

# Bureau of Fisheries

## 2015-2016 Annual Report

Great Lakes Fisheries Management  
Inland Fisheries Management  
Public Use and Outreach  
Fish Culture

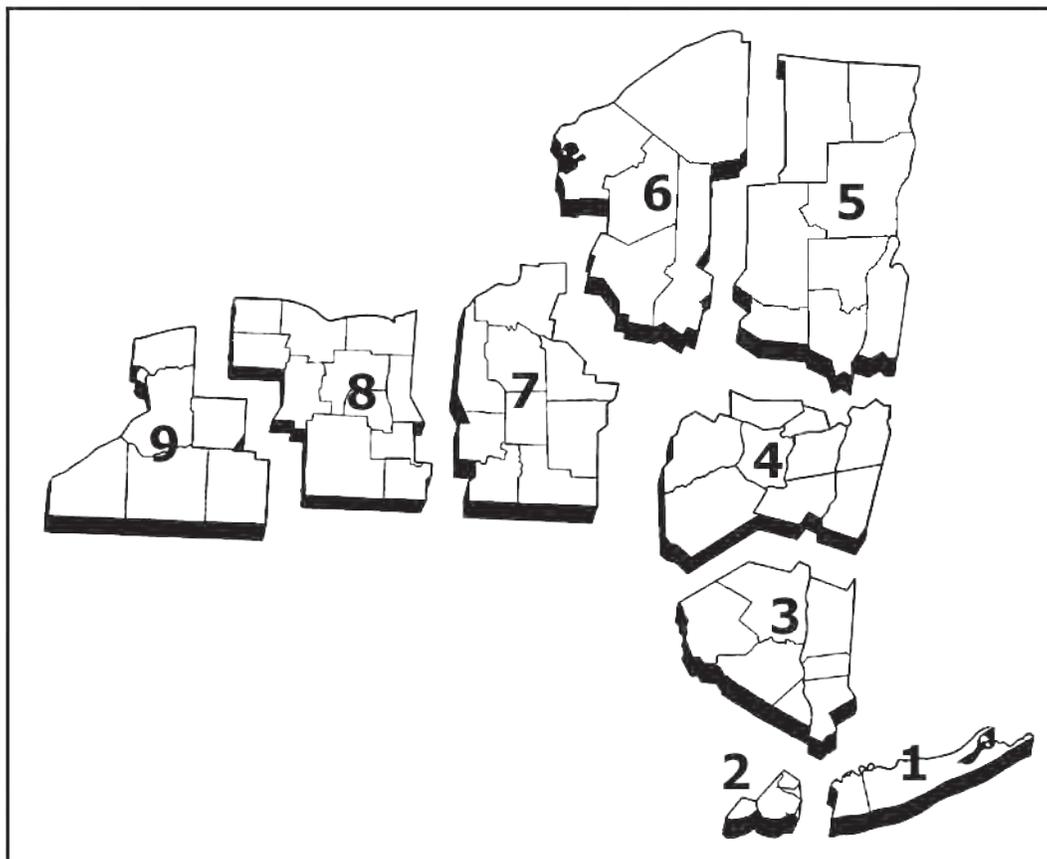


Department of  
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Conservation

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# 2015-16 Annual Report

New York State Department of Environmental Conservation  
Bureau of Fisheries  
*Philip J. Hulbert, Chief*

## Introduction

The New York State Department of Environmental Conservation, Division of Fish and Wildlife, Bureau of Fisheries delivers a diverse program and annually conducts a wide array of activities to accomplish its mission:

***Conserve and enhance New York State’s abundant and diverse populations of freshwater fishes while providing the public with quality recreational angling opportunities.***

This report provides a summary of significant activities completed during Fiscal Year 2015-2016 by Bureau of Fisheries staff located in 9 regional offices, 2 research stations, 12 fish hatcheries, 1 fish disease laboratory, as well as the DEC Central Office in Albany. Activities are categorized according to the major objectives of the Division of Fish and Wildlife.

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# 2015-16 Annual Report

## Common Acronyms, Definitions and Units of Measure

### Common Acronyms

- AIS:** Aquatic invasive species
- CPUE or CUE:** catch per unit of effort - such as the number of fish caught per hour or fish caught per net.
- OMNR:** Ontario Ministry of Natural Resources
- PFR:** Public Fishing Rights
- USGS:** United States Geological Survey
- USFWS:** United States Fish and Wildlife Service
- YOY:** young of year - typically a fish that is captured by sampling in the same year it was hatched.

### Definitions

- Bottom trawl:** a sampling technique where a net is dragged along the bottom of a water body behind a boat.
- Creel Survey:** a survey where anglers are interviewed about their catch.
- Conductivity:** the ability of water to conduct an electric current. Waters of low conductivity are low in dissolved minerals.
- CROTS:** Catch-Rate-Oriented-Trout-Stocking - the model used by the Bureau of Fisheries to develop stocking rates for trout streams that takes into account biological measures of the stream, stream carrying capacity, angling pressure and wild trout abundance.
- Dreissenid Mussels:** a family of exotic mussels including zebra and quagga mussels.
- Electrofishing:** use of electricity to temporarily stun fish, allowing them to be captured.
- Environmental Justice Area:** sections of New York State with high percentages of low income or minority households.
- Extirpated species:** a species that no longer exists in the wild in a certain country or area.
- Fyke Net:** a trap style net that is composed of a number of hoops surrounded by netting and usually has netted wings and a leader that direct fish into the net.
- Gill Net:** a vertical wall of netting that is typically set in a straight line and entangles fish as they try to swim through it.
- Hazing** - to discourage an animal from frequenting a waterbody.
- HUC:** Hydrologic Unit Code. A categorization of watershed boundaries from the basin to the sub (small) watershed level (HUC12).
- Hydroacoustic survey:** use of sound and reflected echoes from schools of fish or plants to estimate abundance or distribution.
- Lentic:** associated with still water such as a lake or pond.
- Littoral:** the nearshore shallow water area of a waterbody.
- Lift** - difference in license renewals between the control and treatment group.
- Mesotrophic** - an intermediate stage of lake productivity lying between oligotrophic (nutrient poor) and eutrophic (nutrient rich).

**Oligotrophic** - a water body that is low in nutrients.

**Pen reared:** raising hatchery salmon or trout in a pen to "imprint" those fish to the pen rearing site. In theory, this will cause the fish to return to the pen rearing site to spawn.

**PIT Tag-** an implanted tag that is used when an individual fish needs to be identified. The tag contains a series of numbers and letters that can be obtained by passing a "PIT Tag reader" over the implanted tag.

**PSD:** proportional stock density - describes the portion of a fish population or sample that exceeds a size threshold. For example, the PSD for largemouth bass is the proportion of 12 inch and larger bass in the sample of largemouth bass that were stock size (8 inches and larger).

**Reclamation:** the removal of non-native fish and restoration with native fish. Traditionally done to restore pond brook trout populations.

**RSD 15:** relative stock density greater than 15 inches - describes the proportion of fish larger than 15 inches in a population or sample of all fish exceeding a size threshold. For example, the RSD 15 for largemouth bass is the proportion of 15 inch and larger bass in a the sample of all largemouth bass that were stock size (8 inches and larger).

**Seining:** using a seine net - a net with weight on the bottom and floats on the top that is dragged through the water to capture fish.

**Trap Net:** similar to a fyke net but usually larger and rectangular in shape.

**VHS/VHSv:** Viral hemorrhagic septicemia - a serious disease of fish (not humans) recently introduced into New York State.

**Year Class:** a group of fish spawned during the same year.

### Units of Measure

- °C:** degrees Celsius - to convert from c to fahrenheit (f) =  $(f - 32) \times 5/9$ .
- ha:** hectare - a metric system unit of area; 1 hectare = 2.47 acres.
- hr:** hour.
- in:** inch.
- kg:** kilogram - a metric system unit of weight; 1 kg = 2.2 pounds.
- km:** kilometer - a metric system unit of length; 1 km = 0.62 miles or 3,281 feet.
- m:** meter - a metric system unit of length; 1 meter = 3.28 feet.
- mm:** millimeter - a metric system unit of length; 100 mm = 3.94 inches.
- ppm/ppb:** part per million/parts per billion - describes the density of a substance in another solid, liquid or gas (typically water, air).
- µg/l:** micrograms per liter; equivalent to ppb,



**SPECIES CONSERVATION AND MANAGEMENT**

**Nassau County Black Bass Regulation Assessment**

South Pond, Smith Pond, and Mullener Pond, all within the Town of Hempstead, were surveyed in 2015. This was part of a continuing effort to assess the impact of the catch and release only regulation for black bass in Nassau County implemented in 1998.

South Pond was previously surveyed in 1992, 1995, 1998, 1999, and 2002. The most abundant fish caught per hour of electrofishing were bluegill and pumpkinseed (Figure 1). Proportional Stock Densities (PSDs) of 35 for pumpkinseed and 39 for the bluegill indicate an improved size structure for both populations. The catch rate and size structure (PSD 42) of chain pickerel also improved. Catch rates for yellow perch have increased since 1998, however, fish over 8 inches in length remain scarce. This prompted implementation of a special 8 inch minimum size and 15 fish daily limit regulation for yellow perch in 2004. Unfortunately, the quality of the yellow perch population has not improved. The largemouth bass population has also not improved since the 1998 regulation change, as reflected by the low numbers of quality and preferred fish captured (Figure 2). Other species caught were American eel, common carp, and brown bullhead.

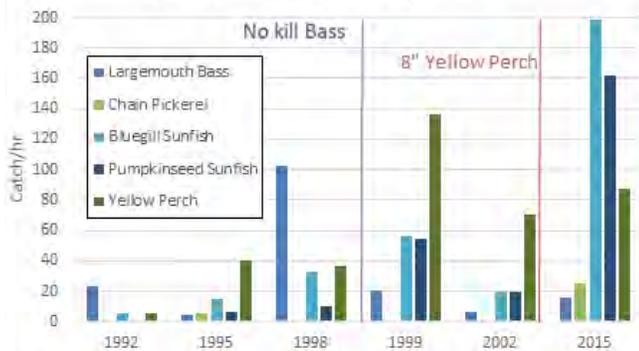


Figure 1 Overall electrofishing catch per hour of species from South Pond before and after largemouth bass and yellow perch regulation

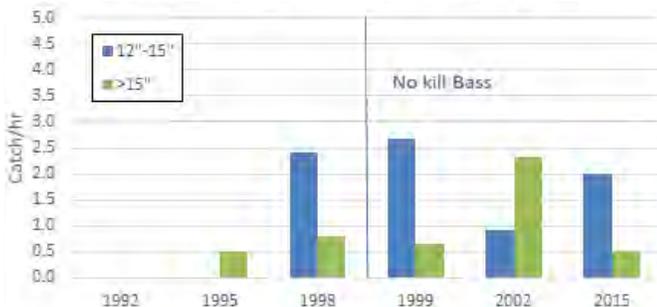


Figure 2. Electrofishing catch rates of quality (12"-15") and preferred (>15") largemouth bass from South Pond 1992-2015.

Smith Pond was previously surveyed in 1994. As in the previous survey, pumpkinseed were the most abundant species, with a catch rate of 141 fish per hour. The quality of the pumpkinseed population remained poor, with only one fish measuring over 6 inches. Ameri-

can eel were the second most abundant fish collected with 28 in this survey and 61 in 1994. A total of 22 largemouth bass were caught, 18 of which were under eight inches, and four of which were greater than 15 inches. In 1994, 42 largemouth bass were caught (20 bass < 8 in, 13 bass 8-12 in, and nine bass 12-15 in). Only 11 bluegill were caught, with only one fish over 6 inches. Goldfish, common carp, golden shiner, and brown bullhead were also collected.

Mullener Pond was surveyed in 1938 and 1995 with seine nets. In 1938 the pond contained largemouth bass, American eel, chain pickerel, brown bullhead, and pirate perch. It was dredged in 1993 and restocked with largemouth bass, bluegill and pumpkinseed in 1994. In the 1995 survey, juveniles of all of these species were caught. A boat electrofishing survey was conducted in 2015. Pumpkinseed were the most abundant species caught (438 fish per hour), followed by largemouth bass (66 fish per hour), bluegill (74 fish per hour), golden shiner (45 fish per hour), two brown bullhead, and one goldfish. Forty-one American eel were also observed. PSDs were calculated for both sunfish species and showed well balanced populations (pumpkinseed PSD 39 and bluegill PSD 21). The PSD for largemouth bass was 94, indicating that the population is unbalanced with a high ratio of quality size bass. However, good numbers of sub-stock size bass were caught indicating good recruitment. Overall the pond has a good predator to prey ratio and anglers report being satisfied.

**Brook Trout Surveys**

Ten waters were surveyed as part of the Eastern Brook Trout Joint Venture initiative. Surveys targeted locations where brook trout had been documented historically. Species composition was recorded as well as stream characteristics and water quality parameters to determine habitat conditions.



Of the ten streams surveyed, brook trout were documented in four. The Patchogue River maintains a naturally reproducing population and has not been stocked by the NYSDEC since 1955. Beaver Brook also maintains a naturally reproducing population which is the result of a restoration effort that began in the late 1990's. Massapequa Creek currently receives brook trout annually as part of an ongoing restoration effort. The creek shows good year round survival but has yet to show natural reproduction. Finally, Rattlesnake Creek is a tributary to the Connetquot River where NY State Parks stocks brook trout. Efforts to document additional locations for brook trout will continue.

**Peconic Lake Fish Community Assessment**

A fish community assessment was conducted on Peconic Lake (Forge Pond) in 2014 and 2015. The purpose of the survey was twofold. First to document rare fishes in the system and second to develop a baseline fisheries status prior to the opening of the expanded Forge Pond Fishing Access Site in June of 2015.

Peconic Lake is the largest impoundment on the Peconic River on eastern Long Island. Both banded sunfish and swamp darter are known to exist only in the Peconic River system in New York State. While they have been documented from the river and ponds near Peconic Lake, they had not previously been documented from Peconic Lake. This survey documented the presence of Swamp Darter in Peconic Lake, but no banded sunfish were noted. Tessellated Darter, which are widely distributed on Long Island, were also noted in the lake for the first time.

This survey, when compared with electrofishing surveys from 1998, 2006 and 2008, showed that Peconic Lake maintains a consistently robust bass population with very consistent catch rates between

years and PSD and RSD values within or very near the desired range in all years (Figure 3). Bluegill and Pumpkinseed populations are also consistently strong with good catch rates and favorable PSD and RSD values in all years. White perch reappeared in the 2014 and 2015 surveys in low numbers. They were abundant in Peconic Lake in the 1980's, but had not been collected since 1997.

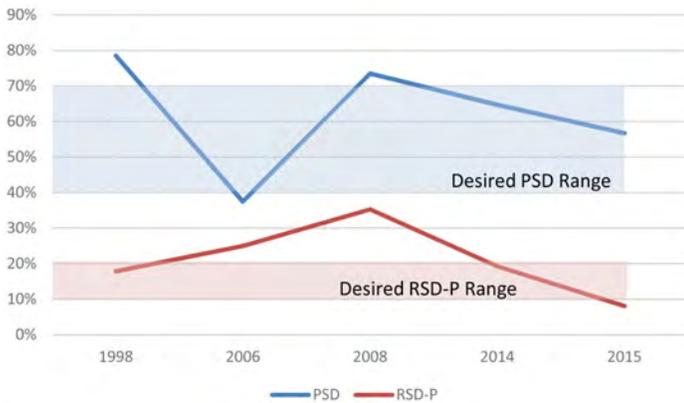


Figure 3. Peconic Lake largemouth bass PSD & RSD-15 values.

### Fresh Pond Fishery Survey

Located on the far eastern end of the Island and nearly a mile off the nearest paved road, Fresh Pond in Hither Hills State Park is probably the most remote pond on Long Island. It is unfortunately also the only pond on Long Island with a health advisory for eating largemouth bass due to mercury contamination. The Fisheries Unit completed a survey of Fresh Pond in September 2015 to get the bass retested for mercury and to monitor the status of the fishery in comparison to previous surveys in 1994, 1996 and 2005.

Fresh Pond has good populations of largemouth bass, bluegill, pumpkinseed, yellow perch and black crappie. Brown bullhead and banded killifish are also present. In 2015, the catch rates for quality and preferred size fish for the five most common species were the highest of any of the surveys since 1994. Largemouth bass and black crappie had favorable PSD and RSD P values, while the PSD and RSD P values for the other three species were low. It is notable that five black crappie over 12 inches were caught. This is the first time that black crappie this large have been caught in Fresh Pond. The collection for mercury analysis was completed and results are pending.



### HABITAT CONSERVATION

#### Aquatic invasive species control

The Region 1 Fisheries Unit remained active in monitoring and coordinating the control of aquatic invasive species in the Region. The Fisheries Unit hired the first ever Access Site Steward on Long Island to inform users of the Forge Pond Fishing Access Site of the new aquatic invasive species regulations and how to prevent the spread of aquatic invasive species. Between mid-May and mid-August the access site steward conducted over 500 interviews of site users.

In cooperation with the Peconic Estuary Program, the Fisheries Unit coordinated four hand pull operations of Ludwigia on the Peconic River. Using jon boats, canoes and kayaks Fisheries Staff and volunteers were able to remove over 25 cubic yards of Ludwigia from the Peconic River. The Fisheries Unit also continues to monitor and control water chestnut in the Massapequa Reservoir and Creek system, removing over 10 cubic yards in 2015.

Hydrilla is also a species of concern on Long Island. Since it was first discovered on Long Island in 2008, Hydrilla has been found in nine water bodies in Nassau and Suffolk Counties. Of these, only one, Lake Ronkonkoma, has a public boat launch. In most of the others boating is prohibited or severely restricted. Annual monitoring, shows that Hydrilla density in Lake Ronkonkoma has decreased since a peak in 2012 (Figure 4). Hydrilla is limited to less than 20% coverage of the lake because most of the lake is too deep for it.

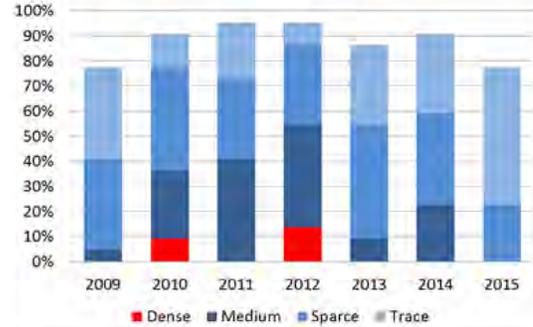


Figure 4. Lake Ronkonkoma Hydrilla density 2009-15.

## PUBLIC SERVICE AND CONSTITUENT SUPPORT

### I FISH NY Long Island

In 2015, the Region 1 I FISH NY Program conducted 41% more fishing clinics/events than the previous year (41 clinics vs. 29 clinics), despite a cancellation of 8 clinics in 2015 vs. 1 clinic in 2014. Total attendance at these events remained about the same at just over 11,000 people in both years. This was primarily due to the lower attendance at the spring and fall Fishing Festivals that had windy weather that dampened enthusiasm for outdoor activities.

I FISH NY significantly increased the effort in the "Train-the-Trainer" clinics for summer camps. The program conducted 7 trainings, instructing 108 counselors, compared to just 3 trainings reaching 22 counselors the previous summer. This effort appears to have paid off, with trainers reaching 3,139 campers in 2015 vs. 1,382 campers the previous year; an increase of approximately 125%!

Additionally, though the I FISH NY Program visited and conducted its in-class program at the same number of schools as in 2014, more kids were reached (351 vs. 241). This is believed to be due to teachers combining their classes (ie. all 4th graders rather than one or two of the grade's classes). This resulted in nearly double the number of school fishing excursions. As a result, 348 kids participated in 7 fishing trips during 2015 vs. 105 kids in 4 programs the year before, an increase of 231%.



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## SPECIES CONSERVATION AND MANAGEMENT

### Central Park Fisheries Surveys

Boat electrofishing surveys were conducted on the 100th Street Pool and Harlem Meer in Central Park on April 15th and April 23rd, respectively. The Harlem Meer survey was the fifth electrofishing survey of this water body since 2008. Largemouth bass PSD and RSD were 51 and 8, respectively. These indices indicate a balanced population, and are an improvement over indices from previous surveys. Previous surveys indicated that largemouth bass were slow growing and size structures were skewed towards smaller fish, which suggested that these fish were stunted. Current findings indicate a reversal of this condition which should translate into larger sizes of bass in the population. The largemouth bass catch rate for all sizes (110/hr) was less than half the rate of the last two surveys but high relative to statewide bass catch rates. The catch rate for bass over eight inches was relatively high compared to that found in other surveys of the Meer (106/hour) as was that for bass over twelve inches (54/hour) and fifteen inches (9/hour), indicating a shift in size distribution to larger sized bass.

The 100th Street Pool electrofishing survey was the first of this water body. Species collected consisted of largemouth bass, bluegill, pumpkinseed and yellow perch. Despite the relatively small size of this water (1.7 acres), largemouth bass up to 16 inches were collected. The entire pond shoreline was covered in one 18-minute electrofishing run. Catch rates were 130/hour for all sizes of bass, 63/hour for bass eight inches and greater, 27/hour for bass twelve inches and over, and 7/hour for bass fifteen inches and over. Bluegills were generally larger than those sampled from other New York City (NYC) waterbodies. Typically, bluegills over 200 mm in length are rare except in the Harlem Meer and Prospect Park Lake. The maximum length of bluegills caught in the 100th Street Pool survey was 230 mm and catch rate of bluegills 200 mm and greater was 9/hour, the highest catch rate for these fish in any NYC water body surveyed. Yellow perch sizes were also significantly greater than for other NYC waters, with lengths approaching twelve inches. The catch rate of yellow perch over 10 inches was 60/hour, which is over ten times greater than for any other NYC waterbody.



### Central Park Creel Surveys

Creel surveys of the ten-acre Harlem Meer and 18-acre Central Park Lake, both in Central Park, Manhattan, were conducted from May 5th – November 6th, 2015. Having both water bodies situated in Central Park allowed the creel agent to travel to each twice daily using a bicycle. These were the first DEC Fisheries creel surveys of Central Park waters and were implemented to estimate angling effort and to determine catch rates, target species and angler demographics. Angler comments were also solicited. Prior to the survey, angling effort was anticipated to be higher at the Meer than at the Lake and this was found to be the case. Overall effort at the Meer (20,792 angler hours) was 13 times greater than at the Lake (1,627 angler hours). July was the month in which the greater amount of effort occurred for the Harlem Meer, whereas the greatest monthly effort at the Lake occurred in May and declined each month until October. The overall effort estimated for the Harlem Meer surpassed that estimated for Prospect Park Lake during a 2014 creel survey (16,761 angler hours). The greatest number of comments concerned removal of litter and excess algae; the second highest comment concerned stocking fish.

## PUBLIC SERVICE AND CONSTITUENT SUPPORT

### NYC I FISH NY Program

#### School Fishing Program

R2 Fisheries staff brought approximately 1,520 students fishing at NYC water bodies, providing in-class lessons to all prior to fishing field trips.

#### Kissena Lake Free Fishing Weekend Collaborative Fishing Clinic

On June 27th of New York's free fishing weekend, Region 2 Fisheries/I FISH NY staff coordinated a fishing clinic at Kissena Lake, Queens in collaboration with a variety of groups both within and outside of DEC. Groups who provided fishing-related information included DEC Law Enforcement, DEC Education, NYC Parks and Recreation Urban Park Rangers and the NYS Department of Health who sent a Chinese-speaking intern to reach out to the predominantly Chinese-American population attending the Kissena Lake clinic. DEC Fisheries and Urban Park Ranger staff provided free fishing to participants as did the Bayside Anglers, a local angling group who holds an annual fishing clinic at Kissena Lake during free fishing weekend.



#### Other Fishing Outreach and Training

- Prospect Park Earth Day, Brooklyn: April 17th, 2015
- MS Society Fishing Clinics, Brooklyn: June 24th and September 16th, 2015
- National Park Service Summer fishing clinics, Staten Island: July 1st, 8th and 15th, 2015
- City of Water Day, Governor's Island, NY: July 18th, 2015
- Coastal Cleanup Day with Bronx River Alliance, Bronx: September 19th, 2015
- PS 2 after-school program, Brooklyn: September 23rd, 2015
- Little Red Lighthouse Festival, NY: September 26th, 2015
- Bayswater State Park fishing clinic: October 4th, 2015
- Innovative Senior Center fishing clinic, Queens: October 21st, 2015
- Prospect Park family nights (train the trainer programs): July 30th and August 5th, 2015

**NYC Urban Park Rangers Train the Trainer Program**

On March 17, Region 2 Fisheries staff performed a fishing training program at the Prospect Park Audubon Center, Brooklyn, for approximately 20 New York City Urban Park Rangers. The rangers host fishing groups of their own, primarily using bamboo poles. The training was designed to increase their general knowledge and help them expand into casting and using reels. Topics covered included fish identification, invasive species, fishing regulations and licenses, types of bait, rigging rods and terminal tackle, knots, fishing techniques, gear repair and maintenance, and practical skills such as unhooking turtles. The training ended with a fishing session where the rangers could practice their skills. Feedback from the training was overwhelmingly positive and we will be working closely with this group throughout the fishing season.



represented at past FOG meetings such as the Randall’s Island Park Alliance, Central Park Conservancy, Hudson River Park Trust and the Prospect Park Audubon Center; and newcomers such as the Chinese American Planning Council, Region 1 Fisheries and the Brooklyn Fishing Club. Topics of discussion included the development of a map of freshwater and saltwater NYC fishing sites and ideas for fish consumption advisory outreach across different languages and cultures. Steve Heins from the Division of Marine Resources presented a Powerpoint on the impacts of climate change on northeast coast fisheries and its impact on interstate fisheries management. The afternoon session, led by DEC Region 2 Education staff, had the approximately 25 attendees break up into small groups to devise fishing-outreach lesson plans to a variety of different audiences in various settings. Evaluation forms completed by attendees indicated the meeting was valuable to those attending. Suggestions by attendees will be incorporated into the next meeting.

**Invasive Species Regulation Enforcement**

On January 8th, 2016 Region 2 DLE ECOs Bastedo and Buffa and Lieutenant Bobseine requested species identification of live weather loaches seized from the Fulton Fish Market in Bronx, NY. These fish closely resembled *Misgurnus anguillicaudatus*, prohibited under New York State Invasive Species Regulation 6 NYCRR Part 575.3, and were reported by the seller to be of the non-regulated weather loach species *Misgurnus mizolepis*. Region 2 fisheries staff counted rays of dorsal, anal and pectoral fins and made a preliminary identification of *M. mizolepis*. The fish were then brought to Frank Greco at the NY Aquarium for confirmation of this identification. Mr. Greco was able to use fin ray counts and body morphology to confirm these fish were, indeed, *M. mizolepis* and therefore not regulated under NYS’s invasive species regulations.

