educational programs about our wildlife and natural resources to all residents throughout the state and are continually expanding outreach efforts to reach more people directly in their communities.

I encourage you to read through this report and learn about the many conservation achievements accomplished by the Division of Fish and Wildlife during this fiscal year. I also encourage you to keep up on Fish and Wildlife activities, research, programs and events by following them on Facebook @NJFishandWildlife and Instagram @newjerseyfishandwildlife and by signing up for a variety of email lists which can be accessed on their website at www.njfishandwildlife.com.

New Jersey’s varied landscapes, abundant wildlife and natural resources provide endless opportunities for outdoor enthusiasts to participate in their favorite activities year-round. Please take the time to enjoy these opportunities and “experience New Jersey” at its best. There is no need to travel far as everything you need is right here in the Garden State!

New Jersey Division of Fish and Wildlife

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 357,000 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, reptiles, and endangered and nongame species. Fish and Wildlife staff also educate the public about wildlife-related issues, and its conservation police officers enforce the laws that protect wildlife.

This report contains the many accomplishments of an experienced and 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 also relies on a portion of the State General Appropriation to support marine fisheries and endangered species conservation as well as the many associated 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 (Bureau) 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

Trout Season Modified

In response to the global pandemic, the 2020 Trout Season was modified to help redistribute angling pressure and allow anglers to better maintain proper social distancing practices in accordance with the Centers for Disease Control and Prevention (CDC) guidelines. An accelerated stocking schedule began on March 16 with 539,640 trout distributed by April 10 as compared to the 183,000 typically distributed prior to opening day. To redistribute the traditionally heavy opening day angling pressure, the season was opened early on April 1 for Catch and Release Only and opened completely on April 11 (the originally scheduled opening date). The final remaining 49,750 fish of the spring trout allotment were distributed later in the season from May 18 to May 21. To accommodate the accelerated schedule and continue to redistribute anglers during the season, all in-season fishing closures were removed. Anglers were urged through signage, website and social media to practice safe social distancing at all times.



Staff displays a net of trout ready to be stocked.

Going Green

Energy efficient upgrades were completed at both the Pequest Trout Hatchery and Hackettstown State Fish Hatchery. At Pequest, upgrades included replacement of all lighting fixtures with LED lights in the main, nursery and maintenance buildings as well as the exterior lighting attached to the buildings. Three boilers were also replaced in the main building. Similar upgrades were completed at Hackettstown. The projects were part of the New Jersey Board of Public Utilities' Clean Energy Direct Install Program which covered 70% of the upgrade costs. Through this program, nearly \$162,000 worth of upgrades were completed at a cost of \$52,527 to the

Division. The annual energy savings estimate is \$23,630 with a project payback period of 2.13 years.

Brook Trout Restoration



Removal of excess brown trout has allowed the brook trout population to rebound.

Brook trout restoration efforts continued at Rinehart Brook, a tributary to the Black River within Hacklebarney State Park (Morris County). Initiated in 2017, brown trout greatly outnumbered brook trout by more than 12 to one. Following two years of brown trout removal by electrofishing, brook trout numbers have increased by 13-fold with 841 individuals documented in 2019. In addition to increased numbers, the study determined that utilizing multi-pass electrofishing (a method to estimate fish abundance within a site by noting the rate catches decrease over consecutive passes and incorporating that data into statistical population models) is an efficient way to remove an excess of one species (in this case, brown trout) to bolster

another. The marking and recapturing of brown trout during the study exposed another challenge to biologists in that the area's natural waterfalls did not prevent them from recolonizing the stream. Subsequently, this project will continue with the intent to deter the reestablishment of brown trout.

Hatcheries Maintenance

This year, over 5.5 million fish were raised at the Hackettstown Hatchery, including 21,500 fathead minnows and gambusia to aid the state's mosquito control efforts. Winter maintenance work also continued at Hackettstown with the dredging of five ponds. Materials for the project were covered by Corporate Business Tax funding, and the generous loan of a long reach excavator from the Cape May Mosquito Commission helped immensely. Pond dredging greatly improves fish production and with the time and effort saved by the excavator, staff were able to complete numerous road and pond bank restorations around the facility.

At the Pequest Hatchery, the original nursery building's pump-back water system (ca. 1980s) was replaced. This important system returns filtered/clean water from the nursery into the raceways where the older fish are kept until they are ready to be stocked. The new variable speed pumps make it easier to adjust the pumping rate of the water into the aerator building where it is filtered before reaching the raceways to begin the cycle again.

Research and Management

The Bureau of Freshwater Fisheries Research and Management Unit conducted 103 fisheries surveys at 59 waterbodies throughout the state (48 rivers/streams and 11 ponds/lakes) to address

a variety of existing and newly emerging management needs. Fisheries biologists captured, identified and counted over 21,000 fish representing 60 species.

Bureau of Land Management

Jason Hearon, Chief

The Bureau of Land Management is responsible for administering the Division’s Wildlife Management Area (WMA) System that encompasses more than 357,000 acres on 122 separate areas. These areas are managed for a diversity of fish and wildlife species through a variety of habitat improvement projects. 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 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

Statewide Investment in Range Upgrades



The newly improved range at Millville (left) and a close-up of the shooting platforms.

Upgrades to the Millville Wildlife Management Area shooting range (Cumberland County) were completed and include bench rests with seats for a steady shooting platform, an overhead concrete baffle to eliminate blue sky, covered shooting stations to protect equipment

from the elements, and improved parking access designed to meet American Disabilities Act standards. These upgrades will provide hunters and recreational shooters with a safe, clean, user-friendly environment in which to practice using centerfire rifles up to .30 caliber, muzzleloaders and shotguns.

The Millville Range is the second of five Wildlife Management Area shooting ranges slated for improvements. The upgrades are made possible through state dedicated conservation dollars and revenue from the federal Wildlife Restoration Act.



A shooting bench made possible through the assistance of Eagle Scout Aiden Mulvey.

Central Region Gets the Lead Out

In the Central Region, a lead remediation project was conducted at the Stafford Forge WMA Rifle Range in Barnegat, Ocean County. Over two tons of lead waste was removed and recycled from the range, and the shooting berm was reconstructed. During the fall/winter months, covered shooting stations will be constructed at both the Stafford Forge and Colliers Mills (Jackson, Ocean County) rifle ranges.

