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New Hampshire Fish and Game Department

11 Hazen Drive, Concord, NH 03301-6500
Headquarters: (603) 271-3421
Web site: www.WildNH.com

TDD Access: Relay NH 1-800-735-2964
FAX (603) 271-1438
E-mail: info@wildlife.nh.gov

Glenn Normandeau
Executive Director

September 1, 2017

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, New Hampshire 03301

Dear Governor Sununu and the Honorable Council:

In accordance with RSA 206:9-a, the New Hampshire Fish and Game Department is pleased to present for your review and acceptance the Biennial Report for fiscal years 2016 and 2017.

Respectfully submitted,

Glenn Normandeau
Executive Director

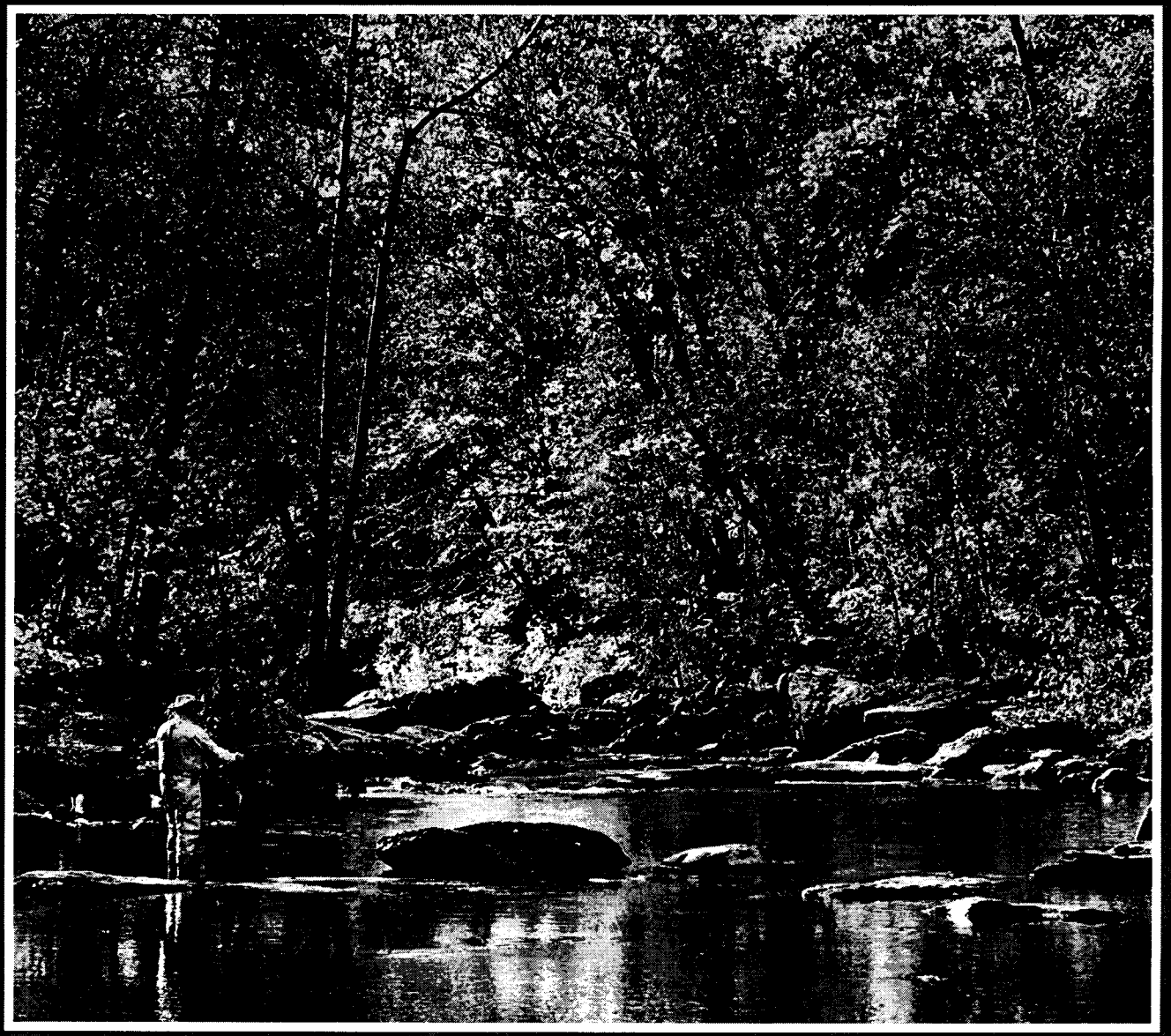
NEW HAMPSHIRE FISH AND GAME DEPARTMENT

WORKING FOR WILDLIFE WORKING FOR YOU

BIENNIAL REPORT

July 1, 2015 - June 30, 2017

Pursuant to RSA 206:9-a • Submitted October 1, 2017



New Hampshire Fish and Game Department • 11 Hazen Drive, Concord, NH 03301 • wildnh.com

New Hampshire Fish and Game Department

BIENNIAL REPORT

Fiscal Years 2016-2017
July 1, 2015 - June 30, 2017

Pursuant to RSA 206:9-a
Submitted October 1, 2017

New Hampshire Fish and Game Department
11 Hazen Drive, Concord, N.H. 03301
(603) 271-3511
email: info@wildlife.nh.gov
wildnh.com

CHRISTOPHER T. SUNUNU
Governor

EXECUTIVE COUNCILORS

Joseph D. Kenney
District 1

Andru Volinsky
District 2

Russell E. Prescott
District 3

Christopher C. Pappas
District 4

David K. Wheeler
District 5

As of 6/30/17

New Hampshire Fish and Game Department

HEADQUARTERS: 11 Hazen Drive, Concord, NH 03301-6500
(603) 271-3421
FAX (603) 271-1438

www.WildNH.com
e-mail: info@wildlife.nh.gov
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June 30, 2017

His Excellency, Governor Christopher T. Sununu
And the Honorable Council
State House, 25 Capital Street
Concord, NH 03301

Dear Governor Sununu and Honorable Members of the Council,

In accordance with RSA 206:9-a, I am pleased to submit the New Hampshire Fish and Game Department's Biennial Report for July 1, 2015 – June 30, 2017.

The Department takes the lead role in conserving fish, wildlife, marine resources, and their habitats – keeping the state's wildlife and fish populations in a healthy balance while conserving our wild places. These natural resources enrich our quality of life and support New Hampshire's economy, generating more than half a billion dollars each year in economic activity related to hunting, fishing, and wildlife watching.

While this Department benefits all of New Hampshire's citizens, our core functions are still being primarily funded by people buying hunting and fishing licenses. Responsibilities continue to increase, and the cost of doing business goes up, but our revenue does not. The State Legislature has allowed us to fulfill our responsibilities by providing supplemental General Funds. All parties agree, however, that work needs to be undertaken to revise our funding model and establish a new source of sustainable, dedicated funding for the Department.

Going forward, we are committed to redoubling our efforts to provide all the services the people of New Hampshire have come to expect of us, as well as finding a solution to our funding dilemma. We look forward to working with the Governor, the Legislature, and the public in ensuring the financial stability and sustainability of the N.H. Fish and Game Department.

We thank the Governor and Legislature for their support in working through these difficult times. We will continue to work wholeheartedly to connect the public to the great outdoors.

Respectfully submitted,

Glenn Normandeau
Executive Director

❖ FEDERAL AID IN WILDLIFE AND SPORT FISH RESTORATION PROGRAM

Together, the Wildlife and Sport Fish Restoration Programs have transformed the landscape and immeasurably improved the conditions and prospects for New Hampshire's wildlife.

KEEPING OUR WILDLIFE — AND OUR TRADITIONS — HEALTHY

Purchases of fishing tackle, firearms, ammunition, archery equipment, and motorboat fuels, along with license sales, help fund sport fish and wildlife restoration in New Hampshire. This provides opportunities for hunting, fishing, and other wildlife-associated recreation.

NOT SO LONG AGO...

In the middle of the 19th century in New Hampshire, numbers of many wildlife species were dwindling or gone altogether because of unregulated hunting and loss of habitat. Conservation efforts of the time were few – and frequently misguided or scientifically questionable – but leadership was beginning to understand that investing in wildlife and habitat pays great dividends.

A UNIQUE SOLUTION

The Pittman-Robertson Act or Federal Aid in Wildlife Restoration Act was passed in 1937. It was designed to counteract the wildlife crisis by providing local funding for wildlife management research; the selection, restoration, rehabilitation, and improvement of wildlife habitat; and public use and benefit related to same.

In 1950, the Dingell-Johnson Act or Sport Fish Restoration Act was created to provide similar management, conservation, and restoration improvements for fisheries. Together, the Wildlife and Sport Fish Restoration Programs (WSFR) have transformed the landscape and immeasurably improved the conditions and prospects for New Hampshire's wildlife. In short, both acts encourage a scientific approach toward managing – and restoring – fish and wildlife.

USER-PAY, USER-BENEFIT

"Every time an American hunter buys a gun or ammunition he chips in to improve his sport," said the author of a 10-year report on federal wildlife restoration released in 1949. It's just as true today: WSFR programs are funded by revenues collected from the manufacturers of sporting arms, handguns, ammunition and archery equipment, fishing rods, reels, lures and other fishing gear. Motorboat and small engine fuel taxes also help fund the system. The money is paid back to N.H. Fish and Game – and wildlife agencies in the other U.S. states and territories – to be used on specific wildlife restoration projects.

MEETING THE PUBLIC'S WILDLIFE NEEDS

With the support of WSFR, deer, salmon, wild turkeys, and countless other creatures are now prospering. New Hampshire Fish and Game's scientific research and management give species a solid chance to re-establish healthy populations, while at the same time improving habitats for all to enjoy. Along the way, WSFR helps Fish and Game meet the public's need for wildlife resources by improving boating access, providing aquatic education and outreach, maintaining quality Hunter Education programs, and myriad related projects.

New Hampshire's hunters, anglers, and wildlife watchers – including tourists – can thank WSFR's creators for starting a system that has protected our wildlife and our outdoor traditions through the years.

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FISH AND GAME REVENUE CHART ..... BACK COVER

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❖ ORGANIZATION AND FUNCTION

The mission of the New Hampshire Fish and Game Department:

As the guardian of the state's fish, wildlife and marine resources, the New Hampshire Fish and Game Department works in partnership with the public to:

- Conserve, manage and protect these resources and their habitats;
- Inform and educate the public about these resources; and
- Provide the public with opportunities to use and appreciate these resources.

The New Hampshire Fish and Game Department was established on June 30, 1865, as the Fisheries Commission. It was reorganized in its current format in 1935 in accordance with R.L. 240:1 (RSA 206:1), which states that: "There shall be a Fish and Game Department under a Commission to be known as the Fish and Game Commission."

NEW HAMPSHIRE FISH AND GAME COMMISSION

Commission members are appointed by the Governor and Executive Council. There are 11 members, one from each county in the state, plus one representing the coastal area. No more than six commissioners can be members of the same political party. Commission members must be well informed on the subject of fish and wildlife. Their duty is to represent the citizens of New Hampshire and be the stewards of the fish, wildlife, and marine resources of the State of New Hampshire and to set general policy for: conservation of wildlife; development, funding, and implementation of a strategic plan for the operation of the Department; acquisition and development of public access to lands and waters; conservation education and building support for Department programs; and establishment of positions on proposed legislation that affects the Department and fish, wildlife, and marine resources.

OFFICE OF THE EXECUTIVE DIRECTOR

The Fish and Game Executive Director has the responsibility of supervision of employees and of all activities and functions of the New Hampshire Fish and Game Department and enforces all provisions of state laws relating to fish, wildlife, and marine resources. The Executive Director is nominated by the Commission and appointed by the Governor and Executive Council. Each candidate must be a competent administrator and have knowledge of, and experience in, the requirements for the protection, conservation, and restoration of the fish and wildlife resources of the state. The Executive Director serves a term of four years.

The Office of the Executive Director oversees budget development and oversight and coordination of federal aid, rules and legislation, environmental review, and personnel administration. Within the Director's office, the Landowner Relations Program works in partnership with hunters, anglers, and landowners to maintain access to private lands for hunting, fishing, and other outdoor recreation. This program identifies issues and concerns that landowners face in keeping their properties open, and works proactively to address them. The Director's office also serves as the liaison with the nonprofit Wildlife Heritage Foundation of New Hampshire.

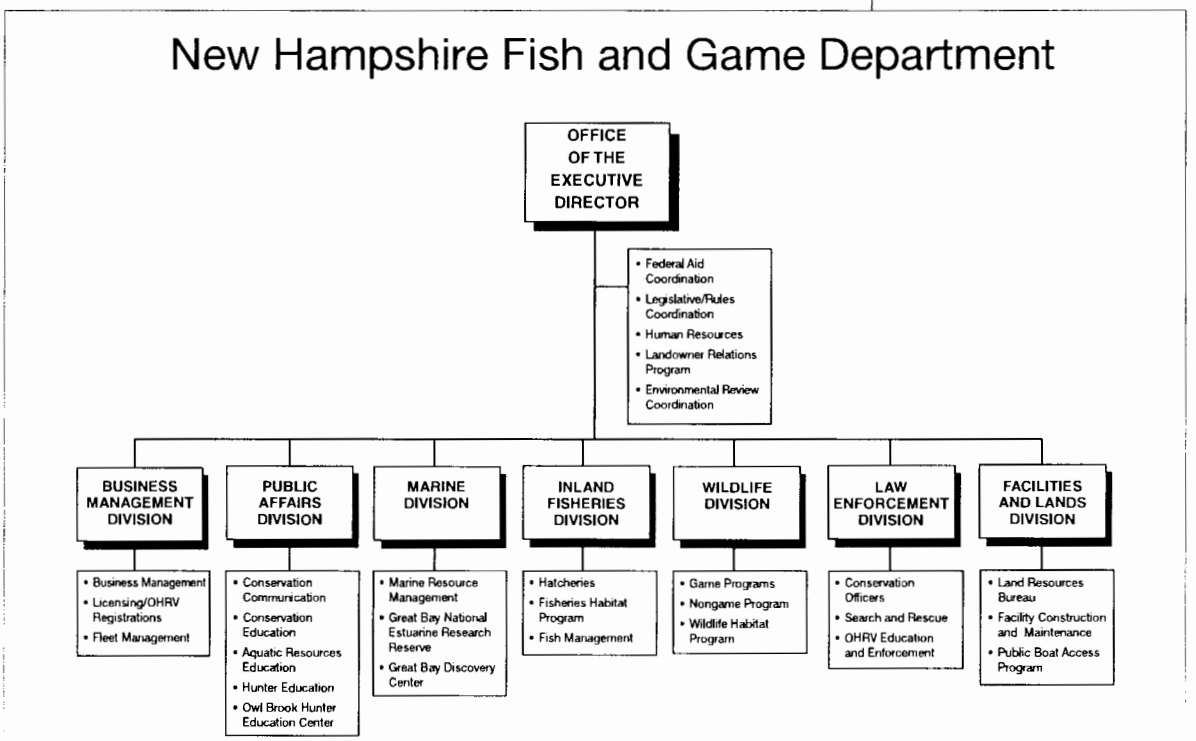
The Department's Human Resources (HR) staff provides administrative support to the Office of the Executive Director and to the seven divisions which comprise the Fish and Game Department. HR includes the Human Resources Administrator, the Human Resources Coordinator, and a Payroll Officer. HR staff are responsible for the bi-weekly pay

of approximately 194 full-time and 35 part-time/seasonal employees. They handle all workers compensation claims and assist employees in the claims process, as well as their return to work. HR staff assist employees with position reclassifications. They administer all Family and Medical Leave Act (FMLA) requests and work with employees and medical professionals in the confidential administration of FMLA leave.

MAJOR DIVISIONS

The New Hampshire Fish and Game Department carries out its mission through the work of seven divisions: Business, Facilities and Lands, Inland Fisheries, Law Enforcement, Marine Fisheries, Public Affairs, and Wildlife.

The **Business Division** facilitates all business functions for the Department, including preparation and submission of the biennial budget. It is responsible for issuing and collecting the revenue from the sale of fishing and hunting licenses and associated permits, as well as the processing of all accounts payable, accounts receivable, cash management, federal and other grants, financial management, and inventory control. Division staff supervise the purchase of all equipment, materials, and supplies and coordinate all contracts. The Business Division also oversees fleet management and manages the Off-Highway Recreational Vehicle (OHRV) Registration Program. Division



staff interact daily with other state agencies and provide all shipping and receiving functions, mail, and courier duties for the Department.

The **Facilities and Lands Division** is responsible for the management and maintenance of all Fish and Game properties statewide, including over 160 buildings, 143 boat ramps, 130 dams, 7 fish ladders, and 76,751 acres of wildlife management areas, conservation easements, and other interests. The Division also provides the design and construction of boating access facilities and fabrication of information kiosks and portable sanitary facilities. The Lands side of the division negotiates land and habitat acquisitions in association with the Wildlife Division, manages conservation easement areas, and evaluates land use requests through Special Use Permits.

The **Inland Fisheries Division** is responsible for all freshwater fish within both the state and interstate waters. Fisheries biologists and fish culturists work to protect and restore fish resources and aquatic habitat and to provide New Hampshire anglers with diverse fishing opportunities. This Division is responsible for operating Fish and Game's six fish hatcheries, which during the biennium produced nearly one million fish each year to meet a variety of the Division's management programs.

The **Law Enforcement Division** is primarily responsible for enforcement of all laws and rules pertaining to fish, wildlife, and marine resources. Conservation Officers also have the authority to enforce motor vehicle and criminal laws. These officers prosecute all of their own cases involving offenders and violators of these laws and rules. They have the statutory mandate to conduct search and rescue operations in the woodlands and waterways within the state. The New Hampshire Fish and Game Department is responsible for the enforcement of all snowmobile and off highway recreational vehicles (OHRVs) and all-terrain vehicles (ATVs), as well as the related safety education and training programs. The Law Enforcement Division serves as the primary liaison to the Department of Safety's Homeland Security and Emergency Management Agency.

The **Marine Fisheries Division** is responsible for managing and protecting the rich natural resources of the state's coast, harbors, and estuaries. The Division manages and develops sampling programs for recreational and commercial marine species and protects their habitats. It also oversees the Great Bay National Estuarine Research Reserve and the Great Bay Discovery Center. Its staff works closely with other states and federal agencies to protect and maintain marine resources and their habitats for both commercial and recreational fisheries, as well as resident and migratory species frequenting New Hampshire's coast and estuaries.

The **Public Affairs Division** informs and educates, building public support for conservation and the Department's mission and encouraging participation in hunting, angling, and other outdoor activities. The Division provides information through its website and a wide variety of publications, including the *New Hampshire Wildlife Journal*, as well as television and radio programs, online videos, social media, advertising, exhibits, media relations, shows/events, and marketing. Its educational programs include: Hunter and Trapper Education; Let's Go Fishing and Watershed Education; Wildlife Education and teacher training; and a variety of workshops for the public, such as hunting and fishing talks, hands-on workshops for hunters and anglers, and Becoming an Outdoors-Woman programs

The **Wildlife Division** manages, maintains, protects, and conserves the state's game and nongame wildlife resources and their habitats. Game populations are managed at healthy, sustainable levels consistent with available habitat and diverse public interests. Nongame species are managed to keep common species common and to secure the sustained presence of threatened and endangered species. Habitat programs are designed to conserve, protect, restore, and manage diverse wildlife habitats, including critical habitats for game and nongame species, and to provide technical guidance to municipalities and private landowners, including commercial forest interests, considering doing the same.

Wildlife biologists conduct surveys and analyze harvest data to assess and monitor populations and conduct research to better inform management decisions. Biologists promulgate harvest regulations for game and furbearer species to achieve diverse public interests and to maintain healthy populations. Biologists also provide technical assistance to local, regional, and statewide planning boards to protect and enhance wildlife populations and habitats and to minimize development impacts on wildlife species at risk. Biologists work in partnership with the U.S. Department of Agriculture Wildlife Services staff to prevent and/or mitigate wildlife damage to orchards and other agricultural lands, as well as private property, and to ensure public safety.

❖ ORGANIZATION AND FUNCTION

PERSONNEL DATA

Current Number of Employees	6/30/16	6/30/17
Unclassified	1	1
Classified	190	190
Temporary*	3	3
Total	194	194

*Permanent employees are those occupying positions permanently established by the Legislature, whereas temporary employees are those whose service is authorized for a limited or intermittent period.

PHYSICAL PLANT AND PROPERTY APPRAISAL

	6/30/16	6/30/17
Equipment	11,225,510	10,953,985
Physical Plant	107,537,948	108,679,095
Farm	0	0
Highway	0	0
TOTAL	**$118,763,458**	**$119,633,080**
RECEIPTS		
General Funds	650,000	650,000
Federal Funds	10,454,104	8,932,900
Agency Income	6,338,387	9,165,410
Fish And Game Funds	11,260,120	11,127,105
TOTAL	$28,702,611	$29,875,415
EXPENDITURES		
Permanent Personnel	9,834,213	10,276,445
Current Expenses	2,276,358	2,258,993
Heat, Electricity & Water	314,941	327,980
Transfers to OIT	694,378	605,367
Equipment New/Replacement	776,954	347,684
Land Acquisition	546,154	1,108,203
Transfers To Other Agencies	3,179,131	4,713,137
Other Personnel Services (Seas & Pt)	452,778	521,948
Benefits	5,563,678	5,820,993
Retirement, Pension & Health Insurance	822,734	867,662
In-State Travel	386,598	382,464
Grants-Federal & Non Federal	1,523,406	154,044
Out-of State Travel	38,260	50,066
Contracts for Services	271,698	309,375
Interagency Payments	1,066,939	1,285,489
Research and Habitat Management	954,391	845,565
TOTAL	$28,702,611	$29,875,415
Undesignated Fish and Game Fund Balance	$2,300,000	~$3,000,000*

*Preliminary/Unaudited

Statement of Sales or Exchanges

Promotional expenditures related to licenses:

During the biennium, 15 nonresident honorary licenses were issued in 2015, and 36 were issued in 2016.

BUSINESS DIVISION

- Managed the complex finances of the agency.
- Administered the Department's Licensing Program.
- Administered the growing Off-Highway Recreational Vehicle Registration Program.
- Managed the Department's vehicle fleet.

EXECUTIVE DIRECTOR'S OFFICE

- Administered 73 separate federal assistance grants and cooperative agreements totaling over $19 million in federal assistance to the Department. Federal revenue received as reimbursement for approved grant costs accounts for about one-third of total Department revenue.
- The Landowner Relations Program actively recruited landowners for the Operation Land Share Program, bringing the total number of private land acres enrolled in the program and open for public access to over 420,000 acres. These lands are generously left open and unposted by private landowners for hunting, fishing, and wildlife watching.
- Private landowners who keep their lands open for public access were provided with free signage and assistance with related mitigating issues through the Landowner Relations Program. Landowners were made aware of opportunities to partner with the Department and other organizations to improve habitat management and public access to their lands.
- Coordinated complex environmental reviews involving various divisions of the Department.
- Human Resources staff provided administrative support to the Executive Director and the seven divisions of the Department.

Over $19 million came to Fish and Game through 73 separate federal assistance grants and cooperative agreements.

WILDLIFE HERITAGE FOUNDATION OF NEW HAMPSHIRE

- The Wildlife Heritage Foundation of New Hampshire, Fish and Game's non-profit partner, continued to deliver significant private support to the Department by providing grants to 18 Fish and Game projects totaling $193,341.

WILDLIFE HERITAGE FOUNDATION of NH

SHARING THE PAST, SHAPING THE FUTURE.

❖ MAJOR ACCOMPLISHMENTS

As part of an energy saving project, the Facilities and Lands Division installs energy-efficient lighting at Fish and Game's buildings.

FACILITIES AND LANDS DIVISION

- Refurbished the boat access site at Otter Lake in Greenfield, in cooperation with the Department of Resources and Economic Development.
- Refurbished the boat access site at Hot Hole Pond in Concord.
- Repaired ice damage to the permanent piles for the seasonal dock at the Newfound Lake boat access facility.
- Improved access to Meetinghouse Pond in Marlborough for canoe and kayak use.
- Completed maintenance improvements at the Downing's Landing boat access in Alton.
- Worked with Marine Division staff to manage the construction contract for the replacement of the 1,350-foot boardwalk at the Great Bay Discovery Center in Greenland.
- Provided design and construction management assistance to the Marine Fisheries Division at the Cocheco River Fishway in Dover.
- Provided support for improvements to the Sergeant Brian E. Abrams Memorial Facility in Conway.
- Replaced the roof at Fish and Game's Region 4 Office in Keene.
- Replaced the sidewalk in front of the N.H. Fish and Game headquarters in Concord.
- Replaced conference room lights and exterior wall packs at N.H. Fish and Game headquarters with LED lights as part of an energy saving project.
- Installed energy-efficient lighting at the Newfound Lake and Squam Lake boat access facilities.
- Reconstructed the Pine River boat access site in Ossipee.
- Replaced a walk-in freezer used by the Law Enforcement and Wildlife divisions.
- Repaired the shared dock at the U.S. Coast Guard facility in Portsmouth.
- Replaced the transformer at Fish and Game Headquarters.
- Successfully defended the State's ownership and the public's right of access over property located in Newmarket, and actively addressed other trespass and encroachment violations in the City of Dover and the towns of Thornton and Campton.
- Successfully renegotiated an access easement to the Corey Wildlife Management Area off Mount Delight Road in Deerfield.

INLAND FISHERIES DIVISION

Fish Culture

- The six N.H. Fish and Game hatchery facilities produced and distributed fish for trout and salmon stocking programs throughout the state. They distributed 1.3 million fish in FY16.

Large Lakes Program

- Conducted annual fall trap-netting surveys to monitor landlocked salmon size and age-class characteristics at Big Squam, Sunapee, and Winnipesaukee lakes.
- Conducted fall gill-netting surveys to monitor lake trout spawning stock size characteristics at Newfound, Nubanusit, and Winnisquam lakes.
- Conducted hydro-acoustic and trawl netting surveys to monitor pelagic forage fish species (primarily rainbow smelt), size characteristics, spatial distribution, and density at Big Squam, Newfound, Sunapee, Winnipesaukee, and Winnisquam lakes.
- Conducted dip-netting surveys to monitor spawning rainbow smelt presence, size, and age characteristics in tributaries to Cedar, Christine, Newfound, Pleasant (New London), Sunapee, and Winnipesaukee lakes.
- Stocked landlocked salmon yearlings.
- Aerially stocked remote ponds with brook trout fingerlings by helicopter.

Coldwater Fisheries Program

- As a partner in a 15-state effort to implement the Eastern Brook Trout Joint Venture's conservation action plan, 122 stream sites were surveyed in New Hampshire; 94 of these sites were found to have self-sustaining populations of brook trout.
- Work continued on the Clean Water/Healthy Trout Project in the Ammonoosuc River watershed of northern New Hampshire. This initiative assesses the habitat suitability of local streams to support brook trout, as well as other aquatic species.

Fisheries Habitat

- Provided technical assistance to many state and federal agencies and organizations on fish habitat restoration and conservation.
- Served on technical and planning committees on issues related to aquatic habitat, water quality and quantity, and flooding.

The six N.H. Fish and Game hatchery facilities produced and distributed fish for trout and salmon stocking programs throughout the state. They distributed 1.3 million fish in FY16.

❖ MAJOR ACCOMPLISHMENTS

- Continued the Nash Stream and Indian Stream restoration projects, including the removal of undersized crossings and several miles of instream habitat restoration.

Fish Conservation Program

Data from over 483 surveys were compiled into a statewide fish database.

- Collected fish data for a number of projects and partners, including the U.S. Fish and Wildlife Service, the U.S. Forest Service, the N.H. Department of Environmental Services, and Trout Unlimited. Data from over 483 surveys were compiled into a statewide fish database.
- Performed bridle shiner (state threatened) distribution surveys.
- Established index sites for monitoring American eel population trends in the Merrimack River watershed.

Warmwater Fisheries Program

- Using fyke nets, conducted assessments of spring spawning black crappie and white perch populations for Harrisville Pond (Harrisville), Lake Winnipesaukee (Tuftonboro), and Island Pond (Stoddard).
- Conducted assessments of warmwater fish populations, using an electrofishing boat on Drew Lake (Hopkinton), Rand Pond (Goshen), and Lower Beech Pond (Tuftonboro).
- Conducted surveys to evaluate young-of-the-year black bass on the Connecticut River, Big Squam Lake, Forest Lake (Whitefield), Spofford Lake, and Lake Winnipesaukee.
- Continued to work with the N.H. Interscholastic Athletic Association to support the growth of fishing as a high school sport, and assisted with four statewide high school bass tournaments.
- Assisted with surgically implanting radio telemetry tags into largemouth and smallmouth bass for a second bass movement study, headed by N.H. Bass Nation, on Big and Little Squam lakes.

LAW ENFORCEMENT DIVISION

During the biennium, Conservation Officers coordinated nearly 475 search and rescue missions.

- During the biennium, Conservation Officers coordinated nearly 475 search and rescue missions involving hikers, climbers, snowmobilers, children, dementia patients, and the recovery of victims who drowned on New Hampshire's lakes and rivers.
- Voluntary Hike Safe Cards continued to provide a source of revenue for the Search and Rescue Fund.
- Law Enforcement now has three trained and certified Conservation Officer K-9 Teams capable of assisting with search and rescue

operations, evidence recovery for criminal investigations, and tracking suspects or people who are lost.

- The Department entered into a contract with the New York City-based television production company, Engel Entertainment, Inc., to produce a new television series called North Woods Law: New Hampshire, featuring the work of Conservation Officers in the course of their daily duties.
- The Division's Operation Game Thief Program (OGT) continues to enhance awareness and encourage citizens to report wildlife crimes. In 2016, OGT completed the process to become a certified non-profit organization, with civilian partners serving as board members of the organization. This step has brought new funding initiatives and public relations campaign ideas for expanding awareness of the program.
- Conservation Officers continue to play a very active role on New Hampshire's coastal shoreline. Under the guidelines of the Seacoast Joint Enforcement Agreement, they work in close partnership with the National Marine Fisheries Service, the Atlantic States Marine Fisheries Council, and the National Oceanographic and Atmospheric Administration to enforce both state and federal laws related to seacoast commercial fishing, fisheries management, and recreational activities along the New Hampshire coastline.
- The Law Enforcement Division acquired level-three tactical handgun holsters and tactical night lights that were mounted on all of the officers' service handguns. In 2016, the Law Enforcement Division received Colt M-4 rifles to replace the duty rifles for all officers. These rifles were transferred to Fish and Game Law Enforcement from New Hampshire State Police at no cost to the Department.
- The N.H. Fish and Game Law Enforcement Dive Team conducted 48 dive recovery missions for drowning victims and evidence search missions relating to criminal investigations during the biennium. A new dive boat was purchased with funding supplied by the Wildlife Heritage Foundation of New Hampshire.
- Through a Department of Homeland Security Grant, the Division acquired state-of-the-art Marine Sonic Side Scan Sonar and a Video Ray Pro 4 remote operated vehicle to be used in underwater search missions. The Law Enforcement Division now has a team of four advanced officers trained in the use and maintenance of this equipment. This will now enable underwater searches at extremely deep levels or under the ice in winter conditions. This equipment and training will allow Conservation Officers to search in dangerous conditions without placing divers at risk.

