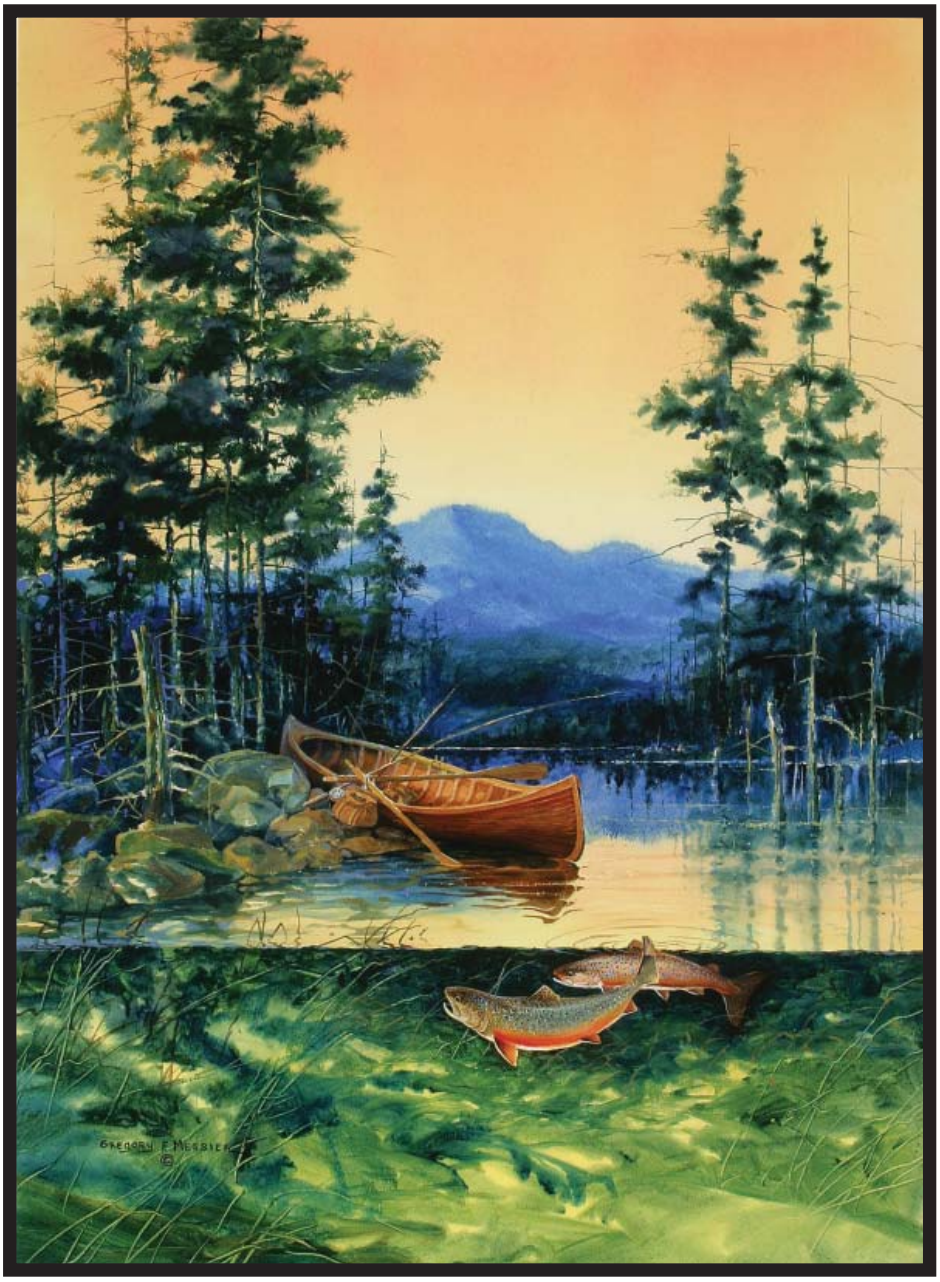
New York State
Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources

Bureau of Fisheries



Annual Report
Highlights and Accomplishments
2006/2007

Introduction

The New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, 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.

During the New York State Fiscal Year 2006/2007 (April 1, 2006 - March 31, 2007), the Bureau of Fisheries logged a total of 45,175 staff days of effort which was valued at more than $8.3 million. Most of this effort was provided by permanent personnel (36,269 staff days), but 8,906 staff days were provided by temporary personnel.

The Bureau of Fisheries staff efforts are categorized under five Division of Fish, Wildlife and Marine Resources program goals:

Ecosystem Protection - *Protect, Enhance and Restore New York's Fish, Wildlife and Marine Resources and the Ecosystems That Support Them (17% of staff effort)*

Fish, Wildlife and Marine Resources Extension - *Help Provide New York Residents and Visitors with the Knowledge to Appreciate Fish, Wildlife, and Marine Resources and Their Habitats (5% of staff effort)*

Recreation, Use and Allocation - *Provide a Wide Array of Opportunities to Enjoy Fish, Wildlife and Marine Resources (60% of staff effort)*

Protection of Human Health, Safety and Welfare - *Minimize Fish, Wildlife and Marine Resource-related Negative Impacts on Natural Resources; and Human Health, Safety and Land Use. (< 1% of staff effort)*

Organizational Effectiveness - *Foster and Maintain an Organization That Effectively Achieves Our Mission. (17% of staff effort).*

For 2006/2007, Bureau of Fisheries activities were organized under 13 objectives which generally describe the intended outcomes from our efforts (e.g. satisfied anglers; restored, self-sustaining fish populations; healthy hatchery fish; additional public fishing access; improved aquatic habitats; confidence in the Bureau of Fisheries staff abilities). The objective which accounted for the greatest amount of staff effort was:

By 2007, 75% of surveyed anglers will indicate that they are satisfied (and 30% will indicate they are highly satisfied) with the numbers and sizes of fish they catch from New York's inland and Great Lakes waters.

with more than 56% of total staff effort followed by:

Maintain self-sustaining populations of 165 species of freshwater and anadromous fishes in New York waters.

with approximately 6% of total staff effort (Table 1).

The information contained in this report is not a listing of all activities that the Bureau of Fisheries staff engaged in. This report is a summary of information, provided by Bureau staff, that they deemed to be most significant and representative of their efforts. The information is organized along broad resource (e.g. warmwater lakes and ponds, coldwater streams) or programmatic (e.g. creel surveys, fish culture) lines and is further organized by administrative unit (e.g. Region, Central Office, Great Lakes Unit, Hatchery). This report highlights the findings, accomplishments and significant efforts of the Bureau of Fisheries during State fiscal year 2006-07 for the study, protection, enhancement, restoration, and sound management of New York's fisheries resources.

Table 1. Distribution of Bureau of Fisheries staff effort among twenty Bureau of Fisheries programmatic objectives for the State fiscal year 2006/2007.

Bureau of Fisheries Objective	Total Staff Days	Percent of Staff Days	Total Staff Costs
By 2007, based on a sample of concerned "user groups"and the opinions of Bureau staff, the percentage of responses indicated a high degree of satisfaction with the Bureau of Fisheries efforts to restore fish populations and protect aquatic habitats will exceed 60%	1,850	4.1%	$442,747
Restore five additional self-sustaining populations of New York State listed-threatened or endangered fishes by 2007.	406	0.99%	$83,888
Maintain self-sustaining populations of 165 species of freshwater and anadromous fishes in New York waters	2,498	5.5%	$451,527
Provide 30 additional fisheries supported entirely by self-sustaining populations of wild fishes in publicly accessible New York waters by 2007.	19	<0.1%	$4,073
By 2007, 90% of Bureau of Fisheries staff is satisfied that the Bureau of Fisheries is conducting the most effective and efficient program it can.	618	1.4%	$184,246
By 2007, an effective and inclusive angler education techniques/programs will be established that will provide a conduit for New Yorker's of all ages to gain the necessary knowledge to become an effective and ethical angler.	410	0.9%	$69,255
By 2007, based on a sample of anglers and constituents, and opinions of all Bureau staff, the percentage of responses expressing a high degree of satisfaction with the quality of information provided by the Bureau of Fisheries will exceed 75%.	993	2.2%	$196,398
By 2007, 75% of surveyed anglers will indicate that they are satisfied (and 30% will indicate they are highly satisfied) with the numbers and sizes of fish they catch from New York's inland and Great Lakes waters.	25,072	55.5%	$4,379,978
The average health and physical condition of all fishes cultured at each DEC hatchery will meet or exceed measurable quality standards established by the Bureau annually.	1,578	3.5%	$286,837
Acquire ten miles of Public Fishing Rights (PFR) easements annually and maintain PFR network for optimal angler use and enjoyment.	450	1.0%	$94,443
Acquire new waterway access parcels as opportunities and funding permit. Complete development of three Boating Access Sites annually, while maintaining the waterway access network for optimal angler use and enjoyment.	310	0.7%	$72,613
By 2007, 90% of Bureau of Fisheries staff is satisfied that they have sufficient knowledge, skills and training to effectively accomplish their work duties and the objectives of the Bureau.	1,377	3.0%	$304,947
By 2010 based on a sample of anglers and opinions of all Bureau staff the percentage of responses expressing a high degree of confidence in the professionalism and ability of Bureau of Fisheries staff to manage the State's fisheries will exceed 80%.	131	0.3%	$32,148
All other Division objectives	9,464	20.9%	$1,796,826
Bureau of Fisheries Totals	**45,175**	**100%**	**$8,399,926**

Note: The distribution of effort by Bureau of Fisheries staff is provided as an overview of the number of staff days that were expended to delivery a quality statewide fisheries program; however the focus of this report is to describe the results of the Bureau of Fisheries 45,000-plus days of effort during fiscal year 2006/2007.

Common Abbreviations, Acronyms and Units of Measurement Used

CPUE *catch per unit of effort* - such as the number of fish caught per hour or fish caught per net

YOY *young of year* - typically, a fish that is captured by sampling in the same year it was hatched

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).

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)

RM *river mile* - denotes the distance upstream from the river mouth

mm *millimeter* - a metric system unit of length, 100 mm = 3.94 inches

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

ha *hectare* - a metric system unit of area, 1 hectare = 2.47 acres

m *meter* - a metric system unit of length, 1 meter = 3.28 feet

ppm *part per million* - describes the density of a substance in another solid, liquid or gas (typically water, air)

ppb *parts per billion* - describes the density of a substance in another solid, liquid or gas (typically water, air)

CROTS *Catch-Rate-Oriented-Trout-Stocking* - the model used to develop stocking rates for trout streams that takes into account: biological measures of the stream and stream carrying capacity, trout natural reproduction, hold-over of previously stocked trout, classification of the type of trout fishery managed for, measured or assumed angler effort and targeting an angler catch rate of 0.5 trout/ hour

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Warmwater Lakes and Ponds

Central Office- Inland Section

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 to 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 – Study of the walleye population in Oneida Lake continues to be a primary focus. Future recruitment of walleye to the adult stock at age 4 was predicted from the CPUE of age 1 walleye taken in trawls. Alternative predictors of population size using gill net catches were also investigated. The age 4 and older walleye population was estimated to be between 450,000 and 570,000 depending on the choice of predictive index. The population is now more than double what it was in 1999 (220,000 adult walleye). Trawl and gill net indices produced very different estimates of future population abundance: the trawl index estimated a decline to less than 250,000 by 2009 and a gill net index estimated a stable population of 500,000 through 2008, which is close to the long-term average. The divergent predictions from the two indices and the predicted decline when using the traditional trawl index are causes for concern. Also, captures of 2006 young of year (YOY) walleye were low and this year class is not expected to contribute much to the adult population in 2010. To further evaluate walleye population size, a mark-recapture study was initiated and will be completed in the fall of 2007.

Retrieving a gill net from Oneida Lake

The yellow perch population was estimated at around 1.1 million age 3 and older fish using catches in gill nets, which maintains an increasing trend since 1997. The population is expected to decline in the next two years but should remain around 1 million fish. Zebra mussels have cleared the water but have not decreased young yellow perch growth rates, presumably because zooplankton production has not declined. Increased light levels should also increase foraging efficiency of perch on benthic invertebrates and light is correlated with growth of young perch. Abundance of YOY yellow perch continues to be lower than in the 1970s and 1980s, but faster growth and the presence of YOY gizzard shad has increased survival through their first winter.

An assessment of food web interactions indicated that predation of young yellow perch by walleye accounted for 38% of their observed mortality. Walleye diet studies conducted in 1971-1977, 1992-1994, 1996, and 2003 showed the proportion of age-0 yellow perch mortality accounted for by walleye predation was significantly lower in recent years (49%) compared to the 1970's (91%). These results suggest an increased importance of other predators in determining yellow perch early mortality.

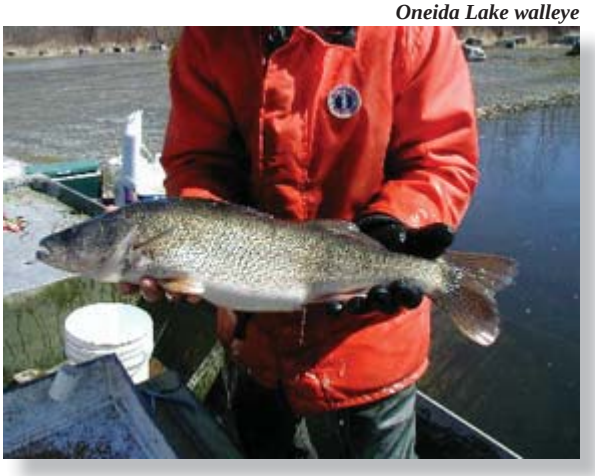
The cormorant management strategy continued in 2006 and the number of birds on the lake was consistently less than 300. Cormorant predation on young walleye and yellow perch was thought to be minimal in 2006 and survival rates of fish from age 1 to maturity should have increased. Non-linear estimation techniques (AD-model builder) were used to show that walleye mortality between age 1 and 3 was higher prior to cormorant hazing efforts. This analysis supported earlier conclusions of increased mortality of sub-adult walleye during cormorant years. Assessment of yellow perch is more uncertain and the effect of cormorant management more difficult to detect.