**Online Access to Saltwater Fishing Access Sites**

In collaboration with staff from the Bureau of Marine Resources, Region 2 Fisheries has produced a Google Earth map of all the saltwater fishing sites in the New York City area. Each site listed on the map contains information on location, mass transit access, and the amenities at the site. Each link also comes with a reminder to register for the free Recreational Marine Fishing Registry. Eventually, information about additional amenities will be added to the map and one day the map may be expanded to cover fishing sites throughout the marine district. The map can be found at <http://www.dec.ny.gov/pubs/42978.html>.

**New York National Boat Show**

In January, regional fisheries staff supported Central Office fisheries staff at the New York Boat Show at the Jacob Javits Center in New York City. The show is a popular destination for New York boating enthusiasts and sportsmen. DEC’s booth, which focused on preventing the spread of aquatic invasive species, was highly relevant to show visitors. In addition to invasive species outreach, over the course of the 4 day event, staff answered questions about fishing licenses, fishing regulations, and other topics, or exchanged tips with attendees. Hundreds of people stopped by the booth to collect literature, check out a juvenile zebra mussel, pick up an I FISH NY sticker, or pose with a life-sized portrait cutout of a trophy striper. Fisheries staff also provided fishing-related activities for the many children in attendance. It was a great opportunity to interact with sportsmen from all over the region.

**NYC Fishing Outreach Group Meeting**

On March 31, Region 2 Fisheries hosted the third annual Fisheries Outreach Group (FOG) meeting for the New York City area. Representatives from 14 different organizations attended, including those



**Weather Loach**

**2015-16 Region 2 Fisheries Staff**

- |                 |                                     |
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| Steven Wong     | Environmental Educator Assistant    |
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| Jennifer Lee    | Seasonal Fish & Wildlife Technician |
| Ann Murphy      | Seasonal Fish & Wildlife Technician |



## SPECIES CONSERVATION & MANAGEMENT

### Hudson R. Largemouth Bass & Walleye Telemetry Study

From 2013 to 2015, fisheries staff surgically implanted Lotek radio only tags into 68 largemouth bass and Lotek CART tags (dual mode tags) into 41 walleye from the tidal Hudson River. Both our Hudson River Fisheries Unit and Inland Fisheries Unit were able to successfully track these fish and plan to continue efforts through June 2016.



Largemouth bass >15" were collected and tagged from the Rondout and Esopus Creeks (overwintering areas) in April and May and released at the site of capture. Results to date show 72% of tagged bass were located in creek mouths during the spawning period. These same creek mouths are also

overwintering areas, illustrating their importance as bass habitat during both seasons. A high percentage of tagged bass used Water Chestnut beds during the summer months. This known invasive plant may be providing the most available submergent aquatic vegetation (SAV) habitat option in the main river during this time. If greater SAV diversity develops in the future, bass habitat preferences for other vegetation types may start to become evident. Most tagged bass moved to the main river during the summer months, travelling an average of 2.9 miles. This suggests a relatively small home range considering all the available river miles.

Walleye > 18" were collected and tagged from the Rondout, Esopus and Catskill Creeks (spawning tributaries) in March and April and released at the site of capture. A high percentage of walleye left these tributaries once spawning was complete. Some walleye traveled as far as 20 miles on the main river from their spawning location. The majority of the tagged walleye returned to the spawning tributaries in March.

In February 2016, two posters were presented at the New York State American Fisheries Society annual meeting. The first poster included the surgical implantation techniques used for this study and the second focused on largemouth bass movements and habitat preferences.



### Ashokan Reservoir (Ulster County) Spring Electrofishing

As a follow-up to 2013 and 2015 surveys noting low rainbow trout and walleye numbers and an increasing white perch population in Ashokan Reservoir, select areas of the reservoir were electrofished in late March and early April 2016. The goal of the survey was to look for spawning concentrations of rainbow trout and walleye in both the west and east basins. A similar survey was conducted in the early 1990's, and this survey was intended to provide comparison data.

The Ashokan Reservoir east basin sample was conducted along the downstream length of the low-head Dividing Weir which was not spilling water at the time of the survey. Two walleye, along with 33 rainbow trout, were collected, which was a considerable improvement over the 2015 rainbow trout collection.

The Ashokan Reservoir west basin sample was conducted in mid-April 2016 at the mouth of the Esopus Creek, the major tributary. Thirteen rainbow trout were collected or observed, with 22 walleye (all male) collected.

These results seem to indicate that the rainbow trout population in this system is rebounding from the low catch/effort documented during the 2013 gillnet survey and 2015 electrofishing survey.

### Lake Stahahe (Orange County) Fish Community Survey



Region 3 fisheries staff conducted a fish community survey of Lake Stahahe in Orange County. This was done to assess the fish assemblage post introduction of triploid grass carp and Brazilian Elodea. Lake Stahahe provides a typical warm water fishery for many users accessing Harriman State Park. During the 2015 surveys, 11 different species of fish were collected. Since 1936, six other fisheries surveys were conducted on Stahahe and a total of 15 fish species were documented. During the 2015 surveys, five of these species were not documented while triploid grass carp was the only new fish species sampled. At 20% of the total catch, and a proportional stock density (PSD) of 82, black crappie appear to be providing anglers with a quality fishery. Largemouth bass abundance appears to be fair, but no fish were collected over 17 inches. Bluegill were very abundant and accounted for 37% of the total catch, but were relatively small with a PSD of 17. Three triploid grass carp were collected and appeared to be in good health. Submerged aquatic vegetation is still abundant in the lake, but Brazilian Elodea is no longer present according to NYS Parks vegetation surveys.

### Rio and Swinging Bridge Reservoir (Sullivan County) Walleye Assessments

Confirming findings from 2014 surveys, no young of the year walleye were sampled from either Rio or Swinging Bridge Reservoirs during October 2015 electrofishing surveys. At Rio Reservoir, in 2.65 hours of electrofishing only two older walleye up to age 4+ were captured. At Swinging Bridge, only one adult walleye was captured estimated to be 4+ in age. No white perch were collected during the survey.

Rio Reservoir was stocked with walleye advanced fingerlings in late summer 2012 as the first stocking in a five-year experimental stocking program, with the objective of establishing a population there. Swinging Bridge Reservoir had a native walleye population which appears to be declining following the introduction of alewife and more recently, white perch.

### Swinging Bridge Reservoir Creel Survey

In response to concerns about a declining walleye fishery, a full open water season (May 1 – November 30) creel survey was conducted on Swinging Bridge Reservoir. Additionally, a cold winter with corre-

sponding good ice conditions allowed for the winter ice fishery to exist, and an additional two months of creel survey data were collected during February and March 2015 when ice conditions were safe.

The final report contains the following summary of this creel survey:

- The open water (boat) fishery accounted for 1.5 times the fishing pressure noted for shore anglers.
- Total open-water season fishing pressure was estimated to be approximately 25 hours/acre. The estimated total winter (February – March 2015) ice fishing season pressure was 0.9 hr/ac, or approximately 3.5% of the estimated total open water season.
- A total of 1566 fish were observed by or reported to the creel agent, with the highest proportion (45%) being comprised of black bass (primarily smallmouth), followed by black crappie (26%). Walleye only comprised 5% of the open water season catch. Total ice fishing catch (all species) was estimated to be only 2.2% of the total open season catch.
- Overall, 58% of the anglers interviewed were shore anglers, and of these 28% were targeting common carp. This was the second most fished for shore angling category, following those shore anglers fishing for “anything” (60%).
- The length frequency distribution of angler-caught walleye indicates that young-of-year or age 1 walleye were likely present in the catch, which are both year classes which failed to show up in 2013 and 2014 fall boat electrofishing surveys. It appears, therefore, that some walleye recruitment is occurring despite the presence of alewife and white perch.

**Crystal Lake (Sullivan County) Brook Trout Survey**

Crystal Lake is a 35 acre lake located within the Crystal Lake Wild Forest Unit. This lake was reclaimed twice (1975 and 1987), followed by introduction of wild brook trout fingerlings. In both cases, an excellent wild brook trout fishery resulted, which continued until warmwater species became reestablished via bait bucket or other intentional reintroduction by the public. Since 1987, alewife, brown bullhead, golden shiner, and pumpkinseed have been documented in Crystal Lake, in addition to brook trout. Brook trout catch/effort in fall trap net sets has declined throughout the period, stabilizing at lower numbers than those documented in the period right after the 1987 reclamation.

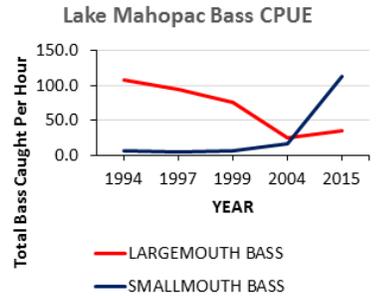
Three trap nets were set overnight in mid-October 2015 to document the current condition of the brook trout population, and to determine if the condition of the population had deteriorated enough to consider another reclamation. Forty five brook trout were collected, representing ages 1+ through 3+. Additionally, brown bullhead, golden shiner, and pumpkinseed were collected.

These results indicate a somewhat improved brook trout collection when compared to results from other recent trap net surveys. The results from this survey, along with some other inherent difficulties in conducting a reclamation here (including the easy accessibility of this lake to the public and what seems to be the inevitable likelihood of future non-brook trout reintroductions) has caused us to postpone any reclamation plans for the near future.

**Lake Mahopac Electrofishing Survey**

A boat electrofishing survey was conducted on May 18, 2015 to assess the status of the fish population following the introduction of triploid grass carp in 1994. The permitted 1994 introduction of triploid grass carp by the Lake Mahopac Park District resulted in a near elimination of all submerged aquatic vegetation, and the lake’s ecology underwent some major changes. When the lake was heavily vegetated, largemouth bass were the dominant gamefish. After a period of nearly 20 years with very little vegetation, the dominant gamefish has

shifted to smallmouth bass. In 2015, 113 smallmouth bass were collected per hour compared to 35.4 largemouth bass per hour. Now that the triploid grass carp numbers are much reduced, the aquatic vegetation has rebounded, and the Park District would like to stock additional triploid grass carp.



**HABITAT CONSERVATION**

**Tappan Zee Bridge Replacement**

Region 3 fisheries staff continued to provide onsite monitoring during 2015 and 2016 for the \$3.9 billion Tappan Zee Bridge Replacement Project. Fisheries staff conducted approximately one to three visits per week overseeing various construction activities. Activities with the greatest potential for impact to aquatic habitat



and organisms were monitored closely. Some of these activities included concrete placement of the new road deck, dredging, and armoring. As of Spring 2016, concrete has been poured forming all columns and piers on the approach spans of the bridge. Only the main span columns have yet to be completed, but are currently about 300 feet tall and will have a final height of just over 400 feet. Fisheries staff also participated in monthly progress meetings held between DEC, Thruway Authority and the contractors, Tappan Zee Constructors.

**PUBLIC SERVICE AND CONSTITUENT SUPPORT**

**I FISH NY Efforts**

The Region 3 I FISH NY program conducted 15 fishing festivals reaching 1,079 people, 9 fishing clinics reaching 556 people (these events ranged from working with people with disabilities, adult day care centers and inner city youth programs) and four summer camp programs reaching 160 campers. A total of 30 programs were delivered with over 1,668 people going fishing or receiving fishing information this year from the Region 3 I FISH NY Program.

Staff also conducted 7 “train the trainer” programs teaching 33 camp counselors how to fish and providing the camps with fishing equipment, so they can teach the kids during camp.

**World Hunting and Fishing Exposition**

Region 3 Fisheries staff set up and staffed a booth at the World Hunting and Fishing Exposition at Rockland Community College in Rockland County. From February 27 through March 2, 2015, thousands of anglers attended the show. People who visited the booth were able to talk fishing with our staff, receive literature, and view mounts of our state record fish. The kids were entertained by playing Velcro-fishing.

**2015-16 Region 3 Fisheries Staff**

- |                 |                                     |
|-----------------|-------------------------------------|
| Mike Flaherty   | Biologist 2 (Aquatic)               |
| Bob Angyal      | Biologist 1 (Aquatic)               |
| Ryan Coulter    | Biologist 1 (Aquatic)               |
| Michael DiSarno | Biologist 1 Trainee (Aquatic)       |
| Linda Wysocki   | Fish & Wildlife Technician 3        |
| Tim McNamara    | Fish & Wildlife Technician 2        |
| Amanda Tong     | Seasonal Fish & Wildlife Technician |
| Indie Bach      | Seasonal Fish & Wildlife Technician |



## SPECIES CONSERVATION & MANAGEMENT

### Mohawk River Fishery Assessment

NYSDEC and USGS completed a second spring daytime boat electrofishing survey as part of a three-year cooperative study (2014-2016) to assess fish communities in the NYS Barge Canal. The survey took place in sections of the Canal from Crescent Lake in Waterford upriver to Rome, NY between Canal Locks E6—E21 (about 123 river miles). The Canal is made up of permanent (reservoir) and seasonal (drawdown/riverine) sections along this stretch. A total of 39 species were documented in 2015 via daytime boat electrofishing comprising 3,927 individuals. Popular river gamefish such as smallmouth bass and walleye were more abundant in the reservoir-type habitats, while smaller fishes (e.g. river minnows/shiners) were more common in the seasonal (riverine) habitats. Catch rates ranged from 47-132 fish/hr in the seasonally impounded section and 90 - 342 fish/hr in the permanently impounded sections. The winter drawdowns in the seasonally impounded sections appear to reduce the relative abundance of fish and may adversely affect angling opportunities, but may also create more natural riverine conditions that favor some native fishes. No round goby were found in the survey but are expected to spread east from Oneida Lake soon.



### Lake Taghkanic Fishery Survey

In June 2015, a survey using trap nets, gill nets, seines and boat electrofishing was conducted on Lake Taghkanic. The purpose of this survey was to assess the status of the lake's fishery, determine if cisco still inhabit the lake, and investigate a recent report that Alewife have invaded the lake. The lake is located entirely within Lake Taghkanic State Park and was last sampled in 2006. A total of 570 fish and 9 species were captured, including American eel, alewife, chain pickerel, brown bullhead, banded killifish, rock bass, pumpkinseed, bluegill, and largemouth bass. Bluegill dominated the catch (53%), but only about 7% were more than 6.5 inches long. Chain pickerel and largemouth bass were the next two most abundant species comprising almost 13% and 10% of the catch, respectively. Only about 12% of the chain pickerel were of legal size (15 inches) and just over 25% of the largemouth bass were of legal size (12 inches). Alewife were confirmed in the lake with the capture of 56 yearling fish. Brown bullhead comprised just over 8% of the catch and most (>83%) were more than 10 inches long. Adult American Eel seemed to prefer nearshore vegetation and were a surprise catch in the survey. The absence of cisco from both the 2015 and 2006 surveys and the lack of current reports of the presence of the cisco would indicate that they are no longer present. The forage base in Lake Taghkanic appears to be adequate for establishing a walleye fishery, thus a 5-year stocking policy to establish walleye in the lake will commence in 2017.

### East Sidney Reservoir Fishery Survey

A fall boat electrofishing survey of East Sidney Reservoir was conducted to assess the status of the fish community and determine survival and growth of walleye fingerlings that were stocked in June as part of a new 5 year stocking program (2015-2019). A total of 535 fish representing 15 species were captured, including brown trout, common carp, golden shiner, emerald shiner, common shiner, spottail shiner, bluntnose minnow, white sucker, brown bullhead, rock bass, pumpkinseed, bluegill, smallmouth bass, largemouth bass, and yellow perch. The catch was predominantly forage and immature fishes; no stocked walleye were found. Common shiner were the most abundant species (33% of the catch), followed by white sucker (18%) and smallmouth bass (11%). All brown trout were found near the inlet area and were large (>15 inches) adults; one appeared to be a stocked fish (worn fins). Very few pumpkinseed or rock bass captured were of desirable size ( $\geq 6.5$  inches). The same was true for the yellow perch, with only 9% of the catch  $\geq 8$  inches. Brown bullhead were uncommon but most (86%) were >10 inches. Black bass were the most common gamefish collected, but only 7% of the largemouth bass and 20% of the smallmouth bass were of legal size (12 inches). There were, however, some large fish captured, with four smallmouth bass and seven largemouth bass over 15 inches. The largest smallmouth bass was just over 18 inches and the largest largemouth bass was over 19 inches.

### Otsego Lake Lake Whitefish Assessment

In support of the management goal of reestablishing the predator-prey relationship between lake trout and lake whitefish in Otsego lake, extensive habitat assessment and biological survey work was completed during the 2015 field season. As the locally adapted native prey for lake trout, lake whitefish have the potential to provide a more reliable food resource for lake trout than non-native alewives. However, the spawning population of lake whitefish is currently very low and little is known about where successful reproduction is happening in the lake. To gain this knowledge, gill nets and trap nets were deployed from late November through early December of 2015. Electrofishing was also conducted. Students, faculty and staff from SUNY Cobleskill, SUNY Oneonta and Hartwick College provided extensive assistance in the operation of this gear. These efforts documented that most of the Lake Whitefish were spawning south of Sunken Island in the upper northwest corner of the lake. On two different nights in early December 2015, a total of 18 adult ripe Lake Whitefish were captured measuring 521-629 mm total length and weighing 1.7-2.9 kg. These fish were later aged at 6-13 y using scale samples. To assess the potential for hatchery propagation of lake whitefish at SUNY Cobleskill, three female and 10 male lake whitefish were field spawned to produce approximately 71,000 eggs. Success rates varied for egg fertilization ~80%, eye-up ~60%, and hatching ~35%, respectively. While this experiment is not expected to yield fry for stocking in 2016 it has provided an opportunity for SUNY Cobleskill to gain experience in rearing this species. In addition to the above described work, summer snorkeling surveys were also completed to assess salmonid spawning habitat.

### Pepacton Reservoir Brown Trout Survey



To assess the status of the brown trout population in Pepacton Reservoir a gill net survey was completed in June 2015. Standardized methods were used to allow comparison with earlier surveys. Gill net gangs were set overnight at 11 standardized locations throughout the reservoir at

depths ranging from the surface to 120 ft. A total of 46 brown trout (7.5-27.1 in), 1 rainbow trout (20.8 in), 3 alewife (3.8-4.5 in), 11 rainbow smelt (7.5-9.6 in), 1 longnose sucker (10.9 in), 153 white sucker (8.2-19.9 in), 8 brown bullhead (8.9-16.1 in), 13 channel catfish (5.6-15.4 in), 2 margined madtom (4.7-5.2 in), 130 rock bass (3.9-7.6 in), 3 smallmouth bass (16.5-17.3 in), and 78 yellow perch (3.9-11.2 in) were collected. Brown trout ranged in weights from 0.13 to 7.1 lbs. In the eleven previous surveys conducted between 1969 and 2008, the number of brown trout collected ranged from 32 to 66 for an average of 48.8 fish/survey. The 2015 catch of 46 brown trout was unchanged from the longterm average which indicates that brown trout abundance in Pepacton Reservoir is stable. A total of 21 brown trout were sent to USFWS in Lamar, Pa for fish health testing. Ten brown trout and 11 smallmouth bass were sent to the NYSDEC Hale Creek for mercury testing. Results from the fish health testing showed no known fish health issues in the brown trout. Mercury testing has not yet been completed, but currently there is a recommended health advisory of 1 meal/month for brown trout over 24" and smallmouth bass over 15".

**Thompsons Lake Fishery Assessment**

Thompsons Lake is a 128 acre waterbody in Albany County that supports both warmwater and coldwater sportfish. To assess the status of the coldwater and warmwater fishery a gill net survey was conducted on 8/3/15. A total of 116 fish were collected including 18 rainbow trout (12.6-18.7 in), 1 brown trout (12 in), 7 chain pickerel (12-22 in), 43 golden shiner (6.5-10.3 in), 7 white sucker (9.3-20.7 in), 1 rock bass (6.5 in), 3 pumpkinseed (8-8.8 in), 8 bluegill (8.3- 9.7 in), 2 largemouth bass (12-13 in) and 26 yellow perch (8.1-12.7 in). Of the nineteen trout collected, 3 rainbow trout were considered holdover fish measuring 17.6, 17.7 and 18.7 in. The average condition factor for rainbow trout was 0.99, 1.07 for brown trout which is equivalent to the typical wild brown trout found in a stream. As a result of this survey it was recommended that the existing stocking policy for Thompsons Lake be continued at 1,700 rainbow trout and 500 brown trout yearlings annually. A total of 13 rainbow trout were sent to the NYSDEC Hale Creek field station for mercury testing but have not yet been analyzed. Currently there is no specific health advisory for consuming fish from Thompsons Lake.

**Glass Lake Fishery Assessment**

Glass Lake is a 126 acre pond in Rensselaer County that supports both warmwater and coldwater sportfish. To assess the status of the coldwater fishery, a gill net survey was conducted on 8/27/15. A total of 199 fish were collected including 5 rainbow trout (12.4-13.7 in), 5 chain pickerel (16.6-23.5 in), 25 golden shiner (8-12.1 in), 26 brown bullhead (9-13.4 in), 3 pumpkinseed (7.8-8.3 in), 91 bluegill (6.6-9 in), 2 largemouth bass (9.1-9.2 in), 3 black crappie (9.4-11.3) and 38 yellow perch (8.5-12.1 in). The catch of 5 rainbow trout was surprisingly low and there is no explanation why so few trout were collected. The existing stocking policy for Glass Lake will continue at 1,800 rainbow trout yearlings annually, but will be reevaluated again in the near future to determine if a different salmonid species would be better suited for the lake. A total of 5 rainbow trout and 10 yellow perch were sent to the NYSDEC Hale Creek field station for mercury testing but have not yet been analyzed. Currently there is no specific health advisory for consuming fish from Glass Lake.

**PUBLIC SERVICE AND CONSTITUENT SUPPORT**

**Improvements to Goodyear Lake Access**

Major upgrades to the hand carry boat access site on Goodyear Lake were completed, all of which are universally accessible. Upgrades included a ½ mile long trail through the woods with resting benches, a fishing platform which cantilevers over the water, a picnic area with a fireplace and picnic tables, and improved traffic flow and increased parking. New interpretive signage, a canoe/kayak launch, porta-potty

as well as a path for pulling ice fishing sleds onto the lake are also provided.



**Region 4 Outreach Events**

Region 4 Fisheries collaborated with fellow DEC staff from other offices and various state and local agencies/groups on six public outreach events on four different inland waters during 2015-2016. Three of the six events were registered free



fishing clinics focusing on introducing newcomers to the sport of angling, while the other three events were more relevant to showcasing the resident fishes from their respective waterbodies.

Starting in June, staff teamed up with other Fisheries staff from Albany to conduct a free fishing day for families at Pepacton Reservoir sponsored by the NYCDEP. Relatively low attendance and a slow bite that day resulted in only a few rock and smallmouth bass being caught. The NYCDEP continues to expand recreational opportunities for the public on their large reservoirs by promoting more of these free fishing days. In July, staff teamed up with OPRHP staff at Glimmerglass SP for the semi-annual Otsego Lake Appreciation Day in cooperation with other local groups like OCCA (Otsego Co. Conservation Association) to educate the public on local aquatic resources. A trap net and angling produced various lake fishes including one nice walleye and largemouth bass that were fan favorites in our aquaria display at the beach house. We had a moderate turnout for the event and many folks learned much about the lake ecology and other topics discussed.

In August, staff teamed up with the Hudson River Estuary Society, NYS Museum, and region 5 fisheries staff for the Great Hudson River Estuary fish count. For this event, a variety of Hudson/Mohawk River fishes were collected by electrofishing and displayed along the beach in tubs for the public to observe and touch as desired. An adult bowfin captured off Peebles Island just before the event began was particularly noteworthy as it was the first of this species to be recorded in the upper Hudson River. Later in October, staff participated in the Day in the Life of the Hudson River Estuary by night shocking the local rivers to collect and hold adult fishes for local grade school science classes the next day. The range of this effort was extended to cover five sites along the Hudson River from Peebles Island in Cohoes down to the Corning Preserve in Albany. Live adult river fishes were provided to each site including some nice striped bass, walleye, channel catfish and shorthead redhorse. This riverside event has become the most well-attended and successful youth outreach programs in the watershed.

**2015-16 Region 4 Fisheries Staff**

Chris VanMaaren	Biologist 2 (Aquatic)
Scott Wells	Biologist 1 (Aquatic)
Tim Pokorny	Biologist 1 (Aquatic) Trainee 2
Dennis Wischman	Fish and Wildlife Technician 3
Jackie Trosterud	Seasonal Clerk 1
Anthony Bruno	Seasonal Fish & Wildlife Technician



## SPECIES CONSERVATION & MANAGEMENT

### Brook Trout Pond Surveys

#### *Snag Lake*

Snag Lake was last surveyed in 1976 and brook trout stocking was stopped due to the level of acidity found in that survey. In 2008 an experimental brook trout stocking policy was started using the Horn Lake strain of brook trout. This most recent survey revealed that there is currently a brook trout monoculture in Snag Lake. Twenty-six brook trout were captured from several year classes, and nine of the fish captured were unmarked, indicating that some natural reproduction is taking place. The stocking rate was reduced from 600 fingerlings to 300 fall fingerlings to improve the current mediocre growth.



#### *Falls Pond*

Stocking of Falls Pond was suspended in 1985 following a survey that collected only one brook trout and showed unsuitable acidity levels. Improvements in pH of certain Adirondack waters, including waters in this area, prompted a fisheries and chemistry survey of this pond. The fish survey resulted in a catch of 32 brook trout from this 37 acre water. The brook trout ranged from 14"-16", and the water chemistry showed marked improvement from historical levels. In addition, there is a natural fish barrier that protects this water from the upstream migration of non-native fish species. A new stocking policy was initiated for 2016 calling for 1,000 Horn Lake strain brook trout fingerlings to be stocked each year.