At Colliers Mills, a new 100-yard archery range was created in a joint effort between Division staff and a dedicated eagle scout. The site is set on an old shotgun skeet range that had been closed for more than 10 years. The new range sports five lanes for shooting ranging from 20-100 yards.

Creating Habitat for Wildlife in North Jersey



An example of the early successional habitat created at the South Branch WMA.

In 2020, a management plan for grassland bird habitat was initiated at the 423-acre South Branch WMA (formerly Merck & Company property) in Hunterdon County. The 5-year plan calls for the removal of approximately 110 acres of row crops from agricultural production. In addition, 140 acres will be dedicated to creating native warm season grass fields and 20 acres will be set aside for pollinator habitat. In the spring, approximately 35 acres were planted with a short-growing native warm season

grass/pollinator seed mix to benefit species dependent upon early successional habitat (i.e., fast growing grasses, shrubs and trees that must be regularly disturbed to maintain a stage of young growth).

At the Black River Wildlife Management Area, sportsmen will notice improvements to the fields, several of which were planted with warm and cool season grasses. Prior to planting, the lands were treated and cleared to control invasive/competing vegetation, such as autumn olive, black locust and mile-a-minute vine. In addition to the grass/wildflower seed mix, soybeans, corn, sorghum and forage peas were planted to benefit the area's wildlife.

Bureau of Law Enforcement

Sean Cianciulli, Acting Chief

The Bureau of Law Enforcement is responsible for enforcing regulations that protect wildlife species and their habitat. As one of the oldest organized law enforcement agencies in 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 make it beneficial is a paramount assignment that conservation police officers are proud to perform.

Highlights

North – Illegal After-Hours Deer Hunting

During the Winter Archery Deer hunting season, Conservation Police Officer (CPO) Adam Merritt and CPO Lieutenant Steven Sutton were actively working an illegal after-hours deer hunting case in Wantage Township (Sussex County) when late on the afternoon of January 31, they received a report of two men entering the property with crossbows. Responding to the scene shortly before the season was officially set to end at 5:46 p.m. that very day, both officers observed the hunters in tree stands with cocked crossbows and special lighting equipment to hunt into the night. Waiting until



Two crossbows and the Glock pistol seized during the operation.

approximately 10:30 p.m., the CPOs made contact with the men who were still hunting in the woods. The suspects were apprehended and found to be in possession of crossbows and a Glock auto pistol that was in one of the individual's belt holsters. The individuals made full confessions and also admitted to harvesting multiple deer after hours in the recent past. In total, 18 summonses were issued for out of season and after-hours deer hunting, possession of an illegal weapon and projectiles during the course of archery deer hunting, use of affixed lights while deer hunting and failure to tag and register deer as required. The case was later settled with both individuals paying a total of \$6,468 in penalties.

Central – Online Video Posts Lead to Violations



Suspect seen wearing an illegally possessed turkey vulture carcass that had been made into a hat.

CPO Sal Garofalo initiated an investigation into an individual who was posting videos online containing possible illegal wildlife possession violations. Astoundingly, CPO Garofalo found more than 200 online videos posted over the course of two years, all originating in Burlington County. Apparently, the individual had been creating these videos to educate the public on living off the land. During the countless hours of review, CPO Garofalo identified multiple violations for taking and possessing various wildlife species. In total, seven summonses were issued, including harvesting a wild turkey during a closed hunting season, harvesting snapping turtles without a valid fishing license, possessing illegal leg hold traps, possessing nongame species without a permit (a turkey vulture carcass that was made into a hat), and collecting goose eggs without a permit.

South – OGT Complaint Uncovers Illegal Trophy Buck Harvests

In early January 2020, officers received an Operation Game Thief (OGT) complaint concerning individuals loading a large white-tailed buck into a vehicle at a Cherry Hill (Camden County) commercial property. The case was referred to CPO Detective Todd Vazquez for investigation, who linked the vehicle to a Pittsgrove Township (Salem County) man who possessed a New Jersey hunting license. Examination of the harvest records showed the suspect registered the deer but claimed it had been killed in Salem County. After months of further investigation utilizing social media references and physical evidence obtained in the field, Detective Vazquez was able to identify *eight* trophy class bucks that had been harvested by the accused since 2016. The deer

were either not registered or registered as being harvested in the wrong Deer Management Zone. After extensive interviews with several hunters associated with the case and when confronted with the evidence, the suspect admitted to committing the crimes. With that, all eight trophies were seized, and Detective Vazquez was able to file multiple charges of failure to register a white-tailed deer, illegal possession of white-tailed deer, hunting in the improper zone, over bag limit of white-tailed deer and hunting on Sunday. The case was settled in municipal court with the suspect entering a guilty plea and being assessed a fine of \$8,112 plus associated court costs.



Just one of eight trophy bucks illegally harvested since 2016.

Marine – Undersized Striped Bass Seizure



Marine CPOs display the seized bass.

Three CPOs in the marine region (CPO Meyer, Detective Harp and Lieutenant Petruccelli) made a pre-dawn apprehension of two Atlantic City men possessing 66 undersized Atlantic striped bass. Unwittingly, the fishermen drew attention to themselves when officers on patrol saw them operating the vessel at high rates of speed from various fishing locations in the dark. Due to foggy conditions throughout the night, officers lost the vessel several times, but managed to relocate and follow it back to a private dock in Atlantic City. All 66 striped bass in the men's possession were under the size limit (between 13 and 24 inches). The men were charged with undersize and over the limit violations carrying a penalty of \$100 per fish/per violation. Additionally, the men were charged with careless operation of a vessel, failing to utilize navigational lights, operating a power vessel without valid registration and failing to have appropriate vessel safety gear. All fishing gear was

seized for evidence and the officers will seek forfeiture in court. Total penalties in this case exceed \$12,000. The fish were subsequently donated to the Atlantic City Rescue Mission.

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

Importance of Outreach, Education and Communications



The significance of public outreach is an important priority for the Marine Fisheries Administration.