A review of available information on the fish and fishery in Oneida Lake was summarized in an ecosystem model of the lake and its fishery using EcoPath/EcoSim. The simulations indicate that both cormorants and increased mortality during the first year of life contributed to the decline in walleye. As part of this effort, the fish sampling procedures and database for Oneida Lake was summarized.

Higher water clarity, due to filter feeding by zebra mussels, has resulted in changes in the distribution and species composition of aquatic macrophytes. These changes are resulting in expansion of nearshore fish habitat, and thus a sampling program, using fyke nets and seines, is being developed to monitor affected fish communities. Fyke net samples consistently collected nearshore species such as pumpkinseed, rock bass, and YOY black basses that are not always captured in historical sampling. Higher total catches and diversity in catches was observed in later summer sampling. Consistent trends towards higher total catches, diversity and catches of centrarchids were observed in perpendicular net sets as compared to parallel sets. Wings did not affect catches. YOY bass were captured more often in smaller mesh nets, likely due to failure of bass to recruit into the larger mesh before sampling was completed. Dense vegetation resulted in difficulties in seining all sites. These results indicate that the nearshore sampling program will likely be most effective if efforts are concentrated on fyke nets and sampling is conducted late in the growing season.

Study results were presented at several meetings and a symposium on Oneida Lake, in association with the 50 year celebration of the Cornell Biological Field Station. A presentation was also made at the Annual Meeting of the American Fisheries Society in Lake Placid, NY. Publications in 2006/07 include analyses of: 1) ecosystem changes in Oneida Lake (Zhu et al. 2006); 2) over winter mortality of yellow and white perch (Fitzgerald et al. 2006); and 3) the effect of party size and trip length on angler catch rate (VanDeValk et al. 2007). Papers in press include analyses of: 1) burbot population changes in Oneida Lake (Jackson et al.); 2) the contribution of yearling stocking to the 2001 walleye year class (VanDeValk et al.); and 4) the effect of dreissenids on macrophytes (Zhu et al.). The Oneida Lake Profile (Mills et al. 2006) and a detailed account of the Oneida Lake fish research walleye stock assessment and population projections for Oneida Lake 2006-2009 (VanDeValk et al. 2007) were also completed.

Oneida Lake walleye



Canadarago Lake – Fish populations and other lake characteristics were monitored to measure trends and determine potential effects of an increasing alewife population. Walleye natural recruitment was low in 2006. Fry sampling yielded no walleye fry and 1,853 yellow perch fry in 60 samples. Similar results were found in 2005, and suggest year class failures of walleye but not yellow perch. Fall electrofishing indicated similar trends; only 2 YOY walleye (1.8/h) were caught in 2005 and none in 2006 (first time in 16 years), and large numbers of young perch were caught both years. While this cannot be solely attributed to alewife predation because yellow perch larvae were abundant, it is possible that alewife predation is more intense on the earlier hatching walleye larvae because fewer larvae are present in the lake at that time. Adult walleye electrofishing catch was 33.6/h, above the long-term average. Electrofishing catch of adult yellow perch set a new record high of 950/h, which follows the 2005 record YOY catch of 904/h. YOY perch catch in 2006 remained very high at 762/h. Gillnet catch of walleye in 2006 remained about average (15.6/net), while the yellow perch catch tripled from 2004, due mainly to high recruitment of young fish from large YOY classes the past several years. Alewife catch in the standard gillnet was the highest yet recorded (6.0/net).

Catch of alewife in small mesh gillnets has increased each year since they were introduced. Six nets set for 4.25 hours caught 180 alewife (7.1/net/h), nearly a 3-fold increase from 2005. While the alewife catch continues to increase, it is still lower than many established alewife lakes. Large adult alewife (over 250 mm) were present and in very good condition, creating the potential for large recruitment again in 2007. Length of YOY alewife has decreased almost 30 mm since 2004, and dry/wet weight ratio of YOY and age-1 alewife has also decreased, suggesting the alewife population is becoming denser. Acoustic surveys indicated alewife was 30-50 times more abundant in 2006 than in previous years.

Zooplankton densities did not indicate large changes from past years. Average size and biomass have decreased somewhat in recent years, but are still within the long term ranges. Larger decreases are expected, given the abundance of YOY perch and alewife. Water clarity reached an all time high of 8.4 m in May 2005, and then decreased to 4.1 m in 2006, about equal to the long term average. Secchi disk trends are probably a result of the competing effects of zebra mussel filtering and increased zooplankton predation.

An overwinter temperature recorder was moored in this lake for the 4th year and revealed winter temperatures that almost never go below 1°C, and usually remain at about 2°C all winter. Winter temperatures were higher than in Oneida Lake (which averages about 0.5°C) but lower than in Cayuta Lake (usually around 3.5°C). This suggests alewife will do better in Canadarago Lake than in Oneida Lake.

Oneida Lake Creel Survey

Researchers at the Cornell Biological Field Station at Oneida Lake conducted work on this creel survey. A Federal Aid to Sportfish Restoration grant funded the project. A total of 820 roving interviews were conducted during 53 days throughout the 2006 open water season. Total effort was estimated to be 333,100 angler-h (16.1 angler-h/ha) and was the highest of the recent years measured. Anglers caught 78,600 walleye, 59,800 black bass, and 106,000 yellow perch. Of those fish, 54,200 walleye (69%), 3,000 black bass (5%), and 52,400 yellow perch (49%) were harvested. Anglers reported an additional catch of 53,700 fish comprised of 10 other species.

The mean angler catch rate of walleye for all trips (0.22 walleye/angler-h) was the second lowest since 2002. The 2006 targeted catch rate (0.31 walleye/angler-h) is a more refined estimate that takes into account only those anglers actively seeking walleye, and is similar to reported rates from other North American lakes. Walleye catch rates declined dramatically in late summer, probably due to the growth of YOY gizzard shad to lengths selected by walleye. The 2006 targeted harvest rate of walleye (0.21 fish/angler-h) was the highest for all survey years since 1997. In October 2000, regulation changes increased the minimum size limit from 381 mm (15 in) to 457 mm (18 in), and reduced the bag limit from 5 fish/day to 3 fish/day. As a result, anglers targeting walleye harvested 18% of their catch in 2002 and 2003, and 23% in 2004. Beginning October 1, 2004, the minimum legal harvest length for walleye was returned to 15 inches but the 3 fish daily bag limit was retained. Anglers harvested 75% of their walleye catch during the 2005 open-water season, and 69% in 2006. Anglers released only 3% of all legal walleye caught in 2005 and 5% in 2006. The high

harvest rate combined with high effort resulted in 12% of the adult population being removed during the 2006 open water season alone. The targeted catch rate for smallmouth bass was 0.69 fish/angler-h and compared favorably to other lakes with smallmouth fisheries sampled in New York State from 1977-78. Yellow perch angling (targeted catch rate 2.99 fish/angler-h) was the highest in recent years. Most of the directed yellow perch angling typically occurs in the fall. Angler catch rates exceed 1.0 perch/angler-h in September and October and have been as high as 5 yellow perch/angler-h.

Walleye as a Management Tool for Alewife in Cayuta Lake

Researchers at the Cornell Biological Field Station at Oneida Lake conducted work on this study. A Federal Aid to Sportfish Restoration grant funded the project. The goal of this project is to build a walleye population that can have a measurable impact on the current alewife population, and to study the effect of compensatory responses of the alewife population to increased predation rates. Trap netting during the spawning run caught 694 walleye in 60 net nights. Walleye were marked with a 1/2LP fin clip. By-catch was large, and included 2,446 crappie, 1,550 bluegill, 1,112 yellow perch, 909 bullhead, and 1,584 other fish. Approximately ½ of the walleye captured in nets were from the 2006 stocking, with the remaining fish from the 1992-1996 stocking (age-10+ to 15+). Many large fish were present, up to 722 mm (28.4 in). The walleye diet continued to be nearly 100% alewife. Subsequent electrofishing captured 175 walleye, 138 of which were adults (>300 mm), with 47 marked fish. The resulting population estimate was 2,038 walleye > 300 mm. 2006 was the last year of a five year stocking schedule, therefore peak walleye biomass should occur in 2008 or 2009.

Three gillnets captured 787 alewife in 2 hours (131/net/h). Growth and dry to wet weight ratio of alewife was low. Acoustic surveys indicated that alewife have decreased for 4 straight years, from over 8,000/ha in 2002 to 2,001/ha in 2006, suggesting predation may be reducing the population. However, the population is still higher than in many other alewife waters.

A total of 27 diary cooperators were enlisted, but only 5 returned diaries. In 359 hours of fishing effort, only 9 walleye were caught, 7 of which were less than 381 mm (15”). Angler catch rate was 0.03/h, with less than 0.006 legal walleye caught per hour. Secchi depth and zooplankton remained low, with no major changes from past years. Winter water temperatures averaged 3-4 C, higher than Canadarago or Oneida lakes.

Effects of Winter Temperature on Fish in Oneida Lake

Researchers at the Cornell Biological Field Station (CBFS) at Oneida Lake conducted work on this study. A Federal Aid to Sportfish Restoration grant funded the project. This study was designed to 1) measure the degree and timing of winter mortality in three important invasive species: white perch, gizzard shad, and alewife; and 2) to predict future changes in fish community structure based on lake gradients and potential climate change. During the winter of 2006/07, controlled studies on the survival of gizzard shad were conducted in the cold rooms of the CBFS’s experimental facility. Shad were collected from Oneida Lake throughout the summer, fall and winter to compliment the cold room experiments and assess overwinter survival in the lake. Predator (primarily walleye) diet samples were collected through the winter. Mortality of shad was highest in the coldest temperature-treatments (1.5 and 2.5ºC). Lake surveys indicated high survival of the 2005 gizzard shad year class through the 2005-06 and 2006-07 winters. Sampling through the winter and spring (2007) showed that YOY shad survived through mid February within marinas, but were not present in walleye diets, gill nets, or electrofishing surveys in late winter or spring. Temperature profiles from locations throughout Oneida Lake indicated marinas as key temperature refuges and large congregations of YOY shad were observed in those areas through the fall and early winter. However, these refuges became anoxic in late winter due to consistent ice cover. Catches of shad in under-the-ice gill nets set in marinas ceased concurrently with the drop in dissolved oxygen. In years with short periods of ice cover, anoxia may not develop (observed in 2005/06). The relationship between ice cover and anoxia may explain the high overwinter mortality of YOY shad in most years as well as the survival of some shad during warm winters with short ice cover. An ice cover model predicted shorter periods of ice cover by 2050, which suggests that over-winter survival of YOY gizzard shad will become increasingly common resulting in adult shad becoming a dominant species in Oneida Lake. This has implications for food web interactions in the lake. Further research on the over winter survival of white perch and alewife will be evaluated based on the gizzard shad results.

Cornell Biological Field Station- Shackleton Point

Region 1

Hempstead Lake Seine Survey

In the summer of 2002, Hempstead Lake completely dried up due to the extreme temperatures and lack of precipitation. The lake was only dry for a month before heavy rains brought it back to nearly full pool. The Fisheries Unit restocked the lake in 2003 with black crappie, yellow perch, bluegill, pumpkinseed, banded killifish, golden shiner, chain pickerel, brown bullhead. Largemouth bass were stocked in 2004. On August 17th, Fisheries Manager Charles Guthrie, Fisheries Biologist Heidi O’Riordan and Seasonal Technician Joe Pries seined Hempstead Lake to assess the reproductive success of this relatively new fish population. Noteworthy observations include an increase in young of the year black crappie, pumpkinseed, largemouth bass and common carp (Table 2). The occurrence of carp is problematic, it was illegally

introduced into the lake by an unknown source since the last survey. Prior to 2002, the fish community in Hempstead Lake was dominated by carp and a significant targeted fishery existed. The loss of the fish community provided an excellent opportunity to restore a balanced fish community. This will be much more difficult given this illegal introduction of the non-native common carp.

Historically Hempstead Lake supported very little submersed aquatic vegetation. In 2005, substantial amounts of submersed aquatic vegetation were observed in nearly every seine haul, raising hopes that healthy vegetation beds would develop. Unfortunately, this year very little aquatic vegetation was observed.

Table 2. Species found in Hempstead Lake.

SPECIES	2005	2006
Golden Shiner	39	0
Brown Bullhead	1	13
Banded Killifish	82	18
Pumpkinseed	13	50
Bluegill	84	10
Largemouth Bass	18	48
Black Crappie	14	68
Yellow Perch	123	142
Common Carp	0	37
Chain Pickerel	7	6
Mummichog	0	6

Walleye Stocking

Region 1 Fisheries staff continued the annual Lake Ronkonkoma Walleye Stocking Program by releasing 10,000 walleye fingerlings on June 27, 2006. Ranging in length from 32 to 60 mm with an average length of 38 mm, these juvenile walleye were reared at the DEC's South Otselic Fish Hatchery and transported to Long Island by Catskill Hatchery staff. The Walleye Stocking Program was initiated in 1994 with the goal of controlling the overabundant white perch population in Lake Ronkonkoma. In addition the walleye stocking program has created an exciting new sportfishing opportunity for Long Island anglers.