A new television series called North Woods Law: New Hampshire, features the work of Conservation Officers in the course of their daily duties.

❖ MAJOR ACCOMPLISHMENTS

MARINE FISHERIES DIVISION

The Marine Fisheries Division works with federal and state partners via the New England Fishery Management Council and Atlantic States Marine Fisheries Commission to manage 62 marine species.

Management and Resource Monitoring

- Worked with federal and state partners via the New England Fishery Management Council and Atlantic States Marine Fisheries Commission to manage 62 marine species. This included modifications to fisheries management plans for Northern shrimp, striped bass, lobsters, Jonah crab, herring, groundfish, American eels, menhaden, and habitat.
- Operated and monitored fish ladders on six coastal rivers and two American eel fish passage ramps on two coastal rivers to provide access to freshwater spawning habitat for more than 260,000 diadromous fish.
- Conducted research and tagging studies of offshore lobster movement.
- Finalized the distribution of $1,044,351 in federal fisheries disaster assistance to New Hampshire's groundfish fishing industry and its infrastructure.
- Continued annual monitoring programs that collect abundance and biological data on numerous marine species residing in or migrating through New Hampshire's tidal waters.
- Monitored the catch and harvest of New Hampshire's commercial and recreational fisheries in tidal waters.

GREAT BAY NATIONAL ESTUARINE RESEARCH RESERVE

Over 10,000 people visited the Great Bay Discovery Center during the biennium.

Great Bay National Estuarine Research Reserve

- Rebuilt a quarter-mile boardwalk through upland, marsh, and transition habitat at the Great Bay Discovery Center.
- Hosted over 10,000 visitors to the exhibit room at the Great Bay Discovery Center in 2015 and 2016.
- Completed a needs assessment and market analysis of environmental education programs in the seacoast region and served over 10,000 school-aged children through docent-led field trips.
- Hosted over 7,500 hours of volunteer time dedicated to education, research, and land stewardship.
- Conducted three teacher training workshops to provide New Hampshire high school teachers with science and technology curriculum through estuarine experiential learning.
- Provided technical assistance and fish and wildlife data to the New Hampshire Coastal Hazards and Risks Commission Report.
- Conducted over 25 technical assistance workshops and meetings to bring technical information to community planners and local officials in the Great Bay watershed.

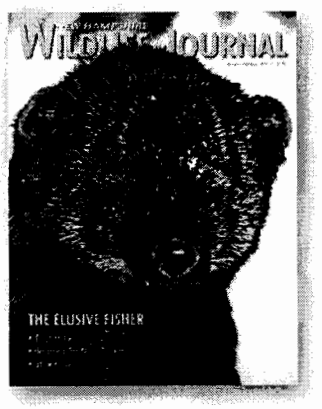
- Incorporated salt marsh migration and habitat information into regional vulnerability studies in Rockingham and Strafford counties.
- Installed two osprey nests with cameras that can provide live video feeds to the public.
- Installed new exhibits in the Discovery Center that interpret watershed pollution and impacts on wildlife.
- Implemented monitoring indicators useful to assessing and tracking the health of Great Bay, including:
  - Saltmarsh vegetation surveys;
  - Upland forest surveys;
  - A macro algae survey;
  - "Attached algae" tool to monitor the types of algae living in tributaries to Great Bay; and
  - Invasive crab monitoring techniques that will be expanded upon and refined to understand how crab populations are changing in Great Bay.

Two osprey nests were equipped with cameras providing live video feeds to the public.

PUBLIC AFFAIRS DIVISION

Information Unit

- The N.H. Fish and Game Department's mobile-friendly website continues to be the hub of information for the Department, serving an average of 101,000 unique visitors each month.
- *New Hampshire Wildlife Journal* magazine subscriptions were sold online for the first time, resulting in over 780 new and renewed subscriptions.
- Annual hunting and fishing marketing/promotional campaigns continued, featuring "Hunt New Hampshire/You Belong Here" and "Catch Your Monster!" themes.
- A total of 28 outdoor adventure talks were coordinated, promoting participation in outdoor recreation; some of the talks were live-streamed on Facebook for the first time, broadening the reach of these popular programs. Two Discover WILD New Hampshire Day events were held, reaching 18,200 participants.
- Public Affairs Division staff coordinated the Department's social media outreach on various platforms; the N.H. Fish and Game Facebook page now has more than 50,000 followers.
- The Department's New Hampshire Wildlife Calendar earned national honors from the Association for Conservation Information in both 2015 and 2016. Online sales through Amazon were added to the calendar marketing outreach efforts.
- A new mobile application developed by Parks By Nature, LLC,was



The Hunter Education program ran 284 Hunter and Bowhunter Education courses, certifying 6,700 hunters.

During the biennium, the Let's Go Fishing Program reached approximately 20,000 people through 120 courses and 25 outreach events.

launched in 2016 at no charge to the Department, allowing outdoor users to buy licenses and find fishing, hunting, and wildlife information using their mobile devices.

- Public Affairs Division staff managed the Barry Conservation Camp facility, which served more than 430 youth during the biennium.

Conservation Education Programs

- Needs assessments and evaluation were conducted for Hunter Education and Aquatic Resources Education grants. Both grants were re-written, with new objectives established for the next five years. The new grants went into effect in FY17.
- The Hunter Education program ran 284 Hunter and Bowhunter Education courses, certifying 6,700 hunters. In addition, 300 people were certified for trapping.
- In April of 2016, six students from the Monadnock Regional Middle High School were honored with the Fish and Game Commission's Youth Conservationist Award of Excellence for activities accomplished while participating in the Watershed Education Program. These students spent many hours collecting water quality and macro-invertebrate data in the Ashuelot River to determine what makes a healthy watershed for fish and wildlife. Their results were shared with state and local decision makers.
- Over 100 schools, 80 teachers, and 2,400 students in every major watershed of the state were served annually by the Watershed Education Program.
- The first Recruitment, Retention, and Reactivation (R3) Program for Hunter Education was launched in partnership with the New Hampshire Chapter of the National Wild Turkey Federation to provide workshops culminating in a mentored turkey hunt for each participant.
- The Let's Go Fishing Program held its first R3 effort by reaching out to Hike Safe Card holders to participate in a weekend workshop on how to fly-fish remote ponds in New Hampshire.
- During the biennium, the Let's Go Fishing Program reached approximately 20,000 people through 120 courses and 25 outreach events.
- A new online event manager was developed and implemented. This integrates with the Department's licensing database and provides online registration for all Public Affairs conservation education programs, providing better evaluation and outreach.

WILDLIFE DIVISION

Game Programs

- The Department estimates that hunters spent 2.8 million days afield and $122 million in New Hampshire during the biennium. This estimate is based on U.S. Fish and Wildlife Service survey data from 2011, which projects that New Hampshire hunters spend 1.4 million days hunting in New Hampshire each year and contribute $61 million per year to the New Hampshire economy.
- The Department's Game Management Team used current harvest and biological data, in addition to management goals and objectives established in the 2016–2025 Game Management Plan, to review the population status and physical condition of New Hampshire game species. Recommended changes in deer, bear, moose, turkey, furbearer, small game, pheasant, and migratory bird seasons and/or bag limits were proposed, evaluated, and implemented through the Department's biennial season setting process during the winter of 2016.
- During the biennium, 618 deer tissue samples were collected and tested for the presence of Chronic Wasting Disease. Since the inception of New Hampshire testing (2002), a total of 5,817 samples have been collected and submitted for testing; all tests have been negative.
- A cooperative research project was completed with the University of New Hampshire aimed at improving Department understanding and documentation of deer wintering area (DWA) use in New Hampshire. The study entailed the use of GIS mapping of field survey data, modeling of habitat components associated with DWAs to identify suitable habitat, and stable isotope analysis of fecal pellets to identify relative use of supplemental food.
- The Department took action to prohibit the use of chocolate as a component in bear bait, in order to safeguard the health of bears and other wildlife. The N.H. Fish and Game Department considers bear baiting to be an important bear population management tool, one that we depend on in order to achieve population goals and objectives.
- The Wildlife Division worked closely with USDA Wildlife Services in order to further improve our statewide bear/human conflict mitigation program. This program has helped stabilize bear/human conflicts in New Hampshire, which is a significant achievement given the increase in people and human-related food attractants in our state.
- An important moose mortality and productivity study that was initiated in 2014 continued through the biennium. The study's primary focus is the ecology and impacts of winter ticks on moose survival and productivity. The study also addresses how moose

The Wildlife Division worked closely with USDA Wildlife Services in order to further improve our statewide bear/human conflict mitigation program.

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Re-opening the bobcat hunting and trapping season was proposed, but the proposal was ultimately withdrawn.

density, weather, and timber cutting practices influence tick numbers in northern New Hampshire.

- During the biennium, the moose population was stable in two moose management regions and declined in four. While permit issuance has been reduced, moose hunter success in 2015 and 2016 remained relatively stable at 70%. Recent moose population declines are attributed to winter tick and brainworm.
- Carrying capacity for New Hampshire's turkey population appears to have been reached, with the statewide population estimated at 40,000, and with an annual spring harvests of approximately 4,000 gobblers and a fall harvest of 1,000 turkeys of both sexes.
- The five-day fall shotgun turkey season was extended by two days in 2016, to include a weekend. Thirty percent of the fall shotgun harvest occurred on the weekend, suggesting high weekend hunter participation.
- The Division's small game project continued to improve small game data collection, assess user interest and preferences, and quantify hunter observations and activities through several ongoing hunter surveys.
- In 2015, pheasants were stocked at 70 sites in 46 towns. In 2016, a total of 65 sites in 43 towns were stocked with pheasants. The total number of birds released at each site averaged 140, with the exception of the flood control areas, which received approximately 40 more birds per site.
- Biologists captured and leg-banded 1,539 resident Canada geese and 1,143 ducks throughout the state, as part of ongoing Atlantic Flyway waterfowl monitoring.
- The Department, working in partnership with USDA Wildlife Services, collected a total of 951 samples from ducks during the biennium to aid nationwide avian influenza (AI) surveillance efforts.
- Trapping continued to play a significant role in the management of New Hampshire's furbearers and helped numerous New Hampshire residents with wildlife damage control issues.
- Re-opening the bobcat hunting and trapping season was proposed, comments were received at two public hearings, but the proposal was ultimately withdrawn.

Animal Damage Control

- The state's Fish and Game/Wildlife Services animal damage control partnership responded to more than 3,600 requests for animal damage assistance, including 327 site visits, and distributed over 12,000 informational leaflets.

Nongame and Endangered Wildlife

- The *New Hampshire Wildlife Action Plan* was revised and submitted to the U.S. Fish and Wildlife Service on September 30, 2015. All New Hampshire species were considered for addition to the Species of Greatest Conversation Need list, with 169 species chosen, along with the habitats that support them.
- The New Hampshire state threatened and endangered wildlife list was revised. Several species were removed from the list following recovery, including bald eagles and American marten.
- During FY15–FY17, a total of 55 workshops were offered on a variety of planning and habitat management topics at the state and local level, such as the N.H. Association of Conservation Commissions annual conference, Saving Special Places (the land trust conference), and meetings with Coverts, individual towns, land trusts, and regional planning commissions. A main topic was introducing the many new features of the 2015 *New Hampshire Wildlife Action Plan*.
- N.H. Fish and Game biologists assisted with land management efforts for 28 landowners, organizations, and agencies.
- N.H. Fish and Game participated in a range-wide survey and conservation planning effort for wood turtles. Biologists surveyed 31 sites and observed 235 individual wood turtles. New Hampshire's information is being used to develop a comprehensive protection plan that will help secure this vulnerable species from Virginia to Maine.
- Biologists discovered the first known eastern box turtle population in southern New Hampshire.
- N.H. Fish and Game was awarded a nationally competitive grant to initiate implementation of conservation actions for the state-endangered Blanding's turtle in New Hampshire and other states in the Northeast.
- A record eight pairs of piping plovers nested on New Hampshire beaches in 2015, besting the previous high of seven (reached in 2013 and from 2001–2003). These eight pairs hatched 25 chicks and successfully raised 12 to fledging (ability to fly). Fifteen piping plover chicks were fledged from New Hampshire beaches in 2016, the most fledglings since 2001.
- Least terns nested on New Hampshire beaches for the first time since the 1950s.
- The Karner blue butterfly population reached the recovery goal of 3,000 individuals for the first time since conservation efforts began in 2000. N.H. Fish and Game biologists continued to raise and release butterflies in the lab and perform prescribed burning annually.

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❖ MAJOR ACCOMPLISHMENTS

Department staff reviewed 55 land conservation grant applications with a total funding request of $3,623,914.

- A 15-acre enclosed facility was constructed at Great Bay National Wildlife Refuge to expand the captive breeding effort for New England cottontail rabbits.

Habitat Management Programs

- Regional biologists reviewed and administered Small Grants Program funds for 20 habitat improvement projects on private lands in 13 towns.
- Regional biologists reviewed a total of 125 timber harvests on 30 large ownerships in northern New Hampshire, covering a total of 25,119 acres.
- Staff assisted the Department of Resources and Economic Development with the development of a comprehensive management plan update for the 40,000-acre Nash Stream State Forest.
- Serving on the Land and Community Heritage Investment Program and Great Bay Resource Protection Partnership boards as well as the State Conservation Committee, Department staff reviewed 55 land conservation grant applications with a total funding request of $3,623,914. Nearly 12,000 acres of land were conserved through these grant programs. Staff worked to ensure that awarded projects conserved significant wildlife habitats as identified in the *New Hampshire Wildlife Action Plan* and/or on-the-ground reconnaissance and that all funded projects were open for public pedestrian access, including hunting, fishing, and wildlife watching.
- The Division acquired nine properties totaling 2,209 acres to add to our statewide Wildlife Management Area (WMA) and conservation easement system. Funds for acquisitions were obtained through Federal Aid in Wildlife Restoration Program grants, donations, mitigation, or other sources of funding. Properties included:
    - Robbins Acquisition, Brookfield – 403 acres added to the Ellis Hatch, Jr. WMA, bringing the total area to 1,906 acres.
    - Soucook River Conservation Easement Area, Loudon – A 31-acre conservation easement was donated as mitigation for wetlands impacts associated with commercial development. The easement area abuts two existing N.H. Fish and Game easements and added permanent protection to an additional 2,200 feet on the Soucook River.
    - Hinman Pond II Conservation Easement, Hooksett – A 296-acre donation of a conservation easement from BearPaw Regional Greenways. This expanded the conservation easement area in the Bear Brook focus area to 770 acres.
    - Durant Donation, Jefferson – The Department accepted the donation of 10 acres with extensive frontage on the Israel River and Stalbird Brook.

- Mathes Acquisition, Londonderry – Purchased 149 acres in collaboration with Town of Londonderry and the Southeast Land Trust of New Hampshire, which became the new Musquash Swamp WMA.
- Harvey Conservation Easement, Epping/Nottingham – A 1,131-acre easement purchased in collaboration with Southeast Land Trust of New Hampshire.
- Potter Conservation Easement, Randolph – Bargain sale of 38 acres to add onto the existing 250 acres of easement held by N.H. Fish and Game along the Moose River.
- Baker Acquisition, Enfield – Purchased fee title to a 1-acre parcel adjacent to Henry Laramie WMA. This addition will enable the Department to undertake wildlife habitat management activities on lands previously inaccessible.
- Low Stevens Donation – The Department accepted the donation of 150 acres adjacent to the Farrar Marsh WMA, expanding the total acreage to 626.

Nine properties, totalling 2,209 acres, were added to our Statewide Wildlife Management Area and conservation easement system.

- Timber harvests on two WMAs were completed to enhance wildlife food and cover, generating nearly $26,000 in revenue. Harvests on seven other WMAs were planned and are ready for implementation pending suitable ground conditions.
- Fields were mowed on 12 state properties to maintain 140 acres for wild turkey, deer, grassland birds, and other wildlife. Brontosaurus mowing was completed on 26 acres to regenerate shrubs and young trees to benefit American woodcock, ruffed grouse, and several species of songbirds. Nearly 130 acres of additional habitat improvements on state lands were planned.
- To facilitate public use of WMAs, the Division installed 51 WMA signs and built three parking areas.
- The Division funded a contract with the University of New Hampshire Cooperative Extension that:
  - Resulted in 45 workshops reaching 1,197 landowners, natural resource professionals, and community decision makers on topics related to land and habitat management.
  - Provided technical assistance to 85 municipal and private landowners on habitat management issues affecting 11,458 acres of land.
  - Helped fund the training of 45 New Hampshire Coverts Project volunteers over the biennium. They join 381 existing Coverts volunteers who actively help conserve wildlife habitat in their communities. Over the biennium, these volunteers contributed over 48,600 hours of service on behalf of wildlife habitat in their communities (valued at over $1,111,000).

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❖ LEGISLATION

HB1286 allowed Fish and Game to establish a winter Free Fishing Day.

2016 SESSION

Enacted Law:

- **HB499 - Title: Permitting New Hampshire farmers to sell certain farm raised animals directly to the public.** This bill exempts "bison" from certain licensing and inspection requirements. Chapter 36; Effective Date 7/2/2016.
- **HB500 - Title: Repealing the prohibition on the use of silencing devices for taking wildlife.** This bill repeals provisions which prohibit the use of silencing devices for taking wildlife and impose penalties therefor. Chapter 234; Effective Date 6/10/2016.
- **HB1267 - Title: Relative to the family Hike Safe Card for fish and game search and recovery expenses.** This bill adds individuals under a family guardianship to the definition of family for the voluntary Hike Safe Card issued by the fish and game department for search and recovery response expenses. Chapter 165; Effective Date 6/3/2016.
- **HB1268 - Title: Relative to liability for payment of expenses of search and rescue recovery by the fish and game department.** This bill clarifies the liability of persons requiring search and rescue response from the fish and game department for certain negligent, criminal, or reckless actions. Chapter 166; Effective Date 6/3/2016.
- **HB1286 - Title: Relative to days when fishing without a license is permitted.** This bill allows the fish and game department to establish 2 days per year for fishing without a license but requires persons in fishing tournaments to have a license on those days. Chapter 135; Effective Date 7/26/2016.
- **HB1298 - Title: Relative to damage to private property.** This bill creates a cause of action for a landowner whose land is damaged by pollution. This bill also creates a cause of action for a landowner whose land is damaged by OHRV use. Chapter 278; Effective Date 1/1/2017.
- **HB1388-FN - Title: Expanding crossbow use into muzzleloader season.** This bill allows a person who has purchased a muzzleloader license to hunt deer with a crossbow. Chapter 27; Effective Date 6/24/2016.
- **HB1396 - Title: Relative to OHRV operation on certain highways in Grafton County.** This bill allows the operation of off highway recreational vehicles (OHRVs) on certain highways in Grafton County that have been designated open for such use. Chapter 318; Effective Date 6/24/2016.
- **HB1589-FN - Title: Prohibiting the transportation of exotic aquatic weeds.** This bill prohibits the transport of exotic aquatic weeds. Chapter 227; Effective Date 1/1/2017.

- **SB319-FN - Title: Relative to survivor benefits for families of police officers and firefighters killed in the line of duty.** This bill adds definitions of "adult child" and "child" for purposes of determining survivor benefits for families of police officers and firefighters killed in the line of duty. Chapter 298; Effective Date 6/21/2016.
- **SB356 -FN - Title: Relative to agricultural plates for vehicles of commercial fishing operations.** This bill authorizes agricultural plates for qualifying vehicles of commercial fishing operations. Chapter 97; Effective Date 1/1/2017.
- **SB363 - Title: Relative to the registration of an OHRV in the name of a trust.** This bill allows for the registration of an OHRV to be in the name of a trust. Chapter 241; Effective Date 6/10/2016.
- **SB375 - Title: Establishing the coastal marine natural resources and environment commission.** This bill establishes the coastal marine natural resources and environment commission. Chapter 156; Effective Date 7/26/2016.
- **SB376-FN - Title: Relative to wildlife corridors.** This bill requires the fish and game department to identify existing and needed wildlife corridors connecting wildlife habitats in the state and to make recommendations to the legislature for changes to laws. Chapter 243; Effective Date 8/9/2016.
- **SB384 - Title: Relative to the feeding of wild deer.** This bill prohibits the feeding of wild deer at certain times and locations determined by the fish and game department and requires the labeling of wild animal feed. The bill requires the fish and game department to distribute informational materials. Chapter 384; Effective Date 8/20/2016.
- **SB452-FN - Title: Requiring certain state agencies to conduct an audit of laws governing coastal regions to enable authorities to take appropriate actions.** This bill requires certain state agencies to conduct an audit of laws governing coastal regions to enable authorities to take appropriate actions. Chapter 195; Effective Date 6/6/2016.
- **SB475-FN - Title: Requiring law enforcement agencies to file crime reports with the department of safety.** This bill requires all law enforcement agencies operating within New Hampshire to file crime reports with the division of state police, department of safety, based on the Federal Bureau of Investigation's Uniform Crime Reporting Program. Chapter 103; Effective Date 7/18/2016.
- **SB521-FN - Title: Relative to an OHRV registration fee for persons who are members of an OHRV club.** This bill establishes an OHRV registration fee for persons who are members of an OHRV club which is reduced $30 from the increased fee paid by other registrants. The fee provisions take effect upon certification by the executive director of fish and game of the implementation of certain requirements. Chapter 233; Effective Date 6/9/2016.

SB384 prohibits the feeding of wild deer at certain times and locations determined by the fish and game department and requires the labeling of wild animal feed.

❖ LEGISLATION

- **HB1418-L - Title: Relative to the minutes of nonpublic sessions.** Chapter 29; Effective Date 1/1/2017.
- **HB1419 - Title: Relative to voting records in nonpublic sessions of public bodies.** Chapter 30; Effective Date 1/1/2017.
- **SB400 - Title: Relative to Executive branch ethics.** This bill extends ethical duties and extends the restrictions in the law to the activities of classified employees. Chapter 57; Effective Date 7/4/2016.
- **HB1624-FN - Title: Relative to electioneering by public employees.** This bill is similar to the federal Hatch Act, ***www.fda.gov/AboutFDA/WorkingatFDA/Ethics/ucm071602.htm***, which restricts the activities of federal employees during elections. This is a state law counterpart, and prohibits advocacy not only as to candidates, but also as to any issue which is placed before the voters at any level of government in the state. Chapter 176; Effective Date 1/1/2017.
- **SB374 & SB375 - Title: These two bills connect with SB 452 as part of the effort to deal with sea rise as a result of climate change in the coastal region.** SB374 requires DES to update coastal flooding trends, while SB375 establishes the coastal marine natural resources and environment commission. SB374: Laws of 2016, Chapter 121, Effective Date 4/5/16; SB 375: Laws of 2016, Chapter 156, Effective Date 3/30/16.
- **HB606-FN-L - Title: Relative to costs for public records filed electronically.** Chapter 283; Effective Date 6/21/2016.
- **HB285 - Title: Relative to non-public sessions under the right to know law, discussions with legal counsel (review of correspondence).** Chapter 285; Effective Date 6/21/2016.

SB374 requires DES to update coastal flooding trends, while SB375 establishes the coastal marine natural resources and environment commission.

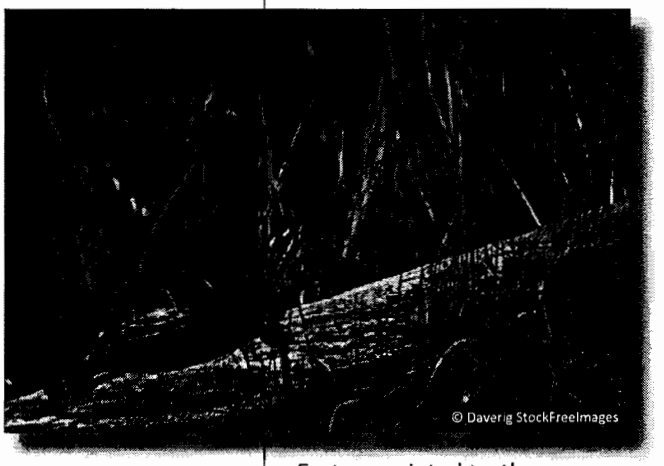
2017 SESSION

Enacted Law:

- **HB163 - Title: Relative to the responsibility of a municipality to enforce its ordinances.** This bill requires municipalities that open their roads to use by OHRV/snowmobiles to enforce their own ordinances on such roads. Chapter 56; Effective Date 8/1/2017.
- **HB170 - Title: Relative to posting notice and minutes of public meetings on the public body's website.** Chapter 234; Effective Date 1/1/2018.
- **HB178 - Title: Establishing a commission to study processes to resolve right-to-know complaints.** Chapter 126; Effective Date 6/16/2017.

- **HB190 - Title: Relative to the wildlife habitat account and the fisheries habitat account.** This bill changes the use of dedicated funds within these two existing accounts. Chapter 160; Effective Date 7/1/2017.
- **HB211 - Title: Relative to temporary OHRV registrations for nonresidents.** This bill continues the program allowing temporary OHRV registration. Chapter 98; Effective Date 8/7/2017.
- **HB237 - Title: Establishing a committee to study helmet and restraint laws for youth operators and passengers of OHRVs and snowmobiles.** Chapter 236; Effective Date 7/18/2017.
- **HB428 - Title: Relative to crossbow hunting by persons 68 years of age and older.** This bill allows all persons aged 68 and older to use a crossbow during archery season without the need for an additional permit. Chapter 17; Effective Date 6/16/2017.
- **HB460 - Title: Relative to minutes under the right-to-know law.** Chapter 165; Effective Date 1/1/2018.
- **HB474 - Title: Limiting the use of cell site simulator devices by law enforcement agencies.** Chapter 224; Effective Date 1/1/2018.
- **HB624 - Title: Relative to Group II vested deferred retirements, the age of dependents in the retiree health plan, and retired judges' participation in the retiree health plan.** Chapter 77; Effective Date 6/2/2017.
- **SB12 - Title: Repealing the licensing requirement for carrying a concealed pistol or revolver.** Chapter 1; Effective Date 2/22/2017.
- **SB30 - Title: Defining woodland buffers and relative to such woodland buffers for the purposes of the shoreland protection act.** Chapter 225; Effective Date 9/9/2017.
- **SB110 - Title: Establishing the painted turtle as the state reptile.** Chapter 174; Effective Date 6/28/2017.
- **SB127 - Title: Relative to dissolved oxygen concentration water quality standards.** Chapter 211; Effective Date 9/8/2017.

SB110 Established the painted turtle as the state reptile.



Eastern painted turtle

❖ RECOMMENDATIONS FOR CHANGES IN THE FEE STRUCTURE FOR ALL LICENSES AND PERMITS ISSUED BY THE DEPARTMENT

A. EFFECTS OF INFLATION RATES ON DEPARTMENT OPERATIONS

The New Hampshire Fish and Game Department uses revenue from fishing and hunting license fees, federal funds, the state General Fund, donations, and other sources to accomplish its broad mission of conserving, managing, and protecting the state's fish, wildlife, and marine resources and their habitats; informing and educating the public; and providing opportunities for people to use and appreciate these resources. While inflation rates have been at relatively low levels over the past few years, even 1.5% to 2% increases add up year after year. For example, a 2% increase in salary and benefits means the Department must find an additional $320,000 more to maintain the status quo. A 2% rise in fish food prices can mean an extra $8,000 in expenses, or, put another way, it equates to the sale of 177 more fishing licenses than the previous year.

During the biennium, license fee increases and continued support from the State General Fund helped Department revenues keep pace with expenses.

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The amount of money raised from the sale of hunting and fishing licenses is, of course, dependent upon the price of the license and the number of people purchasing licenses. The number of people who buy hunting and fishing licenses is fairly flat in New Hampshire, a problem exacerbated by the state's aging demographic (as people reach age 68, they are eligible for discounted hunting and fishing licenses). We recognize that there is a practical limit to how high license prices can rise while still retaining our customers. Meanwhile, the Department's responsibilities have increased, as have the expectations of the public, at the same time expenses have steadily risen.

As in the private sector, the highest increases have been in the area of health care costs for both active and retired employees. Step increases and raises in salaries are also a factor. Additionally, payments to the State of New Hampshire for general services and increases in funds paid to the Department of Information Technology have increased substantially from just a few years ago. Other items, from fish food for our hatcheries to vehicles, also increase yearly. Another area of concern has been decreases in interest revenue on Fish and Game's various accounts.

One of the few bright spots has been relatively low fuel costs over the last few years, but no one expects that to continue indefinitely. The Department cannot control these costs, as we can our operational expenses; they are dictated by the State's health management system, the Collective Bargaining Agreement, the Department of Administrative Services, and the Department of Information Technology, as well as the economy at large.

LICENSE PRICE CHANGES IN 2016

Prices do not include wildlife habitat or transaction fees.