Within the Marine Fisheries Administration, an outreach coordinator position was created to serve as a collaborative liaison between the MFA and the Division's Bureau of Information and Education. As part of the initial approach, a draft *Outreach, Education & Communications* document was created to highlight overall strategies, objectives and methods deemed integral to developing a successful outreach program. So far, much of the preliminary work has focused on prioritizing program areas and implementing a future course of action. Under guidance of the outreach coordinator, a working group and three sub-committees (website development and enhancement, communications and public events) were established and tasked with highlighting MFA staff members' efforts to successfully manage New Jersey's coastal resources.

Offshore Wind

Staff has remained committed to working closely with their DEP colleagues, stakeholders, regulators, research institutions and developers to responsibly generate 7,500 megawatts of offshore wind power by 2035. Throughout FY20, the MFA team immersed themselves in meetings and webinars, analyzed copious amounts of fisheries data, and reviewed documents and other literature to assist in forming sound DEP policy. Included in the material was the draft *2020 Solicitation Guidance Document* requiring provisions for a Fisheries Protection Plan. Staff has had regular meetings with developers to encourage open dialogue on project plans, such as cable routes, baseline studies, transit corridors and operation/maintenance activities.

Coordination with other state agencies, federal regulators and academic researchers has also offered valuable information exchange. All these efforts have allowed the MFA to better understand potential impacts of offshore wind development, identify data gaps and evaluate opportunities for mitigation as New Jersey moves forward in achieving its offshore wind energy goals.

BUREAU OF MARINE FISHERIES

Jeffrey Brust, Chief

The Bureau of Marine Fisheries (BMF) is responsible for developing and implementing management programs that protect, conserve and enhance New Jersey's marine fisheries resources. To formulate comprehensive state management plans, the BMF studies New Jersey's marine species and the diverse 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 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

eDNA Sampling to Identify Population Dynamics

Sampling for environmental DNA or eDNA, is a relatively new technology that has been proving beneficial in detecting the presence or absence of a particular fish species in a given area. To further evaluate the effectiveness of this new scientific method and possibly expand it for additional uses, the Division's Bureau of Marine Fisheries has partnered with both Monmouth and Rockefeller universities to conduct the first study to observe how well eDNA samples can identify not only the presence or absence of a species, but also abundance/quantity as compared to traditional capture-and-record methods.

One-liter water samples were collected prior to New Jersey's Ocean Trawl Survey tows in January, June, August and November 2019. The specimens, once tested, revealed the eDNA of nearly all species caught at the trawl sites as well as some open ocean (pelagic) travelers and bottom dwellers not found in the vicinity. There was also a strong relationship between the amount of eDNA detected in the water samples and the abundance of fish captured in the trawl.

This groundbreaking study shows eDNA testing as a promising new tool for determining marine fish presence and relative abundance as an effective alternative to traditional sampling methods.

Staff Takes on Two Additional Federal Surveys

The National Oceanic Atmospheric Administration’s Marine Recreational Information Program (MRIP) is a federally funded endeavor comprised of several surveys that when conducted together, provide estimates of saltwater recreational fishing catch and effort. For the last five years in New Jersey, BMF staff have conducted two of the surveys – the Access Point Angler Intercept Survey (APAIS) and the For-Hire Survey (FHS). Beginning in 2020, staff took on the administration of two more – the For-Hire Telephone Survey and the Large Pelagics Telephone Survey.

The primary objective of the For-Hire Telephone Survey is to collect fishing effort information from New Jersey’s for-hire fishing industry (i.e., party and charter boat services). Conducted March through December, the survey targets a randomly drawn sample of vessels each week. BMF staff take the weekly list and call each contact using a standardized questionnaire, recording the information collected, including number of trips, number of anglers per trip, time spent fishing and target species.

The Large Pelagics Telephone Survey is similar and conducted May through October. Vessel captains who target large pelagic species like tunas and sharks are interviewed. Owners/operators are asked to provide information on catch locations, gear used and other data relevant to highly migratory species.

Striped Bass Bonus Program Turns 30



A recreational fisherman proudly displays his bonus bass.

The Striped Bass Bonus Program (SBBP) is extremely popular with recreational anglers and has been administered by BMF staff for 30 years. Eastern coastal states are all allotted a commercial quota, but unlike these other states, New Jersey prohibits the commercial netting or sale of striped bass. In 1990, rather than keep a quota with no purpose, the commercial allotment was transferred to the recreational fishing sector and New Jersey’s SBBP was born.

Although modified throughout the years, the SBBP was created to offer anglers a chance to participate in the management process by providing data to the BMF regarding their fishing activities in exchange for the opportunity to harvest an additional striped bass. The data has proved a critical component to managing striped bass in New Jersey.

With the COVID-19 pandemic, BMF staff in FY20 were challenged to either suspend the program for the first time in 30 years or develop creative solutions to administer it remotely. Prior to COVID, staff processed approximately 5,000 mail-in applications per year. The pandemic, however, would require a mail-in only application process that was simply unfeasible. So, to keep the SBBP going, the application process was changed from mail-in to an electronic format utilizing e-mail. This still did not resolve the hurdle of having to mail SBBP permits and materials to individual applicants while state offices remained closed to the public. So, to manage the fulfillment process, a team of staff members were dedicated to processing e-mail applications and mailing out materials from their homes. In addition, a “contact-less curbside-pickup” protocol was adopted so that boat owners and captains enrolled in the program could pick up their permit packets and logbooks outside of the BMF’s Nacote Creek Office. Amidst all the challenges posed; more applications were processed to date in 2020 than in any of the last four years.

BUREAU OF SHELLFISHERIES

Russ Babb, Chief

The Bureau of Shellfisheries directs shellfish harvest and production programs along 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 councils (Atlantic Coast and Delaware Bay) 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.

Highlights

Shellfish Aquaculture – Fostering Smart Growth

Bureau of Shellfisheries’ staff continues to oversee the Shellfish Aquaculture Working Group (SAWG). Consisting of various state and federal agencies (NJDEP, NJ Department of Agriculture, NJ Department of Health and the U.S. Army Corps of Engineers), SAWG was created in 2014 to serve as a forum to promote smart growth as well as discuss the complicated matrix of permitting and regulatory issues affecting the shellfish aquaculture industry.