Lake Ronkonkoma Water Chemistry and Seine Survey

On August 23, 2006, Fisheries Manager Charles Guthrie, Fisheries Biologist Heidi O'Riordan, Technician Joe Pries and Cobleskill intern Joe Albanese conducted a water quality and seine survey on Lake Ronkonkoma. The annual seine survey is to determine young of the year bass production and monitor the forage base. A 100' seine was utilized on only 3 of the usual 7 sites due to the fact that the water level in the Lake is 3 ft higher than normal. We collected and measured 8 largemouth bass, 46 banded killifish, 15 white perch, 11 yellow perch, 3 bluegill sunfish, 1 pumpkinseed sunfish, and one smallmouth bass.

As part of the water quality survey, a zooplankton sample, temperature/dissolved oxygen/conductivity profile and water sample collections for chlorophyll testing were conducted. The temperature ranged from 26.9ºC at the surface to 9.2ºC near the bottom (50'). The dissolved oxygen levels dropped from 5.7 mg/l to 0.1 mg/l at approximately 10 ft where the thermocline occurs which is typical for mid-summer. The chlorophyll samples were analyzed by Suffolk County Health Department and the zooplankton sample was sent to the Cornell Biological Field Station at Shackleton Point.

Lake Ronkonkoma Seine Survey

Region 2

Meadow Lake, Willow Lake, Queens, NY

Northern Snakehead surveys continued in these two large public freshwater lakes. Nine mature adults, all greater than ten inches, were recovered during this time period. Staff continue to investigate control methods which would not adversely impact the existing fish population or public access. The two lakes are within a major New York City park that hosts a variety of recreational activities.

Snakehead caught from Meadow Lake

Region 4

Canadarago Lake Gill Netting

The biennial netting of the 2,000 acre Canadarago Lake in Otsego County was completed in 2006, the 13th netting since 1983. Two, 150 foot long variable mesh (1.5-4.0 in) gill nets were fished overnight each month from June through September at random locations throughout the lake for a total of eight net sites. The objective of this study is to monitor the abundance of walleye and yellow perch. The catch of walleye and yellow perch averaged 15.6 and 96.0 fish per net, respectively. Although the catch of walleye was down 28% from the record catch of 21.6 fish per net in 2003, walleye abundance remains high with an excellent fishery

reported in 2006. Yellow perch abundance was up about three fold from the catch of 33.9 perch per net recorded in 2004 which was the second lowest catch recorded to date. The increased yellow perch abundance has resulted in a greatly improved ice fishery during the winter of 2006-07 and should result in even better fishing during the next two to three winters.

During the 2006 netting effort, a record 48 alewife were collected compared to none in 2004 and six in 2003. Alewife were first documented in 1999 when two fish were collected. Although the alewife population is growing, abundance remains very low. Alewife abundance is being monitored every fall by Cornell University fisheries scientists. Although the latest sampling efforts indicate that alewife abundance remains sparse, their growing abundance has the potential to affect the lakes ecology and fishery.

Kinderhook Lake
A survey was conducted as part of an evaluation of the treatment of Kinderhook Lake with alum to control algae blooms. The lake association has been treating the lake with alum every summer since 2001. A pretreatment survey was conducted prior to the first use of alum in 2001, for the purpose of establishing a base line.

Smallmouth bass numbers were up with 29 fish (stock size or better) per hour collected by electrofishing. That compares favorably with 12 fish per hour in 2001. The PSD was 49% and RSD was 25%, which represents a decline from 2001 and indicates that all of the increase seen was due to fish in between the stock size and the preferred size. Still, this does represent great potential for improvement in the smallmouth bass fishery in future seasons.

Largemouth bass numbers were very similar between the two surveys at about 15 fish per hour. The PSD was 89% and the RSD was 62%. These values were slightly higher than in 2001 which had a PSD of 84% and an RSD of 44%.

Other species noted include yellow perch with the numbers collected down, but the size structure improved somewhat. PSD for yellow perch improved from 2% in 2001 to 15% in 2006. Pumpkinseed numbers collected were up in 2006 and PSD increased from 62% to 76%. Bluegill numbers were down and the PSD increased from 87% to 92%. Black crappie numbers were also down, with PSD increasing from 4% to 60%. White perch numbers were down from 600 in 2001 to 500 in 2006. The PSD for white perch increased from 30% to 37%.

These results seem to indicate only moderate changes in the fish community population structure in Kinderhook Lake during the 5 year period that alum was added to the lake. Most of the changes should constitute an improvement for the recreational angler.

In conjunction with this survey, fish were collected as part of the Department's Toxic Substance Monitoring Program to supply fish for contaminant analysis. There is currently a fish health advisory for eating American eel taken from Kinderhook Lake. The collection included 10 American Eel, 12 White Perch, 13 Yellow Perch; 1 Largemouth bass and 10 Smallmouth Bass. No American eel were seen in the 2001 survey.

Region 5

Progress towards three new, north-country walleye fisheries, but an existing walleye fishery is in severe decline.
2006 marked the 5th year of walleye fingerling stocking in Harris Lake. State campground personnel on the lake indicate the stocking has been successful in establishing a walleye fishery. A fisheries survey to assess the relative success of the walleye stocking will likely be scheduled for 2009. The planned survey should be able to confirm that a successful fishery was created and assess whether the walleye are successfully reproducing in Harris Lake.

A survey of Fern Lake, located in south-central Clinton County, was undertaken to assess the success of a five-year experimental walleye stocking program which was initiated in 2002. The survey replicated a 2001 survey which was conducted prior to the experimental stocking. The survey documented survival of walleye in Fern Lake. Gill netting captured two individuals and anglers captured several on the day of the survey. Night electrofishing along the shoreline showed a decline in the largemouth bass population and a shift towards smallmouth bass. No new species were documented and no black crappie, a fish once common in Fern Lake, were captured. The data will be examined and a decision will be made regarding continued stocking of walleye.

Kiwassa Lake in Franklin County has reportedly provided catches of walleye in recent years. In contrast, the once popular fishery for cisco, has apparently declined. The lake was surveyed to assess the apparent changes and determine potential management actions. Six gillnet gangs were set in late July at depths ranging from 5 to 35 feet and water temperatures ranging from 49 to 76 Fahrenheit. A strong thermocline was present from 15-20 feet. Dissolved oxygen levels were low from 35 feet to the maximum depth of 46 feet. No salmonids or cisco were caught. However, three adult walleye ranging from 19-21 inches were netted. Nice-size smallmouth bass, northern pike, yellow perch and brown bullhead were also caught along with numbers of rock bass and pumpkinseed. Kiwassa Lake has a good warmwater community. Walleye in this lake are migrants from stocking efforts made in Lower Saranac Lake. Although there is low dissolved oxygen in the deepest part of the lake, there is a large volume of water from 15-30 feet which would support trout. Age/growth analysis will be done this winter and final stocking decisions will be made. Kiwassa Lake looks like a good stocking candidate for walleye and/or rainbow trout.

A netting survey was conducted on Lake Pleasant near the village of Speculator in Hamilton County to assess its walleye population status. This 1,475 acre lake has had a self-sustaining walleye population since the species was introduced in the 1920s. However, since the emergence of an abundant rainbow smelt population circa 2000, angling success for walleye has decreased greatly. For instance, no walleye have been entered in the annual ice fishing derby for the last three years. Gillnet gangs with meshes ranging from 1.25 to 4.0 inches were set at 10 sites around the lake. Water chemistry sampling found a sharp thermocline at 10-15 feet and that dissolved oxygen levels were good throughout the water column (maximum depth found was 73 feet). Netting done at sites with habitat types ranging from large cobble to sand and along

drop-offs near weed beds failed to capture any young walleye. Ultimately, 10 large adult walleye ranging from 20-26 inches in length were caught in 20-25 ft of water. These walleye were eating young-of-year smelt. Smallmouth bass were abundant; nearly 100 were caught. Many of the smallmouth bass were infected with parasitic tapeworms. Other species captured were brown trout, rainbow trout, chain pickerel, yellow perch, fallfish, brown bullhead, rock bass, pumpkinseed, and white sucker. While on the lake, staff investigated a fish kill occurring along the beaches on the eastern (windward) side of the lake. About 20 dead fish were found, but no fish showed sign of VHS. It appears that natural reproduction of walleye is now greatly diminished in the lake due to the presence of rainbow smelt which can prey on emerging walleye fry.

Black crappie established in the Saranac River watershed; may cause declines in walleye.

Staff documented two cases of black crappie being illegally introduced into ponds within the Saranac River watershed. These introductions may damage popular walleye fisheries in connected water bodies. Angler reports indicated that crappie were present in Moody Pond in the Village of Saranac Lake. An electrofishing survey confirmed that multiple year classes of crappie were present, indicating that the crappie are successfully reproducing. Similarly, an angler reported catching crappie in East Pine Pond located near the St. Regis Canoe Area in Franklin County. Netting in East Pine Pond also found multiple year classes of crappie.

Crappie from East Pine and Moody Ponds are expected to move downstream, and infest important walleye waters. East Pine Pond drains into Floodwood Pond which in turn eventually drains to Upper Saranac Lake and other Saranac chain waters. Moody Pond drains into the Saranac River. Black crappie are known to be serious predators on young fish, especially walleye fry. Through intensive stocking efforts over many years, walleye have been successfully established by the Department in Franklin Falls Flow and Union Falls Flow - waters located downstream on the Saranac River. The Department has also been trying to establish walleye in Lower Saranac Lake. If black crappie spread to the downstream walleye lakes, it is feared that walleye reproduction will be greatly reduced and the populations may crash. This pattern has been observed in Region 6 waters such as Black Lake and may be why walleye have declined in the South Bay area of Lake Champlain.

Black crappie are a popular panfish species with many anglers. However, would-be spreaders of this species need to be aware that crappie are not native to the Adirondacks and their introduction could jeopardize valuable gamefish species. Most Adirondack lakes lack the productivity to support a wide array of fish species. Any introduction of a new species into a lake or system of lakes has to be done with caution and is only legal by stocking permit issued by DEC Fisheries.

Region 6

Grass Lake, St. Lawrence County

Grass Lake is located in northern New York on the border of Jefferson and St. Lawrence Counties. A centrarchid survey was performed to address concerns raised by Lake Association members concerning the bass fishery and future management.

This lake is composed of two distinct basins. The western arm is narrow and shallow (<10 ft), whereas the eastern basin is bowl shaped with waters >50 ft in depth. In general a warmwater fish assemblage dominates this water body. Fish collected include: largemouth bass, smallmouth bass, northern pike, pumpkinseed, bluegill, yellow perch, brown bullhead and black crappie (Table 3.)

Walleye and tiger muskellunge have been actively managed since 1955 and 1996 respectively. Walleye were stocked as fry from 1955-1996 (300,000 to 1.6 million/year). Walleye fingerlings, both spring and fall, were stocked from 1997-2001 as part of a Cornell University research program. Tiger musky have been stocked from 1996-present as fall fingerlings at a rate of 640/year. No walleye or tiger musky were collected or observed in this electrofishing effort.

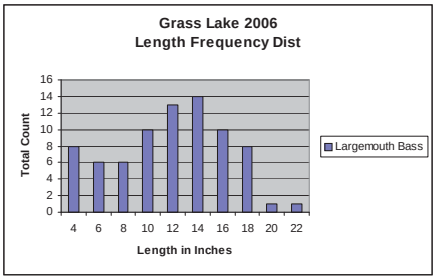
Both largemouth and smallmouth bass inhabit Grass Lake. Largemouth bass were the predominant species encountered due to the extensive littoral zone available, and their vulnerability to electroshocking. Catch per unit effort (CPUE) was 58 and 6.7 fish per hour for largemouth and smallmouth respectively. PSD for largemouth and smallmouth was 59.7 and 50.0 respectively. The RSD15 for largemouth was 22.8, indicating a high proportion of preferred size fish >15 inches available to anglers. It should be noted that the smallmouth sample size was extremely small (N=10) and any conclusions based on PSD alone may be erroneous.

Black bass in Grass Lake are currently managed by statewide regulations. Although public access is available, it is unlikely that angling exploitation has any significant effect on the population. Size classes of fish collected in this survey indicate adequate recruitment for self sustaining populations with little management needed at this time.

Table 3. Total catch by species in Grass Lake. Includes 0.75 hours each of gamefish and all-fish collections.

Common Name	Number of Fish
Black Crappie	4
Bluegill	276
Bluntnose Minnow	1
Brown Bullhead	12
Golden Shiner	4
Largemouth Bass	62
Northern Pike	2
Pumpkinseed	63
Smallmouth Bass	10
Yellow Perch	57

Figure 1. Length frequency distribution for largemouth bass captured in Grass Lake.



Johnny Smith Pond Survey (Oneida County)

Johnny Smith Pond located on state land in northern Oneida County, is a man made pond that had numerous stunted bass when last surveyed in the late 1970s. The 2006 survey showed the largemouth bass were 6 - 20 in, with the average being 14 in. A strong forage base of golden shiner now exists along with a pumpkinseed population averaging 6 in. Bullheads which were uncommon in the previous survey are now common and average 12 in.

Region 7

Whitney Point Reservoir October 2006 Sampling

With the exception of 1996, annual night electrofishing surveys in October have been conducted since 1994 at four standard sites along the reservoir's shoreline. The purpose of these surveys is to assess abundance and growth of young-of-year (YOY) and yearling walleye in Whitney Point Reservoir. In 2006, no YOY walleye were collected in the fall effort. This indicates that few juvenile walleye were produced and/or survived in 2006. The following are population estimates of YOY walleye for all the years surveyed to date:

1994- 8,087	1998- 2,825	2001- 31,141	2004- 37,307
1995- 10,437	1999- 55,275	2002- 1,110	2005- 41,667
1997- 106,704	2000- 842	2003- 70,958	**2006- 0**

Although the 2006 year class was a failure, the strong 2005 year class of walleye was very abundant during the survey. A total of 261 yearling walleye were captured which provided a population estimate of 17,549 yearling walleye using Serns' (1983) methodology. This represents an overall survival of 42% from the previous year's (2005) estimated number of YOY. Growth of yearling walleye was highly variable with sizes ranging from 7.7 to 13.8 in. The 2005 year class showed a similarly wide range of sizes as YOY (4.3 to 10.4 in). Compared to earlier years, the average size of young walleye in the reservoir has generally been smaller and range of sizes greater. Older walleye (age 2 and above) were also collected during the survey with the largest measuring just under 24 in and nearly 4.5 lb. Overall, walleye fishing at Whitney Point Reservoir should remain very good for a number of years.