LICENSE TYPE	2015 PRICE	INCREASE	2016 PRICE
RESIDENT			
FRESHWATER FISHING	$35.00	$10.00	$45.00
COMBINATION HUNTING & FISHING	$46.00	$10.00	$56.00
HUNTING	$22.00	$10.00	$32.00
ARCHERY	$22.00	$10.00	$32.00
SPECIAL ARCHERY	$16.00	$10.00	$26.00
PHEASANT	$26.00	$5.00	$31.00
MIGRATORY WATERFOWL	$5.00	$6.00	$11.00
SENIOR COMBO HUNTING & FISHING	$0.00	$7.00	$7.00
SENIOR FISHING (FRESHWATER)	$0.00	$7.00	$7.00
SENIOR ARCHERY	$0.00	$3.00	$3.00
SENIOR MUZZLELOADER	$0.00	$3.00	$3.00
OVER 68 CLAM/OYSTER	$0.00	$0.00	$0.00
NONRESIDENT			
FRESHWATER FISHING	$53.00	$10.00	$63.00
COMBINATION HUNTING & FISHING	$141.00	$10.00	$151.00
HUNTING	$103.00	$10.00	$113.00
SPECIAL ARCHERY DEER	$16.00	$10.00	$26.00
ARCHERY	$73.00	$10.00	$83.00
PHEASANT	$26.00	$5.00	$31.00
MIGRATORY WATERFOWL	$5.00	$6.00	$11.00
MISCELLANEOUS			
UNIT L PERMITS - 1 Tag	$13.00	$13.00	$26.00
UNIT M PERMITS - 2 Tags	$26.00	$10.00	$36.00
LONG ISLAND DEER PERMIT	$10.00	$15.00	$25.00
GOVERNOR'S ISLAND DEER PERMIT	$10.00	$15.00	$25.00
RESIDENT HUNTING GUIDE	$59.50	$40.50	$100.00
RESIDENT FISHING GUIDE	$59.50	$40.50	$100.00
NONRESIDENT HUNTING GUIDE	$200.50	($100.50)	$100.00
NONRESIDENT FISHING GUIDE	$200.50	($100.50)	$100.00
RESIDENT TRAPPER - ADULT	$28.50	$7.50	$36.00
WILDLIFE CONTROL OPERERATOR 1	$10.00	$5.00	$15.00
RESIDENT WILDLIFE CONTROL OPERATOR II	$100.00	$35.00	$135.00
NONRESIDENT WILDLIFE CONTROL OPER. II	$300.00	$100.00	$400.00
MARINE			
RESIDENT WHOLESALE MARINE SPECIES	$100.00	$30.00	$130.00
RESIDENT WHOLESALE MARINE EXTRA FAC.	$50.00	$25.00	$75.00
NONRESIDENT WHOLESALE MARINE SPECIES	$200.00	$60.00	$260.00
NONRESIDENT WHOLESALE MARINE XTRA	$75.00	$25.00	$100.00
RESIDENT RETAIL LOBSTER/CRAB	$25.00	$25.00	$50.00
NONRESIDENT RETAIL LOBSTER/CRAB	$50.00	$25.00	$75.00
RECREATIONAL LOBSTER/CRAB -5	$35.00	$5.00	$40.00
LIMITED COMMERCIAL LOBSTER/CRAB -100	$103.00	$22.00	$125.00
LIMITED COMMERCIAL LOBSTER/CRAB - 600	$175.00	$25.00	$200.00
COMMERICAL LOBSTER/CRAB	$300.00	$50.00	$350.00
LOBSTER HELPERS LICENSE	$10.00	$10.00	$20.00
NONRESIDENT LIM. COMM. LOBS/CRAB -100	$350.00	$50.00	$400.00

❖ RECOMMENDATIONS

COMPARISON OF INDIVIDUALS HOLDING PAID LICENSES TO HUNT AND FISH
(From Data Collected For USFWS License Certifications)

HUNTING						
YEAR	RESIDENT HUNTING	NUMBER CHANGE	PERCENT CHANGE	NON-RES. HUNTING	NUMBER CHANGE	PERCENT CHANGE
2003	51,875	-3,242	-5.90%	12,100	-369	-3.00%
2004	50,777	-1,098	-2.10%	11,810	-290	-2.40%
2005	49,165	-1,612	-3.20%	11,572	-238	-2.00%
2006	49,415	250	0.50%	11,661	89	0.80%
2007	48,786	-629	-1.30%	10,982	-679	-5.80%
2008	48,553	-233	-0.50%	10,601	-381	-3.50%
2009	48,947	394	0.80%	10,473	-128	-1.20%
2010	48,486	-461	-0.90%	10,815	342	3.30%
2011	46,506	-1,980	-4.10%	9,905	-910	-8.40%
2012	48,506	2,000	4.30%	10,562	657	6.60%
2013	50,294	1,788	3.70%	11,262	700	6.60%
2014	48,789	-1,505	-3.00%	10,529	-733	-6.50%
2015	47,599	-1,190	-2.40%	10,500	-29	-0.30%

FISHING						
YEAR	RESIDENT FISHING	NUMBER CHANGE	PERCENT CHANGE	NON-RES. FISHING	NUMBER CHANGE	PERCENT CHANGE
2003	95,911	(4,572)	-4.6%	45,150	(2,898)	-6.0%
2004	97,947	2,036	2.1%	45,888	738	1.6%
2005	95,923	(2,024)	-2.1%	44,672	(1,216)	-2.6%
2006	96,854	931	1.0%	43,970	(702)	-1.6%
2007	99,878	3,024	3.1%	46,631	2,661	6.1%
2008	99,833	(45)	0.0%	45,160	(1,471)	-3.2%
2009	103,657	3,824	3.8%	46,313	1,153	2.6%
2010	100,941	(2,716)	-2.6%	45,502	(811)	-1.8%
2011	105,055	4,114	4.1%	46,086	584	1.3%
2012	107,843	2,788	2.7%	47,331	1,245	2.7%
2013	109,444	1,601	1.5%	47,234	(97)	-0.2%
2014	111,871	2,427	2.2%	48,661	1,427	3.0%
2015	111,013	(858)	-0.8%	49,566	905	1.9%

B. PREVIOUS FEE INCREASES

Since 1935, the Fish and Game Department has depended primarily on funding derived from the sale of hunting and fishing licenses and fees on outdoor activities and hunting and fishing equipment. Currently, on average, New Hampshire's hunters and anglers pay more per individual to support the state's fish and wildlife conservation programs than any other state in New England.

COMPARISON OF COSTS FOR HUNTING ACTIVITIES

In an attempt to provide a general comparison of hunting license fees among the New England states, the table below was compiled in 2017 by reviewing state regulations and conferring with states to determine which license, permit, or combination of license and permits would be necessary to hunt for four species (deer, bear, turkey, and moose). Fees include all costs (except agent fees for some states) that must be paid in order to lawfully hunt the species.

COMPARISON OF COSTS FOR HUNTING ACTIVITIES, 2017

LICENSE TYPE		NH	ME	VT	MA
Cost to hunt deer - regular season	Resident	$34.50	$26.00	$26.00	$27.50
	Non-resident	$115.50	$115.00	$100.00	$99.50
Cost to hunt deer - archery only	Resident	$34.50	$26.00	$49.00[1]	$32.60[1]
	Non-resident	$85.50	$75.00	$75.00	$104.60
Cost to hunt bear	Resident	$50.50	$53.00	$26.00[3]	$32.50
	Non-resident	$163.50	$189.00[2]	$100.00[3]	$104.50
Cost to hunt turkey (spring)	Resident	$50.50	$46.00[4]	$49.00[5]	$32.50[6]
	Non-resident	$146.50	$135.00[4]	$138.00[5]	$104.50[6]
Cost to hunt deer (reg & archery), bear, turkey (spring)	Resident	$98.50	$99.00[7]	$72.00	$42.60
	Non-resident	$277.50	$284.00	$176.00	$114.60
Cost to hunt moose	Resident	$199.50	$93.00	$136.00	N/A
	Non-resident	$640.50	$715.00[8]	$475.00	N/A

[1] Add on to license.

[2] For non-residents to hunt bear outside the deer season. A special bear permit is required after the start of the deer season which costs $40.00.

[3] Late season bear tag included with license. Early season bear permit is $5.00 for residents and $15.00 for non-residents (not included in table cost).

[4] A combined spring/fall permit required (resident & non-resident) which allows the taking of two bearded turkeys in the spring and two turkeys of either sex in the fall, but an individual WMD bag limit cannot be exceeded.

[5] 2 spring birds.

[6] Season bag limit of 2 birds (2 spring or 1 spring and 1 fall).

[7] A Superpack is available for residents only. This license permits a person who has met the eligibility requirements for each license or permit to hunt and fish for all legal game and fish species subject to all the laws covering these activities: fishing, hunting, and archery. The Superpack license includes muzzleloader, crossbow, migratory waterfowl, pheasant, spring/fall turkey, bear, coyote night hunt, and three expanded archery antlerless permits. The Superpack license also includes one free chance in the moose lottery and entry into a special category in the annual any-deer permit lottery. This license costs $201.00.

[8] Nonresidents can purchase 3 chances for $25, 6 for $35, 10 for $55 as well as multiples of 10 chances.

❖ RECOMMENDATIONS

During the biennium, Newborn Lifetime Combination Hunting and Fishing License gift certificates became available. This provided New Hampshire residents with the opportunity to provide newborn children (under one year of age) with perpetual future access to New Hampshire's hunting and freshwater fishing adventures at the one-time price of $300 (plus $4.50 for habitat and agent fees).

With legislation in place (HB212) giving Fish and Game authority to set license fees, the Department moved forward in 2016 to implement the license fee changes that were necessary, because of budget limitations, to continue providing services to sportsmen and sportswomen. The fee structure for certain other license types also changed. License prices had not changed in more than a decade, while the Department's expenses continued to rise and responsibilities increased. The Consumer Price Index reflected a 31% increase since license prices had last been raised in 2003. Essentially, basic New Hampshire hunting and fishing license fees went up by $10 in 2016.

Currently, on average, New Hampshire's hunters and anglers pay more per individual to support the state's fish and wildlife conservation programs than any other state in New England.

COMPARISON OF COSTS FOR FRESHWATER FISHING ACTIVITIES AS OF MAY 2017				
LICENSE TYPE	NH	ME	VT	MA
RESIDENT	$45.00	$25.00	$26.00	$27.50
NONRESIDENT	$63.00	$64.00	$52.00	$37.50

COMPARISON OF COSTS FOR SALTWATER FISHING ACTIVITIES AS OF MAY 2017						
LICENSE TYPE	NH	ME	VT	MA	RI	CT
RESIDENT	$10.00	0	N/A	$10.00	$7.00	$10.00
NONRESIDENT	$10.00	0	N/A	$10.00	$10.00	$15.00

Changes were also made in discounted licenses for resident seniors. With rapid growth among older residents and fewer young people in New Hampshire, the Department was no longer able to offer free licenses to all residents over age 68. Those born on or before December 31, 1947, still qualify for a free permanent hunting and fishing license. Those who turn age 68 on or after January 1, 2016, now must purchase an annual license (Senior Freshwater Fishing or Senior Combination Hunting and Fishing) at the discounted price of $7 (transaction and wildlife habitat fees may apply). Senior Muzzleloader and Senior Archery licenses are $3. A free permanent Clam/Oyster license is available to all residents age 68 or older. Resident seniors continue to purchase all other license types, including Saltwater Recreational Fishing, at the regular rates.

C. BUDGET DEMANDS

It is an understatement to say that the New Hampshire Fish and Game Department's budget is stressed as we try to meet all the demands of the public, along with our statutory responsibilities.

The Fish and Game Department continues its efforts to meet our obligations, in spite of limited resources. The Department has met budget challenges over the past decade through belt tightening, careful management, eliminating or not funding vacant positions (currently including six law enforcement positions), deferring maintenance on equipment and buildings, and reducing vehicle purchases to the point where our fleet is barely adequate.

The fact is that sportsmen's and sportswomen's license purchases are level, while costs for utilities, technology, equipment, products such as fish food, and, most especially, healthcare for active as well as retired employees, continue to rise. License price increases in the last biennium, along with a modest amount of General Funds, have kept our head above water, but as costs continue to rise, we find ourselves back at square one.

Efforts to secure alternative funding for search and rescue continue, as it is a constant drain on the Fish and Game Fund. Continued sales of Hike Safe Cards have been better than expected but have by no means fully solved this problem.

Expanding Our Constituency

We have made it a priority to build connections with nontraditional constituencies that benefit from Fish and Game programs, but which have not had a direct avenue for contributing to the cost of operating the Department. Along these lines, we have worked diligently to broaden our constituency through outreach, education, and training. The success of our Becoming an Outdoors-Woman (BOW) program is a good example. This popular program involves hundreds of women each year in learning skills related to outdoor recreation. Without question, BOW participants are among our most enthusiastic supporters.

The Department has begun work on creating a thoughtful, outcome-based strategy for recruiting and retaining hunters and anglers. Our Hunter Education Program educates nearly 5,000 new hunters each year. Specialty courses at Owl Brook Hunter Education Center help those interested in hunting gain skills and confidence. The Let's Go Fishing Program introduces children and adults to the fun of fishing. My Outdoors TV brings the excitement of outdoor recreation to a viewing audience of thousands. We are involving youth through summer activities at Barry Conservation Camp and Owl Brook Hunter Education Center.

Outreach to non-traditional constituencies that benefit from Fish and Game programs has included cooperative programming with the hiking and paddling communities, connecting with wildlife watchers through publications such as *N.H. Wildlife Journal*, and events such as our popular outdoor adventure talks. We have also begun revitalizing our Watchable Wildlife Program to help people connect with wildlife wherever they may be.

The Department has begun work on creating a thoughtful, outcome-based strategy for recruiting and retaining hunters and anglers.

❖ RECOMMENDATIONS

All parties, the Governor, the Legislature, and the Department, understand that work needs to be undertaken to revise our funding model and establish a new source of stable, dedicated funding for the Department.

Federal Funds at Risk

The Department receives a significant portion of its revenue from the Federal Government. These federal revenues represent nearly one-third of our budget. Not only are significant amounts of these funds annual appropriations, but the Wildlife and Sport Fish Trust Funds that are the foundation of the North American Model of Wildlife Conservation are being questioned by the industries that pay them. Furthermore, due to declining gun and ammunition sales, projections for these funds suggest significant decreases in the near future.

New Funding Sources Needed

As we end FY17, Fish and Game continues to rely upon a small portion of State General Funds. All parties, the Governor, the Legislature, and the Department, understand that work needs to be undertaken to revise our funding model and establish a new source of stable, dedicated funding for the Department.

D. INTENSIVE ANALYSIS AND JUSTIFICATION FOR GENERAL FUND SUPPORT FOR FISH AND GAME DEPARTMENT PROGRAMS

During the biennium, the Fish and Game Department received State General Funds for both the Nongame and Endangered Wildlife Program matching grant and a separate allotment to the Fish and Game Fund to be used for the general operation of Fish and Game programs.

Conservation of Nongame Species

In 1988, the N.H. Legislature established the Nongame and Endangered Wildlife Program, assigning the Fish and Game Department as the steward for the state's nongame wildlife – species not hunted, fished, or trapped. For 25 years, the Nongame Program at N.H. Fish and Game has worked under the legislative mandates of the State Endangered Species Act (RSA212-A) and the Nongame Act (RSA 212-B) to protect over 400 species of mammals, birds, reptiles, and amphibians, as well as insects and other invertebrates and the habitats they depend on. To fund this work, the Legislature established a grant that matches private donations raised by the Nongame Program dollar-for-dollar, up to $50,000 annually.

Over the past 27 years, the Department's Nongame Program has grown from a one-person operation to a fully staffed conservation program. The Nongame Program works with other state agencies, conservation organizations, and non-profits to develop and implement effective conservation strategies to protect and enhance this diverse group of wildlife and their habitats. The Nongame Program led the effort to develop the state's first comprehensive *Wildlife Action Plan.*

It was approved by the U.S. Fish and Wildlife Service in 2006, and a full revision was completed in the fall of 2015.

The Nongame Program does not receive any funding from the sale of hunting or fishing licenses, and by law, the Department is not allowed to use federal Wildlife Restoration funds to pay for the work of conserving endangered species. The State Wildlife Grants (SWG) Program, administered by the U.S. Fish and Wildlife Service, is appropriated annually and provides the bulk of funding for the Nongame Program. In order to qualify, the Department must contribute a percentage of the funding through non-federal sources as match, making the state contribution and private donations even more critical.

The annual expenditure of $50,000 in General Funds, as match for donations, was and continues to be critical in supporting this valuable program. Over the past 25+ years, the number of private supporters who donate to the Nongame Program has steadily grown, and in recent years private donations have exceeded the annual match contributed by the State General Fund. Continued support by private donors and the matching grant from the State General Fund remains a vital component of the private-state-federal mixture of funding that will carry the Nongame Program into the future. With more than 27 years of wildlife monitoring and management, plus outreach, education, and close work with conservation partners, the Nongame Program remains dedicated to restoring and protecting the great diversity of nongame, threatened, and endangered wildlife and their habitats in our state.

General Fund Support for Fish and Game Operations

The New Hampshire Fish and Game Department uses revenue from fishing and hunting license fees, federal funds, and other sources, along with State General Fund money, to accomplish its broad mission of conserving, managing, and protecting the state's fish, wildlife, and marine resources and their habitats; informing and educating the public; and providing opportunities for people to use and appreciate these resources.

The Department's FY16-17 budget included $600,000 per year in General Funds. A total of $1.2 million was transferred to the Fish and Game Fund during the biennium. This was less than the Department received in General Funds during the previous biennium ($699,000 for FY14 and $893,000 for FY15). Together with increases in license fee revenue (authorized by HB212 and implemented during the biennium), these State General Funds kept the Fish and Game Department going.

While General Funds represent less than 3% of Fish and Game's budget, the Department relies upon this state money to make up the shortfall in the Fish and Game Fund.

A strong commitment is needed from the public and the Legislature to keep the state's fish and wildlife agency strong and effective. Fish and Game has a broad mandate to conserve wildlife and wild places and provide other services for all New Hampshire citizens and visitors.

While General Funds represent less than 3% of Fish and Game's budget, the Department relies upon this state money to make up the shortfall in the Fish and Game Fund.

❖ RECOMMENDATIONS

Certain functions of the Department, such as Law Enforcement, which are primarily funded by Fish and Game funds (as opposed to federal grants and dedicated accounts), are especially vulnerable to the major budget reductions that would be necessary without State General Funds.

The Fish and Game budget sustains the full range of habitat and fish and wildlife management tasks, plus conservation education, law enforcement, search and rescue, assessing the impact of development projects on wildlife, and more. All of these functions are essential to ensure that the Department can effectively serve the wildlife and people of New Hampshire. The inclusion of a small amount of General Funds in the Fish and Game budget is an important avenue through which the broader public that benefits from the Department's many services can contribute to its operation.

The ongoing funding dilemma at Fish and Game has been extensively studied by the Legislature through two successive Commissions to Study Opportunities and Options to Improve the Sustainability of the Fish and Game Department (2013 - HB588; and 2014 - HB256). The shortfall is not the result of establishing new programs, creating new positions, nor even reductions in revenues. Even with the significant fee increases implemented during FY16 and FY17, it remains challenging to maintain the Department's services at a level the public has come to expect. Inflation is the culprit, driving up the cost of operating expenses and putting pressure on the Fish and Game Fund.

Certain functions of the Department, such as Law Enforcement, which are primarily funded by Fish and Game funds (as opposed to federal grants and dedicated accounts), are especially vulnerable to the major budget reductions that would be necessary without State General Funds. While this fact is generally acknowledged by the Legislature, efforts to expand our funding base with sustainable new revenue sources have proven politically unpalatable. Therefore, the Legislature has opted to put State General Funds into the Fish and Game Fund in order to avoid drastic reductions in Department functions. The intent was to create a bridge to a future sustainable financial program that would include a mechanism through which the broader public would contribute to the cost of operating a Department that benefits all its citizens.

WILDLIFE HERITAGE FOUNDATION OF NEW HAMPSHIRE ❖

FISH AND GAME'S NONPROFIT PARTNER

As the official nonprofit partner of the New Hampshire Fish and Game Department, the Wildlife Heritage Foundation of New Hampshire continues to have a significant positive impact on programs within the Department. Established in 2006, the Foundation has awarded 83 grants to Fish and Game over the years, in the process pursuing its goal of investing in wild places and wild things for future generations.

WILDLIFE HERITAGE FOUNDATION of NH

SHARING THE PAST, SHAPING THE FUTURE.

True to their mission, the Foundation helps fund the essential education, conservation, wildlife, fisheries, and law enforcement programs of Fish and Game. During the biennium, the Foundation awarded $193,341 in grants for 18 critical Fish and Game programs. Grant-funded activities included an Angler Survey that identified public opinions and attitudes toward the Department's fisheries programs, purchase of a trailer to transport equipment for the popular Becoming an Outdoors-Woman events, and an upgrade of the Law Enforcement Division's firearms.

From left, Foundation Administrator Gail Huntting, Foundation Chair Steven White, and Foundation Board Member Deborah L. Coffin greet Governor Chris Sununu at the 2017 Discover WILD New Hampshire Day.

The Wildlife Heritage Foundation of New Hampshire continues to support Fish and Game's Law Enforcement Canine Program by providing training, medical care, and equipment needs. This biennium, Foundation board member Wesley Reed generously donated two new dogs–Cora, who joined the unit in September of 2016, and a new pup born in the summer of 2017 that will join the program soon.

In addition to fundraising campaigns to directly support projects and programs at Fish and Game, the Foundation also applies for outside grants to benefit the Department. During the biennium, the Foundation secured an award from the Neil and Louise Tillotson Fund of the N.H. Charitable Foundation. This $22,500 grant was awarded to fund an expansion of the dining hall at Barry Conservation Camp in Berlin, N.H., a Fish and Game facility. The Foundation also successfully raised the required matching funds. The Foundation also successfully raised the required matching funds with public and private donations. Another outside grant secured by the Wildlife Heritage Foundation during the biennium was from the Knopf Family Foundation, which provided funding to support the Nongame and Endangered Wildlife Program's Canada lynx monitoring project in northern New Hampshire.

The Foundation also continues its strong commitment to support Fish and Game's educational programs. During the biennium, funds were provided for the *Wild Times for Kids* newsletter and a new portable fish aquarium to be used at public events. The Foundation also served as the primary sponsor of Discover WILD New Hampshire

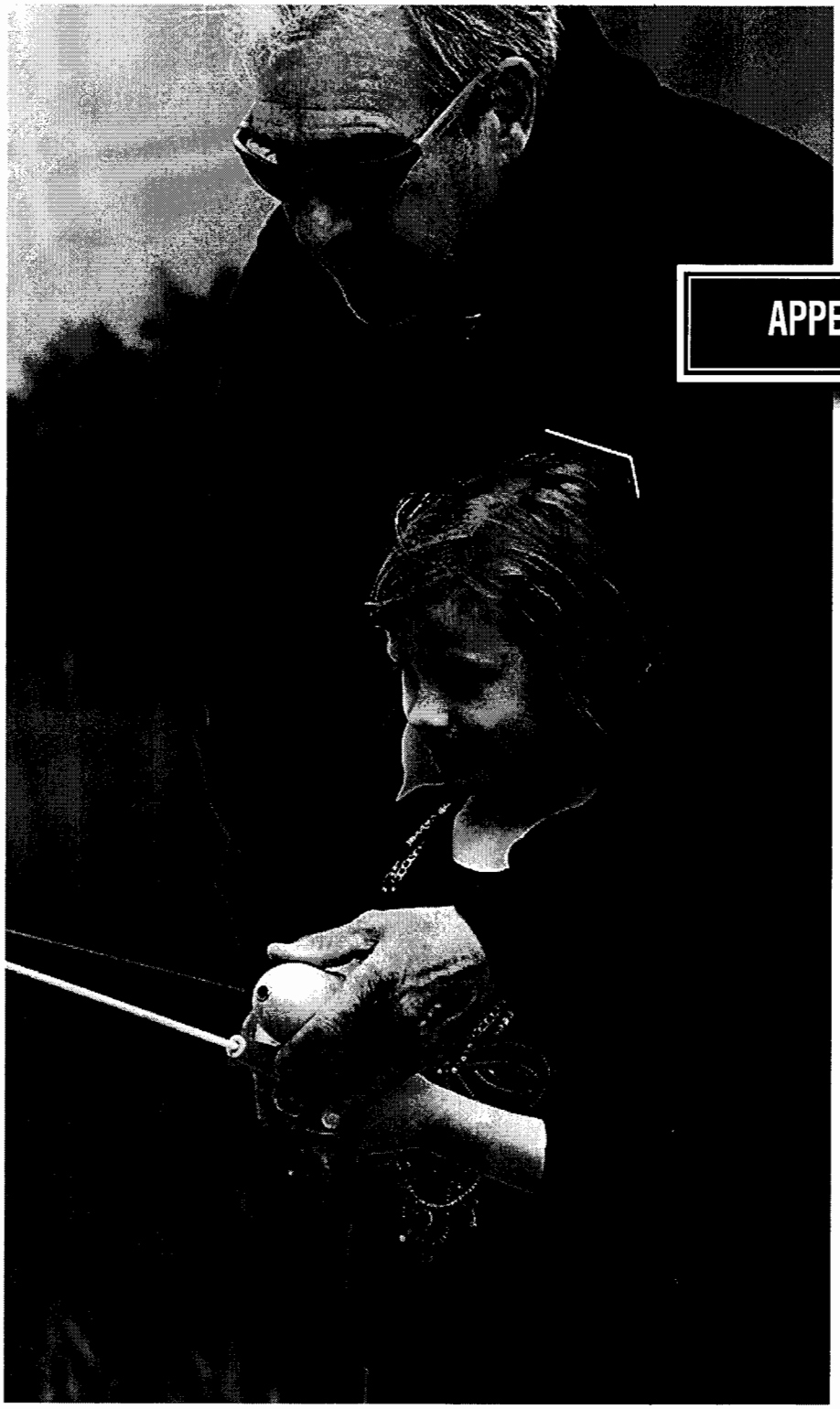
❖ WILDLIFE HERITAGE FOUNDATION OF NEW HAMPSHIRE

Day, Fish and Game's largest community event of the year.

Funding for the Wildlife Heritage Foundation of New Hampshire's grant program comes from individual and corporate donors, memorial gifts, donations from the Foundation's Board of Directors, and the annual Moose Permit Auction. The Foundation accepts general and targeted cash donations and welcomes annuities and endowments. In most cases, donations are tax deductible. For more information or to donate, visit ***www.nhwildlifeheritage.org***.

Robert W. Durant (seated) worked with the Wildlife Heritage Foundation of New Hampshire to establish a fund dedicated to connecting children to the outdoors. He also gave a 10-acre parcel of land in Jefferson to the Department. Also pictured (from left) are Landowner Relations Coordinator and Foundation Liaison Lindsay Webb, Executive Director Glenn Normandeau, and Land Agent Betsey McNaughton.

Foundation Board member Wes Reed (left), of Rise and Shine Retrievers, presents Cora to her new partner, CO James Benvenuti, in 2016. Conservation K-9s are one of many critical Fish and Game programs supported by the Foundation.



APPENDIX

❖ FISH AND GAME COMMISSION

CENTURY-LONG TRADITION OF SERVICE

On behalf of the citizens of the State of New Hampshire, the New Hampshire Fish and Game Commission protects and manages New Hampshire's fish, wildlife, and habitat resources for current and future generations while providing opportunities for citizens to use these resources for recreation, learning, and commerce.

Fish and Game Commissioners in June 2015. Front row, left to right: Todd Baldwin, James Ryan, Theodore Tichy, David Patch, Walter Morse. Standing, left to right: Vincent Greco, Fred Clews, Jr., Barry Carr, Tom Hubert, and Robert "Moose" Phillipson. Commissioner John McGonagle is not pictured.

The N.H. Fish and Game Commission is made up of 11 New Hampshire citizens (one from each county and one representing saltwater interests), appointed by the Governor and Council. The Commission focuses its service by setting policy for: general conservation of wildlife; development, funding, and implementation of a strategic plan for the operation of the Department; acquisition and development of public access to lands and waters; public education and building support for Department programs; and establishment of positions on proposed legislation that affects the Department and fish, wildlife, and marine resources. The Commission carries on a proud tradition of service. For more than a century, New Hampshire's wildlife agency has restored, protected, and managed the state's marine, fish, and wildlife and their habitats.

First established in 1865 as the Fisheries Commission, this council's early mission revolved around the restoration of sea-run fish and the introduction of new varieties of freshwater fish. In 1880, the Fisheries Commission was reorganized into the Commission of Fisheries and Game, reflecting a growing concern for the scarcity of deer and other wildlife. In 1913, the Legislature abolished the existing board of Fisheries and Game Commissioners and created a new paid Office of the Fish and Game Commissioner. This move acknowledged the rising importance of fishing- and hunting-related spending to New Hampshire's economy.

N.H. Trappers Association President

Paul DeBow (left) presented Commissioner Todd Baldwin with the 2016 Octave Delude Award.

In 1935, the State Legislature laid the groundwork for the modern

fish and wildlife agency we know today. It established the N.H. Fish and Game Department, an organization with a new emphasis on biological research, under the guidance of a Fish and Game Commission. The agency's responsibilities broadened in 1965, when the Legislature established the Marine Fisheries Division, giving it responsibility "for the regulation and promotion of both recreational and commercial marine fishing in the salt waters of the state." Fish and Game's mission was further expanded in 1988, when the Legislature broadened the Department's authority to include all species of fish and wildlife, not just those involved in traditional hunting, trapping, and fishing activities.

GUIDING POLICY AT FISH AND GAME

The modern N.H. Fish and Game Commission focuses its service by setting general policy related to the Department's work. A long-range strategic plan guides the direction of the Fish and Game Department. Commission policy supports the acquisition, development, and maintenance of public access to lands and waters for recreational use consistent with New Hampshire laws and regulations.

The Commissioners support Department activities that educate the public and build awareness of and support for Fish and Game programs and objectives. They establish positions on all proposed legislation that affects fish and wildlife resources, thus setting policy to guide overall management of the state's fish and wildlife resources and habitats. One of the Commission's primary responsibilities is to nominate the Department's Executive Director when such action is needed.

Commissioner Ted Tichy served as chair through the biennium. The Fish and Game Commission has participated actively in the legislative process during the biennium and was instrumental in helping constituents better understand the legislative issues that the Fish and Game Department faced during this period, as well as the Department's funding challenges.

The Commission Awards of Excellence Program continued, annually recognizing citizens and organizations that support the Department's mission through their efforts.

Winners of the 2016 Commission Awards of Excellence (from left to right): Nancy Bell, Theodore Walski, William Carney, Art Greene, and (front) Christopher Heckman.

New Hampshire Fish and Game Commission Members at the Close of the Biennium (June 2017)

Belknap County
John W. McGonagle

Carroll County
David L. Patch
Vice Chair

Cheshire County
Robert Phillipson

Coastal
Fred Clews, Jr.

Coos County
Theodore A. Tichy
Chair

Grafton County
Todd Baldwin

Hillsborough County
Walter Morse

Merrimack County
Vincent Greco

Rockingham County
James W. Ryan
Secretary/Treasurer

Strafford County
Barry Carr

Sullivan County
Tom Hubert

❖ EXECUTIVE DIRECTOR'S OFFICE

PROVIDING ESSENTIAL SERVICES TO A DIVERSE PUBLIC

The Executive Director's Office oversees all the activities, functions, and employees of the New Hampshire Fish and Game Department. Fish and Game staff within the Executive Director's Office include coordinators for Federal Aid, Environmental Review, and Legislation/Rules, as well as Human Resources, Landowner Relations, and the liaison to the Wildlife Heritage Foundation of New Hampshire.

Executive Director Glenn Normandeau

During the biennium, Executive Director Glenn Normandeau guided the Department through a time of expanded Departmental responsibilities and limited revenues. To help meet these challenges, Fish and Game continued to seek new sources of revenue, including State General Funds, federal grants, nonprofit partnerships, increased license fees, and other initiatives.

Managing wildlife resources is a "long game," requiring steady, on-going investment over many years to be successful. There remains important work to be done to ensure that stable funding is available to make sure that this investment happens.

Despite revenue limitations, the Department met its responsibilities for delivering wide-ranging and diverse services that benefit all citizens of the state. This *Biennial Report* outlines the broad scope of this charge. Our work includes fish, wildlife, and marine research and management; conservation of threatened and endangered species through the state's updated *Wildlife Action Plan*; enforcement of fish and wildlife laws; conservation of habitat and natural places; search and rescue activities; off-highway vehicle enforcement; ensuring access to the state's public waterbodies; communicating about the agency's work; educating the public about fish, wildlife, and conservation issues; and providing a host of other essential public services. These multiple responsibilities support activities that are critical for New Hampshire's economy and quality of life.