During this reporting period, SAWG members established individual committees to better address specific issues relevant to the aquaculture community. Five committees were created to help navigate the most important elements of the industry: Information Coordination and Data Sharing; Permitting Guidance; Regulatory Issues; Commercial Shellfish Aquaculture Website Development; and Stakeholder Outreach.

By organizing the fundamental issues into five segments, each committee can concentrate on addressing its own specific challenges. For instance, the Permitting Guidance Committee created several documents: an overview of statutes and regulations applicable to commercial shellfish aquaculture, a list of related multi-agency requirements, and a SAWG-member contact list. The Stakeholder Outreach Committee held an information session in February for commercial shellfish aquaculturists to learn about federal and state agencies' roles regarding the industry, and the Website Development Committee continues to add resources and refine content for users.

Shell Recycling Program



Staff continues to coordinate the state's *Shell Recycling Program* (SRP) in partnership with the New Jersey Agricultural Experiment Station (Rutgers University), Stockton University Marine Field Station and

the Jetty Rock Foundation. Through the SRP, used shell is collected weekly from one Atlantic City casino and two local restaurants. Prior to the program, discarded clam and oyster shells from these establishments were simply being hauled to an area landfill but are now being put to good use as cultch material (habitat for oyster larvae made of crushed shell). In this case, the cultch is placed in the Mullica River to form a seedbed. Later, when the oysters are old enough, they will be transplanted to a harvest bed along the coast to eventually become part of a renewable, self-sustaining cycle.

To solidify the future of the program, bureau staff members are developing a proposal for submission to the Restore America's Estuaries National Estuary Program Coastal Watershed Grant Program. If awarded, the grant would allow the SRP partnership to expand their efforts to increase additional casino/restaurant participation as well as develop an engaging community outreach plan to include public drop-off sites so that individuals can donate used shells to help transform what was previously considered trash, into a marine-friendly habitat for oysters.

Delaware Bay Direct Market Oyster Fishery

Bureau staff continued to manage the 2019 direct market oyster harvest in Delaware Bay. As part of those efforts, staff participated in an oyster population stock assessment workshop held at Rutgers University's Haskin Shellfish Research Laboratory in February. At the workshop, members of the Stock Assessment Review Committee (SARC), comprised of assessment scientists, biologists and managers throughout the region, deemed the stock status good with a sustainable fishery. In its review, SARC also recommended oysters be transplanted and that enhancement strategies continue.

After a 41,000-bushel seed transplant, the final harvest quota for 2019 was set at 110,553 bushels. As the season progressed, staff coordinated a 120,000-bushel shell planting across four

natural oyster reefs. By the end of the year, 109,108 bushels were ultimately harvested with extremely high daily catch rates. The overall health of the oyster population remained good, leading to a quality harvest season for direct market industry participants.

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 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 it to determine New Jersey's annual hunting and trapping regulations.

Highlights

Helping Farmers Cope with Deer Damage

Biologists established an education program to help farmers minimize deer damage to their agricultural crops. The trial run of the County Farmer Deer Assistance program was conducted in partnership with the New Jersey Farm Bureau, Rutgers Cooperative Extension and Agricultural Development Board of Atlantic County. Consisting of a staff presentation and Q&A session, the program was developed to offer farmers an overview of the deer management options available to those experiencing crop damage. In this relaxed atmosphere, farmers are surveyed to see which, if any, deer management tools are currently being used and if the choices are successful or not. Staff can then work with these individuals at subsequent meetings to find better ways to control the deer and the damage caused to their properties. Unfortunately, the COVID-19 pandemic caused a temporary suspension of the program, but plans are to resume meetings once it is safe to do so.

Keeping an Eye on Chronic Wasting Disease

Proposed amendments to the 2020 Game Code were drafted and are awaiting initial publication in the New Jersey Register. The majority of amendments focused on preventing Chronic Wasting Disease (CWD) from entering New Jersey and deploying an emergency response strategy to quickly stop it from spreading, should that unfortunately happen.

Affecting members of the deer family, CWD is a highly contagious, fatal neurological disease with no known cure and no ability to test live individuals. Since its discovery in the 1960s, CWD has spread to 26 states, four Canadian provinces, and three countries in Europe and Asia.

Belonging to a family of degenerative brain disorders known as Transmissible Spongiform Encephalopathies (TSEs), these diseases can affect animals and humans. TSEs can occur in cattle (presenting as *mad cow disease*) as well as sheep and goats (*scrapie*). In rare instances, TSEs can affect humans as Creutzfeldt-Jakob disease and several other uncommon conditions.

Although there is currently no evidence indicating that CWD can be transferred to humans, it is imperative to prevent the disease from infecting New Jersey's deer herd. As a result, the Division is committed to monitoring the status of this serious disease and staff continues to update New Jersey's Chronic Wasting Disease Emergency Response Plan as new data emerges.

Making Way for Marshes

The Waterfowl Stamp Advisory Committee reviews land for sale in New Jersey and makes informed recommendations on parcels suitable for critical waterfowl habitat. If approved, properties are purchased with revenues generated from the sale of waterfowl stamps. The committee recently updated criteria to place the highest priority on land offers of wetland/upland interface (the transitional space where the habitat types meet). This area is critical to allow for marsh migration caused by climate change. The concept of marsh migration is related to rapidly rising seas (i.e., as the earth warms, it causes polar ice to melt resulting in rising sea levels). The resulting influx of water threatens to drown tidal marshes and the valuable nutrients they provide wildlife. By allowing the marsh to gradually migrate inland onto formerly dry land, biologists can sustain and strategically manage these critical coastal environments for the future.



Marshes provide critical habitat for waterfowl and other wildlife. Sadly, their existence is being threatened by climate change.

Endangered and Nongame Species Program

John Heilferty, Chief

The Endangered and Nongame Species Program (ENSP) 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 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. It is also responsible for administering the State Income Tax Check-Off for Wildlife, which benefits these species.

Highlights

Bald Eagles Reach a New Milestone

New Jersey's bald eagle population is the star of a conservation story that began 40 years ago when the Division's Endangered & Nongame Species Program (ENSP) tracked one single nest in rural Cumberland County. Decimated by illegal killing and the chemical effects of DDT, the state's eagle population had dropped to this one remaining pair which had unfortunately, laid eggs that failed to hatch.