Yearling (2005 year class) white crappie were very abundant during the survey. The large number of yearlings caught suggests that reproduction/survival of crappie in 2005 was excellent. If this is the case it is the first strong yearclass produced in the reservoir since 2000. The averaged length of the yearlings was approximately 6.5 in. If they continue to grow at their current rate many individuals will reach the legal minimum length of 9 in during the fall of 2007.

Oneida Lake Management

Regional and Central Office Fisheries staff met with Cornell Fisheries Scientists to review survey work conducted in 2006 (assessment and monitoring of the Oneida Lake fishery is done by Cornell University under contract with DEC). The 2002 and 2003 yearclasses of walleye were smaller than originally predicted, and they, along with the 2004 year class, are expected to add relatively few fish to the adult population in the coming years. The overall adult walleye population is expected to decline back to the levels observed in the late 1990's. Depending on the amount of angler harvest, the adult walleye population, which reached 470,000 in 2005, is predicted to decline to between 270,000 and 360,000 adults by 2009. Angler catch and harvest of walleye are strongly related to forage fish abundance (i.e., juvenile perch, gizzard shad, and adult emerald shiners). Walleye are hard to catch when forage fish are abundant and when scarce they are easy to catch.

Predictions for the yellow perch population levels indicate that the adult population will continue to remain at near historic low levels (approximately one million fish) through 2008. The long term adult perch population abundance has averaged over 2 million fish and has been as high as six million in 1980.

Oneida Lake lake sturgeon

Other findings reported by Cornell include: white perch production continues to be strong in recent years and adults are now nearly as abundant as yellow perch; catches of smallmouth bass young and adults have increased dramatically since the mid-1980s; growth of stocked lake sturgeon continues to be exceptional with several fish weighing over 45 lb having been captured; estimated cormorant predation on yellow perch and walleye is believed to have been minimal due to the intensive cormorant control program which was implemented by USDA-APHIS Wildlife Services as per the population goals established for cormorants by NYSDEC; daytime angler effort for walleye was the highest measured in recent years and the catch rate for walleye (0.31 walleye/angler hour) still fell within the range considered "good" by New York State standards. An estimated 54,200 walleye, 3,000 black bass, and 54,400 yellow perch were harvested during the 2006 open water season.

Otisco Lake Walleye Assessment
Fall night electrofishing was conducted along the Otisco Lake shoreline to determine the relative success of the 2006 stocking of 45,000 pond fingerling walleye. A total of 171 YOY and 16 yearling (2005 stocking) walleye were captured along with several adults. The number of YOY walleye captured is the highest we have seen to date. All of the walleye captured were caught south of the causeway which is also where all stocked walleye have been planted since stocking resumed in 2002.

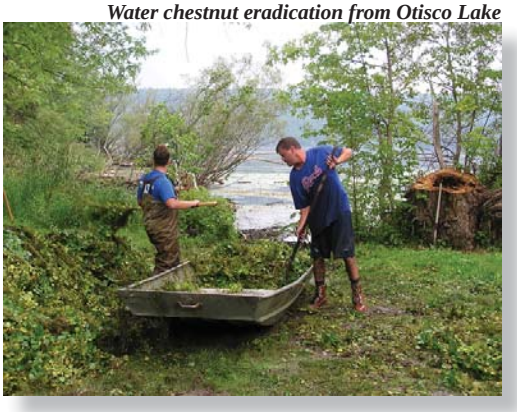
Relatively little survey work has been conducted south of the causeway in the past so direct comparisons between this catch rate and catch rates of YOY in the 1990s is not appropriate. Shoreline electrofishing north of the causeway has never been very productive even while the population was obviously building during the 1990s. Regardless, the high number of YOY walleye observed during this survey indicates survival of stocked fish was excellent in 2006. Using Serns' 1982 formula for estimating numbers of YOY walleye provides a population estimate of 5,895 in the south end of the lake below the causeway. If accurate, this estimate represents a 13.1% survival rate. The 16 yearlings captured provided a population estimate of 456 yearlings south of the causeway using Serns' 1983 formula. Both population estimates are probably low because we do not know how many have already moved through the causeway into the main lake.

Black bass and tiger musky were also collected during the survey. A total of 77 largemouth bass and 131 smallmouth bass were captured. Most of the smallmouth bass were young fish less than 9 inches long while the majority (47) of the largemouth bass were mature fish between 12 and 22 inches in length. Five tiger musky between 21 and 39 inches were also captured during the survey. Based on our survey work and angler reports, it appears that survival of stocked tiger musky has improved in recent years.

Otisco Lake Water Chestnut Control
In August 2006, Region 7 fisheries staff became aware of the first known occurrence of water chestnut in Otisco Lake. A large, dense bed covering at least a quarter acre was observed along the northeast shoreline in a protected cove. A complete survey of the entire lake shore was immediately conducted but no other plants were found. A decision was made attempt to eradicate this localized population by hand pulling the plants. Hand pulling of water chestnut is a proven control/eradication technique because plants do not overwinter but instead rely solely on seeds for propagation.

The intention of this effort was to try to eliminate this bed and minimize the chances of water chestnut colonizing other areas in the lake. With the cooperation and assistance of the adjacent landowner all of the weeds were pulled in just over a week. Because they were discovered so late in the season many mature seeds broke off the plants during the removal operation. Therefore we expect a significant bed of plants to develop in 2007. However, the fisheries unit anticipates that the plants will be eliminated over the course of several years simply by hand pulling the plants in future years before they have a chance to set seed. Continued lake-wide monitoring for satellite populations will be done for the foreseeable future since dormant seeds can remain viable for 10 years or longer.

Water chestnut eradication from Otisco Lake



Tully Lake Fishery Assessment
Spring night electrofishing was conducted along the Tully Lake shoreline to assess survival of walleye fingerlings stocked by the Tully Lake Association over the past 5 years and to assess the fish community.

Only one walleye was captured during the survey indicating low survival of stocked walleye fingerlings. The catch rate of predators (largemouth bass and chain pickerel) was very high, likely explaining the poor survival of walleye. The condition of most largemouth bass was fair, but there appeared to be a higher proportion of thin fish. Large chain pickerel were abundant but many of them were thinner than average as well. Panfish (bluegill, pumpkinseed, and yellow perch) numbers were high and there seems to be good numbers of quality-sized fish.

Overall, Tully Lake is a very fertile lake which supports higher than average fish population densities. Populations of predator and prey are in "balance" but lower than average weights and slightly slow growth rates of most species could indicate populations are too dense. Management recommendations based on this survey are: discontinue walleye stocking because high predator numbers precludes walleye survival; retain existing angling regulations.

Region 8

Conesus Lake Cooperative Walleye Culture
Conesus Lake was stocked on June 29, 2006 with about fifteen thousand (15,000) 2.5 inch fingerling walleyes, as part of the Finger Lakes Community College (FLCC) Cooperative walleye rearing program. FLCC's Mueller Conservation Field Station, with the help of many volunteers from the Conesus and Honeoye Lake Associations, FLCC interns, students, alumni and faculty, DEC Caledonia Hatchery personnel, and Region 8 Fisheries Management personnel are partners in the program.

Hemlock Lake Surveyed for Young Walleyes
Hemlock Lake was stocked with walleye fingerlings by a local sportsman club under a stocking permit issued by the Department. Documented stocking occurred in various intermittent years in the mid to late 1990s. Stocking was last reported in 1997. Numbers of walleye fingerlings stocked varied from year to year but rarely exceeded 2,000. Evaluation of the success of these stockings

occurred via spring trap net surveys in 1998 and 2005. Twenty and 54 adult walleyes were caught in four net nights during those surveys, respectively. Evaluation of natural reproduction has not been attempted. Since fingerling stocking has not occurred within the last several years, any age 1+, 2+, or 3+ walleyes captured during late spring electrofishing would indicate natural reproduction. On the nights of June 7 and 15, 2006, Region 8 Fisheries staff electrofished along the shoreline of Hemlock Lake for a total of 3.5 hours. Both steeply-sloped, gravel, cobble, and boulder, and less steeply-sloped vegetated habitats were sampled. No young or adult walleyes were captured or observed. Other fish species observed, but not captured, include: largemouth and smallmouth bass, chain pickerel, rock bass, pumpkinseed and bluegill sunfish, black crappie, yellow perch, alewife, golden shiner, white sucker, carp, brown bullhead, and four rainbow trout about 130 mm total length. The modest fingerling walleye stocking to date appears to have resulted in an exploitable population. Despite the previous spring trap net and angler-reported catches of adult walleyes, the results of this survey indicates that the density of adult walleyes as a result of these fingerling stockings appears to be low. The survey also indicates that no natural reproduction has occurred.

Waneta and Lamoka Lakes Fish Communities Evaluated
General surveys were conducted beginning in April 2003, using the standard centrarchid sampling protocol to assess the fish community during year after (Waneta) and prior to (Lamoka) fluridone treatment. In the spring and fall surveys, State University of New York (SUNY) Brockport (Dr. James Haynes and students) assisted DEC staff with fish collection using their new Smith Root electrofishing boat concurrently with ours. Two DEC crew worked on the SUNY Brockport boat and two SUNY Brockport crew worked on the DEC boat. This provided an excellent teaching and learning exercise for both DEC and SUNY staff. Waneta and Lamoka Lakes were surveyed one night each in the spring and fall. Sixteen species of fish were captured in Waneta Lake in the spring and 18 species were captured in the fall. Fifteen species were captured in Lamoka Lake in both the spring and fall. All samples in both lakes were dominated by bluegill and pumpkinseed sunfish, and in Lamoka, yellow perch. Several quality size muskellunge, largemouth and smallmouth bass were also recorded.

Data analysis was performed by SUNY and DEC staff and a final report was prepared by Dr. Haynes. DEC biologist Matt Sanderson presented the results of the surveys at the 136th annual meeting of the American Fisheries Society held in Lake Placid, NY and as an invited speaker at the annual meeting of the North East Aquatic Plant Management Society in West Dover, VT. The following is the abstract of the presentations:

Fisheries surveys in Waneta and Lamoka Lakes from 2003 to 2006 were conducted to assess potential changes in the fish community of Waneta Lake after an April 2003 whole-lake treatment with the herbicide fluridone. A variety of standard fishery statistics were used to compare and evaluate potential differences in the status of fish populations between lakes, years, and seasons. Very few significant differences were detected. Abundance of chain pickerel and yellow perch was higher in Lamoka, and smallmouth bass abundance was higher in Waneta. Pumpkinseed, bluegill and yellow perch were longer and heavier in Waneta than in Lamoka Lake, largemouth bass were longer and heavier in Lamoka than in Waneta Lake. However, there were no significant interaction effects among lakes and years suggesting that something unusual happened in 2003 in Waneta Lake. Longer and heavier pumpkinseed and bluegill in 2003 may suggest that the fluridone treatment had a short-term effect on reproduction and recruitment, but because their ages did not differ among years this hypothesis is weak. Smallmouth bass in Waneta Lake were longer, heavier and older in 2003 than in 2004 and 2005; therefore, reproduction or recruitment may have been impaired as a result of the fluridone treatment in 2003. Although it was not detected clearly by the statistical analyses of catch per unit effort, the number of yellow perch caught in October 2004 and May 2005 declined sharply in Waneta Lake and rose exponentially in Lamoka Lake. This may have occurred due to loss of aquatic macrophyte habitat after the fluridone treatment that lead to increased natural mortality or poor year classes in Waneta but not Lamoka Lake. Overall, the four years of data examined do not appear to show that the fluridone treatment of Waneta Lake adversely affected the fish community. If loss of cover for juvenile fish or loss of food and cover for invertebrate prey of juvenile fish exists in Waneta Lake, it has yet to manifest itself in a detectable way.

Viral Hemorrhagic Septicemia (VHS) found in Conesus Lake
Conesus Lake became the first non-Great Lake water to have VHS. The discovery came after samples were collected from a reported August fish kill involving walleye. Samples were sent to Cornell University where VHS was found to be present in the fish.

Region 9

Allen Lake
Allen Lake is a 58 acre artificial impoundment located in north central Allegany County. It has a maximum depth of 19 ft and an average depth of 8 ft. It was built on private property in 1958 on the headwaters of an unnamed tributary to the Genesee River. New York State purchased the lake in 1963 along with 700 upland acres and added it to state forest land now totaling 2,421 acres.

The Allen Lake drainage area is only 0.3 mi^2. The land use of the drainage area is state forest. The lake as well as the surrounding state forest is a high use area. There is an unimproved hand boat launch ramp, an accessible T-dock for fishing, a 25 car parking lot and a seasonal use sanitary facility. The lake is restricted to the use of non-gasoline powered boats. Although boats and canoes are common on the lake, the majority of the fishing takes place from the 1,600 ft earthen dike. Allen Lake has a population of largemouth bass, assorted panfish but mainly brown bullhead, sunfish and yellow perch, and is stocked annually with 5,600 yearling brook trout and 350 two year old brown trout.