As agency resources are stretched to the limit, the broader constituencies that benefit from and rely upon the Department's programs must be asked to pay a share of the cost. Reflecting this reality, some General Funds continued to be provided to the Department during the biennium. While they made up only about 3% of the agency's budget, General Funds were an essential component of our funding. Hunters and anglers also upped their already considerable contribution during the biennium by paying increased license fees. Hike Safe Card sales continued to help offset the cost of Search and Rescue activities.

New Hampshire citizens care deeply about the state's wildlife resources and place great value on the work of their Fish and Game Department. Managing wildlife resources is a "long game," requiring

steady, on-going investment over many years to be successful. There remains important work to be done to ensure that stable funding is available to make sure that this investment happens, beyond the push and pull of political cycles. With complex wildlife threats arising – often quickly – in a fast-changing world, it is essential to have experienced staff in place. It is critical that New Hampshire citizens remain vigilant stewards of our natural world and continue their support for the Department to ensure that we have the capacity to meet the challenges future years are sure to bring.

FEDERAL AID

The Executive Director's Office coordinates the Department's participation in various federal assistance programs. Activities include pre-award coordination and proposal review, application submission, post-award grant management and compliance, as well as supporting the Business Division with certain aspects of fiscal management and budgeting. Federal funds received through these programs are essential to accomplishing the Department's mission. Federal revenue received as reimbursement for approved grant costs accounts for about one-third of total Department revenue.

During the biennium, Fish and Game administered 73 separate federal assistance grants and cooperative agreements totaling over $19 million in federal assistance to the Department. These funds were awarded from three departments of the federal government through 10 different funding programs. The primary sources of federal dollars to N.H. Fish and Game were the Department of the Interior through the Fish and Wildlife Service and the Department of Commerce through the National Oceanic and Atmospheric Administration, with funding also received from the Department of Agriculture. Formula-based apportionments from the Fish and Wildlife Service under the Wildlife Restoration and Sport Fish Restoration acts provided over two-thirds of all federal revenue received by the Department.

Federal funds received during the biennium helped N.H. Fish and Game accomplish a wide range of program functions, such as fish and wildlife inventories, marine and coastal programs, fish hatchery operation, construction and maintenance of boat access facilities, hunter and aquatic education programs, wildlife disease monitoring, habitat improvement and management, land acquisition, and certain law enforcement activities.

Federal revenue received as reimbursement for approved grant costs accounts for about one-third of total Department revenue.

HUMAN RESOURCES

Human Resources staff provides administrative support to the office of the Executive Director and to the seven divisions that comprise the New Hampshire Fish and Game Department. Staff includes the Human Resources Administrator, Human Resources Coordinator, and Payroll Officer.

Human Resource responsibilities include: bi-weekly payroll;

benefits; the State's Wellness Initiative; recruitment, certification, selection, and orientation; reclassification assistance; workers compensation; family and medical leave; administration of employment records; federal and state labor law compliance; and labor relations and conflict resolution.

During the biennium, Human Resources continued to work on various projects, trainings, and initiatives for both the Department and State, as well as providing employees with services to assist them with employment issues, needs, or concerns.

ENVIRONMENTAL REVIEW

The Environmental Review Coordinator serves in the Executive Director's Office, overseeing complex environmental reviews involving coordination with various divisions of the Department. Technical guidance is provided to individuals, environmental consultants, federal and state agencies, municipalities, and non-governmental organizations to avoid, minimize, and/or mitigate impacts to fish and wildlife resources and their habitats from proposed development projects.

The types of projects reviewed include, but are not limited to, hydro-power development and compliance; surface and ground water withdrawals; dam removals to facilitate fish passage; water quality and contaminant impacts; wetland impacts, aquatic herbicide treatments, and dredge projects; and review of environmental regulations that affect fish and wildlife resources and their habitats.

The Environmental Review Coordinator is the liaison with many statewide policy bodies, including the State Wetlands Council, Water Council, N.H. Department of Transportation Natural Resources Committee, Dredge Management Task Force, Pesticide Board, and the N.H. Department of Resource and Economic Development's Open Project Selection Process Advisory Panel.

MANAGING COMPLEX FINANCES

The Business Division plays a key role in managing the complex finances that keep the New Hampshire Fish and Game Department afloat. Fish and Game uses revenue from fishing and hunting license fees, federal funds, the State General Fund, and other sources to accomplish its broad mission of conserving, managing, and protecting the state's fish, wildlife, and marine resources and their habitats; informing and educating the public about these resources; and providing opportunities for people to use and appreciate these resources.

The Business Division's workload continued to grow during the biennium as a result of the diverse programming at Fish and Game, as well as statewide administrative changes that brought additional responsibility to the Division.

The Business Division's Licensing Section continued to make effective use of new technology to expand online license purchasing capabilities, including streamlining activities such as the purchase of special permits for antlerless deer.

The Licensing Section also oversaw the implementation of the first-ever Newborn Combination Hunting and Fishing License for New Hampshire. Billed as the best baby gift ever for the outdoors family, it generated a fair amount of excitement. The holder, upon reaching the age of 16, is able to redeem it for a lifetime New Hampshire freshwater fishing license and (upon completion of the Hunter Education requirement) hunting license. The license sells for a one-time price of $300 (plus $4.50 for habitat and agent fees). The child must be less than one year of age.

The Division also completed another successful year administering the growing Off-Highway Recreational Vehicle Registration Program.

John Anderson (left) and Michael Tully of Springfield, N.H., pose outside the Fish and Game License Office with Ruby and Brooklyn after purchasing lifetime hunting and fishing licenses for the girls in 2016.

FLEET MANAGEMENT

Fleet management continued to be a challenge during the biennium, as the Department has not been able to adequately upgrade its aging vehicles because of budgetary and purchasing constraints. The Division continued to search for ways large and small to save money and find efficiencies in vehicle maintenance, such as by buying consumable vehicle supplies in quantity.

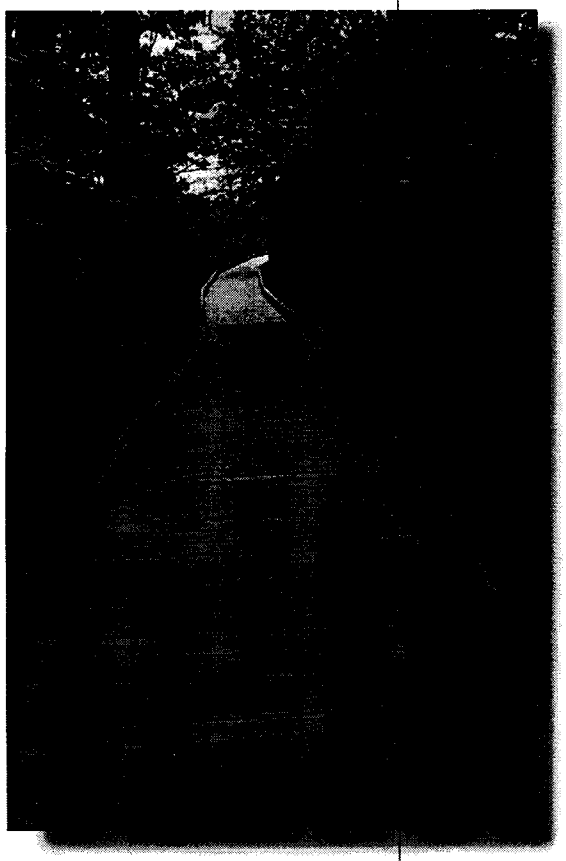
❖ FACILITIES AND LANDS DIVISION

The Facilities and Lands Division has four distinct missions: boat access construction and maintenance, building improvement and maintenance, land management, and energy use management and conservation.

The Facilities and Lands Division has four distinct missions: boat access construction and maintenance, building improvement and maintenance, land management, and energy use management and conservation. Boat access construction involves the reconstruction of existing sites or new ramp construction. This work includes removal of trees, site grading, constructing precast concrete planks and stone for erosion protection, installing drainage improvements and ancillary items, and landscaping. Routine maintenance of boat access sites consists of mowing, tree trimming, filling potholes in driveways, kiosk repair, removal of inappropriately dumped trash and rubbish, and managing portable toilet rentals. Building maintenance ranges from routine light fixture replacement to office renovations and roof replacements. Our land management projects include processing special use permits, coordinating land acquisitions, negotiating conservation easements, and resolving land use and ownership disputes.

The Division is responsible for managing and maintaining all Fish and Game properties statewide. These properties include more than 160 buildings, 143 boat ramps, 130 dams, 7 fish ladders, and 76,751 acres of Wildlife Management Areas (WMAs), conservation easements, and other interests. Facilities and Lands staff also design and construct boating access facilities, information kiosks, and portable sanitary facilities.

Division staff include the Public Works Manager, the Statewide Public Boat Access Program Coordinator, a Land Agent, an Engineering Technician, construction and maintenance crews, and the Department's Grounds Foreman.



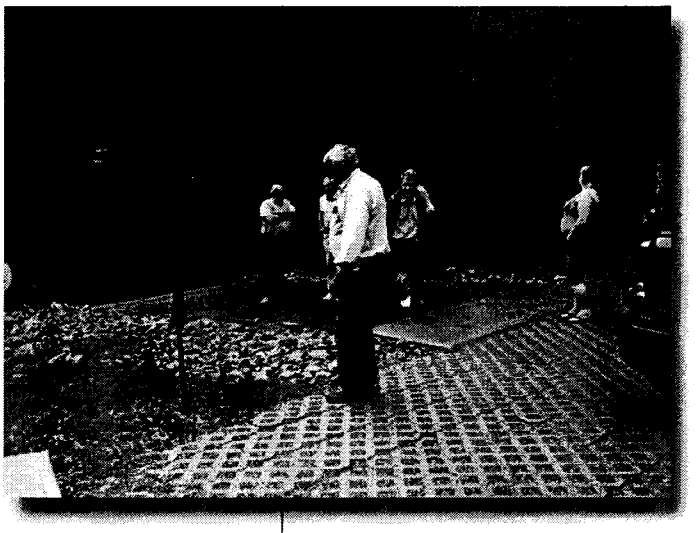
A 1,350-foot boardwalk was reconstructed through saltmarsh wetlands at the Great Bay Discovery Center in Greenland.

PHYSICAL PLANT MAINTENANCE

Significant additions to the agency's physical plant inventory during the biennium included the reconstruction of a 1,350-foot boardwalk through saltmarsh wetlands at the Great Bay Discovery Center. Continuing our focus on energy improvements, the headquarters conference room lights and building wall pack lighting were replaced with LED lights, significantly reducing energy usage. The headquarters office annex received a replacement 112.5 KVA, three-phase transformer. The Division continued its mission of construction and maintenance of boat access with improvements at Hot Hole Pond, Concord; Meetinghouse Pond, Marlborough; Downing's Landing (Lake Winnipesaukee), Alton; and Pine River (Lake Ossipee), Ossipee.

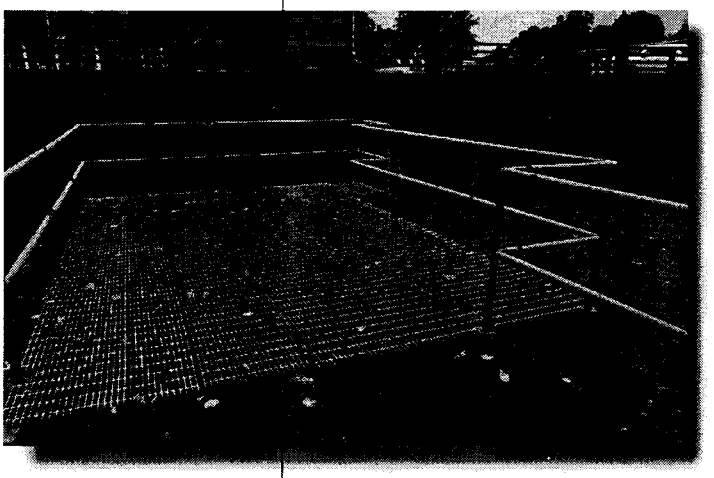
FACILITIES AND LANDS DIVISION ❖

The following projects were undertaken by the Facilities and Lands Division during the biennium:



The refurbished boat access site at Hot Hole Pond features precast concrete boat planks and porous concrete pavers.

- **Otter Lake Repairs**: Construction crews refurbished the boat access site at Otter Lake in Greenfield, in cooperation with the Department of Resources and Economic Development. The project expanded parking from three to eight spaces, including one cartop and an accessible trailer space. The gravel surface was upgraded using flexible porous paving grids filled with stone, providing a non-erosive pervious surface and treatment of stormwater runoff that had previously discharged into the lake. Tightly fitted precast concrete planks with a power loading protection area replaced a degraded gravel/bituminous ramp.
- **Hot Hole Pond Site Refurbished**: The boat access site at Hot Hole Pond in Concord was also refurbished. The project features precast concrete boat planks and porous concrete pavers.
- **Ice Damage Repair at Newfound Lake**: Work was conducted to address ice damage to the permanent piles for the seasonal dock at the Newfound Lake boat access facility. Existing piles were replaced by a removable pile system that includes permanent sleeve piles set below the historical ice depth to accept extension piles. Extension piles are placed and removed seasonally, along with the floating dock segments.
- **Improved Access for Meetinghouse Pond**: The existing Road to Public Waters site providing access to Meetinghouse Pond in Marlborough was improved for canoe and kayak use. The site has six gravel parking spaces, a low-abrasion mattress for beaching canoes, and a drainage treatment pond.
- **Downing's Landing Improvements**: Maintenance improvements were completed at the Downing's Landing boat access site in Alton, including the removal of two buildings containing hazardous materials, removal of an aging dock, and temporary improvements to the boat ramp and courtesy dock. Improvements under design at the site include a 200-foot sea wall, a cantilevered dock, and a refurbished ramp and courtesy dock.



The Facilities and Lands Division made many improvements to the Cocheco River Fishway in Dover during the biennium.

❖ FACILITIES AND LANDS DIVISION

Work on the Pine River boat access facility is improving public access to Pine River and Lake Ossipee. The project features double concrete ramps and accesss to a canoe/kayak landing area.

- **Great Bay Boardwalk Replacement**: Working with Marine Fisheries Division staff, the Facilities and Lands Division managed the construction contract for the replacement of the 1,350 foot boardwalk at the Great Bay Discovery Center in Greenland. The accessible walk is supported by over 300 helical pile footings and features benches at four viewing platforms.
- **Cocheco River Fishways Improvements**: The Facilities and Lands Division provided design and construction management assistance to the Marine Fisheries Division at the Cocheco River Fishway in Dover. Improvements included a new concrete floor, wooden walls and baffles to raise the water elevation of the trap, and new grating and safety rails.
- **Brian E. Abrams Memorial Facility Repairs**: Support was provided to the Law Enforcement Division for necessary cosmetic and safety improvements to the Sergeant Brian E. Abrams Memorial Facility in Conway. This storage facility was acquired from the Department of Transportation. Improvements included the removal of obsolete chimneys, replacement of worn and missing clapboards, and refurbishment of three overhead garage doors.
- **Region 4 Roof Repairs**: Fish and Game's Region 4 office roof was stripped and replaced with new asphalt shingles. Work included adding metal wrap to the fascia around the building. The roof surface is over 5,000 square feet and has several valleys and ridges.
- **New Sidewalk Installed at Headquarters**: The walkway in front of the N.H. Fish and Game headquarters building in Concord was replaced with a new 1,350-square-foot concrete sidewalk. The old surface was severely cracked and presented tripping hazards. The surface was sealed with a water-resistant barrier to extend the life of the new walk.
- **Energy-Efficient Improvements in Headquarters Lighting**: Conference room lights and exterior wall packs at N.H. Fish and Game headquarters were replaced with LED lights as part of an energy saving project. Staff worked with the lighting supplier and electrician and received a utility rebate to defray construction costs.
- **Lighting Updates at Newfound and Squam**: At the Newfound Lake and Squam Lake boat access facilities, parking lot street lights, ramp street lights, and restroom facility wall pack (at Newfound) were replaced with LED lights. The new lights are expected to last 10 years and use over 70% less energy than the previous halogen light systems.

- **Progress at Pine River**: The Pine River boat access reconstruction project in Ossipee is nearing completion. This facility features flexible porous paving grids filled with stone, providing a non-erosive pervious surface and double concrete ramps to Pine River and Lake Ossipee, a short distance away. A floating dock for boarding will be built between the two ramps, and access to a canoe/kayak landing area will be provided.
- **Freezer Replacement**: In March of 2016, Fish and Game replaced a large walk-in freezer used by the Law Enforcement and Wildlife divisions. Facilities and Lands provided the contract and specifications coordination with the manufacturer and installer. The new 12-foot by 18-foot outdoor freezer replaces our outdated 34-year-old unit. The freezer is used for storage of Law Enforcement evidence and Wildlife Division's biological specimens. It is common for the freezer to house multiple specimens of moose, bear, deer, pheasant, and other animals at any given time.
- **Portsmouth Station Dock Repair**: By agreement with the United States Coast Guard, the Department has had a concrete floating dock at the station in Portsmouth for over 30 years. The Department's Law Enforcement Division shares the dock with the Department of Safety/Marine Patrol. The dock is used by both agencies for search and rescue missions and law enforcement. It received significant repair and maintenance work during the biennium, including replacing timber rub rails, with ultra-high molecular weight (UHMW) rub rails, guide chains, ladder improvements, and concrete resurfacing. One top section of the dock had to be recast with a polymer-based concrete, requiring all mixing and finishing to be done by hand within a short period of curing time. Both agencies cooperated to get the job done.

The shared dock at the U.S. Coast Guard Station in Portsmouth was refurbished during the biennium. The dock is used by the Fish and Game Law Enforcement Division and Marine Patrol.

❖ FACILITIES AND LANDS DIVISION

The Facilities and Lands Division acquired 1,497 acres of land for conservation, and an additional 713 acres for wildlife habitat during the FY16-17 biennium.

- **Headquarters Transformer Replacement**: The N.H. Fish and Game Headquarters' three-phase, 112.5-KVA pad-mounted transformer serving the annex office, garage, and carpenter shops was replaced with a new transformer with environmentally safe FR3 cooling oil. The work required power to all three buildings and two transformers in the N.H. Fish and Game campus to be de-energized.
- **State Property Defense**: With the assistance of the N.H. Department of Justice, Attorney General's Office, the Department has defended the State's ownership and the public's right of access over property located in Newmarket. A complaint for willful trespass and encroachment was filed by the State in the Rockingham County Superior Court in June of 2015. In December 2016, a final order was granted in the State's favor.
- **Trespass and Encroachment Addressed**: Other trespass and encroachment violations are actively being addressed and corrected on property the Department manages in the City of Dover and the towns of Thornton and Campton.
- **Corey WMA Easement**: An access easement to the Corey Wildlife Management Area off Mount Delight Road in Deerfield was successfully renegotiated.

PROPERTY APPRAISAL AND LAND CONSERVATION

The Public Boat Access Program Coordinator and Land Agents worked with the Lands Team, consisting of members from several divisions within the Department, to evaluate land and easement acquisition opportunities. The Division acquired 1,497 acres of land for conservation and an additional 713 acres for wildlife habitat during the FY16-17 biennium.

These acquisitions bring the total acreage managed by the Department to 76,751. Of this total, 54,253 acres are owned outright by the Department and 22,498 acres comprise various types of easements monitored by Fish and Game.

UNDEVELOPED LAND ACQUIRED DURING THE 2016–2017 BIENNIUM

LAND CONSERVATION PROJECTS FY16 July 1, 2015 – June 30, 2016			
Town	**Parcel Name**	**F&G Interest**	**Acreage**
Brookfield	Robbins Property (Ellis Hatch WMA)	Fee	402.77
Hillsborough	Low Stevens Property (Farrar Marsh WMA)	Fee	150
Jefferson	Robert W. Durant Natural Area	Fee	10.02
		Total Fee Owned	**562.79**
Loudon	ABJEH Realty LLC Mitigation	Easement	31
Hooksett	Hinman Pond II (Hinman Pond CE Area)	Easement	295.95
		Total CE Area	**326.95**
Concord	Sewall's Falls Bridge Replacement	Surplus	-0.61
Fitzwilliam	Laurel Lake Lot	Surplus	-3.06
		Total Surplus	**-3.67**
		Total Lands Conserved	**886.07**

LAND CONSERVATION PROJECTS FY17 July 1, 2016 – June 30, 2017			
Town	**Parcel Name**	**F&G Interest**	**Acreage**
Londonderry	Mathes Family Limited Partnership	Fee	149.07
Enfield	Baker Property (Henry Laramie WMA)	Fee	1
		Total Fee Owned	**150.07**
Epping / Nottingham	Harvey – Applehurst Farm	Easement	1131
Randolph	Wild Apple Hill (Potter) Moose River CE Area	Easement	39
		Total CE Area	**1170**
		Total Surplus	**0**
		Total Lands Conserved	**1320.07**

❖ FACILITIES AND LANDS DIVISION

LAND ACQUIRED BY BIENNIUM

All Land Interests			
Biennium	**Total Acreage This Biennium**	**Easement**	**Fee**
Previous Years	62,336		
2009-2011	69,726	4,134	3,256
2011-2013	72,265	490	2,049
2013-2015	74,541	1,911	365
2015-2017	76,751	1,497	713
Total Acreage of Easements			
Biennium	**Total Easement Acreage**	**Easements Acquired**	
Previous Years	14,466		
2009-2011	18,600	4,134	
2011-2013	19,090	490	
2013-2015	21,001	1,911	
2015-2017	22,498	1,497	
Total Acreage Acquired in Fee			
Biennium	**Total Fee Acreage**	**Acquired in Fee**	
Previous Years	47,870		
2009-2011	51,126	3,256	
2011-2013	53,175	2,049	
2013-2015	53,540	365	
2015-2017	54,253	713	

LOOKING AHEAD — FUTURE PROJECTS

The Facilities and Lands Division has several enhancement projects "shovel ready" for construction this year or in early 2018. Other projects are in various stages of project development, environmental permitting, or funding considerations. Specifications are being prepared for construction projects expected to be bid upon and built later in the summer of 2017 into early spring of 2018:

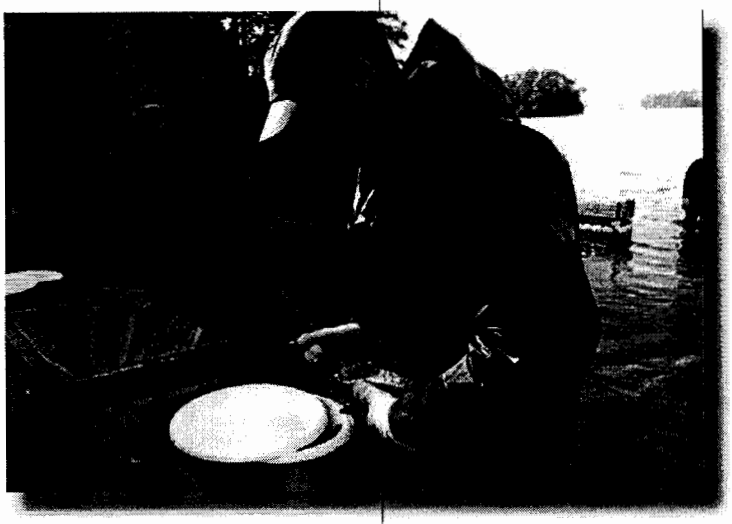
Safety improvements are in the works at Pope Dam in Tuftonboro, where Inland Fisheries holds its annual Salmon Sunday event to educate the public about salmon management.

- **Eagle Pond, Wilmot**: Carry-down access and parking lot improvements are planned.
- **Umbagog Dock, Cambridge**: Construction of floating dock at the existing boat access.
- **Downing's Landing, Alton (Lake Winnipesaukee)**: Design, permitting and construction of lake retaining wall and cantilevered dock; refurbishment of boat ramp; and construction of courtesy dock.
- **Land Acquisition, Grantham**: We will be acquiring 218 acres in Grantham, N.H., for upland habitat and waterfowl protection adjacent to the Laramie WMA.
- **Energy Savings Performance Contract, Statewide**: We will continue working with the Office of Energy Management, Department of Justice - Courts to develop improvements to heating plants at several hatcheries and educational facilities.
- **Barry Conservation Camp, Milan**: Construction of dining hall expansion in conjunction with the Public Affairs Division.
- **Pope Dam, Tuftonboro**: Construction of safety improvements, with assistance from the N.H. Guides Association, in advance of the Department's annual Salmon Sunday event.
- **File Storage Improvements**: Organization and restoration of our flat file plan storage will continue.

❖ INLAND FISHERIES DIVISION

CONSERVING OUR FISHERIES

The Inland Fisheries Division is responsible for all freshwater fish within both the state and interstate waters. Fisheries biologists and fish culturists work to protect and restore fish resources and aquatic habitat and to provide New Hampshire anglers with diverse fishing opportunities. This Division is responsible for operating Fish and Game's six fish hatcheries, which during the biennium produced nearly one million fish each year to supply a variety of the Division's management programs.



Fisheries Biologist John Viar strips salmon eggs. Over 100,000 landlocked salmon eggs were procured annually from Lake Winnipesaukee to perpetuate the statewide program.

Large Lakes Program

The Large Lakes Program conducted annual fall trap-netting surveys to monitor landlocked salmon size- and age-class characteristics at Big Squam, Sunapee, and Winnipesaukee lakes. Over 100,000 landlocked salmon eggs were procured annually from Lake Winnipesaukee to perpetuate the statewide program. A yearling landlocked salmon fall stocking experiment was initiated to bolster populations in select lakes, such as Big Squam, Sunapee, and Newfound.

Staff conducted fall gill-netting surveys to monitor lake trout spawning stock size characteristics at Lake Winnipesaukee. Hydro-acoustic and trawl netting surveys were conducted to monitor pelagic forage fish (primarily rainbow smelt) size characteristics, spatial distribution, and densities at Big Squam, Little Squam, Merrymeeting, Newfound, Sunapee, Winnipesaukee, and Winnisquam lakes.

Coldwater Fisheries

Brook trout fingerlings were stocked by helicopter into 47 remote ponds. The totals stocked were 43,085 (769 pounds) in FY15 and 113,920 (759 pounds) in FY16.

As a partner in a 15-state effort to implement the Eastern Brook Trout Joint Venture's conservation action plan, 122 stream sites were surveyed in New Hampshire; 94 of these sites had self-sustaining populations of brook trout. This equates to over 11 kilometers of stream electro-fished. Over this period, partnerships between several conservation commissions, Trout Unlimited chapters, and regional land protection groups have been established. These partnerships are invaluable in fostering localized protection, restoration, and outreach efforts for the conservation of riverine cold water fish species.

The Ammonoosuc River Stream Crossing Assessment Project is the largest watershed-scale stream crossing assessment effort in New Hampshire. Some 780 stream crossings were visited during the summer of 2016. Of those, 742 were fully assessed for Aquatic Organism Passage (AOP), Geomorphic Compatibility, and Flood Resiliency in the Ammonoosuc River watershed of northern New Hampshire. This effort has resulted in three subcommittees working on better stream crossing protocols, database management, and outreach. The new protocols and outreach efforts will enable state agencies, non-governmental organizations, and local municipalities to collect the necessary data to restore stream habitat and function, making them all better stewards of this resource and the organisms that rely on it.

An integral part of this project is the connection among researchers, agencies, and municipal officials to promote informed stewardship of natural resources at the local level. This is a collaborative effort among many organizations: Trout Unlimited National, Ammonoosuc Chapter of Trout Unlimited, N.H. Fish and Game, Plymouth State University, and all of the communities within the drainage. To continue the education piece of this project, we developed workshops to relay the findings to the individual communities, as well as to introduce them to engineers and funding sources that will enable them to take the next steps needed to carry these restoration efforts from data sheet to success.

The *New Hampshire Fishing Report*, coordinated by Fisheries Program Supervisor Scott Decker, reaches more than 11,500 people with news about what's biting in the Granite State.

- The resulting dataset of 480 crossings was used for the Aquatic Organism Passage (AOP) analysis. Of the sites assessed:
  - 32% were determined to be complete barriers to aquatic organisms;
  - 2% were considered barriers for all but adult salmonids;
  - 36% of crossings represent reduced connectivity for fish passage, depending on flow conditions; and
  - 30% were completely passable by all species.
- The resulting dataset of 480 crossings was used for the Geomorphic Compatibility analysis. Of the 480 sites:
  - 1% were determined to be fully incompatible;
  - 14% were determined to be mostly incompatible;
  - 31% were determined to be partially compatible;
  - 29% were considered mostly compatible; and
  - 25% were fully compatible.

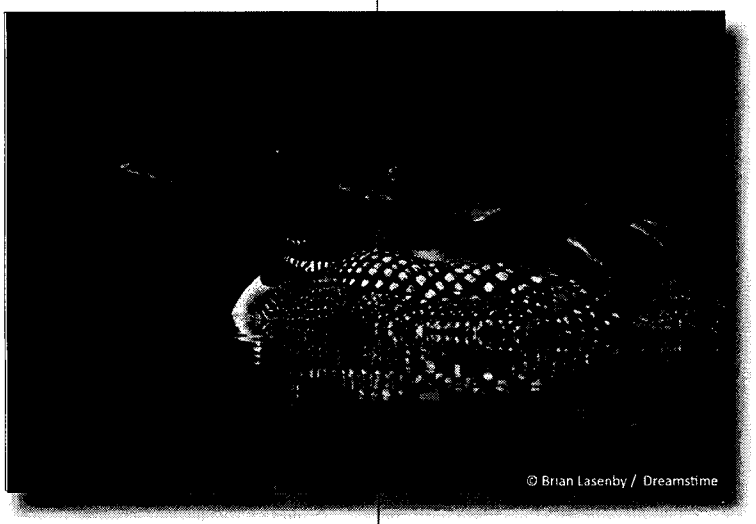
122 stream sites were surveyed in New Hampshire; 94 of these sites had self-sustaining populations of brook trout.

❖ INLAND FISHERIES DIVISION

A record number of river herring (417,240) were counted returning to the Merrimack River in 2016.

Flood Resiliency Results

The Flood Resiliency Model identifies the potential vulnerability of road stream crossing infrastructure at various stormwater flow events throughout the watershed. Results show the increased number of vulnerable road crossings modeled under five return period intervals (2, 10, 25, 50, 100-year). The number of vulnerable structures during a 2-year storm is roughly 12% of the assessed crossings or 57 crossings; that percentage jumps to 51%, or 242 crossings, during the 100-year storm event. Basically, half of the crossings fail at a 100-year flow event and we have had 7 of those in the last decade.