In a comprehensive management program, biologists worked hard to reduce the impediments facing eagles and in the 1980s began a reintroduction project to jump-start the population with the successful release of 60 young eagles. By 1989 there were two nests, followed by two more in 1990.

Fast forward to 2020 and the ENSP manages a corps of experienced volunteers who document nests across the Garden State and for the first time in state history, New Jersey has become home to **218** pairs of bald eagles. The species can now be found in all 21 counties with the recent discovery of a new nest above an Essex County reservoir.



Photo: Rich Nicol

The dramatic beauty of a bald eagle nest in New Jersey.

Bald eagles are a wonder to see in the wild and can be appreciated here year-round, but more importantly they represent the improved health of our wildlife and environment. Why? Because a robust eagle population must have clean water and nourishing wetlands to thrive. The ENSP is grateful to all who financially support this important work through contributions to the New Jersey *Tax Check-off For Wildlife* and *Conserve Wildlife License Plate* purchases.

Bats Taking Up Residence in Buildings and Bridges



Big brown bats nestled together in a bridge crevice.

As New Jersey's landscape has become more urban over the years, bats that had naturally roosted in trees, cavities and beneath loose bark were forced to adapt to human-made structures for shelter. In some ways this has benefited the bats, since a house attic or bridge can often provide a more permanent, predator resistant, temperature-controlled living space than a traditional tree roost. However, many people do not welcome bats into their homes and bridges can be subject to periodic maintenance when workers can unintentionally disrupt or harm the structure's wild occupants. ENSP biologists are often called upon to advise these individuals and to offer as many helpful resources as possible, and have expanded the amount of information available on the Division's website.

In February, biologists partnered with the New Jersey Pest Management Association to host a workshop for wildlife control specialists. Nearly 60 professionals attended sessions on bat ecology and nuisance control guidelines as well as approved methods for safely excluding bat colonies from buildings. Rutgers University biologists were also invited to discuss their free bat house program along with consultants from Bat Conservation and Management, Inc. who offered a segment on acoustic monitoring and deterrents.

ENSP biologists also teamed up with the New Jersey Department of Transportation (DOT) and the U.S. Fish and Wildlife Service to finalize bridge inspection guidelines for engineers and their staffs to further safeguard bat populations using these bridges. So far, two training classes were held for DOT personnel and consultants, and more are being planned.

In 2020, biologists began to survey bridges throughout the state to discover how and when bats utilize these structures and to document existing roosts so that maintenance activities can be scheduled to avoid sensitive time periods (like the summer pupping season). Of special concern are bridges within the northernmost range of the Indiana Bat, a federally endangered species that is known to use artificial roosts.

Young Forest Management and Monitoring

Since 2012, ENSP biologists have been partnering with the U.S. Department of Agriculture's Natural Resources Conservation Service, New Jersey Audubon and the Conserve Wildlife Foundation of New Jersey to restore young forest habitat. The state endangered golden-winged warbler and many other bird species utilize this habitat in the northwestern part of the state and restoration efforts appear to be paying off. Prior to managing the area, an average of 12 bird species were recorded. However, after intensive efforts to foster the habitat the number of

species doubled (even tripled or quadrupled in some instances!) and now endangered red-shouldered hawks, whip-poor-wills and American woodcock have taken up residence.

Most notable this spring, a golden-winged warbler was recorded at Sparta Mountain and was seen throughout the entire breeding season. Since warblers have *very specific* habitat needs, populations are in severe decline so observing this species utilizing an environment created specifically for it, was a true accomplishment and an encouraging sign for the future.

Positive Management for Pollinating Insects

The decline of many insect species, particularly pollinating bees and butterflies, has drawn national and global attention to their plight. In response, the ENSP has joined forces with the DEP's Division of Parks and Forestry (DPF) to better manage state lands to benefit these important species.

To help increase critical habitat, biologists work with the DPF's State Tree Nursery to collect seeds from plant varieties vitally needed for pollinator survival. These include several species of milkweed that support monarch butterflies as well as wild indigo (*Baptisia tinctoria*), critical for the state-endangered frosted elfin. Seedlings were planted on wildlife management areas and distributed to over 30 parks and forest lands identified by ENSP staff for habitat improvement.



A bee shown on swamp milkweed.

ENSP staff have also worked with the Division's Bureau of Land Management on wildlife management area planting efforts. Grassland seed mixes normally used for quail were modified to include pollinator and butterfly-specific foodplant varieties in addition to native grasses.

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 Health

Annual health inspections of the state's fish hatcheries were completed. The testing routine focused on specific bacterial and viral diseases of concern, including *Aeromonas salmonicida*, *Yersinia ruckeri*, *Edwardsiella ictaluri*, hemorrhagic septicemia virus, infectious pancreatic necrosis virus, infectious hematopoietic virus, spring viremia of carp virus and largemouth bass virus (LMBV). Both state hatcheries tested negative for all, and in addition, the Pequest Trout Hatchery tested negative for whirling disease.

Statewide surveillance efforts for LMBV in wild bass show the virus to be widespread. Found in nine out of the 10 lakes tested, the virus appeared prevalent in the largemouth bass tested.

Marine Fish Health

A project was conducted on the ecology and life cycle of a parasite known as *Lernaeenicus radiatus* (also known as anchor worm) off the coast of New Jersey. Researchers discovered that the parasite utilizes a two-host life cycle as it changes gender from male to female. While in the male stage, the anchor worm appears to target black sea bass before transitioning to female where it can exploit a variety of marine fish hosts, particularly Atlantic Menhaden.



Black sea bass gills with attached L. radiatus (left) and Atlantic menhaden displaying the metamorphosed female parasitic forms of L. radiatus (right).

In analyzing anchor worm in the gills of black sea bass, the intensity of infection differed based on the type of habitat specimens were collected from. Fish taken from artificial reef habitat had infections 2 - 3.7 times greater than fish from non-reef habitats. Researchers believe the increase may be due to the success of reefs in

attracting large numbers of black sea bass and other finfish like Atlantic menhaden.

Unfortunately, the habitat rich biodiversity of an artificial reef is also a perfect environment for parasite transmission – especially for the anchor worm, which depends upon more than one host. Because of this, scientists believe that the prevalence of anchor worm in an area could be used as an indicator of black sea bass and Atlantic menhaden abundance. Scientists will now try to see if the gill infections are compromising the biological functions of infected fish and if so, follow the course of disease in these species.