#### *Round and Twin Ponds*



Round Pond is a 17 acre pond in the Dix Mountain Wilderness, and Twin Pond is a small, connected pond immediately downstream of Round Pond. The ponds were successfully reclaimed in 2005 and later stocked with Windfall strain brook trout. The stocking rate

was reduced after a 2010 survey in which 47% of the captured brook trout were wild. The current survey was the first since that stocking rate reduction, and wild fish now comprise 78% of captured fish. While the number of brook trout captured dropped from the last survey, the catch rate is still twice the pre-reclamation value and the average length is unchanged from 2010. Unfortunately, a few blacknose dace were also caught, the first species other than brook trout to be documented since the reclamation. Because of the extent of natural reproduction, the pond no longer requires stocking. The pond will be revisited in a few years to assess the brook trout population and the pond's species composition.

#### *Bloody Pond*

Bloody Pond is a 5 acre pond in the Hammond Pond Wild Forest that was reclaimed in 1992 and subsequently stocked with brook trout. The reclamation successfully eradicated golden shiner, creek chub, brown bullhead and yellow perch and the pond remains a brook trout monoculture. The pond appears to be in good shape and the current survey produced the highest average length since the reclamation. Bloody Pond will continue to be managed as a brook trout water, and no adjustment to its stocking rate is needed at this time.

#### *Horseshoe Pond*

Horseshoe Pond is a four acre pond in the Pharaoh Lake Wilderness that was reclaimed in 1995 and later stocked with Little Tupper strain brook trout. The primary targets of the reclamation were brown bullhead and golden shiner. Brook trout were the only species present in the initial post-reclamation survey in 1997, but small numbers of bullhead were captured in 2003 and again in this survey. The purpose of this survey was to assess the brook trout fishery and check for natural reproduction. The brook trout catch rate was considerably higher than in previous post-reclamation surveys, but the average length was down slightly, and only stocked fish were captured. The pond continues to provide a reliable backcountry fishing destination, but in the absence of natural reproduction, stocking will be necessary to maintain the fishery.

#### *Round Pond*

Round Pond is a small (22 acres) and very deep (100 feet), high elevation pond in Lake George Wild Forest. The pond is accessible by trail from Lily Pond. This survey was conducted as an update since the pond had not been surveyed since 2006. Rainbow trout have been stocked in Round Pond since 1937 producing large fish. Rainbow trout caught ranged from 14" to 21". Other species captured included brown bullhead, numerous golden shiners, bluntnose minnows and redbreast sunfish. Round Pond will continue to be stocked with rainbow trout at its current stocking rate.

#### *Lixard Pond*

Lixard Pond, reclaimed in 1973, is a unique pond in that it sustains a brook trout fishery despite being very shallow (maximum depth 10 ft). Experimental gill nets captured 20 brook trout ranging from 9" to 17". A minnow net and minnow trap captured no fish, though newts were noted to be very abundant. Despite the fact the pond was reclaimed several decades ago, it remains a brook trout monoculture. Lixard Pond will continue to be managed to maintain the current brook trout population, and no adjustment to its stocking policy is needed at this time.

#### *Icehouse Pond*

This easily accessible water in the Moose River Plains was reclaimed in 1999 and has been limed twice, the last time in 1996. Icehouse Pond is sampled annually as part of the Region 5 limed waters program. The last fisheries survey was performed in 2004. As of 2015, the pond remains a brook trout monoculture. Nine brook trout were collected and multiple year classes were represented in the sample. The growth rate of the brook trout appears to be good in this small 6 acre water, and the pH is still quite suitable. Sufficient dissolved oxygen is present to a depth of about 20 feet and the temperature at this depth was about 41° F. There are signs of relatively heavy angling pressure and the current stocking rate of Temiscamie x Domestic hybrid brook trout will be maintained.

#### *Round Whitefish Egg Take*

Region 5 Fisheries staff, along with staff from the Oneida Hatchery, conducted an egg take for round whitefish in Lower Cascade Lake in late November. Lower Cascade Lake is an important broodstock wa-

ter for this species which is endangered in New York State. Because of the unusually warm weather, ice-cover was less of an issue than usual. A total of 240 round whitefish were captured, and the timing of the run was good, as the majority of the females were ripe. Forty-five pairs were stripped, resulting in about 12,500 eggs, which were immediately transported to the Oneida Hatchery to be raised as part of the ongoing effort to support this rare native species.



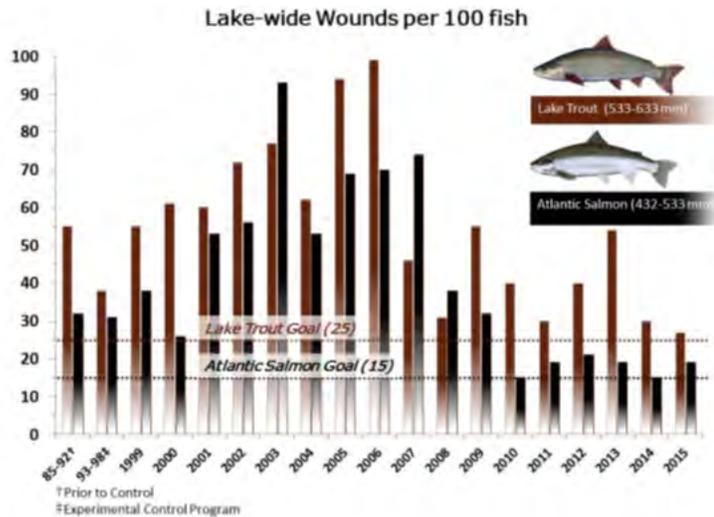
**Lake Champlain Trout and Salmon Restoration**

**Sea Lamprey Control**

The Ausable River's south mouth, Mount Hope Brook, and the Poultney River were all treated to reduce the number of parasitic sea lamprey in Lake Champlain. Three treatments in Vermont (the Hubbardton River, Winooski River and Lewis Creek) were also completed. These treatments are part of an integrated management program to restore trout and salmon populations and their associated fisheries to Lake Champlain and its tributaries. While the U.S. Fish and Wildlife Service has now taken the lead, DEC staff also assisted with these treatments. All the treatments appeared to be successful, though two (Beaver Brook and Putnam Creek) were rescheduled to 2016 because of too-low flows.



Sea lamprey wounding rates on lake trout and landlocked Atlantic salmon through time are presented in the figure below. The trend for both landlocked Atlantic salmon and lake trout is positive, with substantial decreases in wounding rates for both species compared to the early 2000's.



**Chazy River Sea Lamprey Barrier Repaired**

For over 20 years the sea lamprey barrier dam on the Great Chazy River, located just upstream of the village of Champlain, has had a leak in fissures under the bedrock on which the dam sits. Sea lamprey were able to take this subterranean flow and bypass the dam during their springtime spawning



run, requiring the treatment of an additional 13 miles of river. Last fall in cooperation with the USFWS, a contractor was hired to do some concrete work to plug the leak under the dam. The work appears to have been successful at stopping the water flow and should make the dam impassable to spawning sea lamprey.

**Willsboro Dam (Boquet River) Removal**

The Willsboro Dam, site of the Willsboro Fishway, has been removed. As part of the removal process, a large portion of the fish ladder was removed, and the remainder was filled in with soil to provide for a public viewing area. Removal of this dam opens a large portion of the Boquet River to spawning landlocked Atlantic salmon from Lake Champlain. Previous studies by the US Fish and Wildlife Service have indicated that the bedrock cascades below the dam site serve as an effective sea lamprey barrier, so spawning by sea lamprey above the dam is not expected. Nonetheless, the USFWS will conduct periodic monitoring above the dam to verify that larval sea lamprey are not utilizing the area above the dam site. The dam removal was conducted by the Town of Willsboro with assistance from the USFWS and DEC.



**BEFORE**



**AFTER**



**2015-16 Region 5 Fisheries Staff**

- |                 |                                       |
|-----------------|---------------------------------------|
| Lance Durfey    | Biologist 2 (Aquatic)                 |
| Jim Pinheiro    | Biologist 1 (Ecology)                 |
| Rob Fiorentino  | Biologist 1 (Aquatic)                 |
| Thomas Shanahan | Biologist 1 (Aquatic)                 |
| Jonathan Fieroh | Biologist 1 (Aquatic)                 |
| Adam Kosnick    | Fish and Wildlife Technician 2        |
| Dustin Dominesy | Seasonal Fish and Wildlife Technician |
| Jessica Lagree  | Seasonal Fish and Wildlife Technician |
| Brett D'Arco    | Seasonal Fish and Wildlife Technician |
| Chris Swamp     | Seasonal Fish and Wildlife Technician |
| Ethan Ladouceur | Seasonal Fish and Wildlife Technician |
| Jason Smith     | Seasonal Fish and Wildlife Technician |



## SPECIES CONSERVATION & MANAGEMENT

### Eastern Lake Ontario/St. Lawrence River Warmwater Fish Stock Assessment



Over one-third of fishing effort in Region 6 occurs on eastern Lake Ontario or the St. Lawrence River. Warm/coolwater fish stock assessments are conducted by Region 6 on the St. Lawrence River and by both regional and Lake Ontario units on eastern Lake Ontario. The assessments track condition of fish stocks in these waters. In the St. Lawrence River Thousand Islands area abundance of legal size smallmouth increased from record lows in 1996-

2004 and varied at moderate levels after 2006. This increase was due to faster growth and earlier recruitment of young fish (largely due to availability of round goby forage) rather than improved recruitment or increases in the total number of individuals in the population. After 2013 smallmouth bass abundance in standard sampling nets declined rapidly and was at near record low levels in 2014 and 2015. Northern pike abundance in the Thousand Islands remains depressed largely due to habitat changes resulting from water level regulation. For Lake St. Lawrence, walleye numbers continue to decline from a peak abundance in 2010 and are now below the long term average. Smallmouth bass in Lake St. Lawrence were collected at the long term average and have shown relative stability since 2010. Abundance of legal size smallmouth bass in eastern Lake Ontario increased after 2005 from record lows in 2000-2004 although it remained low relative to the levels of the 1970s, 1980s and early 1990s. Small increases in harvestable size bass since 2005 have been attributed to increased growth and vulnerability of young fish to capture. No strong year classes have been detected in recent years. In 2015, abundance appeared to be at a level comparable to the record lows of the early 2000s.

### Brook Trout Management

Good water quality is vital to a thriving fish population. Many fish, including brook trout (*Salvelinus fontinalis*) cannot tolerate acidic conditions. In an effort to counterbalance the effects of acidification NYSDEC conducts a pond liming program which includes monitoring water quality in vulnerable waters. During the 2015 field season, Region 6 monitored water quality in 38 Adirondack lakes and ponds. Lime is typically spread on the pond's frozen surface and mixes into the water once the ice melts in the spring. The warm weather experienced in the winter of 2015-16 precluded efforts to lime any ponds because ice conditions were not safe. Generally speaking, the levels of pH in Adirondack ponds are slowly improving thanks to the Clean Air Act (1970) which addresses emissions of hazardous air pollutants. NYSDEC will continue to monitor water quality in Adirondack ponds to ensure brook trout have suitable habitat.

Heritage strains of brook trout are genetically distinguishable from other brook trout and this makes them important to New York's bio-

diversity. Their unique adaptations also make them valuable tools in fisheries management. For a number of years, Region 6 has conducted annual heritage strain egg takes in order to further the propagation and distribution of these unique strains of brook trout. In fall 2015, egg takes for the Little Tupper strain were conducted on Boottree Pond. Wild male Little Tupper brook trout were collected from South Twin Lake and their milt was used to fertilize some of the eggs collected from Boottree Pond. This was an attempt to bring wild selected genes into the gene pool. Fertilized eggs were transferred to the NYSDEC hatchery system where they will be raised and stocked in the fall as fingerlings. This is the eighth year that an egg take has been conducted on Boottree Pond.

Two strains of brook trout which include the Horn Lake strain and the Temiscamie-Hybrid strain, have been stocked into Lyon Lake and Hawk Pond which are located in the Five Ponds Wilderness Area. The two strains were stocked together in the same water to create a "head to head" competition. Future surveys will be conducted in an attempt to determine which strain may be better suited for survival in Adirondack waters.



### Walleye Assessments

#### Black Lake

From 2009 through 2015 Region 6 fisheries conducted five electrofishing surveys and two gill net surveys at Black Lake (St. Lawrence County) in order to evaluate the success of the 2008-2013 experimental 50-day fingerling (sometimes called fryling) stockings. These fish were marked with oxytetracycline which produces a mark that can be detected for one or two years. No fish young enough to read the marks were captured although 11 of the 84 walleye sampled during the surveys were in the age range that could have been from the experimental stockings (they could also have been from natural reproduction). The group of walleye most commonly sampled originated from years in which no stocking, or only fry stocking, along with natural reproduction occurred. Based on these findings, walleye management in Black Lake has now moved toward fry stocking.



#### Red Lake

Red Lake (Jefferson Co.) was sampled in 2015 as part of a full "Percid Plan" study with both gill nets and boat electrofishing. The lake has been managed primarily for walleye although it has healthy populations of largemouth and smallmouth bass, northern pike, and panfish. Yellow perch, smallmouth bass, and black crappie were the three most abundant species collected in gill nets at 33%, 17%, and 14% respectively. Catch per Unit Effort in electrofishing samples (CPUE= fish/hour) was highly variable for walleye, smallmouth bass, and northern pike primarily due to the variety of habitats sampled. Walleye abun-

dance was considered low with CPUE's for gill nets and electrofishing at 1 fish/net night and 2 fish/hour respectively. Largemouth bass were collected with greater regularity at all sites with an average CPUE of 21.5 fish/hour. Regional records show that walleye (fry, 50 day, and fingerling) have been stocked from 1990-2013. Due to a direct connection to the Indian River, fish movement in and out of the lake likely has a large impact on fish community composition, and makes evaluation of stocking success problematic.

### Yellow Lake Fish Community Assessment

Yellow Lake, in St. Lawrence County (364 acres), was surveyed in June of 2015 as a precursor to a complete community assessment in 2016. The lake is a narrow, shallow, eutrophic water body with a maximum depth of <20 feet. A total of four days of sampling effort utilizing experimental gill nets, fyke nets, and daytime boat electrofishing was completed. A total of 673 fish representing 13 species were collected and processed during the week of survey. Bluegill, Pumpkinseed, and Golden Shiner comprised the top three species at 33%, 16% and 13% respectively. Predators were dominated by Northern Pike at 9.4% of the catch. Largemouth Bass were not collected in large numbers although they are the most sought after sportfish in the lake. Total bass, which included juvenile fish, were collected at an average rate of 17.1 fish/hr by boat electrofishing.

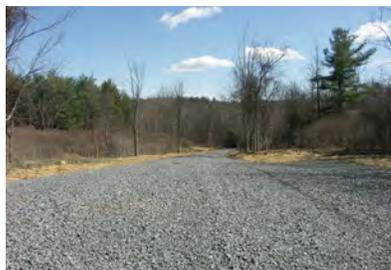
## HABITAT CONSERVATION

### Fish Passage

Region 6 Fisheries personnel have been involved with reviewing downstream fish passage designs for the Upper and Lower Beaver Falls hydroelectric projects on the Beaver River. Re-licensing efforts continue for the Upper and Lower Beaver Falls Hydropower Plants. The Village of Gouverneur Hydroelectric facility began the licensing process in December of 2014 and will continue for the next couple of years. Region 6 Bureau of Fisheries and Division of Environmental Permits personnel are currently working with the U.S. Fish and Wildlife Service on a basinwide approach to streamline the upcoming plethora of hydroelectric projects due for relicensing in the Black River Basin. The use of 'nature-like' fishways, such as the rock ramp, which are often less expensive and more effective at passing a range of fish species than conventional fishways is being encouraged.

## PUBLIC SERVICE & CONSTITUENT SUPPORT

### New/Upgraded Access Facilities



Providing public access to natural resources is a key regional program. During 2015-16 two new access sites were constructed using the principals of Universal Access Design and five sites were rehabilitated. The Yellow Lake Fishing Access Site is a Universal Access, hand carry canoe/

kayak/car-top boat launch in St. Lawrence County. The Cpt. Herman J. Bendfeldt Memorial Fishing Access Site provides shore fishing access to the West Branch of Fish Creek in Oneida County. In Lewis County, three Fishermen's Parking Areas on Fish Creek (tributary of the Black River) were resurfaced. The Glenfield Fishing Access Site, also in Lewis County, was rehabilitated to include Universal Access Parking and the Accessible Observation Deck overlooking a nearby marsh was repaired. The Cranberry Lake Boat Launch Site in St. Lawrence County was rehabilitated by widening the entrance road to accommodate two-way traffic and both the upper and lower parking lots were regraded and re-graveled to correct drainage issues.

## Outreach and Education



Regional outreach efforts reached anglers and families at fishing clinics and Earth Day events. Fisheries staff participated in the Earth Day celebration at the New York State Zoo at Thompson Park, Watertown. Over 2500 people attended the event, many of them families with young children. Attendees were presented with information on Northern New York stream ecosystems as well as a variety of other environmental topics. Hands-on activities with aquatic invertebrates were met with interest and excitement by attendees of all ages. Elementary school students were reached at conservation field days, environmental awareness days and local events such as the Thousand Islands Land Trust Bug Bonanza. At Jefferson County Environmental Awareness Days staff worked with Cooperative Extension and the Fort Drum Natural Resources Division, among others, to present hundreds of area sixth graders with interesting information and activities relating to local resources including area fishes and fishery issues. Staff participated in the "Bug Bonanza" by setting up a station dedicated to teaching children about "water bugs" (aquatic macroinvertebrates). This year's theme concentrated on how aquatic macro-invertebrates find their food and what functional feeding group they belong to. A lesson plan called "Macroinvertebrate Simon Says" that was developed by Utah State University Water Quality Extension provided a fun and educational experience for all who participated.

High school students were reached at Envirothon competitions which included elements on aquatic systems and fishery management. Together thousands of anglers, students and families throughout the region were provided to information about fish, fishing and aquatic systems.



### 2015-16 Region 6 Fisheries Staff

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### Rare Fish Unit

Doug Carlson	Biologist 1 (Aquatic) ETS Unit
Eric Maxwell	Seasonal Fish & Wildlife Technician



## SPECIES CONSERVATION & MANAGEMENT

### 2015 Cormorant Management at Oneida Lake

For the sixth consecutive year DEC Fish and Wildlife staff from both Regions 6 and 7 conducted a cormorant management program on Oneida Lake. The primary goal of the program is to reduce the number of cormorants on the lake in order to limit their impact on the lake's sportfish populations. Effort was increased again in 2015 to address the recent trend of increased cormorant numbers in the spring and summer months and also to limit cormorant nesting activity. Department staff began hazing and egg oiling in late April and continued hazing and culling activities through the end of September. Counts and/or hazing took place from April 29th through October 7th on a total of 30 days. The highest count of the early season occurred on April 29 when a total of 279 cormorants were observed. Cormorant numbers declined during the month of May (average 175 birds: range 122-249) and remained near the target population level of 100 birds during June (86 birds: range 74-103) and July (116 birds: range 94-142). Cormorant numbers from August through October increased dramatically relative to 2014. Despite a similar level of hazing effort, the August average count of 408 was over a third higher than August 2014 while the September 2015 average count of 650 cormorants was more than double the September 2014 average. Cormorant hazing efforts ceased with the onset of duck season in October.

To reinforce the hazing efforts and to collect data on diets, a total of 179 cormorants were culled. Of these, 160 were submitted to Cornell researchers for diet analysis. Diets consisted of a mix of species which included gizzard shad, yellow perch, emerald shiners, and walleye, among others. Recently established round goby accounted for 12% (by number) of the cormorant's diet but much of this came later in the year as the goby population increased. Yellow perch and walleye again comprised a significant portion of the diets, particularly when considered by total volume. Without doubt, Department hazing efforts in 2015 once again saved large numbers of Oneida Lake sportfish from cormorant predation.

### Spring 2015 Cayuga Inlet Fishway Operations



Fishway operations continued in spring 2015. For the season, a total of 681 rainbow trout were handled which was nearly 140 more than the previous spring. Region 7 Fisheries staff also assisted with the annual collection of approximately 250,000 "Finger Lakes Wild" strain rainbow trout eggs conducted by Bath Hatchery. The rainbow trout produced from this

collection are used to augment wild rainbow trout populations in Cayuga, Skaneateles, Owasco, and Keuka Lakes.

The number of adult sea lamprey in the lake has declined, as evidenced by the number captured at the Fishway in spring 2015. A total of 398 adult sea lamprey were trapped and killed at the Fishway - down dramatically from the past few years when approximately 4,000

to 6,000 were captured/killed annually. Lamprey wounding of rainbow trout is monitored at the Cayuga Inlet Fishway using fish in the 500-549 mm (19.7-21.6 in.) target index size range. The wounding rate for rainbow trout in the spring 2015 was 0.24 active wounds/fish which was down from 2014's rate of 0.34 wounds/fish. The 2015 rate was only slightly above the target rate of < 0.23 wounds/rainbow trout but is expected to continue dropping as the number of adult lamprey in Cayuga Lake continues to decline as a result of the August 2014 lampricide treatment of Cayuga Inlet.

### Cayuga Lake Summer Gillnet Survey

During late July and early August 2015, Region 7 Fisheries staff sampled the lake trout population of Cayuga Lake using Finger Lakes Standard Gang gill nets at 32 standard netting sites. This was the fourteenth time the lake was surveyed using this technique since 1976. The primary objectives of the survey are to determine the relative abundance of adult lake trout, the incidence of sea lamprey attacks on lake trout, and to monitor the relative contributions of wild and stocked lake trout to the population. In addition, 50 lake trout were collected for chemical residue assessment. Overall, the gear adjusted lake trout catch likely represents a medium to medium-high density population relative to past surveys. The observed sea lamprey wounding rate (0.03 wounds/lake trout) was exceptionally low. Of the 847 lake trout collected, 92 (15%) did not have a hatchery fin clip. Since all stocked lake trout in Cayuga Lake are supposed to have a fin clip, the unclipped fish are presumably wild. This level of wild contribution to the lake trout population of Cayuga Lake is one of the highest observed in the time series. Of particular note is the apparent wild contribution of younger lake trout (11 to 15 inch size range). Of the 158 lake trout from this size category that were captured, 52 (33%) were unclipped. In comparison just 6% of the rest of the lake trout sample (40 out of 689) were unclipped. Although unlikely, the results may be biased by a 2012 stocking of 5,000 small (3-inch), unclipped, surplus lake trout. By 2015, these unmarked fish should have been approximately 11 to 15 inches long. However, these 5,000 unclipped fish represent less than 8% of the 65,000 lake trout stocked that particular year and it's highly unlikely that they would have recruited at such a disproportionately greater rate. The high percentage of hatchery fish in the adult lake trout population of Cayuga Lake indicates that the fishery is still primarily maintained by stocking but future monitoring will be necessary to determine whether the wild contribution is indeed increasing.

### Old Chenango Canal Trout Sampling

The Old Chenango Canal in Madison County was electrofished on August 20, 2015. The survey was conducted to evaluate whether recent angler concerns about poor trout fishing are a result of changes in the canal's trout abundance and/or size structure. Also, no fishery surveys have been conducted



at the canal by the Department since 1991. Two sites were electrofished and the total of 167 brown trout collected provided a catch per unit effort (CPUE) of 125/trout hour. This CPUE was greater than the 1991 CPUE of 53/trout hour (n=137 brown trout). However, the 2015 mean brown trout length was only 129 mm compared to the 1991 mean of 213 mm. It does appear that there is currently a good year class of wild young-of-year (YOY) brown trout in the stream, but larger older-aged trout appear to be underrepresented. Of the 167 trout captured, only two were  $\geq 12$  inches (1.2%) while in 1991, 33 (24%) of the brown trout sampled were  $\geq 12$  inches. The Old Chenango Canal is managed under special trout fishing regulations with an all year open season, a minimum length of 12 inches, a two trout daily limit, and "artificial lures only" policy. Additional survey work will be conducted in

2016 before making any recommendations or changes to the current regulations or stocking policy of 1,000 one year-old brown trout.

**2015 Finger Lakes Angler Diary Cooperator Program**

Angler catch data for the 2015 fishing season on the four eastern Finger Lakes were summarized and letters sent to participating cooperators in early April 2016. Data from this program provides DEC with information on growth rates, stocked fish recruitment, and angler success rates which help guide our management efforts. A brief summary of each lake follows but the full summaries are available on the DEC website at <http://www.dec.ny.gov/outdoor/27875.html>. Highlights from the 2015 summaries include:

- Continued, but slow improvement in the brown and rainbow trout fisheries of Owasco Lake;
- The highest overall trout/salmon catch rate (catch per trip) in Cayuga Lake dating back to 1984;
- Targeted catch rates of bass in Skaneateles Lake continue to indicate the lake now supports an outstanding smallmouth bass fishery;
- Combined targeted catch rates for smallmouth and largemouth bass in Otisco Lake were also indicative of an exceptional black bass fishery.



**Brook Trout Stream Surveys**

Six Eastern Brook Trout Joint Venture (EBTJV) surveys were conducted by Region 7 Fisheries staff in 2015. Two of the surveys took place on unnamed tributaries to Wylie Brook (Chenango County) and were selected because they are candidates for use of the Culvert Replacement Funds available from the United States Fish and Wildlife Service (USFWS). The USFWS Cortland office has some funding to purchase larger culverts in an effort to reconnect brook trout habitat in central New York. Region 7 and USFWS staff evaluated two culverts in the Wylie Brook watershed. Brook trout had been observed during previous surveys on both unnamed tributaries. Brook trout presence in these streams was reconfirmed in 2015 when two brook trout were collected in one tributary and 19 in the other. Culvert replacement was deemed necessary at the Seymour Hill Road tributary to facilitate upstream fish passage. Culvert replacement is scheduled for 2016. Analysis of the second problem culvert on the other unnamed tributary at Wylie-Horton Road, revealed that upstream fish passage could be reestablished by installing two grade control “steps” immediately downstream of the culvert. This configuration should provide conditions to allow fish passage under low to moderate flow conditions. This project is expected to be completed in 2016 as well.

Factory Brook (Cortland County), Handsome Brook (Chenango County), Unnamed Stream (Chenango County) and Wylie Brook (Broome and Chenango



counties) were electrofished to obtain brook trout genetic samples as part of the EBJV. These streams were selected as they also contained brown trout, as samples needed to come from a population that was mixed with brown trout. Brook trout were collected in 3 of the 4 streams; no brook trout were caught in Handsome Brook. Overall, a total of 30 brook trout were caught. Fin clips were taken from each of these brook trout and submitted to the principle investigator of the study. Beside the brook trout, 48 brown trout and 7 burbot were also collected.