© Brian Lasenby / Dreamstime

Fisheries Habitat

The Fisheries Habitat Program provided technical assistance to many state and federal agencies and organizations on fish habitat restoration and conservation during the biennium. Habitat biologists also served on technical and planning committees on issues related to aquatic habitat, water quality and quantity, and flooding. The Nash Stream and Indian Stream Restoration Projects continued, including the removal of undersized crossings and restoration of several miles of instream habitat.

Starting June 1, 2016, the use of all lead jigs weighing 1 ounce or less was prohibited in New Hampshire, strengthening the 2004 law that banned the use and sale of lead sinkers less than or equal to 1 ounce and lead jigs less than 1 inch long. The new law removed the length restriction on jigs and switched to a weight restriction, similar to sinkers. The law does not apply to lead core line, spinner baits, spoons, poppers, plugs, or flies.

Fish Conservation

In 2016, over 49,000 river herring and 3,172 American shad were transferred into spawning habitat in the upper Merrimack River in support of anadromous fish restoration efforts. A record number of river herring (417,240) were counted returning to the Merrimack River in 2016. This followed a record return of American shad (89,467) in 2015. The program also successfully implemented downstream passage measures for American eel and river herring at four hydroelectric projects on the Winnipesaukee River.

The distribution and status of New Hampshire's fish species of conservation concern was updated, as part of the 10-year revision process for revising the state's threatened and endangered species list.

Warmwater Fisheries

Using fyke nets, the Warmwater Fisheries Program conducted assessments of spring spawning black crappie and white perch populations for Harrisville Pond (Harrisville), Lake Winnipesaukee (Tuftonboro), and Island Pond (Stoddard). Biologists also conducted assessments of warmwater fish populations using an electrofishing boat

on Drew Lake (Hopkinton), Rand Pond (Goshen), and Lower Beech Pond (Tuftonboro). Surveys to evaluate young-of-the-year black bass were conducted on the Connecticut River, Big Squam Lake, Forest Lake (Whitefield), Spofford Lake, and Lake Winnipesaukee.

Warmwater fisheries staff continued to work with the New Hampshire Interscholastic Athletic Association to support the growth of fishing as a high school sport, assisting with four statewide high school bass fishing tournaments.

Staff assisted with surgically implanting radio telemetry tags into largemouth and smallmouth bass for a second bass movement study on Big and Little Squam lakes. This effort was headed up by N.H. Bass Nation.

A new wildlife-friendly arched culvert reconnects fish habitat on Falls Brook in Swanzey.

Fish Culture

The Department's four major fish-production facilities are located in Berlin, Milford, New Hampton, and New Durham, and its two smaller facilities are in Twin Mountain and Warren. These six facilities produced and distributed fish needed for trout and salmon stocking programs throughout the state.

In FY16, fish culturists produced 456,647 pounds of fish. They distributed 1.3 million fish in FY16 to meet management needs for trout and landlocked salmon. Numbers for 2017 were not available at the time of publication.

Yearling, two-year-old, and brood fish trout were produced for put-and-take fisheries management throughout the state. Brook trout fingerlings were produced for put-grow-and-take fisheries management in remote trout ponds, most of which are stocked by helicopter. Landlocked salmon yearlings were produced for put-grow-and-take management in lakes managed for landlocked salmon. Mature adult trout were available because the Department maintains brood fish populations for brook trout and brown trout egg production, thus reducing disease risk from import. Surplus brood fish (3+ year olds) are stocked in many waters, which provide an exciting dimension to the state's trout fisheries, particularly ice fishing.

The excellent quality of trout and salmon produced at the hatcheries is the result of continued improvements in fish culture. These include improved diets, better fish health monitoring, improved fish culture techniques, and hard work by fish culturists. The annual total costs for trout production were $2,874,256 in FY16. The cost of production was $5.96 per pound of gain in FY16.

❖ INLAND FISHERIES DIVISION

A GLIMPSE OF HISTORY: CELEBRATING 100+ YEARS OF FISH CULTURE AT WARREN STATE FISH HATCHERY

Fish and Game's Warren Fish Hatchery celebrated its centennial during the biennium. Fish have been raised there since 1915, when the State of New Hampshire purchased the Walt Smith Farm in Warren and proceeded to construct a trout hatchery. The facility is the oldest N.H. Fish and Game Department hatchery still in operation.

A 1950s photo of Warren Hatchery workers Bernie Wetherbee (with net of fish), Bob Fraise (with back turned) and Fish Culturist Arthur Hight on the truck.

In 1921, twelve earthen ponds were constructed to further enhance the hatchery's capabilities. Over the years, chinook salmon, pike perch (walleye) and northern pike have been raised at the hatchery, in addition to the trout for which the facility was originally intended.

The hatchery continued to operate for around 60 years, until the Department took over operation of the Berlin Fish Hatchery from the US Fish and Wildlife Service in 1984. Warren was then closed, along with hatcheries at Colebrook, Richmond, and Ossipee, because it was thought that the increased production at Berlin Hatchery would cover trout production needs for the state. The facility was put up for sale, but efforts to sell it were unsuccessful.

In 1993, Warren was re-opened as part of a cooperative effort between N.H. Fish and Game, the US Fish and Wildlife Service, and other agencies to restore Atlantic salmon to the Merrimack River

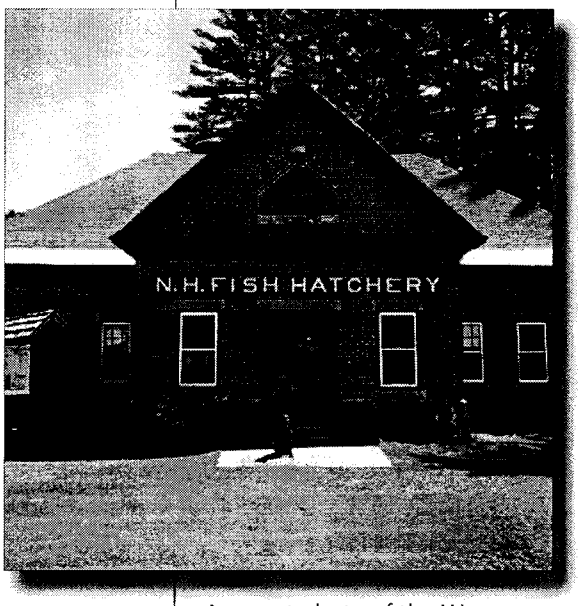
watershed. Warren Hatchery was a suitable site to raise salmon because of its location on the Baker River, which flows into the Pemigewasset, then the Winnipesaukee River, the Merrimack, and eventually the Atlantic Ocean. Atlantic salmon go through a process called "imprinting" during the first two years of their life before heading out to sea. This is how they know where to go as adults when they return to their birthplace to spawn.

During the salmon restoration effort, the Warren Hatchery would receive eggs fertilized at the National Fish Hatchery in Nashua. Typically 2-3 million "sac fry" per year came out of Warren Hatchery during this period. The eggs originated from either domestic broodstock housed in Nashua or wild Atlantic salmon returning to fish ladders along the Merrimack River. In 2013, the US Fish and Wildlife Service withdrew financial support for the Merrimack River Atlantic Salmon Restoration Program, shifting their focus to habitat work, fish passage, and other diadromous fish species, thus bringing an end to Atlantic salmon stocking in the Merrimack.

During the 1990s, Warren also served as a broodstock facility for brook and brown trout, as well as producing some trout for stocking into local rivers and lakes. The "Rome strain" of trout broodstock was propagated there because of its genetic resistance to "furunclulosis," a bacterial pathogen infamously known as "salmon-killer." Warren Hatchery provided trout eggs or fingerlings to Milford, New Hampton, and Powder Mill hatcheries until the broodstock became infected with a viral pathogen that may have been introduced by avian or furbearing predators or other fish near the facility. The broodstock were removed from Warren and eggs were brought in from surrounding states until new Rome strain broodlines could be established.

Today, the Warren Fish Hatchery is still in operation and is a rearing station for brook, brown, and rainbow trout, providing catchable-sized trout for recreational angling opportunities in northern Grafton County.

Hatchery visitors can view and feed brook, brown, rainbow, and tiger trout (a hybrid between a male brook trout and female brown trout), along with a few landlocked Atlantic salmon, in the outdoor showpools.



A recent photo of the Warren Fish Hatchery, the oldest Fish and Game Hatchery still in operation.

❖ LAW ENFORCEMENT DIVISION

MEETING THE ENFORCEMENT CHALLENGE

The Law Enforcement Division is responsible for the enforcement of all laws and rules relating to fish, wildlife, and marine resources. Conservation Officers also have the authority to enforce motor vehicle and criminal laws. These officers prosecute all of their own cases involving offenders and violators of these laws and rules. They have a statutory mandate to coordinate all search and rescue operations, conduct underwater recoveries, and enforce snowmobile and off-highway recreational vehicle (OHRV) regulations. The Division is also responsible for marine species enforcement, protecting our saltwater fisheries.

FULFILLING SEARCH AND RESCUE RESPONSIBILITIES

During the biennium, the Law Enforcement Division participated in 475 search and rescue missions involving hikers, climbers, snowmobilers, children, dementia patients, and the recovery of people who drowned on New Hampshire's lakes and rivers. Following are highlights of several notable search and rescue missions conducted:

During the biennium, the Law Enforcement Division participated in 475 search and rescue missions.

- On May 12, 2016, a Canadian hiker last seen at the Appalachian Mountain Club (AMC)'s Pinkham Notch Visitor Center was reported missing. An extensive five-day search involving Conservation Officers and many members of volunteer search groups turned up no clues as to the hiker's whereabouts. On May 29, the body of the missing hiker was located off trail on the side of Mount Washington.
- On June 9, 2016, Conservation Officers were notified of two hikers who had alerted the Rescue Coordination Center through their locator beacon that they needed assistance. Coordinates placed the couple on the side of Mount Lafayette, where weather conditions were fierce, with 60 mph winds, rain, ice, and cold temperatures. A team of Conservation Officers and members of a volunteer search and rescue group were sent out. The two hikers had been located, near death due to hypothermia, by another hiker who aided them until rescuers arrived.
- On August 6, 2016, a hiker was reported to have suffered serious injuries on the Flume Slide Trail after falling some 50 feet. A team of Conservation Officers and members of a volunteer search and

rescue group responded. Due to the difficult trail and the victim's injuries, the N.H. Army National Guard helicopter was requested. The victim was successfully hoisted from the trail in a litter. The litter hoist allowed the victim to reach a hospital much sooner than would have been possible if he had to be carried out, and it also saved rescuers from potential injury.

- On December 25, 2016, Conservation Officers were alerted to a hiker who had not reported home after attempting to hike the Bond Cliff Trail. A team of three Conservation Officers was sent to search the trail. Well after dark, as temperatures dipped into the single digits, the hiker was located deceased near the summit of Bond Cliff. The three Conservation Officers spent the night near the summit, and the following day, the N.H. Army National Guard assisted with recovering the victim and relaying the three Conservation Officers off the mountain.
- On February 15, 2017, a Canadian hiker was reported to be off trail and unable to locate the trail near the summit of Mount Lafayette, as a severe winter storm struck New Hampshire. A team of Conservation Officers, along with volunteers from a search and rescue group, were sent up Mount Lafayette. Rescuers faced 18 inches of new snow, having to break trail the entire way, and finally locating the hiker huddled with his two dogs. Rescuers were able to warm the hiker and assist him down the mountain, where he credited rescuers with saving his life.

CO Kevin Bronson, CO Eric Fluette, and Lt. Bradley Morse were recognized for meritorious service for their determined search for a deceased hiker on Christmas Day 2016.

Conservation K-9s

N.H. Fish and Game Law Enforcement now has three trained and certified K-9 (canine) teams. These dogs and their handlers assist with tracking in search and rescue and evidence recovery for criminal investigations. They also help other law enforcement agencies track suspects, both criminal offenders and fish and game law violators. Three Conservation Officers are devoted dog handlers who commit to countless hours of training and caring for these dogs. The result of those efforts is K-9 teams that are admired and respected across the state.

The newest member of Fish and Game's K-9 conservation team, Cora is being trained by CO James Benvenuti.

❖ LAW ENFORCEMENT DIVISION

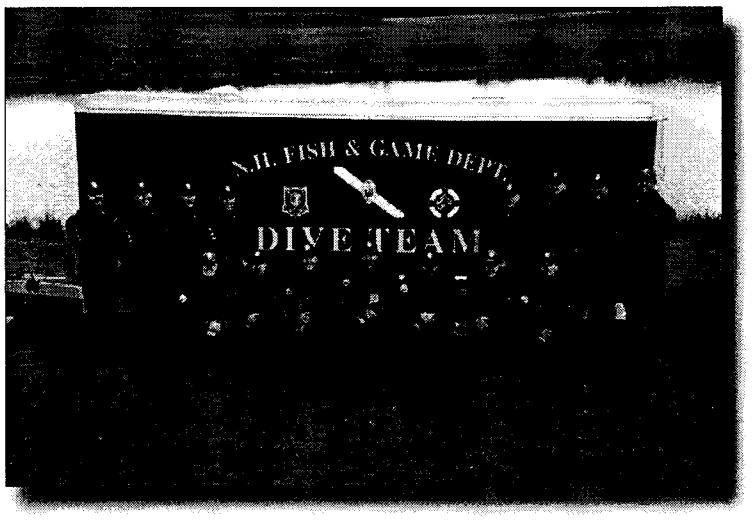
The Fish and Game Dive Team conducted 48 dive recovery and evidence missions during the biennium.

Operation Game Thief

The Department's Operation Game Thief (OGT) Program, an online and telephone hotline for reporting wildlife poachers, continues to be an effective anti-poaching outreach effort. In 2016, OGT completed the process of becoming a certified non-profit organization, with civilian partners serving as board members. This step has brought new funding initiatives and public relations campaign ideas for expanding awareness of the program.

Dive Team Missions

The Fish and Game Dive Team conducted 48 dive recovery and evidence missions during the biennium. In addition to responding to several reported drownings, this team also conducted numerous dive missions in an effort to recover valuable evidence to assist the New Hampshire State Police and local police departments with their criminal investigations.



Hike Safe Card

Voluntary Hike Safe Cards became available for the first time in January of 2015, at a cost of $25 per person and $35 per family. The response to the card was positive, generating approximately $100,000 in income in 2016. Proceeds go to the Search and Rescue Fund to help defray the cost of rescue activities. People who obtain the cards are not liable to repay rescue costs if they need to be rescued due to negligence, regardless of whether they are hiking, boating, or cross country skiing. Individuals may still be liable for response expenses, if they are deemed to have acted recklessly or to have intentionally created a situation requiring an emergency response. People, who

hikeSafe
THERE AND BACK

possess a current N.H. Fish and Game hunting or fishing license, or a current registration for an off-highway recreational vehicle, snowmobile, or boat, enjoy the same benefits as Hike Safe Card holders.

Air Boat Team

The Division started a new team of air boat operators over the biennium. This team trained extensively with airboat teams from the Maine Warden's Service in the areas of operation and maintenance of this complex equipment. The team also took on the challenge of rebuilding and improving the airboat as a rescue and dive vessel. This rebuild took almost a year to complete, with the officers doing all of the labor, saving the Department hundreds of dollars in labor costs. Many improvements were made, and the Division now has several qualified operators ready to use this craft when it is needed.

The Law Enforcement Division's airboat allows response in difficult situations, such as this winter drowning recovery effort in Lancaster.

Off-Highway Recreational Vehicle and Snowmobile Programs

Significant OHRV trail development continued in Coos County, where approximately 1,000 miles of interconnected trails and road systems have been developed. Certain state-owned roads, as well as numerous town road systems, have been opened to OHRV use. Side-by-side utility terrain vehicles (UTVs) continue to grow in popularity in New Hampshire. Significant law enforcement, safety, and educational challenges will need to be met in the years ahead.

The 2015/2016 season was one of the poorest snow winters on record, and snowmobiling opportunities were limited to only the most northern portions of the state. Only 22,880 snowmobiles were registered in FY16. In FY17, registrations rebounded nicely to 47,255.

OHRV (wheeled vehicle) registration numbers reached a historic high of 30,618 (including 926 temporary 10-day registrations) in FY16. They continued to climb to 33,479 (which include 1,742 temporary 10-day registrations) in FY17.

❖ LAW ENFORCEMENT DIVISION

OHRV (wheeled vehicle) registration numbers reached a historic high of 30,618

Conservation Officers continued to support the New Hampshire Snowmobile Association and Easter Seals' "Camp Sno-Mo" fundraising efforts, which help ensure summer camp opportunities for children with a variety of physical and learning challenges.

The combined OHRV and Snowmobile Online Safety Course, developed in response to strong constituent interest for an electronic offering, continues to be a popular option in addition to the traditional classroom course.

"Northwoods Law: New Hampshire is an exciting opportunity to increase awareness and recognition of the complex duties of Department staff and the positive impact they have on natural resources, tourism, and the state's economy."
—Col. Kevin Jordan

North Woods Law: New Hampshire

The Department entered into a contract with the New York City-based television production company, Engel Entertainment, Inc., to produce a new television series featuring the work of Conservation Officers and biologists in the course of their daily duties enforcing wildlife and fisheries laws, stocking fish, managing and conserving resources, conducting search and rescue missions, enforcing snowmobile and off-road vehicle laws, conducting coastal marine enforcement, responding to calls from the public, taking part in outdoor education program work, and more.

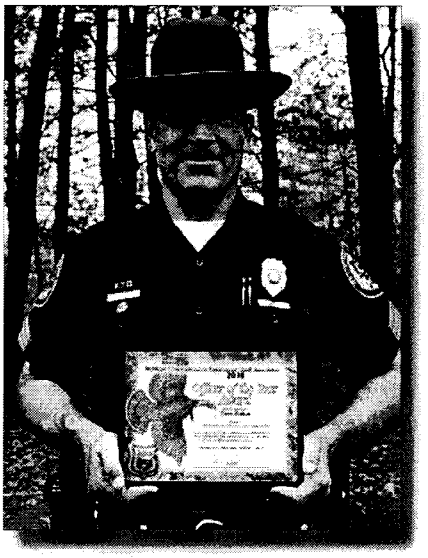
"This program is an exciting opportunity to increase awareness and recognition of the complex duties of Department staff and the positive impact they have on natural resources, tourism, and the state's economy," said Col. Kevin Jordan, Chief of New Hampshire Fish and Game Law Enforcement. "The show has a lot of promise for improving community outreach, keeping youth and others involved in outdoor recreational traditions, and boosting interest in careers with Fish and Game."

The first episode premiered on Sunday, March 5, 2017, and aired for an additional five weeks thereafter to complete a six-episode pilot. The show received high praise from our constituency, as well as the general public, political leaders, and the media. The Department is working with Engel Entertainment, Inc. on a second season.

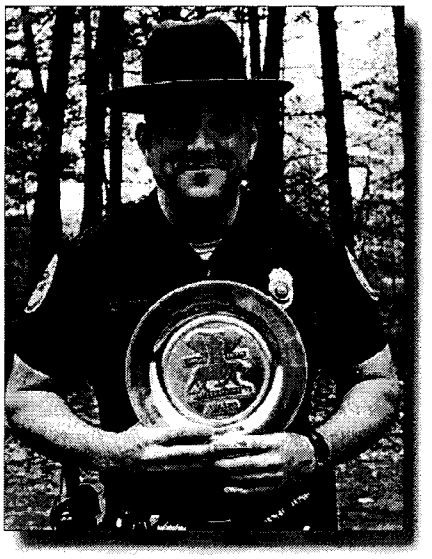
CONSERVATION OFFICERS HONORED

CO Robert Mancini earned the 2015 Northeast Conservation Law Enforcement Chiefs Association Officer of the Year Award.

Lieutenant Heidi Murphy was honored as New Hampshire's 2015 Shikar-Safari International Wildlife Officer of the Year.



Sgt. Thomas M. Dakai was honored as the 2016 Northeast Conservation Law Enforcement Chiefs Association Officer of the Year.



CO Eric Hannett was named the 2016 Shikar-Safari International Wildlife Officer of the Year.

❖ MARINE FISHERIES DIVISION

PROTECTING COASTAL RESOURCES

The Marine Fisheries Division is responsible for managing and protecting the rich natural resources of the state's coast, harbors, and estuaries. The Division manages and develops sampling programs for recreational and commercial marine species and protects their habitats. It also oversees the Great Bay National Estuarine Research Reserve.

TRACKING OFFSHORE LOBSTER MOVEMENT

In cooperation with Atlantic Offshore Lobstermen's Association, the New Hampshire Fish and Game Department conducted lobster movement research on Georges Bank during the biennium. Recently, lobster landings have been increasing in this offshore area, and there have been a number of anecdotal reports of large aggregations of egg-bearing females. The major goals of this study were to collect biological data, document the distribution of egg-bearing females, and determine seasonal movement patterns via T-bar tags. Although tag returns are still being reported and this research is ongoing, to date, this project has been a great success. The study documented large aggregations of egg-bearing lobsters on Georges Bank and is showing their seasonal movement patterns. Additionally, biological data were collected on 8,016 lobsters during offshore observer trips. These data are still being analyzed by state and federal scientists, but this information will eventually be used to assess the health of this offshore lobster resource, which will help guide management decisions.

A study during the biennium documented large aggregations of egg-bearing females.

GREAT DAM (EXETER, N.H.) REMOVAL PROJECT

In early July 2016, just a few days after the last of the river herring passed through the Exeter fish ladder, removal of the Great Dam began. The Marine Division and other state and federal agencies had worked with the Town of Exeter (dam owner) since 2008 to remove this dam, which was built around 1831 to provide power to Exeter's mills. The town thoroughly assessed options, such as repairing, modifying, or removing the dam, and in 2014 decided that removal was their best option to address regulatory safety concerns.

By early September, the dam was removed and the riverbed restored. Removal of the dam allows unimpeded access to more than 21 miles of riverine habitat for diadromous fish, including alewife, blueback herring, sea lamprey, and American eel, as well as resident

fish species. Removing dams and re-opening access to historical spawning and rearing habitat is the most effective way to restore fish species for which the Marine Division manages, conserves, and protects their habitats.

The Fish and Game Department did own and operate a fish ladder associated with the dam, however, its design affected fish passage efficiency for this particular river. For many years, Department staff would observe thousands of river herring spawning below the dam, but few would enter the fish ladder. Most years, no more than 500 total fish passed through the ladder. In the spring of 2017, thousands of river herring were observed passing upriver of the former dam site.

Removal of the Great Dam in Exeter allows unimpeded access to more than 21 miles of riverine habitat for diadromous fish, including alewife, blueback herring, sea lamprey, and American eel.

Additionally, the fish ladder was not designed to pass juvenile American eels, a federal and state species of concern, preventing many from passing above the dam into critical rearing habitat. During the dam removal in August, hundreds of juvenile American eels were observed utilizing the new developing river channel in the midst of the construction. They were able to access freshwater habitat unimpeded after passage had been obstructed for more than 150 years.

The project was supported primarily through NOAA (National Oceanic and Atmospheric Administration) Fisheries grants and the Town of Exeter, along with numerous other federal and state agencies, during the feasibility, design, permitting, and construction phases of the project. Further funds will be expended by the Department during the Marine Division's monitoring phase in the summer of 2017.
The Great Dam Removal and River Restoration project was recently honored with an Engineering Excellence Gold Award by the American Council of Engineering Companies of New Hampshire. The award means that the project ranked among the top projects in the state, based on its engineering quality, innovation, value, and client satisfaction.

Migration of elvers (young American eels) is aided by the removal of dams on coastal rivers.

MONITORING MARINE COASTAL RESOURCES

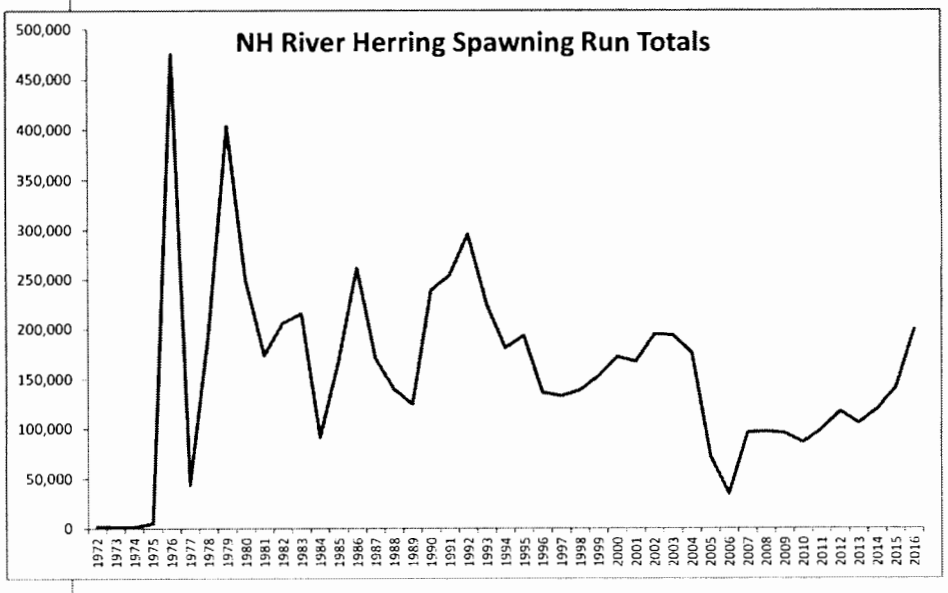
Six Department fishways on six New Hampshire coastal rivers were operated each spring in 2016 and 2017 to facilitate the passage of river herring (alewife and blueback herring) and other diadromous fish, such as American shad and sea lamprey, over dams. Estimated numbers of river herring using all coastal fish ladders in 2016 and 2017 have continued to generally increase since the low return years in 2005 and 2006 and are above the average returns since fishways were constructed in the late 1960s to early 1970s. The Taylor and Oyster rivers continue to have low river

❖ MARINE FISHERIES DIVISION

herring returns, signs that restoration problems may be resulting from downstream migration impediments during prolonged low-water conditions, poor water quality within the impoundments during emigration, or a combination of the two. River herring returns to the Cocheco, Lamprey, and Exeter rivers have been increasing to levels that are at or near the highest numbers since the fish ladders were built. The Marine Division also has collaborated with monitoring two privately owned fishways: the second dam from the head-of-tide on Lamprey River, owned by the Town of Durham, and the head-of-tide dam on the Salmon Falls River, owned by Green Mountain Power.

The spring smelt fyke net survey in the Winnicut River is one of a number of ongoing marine fisheries monitoring programs.

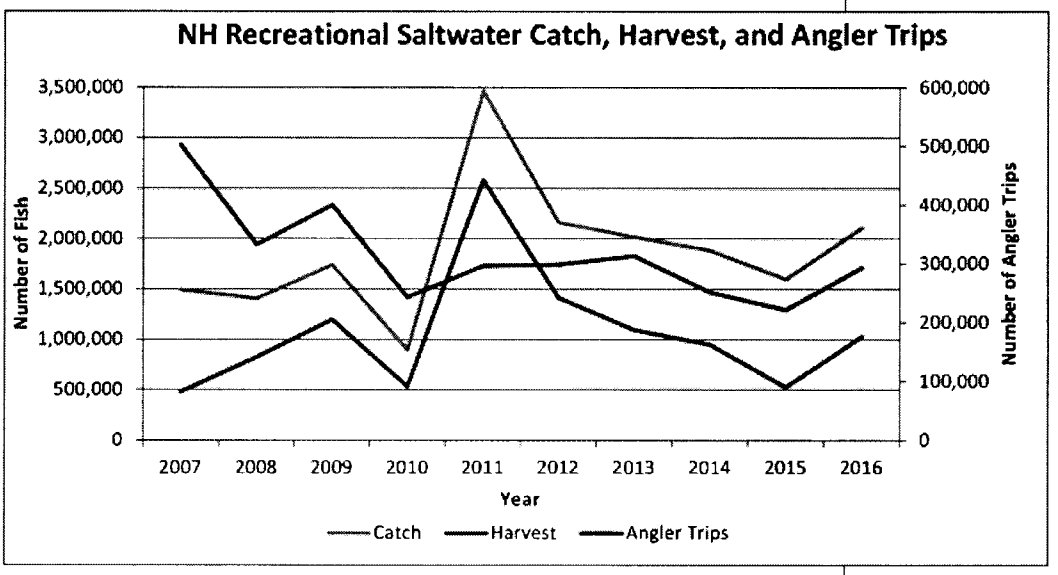
The Marine Division also conducted a number of ongoing fisheries independent monitoring programs to evaluate relative abundance and collect biological data on over 100 different marine species in New Hampshire. The programs include: a juvenile finfish seine survey of New Hampshire estuaries; a cooperative Maine/New Hampshire inshore trawl survey of nearshore coastal waters from New Hampshire to the Maine/Canada border; population monitoring of juvenile American eels in certain New Hampshire coastal rivers; rainbow smelt spawning survey in Great Bay tributaries; and a survey of oysters in Great Bay



estuary for annual growth, seeding, disease, and predation. Much of this information is used in periodic stock assessments and in fisheries management plans for some of these species.

The Marine Division works with the National Oceanic and Atmospheric Administration (NOAA) Fisheries to develop estimates of catch and effort in New Hampshire by marine recreational anglers as a part of a nationwide program called the Marine Recreational Information Program. During the biennium, Marine Division staff interviewed between 1,700 and 2,700 anglers each year about their catch. The estimated total saltwater angler fishing trips taken in New Hampshire has dropped from a high of 501,517 in 2007 to 293,215 trips taken in 2016.

Atlantic mackerel, used for both food and as bait, was the number one harvested fish in 2015 and 2016.



Atlantic mackerel, used for both food and as bait, was the number one harvested fish in 2015 and 2016. The harvest of 232,712 and 793,012 mackerel during the two years of the biennium shows the fluctuations that can occur in recreational fisheries with highly migratory species.

Striped bass are another highly migratory species that recreational anglers enjoy catching (this is different from "harvest" as catch includes both harvested and released fish) but experience fluctuations year to year. In 2016, striped bass were the third most frequently caught species in New Hampshire; in 2015, they were fifth.

Haddock was the second most harvested fish in 2015 and 2016. During this biennium, marine recreational anglers harvested the highest number of haddock since 2007, with 139,765 and 118,519 fish harvested, respectively.