Largemouth bass were introduced in 1996 to provide a predator to control the abundant, stunted panfish population. The introduction was successful with year classes produced from 1996 through 2002. By October 2002, the daytime electrofishing catch for bass was 117/hr (age 1+ and older). An electrofishing survey in late May 2006, however, found a catch rate of 5 bass/hr. Although not

documented by DEC, a major fish kill was reported by the public in early April 2003, presumably due to classic winter kill. The largemouth bass population has not yet recovered from this event.

Panfish collected during the 2006 survey showed average to slower than average growth rates. Besides Allen Lake being low in fertility, the loss of a majority of the largemouth bass population, which acted as a control on panfish numbers, has caused growth rates of panfish to decrease. When the largemouth population was increasing, panfish growth rates were improving. Since the winter kill die-off of many largemouth bass in 2003, panfish numbers have increased while growth has decreased. Zooplankton indices have been negatively impacted since the largemouth bass winter kill also. The average size and density of zooplankton has decreased since 2002.

Species diversity continues to change in Allen Lake. Yellow perch were not collected in a 1995 survey, a few were collected in a 2002 survey, and by 2006 they were the most commonly collected panfish. Green sunfish, which were common in 1995, now appear to be extirpated, as none were collected in 2006. Pumpkinseed, which were very abundant in 2002, decreased dramatically in numbers in 2006, while brown bullhead increased greatly between 2002 and 2006.

Chautauqua Lake

Regional staff assisted Prendergast Hatchery with the tending of trap nets to monitor the adult muskellunge population. Nets were fished for 14 net nights and produced a catch per net index of 29, which is slightly above the management goal of 28 fish per net (Figure 2). The total catch of 236 adult muskellunge, included 32 fish over 40 inches. Two pathologists for Cornell University spent a day collecting tissue and blood samples to try and determine the cause for the red spot disease. They concluded that is was a common fish bacteria.

A larval fish survey was established to evaluate natural reproduction of walleye. The last known walleye fry survey was from 1970, that survey had identified 18 stations with two tows per station. It was decided to use the historic sites and repeat the survey for three years. The equipment was borrowed from Lake Erie Unit and 108 tows were completed with help from Prendergast Hatchery staff. The larval fish samples were processed by SUNY Fredonia Biology department staff and students, no walleye fry were found in the 2006 samples.

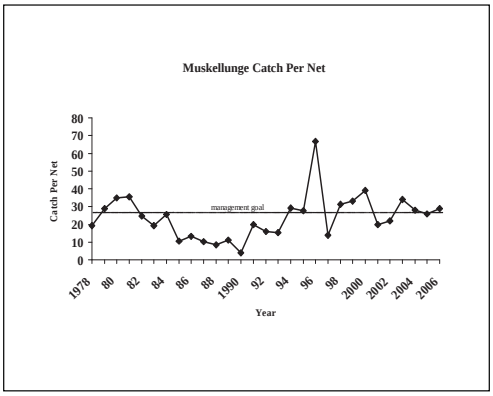
After a three-year hiatus, trawling was conducted at 13 sites to estimate forage abundance and species composition in the lake. A standard 16 ft bottom trawl was towed for five minutes at each site twice a month for two months. The catch was sorted by species, then separated into young of the year or older groups. The groups were then sub-sampled and measured and scales were taken if needed for age determination. Yellow perch dominated the catch, followed by white perch, pumpkinseed and bluegill. White and black crappie catches remained low. Walleye numbers were still low totaling only 47, which averages less than one fish per tow.

Fisheries staff completed fall electrofishing surveys at 15 standardized sites. The primary targets were muskellunge, walleye and black bass. Fish were collected and delivered to Cornell for VHS testing. At this time Chautauqua Lake remains VHS free. Largemouth bass numbers were down from 2004 fall electrofishing. Some of this can be contributed to very high turbidity at the time of sampling. Walleye numbers doubled to 8 fish per hour, up from 4 fish per hour, but still low compared to 1998s 40 fish per hour.

Cassadaga Lakes

The muskellunge work group suggested trap netting other muskie lakes in a effort to increase the sex ratio during egg take operation at Pendergast Hatchery. For years it has been difficult to obtain a good number of males at the time when females become ripe. Hatchery staff set two trap nets in Cassadaga Lake and one each in Upper and Lower lakes. Regional staff helped tend the nets. The trap nets were fished for 14 net nights with 100 total muskellunge caught, the largest being a 40 inch male. With a high male to female ratio, brood muskellunge from Cassadaga Lake were used as part of the overall egg take for 2006.

Figure 2. Trap Net Catch of Muskellunge in Chautauqua Lake 1978-2006



Coldwater Lakes and Ponds

Central Office- Coldwater Fisheries Unit

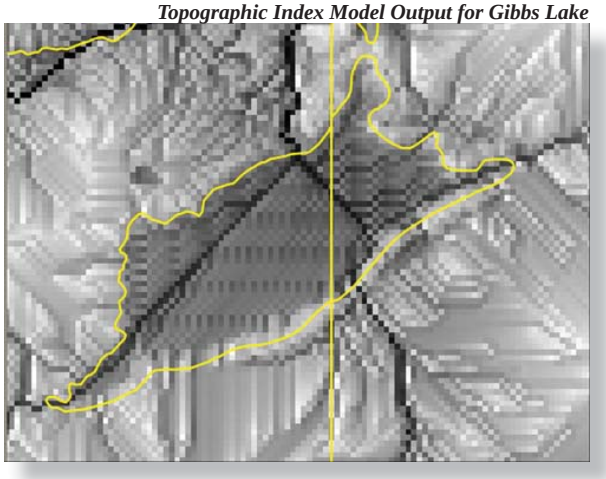
Brook Trout Genetics

The Bureau of Fisheries has participated in a collaborative effort with Tim King of the USGS on a brook trout mitochondrial DNA study with the primary objective of determining if individual broodstocks of heritage strain brook trout have diverged significantly from their original sources. As part of this effort over 400 tissue samples were submitted for analysis, including six heritage populations, three broodstock waters, two hatchery strains, and several unstocked waters of questionable lineage. The final report has not been completed, but initial results indicate that broodstock populations have diverged very little from their original sources. This finding confirms that we have been successful in perpetuating the genetic integrity of these strains.

Identification of Cold Water Inputs to Brook Trout Ponds

As part of the Coldwater Federal Aid Project DEC is working with Cornell researchers to develop, evaluate, and implement a procedure that will predict groundwater seepage sites in nearshore locations and tributaries for Adirondack lakes. These cold water inputs are critical for trout spawning and for trout refuge areas during the summer. Using commonly available GIS layers, a prediction model for lakeshore and tributary groundwater seepage has been build using a Topographic Index approach. The model has been calibrated with field-collected data for a set of study lakes, and is now being applied to lakes and ponds of interest to DEC for management purposes. It is hoped that this information may help identify good candidates for brook trout restoration and could help guide management for selected ponds.

Topographic Index Model Output for Gibbs Lake



Region 1

Spring Trout Stocking

Starting at the end of March and throughout the month of April the Freshwater Fisheries Unit spent several days assisting DEC Fish Culture Staff in stocking 29 Nassau and Suffolk water bodies with trout. Suffolk County waters received 3,350 yearling and 3,750 two year old brown trout and 12,100 yearling rainbow trout. Nassau County waters received 420 yearling and 1,250 two year old brown trout and 3,050 yearling rainbow trout. The yearlings average nine inches and the two year olds averaged 13.5 inches with some as large as 16 inches.

There was no shortage of volunteers this spring which included angling club members, staff from other NYSDEC Units and several Environmental Conservation Officers. The ECOs were able to scope out the stocking locations, check licenses and inform the public of the fishing regulations. Members of Long Island and Art Flick Chapters of Trout Unlimited were on hand throughout and took the time to scatter stock sections of the Carlls and Carmans Rivers.

Although many of the waters on Long Island are open to trout fishing year round with a few exceptions, (special regulations apply for Swan Lake, Carmans River in Southaven County Park, Connetquot River in Connetquot River State Park and Nissequogue River in Caleb Smith State Park) many Long Island trout fishermen still consider April 1st opening day. You can imagine the excitement the sight of a stocking truck brings to not only fishermen but residents along the water bodies and the neighborhood children. Anyone who approaches the stocking crew is encouraged to grab a bucketful and take part in the process. The Fisheries Unit will be stocking again in the fall, volunteers are always welcome.

Long Island Fall Trout Stocking

On October 19th and 20th and November 9th Region 1 Fisheries Staff met Catskill Hatchery staff to stock many of Long Island's rivers, ponds and lakes. Members of Trout Unlimited often assist with the stocking and this fall was no different. The members follow the stocking trucks to each location and bucket by bucket make sure that each fish arrives at it's destination in a quick and safe manner. They even take the time and effort to scatter stock a few hundred trout in Carlls River. Over 8,000 brown trout were stocked in18 water bodies in Nassau and Suffolk Counties.

Region 5

Brook trout protection and restoration in the Adirondacks

The intent of this program is to restore native brook trout to Adirondack waters that have been compromised by acidification or the introduction of nonnative fishes. Related activities included public education efforts, reliming two ponds, and researching the status of acidified waters and of non-native fishes. Pond reclamations, to eliminate non-native fishes from individual waters, were not done in 2006-07.

Research on the status of water chemistry and introduced fish

The introduction of competing and predacious fish, as well as pond acidification, are the primary causes of the decline of brook trout in Adirondack lakes and ponds. Continued introductions of fish are causing further declines in brook trout. In contrast, we know that some ponds are becoming less acidic, which can provide outstanding opportunities to restore brook trout. Researching the status of such changes is essential to identify restoration opportunities.

Brook Trout Lake, Deep Lake and Falls Pond in the West Canada

Lakes Wilderness are three waters that have become less acidic in recent years. Brook Trout Lake's water chemistry is now suitable to support fish, and Horn Lake strain brook trout were stocked in 2005 and 2006. Followup research by RPI and the State Museum confirms that the stocked trout are surviving and growing. Deep Lake and Falls Pond have water chemistries on the threshold of being suitable for trout survival. Both were checked in 2005 and again in 2006. In 2005, Deep Lake had a pH of 5.1 and ANC (acid neutralizing capacity) of 2.8, but in 2006, the pH was 4.9 with an ANC of -5.2. Thus, water chemistry conditions were slightly worse in 2006. The survey crew found a natural barrier to upstream fish movement on the outlet immediately below the lake. Dissolved oxygen values were good throughout the water column. Falls Pond had a pH of 4.9 and an ANC of -1.4 in 2005. The 2006 sampling found the same pH with ANC slightly improved to 1.2. A good natural barrier was found about 0.1 miles down the outlet from the lake. The dissolved oxygen was good down to its maximum depth of 22 ft.

Both Deep Lake and Falls Pond have levels of acidification that are marginal for trout survival. Since there are natural barriers on their outlets, there is little risk of nonnative fish species establishing in these waters. Consideration will be given to stocking these lakes with a heritage strain of brook trout - most likely Horn Lake strain. Stocking may not take place in 2007 due to a limited supply of Horn Lake fingerlings.

Reclaimed ponds surveyed

Several recently reclaimed ponds received biological surveys to assess the current status of their fisheries. Certain of the ponds have again become compromised by competitive fish species and brook trout populations will no doubt suffer. This underscores the need for the reclamation program to regain momentum.

Bumps Pond, located in the Lake George Wild Forest, was treated with rotenone in 1994. Central mudminnows were found shortly after the reclamation, but golden shiner and brown bullhead, two difficult to eliminate species, were successfully removed. When last surveyed in 2000, Bumps Pond continued to provide a quality brook trout fishery with central mudminnow being the only other fish species present. Surveyed again in May of 2006, Bumps Pond continues to support only brook trout and mudminnow. The brook trout population is dependent upon stocking.

Mountain Pond and Dry Lake are two inter-connected waters in the Saint Regis Canoe Area that were reclaimed in 1991. Brown bullhead was the only species that was not eliminated during the reclamation. Surveys in 2006 reaffirmed that Mountain Pond and Dry Lake contain only brown bullhead and brook trout. As is sometimes the case, the proportion of naturally spawned fish has increased over time. The catch of brook trout in Mountain Pond consisted of 8 wild trout and two stocked .

Nellie and Bessie Ponds were treated in 1990. Located in the St. Regis Canoe Area, these two ponds quickly developed self-sustaining populations of Horn Lake strain brook trout. Several species were successfully eliminated during the reclamation and only one unidentified minnow species was collected in a 1996 netting effort. Sadly, an August 2006 netting survey showed that creek chub, brown bullhead and golden shiners have all now become established in Nellie and Bessie Ponds. Extensive beaver activity on the outlet may have allowed competitive species to surmount the blasted rock barrier. The remote nature of the ponds precludes frequent attention to the barrier situation. All three competitive fish species were still at relatively low levels, suggesting that the introductions were recent. Brook trout were still abundant and naturally spawned.

Howard Pond, located in the Hammond Pond Wild Forest was treated with rotenone in 1992. Golden shiners survived the treatment but several other competitive species were eliminated. Redbelly dace were established intentionally following reclamation for study purposes. This 2006 survey documented the reestablishment of brown bullhead, a competitive species that had been absent since the reclamation. The brown bullhead population was at a low level, but is expected to expand at the expense of the stocked brook trout population.

Whey Pond was reclaimed in 1989 and was one of the first waters reclaimed during the "modern era" of the brook trout restoration and enhancement program. The pond was treated at 0.75 parts per million (ppm) of rotenone, rather than the 1.0 ppm that we have since found to be essential to successfully eliminate tolerant species, particularly brown bullhead and golden shiner. Golden shiner and brown bullhead did survive the treatment, but highly competitive yellow perch were eliminated. Whey Pond is a good example of the tremendous competitive force exerted by yellow perch. Prior to the reclamation, trout were virtually absent from the pond. Following elimination of yellow perch the pond is producing quality trout fishing despite the continued presence of golden shiner and brown bullhead. Whey Pond is productive and relatively large with good conditions for salmonids. In most trout ponds, golden shiner and brown bullhead populations will severely impact brook trout populations and stymie reproduction. The recent survey captured nearly 60 brook and rainbow trout. Naturally spawned Windfall strain brook trout dominated the catch.