**2015 Jamesville Reservoir Fall Walleye Assessment**

Walleye (6,600 pond fingerlings) are scheduled to be stocked every other year in Jamesville Reservoir. In 2005, surplus walleye were available, so a total of 7,800 were stocked rather than the normal allotment. Night-time boat electrofishing was conducted on September 30, 2015 to assess the current status of the walleye population in the reservoir as well as to attempt to assess the tiger muskellunge population. The entire perimeter of the lake was sampled, and 67 walleye were collected, along with one tiger muskellunge. The catch rate of walleye was 40.6 fish per hour, a substantial improvement over both the 2013 survey at 13.7 fish per hour, and 2011 at 4.7 fish per hour. Walleyes ranged in size from 7.1 to 24.4 inches and ranged in age from 0 to 9+ years. Sixty-one of the captured walleye were age 0, presumably from the spring 2015 stocking as very little natural reproduction is known to occur in this lake. The lone 10-inch tiger muskellunge captured was obviously one of the 1,700 recently stocked fish put in by DEC in late September 2015.

**Leland Ponds 2015 Fish Community Survey**

Upper and Lower Leland Ponds, 46 and 55 acres respectively, located in the Town of Eaton, Madison County were surveyed with a boat electrofisher and gill and fyke nets in June and July. Upper Leland Pond is stocked yearly by DEC with 1,400 yearling brown trout. Lower Leland Pond is stocked annually with 200 tiger musky fingerlings. The purpose of the survey was to evaluate age, growth, abundance, and predator/prey balance of the reservoir’s sportfish community and to determine if stocked brown trout and tiger musky are recruiting to the fishery.

Upper and Lower Leland Ponds are connected via a culvert pipe and, for the purpose of this survey data collected on each water was pooled. Overall, 545 fish were caught representing 18 species. Yellow perch were the most numerous with 162 caught (30% of catch). The next most numerous species was alewives (n=81, 15% of catch), followed by largemouth bass (n= 72, 13% of catch), rock bass (n=41, 8% of catch), and pumpkinseed sunfish (n=37, 7% of catch). Other gamefish caught were chain pickerel (n=30, 6% of catch) and smallmouth bass (n=2, 0.4% of catch). Current stocking strategies on these waters may need to be reassessed given the catch of only one stocked brown trout and tiger musky.

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**SPECIES CONSERVATION & MANAGEMENT**

**Lamprey Control Seneca Lake - Catharine Creek**

During the week of September 8th, a total of 28 staff from 5 different regions, Caledonia Fish Hatchery, Rome Pathology Lab, the US Fish and Wildlife Service, and SUNY Brockport treated Catharine Creek to control sea lamprey larvae. TFM, a highly selective lampricide, was applied to various sections of Catharine Creek and its tributaries for a period of 33 h. TFM in-stream concentrations were monitored round the clock during the application to ensure that only sea lamprey larvae, which live in the stream sediments, were impacted. Non target mortality was very light with only 12 non-lamprey impacted. Although observed/estimated mortality of sea lamprey larvae was good, it is likely that mortality was not 100%. Stream flow at the time of treatment was the lowest ever for a treatment since they began in 1982. This resulted in an extended treatment duration along with levels of dilution/attenuation of TFM concentrations nearing 40% in downstream areas. Therefore, minimum lethal concentrations of TFM for sea lamprey larvae were typically not achieved for the recommended 9 hours. Based on the results of the Catharine Creek TFM treatment it is recommended that future treatments be avoided at flow rates <8.0 cfs due to the problems associated with dilution/attenuation and treatment duration.



**Catharine Creek Rainbow Trout Production Survey**

A total of 9 index sites in Catharine Creek and 2 index sites in Sleepers Creek, a tributary of Catharine Creek, were sampled with backpack electrofishing gear August 17-20, 2015 to estimate density of age 0 and age 1 and older rainbow trout. The estimated density of young-of-year (YOY) rainbow trout collected at the nine sites in Catharine Creek ranged from 0 to 1,739 YOY rainbow trout/acre and averaged 937 YOY/acre. The estimated density of age 1+ and older rainbow trout collected at the nine sites in Catharine Creek ranged from 0 to 190 age 1+ fish/acre and averaged 64/acre. Although densities fall within historic ranges, they are generally skewed toward the lower end of the range. Similar results were found in Sleepers Creek. The relatively low numbers of Age 1+ rainbow trout may have been the result of a couple of significant spring rain events that may have negatively impacted the 2014 year class in western Finger Lakes tributaries.

**Seneca Lake Fish Community Survey**

Seneca Lake, located within Ontario, Yates, Seneca, and Schuyler counties, is the largest of the Central New York Finger Lakes (43,343 acres). During the summer and fall of 2014 and 2015, the fish community of Seneca Lake's shallow nearshore habitats was sampled using 35 fyke net sets, 32 gill net sets, and 32 bag seine pulls. Thirty shore-

line night boat electroshocking sites and eight backpack electroshocking sites at tributary mouths were sampled. The purpose of the survey was to develop a picture of the overall fish community of the lake.

A total of 10,628 individual fish of 40 species were collected. This represents 83% of the species detected within the last 44 years and 65% of all species known historically from Seneca Lake. Thirty species were recorded both in early records (late 1800s and early 1900s) and current surveys, indicating that these species have a long history in Seneca Lake. Eighteen species were recorded from Seneca Lake for the first time after 1965, while 14 historic species have not been detected in at least 44 years.

Of note, for the first time since 1927, walleye (n=1) were collected in Seneca Lake. Alewife were the most numerous species captured with 4,368 caught (41% of catch) followed by brown bullhead (n= 1,785, 17% of catch), banded killifish (n=596, 6% of catch), rudd (n=561, 5% of catch), yellow perch (n=534, 5% of catch), pumpkinseed (n=290, 3% of catch), smallmouth bass (n=237, 2% of catch), and largemouth bass (n=139, 1% of catch). Data analysis is ongoing, and a report is expected in late 2016.

**Finger Lakes Rainbow Trout Spawning Run Surveys**

Spring rainbow trout sampling occurred on three major Finger Lake tributaries in March: Naples Creek (Canandaigua Lake), Cold Brook (Keuka Lake), and Catharine Creek (Seneca Lake). Results of the surveys were similar on all three streams, with rainbow trout spread throughout the entire length of the tributaries. Total number of trout collected ranged from 19 in Cold Brook to 110 in Catharine Creek. The largest fish collected was a 9.2 pound female collected from Catharine Creek. In general, all trout collected appeared to be in good condition. Many of the female trout in each tributary had already spawned. Relatively warm temperatures during March led to many adult rainbow trout spawning before the beginning of the season on April 1. Despite the warm weather in March, angler reports and results from fishing derbies indicated that there were some rainbows remaining in the streams during early April.

Stream	Total #	Max. Length (in)	Max. Wt. (lbs)
Naples Creek	57	26.7	8.2
Cold Brook	19	25.3	5.9
Catharine Creek	110	29.5	9.2

**Wild Trout Surveys**

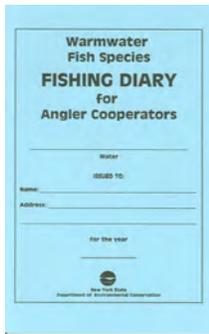
Electrofishing surveys were completed on 81 streams in 2015. Over a five year period (2010 through 2012, 2014 and 2015), 861 sites from 699 streams were sampled with trout collected from 194 streams. The numbers of streams with each trout species combination collected are listed below. Wild trout were documented for the first time in 108 streams. These streams will be added to a list of streams that qualify for reclassification as wild trout streams.

Species	# Streams
Brook Trout Only	67
Brown Trout Only	55
Brook Trout and Brown Trout	30
Rainbow Trout Only	19
Rainbow Trout and Brown Trout	6
Rainbow Trout and Brook Trout	1
Rainbow Trout, Brook Trout, Brown Trout	1
<b>Total</b>	<b>179</b>

**Angler Diary Cooperator Programs**

**Coldwater Program (Seneca, Keuka, Canandaigua Lakes)**

The 40+ year old program continued in 2015 on Canandaigua, Seneca and Keuka Lakes. Total number of angler trips were 371, 696 (all time low), and 678 respectively for the 3 lakes. In both Seneca and Keuka took anglers 2.5 hours to catch a legal trout. Although lower than what anglers have come to expect, these catch rates are similar to or better than catch rates experienced in the mid 1970's and 80's when angling effort was much higher. In Canandaigua, anglers averaged 2.1 hours to catch a legal trout, a big improvement from last year. This catch rate is better than the target of 2.5 hours per legal trout. Salmonine catch composition continues to remain at more desirable levels than in the early 2000's in Canandaigua with lake trout accounting for about 73% of trout caught. However, in both Seneca and Keuka Lakes, lake trout once again dominated, accounting for 89% and 98% of the catch respectively. This indicates very little contribution to the fishery from brown trout, rainbow trout and Atlantic salmon. The lake trout population in Keuka Lake continues to be sustained entirely by naturally reproduced fish, whereas the other lakes have variable natural recruitment rates that require supplemental stockings to maintain the lake trout fishery. Canandaigua Lake continues to be the one western Finger Lake with a significant contribution of both rainbow and brown trout. Regulations were recently enacted to improve the overall trout fishing experience in the western Finger Lakes. The diary program remains an integral part in the evaluation of these new regulations.



**Conesus Lake**

Fishing effort by angler diary keepers in 2015-16 was similar to the prior year. Overall, fishing on Conesus Lake was on par with past years, as it took diary-keeping anglers 3.62 hours to catch one legal game fish (0.28 legal gamefish per hour). However, this number was significantly influenced by one diary keeper, as most took between 1.0 and 8.3 hours to catch a legal gamefish. For anglers targeting largemouth bass, the catch rate was 0.46 legal bass/hour. Largemouth bass comprised 28% of the total game species caught. Eighty seven percent of the largemouth bass catch was composed of legal sized (>12 inches) fish. All but 8 were released. Although most of the bass were less than 14 inches, anglers caught 9 memorable fish greater than 18 inches. Smallmouth bass comprised 11% of the total game fish catch; 90% were legal size and all were released. Seven of the smallmouth exceeded 18 inches. Northern pike made up 45% of the total game fish catch. Ninety five percent were legal size, with fish averaging 28 inches in total length. One fish greater than 36 inches was caught and the overall catch rate was 0.33 legal pike/hour. Fifteen tiger muskies were caught, the largest 41.5 inches in length. Seventeen walleyes were caught, all by anglers specifically targeting walleyes, for a catch rate of 0.17 legal fish/hr. Average walleye length was 23 inches and 15 fish were harvested.



is a very good catch and is similar to last year. The high catch rate for game fish continues to be primarily due to excellent largemouth bass fishing. Twenty-seven walleye averaging 19.2 inches were caught with 21 harvested. Anglers who were specifically targeting walleye had a catch rate of 0.16 walleye/hour. Total catch and catch rate were both down compared to last year. Similar to last year, most of the walleye reported were 18 inches or larger with little evidence of recruitment of the walleye fry stocked each year. Diary results also indicated quality fishing for chain pickerel, bluegills, pumpkinseeds, and black crappie.

**Honeoye Lake**

During the 2015-2016 fishing season, 17 diary cooperators reported 1,649 hours of fishing effort during 662 fishing trips. This is a similar amount of fishing effort compared to previous years. A total of 2,783 game fish and 194 panfish were reported caught. On average, anglers took 0.70 hours to catch one legal game fish (1.4 per hour). This

**Chemung River Creel Survey**

The Chemung River, flowing through the southern tier of New York near Corning and Elmira, supports an important warmwater fishery. Fishing access to the Chemung River has been expanded over the last two decades with a total of 10 boat launch sites located within this area. These boat launching facilities, in addition to the bank access available at bridge crossings and within the flood control project area within the Cities of Elmira and Corning, provide fishing accessibility to anglers. A modified-access creel survey was conducted from 1 May 2015 – 31 October 2015 to determine angler effort, catch, and characteristics. A total of 445 angler parties were interviewed during the survey, with anglers fishing an estimated 27,948 angler-h. Most anglers targeted bass and channel catfish, with walleye and carp being other somewhat common targets. Anglers caught an estimated 6,595 gamefish, with black bass, almost entirely smallmouth bass, comprising 94% of the total gamefish catch. Anglers also caught an estimated 417 walleye. An estimated total of 5,190 non-gamefish were caught with channel catfish comprising 17% of the catch. Sixty-five percent of all anglers interviewed responded that they never keep bass, with only <1% regularly keeping bass, indicating the Chemung bass fishery is largely a catch and release fishery. Nearly 44% of channel catfish were harvested, indicating that catfish fishery is largely consumptive. Overall, the Chemung River provides mostly local anglers with good warmwater fishing opportunities, primarily for smallmouth bass, channel catfish, and walleye.

**PUBLIC SERVICE & CONSTITUENT SUPPORT**

**Fishing Pole Lending program**

Six libraries were actively involved in the Region 8 Library Fishing Pole Program in 2015: Dansville, Wood, Pulteney, Honeoye, Woodward Memorial and Modeste Bedient (Branchport). In addition, Lyndonville Public School received poles from the program for defined fishing classes. The number of poles loaned ranged from 28 at Woodward Memorial Library to 6 at Dansville Public Library. Regardless of the number of users, all the Librarians report that the program generates many positive comments.

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## SPECIES CONSERVATION & MANAGEMENT

### Chautauqua Lake Fisheries Management

#### *Muskellunge Egg Take*

In April and May 2015 a trap net survey was conducted on Chautauqua Lake to collect muskellunge eggs for the New York State hatchery system, and to assess the status of the muskellunge population in the Chautauqua Lake. A total of 151 adult muskellunge were collected and 32 mated pairs were spawned. Offspring from all 32 pairs will be equally represented in our hatchery product to maintain a high level of genetic diversity within the muskellunge population. The catch rate in 2015 was 1.8 fish/net night. This catch rate is lower than the catch rates observed in 2013 and 2014 but is similar to the average of previous years. The total length of female muskellunge ranged from 28 inches to 48 inches with an average of 38 inches. The total length of male muskellunge ranged from 24 inches to 40 inches with an average of 31 inches.



#### *Fall Walleye Survey*



The walleye population in Chautauqua Lake was surveyed in late September by boat electrofishing. This assessment has been done every year since the early 1990's and serves as an index of abundance for the walleye population. A total of 261

walleye were caught for a catch rate of 34.8 fish per hour. The catch in 2015 was similar to last year and above the long term average of 19.7 fish per hour. The last two years have shown two of the largest year classes of walleye ever documented in Chautauqua Lake. In 2014 267 young-of-year walleye were caught and in 2015 183 young-of-year walleye were caught. The 2014 year class was well represented as one year olds in 2015, which indicates good survival through their first winter. Walleye in Chautauqua Lake typically reach legal size of 18" by age 6 so anglers won't see these fish for a few years, but there should be some excellent walleye fishing in the years ahead.

### Rushford Lake Fish Community Survey

Rushford Lake's fish community was surveyed throughout the spring, summer and fall of 2015 following standardized protocol. In mid-May, fyke nets were deployed to sample pre-spawning and spawning fish species within the littoral zone. In mid-August, bag seining was completed throughout the near shore habitat to capture cyprinid minnows and age-0 fish. In mid-September, gill nets were deployed in order to sample fish species at deeper water depths. In late September, electrofishing was completed to sample all fish species within the littoral zone.

In total, 23 different species were collected from Rushford Lake (species richness=23). The predominant fish captured was yellow perch, representing 27% of the total catch. Smallmouth bass were the sec-

ond most abundant fish, representing 16% of the total catch. Walleye and rock bass were also collected, but each represented less than 1% of the total catch. All but one species, the black redhorse, had been collected in Rushford Lake prior to the 2015 survey. Currently, black redhorse are listed as a species of special concern in New York. In addition to Rushford Lake, black redhorse have only been recently documented in the Allegheny River basin and Buffalo River.

Shannon's diversity index was 2.4, suggesting Rushford Lake had a moderately diverse fish community. Shannon based evenness was 0.8, suggesting that all fish species within the community were roughly equal in abundance. Although not much else can be interpreted from these current values, they may serve as a baseline of comparison for future surveys. This baseline can then be used to better document dramatic changes within Rushford Lake's fish community, helping fisheries staff better identify potential causes of those changes. By identifying potential causes, more informed and appropriate management decisions can be made.

### Genesee River Angler Diary Program

The Genesee River angler diary program covers the entire river in Region 9 from the Pennsylvania state line downstream to Letchworth State Park. The river is managed as a stocked trout fishery from the PA line downstream to Belmont. The river also has a substantial population of smallmouth bass throughout its length. Diary programs have also been used on the river in 1988, 1989 and 2010.

A total of 19 diarists reported a large number of trips made (237) and hours fished (749) in 2014. The majority of diarist trips were made by anglers targeting trout (84%) and occurred in the months of April, May and June (61% of total trips). A total of 450 yearling brown trout (91% released), 179 two-year-old or older brown trout (80% released), 120 rainbow trout (90% released), 13 brook trout (92% released) and 222 smallmouth bass (all released) were reportedly caught by diarists.

The combined average catch rate for brown trout and rainbow trout in 2014 of 1.17 fish/hour was well above the management objective of 0.5 fish/hour. Although only 39 trips targeted bass, the average catch rate for smallmouth bass in the diary program was very high at 2.01 fish/hour. The diarist's average catch rate for brown and rainbow trout combined in 2014 (1.17 fish/hour) was very similar to the 2010 (1.33 fish/hour) and 1988 (1.38 fish/hour) diary programs, but lower than the rate found in the 1989 program (2.40 fish/hour).

### Lower Niagara River Warmwater Fisheries Survey

An electrofishing survey of the lower Niagara River from Lewiston to the mouth of the river was completed in June – July 2015. A total of 1034 fish representing 21 species were collected during 3.75 hours of electrofishing. Smallmouth bass were the most abundant game fish with 291 collected for an average catch rate of 76 fish/hour - one of the highest catch rates ever recorded in New York. The catch rate of Smallmouth Bass is truly exceptional when compared to the statewide average of 4 fish/hour. Total length of Smallmouth Bass ranged from 4.5 inches to 19.2 inches with an average of 14.1 inches. Smallmouth Bass reached legal size of 12 inches during their third growing season in the lower Niagara River. Other notable catches include several large walleye, four species of sucker, freshwater drum and American eel. One of the most interesting findings of this survey was the abundance of American eel in the lower Niagara River. Twelve eels were caught and 13 others observed for an average catch rate of 3.1 fish per hour and an average observation rate of 6.2 fish per hour. American Eel ranged in size from 20 inches to 34.2 inches with an average length of 25.2 inches. American eel are listed as a species of greatest conservation need and the lower Niagara River is one of the few places in the Great Lakes where they can be reliably caught.

## Stream Habitat Enhancement Monitoring

### Wiscoy Creek watershed wild trout monitoring surveys

Wiscoy Creek, a popular wild brown trout fishery in Wyoming and Allegany Counties, and two major tributaries (North Branch Wiscoy Creek and Trout Brook) were sampled in 2015 to monitor trout populations and angler diary cooperator catch rates on the main stream. The same 15 sites had been sampled in 2006, 2009 and 2012, with some sites on Wiscoy Creek also sampled from 1978-2001. Average adult (yearling and older) brown trout abundance for Wiscoy Creek in 2015 was 496/mile, half of that found in 2009 and 2012, and only one third of what was found in 2006. Declines in adult trout abundance over time were statistically significant at 8 of 10 individual sites. An increase was seen in the abundance of larger wild brown trout (>15 inches) beginning in the 2009 survey and this became especially apparent in 2012 and 2015. Total catch of young-of-year brown trout was low in 2015 opposed to 2012 when it had been high the highest ever measured.

Considerable declines in adult brown trout abundance were also observed for the North Branch Wiscoy Creek and Trout Brook from 2006-2015. Additionally, the catch of young-of-year brown trout in both creeks was variable depending on the site, which followed the same pattern we saw in Wiscoy Creek itself. A high number of adult and young-of-year wild brook trout were found at one site on Trout Brook.

The angler diary program in 2015 duplicated ones done along with electrofishing in 1997, 2001, 2006, 2009 and 2012. The catch rate in 2015 was 0.54 fish/hour ( $\pm 0.14$ ). This was a lower catch rate than any of the past diary programs and corresponded well with the electrofishing finding of reduced adult brown trout abundance. Angler diary program participation in 2015 was reduced from earlier programs. This limited the ability to statistically evaluate the fishery by month and by stream section.

### Clear Creek (Ellington) wild trout population monitoring

Using assistance from USFWS staff and angler volunteers, an electrofishing survey of Clear Creek, which flows through Cattaraugus and Chautauqua Counties, was conducted to monitor the wild brown trout and rainbow trout populations. Five sites were sampled which duplicated ones done in 1995, 2005 and 2010.



Due to a high wild trout population, stocking of hatchery brown trout ceased on this creek after 2005. For all sites, abundance of yearling and older (adult) wild brown trout in 2015 (935 fish/mile) was higher than in 2010 (689 fish/mile), near that found in 2005 (940 fish/mile) and much higher than found in 1995 (393 fish/mile). However, changes in trout abundance were not consistent between sites in 2015. At the lower two sites, where adult trout habitat was similar to 2010 and 2005, lower numbers of trout were found this year. At the upper three sites, adult trout habitat increased substantially from 2010 and 2005, as did the abundance of adult brown trout. It appears the overall increased abundance for adult brown trout was primarily a result of improved habitat (new, deep pools) at three of the sampling sites. Biomass of adult wild brown trout in 2015 (83 pounds/acre) was very similar to 2010 and 2005, but substantially higher than in 1995 (39 pounds/acre). Abundance of larger trout has increased steadily from 1995 to 2015 with the values for trout >12" (148/mile) (16% of the total adults captured), >14" (58/mile) and >16" (25/mile) being found this year. Of the 385 adult wild brown trout captured in 2015, eight of them (2%) were >16", with four over 18" and the largest at 19.4".

Wild rainbow trout (probably from illegal transfers by anglers) were

found in Clear Creek for the first time in 2005 and were again found at two sampling sites in 2010 (25 adult fish/mile). However, in 2015 no adult or young-of-year rainbow trout were captured. It is unknown if they still exist in the creek, nor what caused them to be absent from sites where they appeared to be increasing in abundance from 2005 to 2010. The abundance of young-of-year brown trout in 2015 was the lowest we have measured in the four sampling years (183/mile) and is consistent with low abundance of young brown trout seen in other western NY streams this year.

## PUBLIC SERVICE & CONSTITUENT SUPPORT

### Angler Education

Region 9 fishing education efforts included coordination and involvement in 5 youth and family free fishing clinics, reaching 411 youth anglers and their families. Two exceptionally strong free fishing day events offered to the public in the greater Buffalo area at Tiff Nature Preserve and Chestnut Ridge County Park were provided in cooperation with the Erie County Federation of Sportsmen's Clubs.

### Summer Camp Programs



Fisheries staff provided 5 fishing education programs for youth campers at DEC Rushford Environmental Camp, covering fishing education and instruction for a total of 237 campers. In an effort to offer fishing education to more youth summer camps than DEC staff can actually visit, the Train-the-Trainer program was provided for 4 water-based summer camps. The goal is to teach fishing education to the camp counselors who will in turn provide the training to their many campers throughout the summer. A total of 39 camp counselors received fishing education training from DEC staff. Fishing equipment and fishing education lesson plans were also provided to the camps.

### Fishing Hotlines

Fishing extension was provided via the Lake Erie Fishing Hotline and Western New York Fishing Hotline. The hotlines are updated each Friday to provide western New York anglers with current info on productive fishing locations, baits, tips and techniques. Each hotline is available on the DEC website at <http://www.dec.ny.gov/outdoor/fish-hotlines.html> or can be heard at (716) 855-FISH. During the report period, anglers visited the Lake Erie hotline page 102,126 times, Western New York hotline page 89,307 times and the automated phone lines 22,097 times. In all, these popular angler resources were visited an average of 585 times per day.

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### Fishery Surveys Entered Into Statewide Database

Data from 581 fishery surveys were received by the Biological Survey Unit during 2015-16. This total included 124 Eastern Brook Trout Joint Venture (EBTJV) surveys. A total of 430 surveys were finalized and added to the Bureau's Statewide Database (SWDB) during 2015-16. Updated copies of the SWDB containing newly entered data were generated during the year, one in November (2015) and one in March (2016). These were distributed to Central Office and Regional Bureau of Fisheries Staff as well as Cornell University, the NY Cooperative Fish & Wildlife Research Unit, USGS, SUNY ESF, the Natural Heritage Program and Penn State University.

The statewide database was used during the period in the production of the Atlas of Inland Fishes of New York (Carlson et al. 2016), as well as the creation of Unit Management Plans that document management goals for both aquatic and terrestrial resources on public holdings and easements. Data contained in the database was also used as part of an assessment of river and stream populations of black bass in New York State. It is also being used as part of a revision of the Bureau of Fisheries' primary warmwater inland lake sampling protocol, the Centrarchid Sampling Manual. The New York portion of the rangewide brook trout habitat patch layer, derived primarily from SWDB survey data, was also added to the NYSDEC master habitat data selector where it can be readily accessed and compared to other data selector layers by agency biologists and environmental permits staff.

### Considerations for Freshwater Sportfish Regulation Changes

Changes are routinely made to the freshwater sportfish regulations every two years. As a start to this process modifications initially being considered were made public including being made available on the DEC website in February and March of 2016. Utilizing the input received thus far, a collection of proposed changes will now be advanced forward in accordance with New York State's rule making process. A formal Proposed Rule Making is expected to be in place this summer (2016). This will include a formal 45 day public comment period. Upon completion of the entire rule making process the regulation changes would take effect on April 1, 2017 and be incorporated in that year's Fishing Guide.

## Warmwater Fisheries Management

### Ecology and Management of the Fish Communities in Oneida and Canadarago Lakes

Researchers at the Cornell Biological Field Station at Oneida Lake completed their annual assessment of the fish communities in Oneida and Canadarago Lakes. Funded by a Federal Aid in Sportfish Restoration grant, these monitoring projects are the longest running warmwater fishery assessments in New York State and continue to provide valuable insight on the complex dynamics associated with warmwater fish populations in large northern lakes.

### Oneida Lake

Long term fish community changes in Oneida Lake are measured by assessing standard gill net catches. There were 1,343 fish caught in the standard gill nets in 2015, the 4th lowest observed since 2000. White perch represented 33% of the total gill net catch, higher than walleye (26%) and yellow perch (32%). This is the 5th year since 2000 that white perch were the most common species in the gill nets. These three species represent over 80% of the catch in most years.