Pollock was the third most recreationally harvested saltwater fish this biennium. Recreational anglers harvested 93,312 pollock in 2015;

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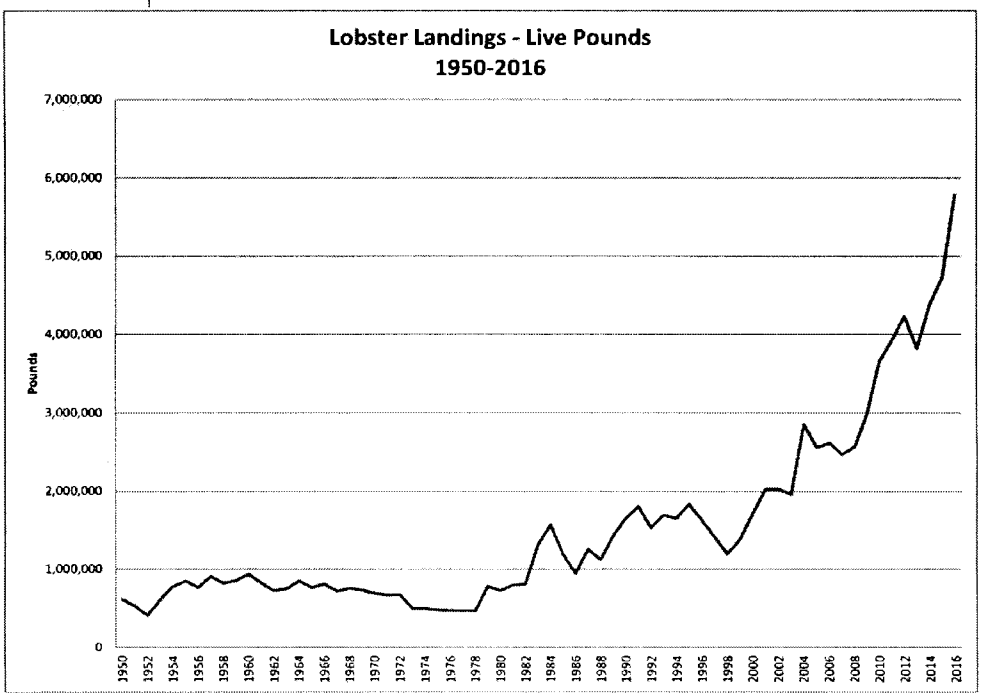
The 2016 lobster landings were the highest on record at approximately 5.8 million pounds, which contributed $30 million to the total commercial landings in New Hampshire ports.

in 2016 the harvest decreased to 69,483 fish. There have been many regulatory changes for groundfish species (e.g., cod, haddock, pollock, etc.) in the past few years, shifting recreational fishing pressure among these species. With concern over the health of the Gulf of Maine cod population, deep sea recreational anglers are targeting haddock and pollock more heavily.

The Marine Division monitors the commercial harvest of marine species via mandatory harvester catch and effort or dealer landing reports. In addition, the catch is sampled by Department biologists for biological information at the docks and on board lobster boats.

New Hampshire's commercial fishing ports have averaged over 9 million pounds of seafood brought in by commercial harvesters, valued at over $28 million annually in the last three years.

A diverse range of species are represented in the state's commercial landings, which included 31 different species of fish and invertebrates, valued at approximately $33 million in 2016.



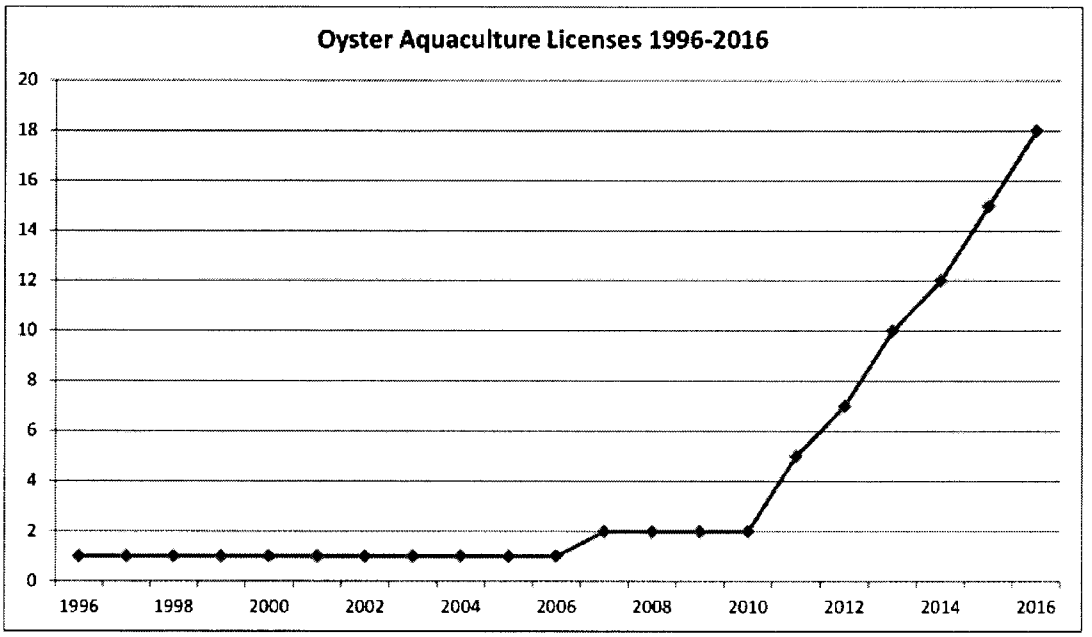
In recent years, American lobster has accounted for the largest portion of New Hampshire's commercial landings in both quantity and value. The 2016 lobster landings were the highest on record at approximately 5.8 million pounds, which contributed $30 million to the total commercial landings in New Hampshire ports. Along with lobster, bluefin tuna and goosefish round out the top three most valuable commercial species landed in New Hampshire; spiny dogfish and goosefish contributed to the top three in quantity in 2016.

Additional fisheries-dependent monitoring occurring in New Hampshire coastal and estuarine waters include catch and effort reports from permitted coastal harvesters, rainbow smelt winter angler fishery survey, and the volunteer striped bass angler survey.

AQUACULTURE

Aquaculture in New Hampshire's coastal and estuarine waters (finfish, mussels, and oysters) has increased substantially over the last five years. The Marine Division licenses and monitors aquaculture along with the New Hampshire Department of Environmental Services and the Department of Health and Human Services Division of Public Health. The largest aquaculture interest in New Hampshire has been oyster farming, with 52 acres licensed in 2016. The total oysters harvested from aquaculture sites were 207,024 oysters in 2015 and 184,832 oysters in 2016.

The largest aquaculture interest in New Hampshire has been oyster farming, with 52 acres licensed in 2016.



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GROUNDFISH FISHERIES DISASTER FUNDS DISTRIBUTED

Despite harvester's adherence to catch limits over the past few years, several key groundfish stocks are not rebuilding. Low levels of these stocks have caused a significant loss of access to fishery resources, with revenue declines that have greatly affected the northeast commercial groundfish fishery. In September 2012, then-Acting Secretary of Commerce Rebecca Blank, at the requests of state governors, declared the Northeast Multispecies Groundfish Fishery a commercial fishery failure. Congress appropriated $32.8 million in federal fishery disaster funds to be allocated specifically to the Northeast Multispecies Groundfish Fishery. During the biennium, New Hampshire finished distributing the last $1,044,351 to the state's small boat groundfish fleet and crew, for-hire fleet, and supporting infrastructure between February and May of 2015.

CLIMATE CHANGE AND FISHERIES

Over the past 10 years, the Gulf of Maine has warmed faster than 99% of the global oceans.

Over the past 10 years, the Gulf of Maine has warmed faster than 99% of the global oceans. Recent studies indicate that the enhanced warming is associated with a northerly shift in the Gulf Stream. Water temperature has a big impact on many species in the Gulf of Maine and along New Hampshire's coastal waters. Increases in water temperatures may lead to significant shifts and/or expansions of species ranges and behavior. This has been evident in New Hampshire, with an increased presence of warm-water marine species (e.g., weakfish and black sea bass) previously not endemic to the state that are now regularly targeted by anglers.

In the Gulf of Maine, increasing water temperature is a factor that likely has and will continue to contribute to poor recruitment in the Atlantic cod and Northern shrimp stocks. Due to poor stock recruitment, influenced by environmental factors, there has been a moratorium on the Northern shrimp fishery in the Gulf of Maine since 2014, affecting fishing communities in New Hampshire, Maine, and Massachusetts. Only a small research fishery is allowed for population monitoring purposes. As water temperature continues to increase, we can expect to observe more changes to the fisheries and ecosystem of New Hampshire's coastal waters.

GREAT BAY NATIONAL ESTUARINE RESEARCH RESERVE

The Great Bay Estuary, often referred to as New Hampshire's hidden coast, is a complex embayment and the state's largest estuarine system. Fed by the tidal waters of the Piscataqua River, the estuary offers a variety of diverse habitats, including eelgrass beds, mudflats, salt marsh, rocky intertidal, and upland forest and fields. Striped bass, bald eagles, osprey, and a variety of rare, threatened, and endangered species rely on this important ecosystem.

Once threatened by an oil refinery proposed by Aristotle Onassis in 1973, Great Bay received significant attention and was federally designated as a National Estuarine Research Reserve in 1989. The Great Bay National Estuarine Research Reserve (GBNERR) is a state and federal partnership that is managed by the New Hampshire Fish and Game Department. The National Oceanic and Atmospheric Administration designed the program to protect estuarine areas as platforms for long-term research that can inform coastal management and as places to increase public awareness about these unique ecosystems. Working collaboratively, staff of the Reserve bring science-based information to critical decision makers in the watershed, educate the public about this important ecosystem, and manage the natural resources within the boundary.

The research program at the Great Bay National Estuarine Research Reserve focuses on understanding the structure and function of the Great Bay ecosystem and the effects of natural and human-induced changes.

Expanding Our Understanding of Great Bay

The research program at GBNERR focuses on understanding the structure and function of the Great Bay ecosystem and the effects of natural and human-induced changes. In collaboration with a variety of university, state, federal, and non-governmental partners, we manage monitoring programs and advance research initiatives that can guide stewardship and management activities within and beyond the Reserve. The Reserve's research and monitoring efforts focus on four themes: (1) water quality, (2) land use change, (3) biological communities, and (4) climate change. Long-term monitoring programs enable us to detect changes over time associated with each of the four themes, while short-term research projects focus on identifying and mitigating threats to habitats, species, and human communities in Great Bay and its watershed.

❖ MARINE FISHERIES DIVISION

Managing Our Natural Resources Wisely

Upland development, invasive species, resource use, habitat alteration, and climate change are the major drivers to ecological change in the Great Bay Estuary. The Reserve strives to protect the integrity of the estuarine system and its watershed by incorporating science and stewardship into management decisions that impact the natural resources. As a founding member of the Great Bay Resource Protection Partnership, the Reserve has taken a lead in land protection to reduce the ecological impacts of habitat fragmentation caused by development in the watershed. The Reserve has a management interest in 3,740 acres of uplands distributed over 71 parcels. Properties are managed to protect threatened species and sustain fish and wildlife populations in balance with human uses. Stewardship activities are structured experimentally, when possible, so that their outcomes can be evaluated and used to guide management actions beyond Reserve properties. Key strategies include conserving undeveloped land, encouraging low-impact development approaches, and controlling invasive species.

Educational programs at the Great Bay Discovery Center teach children and adults about the unique natural and cultural resources of the Great Bay Estuary.

Educating the Next Generation

The Great Bay Discovery Center hosts a variety of educational programs throughout the year designed to teach visitors about the unique natural and cultural resources of the Great Bay Estuary. These include a school program for children in grades 1 through 5, and several public programs for adults and children. Educator volunteers are essential to the success of these programs. A visitor's center is open from May through October to welcome the public and teach about natural and cultural history through exhibits and a touch tank. The Reserve also has a boardwalk that winds through the transition from upland habitat to the salt marsh, allowing visitors to experience Great Bay's natural beauty and giving students a chance to directly interact with estuarine habitats.

Engaging in Our Communities

Our physical presence in the towns of Greenland and Stratham gives us an anchor for engaging with the public. The Reserve has a "green" campus that features a solar roof, geothermal heating and cooling, composting toilets, a porous pavement parking lot, and native

landscaping that features rain barrels and rain gardens. Along with student and public education programs offered on topics as varied as installing rain gardens to edible wild plants, the reserve also has a targeted program to reach municipal decision makers. The Coastal Training Program provides science-based training and resources to state agencies, municipalities, and watershed and environmental organizations in the N.H. Coastal Watershed. The Reserve presents workshops and trainings to local coastal decision makers to address issues related to climate change, stormwater and wastewater management issues, habitat conservation and ecosystem services, and low-impact development.

SOLVING PROBLEMS TOGETHER

New Hampshire's seacoast region is a critical economic, cultural, and environmental asset to our state. As of 2016, the state's 17 coastal zone municipalities were home to approximately 11% of the state's population, hosted over 100,000 jobs, and generated a 2014 Gross Regional Product of approximately $11 billion. Our beaches draw tourists from around the world; our estuaries contribute millions of dollars to recreation and commercial fisheries each year; and a recent study determined that New Hampshire residents would be willing to pay a combined total of $42 million a year to ensure that our eelgrass, oyster beds, and saltmarshes are thriving.

The coastal area is also changing quickly, due to shifts in climate and weather patterns and land use and demographic changes. Some of these changes have substantial implications for the Great Bay ecosystem, as species and habitats may shift in response to changes in temperature and water levels, and land use can create pollutants that impact living resources. The Great Bay National Estuarine Research Reserve uses its programs and its place in the community to advance our understanding of how and why the ecosystem is changing, and what our natural resources and our communities can do to adapt to new conditions.

Interactive exhibits at the Great Bay Discovery Center help educate the community on changes that affect Great Bay, such as how land use can create pollutants that impact living resources.

Monitoring Climate Change

Great Bay Reserve's research and stewardship program is working to anticipate and assess the ecological impacts of climate and sea level change. Comprehensive mapping of salt marsh habitats, along with distribution of tidal creeks, pools, and panes, will allow us to track vegetative change and associated impacts in this habitat most

immediately affected by any change in sea level. The Reserve is also working with the University of New Hampshire's Jackson Estuarine Lab to place sediment elevation tables (SETs) in several salt marshes throughout the estuary. These instruments will allow scientists to measure future water levels in the marshes.

Within this biennium, the reserve partnered with the National Oceanic and Atmospheric Administration to establish a water level gauge at the mouth of the Squamscott River, and to create high-resolution maps of salt marsh habitat surrounding Great Bay. Establishment of long-term datasets of habitat characterization, water level, and other vertical control infrastructure allow Great Bay Reserve's lands to be a site-based living laboratory for research to further our understanding of our changing estuarine environment.

Modeling the Impact

Salt marshes are naturally resilient to changes in temperature, salinity, and water level, but are limited by elevation and sediment supply. As sea levels rise, the marsh at the water's edge will be drowned. But under the right conditions, salt marshes have the capacity to migrate inland with a rising sea level. The problem in New Hampshire, as in many coastal areas, is that the same low and level land that marshes could migrate to has been developed with roads, homes, and businesses.

The Sea Level Affecting Marshes Model (SLAMM) is a tool that models the processes that affect how coastal wetland systems naturally respond to sea level change over time and where natural and man-made barriers will inhibit these changes. This tool can help users visualize and understand how coastal wetland systems will likely shift and adapt over time under a range of projected sea level rise conditions.

In 2014, the N.H. Fish and Game Department and Great Bay National Estuarine Research Reserve ran SLAMM for all of coastal New Hampshire using accurate, updated, local data. During 2015 and 2016, those maps were used to create habitat vulnerability assessments for all the coastal communities in New Hampshire. They were also used to create maps that can guide natural resource professionals to land protection priorities that consider both where marshes will be and how productive future marshes are likely to be in supporting wildlife, fish, and flood storage.

In both 2015 and 2016, the Reserve brought together experts, agencies, and communities for a full-day Climate Summit to ensure that the latest science could be brought to community leaders.

Helping Communities Adapt to a New Future

As the reserve and its research partners start to understand the trends and hone their abilities to predict the impacts related to climate change, we also work with the communities around Great Bay to make sure that they have the information and technical assistance needed to prepare for future conditions. The Coastal Training Program has

co-chaired the New Hampshire Coastal Adaptation Workgroup (CAW) since 2009. This coalition of 21 organizations collaborate to support communities in preparing for the impacts of climate change. CAW has supported the majority of the communities in the Great Bay Estuary watershed with climate preparedness and adaptation efforts and led 25 workshops on the topic.

In both 2015 and 2016, the Reserve brought together experts, agencies, and communities for a full-day Climate Summit to ensure that the latest science could be brought to community leaders. The GBNERR Coastal Training Program coordinates public input and outreach related to the legislatively directed Coastal Hazards and Risks Commission; has been active on five research grants in this timeframe to help connect emerging research to New Hampshire decision makers; and has worked with partners to bring better science, regulation, and communication around living shorelines to the state.

By integrating our programs and working with the surrounding communities, the Great Bay National Estuarine Research Reserve can bring science and solutions that will improve water quality and fish and wildlife habitat.

THE BENEFITS OF BUFFERS

Estuarine and riparian buffers protect fish and wildlife habitat and migration pathways, water quality and quantity, and provide flood storage and recreational benefits. Despite the multiple benefits and simplicity of using buffers as a natural resource management tool, they are confusing to regulate, difficult to enforce, and there is a myriad of technical information about how best to design a buffer. During the biennium, the reserve has spearheaded a grant-funded project with the N.H. Nature Conservancy to explore the ecological and social benefits of using vegetated buffers, and the local and state challenges to implementing them. This project brought together partners from seven organizations and universities, as well as an extensive local Advisory Committee and has pulled together the best available science, new mapping techniques, an economic benefit analysis, a policy analysis of how buffers are done currently, and a detailed community assessment. Through integrating economic, ecological and socio-political information, the team is creating a website that helps organizations approach buffer management with all of these aspects of the problem and potential solutions in one place.

Fanfare accompanied the ribbon-cutting for the refurbished, 1,350-foot boardwalk through the salt marsh at Great Bay Discovery Center.

❖ MARINE FISHERIES DIVISION

THE POWER OF PUBLIC-PRIVATE PARTNERSHIPS

The Great Bay National Estuarine Research Reserve promotes several education and research programs throughout the year. The facility includes the Great Bay Discovery Center, the Hugh Gregg Conservation Center, the Depot House, two pavilions for educational programs, a canoe and kayak storage shed, and an extensive trail system and boardwalk. These features provide opportunities for schoolchildren and the general public to explore and learn about the Great Bay history and ecosystem.

A critical piece of infrastructure in all of the programming is a boardwalk that was created in 1989 and that meanders through woodland and a saltmarsh wetland. The boardwalk served its purpose very well for 23 years, but the moist environment and time took their toll on the wood-framed structure, and it became clear that the boardwalk had to be replaced. In 2014, the reserve began planning to replace it, in partnership with the Friends Group of the Reserve, the Great Bay Stewards. Through a combination of federal grants, foundation grants, and a successful community fundraising campaign, over $400,000 was raised to support this project. The Great Bay Stewards were instrumental in creating a "buy a board" campaign, applying for foundation grants, and creating community and public support for the project, while N.H. Fish and Game accessed federal grants, oversaw the contract, and worked with an enthusiastic group of AmeriCorps volunteers to demolish the old boardwalk and dispose of the waste.

CONNECTING WITH PEOPLE THROUGH OUTREACH AND EDUCATION

The Public Affairs Division communicates Department messages to the public and provides skill-based training focused on safety and personal responsibility. The Division's goal is to develop stewards who conserve our natural resources and promote broad public support for Department programs. Staff direct their efforts toward connecting people with life outdoors – through awareness, appreciation, and participation.

The **Information Unit** helps the Department connect with constituents through direct mail and e-mail marketing, a vibrant website, broadcast media, events, workshops, publications, branded merchandise, and exhibits. Web-based and social media outreach continued to grow in importance and effectiveness during the biennium. Marketing campaigns were directed toward increasing participation in traditional outdoor sports and promoting awareness of activities conducted throughout the Department.

Watershed Education activities are one avenue through which the Public Affairs Division works to develop stewards interested in conserving the state's natural resources.

The **Conservation Education Unit** collaborates with partners and volunteers to offer educational opportunities to move people from awareness to actions and on to a lifestyle that values wildlife and the resources needed for healthy wildlife populations.

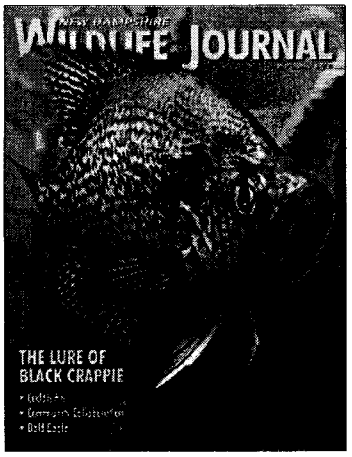
The Division works with other state agencies to promote the New Hampshire Conservation and Heritage license plate (Moose Plate) and participates with the New Hampshire Travel Council to promote outdoor tourism.

The Public Affairs Division saw a significant "changing of the guard" during the biennium, with the retirements of two longtime employees, Division Chief Jon Charpentier (March 2017) and Publications Manager Pamela Riel (May 2017).

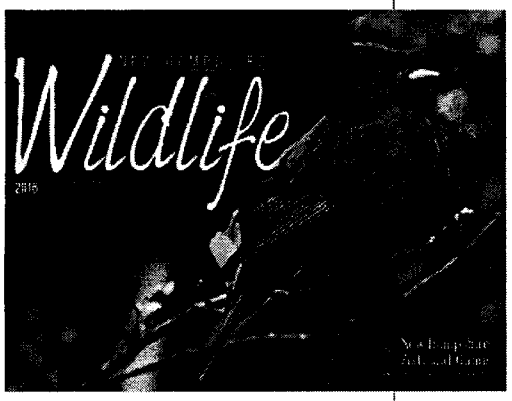
MARKETING THE FISH AND GAME MESSAGE

The Information Unit within Public Affairs supports outreach throughout the Department by providing news services, broadcast media, advertising and promotion, media relations, print publications, electronic newsletters, web design, social media, and marketing strategies.

❖ PUBLIC AFFAIRS DIVISION



The *New Hampshire Wildlife Journal* magazine is the Department's flagship publication.



The Department-produced *New Hampshire Wildlife Calendar* was one of the top two conservation calendars in the nation, according to the Association for Conservation Information.

Publications, Website, and News

More than 300 print publications were produced during the biennium, including brochures, regulation digests, and exhibit panels, as well as design of digital graphics, logos, and branded merchandise.

A reader survey was conducted for the Department's flagship publication, *New Hampshire Wildlife Journal*. It was affirming to see that 100% of those responding rated the magazine as good or excellent, with most saying "excellent." The advertising-free format is popular. A strong majority of readers participate in multiple forms of wildlife-associated recreation.

During both years of the biennium, the Department-produced *New Hampshire Wildlife Calendar* was one of the top two conservation calendars in the nation, according to the Association for Conservation Information.

The publication *Wild Times for Kids* continues to be a valued resource for inspiring New Hampshire elementary school students to learn about and appreciate wildlife and conservation.

Fish and Game's website at ***wildnh.com*** is a mobile-friendly, go-to resource for hunters, anglers, and conservationists. It received an average of 101,000 unique visitors each month. Highly popular web pages include agency news, trout stocking, bathymetry maps, and the landing pages for fishing and licensing.

News releases issued in various formats are a primary means of communicating the Department's messages. Online delivery gets these messages out to thousands of interested people, and they are also available on the agency website. The *New Hampshire Fishing Report*, issued bi-weekly by email during the open-water season, remains a fan favorite. Fall hunting reports include timely tactics, harvest results, and other updates.

Integrated marketing campaigns were carried out to raise awareness of the 2016 license fee changes, the first-time availability of a Newborn Hunting and Fishing License, and prevention of Chronic Wasting Disease by discouraging the use of urine-based deer lures. A proposal to re-open a bobcat hunting and trapping season drew a great deal of media attention; the proposal was ultimately withdrawn. Another news topic that generated interest was a ban put into place on using chocolate as bear bait.

Broadcast Media

The Broadcast Media Unit produced hunting, fishing, and wildlife viewing programming that reached more than 2.4 million homes in the Boston-Manchester DMA (Demographic Market Area) over the biennium. The goal behind the programming is to educate, retain, and recruit hunters and anglers, as well as to build support from outdoor enthusiasts for the Department and its mission.

The Department-produced "Granite State Outdoors" program aired on 34 New Hampshire Community access TV stations. "NH's WildSide," also produced by Fish and Game, aired on WBIN-TV out of Derry, reaching 2.4 million homes in the Boston-Manchester DMA; this program drew a weekly viewership of approximately 7,500 households, according to Nielsen Ratings. Viewers of the Department's YouTube Internet Channel watched more than 618,000 minutes of Fish and Game programming over the biennium.

The Broadcast Media Unit is also responsible for providing media to support other divisions and units within the Department. This effort included production of "Cold Water Tank Installation in the Classroom" for the Aquatic Resources Education program, as well as a snowmobile safety video for the Off-Highway Recreational Vehicle Safety Education Program. These tools are used to explain the programs, as well as serving as teaching aids.

Tim Moore attracted a crowd of enthusiastic anglers for his talks on ice fishing strategies, part of Fish and Game's winter outdoor adventure talks. Many of the talks were live-streamed on Facebook.

Additionally, the Broadcast Media Unit supported the Department's marketing efforts related to fee increases, awareness of various nongame projects, and ongoing support for recruitment and retention of hunters and anglers. Multiple commercials, which aired on radio and TV, were created to support these efforts.

The Broadcast Media Unit also continued to distribute the long-running "Outdoor Almanac" radio show hosted by WTPL radio personality Peter St. James. This program is distributed to nine radio stations throughout the state, many of which have affiliates that simulcast the program.

Fish and Game continued to communicate through an expanded social media presence. Nearly 50,000 people follow the Department's Facebook page, supported by an agency-wide social media team coordinated by Public Affairs Broadcast Media staff. Our Facebook page gained 20,000 fans during the biennium. Social media outreach was also accomplished via Facebook, Twitter, Pinterest, and YouTube videos, reflecting the increasing demand for information provided and shared across a variety of platforms.

Fish and Game continued to communicate through an expanded social media presence.

Advertising and Promotions

Over the biennium, Public Affairs conducted comprehensive marketing and advertising aimed at reducing lapsed anglers and encouraging license renewal. Strategies included a coordinated mix of news releases, Facebook posts, and traditional and electronic media. Supporting these efforts were face-to-face events such as sporting shows, fairs, and Department-hosted seminars.

❖ PUBLIC AFFAIRS DIVISION

Seeing live falcons is part of the excitement of Discover WILD New Hampshire Day.

During both years of the biennium, we continued to promote the dynamic marketing and promotion spring fishing campaign "Catch Your Monster!" (intended to raise awareness of New Hampshire's diverse cold and warmwater fisheries) using social media, broadcast media, paid advertising, and online news media to increase and encourage participation. Similar campaigns promoting hunting in New Hampshire were carried out in the fall of 2015 and 2016, with a new theme targeting the "locavore" movement (trend toward healthy, locally sourced foods).

The Department coordinated 28 "Outdoor Adventure Talks" promoting participation in outdoor recreation. These seminars reached 1,349 participants. Many of these talks were live-streamed on Facebook, reaching thousands.

Fish and Game's annual community event, Discover WILD New Hampshire Day, was more popular than ever this biennium. These events are coordinated by Public Affairs staff and allow the Department to engage with the broader public in a big way. The two Discover WILD New Hampshire Day events reached a combined total of 18,200 participants, with attendance in 2016 and 2017 surpassing past records.

Fish and Game materials and information are also delivered directly to large audiences at shows and fairs. The Department participated in nine major outdoor recreation shows during the biennium, reaching more than 57,000 people within our statewide and regional markets. Fish and Game also presented information at six state fairs. Department exhibits were a popular attraction at these events, reaching more than 30,000 members of the public and creating an important opportunity for the agency to reach non-traditional audiences.

Kids have fun learning new skills at Barry Conservation Camp.

Barry Conservation Camp

Public Affairs coordinates facilities maintenance and improvements at Barry Conservation Camp, which provided summer programming in outdoor skills and conservation awareness to more than 450 boys and girls during the biennium.

Public Affairs also coordinates the annual Wild Game Culinary Adventure, an adult program held at Barry Camp in the fall that teaches recent Hunter Education graduates how to dress game

and prepare wild game dishes. A total of 75 people took part in this program during the biennium. This event is supported by volunteers and organizations such as the N.H. Wildlife Federation.

CONSERVATION EDUCATION UNIT

The goal of Fish and Game's Conservation Education programs is to engage with residents and visitors through diverse educational experiences in order to develop individuals who are knowledgeable about fish and wildlife, make decisions that benefit fish and wildlife, and spend time outdoors engaging with fish and wildlife with proper skills, safety, and ethics. This is accomplished by collaborating with partners and volunteers to offer educational opportunities at every level on the stewardship pyramid to move people from awareness to actions and on to a lifestyle that values wildlife and the resources needed for healthy wildlife populations.

Owl Brook Hunter Education Center Manager Tom Flynn congratulates Russ Galpin, who was honored in 2016 for serving 55 years as a Hunter Education instructor.

Conservation Education programs include Hunter Education, Wildlife Conservation Education, Angler Education, Becoming an Outdoors-Woman, Watershed Education, Wildlife Stewards, and Wonders of Wildlife. Programs provide curriculum development and skills training for schools through high-quality professional development for teachers; a wide variety of outdoor skills, safety, and ethics education; and outreach programs that use exhibits and electronic media to reach a wide variety of public audiences.

A major initiative in this biennium was the development of a new online event manager that now provides online registration for all Public Affairs Conservation Education programs. This system also enables better evaluation of programs and provides opportunities to reach out to constituents, with the purpose of designing programs that better meet the needs of hunters, anglers, and all wildlife enthusiasts.

The work of the Conservation Education Unit relies on strong partnerships. We work with over 700 volunteers, most trained through formal instructor certification programs, to deliver valuable conservation education programs across the state.

Volunteer time is an in-kind match that brought in over $1.8 million of Wildlife and Sport Fish Restoration funds to support education programs during the biennium.

Hunter Education

The Hunter Education program provides high-quality ethics, safety, and skills training for those who wish to hunt or trap in New Hampshire. This training is provided through mandatory courses offered at locations all over the state, as well as at the Department's Owl Brook Hunter Education Center.

❖ PUBLIC AFFAIRS DIVISION

Hunter Education courses are required for anyone wanting to purchase a hunting license. These courses are delivered by 460 certified instructors. Registration is done online. Options include an online course with a hands-on field day or traditional classroom-based courses.

During this biennium, the Bowhunter Education and the Hunter Education courses were combined into one course. Anyone taking the course now receives certification in both hunter safety and bowhunter safety.

A mentored turkey hunt was part of a new recruitment and retention activity coordinated by the Hunter Education program and the N.H. Chapter of the National Wild Turkey Federation.

Recruitment, Retention, and Reactivation (R3) is a national initiative now being implemented in New Hampshire's hunter and angler education programs. Targeted toward hunter and angler development, these R3 activities include teaching advanced hunting skills, increasing participation, and engaging partners throughout the state to provide R3 opportunities in concert with the Department. The first R3 program offered in this biennium was a mentored turkey hunt, which included a full day of training, scouting with a mentor, and an actual hunt. This was offered through the New Hampshire Chapter of the National Wild Turkey Federation and the Department's Hunter Education program.