Terrestrial Wildlife Health

During this fiscal year, a new wildlife pathologist was hired. Dr. Nicole Lewis will be responding to wildlife illness incidents and mortalities, assisting with the coordination of the Division's Chronic Wasting Disease (CWD) program and conducting disease surveillance.

The annual survey for CWD (a major neurological disease in white-tailed deer) was completed. A record number of samples (1,091) were submitted for testing and all were negative. So far, New Jersey remains a CWD-free state.

An adult deer was diagnosed with Eastern Equine Encephalitis (EEE). EEE is a viral disease that traditionally affects horses and humans and is diagnosed throughout the state annually. However, this is the first case to occur in a white-tailed deer in the history of testing efforts in New Jersey.

A dead loon was found to have a bacterial infection known as *Edwardsiella tarda*. Commonly known to cause disease in catfish, it appears to be the first reported case of the disease to be documented in a loon, though it has been found in manatees and other types of waterfowl elsewhere in the country.

Office of Environmental Review

Kelly Davis, Principal Biologist

The Office of Environmental Review studies fish, shellfish, wildlife and endangered species concerns related to state and federal permitting programs. Data is gathered on development projects that could potentially cause negative impacts on these resources 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, Office of Environmental Review (OER) staff conducted a total of **378** environmental review assessments and attended **119** formal project meetings on proposed projects throughout the state and off the coastline.

Studying Harmful Algal Blooms

DEP defines a Harmful Algal Bloom (HAB) as the excessive growth or "bloom" of a certain bacteria (known as cyanobacteria), some strains of which can produce toxins that can be harmful to the health of humans and other animals. HABs occur when cyanobacteria have the optimum environmental conditions needed to grow, such as calm water and the proper amounts of light,



Staff investigates the sudden appearance of cyanobacteria, known as a Harmful Algal Bloom.

temperature and nutrients. In these instances, blooms can result in a thick coating or mat on the surface of a waterbody, frequently in late summer or early fall. In 2019, the blooms were so severe that Governor Murphy established funding for a special HABs initiative to address the issue. As a result, the DEP, relying on the best science available, was tasked with trying to reduce and prevent future harmful algal blooms in the state. To do this, several non-point source pollution control projects will be considered for funding, including several proposed by staff from OER and the Bureau of Freshwater Fisheries.

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 requirements of each species as well as their environmental, recreational, aesthetic and economic importance. Outreach efforts also promote the wise use of these resources and the need to safeguard them for future generations.

Highlights

Living Shoreline Installed to Slow Post-Superstorm Sandy Erosion at Sedge Island



The 100-percent biodegradable living shoreline at Sedge Island.

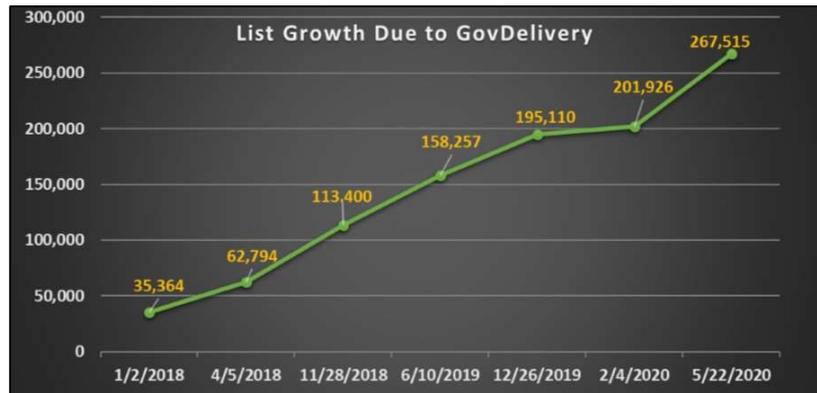
A living shoreline was installed at the Sedge Island Natural Resource Education Center in Barnegat Bay to slow post-Superstorm Sandy erosion and promote the natural growth of coastal wetlands habitat. Similar projects rely on some

form of plastic in their soil stabilization methods, but no plastic of any sort was used in the creation of this shoreline. Instead, only biodegradable materials were used with an innovative method of rolling coir (coconut fiber) logs in tubular fiber matting to improve durability.

Creating this living shoreline was truly a hands-on collaborative effort between two Division bureaus (I&E and Shellfisheries) as well as the Barnegat Bay Partnership (BBP) and the Partnership for the Delaware Estuary. This team of professionals will continue to monitor progress and actively manage the shoreline to ensure that it remains properly stabilized.

Division Listserv Experiences Dramatic Growth

The Division of Fish and Wildlife offers people the ability to subscribe to a variety of e-mail lists based on their outdoor interests. By subscribing to the listserv, individuals can quickly receive important news, events, rule changes and other information pertaining to natural resources and outdoor recreation. Since migrating from the Division’s previous message distribution system to GovDelivery in January 2018, agency-to-constituent communication has improved significantly and continues to grow in popularity. In fact, the number of subscribers has increased dramatically from 35,364 to 267,515. Most recently, the Division added three more lists (Sparta Mountain News, Connecting Habitat Across New Jersey and Marine Fisheries CARES Act Information) for a total of 11 active lists.



Since 2018, the number of NJDFW listserv subscribers has grown by more than 7-fold with GovDelivery.

Outdoor Heritage Program

The Division was awarded a significant grant through the U.S. Fish and Wildlife Service’s Wildlife Restoration Program to develop an outdoor heritage educational campaign for New Jersey. Known as the Recruitment, Retention and Reactivation Program (R3), R3 is an effort to slow the declining number of individuals participating in recreational hunting and target shooting, both of which have important implications for the future of our agency.

The five-tiered strategy includes establishing a mentor program for new participants, supporting existing target shooting opportunities as well as fostering new ones, enhancing research initiatives and program evaluations, expanding the breadth and composition of working groups devoted to R3, and enhancing public education programs that offer increased hunting opportunities and skills-based workshops. Currently, the R3 program funds a large portion of the Division’s existing upland game bird stocking program. It also supports pheasant hunting introductory workshops and special events.