The estimated adult (age 4 and older) walleye population was 425,000 in 2015, which was a slight decrease from the 2014 estimate of 442,000. Approximately 30% of the adult population are from a large 2010 year class, which is the largest year class since 1987. Over the full course of the 58 year data series the adult walleye population has experienced a significant decrease, but has shown a significant increase since 2000.



The adult (age 3 and older) yellow perch population was estimated to be 923,000 fish, an increase from the 2014 estimate of 596,000. Long term trends show a significant population decline, but

no trend is detectable over the last decade, suggesting a more or less stable, but much smaller population than was present in the lake in the 1960s – 1980s.

Round gobies have become established in Oneida Lake. By late July 2014, round gobies began to show up in standard trawl samples and by mid-August were encountered regularly throughout the lake. Trawl catches in 2015 indicated that the round goby population is expanding. After a peak catch of 10 round goby in a trawl sample from 2014, catches exceeded 600 in September 2015, and round goby were the most abundant fish in trawl samples throughout September.

Nearshore fyke net and boat electrofishing surveys were recently added to the monitoring program to account for the anticipated changes in the littoral fish community associated with increases in water clarity attributed to filter feeding dreissenid mussels. In 2014, 25 species were caught in the fyke nets, many of which were littoral species that are not typically caught with the traditional gears used in the long term studies. The fyke net survey has provided an index of young-of-year black bass production and also shows potential as an index for sunfish and chain pickerel. It also will provide valuable data on production of nesting bass and sunfish to assess potential impacts of round goby.

Spring boat electrofishing survey sportfish catches were dominated by walleye (12/hour), largemouth bass (10/hour), chain pickerel (9/hour), smallmouth bass (4/hour), and longnose gar (3/hour). Emerald shiner, yellow perch, brown bullhead, and pumpkinseed made up the majority of the panfish and non-sportfish catch. Spring electrofishing provides a good complement to fyke nets for assessing the nearshore fish community and provides the only index for adult largemouth bass and best index for chain pickerel.

Seining in 2015 collected 21 species, similar to the diversity represented in fyke net samples. Seine samples were dominated by young-of-year yellow perch in all months, with catches of 1759/haul in July declining to 158/haul in September. Other common species included banded killifish, emerald shiner, logperch, white sucker, and white perch. Seine surveys will be useful in assessing potential shifts in habitat use by young-of-year yellow perch from offshore areas, where they have been indexed by our trawl samples, to inshore areas.

Estimated angler effort in 2015 was 232,928 boat hours, which continued a trend of increasing effort since 2002, with 2015 effort the highest yet recorded. The total number of access interviews conducted during June and July was 320. Of these anglers, 173 (54%) strictly

sought walleye, while 93 (29%) sought only black bass. Anglers who sought some combination of walleye, bass, yellow perch and panfish comprised the rest of the sample. Of anglers seeking black bass, 26 (30% of bass anglers) indicated they were fishing in a tournament. The estimated catch rate for walleye was 0.23/hr in both June and July. The smallmouth bass catch rate was 0.16/hr in June and 0.23/hr in July. Walleye catch rates were comparable to recent years while bass catch rates showed a modest decline. The estimated total harvest of walleye for the 2015 open water season was 57,230 fish.

### Canadarago Lake

NYSDEC Region 4 Fisheries staff conducted a fall boat electrofishing survey of Canadarago Lake to assess the status of the walleye population and other warmwater sportfish. A total of 346 fish representing 15 species were captured. Species captured included alewife, chain pickerel, tiger



muskellunge, common carp, golden shiner, spottail shiner, rudd, white sucker, brown bullhead, rock bass, pumpkinseed, bluegill, largemouth bass, yellow perch, and walleye. Yellow perch were the most commonly caught species (42% of the sample), followed by white sucker (15%), largemouth bass (12%), and pumpkinseed (10%). Only eight walleye were captured and all but one were legal size (15 inches) or larger, an indication that recruitment continues to be a problem due to fry predation by an abundant alewife population. A walleye stocking program was initiated in 2011 to maintain this popular fishery, but few young-of-year walleye have been captured in annual fall surveys, which suggests that the success of this program has been limited so far. Region 4 Fisheries will continue to annually assess the walleye population to track the status of stocked fish and other components of the fish community. In addition, a report summarizing Canadarago Lake fisheries surveys from 1974 – 2014 was completed by Cornell Biological Field Station staff in January 2016.

### Stocking Evaluation of 50 Day Old Walleye Fingerlings



An experimental walleye stocking program, initiated in 2009 in 9 lakes in central and western regions of the state, was continued using approximately 50 day old tank raised fingerlings from Oneida Hatchery. These 9 lakes (Upper, Middle, and Lower Cassadaga Lakes,

Redhouse Lake, Payne Lake, Otisco Lake, Loon Lake, Black Lake and Red Lake) were stocked for 5 consecutive years with about 250,000 1.5 inch long fingerlings and assessed every fall for young of year survival. Stocking ended for these lakes in 2013 and full walleye population assessments were conducted on the Cassadaga Lakes, Redhouse Lake, Payne Lake, Loon Lake and Otisco Lake in 2014 and Black and Red Lake in 2015 to assess the success of the program. No walleye were collected from the Cassadaga Lakes, and few walleye were collected from Redhouse, Red, Black and Payne lakes, indicating that the stocking experiments in these waters were unsuccessful in establishing walleye fisheries. Walleye were commonly captured from Loon and Otisco lakes, indicating that the program can be successful in certain waters. Other lakes, including Chautauqua Lake, East Sidney Reservoir, Rio Reservoir and Cazenovia Lake were included in the stocking program after 2009 and were evaluated for young of year stocked walleye survival in 2015. No stocked walleye

were found in East Sidney and Rio reservoirs or Cazenovia Lake. Stocked walleye were commonly caught from Chautauqua Lake.

### Statewide Fisheries Database Black Bass Assessment

Largemouth bass and smallmouth bass population data (length, weight, ages) from the NYSDEC Statewide Fisheries Database (SWFD) from 2004-2013 were summarized and key population metrics (catch rates, condition, growth) were assessed and compared among statewide stream/river, lake/pond and St. Lawrence River populations. For both species, there were over twice the number of surveys, fish collected and waterbodies sampled for lakes than there were for streams. Mean lengths, weights, and ages for both species were smaller in streams than lakes. Lake surveys were more likely to be designed for warmwater sportfish population assessments (i.e., Centrarchid and Percid surveys) than stream surveys, which likely influenced the size and age structure of fish collected from each waterbody type. Grand mean smallmouth bass catch rates were similar for lakes (10/h±6) and streams (8/h±2), whereas grand mean largemouth bass catch rates were higher in lakes (19/h±5) than streams (11/h±8). Condition, as measured by relative weights ( $W_r$ ) derived from species-specific equations, of each black bass species in streams and lakes was similar, but largemouth bass tended to be in better condition than smallmouth bass and condition tended to increase from spring through fall within species/waterbody type groups. Small sample sizes of aged bass limited age distribution and growth assessments, particularly for streams. The limited data suggested that both species typically reach 10 inches by age 3 and 12 inches by age 4 in all waterbody types, and that lake and St. Lawrence River smallmouth bass mean lengths were slightly higher than those for stream smallmouth bass for ages 3-6. Mean lengths at ages for smallmouth bass from the St. Lawrence River and lakes are indicative of fast growth through age 5, and average growth thereafter.



This project highlighted the extent and limitations of stream black bass population data in the SWFD. Few stream surveys provided the data necessary for a comprehensive assessment of bass populations, which limited the assessment of statewide population metrics and stream/lake comparisons. Establishment of standard warmwater stream sampling and assessment methods would allow for a more uniform and comprehensive assessment approach, which would greatly enhance the ability to reliably assess individual bass populations and make comparisons among streams throughout the state.

## Coldwater Fisheries Management

### Brook Trout Management

Since the completion of the catchment level brook trout assessment in the spring of 2015, the resulting statewide map of habitat patches where brook trout were found or predicted was incorporated into two additional tools for conservation planning. First, the data was provided to the New York Natural Heritage Program resulting in the inclusion of brook trout status as a criterion in its Great Lake Riparian Opportunity Assessment; a geographic information tool designed to help identify watersheds in the Great Lakes basin where reestablishing streamside forest would have the greatest conservation benefit. It was also added to the master habitat data selector enabling DEC staff to easily overlay the brook trout habitat patches with any of the other maps already in the data selector. The catchment level brook trout information is available to the general public at the following URL:

[http://ecosheds.org:8080/geoserver/www/Web\\_Map\\_Viewer.html](http://ecosheds.org:8080/geoserver/www/Web_Map_Viewer.html).

In 2015, the Bureau participated in two new multi-agency research projects applying genetic analyses to brook trout management questions. The primary objective of the first project was to identify western NY brook trout populations that would most benefit from removing barriers to fish passage. A secondary objective was to determine the extent to which the genetic structure of certain wild brook trout populations had been influenced by stocked brook trout. To answer these questions, Bureau staff conducted non-lethal collections of adipose fin tissue from brook trout from 18 streams in Region 9 and 20 streams in Region 8. The samples were submitted to a U.S. Fish and Wildlife Service lab where analysis is in progress. USFWS staff completed similar collections on an additional 19 waters in western New York. The second project is an experimental approach to brook trout monitoring in the Chesapeake Bay watershed. The technique being tested uses genetic markers from adipose fin tissue from young-of-the-year brook trout to characterize the population structure and genetic health of a brook trout population. A relatively small sample can be used to estimate the number of breeding adults within a self-contained population. This can then be used to infer whether that population is stable or declining with considerably less effort than would be required to conduct traditional population estimates. In 2015, tissue collections were completed on six streams in NYSDEC Regions 4, 7, and 8. Other states conducted parallel sampling in their portions of the Chesapeake Bay watershed.

Taking advantage of recent advances in the science, information, and technology available to manage this species, a new statewide brook trout management plan is being drafted. The original brook trout plan, completed in 1979, has been a successful blueprint for managing this species in New York State but it is clearly due for an update. The rewrite committee, chaired by the Coldwater Unit Leader, met in December 2015 to review the components written by the members. A complete first draft is planned for 2016.

### Landlocked Atlantic Salmon Management



Since 2007, the Bureau obtained landlocked Atlantic salmon eggs (Sebago strain) from the state of Maine to stock Little Clear Pond; the brood stock source for the entire NYSDEC Atlantic salmon propagation program. The objective was to gradually re-

place the Little Clear Pond strain with the Sebago strain which showed superior performance in a study completed on Lake Champlain. In 2015, analysis of the 2014 netting data showed that all captured fish were Sebago strain progeny. Therefore, the eggs taken from Little Clear Pond in the fall of 2015 could be confidently classified as pure Sebago strain. With this transition successfully completed, eggs from Maine are no longer needed and Atlantic salmon propagation can continue based on a self-sufficient Sebago strain brood stock in Little Clear Pond.

### Coldwater Habitat Management and Monitoring in the New York City Watershed

The upper reaches and tributaries of the Delaware River support one of most productive trout fisheries east of the Mississippi River. The fishery depends upon releases of cold water from three water supply reservoirs operated by New York City under a Flexible Flow Management Plan (FFMP) that is negotiated between New York City and the states of New York, New Jersey, Pennsylvania and Delaware. The FFMP is, in turn, based on the outcome of legal proceedings among the above parties which culminated in 1954 in a United States Supreme Court decree. In this management context, NYSDEC's habitat

protection objectives are contained in recommendations set forth on January 12, 2010 in concurrence with the Pennsylvania Fish and Boat Commission. Both the FFMP and the joint fisheries recommendations can be found on the website of the Delaware Rivermaster:

<http://water.usgs.gov/osw/odrm/index.html>.

In order to assure the availability of flow and temperature data essential to coldwater fisheries management in the tailwaters of New York City's Delaware and Catskill reservoirs, a total of \$54,510 was committed in 2015 to support the operation of U.S. Geological Survey stream gages at the following locations:

- Diversion from Schoharie Reservoir
- Esopus Creek at Coldbrook
- East Branch Delaware River at Harvard
- West Branch Delaware River at Hale Eddy
- West Branch Delaware River at Hancock
- Delaware River at Lordville
- Delaware River at Callicoon
- Neversink River at Bridgeville

These instruments, which transmit flow and temperature measurements in real time, would not otherwise be operated. The data they collect are available to the public at the following website:

[http://waterdata.usgs.gov/ny/nwis/current/?type=sw&group\\_key=basin\\_cd](http://waterdata.usgs.gov/ny/nwis/current/?type=sw&group_key=basin_cd).

Beyond supporting the operation of the USGS gages, Bureau of Fisheries staff from Regions 3 and 4 deploy an array of temperature recording sensors at strategic locations downstream of the three Delaware reservoirs on an annual basis to provide additional information to evaluate the performance of the FFMP with respect to the habitat protection objectives described above. A report summarizing the data collected from this monitoring effort for the period from June 2011 through May 2015 was completed in 2016 and is available on the Delaware Rivermaster website.

Between July 8th and August 5th of 2015 Cannonsville Reservoir was rapidly drawn down as a public safety precaution following a soil boring accident. The additional volume of cold water released during this period shifted the zone of optimal trout temperatures downstream from its typical summer location under the FFMP. Had the drawdown continued however, the volume of cold water would have been exhausted by August 17th leaving the trout populations in both the reservoir and the river vulnerable to thermal stress and fish kills. NYSDEC and Pennsylvania Fish and Boat Commission staff met regularly during the drawdown to discuss risk scenarios and management options. Fortunately, repair work at the dam was completed ahead of schedule and the remaining reservoir storage was sufficient to sustain the fishery through the rest of the summer.

### Inland Trout Stocking Research

In 2015, the Coldwater Unit continued to consider the management implications of Cornell University's evaluation of the methods currently used by the Bureau to calculate stocking rates for inland trout streams. The Cornell report, finalized in early 2015, showed that, while catch rate objectives were generally met under the current stocking rates for the streams included in the study, several important parameters including angler effort, angler harvest rates and natural mortality rates had changed substantially since the catch rate oriented trout stocking (CROTS) method was adopted in 1990. Because the CROTS method is working reasonably well, no systematic changes are currently proposed. However, based on the study findings, the Bureau will pursue further research and investigate management options that may offer opportunity to provide greater fishing opportunity with the trout produced by the hatchery system.

## Management of Rare & Endangered Fishes

### Sauger Restoration

Sauger are one of the most critically imperiled fish species in New York State and a Conservation Management Plan was recently adopted to aid its recovery. The goal of this plan is to establish and maintain self-sustaining sauger populations in all suitable waters of native watersheds, including the Allegheny River watershed. A stocking program was developed and implemented to establish a population in this watershed. Sauger fry from the Ohio River were provided by the West Virginia Division of Natural Resources in 2014 and 2015. These fry were raised in ponds at the Chautauqua Hatchery until being stocked in the upper Allegheny Reservoir in early June of each year. Electrified trawl and boat electrofishing surveys were conducted in late summer of each year to check the status of stocked fish. A total of 6 young of year sauger were collected during trawl surveys. Sixty-seven young of year and 17 age 1 sauger were collected during boat electrofishing surveys. Sauger are staying near the area where they were stocked, a relatively high percentage of them are surviving, and growth appears to be quite high. The prevalence of a variety of fish species in the trawl surveys suggests that the forage base in the upper reservoir is more than adequate to support a sauger population. Annual late summer surveys in stocked areas will continue for each year sauger are stocked and a survey will be conducted throughout the watershed in 2020 to determine if the objective of establishing a self-sustaining population was met.



### Lake Sturgeon Recovery Efforts



Restoration effort for lake sturgeon (*Acipenser fulvescens*), a Threatened species in New York State, began in 1991. Since that time DEC has sought to enhance natural recovery in several locations via propagation and stocking through 2024.

Lake sturgeon eggs (100,000) were taken in early June at the Robert Moses Power Project, Massena NY with 4 egg bearing females providing eggs. A cooperative effort between NYS DEC and the Genoa National Fish Hatchery (USFWS, Wisconsin) was successful in rearing approximately 20,500 fish. Hatchery capacity at both facilities was exceeded so stocking was split into two increments; 10,000 summer fingerlings and 10,500 fall fingerlings. Approximately 13,000 fish were stocked in the St. Lawrence, Raquette River, St. Regis River, Oswegatchie River, Black Lake, Cayuga Lake, Genesee River and Salmon River (Franklin County). The remainder ( $\approx 7,500$ ) were stocked into bays along the eastern basin of Lake Ontario. All fingerlings received Coded Wire Tags (CWT) prior to stocking for year class survival assessments in the future.

Region 6 staff began a tagging study in 2010 to acquire biological data and provide the basis for movement studies throughout Lake Ontario and the St. Lawrence River. A total of 169 sturgeon were collected in 2015 from the eastern basin of Lake Ontario, and the St. Lawrence River downstream to just below the Robert Moses Power Project. Most of the fish (145) were new captures and were tagged with Passive Integrated Transponders (PIT tags).

The Region 9 fisheries unit and the Lake Erie Fisheries Research

Unit sampled the lake sturgeon spawning population in Buffalo Harbor during May and June 2015. Buffalo Harbor is a historic spawning area for lake sturgeon and the area supported a major commercial fishery in the late 1800's. However, overfishing and habitat loss reduced the Lake Erie sturgeon population to very low levels and they are currently listed as threatened by New York State. In recent years the lake sturgeon population in Lake Erie has been increasing and fish once again began returning to Buffalo Harbor to spawn in detectable numbers. Lake sturgeon spawning aggregations in Buffalo Harbor have been surveyed since 2012. Over the last four years 131 lake sturgeon have been caught and tagged. The majority of the fish captured are less than 20 years old but older fish are also present, including one fish that was estimated to be 84 years old. The average total length of all lake sturgeon caught from 2012 – 2015 was 4' 9" and the average weight was 58 pounds. The largest fish caught during the survey was a 6' 2", 143 pound female caught in 2015. All fish caught during the survey were tagged with external FLOY tags and internal PIT tags. In 2015 we began working with U. S. Fish and Wildlife Service from Lamar, PA and 19 fish were tagged with acoustic telemetry tags that will be used to track lake sturgeon movements throughout Lake Erie with the goal of identifying seasonal habitat use and spawning locations.



### Region 6 Rare Fish Management Update

#### Summer Sucker

Life history studies about time of spawning, sizes, growth and genetics of summer sucker and the eastern variant of summer sucker were advanced. Late spawning suckers from Squaw Lake and South Pond (Raquette watershed) were successfully sampled in an attempt to examine gene expression using RNA analysis of fish at time of spawning. The eastern variant of late spawning sucker surveys were sampled a second year in Fish Pond and Thirty-five Outlet, but late spawning was not able to be documented like in 2014. Suckers were not able to be caught in Minnow Pond, the spot where the earliest summer suckers were described, in 1886. It appears that suckers previously known here may have been replaced by the many coolwater species that became established in the last several decades. Genetic analysis of these samples will likely be completed in spring 2016.



**Pugnose Shiner**

Planning continued for a pugnose shiner recovery program to include stocking in Chaumont Bay of Lake Ontario in 2016. Efforts were extended in 2015-16 as: 1) guiding a study by SUNY Brockport on habitat associations in the St. Lawrence and 2) assisting in the hatchery propagation at SUNY Cobleskill such that brood stock were satisfactorily delivered so there was spawning and reproduction in 2015. Stocking could occur in September 2016.

**Native Mussel Distribution in the Upper Susquehanna Watershed**

Region 8 Fish and Wildlife staff completed the second year of a five-year project to determine distribution, density, and status of native freshwater pearly mussel species in six major sub-basins of the Susquehanna, Lake Erie, and Allegheny Watersheds. Mussels stabilize streambeds, diversify stream habitat, provide nutrients to other benthic invertebrates, filter suspended solids and pollutants from water, and are considered indicators of ecosystem health. In spite of the ecological importance of freshwater pearly mussels, they are among the most imperiled groups of animals in North America.

Between 2014 and 2015, 87 sites along 24 streams in the Susquehanna watershed's Chemung sub-basin were surveyed. Evidence of native mussels (live animals or shells) was found in 12 of the surveyed waterbodies. Live mussels were found in eight of the surveyed streams, while live Species of Greatest Conservation Need (SGCN) mussels were found in six of the streams.

A total of 13 species were detected in these surveys, including five SGCN. SGCN species included brook floater, elktoe, green floater, paper pondshell, and yellow lampmussel. We documented both threatened species, brook floater and green floater, at sites where they were not previously detected two decades ago during the last watershed survey. This may indicate that these species, green floater in particular, have expanded their range in this sub-basin.



**Lake Ontario Cisco Restoration**

Re-establishing self-sustaining populations of native whitefishes in Lake Ontario is the focus of cooperative efforts between the Department, the United States Geological Survey (USGS), the Ontario Ministry of Natural Resources (OMNR), the U.S. Fish and Wildlife Service (USFWS), and the Great Lakes Fishery Commission (GLFC). For the third consecutive year, DEC region 8 staff assisted USGS staff with a fall stocking of ciscoes, or lake herring, in Irondequoit Bay. Lake herring were once an important prey fish in Lake Ontario, and supported important commercial fisheries that collapsed in the early 1950s largely due to over-harvest. On November 30 and December 7 and 9, 2015 Region 8 staff assisted USGS staff with a trap net survey aimed at capturing ciscoes stocked in 2015 and previous years. None were collected during this effort.



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Paul Sweeney      Calculations Clerk 2



The Bureau of Fisheries Lake Ontario Unit (LOU), based in Cape Vincent, is primarily responsible for delivering a lake-wide fisheries assessment and research program. The mainstay of the program is the Department's 60 ton Research Vessel Seth Green.



Lake Ontario's sportfisheries have been valued at over \$112 million annually, and successful management requires that fisheries assessments and research be executed collaboratively. Delivery of this comprehensive program requires active partnerships with a number of institutions, including DEC Regions 6, 7, 8 and 9, the U.S. Geological Survey (USGS), the Ontario Ministry of Natural Resources and Forestry (OMNRF), the U.S. Fish and Wildlife Service (USFWS), the Great Lakes Fishery Commission (GLFC), Canada Fisheries and Oceans (DFO), Cornell University, and the SUNY College of Environmental Science and Forestry. The complete annual report can be accessed at:

[www.dec.ny.gov/outdoor/27068.html](http://www.dec.ny.gov/outdoor/27068.html)

**SPECIES CONSERVATION & MANAGEMENT**

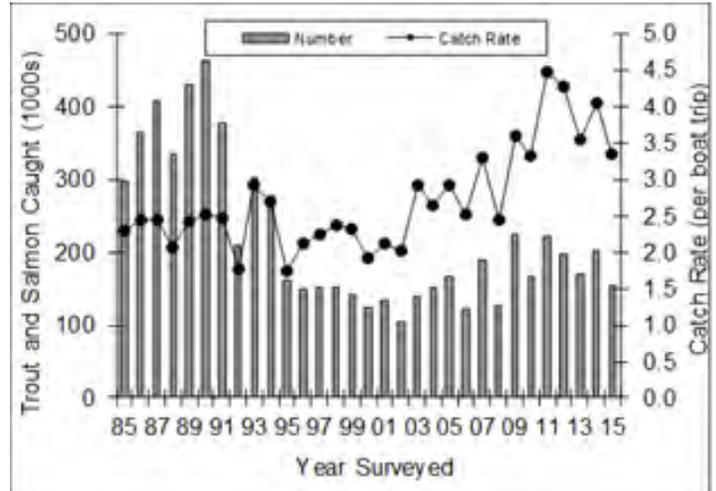
**Sportfishery Monitoring**

Each year from April through September, the LOU conducts the Lake Ontario fishing boat survey at 30 access channels from the Niagara River in the west to the Association Island cut in the east. The survey tracks a multitude of trends in the open lake sportfishery, including angler effort, catch and catch rates, harvest and harvest rates, performance of stocked fish, and fish growth/condition. Lake Ontario fishing quality is best characterized by the number of trout and salmon caught per fishing boat trip (catch rate). In 2015, there were periods and locations of excellent fishing quality and periods and locations of poor fishing quality. With the variety of trout and salmon species present in Lake Ontario, anglers were able to target another species when catch rates for their preferred target declined. This resulted in a good catch rate for all trout and salmon combined in 2015; however, this relatively high rate is largely attributed to the high catch rate of lake trout (Figure 1). Reduced fishing success and overall angler effort (i.e. total number of days spent fishing by anglers) relative to recent years is thought to have been influenced by abnormally cool water temperatures, as well as atypical wind patterns in 2015.

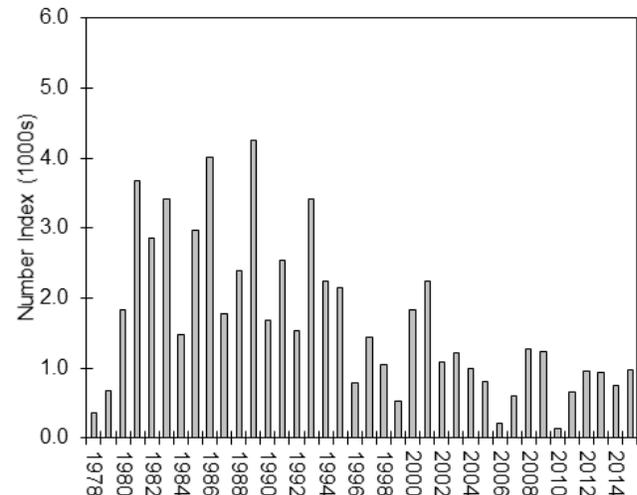
**Preyfish Monitoring and Predator Growth/Condition**

With over 5 million trout and salmon stocked annually into Lake Ontario by New York State and the Province of Ontario, it is important to monitor the abundance of bait or preyfish that trout and salmon predators feed on, as well as growth rates and condition of predators (also see Sportfishery Research). Partnering with USGS and OMNRF, the LOU monitors relative abundance of alewife, rainbow smelt, sculpins, and round gobies. Alewife populations are of particular concern, as they are the primary food for Chinook salmon, the top predator in the lake. The adult alewife abundance index in 2015 was similar to the previous four years (Figure 2). Catches of age-1 alewife in 2014

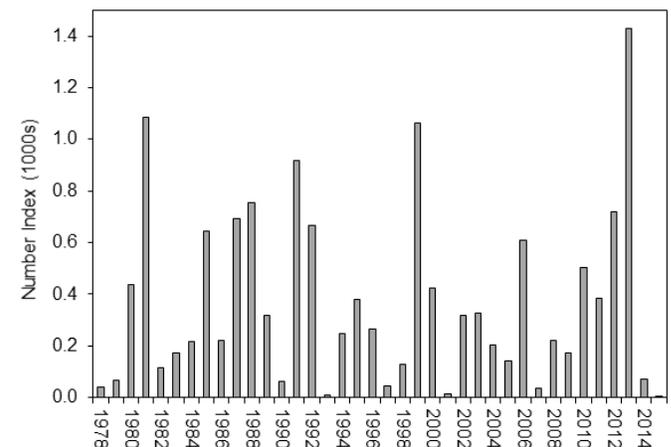
and 2015 were very low (Figure 3). The relatively severe winters of 2013/2014 and 2014/2015 likely contributed to lower survival of young alewife produced in 2013 and 2014. Given low numbers of age-1 alewife in both 2014 and 2015, the adult alewife population is expected to decline in 2016.