Fish and Game's Owl Brook Hunter Education Center in Holderness is a state-of-the-art facility with a classroom, shooting ranges, an indoor archery range, a map-and-compass course, and a 14-station woodland archery range. Owl Brook operates year-round, offering free workshops to the public on advanced hunting skills, shooting sports, and Hunter Education courses. Also offered are youth programs and an evening winter archery league.

Hunter Education also maintains a 15-station woodland archery range at Bear Brook State Park in Allenstown that is free and open for public use year round.

During the biennium, the Hunter Education program ran 284 Hunter and Bowhunter Education Courses, certifying 6,700 hunters. In addition, over 300 people were certified for trapping through 10 mandatory Trapper Education courses. Over 3,200 people also attended workshops or events at Owl Brook Hunter Education Center.

Aquatic Resources Education Program

Two main programs within the Aquatic Resources Education Program teach aquatic ecology, aquatic resources management, and angler education. The Watershed Education Program (WEP) targets high school and middle school teachers and their students. Currently, 100 schools actively participate in this program. The Watershed Ecology Institute involves teachers and community leaders. The Let's Go Fishing Program reaches schoolchildren in grades 4–12 and also provides courses for the general public statewide.

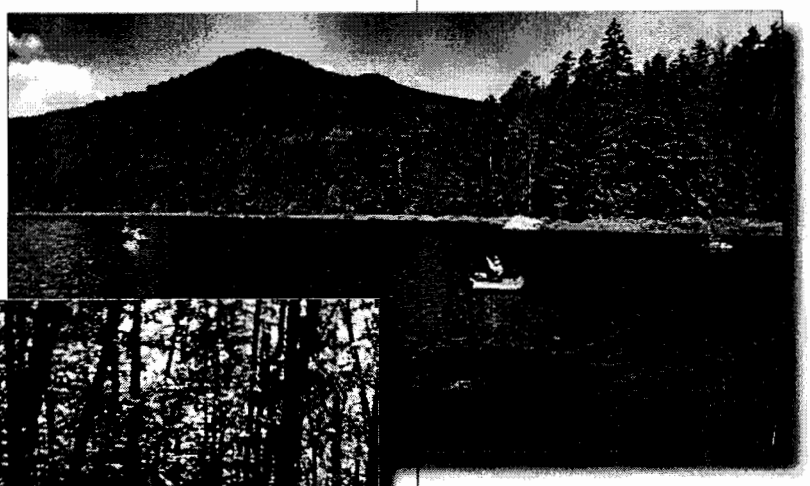
Let's Go Fishing

Free Let's Go Fishing (LGF) courses cover skills, ethics, safety, and basic fish ecology for anyone who wants to learn how to fish. Courses include basic fishing, flyfishing, fly tying, saltwater fishing, and ice fishing. In-school courses are delivered by teachers in 48 schools, with field trip support from volunteers. Public programs are offered statewide through various partnering organizations. The program has 120 trained volunteer instructors who deliver full courses and assist at various events in the state.

The Let's Go Fishing Program provides support for the N.H. Interscholastic Athletic Association's (NHIAA) High School Bass Fishing Tournament. The program offered participating students an educational seminar on black bass management, fishing with lead-free tackle, bass fishing tactics, safety, and ethics during both years of the biennium. More than 40 schools participated each year, culminating with a statewide tournament.

R3 practices were also implemented within angler education programs to recruit, retain, and reactivate anglers. The first Fishing R3 effort reached out to people who had purchased Hike Safe Cards but had not yet bought a fishing license. This weekend workshop on flyfishing remote ponds in New Hampshire was attended by 20 hikers. The weekend culminated with a hike to Notch State Park to try out their new skills.

During the biennium, the Let's Go Fishing Program reached approximately 20,000 people through 120 courses and 25 outreach events.



Hiking enthusiasts had a chance to try remote pond fishing at a new workshop offered by the Let's Go Fishing program.

During the biennium, the Let's Go Fishing Program reached approximately 20,000 people through 120 courses and 25 outreach events.

❖ PUBLIC AFFAIRS DIVISION

The Watershed Education Program presently serves over 100 schools, 80 teachers, and 2,400 students in every major watershed of the state annually.

Watershed Education

Fish and Game's Watershed Education Program (WEP) focuses on fisheries habitat conservation and targets mostly high schools. Funded through a federal Aquatic Resources Education grant, WEP aligns itself with the Next Generation Science Standards and provides high-quality professional development for teachers. There are three main components to the WEP: monitoring macro-invertebrate and water quality; using ArcGIS technology to map the local watershed, record, analyze, and share watershed data; and assessing local stream or river fisheries habitat. The third component includes bringing trout and warmwater fish into the classroom curriculum. Schools can opt to participate in one or all three parts of the program, depending on the school's needs and grade level. Support for this program is provided either through a series of trainings or a one-week teacher's Watershed Ecology Institute offered in partnership with Keene State College.

The Watershed Education Program presently serves over 100 schools, 110 teachers, and 2,400 students in every major watershed of the state annually.

Wildlife Education

Wildlife Conservation Education provides high-quality professional development for teachers. A "train the trainer" model helps multiply the effect of each training, whereby one teacher can reach multiple classes each year. These teachers partner with the Department to deliver curriculum and best practices in conservation education strategies in classrooms statewide.

In addition, volunteer docents and Wildlife Stewards deliver presentations to classrooms and the public throughout New Hampshire. Programs include Project WILD, Growing up WILD, the Winter Severity Index, Wildlife Stewards, Wonders of Wildlife, and the Discovery Room. Strong partnerships are key to delivering programs.

One far-reaching initiative is the Math and Science Partnership, which recruits and trains teachers in specific school districts. This includes an annual one-week teachers' institute and multiple contacts and training sessions over a three-year period. The partnership helps bring Fish and Game's Project WILD to the classroom in a comprehensive K–8 approach aligning with Next Generation Science Standards and incorporating the National Conservation Education Strategies into wildlife conservation education in the classroom. The Math and Science Partnership is made up of the N.H. Environmental Educator Team (NHEET), which includes N.H. Fish and Game, the US Forest Service, NH Project Learning Tree,the Department of Environmental Services, The GLOBE Program, UNH Cooperative Extension, and the University of New Hampshire. Without these partnerships, delivering strong department wildlife conservation education programs would not be possible.

During the biennium, 99 teachers from multiple school districts were trained through Math Science Partnership activities. The Wonders of Wildlife program delivered 111 presentations to schools, reaching 2,389 elementary students.

Becoming an Outdoors-Woman

The Department's Becoming an Outdoors-Woman (BOW) program targets women age 18 or older for workshops that teach outdoor skills—skills usually associated with hunting and fishing, but useful for many outdoor pursuits. Regular BOW fall and winter workshops use direct hands-on experiential learning techniques and are designed to remove barriers to participation women have faced over the years. These barriers include the difficulty of finding female role models for hunting and fishing and lack of social support for learning the diverse skills needed to participate in hunting and fishing activities with confidence and success.

Becoming an Outdoors-Woman programs are helping women develop outdoor skills. These participants built a shelter in their winter outdoor survival course. Nice work!

A variety of "Beyond BOW" workshops are also offered each year, providing more in-depth skills education for specific activities. During the biennium, these workshops included introduction to rifle and shotgun, deer hunting basics, intermediate flyfishing, wilderness survival, deep sea fishing, seacoast wild edibles, and winter hiking. A total of 566 women attended BOW and Beyond BOW Workshops during the biennium.

❖ WILDLIFE DIVISION

WORKING FOR WILDLIFE, WORKING FOR YOU

New Hampshire's wildlife resources are held in trust by the State for the benefit of our citizenry. The Wildlife Division oversees management of the Game, Nongame, and Habitat Programs.

GAME MANAGEMENT PROGRAMS

In addition to regional responsibilities, staff wildlife biologists are also members of the Game Management Team, and most serve as species project leaders and coordinate day-to-day activities associated with game species management programs. The project leaders and other members of the Game Management Team ensure that the best available scientific information from population monitoring programs and harvest is used for species management. The Game Management Team formulates season recommendations and other measures to enhance recreational opportunities while maintaining sustainable wildlife populations at desired levels.

These desired population levels are established through the game management planning process at 10-year intervals. This process involves significant public input and evaluation of public desires in addition to consideration of the current biological and social factors affecting species management.

Black bears

The current plan was revised during FY15 and implemented in FY16. The plan defines goals and objectives for the period 2016–2025. Species management work is characterized by public input, professional peer review, and analysis of harvest, biological, and survey data. Data interpretation requires detailed knowledge of statistical methods, species ecology, the scientific literature, complex biological and social issues, and species population demographics. More than ever, species management is both an art and a science that requires a broad knowledge which extends beyond wildlife management and includes the complex social and political attributes that define the jurisdictions we work with and in.

More than ever, species management is both an art and a science that requires a broad knowledge which extends beyond wildlife management.

Analyzing Wildlife Data

Division data continue to be managed with a view toward efficient long-term development, use, and storage. Significant amounts of survey, harvest, research, and other data are collected, entered, verified, and analyzed annually. This information helps serve both game

management and law enforcement needs. Division staff work with the State's Department of Information Technology to maintain software and server compatibility, as well as data security and accessibility. Increasing use of Internet capabilities has provided the opportunity to collect a variety of data directly from the public. The Nongame and Endangered Wildlife Program's N.H. Wildlife Sightings project provides a mechanism to garner species distribution data for inclusion in the Division's comprehensive *Wildlife Action Plan*. The Division continues to implement annual Internet-based turkey Winter Flock Surveys and Summer Brood Surveys to gather observation data from the public to aid in assessing turkey distribution and productivity.

This biennium, the Division tested the feasibility of using an Internet-based Moose Photo Survey to assist in monitoring winter tick impacts. With help from the Facilities and Lands Division, the Wildlife Division has developed a system for tracking land acquisition and management activities so that biologists and land managers will have the ability to document land management activities, retrieve information on properties, and plan for the future.

Geographic information system (GIS) capabilities are provided through the N.H. Department of Information Technology. GIS provides the Division and the rest of the Department with spatial analysis tools to supplement many program objectives. Major Division efforts have included development and maintenance of up-to-date statewide habitat maps for use by state and municipal land planners, as well as the public. Department staff work to ensure the highest quality and confidence possible in management information.

Managing White-Tailed Deer

White-tailed deer continue to be a vital component of New Hampshire's environment, culture, and economy. The most recent estimates from the U.S. Fish and Wildlife Service (USFWS) show that hunters contributed slightly over $60 million to the state's economy in 2011, and deer continue to be the most sought-after game species in the state. Wildlife watchers, photographers, and others all recognize the contribution deer make to our quality of life.

The Department's previous 10-year Game Management Plan expired at the end of 2015. Development of a new 10-year plan was completed in June of 2015 and provides revised population goals and objectives for the state's game species, including white-tailed deer. Objectives established in the 2016–2025 plan call for the stabilization of the deer population in many portions of the state because deer

White-tailed deer fawn

❖ WILDLIFE DIVISION

During the biennium, wildlife biologists collected 618 samples from hunter-killed deer to be tested for CWD, part of a surveillance program intended to keep this devastating disease out of New Hampshire.

numbers in many management units have increased over the last 10 years. The objectives aim to maintain these populations well within the carrying capacity of the land and below cultural carrying capacity based on input from the state's residents.

Continued mild winters in recent years have led to deer population increases throughout New Hampshire, resulting in increased either-sex hunting opportunities during the 2016 and 2017 seasons. The 2015 statewide harvest of 12,894 deer was the 15th highest on record going back 95 years to 1922 (years for which comparable data are available). The total statewide deer harvest during 2016 (10,675) declined slightly; however, the antlered harvest increased by 8% and was the 7th highest on record since 1922, indicating that the deer population had likely increased.

The spread of Chronic Wasting Disease (CWD) to wild deer east of the Mississippi raised concerns in New Hampshire and other eastern states, and in 2002 the Department began a CWD Monitoring and Surveillance Program. During the 2015 and 2016 deer seasons, 618 samples were collected for testing. Since 2002, a total of 5,817 samples have been collected, and all have tested negative.

Because deer in New Hampshire are near the northern limit of their range, information on the quality and quantity of deer wintering areas (DWAs) in the state is vital to achieving long-term management objectives. In April of 2014, a cooperative research project with the University of New Hampshire was initiated that aimed to improve the current understanding and documentation of DWA use in New Hampshire through a combined application of

As of 2016, CWD had been detected in wild or captive deer in 26 states and Canadian provinces. New Hampshire import restrictions are in place for areas in red.

GIS mapping of field survey data, modeling of habitat components associated with DWAs to identify suitable habitat, and stable isotope analysis of fecal pellets to identify relative use of supplemental food. This research was completed in 2016.

The study noted a 5% net reduction in mapped DWAs statewide. Agreement between predictive DWA models and known DWAs was low to moderate, indicating that there may be greater plasticity in winter habitat use than traditionally thought. However, key measures of topography and overstory vegetation structure were similar, and consequently, there is rationale for use of DWA models as a tool to help inform conservation planning and deer population management.

The study also found that the relationship between habitat quality and habitat use was variable among regions of the state. Indices of DWA use were associated with traditional wintering habitat variables in the Central region, weakly associated in the South region, and unrelated in the North region. Consequently, it was hypothesized that the levels and subsequent influence of supplemental feeding largely influenced DWA use (particularly in northern New Hampshire)

The Department will continue to pursue the achievement of deer management goals using the best available methods into the next biennium.

Thriving Black Bears

New Hampshire's current black bear population is higher today than at any point in the state's history. Previously, the bear population had been driven to a very low level due to habitat loss caused by land use changes (e.g., land clearing practices for farming by early settlers) and because they were declared a pest species and persecuted for over 300 years (bountied until 1955) by earlier generations that settled the state. The rebound of the state's bear population has been remarkable and widely attributed to forest reclamation and the adoption of regulations that prevented excessive harvest, resulting in

Fish and Game Bear Project Leader Andrew Timmins conducts a winter den check. Below, a New Hampshire black bear is fitted with an ear tag.

The estimated 2016 New Hampshire bear population of 6,100 was higher than the desired objective; therefore, the Department's current population management focus is to reduce bear densities in select regions of the state.

increased bear survival. In addition to these factors, the tenacity and adaptability of bears has contributed significantly to their success over the past three decades.

As the state's bear population has grown, so has interest in this species by hunters and wildlife viewers alike. Over the past biennium, N.H. Fish and Game continued to manage bear densities at levels that were consistent with public interest and expectation for recreational, ecological, and cultural purposes. The Department's revised *Big Game Management Plan* will guide bear management activities during 2016–2025.

The overall objective specified in the plan is for a statewide population of about 4,700. The estimated 2016 New Hampshire bear population of 6,100 was higher than the desired objective; therefore, the Department's current population management focus is to reduce bear densities in select regions of the state. Specifically, a 23% reduction in bear density in the White Mountain and Central regions is required to meet plan objectives.

The modern era of black bear management has become a balancing act of maintaining a socially acceptable number of animals on a landscape that has become dominated by people and associated development. Black bears have proven to be highly adaptable to this landscape. As our human population increases, so does the number of anthropogenic food attractants, such as unsecured garbage, bird feeders, and unprotected chickens, which increases the likelihood of bear/human conflicts.

Over the biennium, the Department, in conjunction with USDA Wildlife Services, continued to strengthen and expand a Bear Conflict Mitigation Program, which has been successful in stabilizing statewide bear/human conflicts. The core component of this program is to promote respect, tolerance, and responsibility when living in bear country. These three components are viewed as critically important to helping the public better understand bear behavior and educating them on ways to coexist with bears and avoid conflict. Conflict abatement is a significant component to the Department's bear management program and will continue to represent a management priority.

Monitoring Moose

While New Hampshire's moose population has decreased in recent years, these changes are not affecting all parts of the state equally. During the biennium, of the six moose management regions, two experienced population stability, while four experienced declines to varying degrees. Permit issuance has been reduced, but average moose hunter success in 2015 and 2016 was 70%, nearly identical to the 10-year average of 69%. Moose population status is carefully monitored on an annual basis, through hunter surveys and from data collected from harvested moose. The recently revised Moose Management Plan covering 2016–2025 has established cut-off population thresholds,

at or below which permit issuance will be suspended. The Southwest region has reached that cut-off threshold and permit issuance was recently suspended there.

An important mortality and productivity study, funded with a federal aid grant matched by UNH, continued during the biennium. Initiated in the North region in the winter of 2014, this study is providing critical management data regarding the rates and causes of mortality and productivity of moose in the region. The study is helping us to understand how moose are affected by winter tick abundance and how winter ticks are affected by winter length and other climactic factors.

To date, 183 moose have been collared, and it is hoped that an additional 50 will be collared in 2018. These moose are monitored year round by UNH graduate students and their technicians. A similar study conducted from 2001–2006 proved that winter tick was the primary mortality factor for calves and the overall most important mortality factor for all age classes combined. Winter tick was found to negatively influence productivity of adult cows, as well. The current study is designed to determine the present influence of winter tick on moose mortality and productivity and to determine how moose density, weather, and timber cutting practices influence winter tick numbers.

A biologist measures the antlers of a hunter-killed moose at the Berlin check station.

The current study has documented an average mortality of 73% in calves and 15% in adults for the years 2014–2016. While additional analysis is needed to compare and contrast the results of the two studies (2001–2006 and 2014–2018), initial analysis suggests that winter tick mortality for calves during the most recent time period has been higher than that found in the initial study. In addition, productivity for adult cows is well below that of the previous study.

What does this mean for moose in New Hampshire? Moose are a northern species that evolved in a cold climate. As a result, they are not well adapted to warmer environments and are unable to deal with the parasites that are found in warmer climates. As our winters continue to shorten, parasites are expected to continue to proliferate. Winter tick is only one of the parasites that is becoming problematic for moose.

A helicopter capture crew uses net-guns and tranquilizer darts to capture moose to collar for an ongoing mortality and productivity study. Blood and other samples collected during collaring are used to help evaluate the health of the moose.

Brainworm is a bigger problem for moose in the southern portion of the state, and it will become a larger problem if deer densities increase as a result of shorter winters. Will moose be able to hang on in our state as the length of our winters continues to

decrease? If climate scientists are correct, and our climate becomes increasingly similar to that of the mid-Atlantic states, moose will no longer be able to survive here.

Wild Turkey

One goal in recent years was to reach a statewide population of 30,000 wild turkeys. This goal was surpassed last biennium when the estimated turkey population reached 40,000. This biennium, the population appears to be stable, with carrying capacity for turkeys in the state having been achieved and with turkeys widely distributed throughout the state. New Hampshire's eight northern wildlife management units have an average of two turkeys per square mile, compared with six turkeys per square mile in the ten southern units.

Wild turkeys

The month-long spring gobbler season during May resulted in a harvest of 4,006 turkeys in 2015 and 3,882 in 2016. The fall archery seasons resulted in harvests of 338 and 312 turkeys in 2015 and 2016, respectively, while fall shotgun season harvests were 704 in 2015 and 789 in 2016. A weekend was added to the fall shotgun season in 2016, extending it to seven days. There are approximately 20,000 turkey permits sold annually; about one-third of New Hampshire license holders hunt turkeys. The Youth Turkey Hunt on the weekend prior to the May 3 regular season opening is very popular, averaging an annual harvest of 460 in 2015 and 2016.

The wild turkey population is popular with the general public, with an average of 60% indicating they "strongly like" turkeys and 28% indicating they "like" turkeys. The public gives good assistance to the Department by providing turkey status information throughout the State. The Internet Winter Flock Survey averaged 1,558 flock reports in 2016 and 2017, with an average of 28,868 turkeys observed annually.

Approximately 20,000 turkey permits are sold annually; about one-third of New Hampshire license holders hunt turkeys.

The Internet Summer Brood Survey has averaged 2,564 brood reports in 2015 and 2016. The estimated mean hatching date was June 19 both years. Bird feeding provides important benefits to turkeys during deep winter snow cover periods, when natural turkey foods are scarce. During the winter of 2015, 66% of turkey flocks were reported at backyard birdfeeders, and 65% were seen in that setting during the winter of 2017.

Two viruses have been present in the New Hampshire wild turkey population for four years: avian pox and LymphoProliferative Disease

Virus (LPDV). However, to date, turkey losses due to these diseases have been minimal. Monitoring their prevalence throughout the state, and their effects on the turkey population, is one of the important tasks for which the Department is responsible.

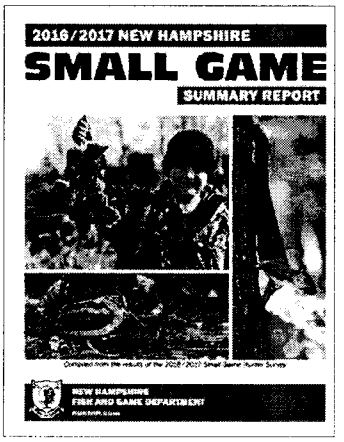
Small Game and Pheasants

Ring-necked pheasant

Small game hunting serves as an important gateway to recreational hunting. Over the past biennium, Fish and Game has continued to improve data collection, assess user interest and preferences, and quantify hunter observations and activities through several surveys.

Department staff and volunteers completed 42 ruffed grouse and 19 non-federal woodcock surveys during 2015 and 2016 to assess breeding activity and regional population densities. During the biennium, two Small Game Summary Reports were published, which present final data from the Small Game Hunter Survey, the Ruffed Grouse Wing and Tail Survey, and the breeding surveys for grouse and woodcock. Of the 187 small game surveys received during the 2015–2016 small game season, 64% of the hunter hours were logged by ruffed grouse hunters and 24% by those hunting woodcock. In 2016–2017, hunter effort remained at 64% for grouse and 22% for woodcock.

The Division's annual *Small Game Summary Report* serves as a valuable biological reference and an efficient means of disseminating project information to hunters, land managers, and other small game stakeholders. The report depicts detailed graphs by region and provides statewide long-term trends for small game information.



Fish and Game continues to collect sex and age information from harvested ruffed grouse. During the biennium, 290 wing and tail samples were submitted by hunters, and a short survey was filled out. The samples provide us with age and sex composition, distribution data, and a juvenile-to-adult female ratio to track annual productivity. As an incentive to participate in the annual small game surveys, Ruger Arms and the Ruffed Grouse Society have generously donated a firearm to a randomly selected participant in each of these important efforts.

Ring-necked pheasants are purchased with revenues derived from the sale of pheasant licenses. Of the $31 fee, $1 is retained by the

The annual* Small Game Summary Report *serves as a valuable biological reference and an efficient means of disseminating project information to hunters, land managers, and other small game stakeholders.

agent and $30 is available for the purchase of pheasants. A license fee increase implemented in 2016 raised the price from the previous $26 fee. The number of pheasant licenses sold in 2015 was 5,123, and 4,601 were sold in 2016. Due to safety concerns for Fish and Game staff and hunters and the integrity of the pheasant program, all pheasant stocking sites were closed to pheasant hunting until noon statewide on the in-season stocking days beginning in 2016. There was a loss of five stocking sites over the biennium.

Waterfowl Management

Fish and Game conducts waterfowl management and research in coordination with the U.S. Fish and Wildlife Service, the Atlantic Flyway Council, and the North American Waterfowl Management Plan to meet goals and objectives established for Atlantic Flyway waterfowl populations. Annual waterfowl population surveys in New Hampshire include winter surveys in coastal and inland areas and surveys of statewide breeding populations in the spring.

Hooded merganser

Waterfowl banding provides critical survival and migration information that is used for management and research decisions. During the biennium, Division biologists captured and leg-banded 1,143 resident Canada geese and 1,539 ducks throughout the state as part of flyway monitoring efforts. Fish and Game worked in collaboration with USDA Wildlife Services to sample a total of 951 ducks as part of a national effort to screen for highly pathogenic avian anfluenza (AI). In 2015 and 2016, liberal waterfowl seasons were offered as Atlantic Flyway duck and goose populations remained at high levels.

Waterfowl habitat management and protection continued during the biennium. The Great Bay Resource Protection Partnership received grants from both the North American Waterfowl Management Plan and the National Oceanic and Atmospheric Administration to protect habitat in the Great Bay area. These grants are being used to purchase critical waterfowl habitats on Great Bay and along major tributaries of the Bay. To date, the partnership has successfully protected nearly 10,000 acres of habitat. Statewide management activities included the annual maintenance of more than 300 wood duck nest boxes at Department Wildlife Management Areas.

Furbearers

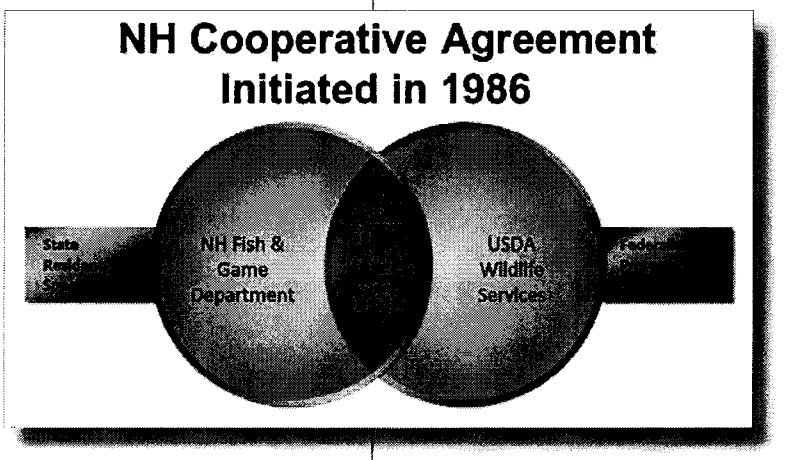
During the biennium, trapping continued to play a significant role in the management of New Hampshire's furbearers. During the 2015–2016 trapping season, 548 trapping licenses were sold, while 479 licenses were sold during 2016–2017. Beaver trappers played a particularly significant role in reducing or mitigating conflicts with humans by trapping 2,152 beaver during the 2015–2016 season.

Following an extensive study funded by the Department in cooperation with UNH, Fish and Game proposed the reopening of the state bobcat season. Public comment was sought and received at a public hearing held on February 1, 2016, in Concord and continued on February 2, 2016, in Lancaster. The proposal was subsequently forwarded for review by the Joint Legislative Committee on Administrative Rules (JLCAR) and heard April 1, 2016. JLCAR expressed concerns about the proposal, and it was withdrawn by the Department.

Beaver lodge. Trappers play a significant role in reducing or mitigating beaver/human conflicts.

Animal Damage Control

The Animal Damage Control Program is a cooperative program entering its 32nd year between N.H. Fish and Game and USDA Wildlife Services. It combines state and federal expertise, resources, and personnel to resolve wildlife conflicts for New Hampshire citizens and visitors. The program responded to more than 3,600 requests for assistance during this biennium. Two-thirds of these requests fell under state or federal management authority, and the remaining one-third were referred to the private sector for additional assistance.



Assistance was provided through recommendations, evaluations, educational materials, 327 site visits, formal assessments, loan of wildlife mitigation equipment, and the distribution of over 12,000 information leaflets. Since it was initiated in1986, the program has responded to over 46,600 requests for assistance.

Staff also participated in monitoring for disease concerns, such as chronic wasting disease, avian influenza, tularemia, and LPDV (turkey pox virus) by collecting biological samples for testing. Additionally, staff assisted with state and federal recovery efforts for threatened and endangered species, such as piping plovers and upland sandpipers.

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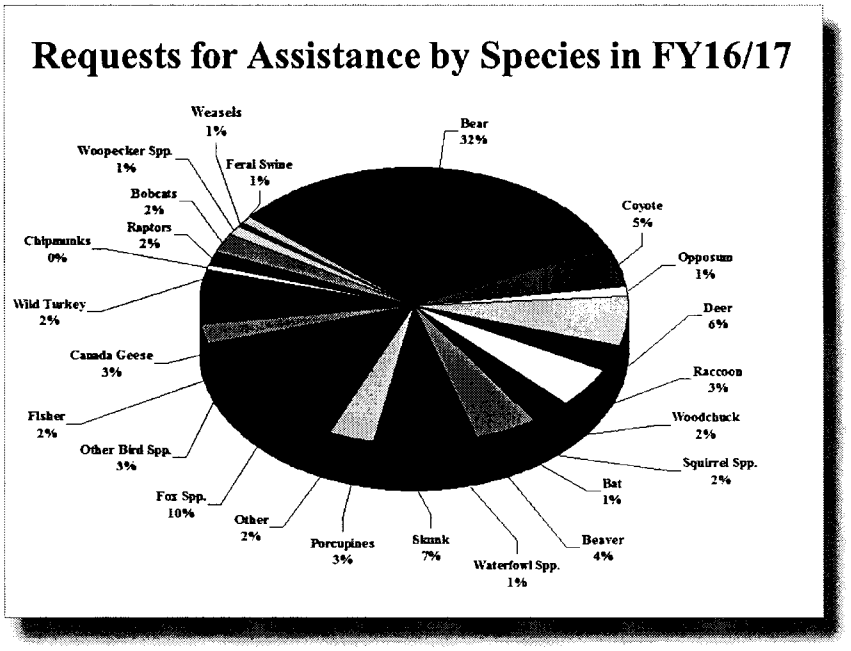
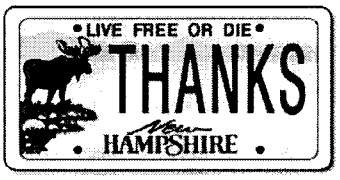
In recent years, the increased popularity of backyard poultry operations statewide has significantly expanded the need for technical and operational responses by the Animal Damage Control Program, particularly when bear damage is involved.



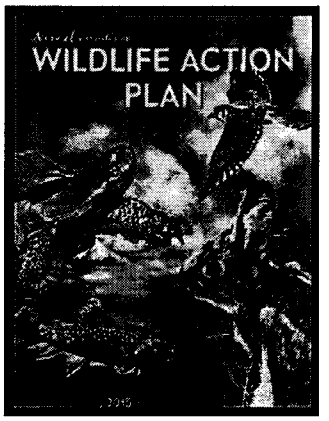
NONGAME AND ENDANGERED WILDLIFE

Funding for the Nongame Program comes from private donations that are matched by up to $50,000 of state funds. The Program qualified for the full state match during this biennium, thanks to the continued support of generous contributors. Additional funding comes in part from conservation license plate (moose plate) proceeds and federal grants. Partnerships with federal, state, and private conservation groups are critical to the Nongame Program's success as staff work on current projects and plan future initiatives. Working with these partners and volunteers, this once-small program has transformed into a full-fledged conservation operation, leading the way with a statewide coalition of partners dedicated to improving wildlife populations and habitat.



The *New Hampshire Wildlife Action Plan* was revised and submitted to the U.S. Fish and Wildlife Service on September 30, 2015. All New Hampshire species were considered for addition to the species of greatest conversation need (SGCN) list, with 169 species chosen

along with the habitats that support them. *New Hampshire's Wildlife Action Plan* sets priorities for conserving nongame and endangered wildlife in the State from 2016–2025. The comprehensive planning process involved the assessment of species and a series of public input meetings with stakeholders including participants from 79 New Hampshire communities. Over 300 threats to wildlife and their habitats were identified and ranked to help determine where New Hampshire's limited resources should be allocated. A total of 117 specific conservation actions were also identified and range from monitoring and research to habitat management and species and land protection.