In November 2019, two additional pheasant hunting opportunities were piloted to introduce women and active duty/retired military to upland game hunting. Approximately 35 hunters had a chance to participate, learning new skills, making memories and developing lasting friendships – but the events meant so much more as they helped solidify the foundation of a statewide mentoring program. Individual mentors from all over New Jersey gave their time and support as they partnered with the staff of several NGOs and the Division for a worthy initiative.

Office of Fish and Wildlife Information Systems

Patrick Woerner, Chief

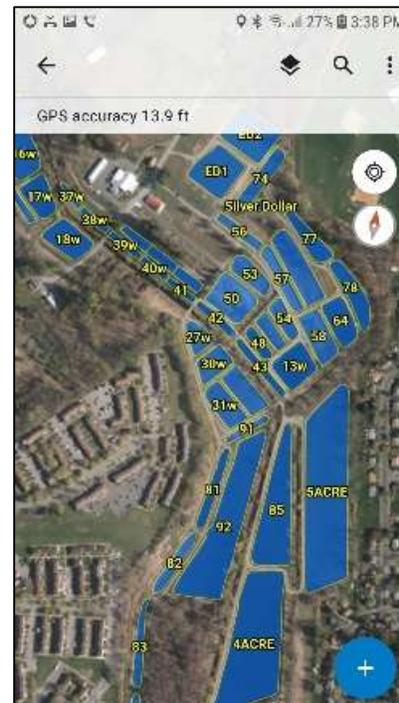
Recognizing the advantages of adopting a more modern, progressive approach to fish and wildlife conservation, the Division formed the Office of Fish and Wildlife Information Systems (OIS) in late 2019. OIS is responsible for the development and maintenance of geographic information systems (GIS) data, analyses and web mapping applications that can be used to guide habitat conservation planning strategies in New Jersey. OIS also provides GIS/IT assistance to programs throughout the Division.

Prior to the existence of OIS, access to GIS was up to individual bureaus and as such, extremely disproportionate with some programs using the technology extensively while others having limited involvement or lacking any of the resources necessary to take advantage. With the creation of OIS and the consolidation of GIS/IT staff and resources into one cohesive unit, these tools are now available to all Division programs and many biologists are embracing the technology.

Highlights

Pond Management App for Hackettstown Hatchery

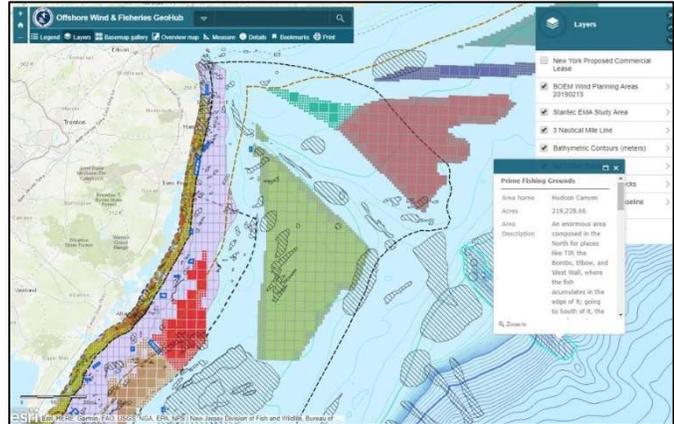
OIS staff mapped over 90 ponds at the Hackettstown Fish Hatchery in Warren County and developed a special app for use on mobile devices. The new mapping tool will allow hatchery staff to monitor fish production and pond management activities more efficiently. This includes tracking routine maintenance efforts, such as water temperature readings and dissolved oxygen levels as well as recording data throughout a species' reproductive cycle. The app will allow staff to easily summarize the data collected during a season to form production estimates and propagation capabilities for the following year.



The ponds at Hackettstown as seen using the new app.

Offshore Wind & Fisheries Mapping

In late 2019, OIS created a mapping application for the Marine Fisheries Administration's Wind Energy Team to review proposed and existing offshore wind energy projects. The app makes it easier for members to evaluate plans with relation to surrounding oceanographic and fisheries data. Because it is accessible to all team members who also have the ability to add, update and/or revise data, the app is kept current making collaboration, analysis and dialogue between individuals less complicated.

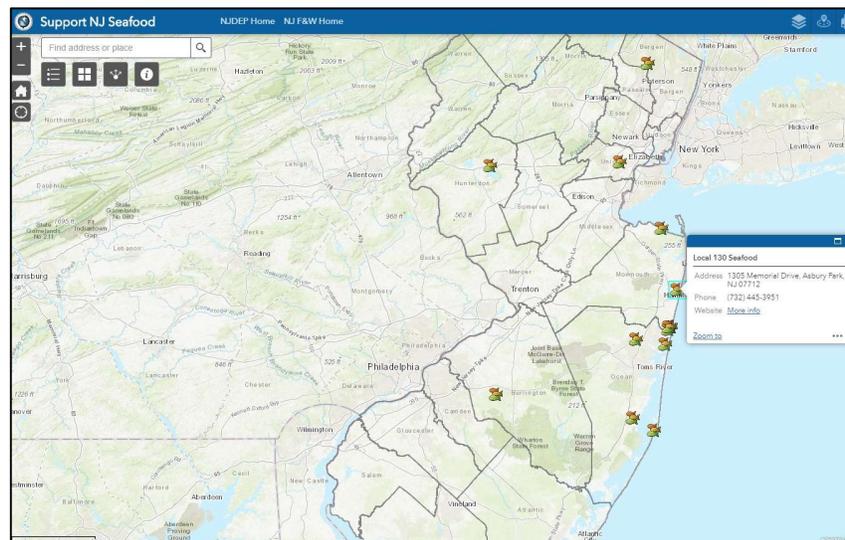


The new app makes collaboration, analysis and dialogue between professionals easier.

Support New Jersey Seafood Initiative

Business closures during the COVID-19 pandemic have severely impacted New Jersey's seafood industry and supply chain. As a result, federal and state government have partnered together to support seafood businesses that have been forced to sell their New Jersey landed, grown and harvested products solely to local retail and pop-up markets deeply affecting their livelihoods.