Little Charley Pond in Hamilton County had been privately owned and is believed to support the Little Tupper strain of brook trout. The Nature Conservancy recently acquired the pond and is supportive of efforts to preserve the Little Tupper strain. Fisheries staff surveyed Little Charley Pond to determine its potential as a broodstock water and for a reclamation. Little Charley Pond has a good natural barrier on its outlet which should prevent largemouth bass that are now destroying the brook trout population in Little Tupper Lake from reaching Little Charley Pond. However, large wetlands on the inlet and outlet of Little Charley Pond make a reclamation difficult. Only five brook trout were netted in Little Charley Pond. Tissue samples were taken for genetic comparison to known Little Tupper strain brook trout. The netting also revealed a large population of nonnative rainbow smelt - some nearly nine inches long. Other species caught were pumpkinseed, white sucker and creek chub. Rainbow smelt are known predators on brook trout fry. The presence of this species in Little Charley Pond does not bode well for the native brook trout. Little Charley Pond is not open to the public for angling. The Nature Conservancy and DEC have not set

a date for transferring this water to state ownership.

Holmes Lake and Bone Pond limed
Holmes Lake, located in Fulton County was limed on March 13-14, 2007. Holmes Lake is a productive brook trout lake which requires periodic liming to counteract the negative impacts associated with acid precipitation. The lake received 20 tons of pulverized agricultural limestone which was applied to the ice-covered pond via helicopter. The limestone will slowly mix with the lake water when the ice melts during the spring thaw. The liming of Holmes Lake is considered to be exceptionally valuable because it sustains an important fishery in an area of the state where the impacts from acid rain are severe. Few remote lakes in Fulton County support brook trout fisheries. Holmes Lake is in the Shaker Mountain Wild Forest and the liming of Holmes Lake was determined by the Adirondack Park Agency to be a non-jurisdictional action.

Bone Pond, located in the Saranac Lakes Wild Forest and the Saint Regis Canoe Area, was also limed in early 2007. Bone Pond is a 10-acre pond that requires periodic treatment with pulverized agricultural limestone to maintain water quality suitable for trout. Bone Pond was last treated with lime in February of 1994, thus the prior treatment was successful in providing suitable water quality for trout for more than 12 years. This is considered an excellent retention time for this type of application. The Adirondack Park Agency was consulted prior to treatment, with the project considered non-jurisdictional.

For the pond limings, Bureau of Fisheries personnel were assisted by New York State Forest Rangers, who provided communications. The New York State Police provided aviation support. Staff from the Division of Operations provided technical assistance, including trucking the limestone and preparing an operation zone. The Bureau of Fisheries thanks all that were involved.

Helicopter releasing lime on Bone Pond

Heritage brook trout egg takes successful
Restoring native strains of brook trout, known as Heritage strains, is a part of the brook trout restoration effort. Working with the native strains requires special egg collections from the wild. Late October is prime brook trout spawning time in the Adirondacks. Fisheries staff members T. Shanahan and J. Gnann trapnetted Mountain Pond, Town of Brighton in Franklin County, on October 25-26, 2006 and found the Windfall strain brook trout present there in peak spawning condition. Approximately 18,600 eggs were gathered from 25 pairs of trout. The egg take exceeds regional stocking needs based on past egg to fry survival rates. Windfall strain brook trout are found in nine other Adirondack waters.

Chris Van Maaren and Rich Preall organized a cooperative venture in netting Fishbrook Pond in Washington County for Horn Lake strain brook trout eggs also on October 25-26. As in Mountain Pond, the trout were at peak ripeness. Chris, Leo Demong, Matt Presher and Emily Zollweg took eggs from 26 pairs with a yield of 17,000 eggs. Horn Lake strain brook trout are present in 10 other Adirondack waters.

Egg take from Horn Lake strain brook trout

Public outreach on fish introductions and the use of fish as bait
Introductions of competing and predacious fishes are a major threat to brook trout (and round whitefish) in Adirondack Ponds. Unfortunately many such introductions are the result of humans transporting live fish. To reduce the frequency of such introductions, efforts were increased to educate the public about the dangers of moving fish. Displays were developed for use at county fairs, watershed field days and similar events. Related information was added to the Department web pages. A press release helped generate numerous articles in Adirondack area newspapers, as well as coverage in other media. Also, staff made a point of discussing the issue when attending county federations and other public meetings.

Region 6

Horn Lake Egg Take Attempt
In an effort to reseed our easily accessible brood waters with natal Horn Lake strain brook trout, Region 6 BOF conducted two egg take attempts at Horn Lake. On November 7, Fisheries staff were flown into Horn Lake with a State Police helicopter to set trap nets. The nets produced 23 brook trout of which all the males caught were ripe but only one of the females was releasing eggs. Two weeks later, Fisheries staff returned on a State Police helicopter, and used gill nets to catch fish and again found the females less than willing to release their eggs. Twelve fish were caught in 1.5 hours of quick set gill netting, all of which were females (odd sex ratio). One of these 12 was spent, one was ripe (image below), and 10 were not ready. Horn Lake has historically been a difficult place to collect eggs with the fish not being ripe often until ice cover. Research is needed to uncover the cause of this late spawning that is specific to Horn Lake, as Horn Lake strain brookies that have been transplanted into other waters don't spawn as late. As

an example, an egg take of Horn Lake strain brookies was conducted on Fishbrook Pond in Region 5 successfully on October 27 of this year. Our other waters that serve as brood waters for these egg takes have also historically produced ripe fish much earlier than the third week in November.

Genetic testing using microsatellite techniques conducted last year, revealed that our most commonly used brood water for Horn Lake strain brook trout had fish with less complex genetic profiles than do the fish in Horn Lake. The preservation of the unique heritage strain genetics is one of the primary goals of our heritage brook trout program and has motivated us to do this egg take in Horn Lake.

Horn Lake strain brook trout

Five Ponds Wilderness Area Brook Trout Sampling

Salmon Lake, Witch Hopple Pond, Beaverdam Pond and Negro Lake are part of a drainage of ponds that flow south into Stillwater Reservoir, in northern Herkimer County. all of which have non-stocked wild brook trout populations. Besides the outlet from Salmon Lake, none of these waters have suitable stream spawning access. This leads one to suspect sufficient groundwater for in-lake spawning. However, none of these waters have high silicon levels that would suggest abundant groundwater. It appears there would need to be a good deal of groundwater to support the number of brook trout that we found in these waters that also hold large populations of yellow perch. The alternate hypothesis is that these fish are swimming up the outlets from the stocked Stillwater Reservoir. Tissue samples were taken from all trout to help us understand the source of these fish. Current micro-satellite genetic analysis will allow us to determine if these fish are the Temiscamie-hybrids stocked in Stillwater vs. wild fish that may have a more historic hatchery source.

Search to Confirm Region 6 Heritage Strain Brook Trout Existence

Two of the regions least abundant strains where targeted in netting efforts during the month of May. Windfall Pond and Stink Lake were both sampled in an effort to collect tissue samples to confirm that these brook trout populations are indeed free from any stocking influences and can be viewed as “Heritage”. Due to the low numbers of brook trout in each of these waters, sampling techniques where made with an eye on keeping fish alive. In Windfall Pond we set a trap net and in Stink Lake we monitored Swedish gill nets on 45 minute sets. Despite having caught a brook trout in Windfall last year, this trap netting effort did not yield any brookies. This speaks to the low density of fish in this water and should not be viewed as verification that the population has been extirpated. In Stink Lake we were excited to catch our first brook trout since the late 1980s. This population could be at great risk as our pH reading on the surface that day read 5.05. Additional water samples will be taken in June to confirm the water quality in Stink Lake.

Jordon River Survey

This was the first attempt at surveying a water thought to possibly have a stream population of heritage strain brook trout. Current special regulations list it as catch & release, artificials only. Attempts to conduct shocking were limited due to poor gear performance in this low conductivity medium-size stream. Shocking efficiency was likely very low with the conductivity and the dark water color that made netting difficult. Gill nets were also set in the slower water. Additional tissue samples need to be collected to get a sufficient sample for genetic analysis.

No changes to the special regulation are requested at this point until genetic analysis is complete. Recommendations in the Unit Management Plan for this area will be to not increase angling pressure by providing additional access. The limited catch included a YOY brook trout and 2 decent-size stream brook trout. Fishing reports suggest that the trout population is fair but not exceptional, despite low pressure. Habitat and low productivity are the likely cause of this. Much of the river is slow and meandering and may have high summer water temperatures.

Region 8

Seneca Lake Deepwater Electrofishing Sea Lamprey Ammocoete Assessment

Larval sea lamprey populations were assessed on Dresden and Watkins Glen deltas and Catharine Creek canal during May and June 2006 using a deepwater shocking boat and equipment on loan from Region 5. Although this technique is best used to define areas of high densities, rough population estimates were determined for each delta and a 2.5 mile portion of the canal. Only one ammocoete was collected in the Watkins Glen delta indicating a very low density. This delta will not require treatment. However, the Dresden Delta population was estimated at about 10,000 ammocoetes with the highest density near the vicinity of the mouth of Keuka Outlet. Estimated ammocoete kill in Keuka Outlet was less than 500 in 2004, therefore it appears that most of the production occurs in the delta, which has not been treated since 1986. Two areas in Catharine Creek canal, immediately downstream of L’ Hommideau Creek and at the mouth of Glen Creek also had high densities of ammocoetes estimated at about 2,500. Based on this information, along with monitoring of wounding rates of trout and salmon during trout derbies and lake and tributary surveys, bayluscide treatments will be scheduled for 2008 provided appropriate permits can be attained. Additionally, data will be used in the preparation of federal documents to amend the Sportfish Restoration Grant and allow the expenditure of federal monies for sea lamprey control activities in Seneca and Cayuga Lakes.

Canandaigua Lake Lake Trout Survey

Canandaigua Lake was surveyed this past summer using gill nets placed in various locations throughout the lake. A total of six assessments have been conducted since 1978, the most recent being 2002. Although all data have not been analyzed, preliminary observations can be made. A total of 141 lake trout were collected

with the largest being approximately ten pounds. Catch-per-unit-effort was 6.1 lake trout/net night, the lowest of all the assessments, but only slightly lower than in 2002. Fish appeared to be in fair to good condition. Approximately fifty percent of all stomachs analyzed were empty. Of those that contained food items, smaller lake trout were consuming mysis, or freshwater shrimp, and larger fish were feeding on alewives and smelt.

Beginning with the spring yearling stocking in 2003, all lake trout stocked into Canandaigua Lake were fin-clipped to estimate natural recruitment to the fishery. Additionally, no lake trout from the 2005 year class were stocked into Canandaigua Lake. Preliminary observations based on fin-clip returns indicate that natural recruitment remains low. In addition, based on size, there did not appear to be any lake trout from the 2005 year class, the year in which stocking did not occur, further indicating low natural recruitment. More definitive estimates of natural recruitment rates will be determined once all fish scales have been aged.

Evidence of a slight rebound in the rainbow smelt population was documented as CPUE increased to 2 smelt/net night, the highest level since 1985. In addition to the increased catch, anglers reported a small spring run of smelt in Naples Creek this year, the first in several years. Alewife catch remained low. Base on these preliminary findings, it appears that current stocking rates and regulations should be maintained.

Western Finger Lakes Nuisance Aquatic Species Report

From 1995-2004, in response to the Nonindigenous Aquatic Species Comprehensive Management Plan, Region 8 Fisheries Management personnel conducted an intensive monitoring program including physical (temperature and dissolved oxygen profiles, total phosphorus, chlorophyll a, pH, calcium, and conductivity) and biological community (zooplankton, phytoplankton, and limited fisheries surveys) sampling in all of the Finger Lakes within the region to assess potential ecological effects related to Dreissena infestations. The Finger Lakes included Canadice, Canandaigua, Conesus, Hemlock, Honeoye, Keuka, and Seneca Lakes. In addition to these lakes, other important waterbodies were sampled and included Cayuta, Lamoka, and Waneta Lakes. Zebra mussels were first discovered in Seneca Lake in 1991 and have since colonized every Finger Lake except Canadice Lake. More recently, quagga mussels have also been found in Seneca Lake. To date only Canadice and Waneta Lakes have not been colonized by Dreissenids.

Environmental conditions in most of the study lakes provided moderate to high potential for Dreissenid colonization. Subsequently, once Dreissenids invaded these waters, populations appeared to have expanded and have become firmly established. The lone exception is Canadice Lake which has the lowest recorded calcium levels of the ten study lakes and to date has not had any documented Dreissenid infestation. Oxygen levels in most of the warmwater lakes and a few of the deeper coldwater lakes appear to be the most limiting factor in the spread of Dreissenid populations.

Overall, it appears that Dreissenids have had a more apparent impact on the deeper, less fertile coldwater lakes as opposed to the relatively shallow, more fertile warmwater lakes. In general, the biovolume of phytoplankton in deep coldwater lakes was dominated by diatoms, while blue-green algae generally was the most abundant phytoplankton group in the shallow warmwater lakes. Zooplankton size was typically larger in lakes with established Dreissenid populations and may be a result of the filtering of smaller size zooplankton from the water column by Dreissenids. However, other factors such as fish community structure may also be impacting zooplankton size. Total biomass of zooplankton, like phytoplankton biovolume, was lowest in the deeper coldwater lakes and highest in the two most shallow warmwater lakes, Honeoye and Waneta. Generally, there appeared to be a decline in zooplankton biomass after 1998 in Seneca, Keuka, and Canandaigua Lakes. These declines along with relatively poor primary production in these lakes could potentially impact forage fishes.