New England Cottontails

New England cottontails (NECs) are listed as endangered in New Hampshire and are the only native cottontail species in the state. The primary causes for their decline are loss of shrubland and thicket habitats, combined with competition from non-native Eastern cottontails. New Hampshire is one of six states working together to restore NECs and their habitat throughout their range.

Staff from N.H. Fish and Game and UNH Cooperative Extension worked with the Natural Resource Conservation Service (NRCS) to engage landowners in efforts to provide cottontail habitat on private and municipal lands. To date there have been 1,106 acres managed in the state; this puts New Hampshire at 55% of its target goal of 2,000 acres of new habitat by 2030.

Part of the New Hampshire recovery plan for NECs includes augmenting the cottontail population by use of a captive breeding program. This breeding program began at Roger Williams Park Zoo in Rhode Island and has expanded to include the Queen's Zoo in New York. In 2016, a 15-acre facility was constructed at New Hampshire's Great Bay National Wildlife Refuge to further expand this breeding program. Over 150 rabbits have been born and weaned in captivity. Two new locations in New Hampshire were augmented in the recent biennium, although survival to reproduction was unsuccessful. Additional releases will continue to occur annually to populate newly created habitat.

Senator Jeanne Shaheen and Secretary of the Interior Sally Jewell assisted in releasing captive-reared New England cottontail rabbits in Dover in September 2015. The event celebrated the fact that the rare rabbit was no longer a candidate for federal endangered status.

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Cave Hibernating Bats

In New Hampshire, there are five species of bats that hibernate in caves or mines: the big brown bat, the eastern small-footed bat, the little brown bat, the northern long-eared bat, and the tricolored bat. These bat species have suffered significant declines as a result of White-Nose Syndrome (WNS). WNS is a fungal disease that affects bats during hibernation and was first identified in New Hampshire in 2009. As a result of these declines, New Hampshire listed the little brown bat, the tricolored bat, and the northern long-eared bat as endangered in 2017. During the biennium, N.H. Fish and Game worked to gain a better understanding of the effects of WNS and expanded our ability to address WNS by documenting the location and status of surviving bats and by identifying critical habitats.

Little brown bat in hand. As a result of recent declines, New Hampshire listed the little brown bat, the tricolored bat, and the Northern long-eared bat as endangered in 2017.

To gain a better understanding of the effects of WNS on its bat populations, N.H. Fish and Game participated in an important disease research study coordinated by Dr. Winifred Frick of Bat Conservation International. This study examined pathogen prevalence and load in 7 bat species at 167 hibernacula over a decade. One of the sites was in New Hampshire, and collection was performed by N.H. Fish and Game and partners over several years, including 2017. To date, the study has found that species responded differently to the pathogen, with the Northern long-eared bat, for example, showing no persistence in hibernacula with the pathogen.

To document the location and status of surviving bats, the Department surveyed both winter and summer habitats. During the winter of 2017, two World War II bunkers at Odiorne State Park in Rye were surveyed for hibernating bats. A total of 41 big brown bats were found; 5 of these bats were banded in 2011. Unfortunately, no other bat species have been documented at these bunkers since 2012.

During the summers of 2015 and 2016, the Department, in partnership with NH Audubon, the USFWS, and citizen scientists, monitored the status of bats in New Hampshire using acoustic driving surveys and emergence counts. Acoustic driving surveys were conducted in both 2015 (14 transects) and 2016 (19 transects), with thousands of bat calls recorded in each year, the majority of which were big brown/silver-haired bats, eastern red bats, or hoary bats. In 2015 and 2016, volunteers counted bats in dozens of colonies with colony sizes ranging from 2 to 144 bats.

In partnership with the N.H. Division of Forests and Lands and the White Mountain National Forest, ten state-owned properties were monitored from mid-May to early August 2016. Acoustic bat detectors were provided to state foresters to survey sites with proposed warm

season timber harvests. Preliminary results indicate that species of conservation concern (the little brown bat, the northern long eared, or the eastern small footed) were detected in eight out of the ten monitored state properties. Voluntary conservation measures will help protect bat pups on the eight properties.

Piping Plover Protection

Piping plovers are listed as state endangered in New Hampshire and federally threatened across their range in the United States. The Atlantic Coast population nests along sandy beaches from North Carolina to Canada. Because piping plovers nest on sandy beaches, which are intensely used by humans for recreation, they are a species in need of continual conservation efforts. In New Hampshire, the plovers nest on Hampton and Seabrook beaches, prompting annual monitoring by N.H. Fish and Game. Symbolic fencing is set up along the edges of the dunes to protect nesting areas, and predator exclosures are placed around each nest to protect the eggs from skunks, foxes, crows, and gulls.

Thanks to conservation measures, the number of nesting pairs and successful plover nests has been on the rise on New Hampshire beaches.

In recent years, the number of nesting pairs and successful nests has been on the rise. In 2015, a record 8 pairs nested and 12 chicks survived to fledge (ability to fly). That was followed up in 2016 by 7 nesting pairs and 15 chicks fledged. This success in recent years was preceded by a long stretch of time with fewer pairs that were less successful, partly attributed to spring storms and high predation rates. From 2002 to 2012, an average of fewer than five pairs nested each year, resulting in fewer than four chicks fledged annually.

Turtle Conservation

There are seven species of turtle native to New Hampshire, four of which are species of greatest conservation need. Biologists conducted research and initiated implementation of priority conservation actions for the four turtles of conservation concern: the Blanding's turtle, the spotted turtle, the wood turtle, and the eastern box turtle.

Blanding's turtles are listed as endangered in New Hampshire and are identified as one of the reptile species most in need of protection throughout the Northeast. Forty percent of the land area occupied by Blanding's turtles in the Northeast is located in New Hampshire. Blanding's turtles use a large diversity and density of wetland and upland habitats and as a result are considered an important "umbrella

species." By conserving Blanding's turtles, we will conserve a large number of other species, including the state-threatened spotted turtle. During 2011–2015, biologists led a regional effort to identify priority Blanding's turtle locations and develop a conservation plan for the species. The long-term goal is to maintain viable populations of Blanding's turtles throughout the entire Northeast, as well as simultaneously maintaining the many other species that use similar habitats. Twenty-six New Hampshire towns have been surveyed for Blanding's turtles, and a number of regionally important sites have been identified.

Blanding's turtles are considered one of the reptiles most in need of protection in the Northeast. New Hampshire contains 40% of the land area occupied by this endangered turtle.

During early 2016, N.H. Fish and Game and numerous regional partners submitted and were awarded a second nationally competitive State Wildlife Grant from the USFWS to implement the regional conservation plan developed under the previous grant. This implementation grant will focus on continued monitoring of high-priority sites, providing technical assistance to landowners and land managers, and enhancing nesting habitat. This work will continue into the next biennium.

N.H. Fish and Game and regional partners were recently awarded a nationally competitive State Wildlife Grant to conserve **wood turtles** and associated species of greatest conservation need. The grant objective is to identify, protect, manage, and enhance functional riparian and riverine habitats for these species in Maine, New Hampshire, Massachusetts, Connecticut, New Jersey, Pennsylvania, Maryland, Virginia, and adjacent areas through coordinated conservation actions outlined in state wildlife action plans across the region. Partners will cooperate to develop a conservation plan and long-term implementation framework for wood turtles and associated species, conduct standardized population monitoring, evaluate the success of conservation actions, and initiate implementation of the conservation plan by managing habitat to improve site quality and reduce mortality rates, while building relationships with landowners, land managers, and agency representatives at priority sites.

N.H. Fish and Game and regional partners were recently awarded a nationally competitive State Wildlife Grant to conserve wood turtles and associated species of greatest conservation need.

During 2015–2016, N.H. Fish and Game surveyed 31 sites in New Hampshire for a total of 151 individual surveys (1-km river search), and 235 individual wood turtles were captured. Nine of the 31 sites were identified as long-term (LT) sites because of high-quality habitat and high densities of turtles captured. All sites surveyed were in data-deficient areas. Data were entered into a centralized, secure database. Additional surveys were conducted by conservation partners. N.H. Fish and Game collected 194 blood and/or tissue samples from four major river basins (the Androscoggin, Connecticut, Merrimack, and Saco rivers) as part of monitoring efforts. Samples were sent to the University of Massachusetts Amherst, where they will be analyzed.

N.H. Fish and Game met with landowners and land managers at eight priority wood turtle sites. Meetings consisted of on-site visits, presentations, and email/phone communications. N.H. Fish and Game also presented at two workshops identifying management needs of wood turtles (NH Saving Special Places and NH Association of Conservation Commissions). Participants at workshops included town conservation commissions, land trusts, and other land managers. N.H. Fish and Game also met with N.H. Natural Resources Conservation Service (NRCS) and discussed actions to benefit wood turtles under NRCS-funded programs.

Four **eastern box turtles** were tracked with radiotelemetry at two sites in southern New Hampshire. As a result, biologists discovered the first known eastern box turtle population in New Hampshire. Biologists continue to track turtles to evaluate habitat use and movement patterns and work with landowners and land managers in an effort to benefit the species.

Timber Rattlesnake Monitoring

The goal of ongoing rattlesnake activities is to monitor our one remaining timber rattlesnake population and to implement conservation actions to maintain the species as a part of New Hampshire's native biological diversity. During the biennium, staff continued efforts to monitor rattlesnake numbers, health, and habitat use. Snakes were tracked with radio transmitters so that biologists could monitor their health, as well as study their movements, habitat use, and interactions with other snakes in the population. Radio transmitters were surgically implanted into snakes by a trained veterinarian. All individuals with transmitters were followed for the duration of the active season to hibernation.

The goal of ongoing rattlesnake activities is to monitor our one remaining timber rattlesnake population and to implement conservation actions to maintain the species as a part of New Hampshire's native biological diversity.

Biologists continued to participate in a regional effort to evaluate snakes for the presence of snake fungal disease. In 2014, New Hampshire received funds from the USFWS Grants Competitive Grant Program for a project entitled "Conserving Snake Species of Greatest Conservation Need Threatened by an Emerging Fungal Skin Disease." This project continued throughout the biennium. Snakes were captured and restrained in plastic snake tubes so the entire body could be evaluated for signs of the fungus. Although potential fungal skin disease scabs were observed on some snakes, no biopsies were collected because none met the size threshold for testing.

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Karner blue butterfly pair. An isolated population of these rare butterflies is being conserved through habitat restoration and captive-rearing. In 2016, the federal recovery goal of 3,000 adult butterflies during the second brood was met!

Karner Blue Butterfly Restoration

Recovery efforts for the Karner blue butterfly continue in a positive direction. Population estimates in 2016 indicate that the federal recovery goal of 3,000 adult butterflies during second brood was met! Over the next 5 years, the population needs to remain over 3,000 individuals to be considered fully restored. Frequent coordination continues, with federal, state, and local partners involved in the conservation effort at the Concord Airport to ensure safe operations of the facility for aircraft and to reduce adverse impacts to the recovering butterfly population. N.H. Fish and Game continues to improve habitat by planting additional acres of lupine under a nationally awarded Cooperative Recovery Initiative Grant provided by USFWS. Captive rearing at the facility on the Army National Guard property adjacent to the airport provides butterflies for release to accelerate the colonization of new habitat. Each year a reduced number of butterflies are released. Over time, biologists hope to stop the augmentation program and rely on a small number of translocated butterflies to maintain genetic health of the isolated population.

TAKING ACTION FOR WILDLIFE

Taking Action for Wildlife, a partnership of N.H. Fish and Game's Nongame and Endangered Wildlife Program, the University of New Hampshire Cooperative Extension, and the NH Association of Conservation Commissions, continues to help communities, conservation groups, and landowners use the *Wildlife Action Plan* to conserve wildlife and habitats in New Hampshire.

During the biennium, the program delivered over 47 workshops on conservation planning, community engagements, and species and habitat conservation to more than 1,500 people.

In the FY15–17 biennium, the program delivered over 47 workshops on conservation planning, community engagement, and species and habitat conservation and management to over 1,500 people. Topics included how to use the updated *New Hampshire Wildlife Action Plan*, how to do a natural resources inventory, managing invasive plants, managing habitat for species such as Blanding's turtles and black racers, and using modern communications tools to engage townspeople in the work of the local conservation commission.

In addition, team members met with six regional planning commissions to share the new *Wildlife Action Plan* data and discuss how the commissions currently use and could use the data. Six land trusts received assistance on conservation planning using *Wildlife Action Plan* data and shared with the team their work in implementing the plan. Thirteen towns received individual assistance on natural resource inventories, conservation planning, engaging townspeople on

town-owned lands, and managing habitat. The Taking Action for Wildlife Program has a website, ***takingactionforwildlife.org***, that contains many tools that towns, conservation organizations, and landowners can use to help wildlife through planning, land management, and community engagement. A newsletter is issued to over 200 people three times a year with examples of how local towns, individuals, and organizations are working to help wildlife.

ENVIRONMENTAL REVIEW

During the biennium, biologists in the Nongame and Endangered Wildlife Program reviewed and provided technical assistance on projects seeking State permits from the N.H. Department of Environmental Services (NHDES) and provided input in selecting mitigation projects. Reviews focused on potential impacts to endangered and threatened wildlife. Examples of project evaluations include database searches and extensive interactions with NHDES inspectors, developers, engineers, and environmental consultants. Site inspections by a biologist were often required in order to provide recommendations to minimize and mitigate impacts. Experts were consulted during project reviews, and other regulatory agencies were notified regarding Fish and Game's recommendations as appropriate.

During the biennium, a total of 6,956 projects were checked for the presence of rare species. Of these, 963 (14%) were flagged as having potential impacts to rare, threatened, or endangered wildlife and were reviewed by N.H. Fish and Game. After further review and consultation with applicants, most of these projects were determined to not likely have impacts to wildlife species of concern. A smaller subset of these projects involved extensive discussions in an effort to reduce impacts to threatened or endangered species. Project designs were sometimes altered to benefit endangered and threatened species as a result of consultation. In some cases, direct mortality to individual organisms was avoided by recommending pre-construction surveys (i.e., dwarf wedge mussels, brook floater mussels) or monitoring during construction (e.g., Blanding's and spotted turtles).

One N.H. Fish and Game biologist participated in the Aquatic Resource Mitigation (ARM) Program selection committee administered by NHDES. Review of proposals involved several meetings and several days of site evaluations each year of the biennium. The Aquatic Resource Mitigation Program contributed funds during the biennium toward the protection of important wildlife habitat

The Aquatic Resource Mitigation Program contributed funds during the biennium toward the protection of important wildlife habitat including vernal pools, beaver flowages, forested swamps, exemplary natural communities, streams and stream buffers, miles of lake and river shoreline, and tidal, floodplain, and riverine restoration.

including vernal pools, beaver flowages, forested swamps, exemplary natural communities, streams and stream buffers, miles of lake and river shoreline, and tidal, floodplain, and riverine restoration. Funds also contributed to dam removals reconnecting miles of main-stem riverine habitat, replacement of several failing culverts with larger box structures at priority locations for fish and reptiles that are species of greatest conservation need, aquatic restoration projects involving wood replenishment in depleted systems benefitting cold water fish, and a stormwater runoff improvement project. Funded projects included protection of areas ranked in *New Hampshire's Wildlife Action Plan* as Highest Ranked Habitat in New Hamphsire or Highest Ranked Habitat in Biological Region (see NHDES website for details of ARM Program, ***www.des.nh.gov***).

N.H. Fish and Game biologists also participated in the review and selection of appropriate mitigation actions associated with impacted regulated natural resources.

HABITAT MANAGEMENT PROGRAMS

Fish and Game's technical assistance, UNH Cooperative Extension, and upland habitat programs continue to conserve and restore New Hampshire's wildlife habitats. These programs receive much-needed funding from the Wildlife Habitat Account, with revenue from a $2.50 fee paid by all who purchase a hunting license.

Bohemian waxwing. Biologists still meet with landowners and provide them with recommendations on how to enhance habitat, but they now provide assistance on everything from moose to marten and woodcock to warblers.

Technical Assistance

The Small Grants Program, funded by the Wildlife Habitat Account, provides grants to reimburse landowners for the costs of approved habitat restoration projects, such as releasing apple trees, mowing grasslands, restoring old fields, enhancing shrub-lands and young forests, and other improvements. As a condition of receiving grant funds, landowners agree to leave their land open for public hunting, fishing, and wildlife watching. Since its inception in 2000, 870 grants totaling $885,624 have been awarded, resulting in improved habitat on over 6,000 acres and nearly 400,000 acres being kept open for public wildlife-based recreation. Over the last biennium, regional biologists reviewed and administered Small Grants Program funds for 20 habitat improvement projects on private lands in 13 towns. The grant administrator also advertised the program through Facebook postings, articles in UNH Cooperative Extension newsletters, and a presentation to the annual meeting of the Granite State Division of the Society of American Foresters.

N.H. Fish and Game has been providing technical assistance to landowners since 1947, when biologist Tudor Richards offered advice

to U.S. Forest Service foresters on how to enhance deer wintering areas (DWAs) in the White Mountain National Forest. Biologist Carl Strong, Richard's successor, extended Fish and Game's reach to both public and private lands in the North Country, influencing management on tens of thousands of acres of land over a 30-year career. This work carries on today, but the scope has broadened considerably. Biologists still meet with landowners and provide them with recommendations on how to enhance habitat, but from an early emphasis on DWAs, biologists now provide assistance on everything from moose to marten and woodcock to warblers. The technical assistance project has reviewed hundreds of cutting proposals impacting more than one million acres of industrial forestland in the State over the years. During the last biennium, regional biologists reviewed a total of 125 timber harvests on 30 large ownerships in northern New Hampshire covering a total of 25,119 acres.

The demand for technical assistance on wildlife issues has grown substantially. In addition to providing assistance to both public and private landowners on particular forest or habitat management projects, Fish and Game biologists are also often called upon to participate in the development of management plans for federal, state, and private landowners. Management plans outline recommended actions on properties over a 10–20 year timeframe, including forest and habitat management and recreation management. Over the biennium, Fish and Game biologists assisted with the management plan development for the 40,000-acre Nash Stream State Forest, in addition to several private lands on which Fish and Game holds conservation easements.

Fish and Game biologists assisted with the management plan development for the 40,000-acre Nash Stream State Forest in addition to several private lands on which Fish and Game holds conservation easements.

"Brontosaurus" at work at Cascade Marsh. Such mowing was completed on 26 acres to regenerate shrubs and young trees to benefit American woodcock, ruffed grouse, and several species of songbirds.

State Lands Management

The Fish and Game Department owns 90 Wildlife Management Areas (WMAs) encompassing more than 54,000 acres. The primary purpose of these lands is to protect and improve habitat for wildlife in order to maintain the State's native biodiversity. We meet this mission by assessing the habitats on our WMAs and restoring or improving them using a variety of techniques, including brush mowing, timber harvesting, water level management, and shrub planting.

During the last biennium, timber harvests on two WMAs were completed to enhance food and cover for wildlife, generating nearly $26,000 in revenue. Harvests on seven other WMAs were planned and are ready for implementation but were delayed primarily due to

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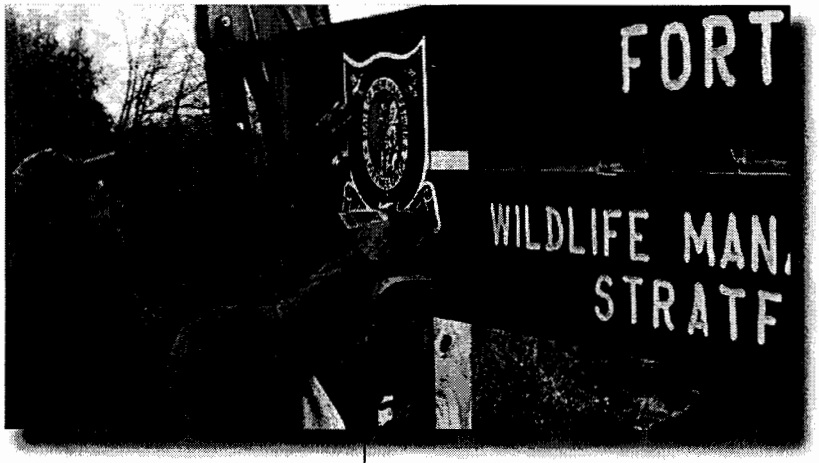

Over the biennium, 51 Wildlife Management Area signs were installed to facilitate public use of these lands. All WMAs now have signs.

poor winter ground conditions. Additionally, fields were mowed on 12 state properties to maintain 140 acres for wild turkey, deer, grassland birds, and other wildlife. This is less than usual, as there were several equipment breakdowns. Staff also completed brontosaurus mowing on 26 acres to regenerate shrubs and young trees to benefit American woodcock, ruffed grouse, and several species of songbirds. An additional 130 acres of habitat improvements on several state lands was also completed, including plans for prescribed burning, enhancing field edges, restoring grassland habitat, and other projects.

Hunting, fishing, trapping, and wildlife watching are rich traditions and integral parts of New Hampshire's culture and heritage. N.H. Fish and Game supports, encourages, preserves, and manages these traditional uses on its lands. Over the biennium, 51 WMA signs were built and installed, and three parking areas were built to facilitate public use of WMAs. All WMAs now have signs. Future efforts will focus on sign maintenance. Additionally, 24 miles of boundary lines were maintained on one WMA, and gates were installed at five WMAs to control illegal access and inappropriate activities such as dumping and partying.

Ellis Hatch Wildlife Management Area. The Department continues to work with many partners to conserve important fish and wildlife habitat and provide public access to those resources.

The Department pursues opportunities to add lands containing significant wildlife habitats to our inventory of WMAs and easement lands, primarily using federal funds but also through donations and other grant sources. During the biennium, one new WMA was created in Londonderry, land was added to an existing WMA, and several easements were acquired totaling 2,210 acres. The Wildlife Division continues to work with partners, such as the Great Bay Resource Protection Partnership, the Land and Community Heritage Investment Program, and the State Conservation Committee, to conserve important fish and wildlife habitat and provide public access to those resources. Over the biennium, Department staff reviewed 55 land conservation grant applications, with a total funding request of $3,623,914. Nearly 12,000 acres of land were conserved through these grant programs.

UNH Cooperative Extension

Through a partnership between Fish and Game and UNH Cooperative Extension, the Extension Wildlife Specialist provides education to natural resource professionals, private landowners, and community decision makers. Cooperative Extension offers wildlife workshops and technical assistance to communities, conservation groups, and landowners. Over the biennium, 45 workshops were held that reached 1,197 landowners, natural resource professionals, and community decision makers, while 38 municipal and private landowners were provided technical assistance on habitat management issues on more than 5,000 acres of land.

The Coverts Project trains volunteers during an annual 3.5-day workshop to promote wildlife habitat conservation and forest stewardship. N.H. Fish and Game is the lead sponsor of the program, with additional support from the N.H. Division of Forests and Lands, the U.S. Fish and Wildlife Service State Wildlife Grants Program, and the Quality Deer Management Association.

Over the biennium, 45 new N.H. Coverts Project volunteers were trained. They join another 381 Coverts volunteers active in the state, who together contributed over 48,600 hours of service on behalf of wildlife habitat in their communities. Coverts volunteers are involved in a number of activities, including leading field walks or giving presentations on wildlife-related issues, habitat management planning on lands they own or manage, and helping communities and land trusts identify and conserve lands important to wildlife.

Coverts volunteers learn about habitat management from a wildlife expert in the field during a 2016 workshop.

❖ CONCLUSION

WORKING FOR WILDLIFE, WORKING FOR YOU

We hope you have enjoyed learning about the variety of work that goes on behind the scenes at the New Hampshire Fish and Game Department. It takes people with many different skills to protect our state's natural resources and provide the public with opportunities to use and appreciate them. These dedicated professionals are committed to conserving New Hampshire's natural advantage – the wildlife and wild places that contribute so much to the state's economy and quality of life.

Learn more about the Department at ***www.wildnh.com.***

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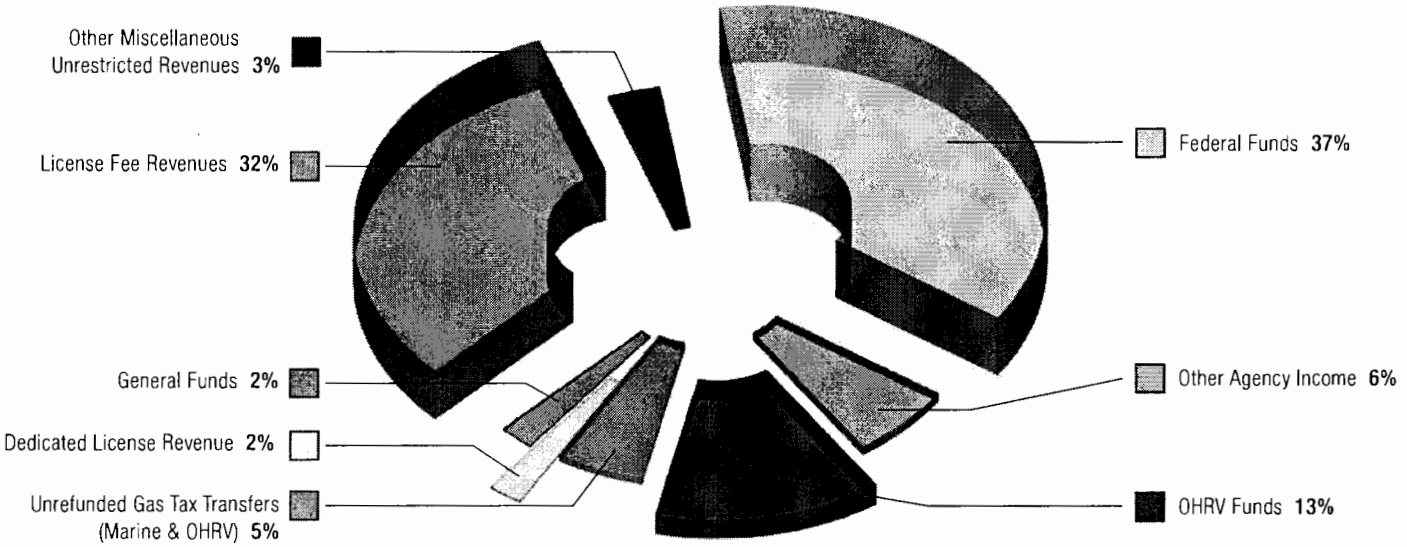
A COMPLEX FUNDING PICTURE

The New Hampshire Fish and Game Department uses revenue from fishing and hunting license fees, federal funds, state general funds, and other sources to accomplish its broad mission to serve the people and wildlife of New Hampshire.

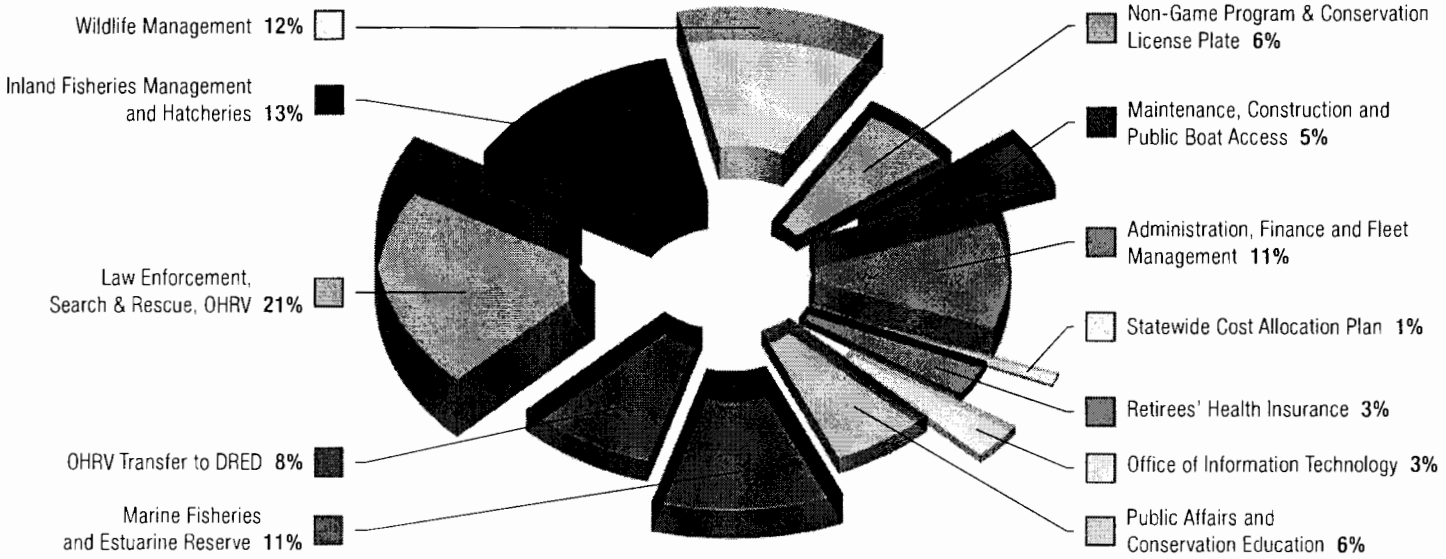
WHERE THE MONEY COMES FROM...

TOTAL REVENUES (FY 2016): $27,940,029



WHERE THE MONEY GOES...

TOTAL EXPENDITURES (FY 2016): $27,940,029



License Fee Revenue: Includes all resident and nonresident fishing and hunting licenses received for Fiscal Year 2016.

Other Miscellaneous Unrestricted Revenues: Includes court and license agent fines and penalties, sales of surplus property, miscellaneous sales and interest earnings. Actual receipts of miscellaneous unrestricted revenues were $759,725.

Total Expenditures of the Fish and Game fund for Fiscal Year 2016 per year-end Monthly Statement of Appropriation by Office is $28,702,614. Included within this amount is $762,585 of inter-fund expenditure reimbursements. Net result of expenditures for fiscal year 2016 is $27,940,029.

Other Agency Income: $5 Boat surcharge - $322,712; $1 Search and Rescue surcharge on boat, OHRV and snowmobile registrations - $234,583; Nongame donations and program income - $161,816; Conservation License Plate Funds - $348,610; Wildlife Heritage Foundation Grant Funds - $73,314; Miscellaneous donations and income - $406,273.

Federal Funds: Sport Fish Restoration Act (Dingell-Johnson and the Wallop-Breaux Amendment) for inland fisheries management, boat access and aquatic resources education - $3,729,899; Wildlife Restoration Act (Pittman-Robertson) for wildlife management and hunter education - $3,481,351; State Wildlife Grants – $717,996; National Oceanic and Atmospheric Administration for marine fisheries management, the Great Bay National Estuarine Research Reserve program and marine law enforcement - $1,148,998; other miscellaneous federal revenues - $1,375,860.