**Figure 1. Total trout and salmon catch (bars) and catch rate (line/dots; top graph) and harvest (bars) and harvest rate (lines/diamonds; bottom graph) for boats seeking trout and salmon, 1985-2015.**



**Figure 2. Abundance indices for adult (age-2 and older) alewife in the U.S. waters of Lake Ontario during late April-Early May, 1978-2014. (1 kg = 2.205 lbs)**



**Figure 3. Abundance indices for age-1 alewife in the U.S. waters of Lake Ontario during late April-Early May, 1978-2015.**

## Sportfishery Research

Using Lake Ontario Natural Resources Damages funds, the Bureau of Fisheries purchased a \$1.3 million automated fish marking trailer (“AutoFish”) in 2008. The AutoFish system is capable of removing a fish’s adipose fin and/or inserting a coded wire tag into the snout of the fish



automatically at a high rate of speed and accuracy. Fin clipping and tagging gives researchers tools to answer a variety of questions regarding the relative performance of stocked and wild fish. From 2008-2011, the Department and the OMNRF “mass-marked” all Chinook salmon stocked into Lake Ontario with an adipose fin clip to determine the relative contributions of naturally reproduced (“wild”) and hatchery stocked Chinook salmon to open lake and tributary fisheries. Knowing the relative roles of hatchery and wild salmon in the lake is very important for fisheries managers to better understand how stocking decisions can influence Chinook salmon population dynamics and predator/prey balance in Lake Ontario. High numbers of wild Chinook salmon in addition to stocked fish are thought to have contributed to an imbalance between predators and alewife in Lake Huron, greatly reducing growth and condition of Chinook salmon and negatively impacting sportfisheries. The relative contribution (%) of wild Chinook salmon in the open Lake Ontario sport fishery averaged approximately 47% from 2010-2015. These results indicate that although wild fish are an important component of the Lake Ontario Chinook sport fishery, stocking remains essential for sustaining the sport fishery and managing the lake ecosystem.

DEC’s Salmon River Hatchery aims to stock Chinook salmon at sizes which promote good survival and imprinting to stocking sites. Tagging of Chinook salmon by LOU has also provided valuable information to managers regarding the effectiveness of hatchery stocking methods. Preliminary results of another LOU stocking strategy evaluation indicate that stocking and holding salmon in pens for a period of a few weeks prior to release (“pen rearing”) results in about 2X better relative survival than stocking salmon directly into the lake. Since Lake Ontario angler groups pen rear about 500,000 Chinooks each year, the “effective” result of this stocking is the same as 1 million Chinook stocked by traditional methods.

## Native Species Restoration

An international program to restore a naturally reproducing population of lake trout in Lake Ontario is ongoing. To measure progress, cooperative DEC/USGS bottom trawl (juveniles; July) and gill net (adults; Sept.) surveys are conducted annually at 14 sites from the Niagara Bar to Charity Shoal in the Eastern Basin. Adult lake trout abundance increased each year from 2008-2014, following historic lows observed during 2005-2007. In 2015, 24 age-1 and 48 age-2 naturally produced lake trout were collected in trawl surveys, the 2nd largest catch of naturally produced lake trout in nearly 41 years of surveys.

Three species of deepwater coregonids (members of the whitefish family) are considered extirpated from Lake Ontario, and the LOU has been collaborating with the OMNRF, USFWS, and the GLFC to reintroduce bloater into the lake. In 2014, bloater eggs were collected from Lake Michigan and reared at OMNRF’s White Lake Fish Culture Station and the USGS Tunison Laboratory of Aquatic Sciences in Cortland. For a fourth consecutive year, bloaters were stocked into Lake Ontario via this international partnership. Stocking numbers have increased each year, highlighting great advances made in bloater culture techniques at these facilities. Stocking of bloaters is expected to continue annually, with the goal of restoring a self-sustaining population within 25 years.

In addition, the USGS Tunison Laboratory of Aquatic Sciences, in partnership with DEC, is rearing and stocking another coregonid, lake herring. In 2015, a combined total of 100,000 lake herring were stocked into Irondequoit and Chaumont bays on Lake Ontario

## Sea Lamprey Control

In an ongoing battle to combat the damaging impacts of sea lamprey on Lake Ontario sport fisheries, the GLFC and their sea lamprey control agents, the Department of Fisheries and Oceans Canada and the USFWS, conducted comprehensive control and assessment activities in Lake Ontario tributaries in 2015. In the adult phase, a single parasitic sea lamprey is capable of killing as much as 40 pounds of fish. Treatments to kill larval lamprey using lampricides were completed in 19 tributaries (10 in Canada, 9 in NY). Treatments in New York included Black River, Altmar Creek, Snake Creek, Catfish Creek, Owasco Outlet, Eightmile Creek, Sterling Creek, Red Creek, and Sodus Creek. A total of 4,184 sea lampreys were trapped in eight tributaries, five of which are index locations. Assessments were conducted on 96 tributaries (65 in Canada, 31 in NY).

## Warmwater Fisheries Assessment

Each year the LOU conducts index gill netting to assess the status of warmwater fish populations in Lake Ontario’s Eastern Basin. In 2015, smallmouth bass abundance declined to the lowest level observed since 2004 and among the lowest in 39 years of netting. Walleye abundance also decreased. However, with the evidence of moderate to strong reproduction in recent years, the fishery is expected to remain relatively stable for the next few years. In 2015, yellow perch catch declined to the lowest level in the time series. This decrease may be partly attributable to water temperature patterns and catch variability; however, angler reports also suggested lower yellow perch abundance in 2015. At least one lake sturgeon has been collected in 15 of the last 21 years, suggesting an increase in sturgeon abundance.

## St. Lawrence River Research

### Muskellunge Research

Muskellunge are the focus of a popular and economically important fishery in the Thousand Islands region of the St. Lawrence River, where the NYS record 69 pound 15 ounce muskellunge was caught in 1958. In the late 1970s, muskellunge guides raised concerns that the quality of the muskellunge sport fishery had declined dramatically. In response, the Department conducted preliminary research leading to an increase in the muskellunge minimum size limit from 32 inches to 36 inches. Using Federal Aid in Sport Fish Restoration program funding, the Department contracted with the SUNY College of Environmental Science and Forestry (ESF) beginning in 1987 to conduct St. Lawrence River muskellunge studies. In the ensuing years, studies have identified over 80 muskie spawning and nursery areas that have been afforded additional levels of protection from habitat alteration. Research documenting first spawning of females at approximately 36 inches in length (6 years old) led to increases in the minimum size limit first to 44 inches, and then to 48 inches. A muskellunge release program was instituted that rewards anglers who release a legal-size muskie with a limited edition muskie print created by a renowned local artist. By the mid-1990s, these management actions contributed to a substantial increase in muskellunge angler catch rates, which



achieved the management plan catch rate target in 1999.



Large-scale mortalities of pre-spawn female muskellunge caused by the newly introduced Viral Hemorrhagic Septicemia virus (VHSv) were documented in 2005 and 2006. Spring trapnet surveys at index sites sampled each year indicated declining spawning adult abundance since 2008, with

marginally improved catches in 2013 and 2014. (Figure 1). Catches of young-of-the-year (YOY) muskellunge in index seine hauls also declined since 2004, but improved slightly in 2013 and 2014 (Figure 2). An angler diary program, which indexes the relative quality of muskie fishing through angler catches, also indicates that angling success remains well below the target of 1 fish caught per 10 hours of fishing. A number of potential causes may be contributing to the apparent muskellunge decline, including habitat changes (vegetative and fish communities on nursery grounds), VHSv mortality, and the presence of round goby in spawning/nursery habitats. Investigations into the cause(s) for these declines are ongoing.

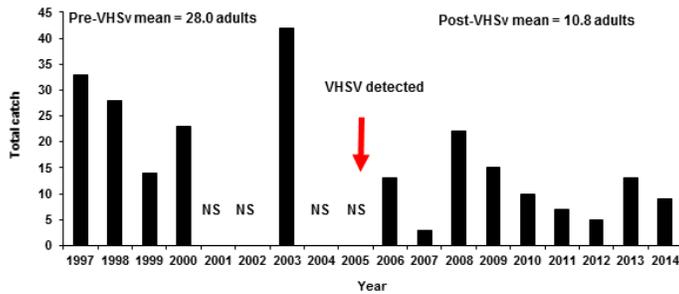


Figure 1. Total catch of muskellunge during spring trapnet sampling during 1997- 2014. Sites and effort are approximately equal over the series. Samples were not collected in 2001-02 and 2004-05 (NS) because of a decision of the Esocid Working Group to monitor muskellunge every third year. Following VHSV outbreak it was decided to resume annual monitoring.

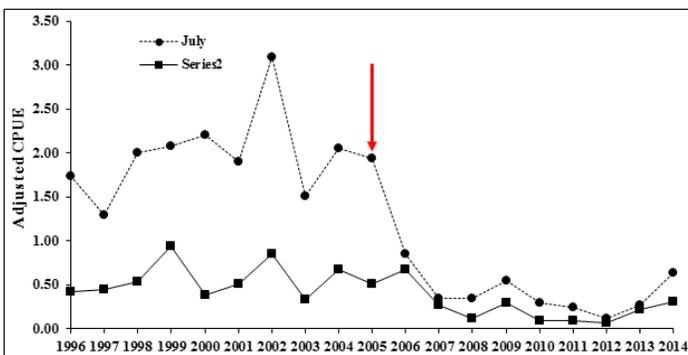


Figure 2. Catch per unit effort of YOY muskellunge captured in standardized seine hauls in eleven upper St. Lawrence River nursery sites from 1996 to 2014 (July= 30' seine series; Series 2= 60' seine). The arrow indicates the year VHSV (2005) was detected resulting in widespread mortality of adult muskellunge in the upper River.

**Northern Pike Research**

Northern pike spawn about one month earlier in the spring than muskellunge, and are more dependent upon the presence of submerged vegetation for spawning habitat. Long-term regulation of Lake Ontario and St. Lawrence River water levels by the International Joint Commission has reduced the natural range of water levels in the system, resulting in degradation of wetland habitats required by northern pike.

Similar to muskellunge studies, ESF researchers have chronicled declines in the abundance of spawning adult and YOY northern pike in the Thousand Islands region. Ongoing research has focused on developing a better understanding of water level regulation impacts on wetland habitats, and conducting experimental habitat manipulations designed to improve natural reproduction of pike. Habitat manipulations include water level control structures used to restore more natural water level regimes in managed spawning marshes, and excavation of channels and pools in cattail mats.

Production of YOY northern pike in managed marshes was initially high, but has declined significantly since 2007. Low numbers of spawning adults, as well as a predominance of female pike, appear to contribute to low reproductive success. Seine hauls at Delaney Bay, downstream of a managed spawning marsh, resulted in a catch of only 12 YOY pike in 2014. The YOY muskellunge seining survey at eleven index sites caught 5 northern pike YOY in the 30' seine series in 92 hauls and 16 in the 60' seine series in 90 hauls. Eight upper St. Lawrence River bays were sampled by seining and 27 YOY pike were captured (N=57 hauls). Assessment of the efficacy of excavated channels in increasing northern pike reproduction is ongoing.



More detailed information on muskellunge and northern pike studies can be found in the Lake Ontario Unit annual report which can be accessed at [www.dec.ny.gov/outdoor/27068.html](http://www.dec.ny.gov/outdoor/27068.html).

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- |                  |                                   |
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| Russell Moore    | Fish & Wildlife Technician 1      |
| Robert Partridge | Fish & Wildlife Technician 1      |



The New York State Department of Environmental Conservation's Lake Erie Fisheries Research Unit is responsible for research, assessment and fisheries management activities for one of New York's largest and most diverse freshwater fishery resources. A variety of annual programs are designed to improve our understanding of the Lake Erie fish community to guide fisheries management, and safeguard this valuable resource for current and future generations. The Lake Erie Unit annual report is available on DEC's website at [www.dec.ny.gov/outdoor/32286.html](http://www.dec.ny.gov/outdoor/32286.html).



**SPECIES CONSERVATION & MANAGEMENT**

**Warmwater Fisheries Management**

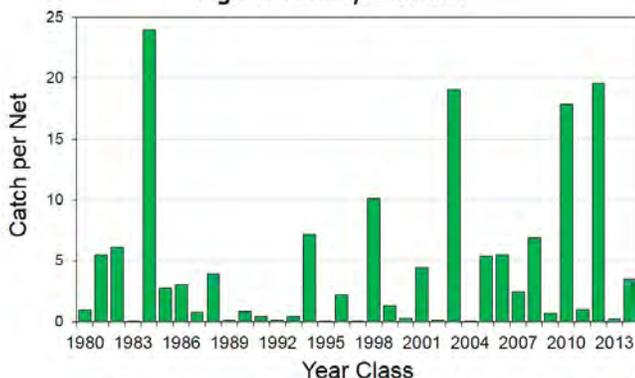
**Walleye**



Lake Erie's eastern basin walleye resource is composed of local spawning stocks as well as contributions from summertime movements of west basin spawning stocks. Walleye fishing in recent years has generally been very good and largely attributable to excellent spawning success observed in 2003,

2010, and 2012. Measures of walleye fishing quality in 2015 were the fifth highest recorded in the 28 year survey. New York's most recent juvenile walleye survey indicates a moderate spawning year in 2014. Overall good recruitment through recent years, especially from 2010 and 2012, suggests adult walleye abundance in the east basin will remain satisfactory for the next several years. The west basin of Lake Erie experienced a high walleye recruitment event in 2015, which should also help to support New York's walleye fishery in the future. A new research initiative that began in 2015 uses acoustic telemetry to study walleye movement and assess the contribution of west basin migrants to the New York walleye fishery. A \$100 reward is associated with the return of each tagged fish along with the internal acoustic tag.

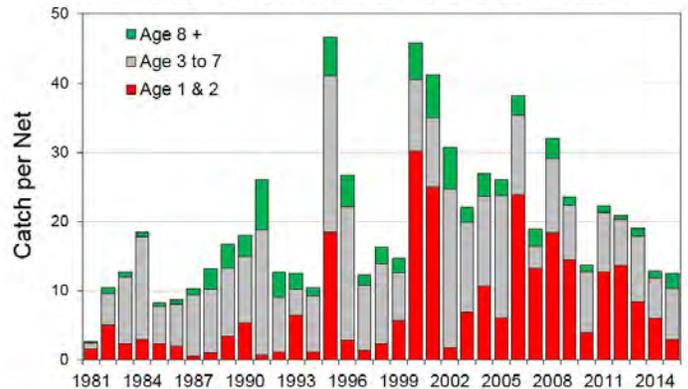
**Age-1 Walleye Index**



**Smallmouth Bass**

Lake Erie supports New York's, and perhaps the country's, finest smallmouth bass fishery. Bass fishing quality in 2015 was the fourth highest observed in the 28 year series of monitoring, with the peak observed in 2013. Generally stable spawning success, coupled with very high growth rates and acceptable survival, produce high angler catch rates and frequent encounters with trophy-sized fish. Most recent data indicate a very gradual decline of abundance to near long term average measures. Juvenile abundance measures suggest 2013 produced a below average smallmouth bass year class.

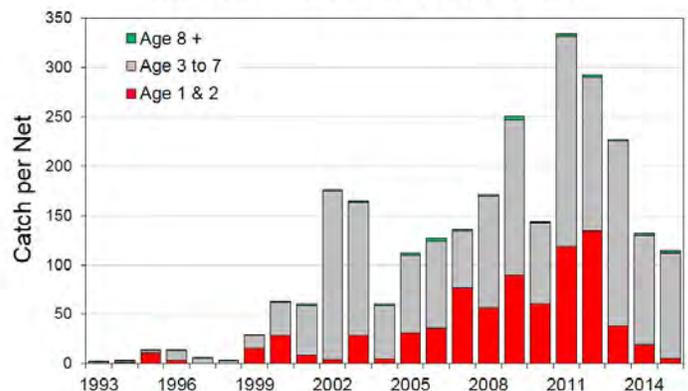
**Gill Net Catches of Smallmouth Bass**



**Yellow Perch**

Lake Erie yellow perch populations have experienced wide oscillations in abundance over the last 30 years, from extreme lows in the mid-1990's to an extended recovery that's now lasted well over a decade. A large adult population continues to produce good angler catch rates, especially during spring and fall. Declining levels of juvenile yellow perch have resulted in an overall decline in the population over the past three years. Spawning success from 2011 through 2013 was average to poor. This decrease has yet to influence yellow perch angler quality which was the highest in the 27 year series in 2014.

**Gill Net Catches of Yellow Perch**



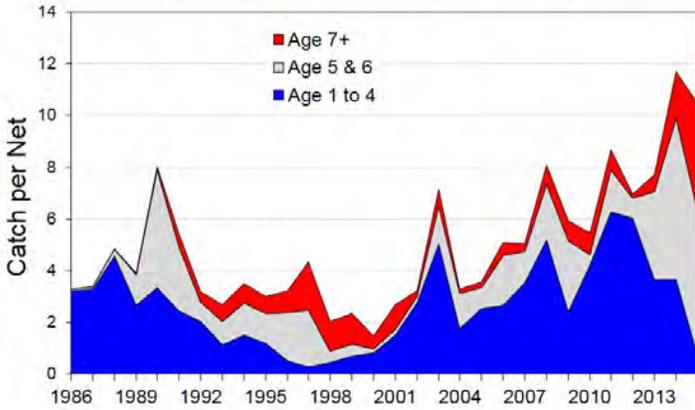
**Coldwater Fisheries Management**

**Lake Trout Restoration**

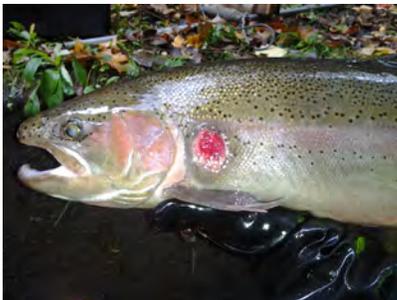
Re-establishing a self-sustaining lake trout population in Lake Erie continues to be a major goal of Lake Erie's coldwater program. Lake trout have been stocked since 1978 and annual assessments monitor progress towards restoration objectives. A revised lake trout rehabilitation plan was completed in 2008 and guides current recovery efforts. The overall index of abundance of lake trout in the New York waters of Lake Erie during 2015 was the second highest observed in 30 years. The majority of the catch was comprised of young adult lake trout ages 5-7. All adult fish (age 5+) were observed at their highest abundance in 2015, but older fish (age 10+) remain scarce.

Basinwide estimates surpassed targets for adult abundance for the second consecutive year. However, adult survival for some lake trout strains remains low, mainly due to high sea lamprey predation. Natural reproduction has not yet been detected in Lake Erie, and significant stocking and sea lamprey control efforts must be continued to build and maintain the adult population to levels where natural production is viable. Beginning in 2016 an acoustic telemetry study will help locate spawning habitats used by stocked lake trout.

**Gill Net Catches of Lake Trout**



**Sea Lamprey**



Sea lamprey invaded Lake Erie and the Upper Great Lakes in the 1920s and have played an integral role in the demise of many native cold-water fish populations. Great Lakes Fishery Commission (GLFC) coordinated sea lamprey control in Lake Erie began in 1986 in support of lake trout rehabilitation efforts, and

regular treatments are conducted to reduce sea lamprey populations. Annual monitoring undertaken by NYSDEC includes observations of sea lamprey wounds on lake trout and other fish species, and lamprey nest counts on stream sections. Wounding rates on lake trout decreased in 2015 but remain well above targets. Inspections of sportfish species documented sea lamprey wounding on warmwater species as well. GLFC surveys conducted in recent years indicate the largest source of Lake Erie's sea lamprey production may be the St. Clair River rather than traditionally monitored and treated Lake Erie streams.

**Salmonid Management**

New York annually stocks approximately 255,000 steelhead and 35,000 brown trout into Lake Erie and its tributaries to provide recreational opportunities for anglers. Wild reproduction of steelhead also occurs in some tributaries but remains a minor contributor to the overall fishery. A long term annual angler diary program continues to monitor characteristics of the tributary steelhead fishery. Steelhead stocking was below target in 2015 due to a hatchery mortality event. Surplus steelhead were provided by PA and VT to mitigate this shortage. A tributary angler survey conducted in 2014-15 found steelhead catch rates were 0.32 fish/hour, which was similar to the previous 2011-12 survey. A study utilizing two different stocking sizes of steelhead and two different stocking strategies began in 2015, and will continue through 2018. This research will provide insights on the role of stocking size

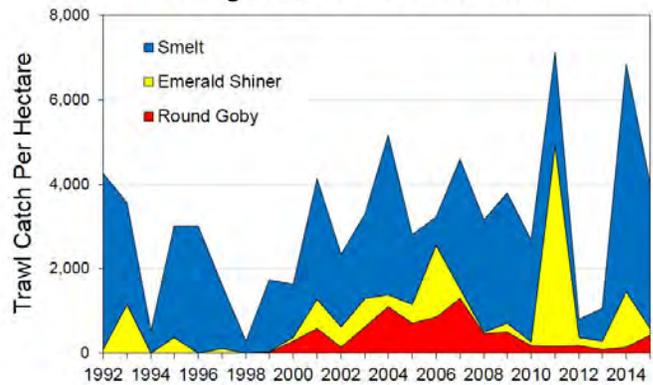


and location on adult returns.

**Prey Fish**

The Lake Erie Unit conducts a number of surveys to assess forage fishes and components of the lake's lower trophic levels that further our understanding of factors shaping the fish community. Current surveys include trawling, predator diet studies, and lower food web monitoring. A variety of prey fish surveys beginning over 20 years ago identified rainbow smelt as the dominant component of the open lake forage fish community. Beginning in 2000, there was a notable increase in prey species diversity accompanied by somewhat lower smelt abundance, and in some year's especially high abundances of round gobies and emerald shiners. In recent years overall prey fish abundance has become highly variable with a notable decline in goby abundance in trawl surveys. Overall abundance of forage-sized fishes declined in 2015 but remained at average levels compared to the previous decade. Rainbow smelt were the dominant prey species, especially the young-of-the-year life stage. Trawl catches of round gobies increased for the first time in five years and many sources of information suggest emerald shiners were especially scarce in 2015. Lower trophic monitoring indicates near shore waters are a slightly less productive environment than typically favored by yellow perch and walleye populations.

**Forage Fish Abundance Trends**



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Kyle Keys	Fish & Wildlife Technician 1
Ann Wilcox-Swanson	Fish & Wildlife Technician 1
Robert Lichorat	Fish & Wildlife Technician 1



## PUBLIC SERVICE & CONSTITUENT SUPPORT

### I FISH NY Angler Recruitment Efforts

Angler education through the I FISH NY initiative continued in 2015/16. Although most DEC regions conduct some outreach efforts aimed at beginning anglers, these efforts are most prominent in the downstate region (DEC Regions 1 and 2) and the other DEC Regions with dedicated outreach staff (DEC Regions 3, 7 and 9). Staff in DEC Central Office also conducted programs around the Capital District and the Adirondack Region.

#### In-School Fishing Education Programs

One hundred thirty-two formal education programs were conducted between April 1, 2015 and March 31, 2016 in DEC Regions 1, 2, 7 and 9. These included 124 in-school programs and 8 County Conservation days (schools come to go through environmental programs in a round robin fashion). Most of these programs (95) were conducted in DEC Region 2 (NYC). A total of 8,403 contacts with school aged kids were generated from these programs, including 5,916 in-school contacts and 2,487 contacts at County Conservation Days. Fifty-one formal education programs were conducted within one mile of an Environmental Justice Area, generating 8,949 contacts.

#### Fishing Clinics/Festivals

One hundred forty-five programs were conducted reaching 14,950 people, including 6,559 at fishing festivals, 4,136 at fishing clinics, 4,170 at summer camps and 85 at DEC campgrounds. Thirty-nine of these programs were conducted within 1 miles of an Environmental Justice Area, reaching 4,609 people. People attending fishing festivals generally received little to no fishing education, although seminars were generally available to those who desired to learn more about fishing. People attending fishing clinics generally received 30 to 60 minutes of fishing education followed by an opportunity to fish.

#### Train the Trainer Initiative

The I FISH NY program continues to expand its train the trainer efforts. Providing fishing education training to summer camp counselors and State Park's staff so that they can teach a fishing program to their campers allows DEC to reach many more children than they would otherwise be able to. Each 2+ hour training session covers topics on sportfish identification, fishing regulations, safety, knot tying, basic tackle and techniques, places to fish, and advanced lure techniques. Overall, Fisheries Staff from Regions 1, 2, 3, 7, 9 and Central Office collectively covered 40 camps and 16 State Parks and taught 464 counselors. An estimated 6,640 campers were taught fishing by counselors that went through the program.

#### Free Sportfishing Clinics

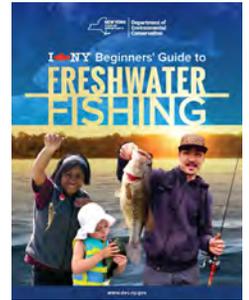
In 2013 legislation passed allowing for an unlimited number of Free Sportfishing Clinics to be held in New York State. This was a change from the traditional 4 free fishing clinics that used to be allowed for each DEC region. Compared to the 39 events that were held in 2013, the number of approved free sportfishing clinics has grown exponentially. During the 2015/2016 fiscal year DEC approved 134 free sportfishing clinics, with an estimated 18,000 participants! Even

though a little more than half of the total were DEC sponsored, 59 non-DEC events were held, suggesting a big interest in outside groups to conduct free fishing clinics. As has been seen in previous years, the majority of fishing clinics were held in the Capital District and parts south (including Long Island and New York City).