Impacts to fisheries resources as a direct result of Dreissenid colonization are difficult to assess due to highly variable population parameters that are naturally inherent in fishery populations. Based on these assessments it appears that forage abundance in the deep, coldwater lakes has been declining since the introduction of Dreissenids. Rainbow smelt, in particular, have all but disappeared in lakes where they were once a primary forage fish. Alewife, another primary forage species, has also declined but not as extensively as smelt populations. The decline in these forage species has generally resulted in slower growth and poorer condition of lake trout, the primary predator and most easily sampled predator fish in these deep coldwater Finger Lakes. However, it is important to note that other biotic or abiotic factors may be causing these changes. Impacts to fish species in the warmwater lakes have been less evident and may be a result of the high productivity associated with these systems.

Warmwater Rivers and Streams

Central Office- Inland Section

St. Lawrence River Studies

Researchers at the State University of New York, School of Environmental Sciences and Forestry completed their annual assessment of muskellunge, northern pike, and walleye populations and habitats in the St. Lawrence River. A Federal Aid to Sportfish Restoration grant funded this assessment.

Muskellunge Management and Monitoring

Abundance and Health - Spawning adult muskellunge were monitored in ten known spawning bays. Thirteen muskellunge were captured for a catch rate of 0.04 fish/night in 2006 compared to a catch of 43 muskellunge at a rate of 0.12 fish/night in 2003. The low catch observed in 2006 is of concern because of its potential relation to increased mortality associated with recent VHS outbreaks. Significant muskellunge mortality was also observed in 2005, but VHS was not confirmed as the causative agent. In 2005, 23 dead muskellunge were processed from the St. Lawrence River from 6 June to 22 July. Nine of these fish were females with eggs (mean TL = 1245 mm, SD= 125), and twelve were males (mean TL = 1104 mm, SD= 94). In 2006, 12 dead muskellunge were processed from 16 May to 25 July. Sex was unidentified on four individuals and the remaining eight were large females with eggs (mean TL = 1329 mm, SD= 82). In both 2005 and 2006, all dead female muskellunge (N=17) had ovaries full with eggs, suggesting spawning stress may have been a factor in mortality. Interestingly, no males were confirmed among dead muskellunge in 2006.

The annual YOY muskellunge index was completed for the tenth consecutive year of standardized sampling. A total of 90 seine hauls in 11 bays were completed during each sampling period. During the fine mesh series in July, 63 YOY muskellunge (CPUE = 0.700) and only 1 YOY northern pike (CPUE = 0.011) were captured. The large-mesh seining series in August resulted in a catch of 34 YOY muskellunge (CPUE = 0.378) and 7 YOY northern pike (CPUE = 0.078). Catch rates for both series were slightly below the long-term average (July CPUE = 0.944, SD=0.224; August CPUE = 0.609, 0.218). Data on habitat use was collected and will be used in the development of probability based predictive models.

Spawning and Nursery Habitat Assessment - Two locations were sampled to determine spawning habitat use: French Bay and Carrier Bay, Clayton, NY. French Bay has sandy substrates and abundant fine-leaved submersed vegetation that appeared suitable for muskellunge nursery, but no YOY muskellunge were observed at this location. Carrier Bay, a known nursery area that had not been surveyed since the 1980s, produced five YOY muskellunge in six seining hauls. Delaney Bay and Long Point Marsh (primarily sampled for YOY northern pike) also each produced YOY muskellunge in 2006.

Muskellunge Angler Diary Program - The number of muskellunge caught (N = 22) and the overall muskellunge catch rate in the 2006 Muskellunge Angler Diary Program (CPUE = 0.015 fish/hour) were the lowest on record (the program started in 1997). However, the average length of muskellunge caught (46.2 inches-TL) was similar to the high average lengths observed during 2002-2004. The low catch rate and few muskellunge caught during 2006 are of concern given the 2005 and 2006 large-scale mortality events.

Northern Pike Management and Monitoring

Abundance and Health – Efforts to evaluate northern pike use of, and reproductive success in, managed marshes continued in 2006. Hoopnets were set to intercept upstream migrating northern pike at six tributary locations including two managed spawning marshes (Carpenters Branch and Butterfield Marsh). A total of 146 northern pike were captured in 149 net-nights, a CPUE of 0.98 fish/night, down from 3.5 per net-night in 2005. All fish captured at entrances to the spawning marshes were transferred into the marsh. Sex ratios were female dominated during the spawning run. One left ventral fin-clipped adult northern pike was captured in Cranberry extension suggesting it originated from YOY production in Cranberry Marsh. Trends of age 0 northern pike in the 30 ft and 60 ft seining surveys continue to show very low abundance in coastal bays. Despite the overall low CPUE, the two seining series seem to trend in a similar pattern (with exception of 1997) suggesting they accurately reflect YOY abundance at the sites.

Cobb Shoal seining

Nursery Habitat Assessment - Three large Grindstone Island bays were sampled in August by seining to identify critical northern pike YOY habitats in the upper St. Lawrence River. This sampling also provided a comparison of pike YOY catches from the longer term seining for the 11 smaller bays used to index YOY muskellunge. Seine hauls at Delaney Bay (N=10) resulted in a catch of three YOY pike; catches were also low in this site in 2005. Total catch of YOY in Long Point Marsh was lower in 2006 (1 YOY/ 8 hauls versus 13 YOY/ 6 hauls) relative to 2005. Flynn Bay, which historically provided a high YOY pike catch resulted in no YOY in ten hauls. A single YOY muskellunge was caught in both the Delaney and Long Point samples.

Spawning Marsh Production and Habitat Quality - The Carpenter's Branch site was monitored for emigrating YOY northern pike using spillway traps. A total of 1,139 YOY northern pike were captured; 331 were given fin-clips (29.1%) and trap mortality was

474 fish (41.6%). The remaining fish were below the 70 mm cut-off for fin-clipping. The estimated mean length of the emigrant pike was 84 mm. Water level data was collected continuously at all sites including reference locations. Vegetation monitoring was completed at elevation specific plots along transects using a point-quadrat method.

Northern Pike Fisheries Management Plan - A northern pike symposium was held at the 2006 American Fisheries Society Annual Meeting in Lake Placid, NY. Sessions on management, biology, and ecology of pike received considerable focus from worldwide experts. Much information was shared among participants that will be useful to understanding the species and its management in the St. Lawrence River. A series of publications to be available in Hydrobiologia are now through the review process, including one paper related to this study.

Walleye Management and Monitoring

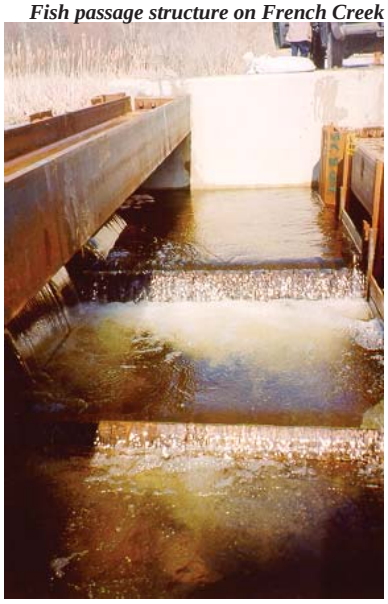
Genetic Assessment - Walleye genetics samples taken in 2004 and 2005 were given to Dr. Chris Wilson of The Ontario Ministry of Natural Resources (OMNR) and Trent University in a collaborative effort for DNA extraction and micro-satellite DNA laboratory analyses. The DNA was extracted in spring 2007 and data from PCR amplifications relative to genetic markers will be available soon to analyze genetic divergence among geographic locations.

Spawning and Nursery Habitat Identification - Egg traps were used to collect walleye eggs in Kent's (Mud) Creek and Mud Bay, a tributary with a known spawning compliment in eastern Lake Ontario. Approximately 5,900 eggs were collected in Kent's Creek over the course of the sampling effort of which more than half (N=3135) were walleye eggs. The remaining eggs were white sucker (N=2306) and unidentified (N=499). Walleye eggs were detected in 21 of the 28 traps monitored. The 26 traps located in Mud Bay did not yield any walleye eggs. These data will be used in development of a habitat suitability model for walleye within the Kent's Creek/Mud Bay tributary system.

In order to document successful walleye hatching, drift nets were set in Kent's Creek. However, because of frequent and unpredictable flow reversals in the creek, drift net operation, which relies on unidirectional flow, was unsuccessful. Temperature loggers were deployed in Kent's Creek, Brandy Brook, Mullet Creek, Barrett's Creek and the Black River, and recorded data from early April through the beginning of June. In July 2006 spatial habitat surveys were conducted on portions of four streams (Kent's Creek, Brandy Brook, Barrett's Creek, Mullet Creek) using GPS and GIS base layers were constructed for future habitat suitability analyses.

Population Evaluation - The Cape Vincent hatchery stocked an estimated 122,000 fingerling walleye into seven sites in eastern Lake Ontario and the St. Lawrence River in 2006: Cape Vincent (17,358 fish); Chaumont Bay (23,380 fish); Stony Creek (28,429 fish); Fishers Landing (10,000 fish); Mud Bay (24,000 fish); French Creek (7,562 fish), Swan Bay (11,330 fish). None of the fish released were mass marked. In order to evaluate the success of the 2006 fingerling stocking, stocking sites where there was believed to be little or no natural production, French Bay (French Creek) and Fisher's Landing (Mullet Creek), were electrofished in October for age 0 walleye. No age 0 walleye were captured at either site. Areas suspected to have natural production (Mud Bay) were not sampled because there was no way to separate unmarked hatchery reared fish from naturally produced fish.

Fish passage structure on French Creek



Region 2

Bronx River, Bronx, NY

Approximately 400 alewife were released to the Bronx River through the efforts of the NYC Parks Department, Lehman College (CUNY), Wildlife Conservation Society and the Connecticut Department of Environmental Protection. This was the second release to the Bronx River of this multi-year effort to re-establish alewife. The event was observed by 50+ visitors and the local news media. Students from Lehman College will monitor the river to observe survival of the released fish. Regional staff are assisting in this on-going effort. In addition, local property owners, are undertaking activities adjacent to the river designed to improve riparian habitat.

Region 6

Northern Pike Cooperative Rearing Project, St. Lawrence Co.

The Chippewa Bay Fish & Game Club has been involved in a cooperative northern pike rearing project with NYS DEC Region 6 since 2001. The 5 year experimental program was intended to produce northern pike fry, from local broodstock, for stocking into waters within Chippewa Bay. NYS DEC captured broodstock and fertilized eggs while the sportsman group provided a rearing facility. This is the final year of the project.

A total of 6 quarts (~475,000 eggs) were collected over the April sampling period. Hatching success was poor with total production of swim-up fry between 20,300-21,200. Fry were stocked at both Oak and Rabbit Island at a rate of 9,500 and 11,000 respectively. Seining was done at the end of July in both stocked embayments, and control sites, to evaluate stocking success. The seining tech-

nique used has been developed over approximately 20 years of esocid work on the St. Lawrence River.

No YOY northern pike were collected in either stocked or control embayments in 2006. It has been difficult to detect any increase in number of YOY pike in stocked sites throughout this project. In several cases it may be a result of stocking fry too early due to problems in the hatchery system (fungus, temperature, etc.). Capture of YOY pike tended to reflect background year class development, regardless of fry stocking.

While this seining effort focused on northern pike, densities of other esocids are also noted for community comparison. Muskellunge YOY have been previously collected in the area but were lacking in 2006. Adult muskellunge are a low density top predator in the St. Lawrence River. Disease outbreaks in 2005-06 from VHS removed a significant number of adult fish and will likely have an impact on future recruitment of this species.

Grass pickerel have become very common in the Thousand Islands region and are typically the highest density esocid in our seining efforts. Information from the early to mid 1980's (SUNY ESF) rarely reported this species. Possible changes in the river related to long term habitat and environmental changes may have created conditions favoring this species over other esocids. In 2006 there seemed to be a noticeable decline in the total number of grass pickerel, YOY to adult, as compared to the previous four years of seining.

Region 7

Susquehanna River American Shad Stocking and Restoration Update

Bureau of Fisheries staff in Cortland and Albany represent New York State on the Susquehanna River Anadromous Fish Restoration Cooperative (SRAFRC) which includes natural resource agencies from Pennsylvania and Maryland as well as the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the Susquehanna River Basin Commission. The aim of the cooperative is to restore self sustaining populations of anadromous (shad and herring) fish species throughout the watershed.

As part of the restoration effort regional fisheries staff again assisted with the stocking of American shad fry in the Susquehanna River. On June 20, 2006 approximately 230,350 fry were picked up at the Pennsylvania Fish and Boat Commission's VanDyke Fish Hatchery and stocked in the river at Apalachin and Binghamton. This was the fourth year of a five year experimental American shad stocking program in the New York portion of the Susquehanna River drainage. Because of record high river flows just days after the stocking no effort was made by staff to collect juvenile shad in the early fall.

In recent years, results of the ongoing restoration effort have not been promising. After two decades of increasing numbers of American shad at Conowingo Dam, the first of four hydroelectric dams on the lower river, runs have declined over the past few years. In 2006, only 60,800 American shad were passed which is the lowest total since 1998. Declining numbers of American shad have been reported by natural resource agencies up and down the Atlantic coast indicating it is not a problem confined to the Susquehanna River. Increased shad harvest in the open ocean fisheries is the suspected reason for the coast-wide decline in American shad populations. Increased numbers of hickory shad, a close relative of the American shad, at Conowingo and along most of the Atlantic coast provide evidence for this theory. Unlike American shad which venture farther out to sea, hickory shad generally tend to stay close to the coast and thus are not vulnerable to the open ocean fishery.