At the request of the Marine Fisheries Administration in partnership with the New Jersey Department of Agriculture, OIS developed a mapping app to help the public quickly find seafood retailers/markets nearby as well as business contact information and website links. Released to the public in late May, by the end of June it was viewed over 5,000 times. Since the app has been so popular, plans are to further develop it in the future.



The Support NJ Seafood App allows the public to quickly find a seafood retailer near them.

New Jersey Hunting and Trapping Zones Mapped for Several Game Species

OIS prepared nine GIS map layers of hunting and trapping zones for public use. The new layers include: Black Bear Management Zones, Squirrel Muzzleloading Rifle Hunting Areas, Beaver and Otter Management Zones, Mink, Muskrat and Nutria Trapping Zones, Turkey Hunting Areas, Waterfowl Hunting Zones, Special Winter Canada Goose Season Hunting Areas, Special Sea Duck Hunting Area and Woodcock Hunting Zones. Each layer of zones was mapped to ensure consistency with the descriptions in the New Jersey Game Code. Available for download and accessible via an interactive app, it will allow hunters to plan their hunts in detail and better navigate in the field.

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 which provides state aid to county agencies 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

A Meeting Milestone



New Jersey's mosquito control community celebrate an important milestone.

In May, the New Jersey State Mosquito Control Commission marked its 500th public meeting since it was established as a permanent Commission in 1956. The event, which coincided with the start of mosquito control season, was commemorated with current staff and public members as well as representatives throughout the state's mosquito control community.

Screening Samples

Throughout the summer, the Office of Mosquito Control Coordination continued to partner with several state, county and university labs to screen mosquito as well as equine and avian blood

samples for mosquito-borne viruses of public health and veterinary concern. This ongoing surveillance provides an early warning system for county response efforts.

Sampling efforts indicate that FY20 was one of the least active years for West Nile Virus (WNV) on record. The season started early and extended well into the fall, but positive samples remained low (out of 205,962 mosquitoes samples examined, 365 tested positive).

Conversely, testing for Eastern Equine Encephalitis (EEE) Virus revealed an extremely active year with cases documented in four humans and 13 animals. In fact, it was the most active year in New Jersey since the 1959 EEE epidemic.

By far, mosquito-borne transmission of WNV and EEE viruses pose the greatest risk in New Jersey, although the travel-associated introduction of Zika, Chikungunya and Dengue viruses is also a concern. These exotic viruses are detected here in global travelers each year, but fortunately, local mosquito-borne transmission has not occurred in our state.

Zika Virus Initiative

As part of DEP's continued Zika virus initiative, public awareness and outreach activities continue to prepare residents for the potential localized introduction of this disease. Since the federal grants earmarked for Zika virus support have expired, these educational efforts as well as the surveillance and control of exotic mosquito species are now supported through the Commission.

Biological Control

The Office of Mosquito Control Coordination continued its collaboration with the Division's Bureau of Freshwater Fisheries to supply multiple species of mosquito larva-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. This past season, county programs stocked more than 427,000 fish throughout the state.

Targeting Mosquitoes from Above

The State Airspray Program experienced another extremely active season with 34 state-contracted missions. This program is primarily directed at controlling immature mosquitoes in expansive fresh and saltwater habitats exposed to heavy rains and tidal activity. When conditions warrant, however, special operations directed at adult mosquitoes (especially when the rate of transmission is greatest) are offered to



New Jersey's State Airspray Program uses helicopters to treat large expanses of mosquito habitat.

county programs needing assistance. This year, seven county mosquito control programs requested aerial services resulting in the treatment of 27,185 acres.

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 entire Division. The following chart illustrates revenue, appropriations and expenses for FY20.

FY20 DFW ANNUAL REPORT

RESOURCES

General State Fund Appropriation Hunters & Anglers	3,212,000
General State Fund Appropriation Shellfish and Marine Fisheries	3,668,000
General State Fund Appropriation Endangered Species	206,000
Subtotal GSF Appropriations	<u>7,086,000</u>
Hunters & Anglers Licenses/Permits	13,985,682
Lease Revenue	1,181,654
Endangered Species Revenue (License plates and Tax check-off)	102,892
Waterfowl Stamp Revenue	62,945
Miscellaneous Dedicated Account Revenue (Exotics, Sedge Island, Hooked on Fishing, Pump Out)	320,991
Shellfish and Marine Licenses/Permits	556,715
Subtotal Revenues	<u>16,210,879</u>
Federal Salary & Fringe Reimbursements	4,228,213
Federal Operating Funds	5,423,886
Carry-forward funds available from prior years -- Recurring Non-Federal accounts	5,385,853
Funds reserved or reverted by Treasury	(1,380,795)
Non-Federal reimbursements and transfers	931,574
Subtotal Federal & Other funding	<u>14,588,731</u>
TOTAL RESOURCES	<u><u>37,885,610</u></u>

EXPENDITURES

Hunters & Anglers Salaries (Includes seasonals, overtime, clothing allowances)	12,198,549
Shellfish and Marine Fisheries Salaries (Includes seasonals, overtime, clothing allowances)	4,402,444
Endangered Species Salaries (Includes seasonals, overtime, clothing allowances)	1,211,692
Hunters & Anglers Fringe Benefit costs assessed by Treasury/Office of Management & Budget	6,501,084
Miscellaneous Dedicated Expenditures (Exotics, Sedge Island, Hooked on Fishing, Pump Out)	407,788
Waterfowl Stamp Expenditures	42,500
Hunters & Anglers Operating (equipment, repairs, fuel, utilities, licensing vendor...)	2,531,081
Shellfish and Marine Operating (equipment, repairs, fuel, utilities...)	1,342,951
ENSP Operating (equipment, repairs, fuel, utilities...)	72,773
Federal Operating Expenditures	5,332,886
DEP Assessments (Deputy Attorney Generals, DEP Division of Information Technology, Office of Administrative Law, Environmental Research Library, Office of Information Technology, Rent, Training Office)	829,521
TOTAL EXPENDITURES	<u><u>34,873,269</u></u>
*BALANCE	<u><u>3,012,341</u></u>

*Reflected balance includes funds in recurring non-federal accounts dedicated for specific purposes. Due to COVID-19, fiscal year 2020 will remain open for an extended period of time. Information is accurate as of 8/13/20.