### I FISH NY Beginners' Guide to Freshwater Fishing

The *I FISH NY Beginners' Guide to Freshwater Fishing* is an upgrade of the popular *Getting Started: A beginners guide to freshwater fishing* manual (first produced in 1992). The new manual will be a complete re-write and designed in full color. The previous manual was produced in black and white. Six chapters have been completed, including "The Fishes of New York," "Basic Fishing Tackle and Techniques," "Care of Your Catch," "Safe and Responsible Angling," "Intermediate Fishing: Tackle and Techniques," and "Fisheries Management." These chapters have been posted on the DEC website at [www.dec.ny.gov/outdoor/98506.html](http://www.dec.ny.gov/outdoor/98506.html). The remaining three chapters are in the process of being finalized and should be available by summer 2016.



### Social Media

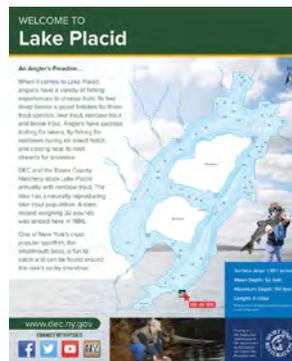
Staff expanded use of Facebook and Twitter to promote fishing in NY and to provide fishing education/information on fishing education opportunities. All of our events are promoted by social media. Gov Delivery list serve service (termed DEC Delivers by DEC) was also used to produce 4 seasonal newsletters and selective other messaging. These emails generally get a 30 to 37 percent open rate which is very good by industry standards.

### 2015 Angler Achievement Awards



The Angler Achievement Awards Program received a total of 142 entries in 2015, a slight decline compared to 2014. Seventy-five percent of the entries received qualified under the Catch and Release Category, demonstrating the sound stewardship of participating anglers. Sixteen entries were entered into the Annual Award Category (kept fish). A new state record was established when Joshua Wegner caught a 5lb. 8 oz. white sucker from Cold Brook, Steuben County on April 14, 2015.

### Interpretative Signage at Boat Launches



During 2015-2016 interpretive signage was designed and installed at the Isthmus @ Point Peninsula (Lake Ontario), Lake Placid, Lower Saranac Lake (Second Pond) and Forge Pond boat launches. Each panel series has helpful information directed towards anglers and boaters. Content provided includes: fish species present, contour map of the water body, invasive species disinfection procedures, fishing and boating regulations and angling advice.

**Boat Launch Upgrades**

**Lake George Beach**

Construction of a new boat launch at the Lake George Beach day use area was completed. The new site replaces the degraded ramp that was located in the middle of the bathing beach limiting access to the non-beach season. The new two-lane launch ramp is located at the southeast corner of the beach property. A 25 car and trailer parking area will remain open throughout the boating season. Additional parking will be provided during the non-beach season in the adjoining lot.



**Upper Saranac Lake**



This popular boat launch in Franklin County was completed upgraded. Improvements include asphalt paved parking for 26 cars and trailers and 12 vehicles, new boarding docks and a 2 lane concrete ramp. A boat flushing station was also provided for boaters to flush

waterholding compartments prior to launching to prevent the spread of microscopic aquatic invasive species such as spiny waterflea.

**Forge Pond**

At Forge Pond (Suffolk County), a former hand carry boat launch was transformed into a modern trailered boat launch. Improvements include a new gravel parking area for 10 cars and trailers and 5 cars, a concrete launch ramp, floating boarding docks, informational kiosk and a separate kayak launch.



**Fishing License Renewal Reminder Program**



In an effort to address the continuing decline in fishing license sales, the Bureau of Fisheries initiated a license renewal email campaign in 2015 that expanded upon the spring 2015 Recreation Boating and Fishing Foundation (RBFF) effort. Unlike previous direct mail postcard reminder programs, this effort relied entirely on e-mail. A total of 96,071 emails were delivered in three batches (June 18,

June 29 and July 24, 2015). License renewal emails were sent either to people who had previously received a renewal email from RBFF or people who had an email address on record in the license sales system but had not renewed their fishing license since September 30, 2014. People receiving those emails purchased 4,582 fishing licenses within 30 days of receiving a license renewal email, generating \$134,959 in revenue to the Conservation Fund. Response rate ranged between 3.6 and 4.8 percent. Emails were delivered through the GovDelivery email system already in place with the DEC and did not cost anything to use. As an additional incentive to renew on-line, those that renewed were included in a drawing for five \$100 Bass Pro Shops Gift cards.

**DEC Freshwater Fisheries Insider**

In a continuing effort to provide better and more convenient information to NY anglers, the Bureau of Fisheries launched the Freshwater Fisheries Insider e-news letter. This quarterly newsletter mailed to subscribers to the Freshwater Fishing e-mail group is designed to keep anglers current on issues associated with freshwater fishing in New York State. Those interested in receiving the Insider can sign up at [www.dec.ny.gov/outdoor/fishing.html](http://www.dec.ny.gov/outdoor/fishing.html).



**Adirondack Brook Trout Fishing Brochure**

A new brochure entitled "I FISH NY Guide to Brook Trout Fishing in Adirondack Ponds" has been produced. This brochure, which is part of the I FISH NY series of publications designed to provide better information about fishing in New York State, provides suggested fishing locations and how-to information concerning NY's state fish, the brook trout. Information on DEC's brook trout management and restoration efforts are also included in the brochure.



**New York National Boat Show**

Central Office Public Use Section staff with assistance from Region 2 staff, once again staffed an exhibit at the New York National Boat Show held at the Jacob Javitts Center in Manhattan, January 6-10, 2016. The display highlighted methods boaters can employ to prevent the spread of aquatic invasive species. New fishing promotion banner-ups in Spanish and English were also unveiled at the show.



**2015-16 Public Use and Outreach Staff**

- |                   |                                |
|-------------------|--------------------------------|
| Edward Woltmann   | Biologist 3                    |
| Gregory Kozlowski | Biologist 2                    |
| Joelle Ernst      | Biologist 1                    |
| Scott Cornwell    | Fish and Wildlife Technician 1 |

# Public Access Projects

Region	County	Waterbody	Description of Project
1	Suffolk	Forge Pond (Peconic River)	Convert 10 car parking with hand launch to 10 car & trailer and 5 car parking with concrete ramp and boarding dock and separate canoe and kayak launch. Construction begun 9/14. Expected completion 6/15.
4	Otsego	Looking Glass Pond	2- ADA trails, 2 ADA fishing platforms, ADA picnic table, ADA hand launch (gravel to water line), ADA porta potty, 2 additional parking lots (NYWorks 3 project).
4	Rensselaer	Queechy Lake	Rebuild dock damaged during winter.
4	Delaware	Various waters with PFR	Reposted 95% of county. Only water with potential issues remain.
4	Otsego	Various waters with PFR	Repost 90% of PFR holdings.
4	Various	Various	Install 15-20 line recycling stations. Maintained by Audubon Society of the Capital District.
4	Otsego	Goodyear Lake	½ mile ADA trail, ADA fishing platforms, ADA picnic table, ADA grill/fire pit, ADA hand launch, ADA Porta-Potty, increased parking lot size, improved traffic flow pattern.
5	Franklin	Upper Saranac Lake	\$475,000 in upgrades funded by NY Works; hard surface ramp with parking for 26 cars and trailers; includes a boat rinse station to flush out bilges, live wells and areas containing water to prevent spread of AIS.
5	Warren	Lake George	2- ADA trails, 2 ADA fishing platforms, ADA picnic table, ADA hand launch (gravel to water line), ADA porta potty, 2 additional parking lots (works 3 project completed).
6	St. Lawrence	Yellow Lake FAS	4 car parking with one Universal Access Parking space and aisle. Hand Carry canoe/kayak/car-top boat launch. Approximately 75% completed with anticipated completion in the spring/early summer 2016.
6	Oneida	West Branch of Fish Creek	50ft. x 100ft. gravel parking area constructed with an ADA parking space and aisle, along with a 20ft. wide entrance road. Allows public fishing on the West Branch of Fish Creek. Approximately 75% completed with anticipated completion in the spring/early summer 2016.
6	Lewis	Fish Creek (tributary to the Black River)	Rehabilitated three (3) separate Fishermen's Parking Areas
6	Lewis	Black River (Glenfield FAS)	Rehabilitated the Accessible Observation Deck and Bench, rehabilitated the FAS parking area to include an Accessible Parking Space and associated Access Aisle.
6	St. Lawrence	Cranberry Lake (Cranberry Lake BLS)	Widened the entrance road to accommodate two-way traffic. Rehabilitated and resurfaced the lower parking area back to its original size. Rehabilitated and resurfaced the upper parking area to its original size and fixed a drainage issue.
7	Oswego	West Branch Fish Creek	Constructed a 5 car parking area
7	Oswego	Little Sandy Creek	Constructed a 10 car parking area
9	Wyoming	Wiscony Creek	Accessible fishing platform with one parking spot
9	Erie	Cattaraugus Creek	Angler parking lot with 10 parking spots

# Public Access Acquisitions

Region	County	Name of Water/Site	Type of Acquisition	Acres/Miles	Intended Use of Property
7	Cayuga	Dutch Hollow Brook	Land Purchase	0.78	PFR
7	Cayuga	Grout Brook	Land Purchase	0.1	PFR Parking Area
7	Tompkins	Fall Creek	Land Purchase		PFR

# Habitat Improvement Projects

Region	Name of Water	Project	Cooperator Name	Comments
1	Massapequa Creek/ Reservoir	Water Chestnut AIS removal	Nassau County	
1	Peconic River	Ludwigia AIS removal	Peconic Estuary Program	
4	Looking Glass Pond	Create Bass spawning beds in pond		
4	Horse Brook	Stream Continuity Aquatic Restoration Project	Trout Unlimited	
4	Pork Island Hollow Brook	Move stream from damaged channel to historic channel and add habitat features	NYSDOT	A team effort with DOT staff. The project is complete and the site has been sampled. In 2011 the old channel was surveyed and 2 trout were collected, one brown and one brook. After the project the new (historic) channel was surveyed and 38 trout were collected, 3 brown, 15 rainbow and 20 brook.
5	Boquet River	Willsboro Dam removal	Town of Willsboro	The Willsboro Dam, site of the Willsboro Fishway, has been removed. As part of the removal process, a large portion of the fish ladder was removed, and the remainder was filled in with soil to provide for a public viewing area. Removal of this dam opens a large portion of the Boquet River to Lake Champlain's spawning landlocked Atlantic salmon. Previous studies by the US Fish and Wildlife Service have indicated that the bedrock cascades below the dam site serve as an effective sea lamprey barrier, so spawning by sea lamprey above the dam is not expected. Nonetheless, the USFWS will conduct periodic monitoring above the dam to verify that larval sea lamprey are not utilizing the area above the dam site. The dam removal was conducted by the Town of Willsboro with assistance from the USFWS and DEC.
5	Great Chazy River	Sea lamprey barrier dam repair	USFWS	For over 20 years the sea lamprey barrier dam on the Great Chazy, located just upstream of the village of Champlain, has had a leak in fissures under the bedrock on which the dam sits. Sea lamprey were able to take this subterranean flow and bypass the dam during their springtime spawning run, requiring the treatment of an additional 13 miles of river. Last fall in cooperation with the USFWS, a contractor was hired to do some concrete work to plug the leak under the dam. The work appears to have been successful at stopping the water flow and should make the dam impassable to spawning sea lamprey.

# Habitat Improvement Projects

Region	Name of Water	Project	Cooperator Name	Comments
6	Big Creek	Repair Pool Digger	DOT	
7	VanBuskirk Creek	Bank Stabilization and Habitat Improvement	US Fish and Wildlife Service	Stabilized and improved fish habitat in more than 650 feet of highly eroded stream
7	Cayuga Inlet	Bank Stabilization and Habitat Improvement	US Fish and Wildlife Service	Stabilized and improved fish habitat in more than 1,000 feet of highly eroded stream
9	Various waters	Shade tree and willow planting	Local TU chapters	4,000 trees and shrubs planted along trout streams by TU Chapter volunteers.





**Hatchery Infrastructure Improvements**

Work continued in 2015 to replace or repair aging hatchery infrastructure. The majority of these projects were funded with Governor Cuomo's NY Works program. Water supply work at Salmon River was funded with a Natural Resources Damages Account. Supplemental funding was provided by the Conservation Fund. Major projects included:

**Bath Hatchery**

Preliminary work has been completed for the installation of a new feed and equipment storage building. Ground was broken in the fall of 2015 and the project is scheduled to be completed in the summer of 2017. The present building is being used for storage and is old and inadequately sized for the storage needs of the hatchery. A new loading dock will also be built so feed deliveries can be unloaded efficiently with a forklift instead of by hand.

**Chateaugay Hatchery**



Thirteen outside fiberglass raceways were replaced in the summer of 2016 due to the existing 50-year-old cement raceways leaking excessively due to many cracks that had developed over the years. Demolition of the concrete raceways and installation of the new raceways, including new PVC piping, valves, and a new head pipe, was completed in-house by the crew at Chateaugay and two crew members from the Rome Hatchery. The pouring of the new pad and retaining walls was completed by contractors.

**Chautauqua Hatchery**

A new ultraviolet water disinfection system was installed during the winter of 2016. The new system will be able to kill pathogens in the hatchery's water supply much more efficiently than the old antiquated system. Disease prevention will be increased and this will benefit the walleye and muskellunge that are raised at the hatchery.

Two new high efficiency water boilers were also installed in the fall of 2015. They will be used to heat the building and to heat the production water for raising walleye and muskellunge. The original boilers were inefficient and prone to constant repairs. These new boilers will increase fish production and save on heating costs.

**Oneida Hatchery**

The installation of two new high efficiency boilers and associated piping was completed in the fall of 2015. The boilers are used for heating the building and to heat the production water that is used to raise walleye. The original boilers had become inefficient due to their age – they were the original boilers installed when the hatchery was built in 1992. A new traveling screen was also installed in the winter of 2016. The traveling screen is used to remove debris in the production water as it enters the hatchery so that screens and assorted



piping and valves will not become clogged and to improve fish health. The original traveling screen was deteriorating and replacement parts had become difficult to find.

**Rome Fish Hatchery**



Work was completed in the fall of 2015 on a new concrete wall for the natural spring that is the source for all the spring water at the hatchery. A few years ago leaks developed in the old spring wall. A temporary repair was made several years ago but the leaks had redeveloped. Miscellaneous new piping and valves were

also installed throughout the hatchery, as well as a new flow meter in the reservoir water line – the hatchery's largest source of production water for the fish. This flow meter will help regulate the amount of water going to the fish production ponds and Rome Fish Disease Control Center.

**Salmon River Hatchery**

A roof replacement project for the main hatchery building was completed in October 2015. The project included the removal of the old roof, removal of skylights, asbestos abatement, installation of new insulation and flashing, and the construction of the new roof. The original roof had been in place for decades and had developed leaks in many places, and had been repaired numerous times. The new roof is energy efficient and will provide employees with dry working and storage areas.



The flow through the pipeline from a nearby reservoir, which supplies the majority of fish culture water to the hatchery, has been declining for a number of years. Organic debris had accumulated in the line, restricting the flow of water and reducing the number of fish that can be raised at the hatchery. New valves

were installed to replace many of the existing valves in the reservoir line and ports were installed to allow the "pigging", or cleaning, of the pipeline. After the cleaning the pipeline was producing over 10,000 gallons of water per minute, compared to less than 5,000 gallons of water per minute before the cleaning. The increased water flow will help to achieve target fish production numbers in the coming years.

Three new, large aquaria have been installed in the visitor center. These aquaria will display an assortment of fish and their different habitats stretching from the headwaters of the Salmon River to Lake Ontario. Visitors will now be able to gain further insight into the various fish species and habitats in the area.



**Van Hornesville Hatchery**

Phase I of the installation of drainage lines and new pathways was completed in the fall of 2014. Phase II was completed in November 2015. Phase II included additional drainage lines and pathways around the pond areas and as well as repaving the parking lot and portions of the hatchery access road. Poor drainage and old gravel pathways led to poor walking conditions for visitors. Visitors will now

have a more enjoyable visit since walking conditions have greatly improved throughout the hatchery.



## Fall Egg Collections

### *Lake Trout from Cayuga Lake*

The annual Cayuga Lake collection of lake trout eggs (Finger Lake strain) began October 5, 2015 at Taughannock Point on Cayuga Lake. In four days of effort a total of 392,000 green eggs were collected. Of this total, 328,000 eggs were used for lake trout production while 64,000 eggs were fertilized with brook trout from Randolph hatchery to produce splake eggs. The eggs were transported each day to Bath Hatchery. The egg collection was completed using personnel from South Otselic Fish Hatchery, Rome Fish Hatchery, and Bath Fish Hatchery. The lake trout hatched from these eggs will be stocked throughout the state and the hatched splake will be released in the Adirondack Mountain region.

### *Lake Trout from Raquette Lake*

The annual Raquette Lake collection of lake trout eggs (Adirondack strain) began on October 13, 2015 at North Point on Raquette Lake. A total of 188,000 green eggs were collected in 6 days of effort. The eggs were transported each day to Chateaugay Fish Hatchery. The egg collection was completed using personnel from Chateaugay Fish Hatchery, Rome Fish Hatchery, Adirondack Fish Hatchery, and the Region 5 Fisheries Management Unit.

### *Salmon River Hatchery- Chinook and Coho Salmon*

The annual Salmon River Fish Hatchery's Chinook and coho salmon egg collection began on October 13 and October 20, 2015, respectively. The Chinook egg collection took seven days to complete with a total of 3.7 million eggs taken. Eggs were collected from 746 ripe females. For the coho egg collection, 2.4 million green eggs were taken on five days. Eggs were collected from 842 ripe females. Target numbers were reached for both species of fish. The egg collection was completed using personnel from Salmon River Fish Hatchery and the Salmon River Steward's Program. The salmon hatched from these eggs will be used for the DEC's Lake Ontario fish stocking program.

### *Adirondack Hatchery – Landlocked Salmon Egg Collection*

The egg collection began on November 12 and ended on November 18, 2015. A total of 1.2 million eggs were collected – 187,000 from wild brood stock in Little Clear Pond and 1,005,000 from captive brood stock at the hatchery. Of the 1.2 million eggs collected, 130,000 were transferred to Tunison Laboratory in Cortland, NY for a research project that will investigate ways to improve the return of stocked salmon smolts. In addition, 63,000 eggs were transferred to the Eisenhower Federal Hatchery in Vermont to supplement future stocking in Lake Champlain. Target numbers of eggs were collected and it is anticipated that there will be enough landlocked salmon to meet future target numbers. Landlocked salmon are stocked into many Adirondack waters, Lake Champlain, Lake Ontario, as well as the Finger Lakes and other selected waters throughout the state.

### *Windfall Heritage Strain Brook Trout*

The annual egg collection for the Windfall strain of brook trout took place at Mountain Pond in Franklin County (DEC Region 5) on Oc-

tober 28 and October 29, 2015. There were 20,600 green eggs collected from Mountain Pond. On November 3, 2015 we collected 7,700 eggs from Black Pond (also in Franklin County, DEC Region 5). This resulted in a total of 28,300 green eggs. The egg collection was completed using personnel from South Otselic Hatchery, Rome Hatchery, and the Region 5 Fisheries Management Unit.

### *Windfall X Domestic Brook Trout*

Milt was collected from male Windfall strain brook trout from Black Pond in Franklin County (DEC Region 5) and crossed with "domestic" brook trout eggs on November 3 and 4, 2015. Milt from 13 males was used in the fertilization process along with 20 domestic females from Chateaugay Hatchery for a total collection of 25,000 eyed eggs. The egg collection was completed using personnel from South Otselic, Rome, and Chateaugay hatcheries.

## Spring Wild Fish Egg Collections

### *Salmon River Hatchery – Steelhead*

Salmon River Hatchery's annual steelhead rainbow trout egg collection began on March 16 and ended on March 21, 2016 with a total of 4 days spent collecting eggs. A total of 2.37 million Washington strain and 208,000 Skamania strain eggs were collected. Target numbers were reached. The fish hatched from these eggs will be stocked in tributary waters of Lake Ontario and Lake Erie.

### *Bath Hatchery – Wild and Hybrid Rainbow Trout*

Collection of wild rainbow trout eggs from the Cayuga Inlet Fishway was conducted on March 11 and March 24, 2016. A total of 226,000 wild rainbow trout eggs were collected. There were also 22,000 hybrid (wild rainbows x domestic rainbows) rainbow trout eggs taken. Target numbers were reached and should be adequate to meet future stocking targets.

### *Oneida Hatchery – Walleye*

Oneida Fish Hatchery staff, with assistance from other NYS hatcheries and regional fisheries staff, conducted trap netting operations for spawning walleye between March 30 and April 7, 2016. Captured fish were transferred back to the facility where eggs were collected and fertilized. Stripped walleye were released back into Scriba Creek. The staff captured 18,407 walleye and collected 284.4 million eggs. A total of 5,654 females were stripped, averaging 50,300 eggs per female. A male to female ratio of 2:1 was used for fertilizing the eggs. The eye up percentage was 61% resulting in 173,169,000 fry. The fry were transferred to two other NYS DEC hatcheries and stocked into 13 water bodies across New York State.

### *Chautauqua Hatchery – Muskellunge*

Chautauqua Fish Hatchery's muskellunge egg take took place between April 22 and April 25, 2016. During that period, six trap nets were set in Chautauqua Lake at standard index net locations. Water temperature ranged from 45 to 52 degrees Fahrenheit during the netting period. A total of 146 adult muskellunge were captured, from which 26 pairs were mated and 1,127,000 eggs were collected.

## Fish Disease Control

### Statewide Fish Health

Two separate pathogen surveillance programs are conducted annually in New York. The first is an ongoing statewide survey to identify waters where regulated pathogens may be present in fish populations. Cornell University Aquatic Animal Health Program performs the second survey through a program to investigate diseases in wild fish.

### Wild Fish Pathogen Surveillance Program

For the statewide survey, a wide range of fish species were collected from 30 locations (1,991 fish) and clinical testing was performed at the USFWS Fish Health Center in Lamar, PA. Pathogens of interest isolated from fish in New York waters in 2015 included Namaycush Herpes Virus (NaHV), Epizootic Epitheliotropic Disease Virus (EEDV), Largemouth Bass Virus (LMBV), and *Myxobolus articus*. NaHV was isolated from Lake Ontario lake trout in sampling events in April (5 out of 27) and September (5 out of 40). EEDV was isolated from lake trout in Seneca Lake where it had been isolated previously. LMBV was isolated from smallmouth bass in the Susquehanna River and Rushford Lake and from largemouth bass in Chautauqua Lake. *Myxobolus articus* was isolated from brook trout in Bay Pond (Franklin County) and again in the Connetquot River (Suffolk County). *M. articus* is not considered a risk at this time. Bay Pond will soon be stocked with heritage strain brook trout for use in future egg propagation projects.

### Wild Fish Disease Investigations

Cornell University conducted 20 fish disease investigations in 2015. Viral Hemorrhagic Septicemia was isolated from Round Gobies (8 of 66) in the St. Lawrence River near Clayton New York in June as part of a routine monitoring program. VHS was detected from Lake Erie and Gizzard Shad in Dunkirk Harbor in 2014, so VHS continues to be routinely isolated from New York waters. In the largest investigation of the year, a massive Atlantic Menhaden kill was reported in May from many locations on the eastern U.S. coast from New Jersey to Maine. In New York, kills were evident all around Long Island and far up the Hudson River. Fish were collected from Upper Nyack on the Hudson, the mouth of Peconic Bay on the far eastern end of Long Island, and Port Washington on the western end of Long Island Sound. An unidentified virus was isolated from all fish tested and identification is still pending. Hypoxia due to oxygen depletion contributed to the kill in both Long Island locations.

Other cases included sturgeon injury by boat propellers at two locations on the Hudson River. Several springtime cases of common spawning-related Saprolegnia were investigated in Round Gobies and various centrarchid species at many locations.

Thiamine deficiency was problematic in Steelhead migrating up the Salmon River near Pulaski in 2014, as guides and anglers reported seeing hundreds of dead fish from November through January. But 2015 was very different as only a few lethargic fish were reported. The FDCU, Lake Ontario Unit, Region 7 fisheries and the Salmon River SFH staff, along with Federal, Provincial and academic researchers continue to monitor and investigate the situation.

### Hatchery Fish Health and INAD Projects

The overall health of fish in our hatchery system has been good for several years. Many diseases routinely encountered in previous years, such as prominent *Saprolegnia* in our trout brood stock, *Gyrodactylus* infestations in our brook trout, and the furunculosis epizootic at Rome in 2012 have been mostly resolved. Also, our hatchery system has been free of program viruses, such as IPN, for decades. We do have recurring common bacterial disease issues that are addressed routinely.

### Progress of Furunculosis Abatement at Rome SFH

In the summer of 2012, a serious epizootic of furunculosis occurred at the Rome hatchery and was linked to the importation of a very susceptible brown trout lot from Virginia. By September, an abatement plan was developed that included (1) destroying 800,000 still infected fish, (2) bi-annual inspections of all lots at 2% prevalence interval for two years, and (3) only Rome strain trout could be cultured on site. Rome strain brook and brown trout on site during the event were spared because they were largely unharmed during the epizootic. *Aeromo-*

*nas salmonicida* was not detected in 2013 or 2014 inspections, so the hatchery classification was upgraded to 'A' in September. However, during spawning activities at Rome Field Station in November, clinical furunculosis was evident in a few dozen adult Rome Strain brown trout. In 2015, clinical furunculosis reappeared in about a dozen spawning brown trout, but losses were minimal and subsequent testing of all production lots at Rome Hatchery and other Rome Lab lots were negative. Rome Hatchery continues to be classified 'As', but there has been no sign of the pathogen other than the spawning activities taking place at Rome Lab in the late fall. Because the hatchery and lab are on a shared property with no biosecure boundary between them, the downgrade is necessary. It appears that the metabolic demands of spawning over the last few years have allowed latent furunculosis to become lytic. This phenomenon was not seen in our brood stock prior to the 2012 furunculosis epizootic and may be related to the introduction of the Virginia strain of *A. salmonicida*.



### Flavobacterial Diseases

In 2015, the usual epizootics of bacterial gill disease, bacterial cold water disease, and columnaris disease appeared throughout our hatchery system, along with other undescribed, yet very similar Flavobacteria. These comprise the majority of the clinical hatchery work. In the quest to reduce Terramycin use in 2014, the use of Perox-Aid and Chloramine T proved successful in combatting columnaris disease and bacterial coldwater disease on several occasions. This approach was continued in 2015 with success. The key was early detection and early drug administration.

### Investigational New Animal Drug (INAD) Work

2015 INAD projects included Chloramine T (INAD 9321) and Aqu-S (11-741). Oxytetracycline will be added to our 2016 work. With the Chloramine T approval being limited to certain fish species and diseases, staff collaborated with the AADAP group to study Chloramine T efficacy against *F. columnare* in Tiger Muskellunge at our South Otselic Fish Hatchery. In 2014, we conducted a study whereby naturally infected fish were treated with Chloramine T (20 mg/L). A control group was untreated. After 17 days, the treated group had a cumulative mortality of 12.6% versus 81.8% for the control group. The study report was submitted to the FDA for review and the results accepted in 2015 as part of a mission to eventually expand the drug label to include 'all fish'. In 2015, we intended to conduct trials to evaluate OTC-343 efficacy at South Otselic against *F. columnare*, but the bacterial strain was resistant to the drug so the trial was aborted.

### Hatchery Inspection Program

The DEC's Fish Disease Control Unit (FDCU) annually inspects all lots of fish in DEC culture programs, from both domestic and wild sources. In 2015, inspections included domestic trout cultured in DEC hatcheries, plus various species of wild fish used in egg collections intended for hatchery propagation. In all, 55 inspections totaling 4,209 fish were conducted. *Aeromonas salmonicida* was isolated from adult coho salmon (1/60) during egg collections at the Salmon River, but not Chinook. In 2014, an atypical variant of *Yersinia ruckeri* was isolated from wild brook trout from Big and Little Hill Ponds in the Adirondacks, but was not detected from the same population in 2015. These fish are used as gamete sources for the heritage brook trout program and the fish are never removed from the site. No other program pathogens were detected in DEC hatcheries.

## 2015-16 Fish Culture Staff

### CENTRAL OFFICE

Jim Daley Fish Culturist 6  
 Dave Armstrong Fish Culturist 5  
 Mary LaBoissiere Secretary 1

### ADIRONDACK

Matt Jackson Fish Culturist 3  
 Kenneth Klubek Fish Culturist 1  
 Aaron Day Fish Culturist 1  
 Doug Peck Fish Culturist 1

### BATH

Ken Osika Fish Culturist 3  
 Kelly Raab Fish Culturist 1  
 Robert Sweet Fish Culturist 2  
 Stephen Galbreth Fish Culturist 1  
 Adam Haley Fish Culturist 1

### CALEDONIA

Alan Mack Fish Culturist 4  
 Kevin Hayden Fish Culturist 2  
 Mark Krause Fish Culturist 3  
 Jason Schirmer Fish Culturist 1  
 Robert Stein Fish Culturist 2  
 Brian Ward Fish Culturist 1  
 Stephen Zenzen Fish Culturist 1  
 Steven Robb Fish Culturist 1

### CATSKILL

John Anderson Fish Culturist 4  
 Tim Anstey Fish Culturist 1  
 Joseph Gennarino Fish Culturist 2  
 James Judson Fish Culturist 1  
 Nathan Snyder Fish Culturist 1  
 Michele Zeigler Fish Culturist 1  
 Robert Poprawski Fish Culturist 1

### CHATEAUGAY

Neal McCarthy Fish Culturist 2  
 Anthony Bruno Fish Culturist (Trainee I)  
 Logan Grishaber Fish Culturist (Trainee I)  
 Mike Sicley Fish Culturist  
 Nicole Vogt Fish Culturist

### CHAUTAQUA

Larry King Fish Culturist 3  
 Eric Defries Fish Culturist 2  
 Bradley Gruber Fish Culturist 1  
 Ron Preston Fish Culturist 1

### ONEIDA

Bill Evans Fish Culturist 4  
 Erika Stoddard Fish Culturist (Trainee1)

### RANDOLPH

Richard Borner Fish Culturist 3  
 Trevor Brady Fish Culturist 1  
 Barry Hohmann Fish Culturist 1  
 Raymond Hulings Maintenance Assistant  
 Jim Rambuski Fish Culturist 2  
 Derek Weishan Fish Culturist 1

### ROME

Scott Wanner Fish Culturist 4  
 John Gray Fish Culturist 1  
 John Draper Fish Culturist 1  
 Steven Grabowski Fish Culturist 2  
 Zach Goodale Fish Culturist 1  
 William R. Hajdasz Maintenance Supervisor  
 Kimberly Matt Keyboard Specialist  
 William Woodworth Fish Culturist 2  
 Tobias Widger Fish Culturist (Trainee 1)

### FISH DISEASE CONTROL

Andrew Noyes Pathologist 2 (Aquatic)  
 Geoffrey Eckerlin Biologist 1 (Ecology)  
 Mark Batur Fish Culturist 1

### SALMON RIVER

Thomas Kielbasinski Fish Culturist 4  
 Stephen Dolan Fish Culturist 3  
 David Domachowski Fish Culturist 2  
 Brian Edmonds Fish Culturist 1  
 Karen Hurd Keyboard Specialist  
 Robert Nelson Fish Culturist 2  
 Leslie Resseguie Fish Culturist 1  
 Kevin Healy Fish Culturist (Trainee 1)  
 Joseph Hentges Fish Culturist 1

### SOUTH OTSELIC

Pat Emerson Fish Culturist 3  
 Bruce Ryan Fish Culturist 2  
 Mike Speziale Fish Culturist 1

### VAN HORNESVILLE

Larry Kroon Fish Culturist 3  
 Craig DuBois Fish Culturist 2  
 Peter Kinney Fish Culturist (Trainee 1)

# Annual Fish Production

ANNUAL STOCKING REPORT - BY SPECIES  
January 1, 2015 - December 31, 2015

SPECIES	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
<b>Cold Water</b>														
Brook Trout	3,050		315,042	5,890	223,698	7,826	9,276	785	7,600	179,497	41,284	697,459	60,105	
Brown Trout			73,958	746	50,800	2,772	76,260	7,252	3,500	1,678,218	450,440	2,017,997	511,253	
Rainbow Trout			180,810	1,116	494,340	23,982	27,160	1,994	8,900	408,685	102,549	475,671	85,674	
Steelhead			122,942	2,150	331,723	7,632	594,450	38,079	82,350	110,940	17,066	776,350	33,095	
Lake Trout														
Splake														
Landlocked Salmon	45,300	4,693	521,900	819			182,230	17,914	155,380	20,480	4,793	21,040	4,848	
Coho					140,760	4,823	90,000	7,328		3,452	1,443	804,404	41,326	
Chinook			1,769,600	19,230								130,000	8,125	
<b>Cold Water Total</b>	<b>48,350</b>	<b>4,743</b>	<b>2,984,252</b>	<b>29,951</b>	<b>1,294,921</b>	<b>50,386</b>	<b>987,376</b>	<b>73,992</b>	<b>433,850</b>	<b>2,401,272</b>	<b>617,575</b>	<b>8,179,685</b>	<b>841,285</b>	
<b>Warm Water</b>														
Walleye	205,335,264	2,754	900,600	922						25,320	2,164	212,254,052	4,381	
Muskellunge	202,000	7							25,000	1,311	83,700	479,060	2,397	
Tiger Muskellunge											1,000	135,460	9,076	
Panfish											200	500	100	
Sauger			5,810	7										
<b>Warm Water Total</b>	<b>205,537,264</b>	<b>2,761</b>	<b>906,410</b>	<b>929</b>	<b>-</b>	<b>-</b>	<b>25,000</b>	<b>1,311</b>	<b>25,000</b>	<b>110,020</b>	<b>12,632</b>	<b>212,869,072</b>	<b>15,954</b>	
<b>Rare/Threatened/Endangered</b>														
Lake Sturgeon	4,000	169							2,800	118		12,000	139	
Paddlefish	330	55								685	114			
Round Whitefish	625	-										10,500	4	
Lake Herring					69,240	1,473								
<b>RTE Total</b>	<b>4,955</b>	<b>224</b>	<b>3,890,662</b>	<b>30,880</b>	<b>69,240</b>	<b>1,473</b>	<b>-</b>	<b>-</b>	<b>2,800</b>	<b>118</b>	<b>685</b>	<b>144,670</b>	<b>2,824</b>	
<b>Grand Total</b>	<b>205,590,569</b>	<b>7,728</b>	<b>3,890,662</b>	<b>30,880</b>	<b>1,364,161</b>	<b>51,859</b>	<b>987,376</b>	<b>73,992</b>	<b>461,650</b>	<b>2,511,977</b>	<b>630,321</b>	<b>221,215,927</b>	<b>860,206</b>	

## Summary of Fisheries, Creel & Angler Surveys

Survey Name	Purpose
<b>Region 1</b>	
Little River	Alewife spawning survey
Peconic River	Alewife spawning survey
Beaver Brook	Alewife trap and transfer
10 small streams in Suffolk County	EBTJV Survey to document brook trout presence
Peconic Lake	Centrarchid/ Community survey
South Pond	Centrarchid Survey
Smith Pond, Roosevelt	Centrarchid Survey
Plum Island Main Pond	General Biological Survey
Lake Ronkonkoma	Threatened Species
Razor Pond	Threatened Species
Peconic River	Threatened Species
Connetquot River	Disease Monitoring
Muelleners Pond	Centrarchid Survey
Hards Lake	Alewife Spawning Survey
Fresh Pond, Hither Hills	Centrarchid Survey
Beaver Brook	EBTJV Survey
<b>Region 2</b>	
Meadow Lake, Queens	Disease/Invasive fish monitoring
Willow Lake, Queens	Disease/Invasive fish monitoring
Harlem Meer, Central Park	Centrarchid survey
100th St. Pool, Central Park	Centrarchid survey
Kissena Lake, Queens	Centrarchid survey
Meadow Lake, Queens	Invasive fish monitoring
Willow Lake, Queens	Invasive fish monitoring
Central Park Lake & Harlem Meer	Creel surveys
<b>Region 3</b>	
Crystal Lake	Brook Trout Spawning Assessment (trap netting)
Ashokan Reservoir	Walleye and Rainbow Trout assessment (boat electrofishing)
Lake Mahopac	Centrarchid Plan Survey (boat electrofishing)
Lake Stahahe	Community Fish Assessment (multiple methods)
Ridgebury Lake	Invasive Species Eradication follow-up (boat electrofishing)
Lake Minnewaska	Assessment of new introduction (bass and shiners)
Walton Lake	Water Chemistry profile
Wassaic Creek	Trout population assessment (electrofishing)
Neversink River	Trout population assessment (boat electrofishing)
Esopus Creek	Evaluation of water release from Ashokan Res. (boat electrofishing)
Swinging Bridge Reservoir	Percid Plan Walleye evaluation (boat electrofishing)
Rio Reservoir	Percid Plan Walleye evaluation (boat electrofishing)
Titicus Reservoir	Percid Plan Walleye evaluation (boat electrofishing)
White Lake	Water Chemistry profile
Cross River Reservoir	Trout population assessment (gill netting)
Sterling Lake	Trout population assessment (gill netting)

<b>Region 4</b>	
Catskill Creek	Hudson River Walleye Tagging Study and TSMP collection
Little Delaware River Tributary	Culvert Assessment
Poeston Kill @ Hudson River	Fish Community and TSMP collection
Hudson River @ Wynants Kill	Fish Community
Mill Creek @ Hudson River	Fish Community
Stockport Creek	Fish Community
Murderers Creek	Fish Community
T16 Manor Kill	Invasive Fish Monitoring (O. weatherfish)
Wilber Lake	General Biological Survey
Mohawk River (with USGS) - contract	General Biological Survey
Pepacton Reservoir	Salmonid Netting, Fish Health and TSMP Collection
Copake Lake	Fish Kill Investigation
Taghkanic Lake	General Biological Survey
Shingle Kill	CROTS Survey
Manor Kill	CROTS Survey
Holiday Brook	Culvert Assessment
Carrs Creek tributary	Culvert Assessment
Goodyear Lake	General Biological Survey
Thompsons Lake	General Biological Survey and TSMP Collection
Susquehanna River	Fish Health Survey
Gilbert Lake	General Biological Survey and TSMP Collection
Colgate Lake	General Biological Survey and TSMP Collection
Mud Pond	General Biological Survey and TSMP Collection
Mohawk River	General Biological Survey
Long Pond	General Biological Survey and TSMP Collection
Second Pond	General Biological Survey and TSMP Collection
Shaver Pond	General Biological Survey and TSMP Collection
Glass Lake	General Biological Survey and TSMP Collection
West Branch Delaware River	Juvenile Salmonid Survey
Quacken Kill	Stream Temperature Survey
Otsego Lake	General Biological Survey
Schenevus Lake	General Biological Survey
Fly Creek and Tributaries	Brook Trout Genetics Monitoring Surveys
Carrs Creek and Tributaries	Brook Trout Genetics Monitoring Surveys
Schoharie Reservoir	Walleye Stocking Evaluation
East Sidney Reservoir	Walleye Stocking Evaluation
Green Brook	Culvert Assessment
Canadarago Lake	Percid Sampling
Line Creek	General Biological Survey
8 small stream surveys	Trout Presence/Absence
<b>Region 5</b>	
Lower Sargent Pond	Post-reclamation survey
Embody and Lost ponds	Bathymetries in preparation for reclamations
English Brook	Brook trout/Public Fishing Rights survey
Arnold Pond	Pre-reclamation survey

Round Pond	Trout survey
Saratoga Lake	Walleye and bass assessments
Loon Lake	Walleye assessment
Cossayuna Lake	Bass assessment
8 brook trout ponds	Long-term temperature and dissolved oxygen monitoring
14 ponds	Brook trout pond surveys
7 ponds/lakes	Egg-takes (brook trout, lake trout, round whitefish, landlocked salmon)
15 ponds	Advanced water chemistry sampling (acid rain recovery)
4 ponds	General surveys
<b>Region 6</b>	
Bear Pond	Limed Waters Program
Big Hill Pond	Fish Disease Monitoring
Black Lake	Walleye Evaluation (2 surveys)
Black River	Bass in Rivers Study
Black River	Lake Sturgeon Survey
Black River	Lake-Run Salmonid Monitoring
Boottree Pond	Brook Trout Egg Take
Boottree Pond	Limed Waters Program
Brewer Lake	Limed Waters Program
Buck Pond	Limed Waters Program
Clear Lake	Limed Waters Program
Clear Pond	Limed Waters Program
Cleveland Lake	Limed Waters Program
Curtis Pond	Limed Waters Program
Deer Pond	Fish Disease Investigation
Deer Pond	Brook Trout Egg Take
Delta Lake	Fish Disease Monitoring
Delta Lake	Walleye Evaluation
Evergreen Lake	Limed Waters Program
First Lake	Fish Community Survey
Hawk Pond	Limed Waters Program
Hedgehog Pond	Limed Waters Program
Hidden Lake	Limed Waters Program
Horn Lake	Limed Waters Program
Horseshoe Pond	Limed Waters Program
Indian River	Bass in Rivers Study
Lake Ontario	Lake Sturgeon Survey
Lake Ontario	Warmwater Fish Stock Assessment
Lake Ontario	Lower Trophic Level Study (12 surveys)
Lake St. Lawrence	Warmwater Fish Stock Assessment
Little Hill Pond	Fish Disease Monitoring
Little Otter Lake	Limed Waters Program
Long Lake	Limed Waters Program
Lyon Lake	Limed Waters Program
Mohawk River	Contaminant Collection
Nicks Pond	Limed Waters Program

North Twin Lake	Fish Disease Monitoring
Oswegatchie River	Bass in Rivers Study
Oswegatchie River	Walleye Egg Take
Payne Lake (Lewis County)	Limed Waters Program
Peaked Mountain Lake	Limed Waters Program
Pine Pond	Limed Waters Program
Pitcher Pond	Limed Waters Program
Quiver Pond	Limed Waters Program
Raven Lake	Acidified Waters Survey
Red Lake	Walleye Evaluation
Round Pond (St. Lawrence County)	Limed Waters Program
Round Pond (Oneida County)	Limed Waters Program
Second Lake	Fish Community Survey
Slender Pond	Limed Waters Program
Soda Pond	Limed Waters Program
South Lake	Water Chemistry Survey
South Twin Lake	Brook Trout Egg Take
St. Lawrence River	Lake Sturgeon Egg Take
St. Lawrence River	Lake Sturgeon Evaluation
St. Lawrence River	Esocid Monitoring
St. Lawrence River Thousand Islands	Warmwater Fish Stock Assessment
Stark Falls Reservoir	Contaminant Sampling
Summit Pond	Limed Waters Program
Sunshine Pond	Limed Waters Program
Tamarack Pond	Limed Waters Program
Third Lake	Fish Community Survey
Tooley Pond	Bass Survey
Townline Pond	Limed Waters Program
Twitchell Lake	Lake Trout Evaluation
Yellow Lake	Fish Community Survey
<b>Region 7</b>	
Huckleberry Pond	Winter Dissolved Oxygen check
Papish Pond	Winter Dissolved Oxygen check
Cayuga Inlet	Lake Sturgeon Assessment
Onondaga Lake	TSMP Collection
Upper Lelands Pond	Centrarchid Sampling
Lower Lelands Pond	Centrarchid Sampling
Salmon River Fish Hatchery	Steelhead Egg Take
Long Pond	Centrarchid Sampling
Whitney Point Reservoir	Percid Sampling
Emerson Gulf	General Biological Survey
Unnamed Trib to Onondaga Creek	Trout Assessment
Old Chenango Canal	Trout Assessment
T8 of Wylie Brook	Eastern Brook Trout Joint Venture Sampling
T7 of Wylie Brook	Eastern Brook Trout Joint Venture Sampling

Upper Lelands Pond	General Biological Survey
Lower Lelands Pond	General Biological Survey
Factory Brook	Eastern Brook Trout Joint Venture Sampling
Wylie Brook	Eastern Brook Trout Joint Venture Sampling
Handsome Brook	Eastern Brook Trout Joint Venture Sampling
Unnamed Water	Eastern Brook Trout Joint Venture Sampling
Cayuga Inlet Fishway	Finger lakes strain Rainbow Trout egg take, fish passage, Sea Lamprey removal trapping
Salmon River	Investigation of Algae Bloom in River
Salmon River Fish Hatchery	Salmon Egg Take
Cayuga Lake	Lake Trout Assessment
Ninemile Creek	Trout Assessment
Susquehanna River	TSMP Collection
Seneca River	Percid Sampling
Jamesville Reservoir	Percid Sampling
Whitney Point Reservoir	Percid Sampling
Cayuga Lake	Lake Trout Egg Take
Cazenovia Lake	Percid Sampling
Otisco Lake	Percid Sampling
DeRuyter Reservoir	Percid Sampling
<b>Region 8</b>	
Seneca Lake	Monitor Fishing Tournament for lamprey wounds
Spring Creek	Investigate effects on stream trout population from external forces.
Oatka Creek	Investigate effects on stream trout population from external forces.
Seneca Lake	Fish Kill Investigation
Seneca Lake	Fish Community Study
Catherine Creek	Rainbow Trout Production Study
Sleepers Creek	Rainbow Trout Production Study
Irondequoit Bay	Warmwater Fishery Survey
Chemung River	Warmwater Fishery Creel Survey
Seneca Lake	Fish Disease Monitoring
Springwater Creek	Rainbow Trout spawning run evaluation
Naples Creek	Rainbow Trout spawning run evaluation
Cold Brook	Rainbow Trout spawning run evaluation
Catherine Creek	Rainbow Trout spawning run and lamprey wounding rate evaluation
Sleepers Creek	Rainbow Trout spawning run and lamprey wounding rate evaluation
Seneca Lake (Catherine Creek)	Sea lamprey control via TFM
Fish die offs (12)	Investigate reports of fish die offs
116 small streams in Region 8	EBTJV survey to document brook trout presence
<b>Region 9</b>	
Allen Lake	Centrarchid sampling
Chautauqua Lake	Esocid sampling
Rushford Lake	Fish community sampling
Chautauqua Lake	Percid sampling
Lake Erie	Lake Sturgeon sampling
Alma Pond	Centrarchid sampling

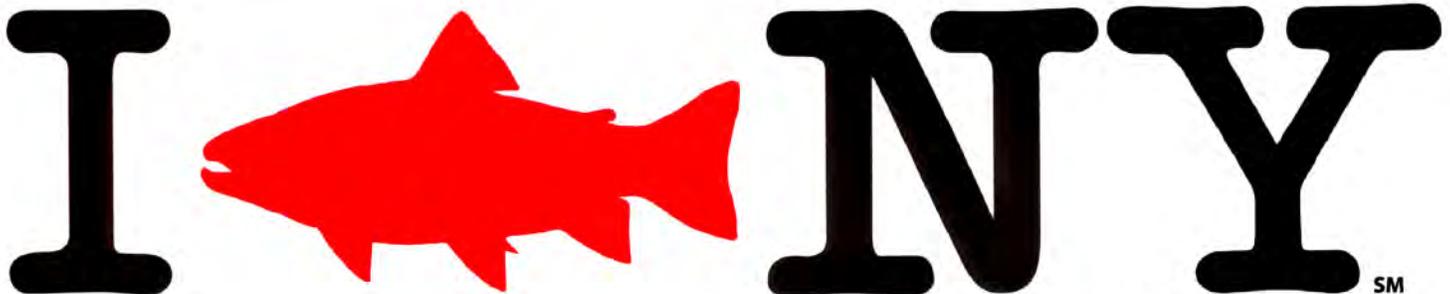
Allegheny Reservoir	Sauger sampling
Niagara River	Fish community sampling
North Branch Wiscoy Creek	Fourth year post-habitat enhancement evaluation of trout population
Clear Creek - Arcade	Wild trout population estimate
Wiscoy Creek	Wild trout population estimate
Trout Brook	Wild trout population estimate
23 wild brook trout streams	Collect fin clips for genetic analysis with USFWS
<b>Lake Ontario Research Unit</b>	
Lake Ontario Alewife Bottom Trawl Survey	Assess yearling and adult alewife in Lake Ontario
Lake Ontario Juvenile Lake Trout Trawl Survey	Assess juvenile lake trout in Lake Ontario
Lake Ontario Warmwater Fisheries Assessment	Assess warmwater fish populations in the Eastern Basin
Status of Lake Ontario's Lower Trophic Levels	Monitor trends in Lake Ontario productivity, including nutrients, chlorophyll a, and zooplankton populations
Lake Ontario Adult Lake Trout Assessment	Assess adult lake trout populations in Lake Ontario
Lake Ontario Fishing Boat Survey	Monitor trends in angler effort/catch/harvest in the open waters of Lake Ontario
Lake Ontario Chinook Salmon Mass Marking Program	Determine contribution of wild Chinook salmon to Lake Ontario sportfisheries and evaluate success of pen-rearing projects
Northern Pike and Muskellunge Monitoring in the Thousand Islands Region of the St. Lawrence River	Monitor northern pike and muskellunge spawning and nursery areas to assess reproductive success and influence habitat changes
Lake Ontario Hydroacoustic Preyfish Assessment	Use hydroacoustic technology to develop lakewide estimates of alewife numbers and biomass
Lake Ontario Tributary Creel Survey	Monitor trends in salmonid angler effort/catch/harvest in Lake Ontario tributaries
Lake Ontario Benthic Preyfish Bottom Trawl Survey	Assess populations of sculpins and members of the whitefish family that live on or near the lake bottom
<b>Lake Erie Research Unit</b>	
Lake Erie Commercial Fishery Assessment	Sampling to characterize harvest & age composition of Lake Erie's commercial yellow perch fishery
Lake Erie Lower Trophic Monitoring Program	Index of lower trophic indicators seasonally, including zooplankton, nutrient concentrations, temperature and water transparency
Lake Erie Open Lake Sport Fishing Survey	Creel survey measure of sport fishing catch and effort from Lake Erie's boat fisheries for walleye, smallmouth bass and yellow perch
Lake Erie Steelhead Smolt Out-migration Study	Sampling to assess size specific out-migration patterns of newly stocked steelhead in selected Lake Erie tributaries
Lake Erie Tributary Angler Diary Program	Diary index of fishing quality for Lake Erie's tributary steelhead fishery
Lake Erie Tributary Sea Lamprey Nest Density	Annual nest counts to index the concentration of sea lamprey nests in selected Lake Erie tributaries
Lake Erie Fish Cleaning Station Monitoring	Annual examination of angler caught walleye processed at cleaning stations to characterize size, age composition and stomach contents
Lake Erie Acoustic Telemetry Study	Examine seasonal movements of Lake Erie walleye and lake trout
Lake Erie Coldwater Community Assessment	Gill net index of abundance, age composition, growth, and diet of lake trout, burbot and lake whitefish
Lake Erie Warmwater Community Assessment	Gill net index of abundance, age composition, growth, and diet of walleye, yellow perch and smallmouth bass
Lake Erie Forage and Juvenile Fish Assessment	Bottom Trawl index of abundance, age composition and growth, of juvenile yellow perch and an array of forage fish species
Lake Erie Tributary Angler Survey	Creel survey measure of sport fishing catch and effort from Lake Erie's tributary fisheries for steelhead

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- 2015 Public meeting series on the status of Lake Ontario fisheries (meetings held in March 2016 in Pulaski, Rochester, and Lockport).



# Permits & Licenses

A summary of licenses and permits reviewed or issued by the Bureau of Fisheries

## DEC REGION

Permit Name	1	2	3	4	5	6	7	8	9	CO	Total
Farm Fish Pond			15	*144/146	3	14	156	110	74		518
Stocking	8		144	30	80	25	49	22	17		375
Triploid Grass Carp	2		274	219/296	42	37	276	492/502	664		2093
Overland Transport of Bait			9	13		6	3	16	7		54
Fish Possession (over daily limit)					1		3		1		5
Piranha		1				1	1		1		4
Baitfish	6	2	74	57	56	80	84	93	115		567
Temporary Revocable Permit (TRP)			1	2	23	6	22	19	4		77
Article 15 Issued/Reviewed		1	450	279	404		15	124	738		2011
Article 24 Issued/Reviewed	15		235	59	15	*472/667	1				992
Pesticide Permit Review	30		22	10/30+	7	4	16	10	12		111
Bass Hatchery Permits (C.O)										28	28
Trout Hatchery Permits (C.O)										35	35
License to Collect and Possess										138	138
Free Fishing Clinic										134	134
U.S. Armed Forces Free Fish Program										7	7
<b>Other:</b>											
Trout/Salmon in the Classroom			42	23							65
Hydropower Relicensing					1	0/3					1
Adopt A Natural Resource											
Fish Removal			1			2					3
Commercial Fishing (Great Lakes)										5	5

\* Issued/Reviewed

# RETIREMENTS

The Bureau of Fisheries would like to acknowledge the following recent retiree for his years of service to the Bureau and his contribution to the effective management of the freshwater fisheries of New York State.

**Jeff Robins**  
**Region 7 Fisheries**