Egg collections for the American shad restoration effort were down in 2006 which resulted in a reduced number of shad fry for stocking. Future egg collections are in jeopardy due to declining numbers in the Hudson River which has historically accounted for 50 - 75% of the total fry production.

Proposed Dam on the Susquehanna River

Staff attended public and agency meetings and provided numerous written comment in opposition of a proposed inflatable dam on the Susquehanna River in Wilkes-Barre. The proposed dam would create a seasonal recreational pool for boaters in the Wilkes-Barre area. Agencies opposed to the structure include the Pennsylvania Fish and Boat Commission, Pennsylvania Department of Natural Resources, and the U.S. Fish and Wildlife Service. The primary concerns of the agencies and other private groups include impacts to water quality and concerns over inadequate fish passage for river resident and anadromous fish species. The overwhelming opposition of both the environmental agencies and the general public may well result in the denial of a permit to construct the dam, but a final decision has not yet been made.

Susquehanna River June 2006 Flood Response and Post Flood Assessment

Flooding in June 2006 reached record levels and was classified as a 200 year to 500 year event in many areas of the drainage in New York. Several members of the Region 7 Fisheries staff assisted with the flood control efforts mounted by the DEC flood control unit and area municipalities. Hundreds of millions of dollars in damages were averted as a direct result of the flood control devices that are maintained and applied by DEC staff. Not all residents were so lucky and humans and wildlife both paid a toll. However, post flood visual surveys along the Susquehanna River corridor in Broome and Tioga County revealed no signs of mass fish mortalities. Although water quality was certainly compromised during the flood it appeared that most of the river's fish were able to make it through okay.

Region 9

Buffalo Harbor and Upper Niagara River Muskellunge

Muskellunge fishing quality in both the Buffalo Harbor and the Upper Niagara River has declined significantly in recent years. Angler cooperator catch rates in the Buffalo Harbor declined approximately 80% from a very robust 0.10 muskellunge per hour in the mid 1990s to 0.02 muskellunge per hour in the mid 2000's. The decline in the Buffalo Harbor was also associated with dimin-

ished opportunities to catch trophy 50+ inch muskellunge, which was a popular characteristic of the fishery. Similarly, angler co-operator catch rates declined approximately 50% during the same period in the Upper Niagara River. The reasons for the decline are not known, but are believed to be due to environmental changes in Lake Erie, primarily related to declines in aquatic productivity.

In Fall 2006, Region 9 Fish Unit conducted electrofishing surveys of YOY muskellunge nursery habitats to compare abundance with that observed during the early 1990's. In the Buffalo Harbor, there was no clear trend in young muskellunge abundance; however, young muskellunge have never been abundant in shallow, weedy habitats in the Buffalo Harbor during our surveys. In the Upper Niagara River there was a 78% reduction in YOY muskellunge at sites sampled in 1992 and 2006. There was a 61% reduction at sites from 1993 to 2006. This information suggests that production of young muskellunge may be substantially reduced, especially in the Upper Niagara River.

Other interesting results of the muskellunge survey were that YOY largemouth bass abundance was very high, adult rudd abundance increased and overall abundance of young fish in nursery areas was reduced. At two sites where muskellunge were abundant in the early 1990s, habitat conditions had changed making them less favorable for young muskellunge. The YOY results were snapshot results , not based on annual updates, therefore the surveys will be continued in Fall 2007.

During 2007, researchers from SUNY Environmental Science and Forestry will be working in the Buffalo Harbor and Niagara River to help better understand the dynamics of this changing muskellunge resource.

Young-of-the-year muskellunge

Niagara River tiger muskellunge

Coldwater Streams

Region 1

Infectious Pancreatic Necrosis (IPN) found in Connetquot River State Park Hatchery

As part of the Department's response to VHS, Bureau of Fisheries staff collected fish from the Connetquot River State Park Hatchery in December 2006. The fish were tested for VHS and a suite of other fish diseases including IPN. In the sample from the Connetquot River State Park Hatchery, 38% of the brown trout, 38% of the brook trout, and 20% of the rainbow trout tested were positive for IPN. These tests were confirmed by an independent laboratory. This is a very high level of infection. IPN is a serious disease that primarily effects trout and salmon in hatchery, pen rearing or other high density environments. It can cause high mortality within affected populations. There is no human health risk for IPN. The Emergency Regulation, Part 188 of Title 6 of NYCRR regarding fish health inspections in place at the time of sampling stated that fish testing positive for IPN could not be stocked into the waters of the State of New York. Because of the presence of IPN in the fish in the Connetquot River State Park Hatchery, the stocking permit for the hatchery was revoked.

The Connetquot River State Park Hatchery is a run of the river hatchery, meaning that the river flows directly through the hatchery. This makes disinfection of the hatchery very difficult because infected fish in the river can reinfect hatchery stock. Most of the current brood stock for the hatchery resides in the river and will no longer be able to be used for hatchery production.

Bureau Fish Pathologist Andy Noyes, Propagation Section Head Phil Hulbert and Regional Fisheries Manager Chart Guthrie met with Regional State Parks staff to discuss the status of the Connetquot River State Park Hatchery on March 5, 2007. At that time revised regulations were about to be released that would allow the stocking of IPN positive fish with a permit from the DEC until January 1, 2009. At the meeting, DEC and State Park staff agreed that State Park staff would only stock Connetquot Hatchery fish below the hatchery so that potentially infected fish could not reinfect the hatchery. They also agreed to destroy all brook trout and brown trout eggs and fry taken in the fall of 2006. Rainbow trout were allowed to remain because these eggs came from a clean source. A new water source for the Hatch House that comes from a pond without trout in it would also be developed. The DEC agreed to supply brown trout to replace the ones destroyed and suggested that State Parks contact Cold Spring Harbor Hatchery to replace the brook trout destroyed. The DEC also agreed to collect and remove fish from immediately above the hatchery to keep these fish from reinfecting the hatchery and to assist State Parks with collections of fish from the river to determine the extent of the infection in the river.

Upon promulgation of the new emergency regulations the DEC issued a revised Stocking Permit to the Connetquot Hatchery allowing the stocking of fish from the hatchery only below the hatchery in the Connetquot River.

The Department stands ready to assist State Parks in any way that it can to further define the extent of the disease in the river, assist in the sterilization of the hatchery, repopulating the brood stock, and stock some waters formerly stocked by the Connetquot River State Park Hatchery.

Mill River, Oyster Bay

The Regional Fisheries Unit with the assistance of Cold Spring Harbor Fish Hatchery and Friends of the Bay conducted an electrofishing survey of Mill River in Oyster Bay. Historically the river supported naturally reproducing trout above the Mill Pond. However, no trout have been collected from this section of the river since the 1984 and none were collected in this survey. There is also a small tributary that enters the tidal section of the river via a culvert that continues to support trout. Two native brook trout were collected in the tidal section of the river and three were collected from a 100 foot section of the stream above the culvert.

Native brook trout caught from Mill River

Region 7

Limestone Creek Electrofishing Survey

This survey was conducted in cooperation with the Iroquois Chapter of Trout Unlimited (TU) to create a baseline data set prior to their planned implementation of habitat improvement work on Limestone Creek. TU intends to narrow the channel and create better holding water for trout at several areas within the Village of Manlius. When TU completes the habitat improvement project the sites will be resurveyed in subsequent years to determine whether the trout population has responded to changed stream habitat.

Stream Reclassification Surveys

In recent years Region 7 Fisheries staff have documented numerous "unprotected" streams where wild trout populations exist and this work continued during the summer of 2006. The long term goal of this effort is to have the water quality designations of these streams upgraded to afford them protection under Article 15 of the Environmental Conservation Law. In the interim, staff developed a Geographic Information System (GIS) theme which shows the sections of streams that are candidates for upgrade. This theme was provided to Region 7 Division of Environmental Permits staff who are now using it when reviewing permit applications or handling information requests.

Region 8

Annual Finger Lakes Spring Rainbow Trout Spawning Run Surveys

Spring rainbow trout sampling occurred on four major Finger Lake tributaries: Springwater Creek (Hemlock Lake), Naples Creek (Canandaigua Lake), Cold Brook (Keuka Lake), and Catharine Creek (Seneca Lake) (Table 4). Two of the four surveys (i.e. Naples Creek and Cold Brook) are planned to coincide within one week of the April 1 trout season opener. Dates for these surveys are announced to the public in order to allow anglers the opportunity to observe and assess the current status of the trout run in anticipation of the trout opener. The Naples Creek "event" typically draws a crowd of 300-500 people. Results of the surveys are presented in the following table.

Table 4. Results of rainbow trout electrofishing surveys from Finger Lakes tributaries, Spring 2007.

Stream	Total Number	Max length (inches)	Max weight (pounds)
Springwater Creek	2	24.3	6.3
Naples Creek	79	26.2	7.6
Cold Brook	3	20.5	3.2
Catharine Creek	196	29.1	10.8

Except for Catharine Creek, numbers collected were similar to last year. In order to increase the number of fish handled, Catharine Creek was sampled for two days. General observation indicate that fish were in good condition and generally larger in size. Numerous fish were encountered in Catharine and Naples Creeks. Based on continued cold weather and a late thaw and fish condition, it appeared that sampling occurred during the early portion of the spring spawning run. Only three rainbow trout were collected in Cold Brook and continues a decreasing trend in recent years. Stream conditions (i.e. blockages and poorly defined stream channel) in the lower portion of the creek may be impacting spawning runs and will be evaluated this spring.

Catharine Creek Rainbow Trout Production Survey

A total of 10 sites were sampled during the week of August 21, 2006 to evaluate rainbow trout production in Catharine Creek. The creek was last surveyed in 1997 following extensive flooding and stream clearing work. Since that time stream habitat restoration including bank stabilization, pool diggers, and channel shaping has occurred. Preliminary results suggest a significant decrease in the production of rainbow trout young-of-year in 2006 compared to other years. Standing crop of young-of-year and age 1+ rainbow trout averaged 735/ac and 60/ac. For comparison, the next most recent survey in 1997 yielded a standing crop of young-of-year and age 1+ trout of 3,503/ac and 181/ac. Reasons for the decrease are unclear at this time and may warrant further investigation. However, 1997 was one of highest standing crops reported in all of the surveys during the 1960s and 1970s. Potentially, the warm winter that occurred in 2006 and the lack of any significant rainfall during the peak spawning period may have resulted in a smaller than normal spring run of adults and therefore limited production of young-of-year trout.

Oatka Creek Electrofishing Survey Report Completed

The report for this long term project was completed and submitted for Bureau review. The abstract is:

Oatka Creek is a high quality western New York trout stream. One section of the stream is managed for wild, naturally produced brown trout with restrictive harvest regulations. The trout fishing regulations in a portion of the wild area were changed from a high size and low creel limit to a no kill regulation on October 1, 2000. Baseline biological surveys were conducted in early fall 1998, 1999, and 2000. Post-regulation change surveys were conducted in fall 2001, 2002, and 2003. The surveys were designed to determine the success or failure of the no kill regulation in achieving the objective of increasing the number of wild brown trout that are greater than 14 inches. Electrofishing stations were set up at five experimental sites within the no-kill area and two control sites outside the no kill area. Brown trout cpue, length and age frequencies, mean adult standing crop, number of adult brown trout per mile by age group, number of brown trout greater than 14 inches (356 mm) per mile, and adult brown trout mean length at age were estimated for each station. Adult brown trout post-season standing crop estimates varied considerably between sites and years at both the experimental and control stations. The no kill regulation did not have any affect on wild brown trout biomass. Age 1 and 2 brown trout showed considerable and similar annual variability at both the experimental and control sites. Generally, the density of one and two year old brown trout remained stable at the experimental and control sites after the imposition of the no-kill regulation. Age 3 brown trout declined in the study areas after the imposition of the no-kill regulation. Age 4 trout showed a slight, yet significant increase (Student's two sample t, $P=0.022$) in density at the experimental sites and did not appear to show any changes in density at the control sites following the imposition of the no-kill regulation. Brown trout greater than 14 inches in total length increased significantly (Student's two sample t, $P=0.053$) in density at the experimental sites and declined in density at the control sites following the imposition of the no-kill regulation. Despite the wide variability in brown trout density in both pounds per acre and numbers per mile, growth appears to have been stable at both the experimental and control sites.

Region 9

CROTS

It has been over 15 years since the Bureau instituted the updated trout stream stocking policy called CROTS (Catch Rate Oriented Trout Stocking). Region 9 has made a concerted effort to resurvey stocked trout streams for the second time using CROTS methodology. The primary objective was to determine if the streams could support a recreational trout fishery and if stocking was necessary to achieve this objective.

Small wild trout streams

In 2006, seven small unstocked streams in Cattaraugus County were sampled to check for the presence of reported or already known wild trout populations. In these streams, five wild brook trout populations were found and two wild brown trout populations were found. Of these streams, four had never been sampled before.

Wiscoy Creek

Wiscoy Creek in Wyoming and Allegany Counties was surveyed in August 2006 at nine sites. A tenth site was scheduled to be surveyed, however; high flows did not allow sampling at that site. Wiscoy Creek is considered to be Region 9's premier wild brown trout fishery and the stream has been sampled extensively since the 1940s. The stream has not been stocked with trout since the early 1970s. Sampling was last done in 2001, when electrofishing and an angler diary program occurred. Six of the nine sites done this year were in the same locations as those sampled in 2001.

Wiscoy Creek

In this year's sampling, a total of 1,293 yearling and older wild brown trout were captured, yielding an estimated population of 1,406 yearling and older trout. First run capture efficiencies ranged from 54% to 90% and were directly related to stream flow and depth of sampling site. The estimated density of yearling and older wild brown trout averaged 1632 fish/mi and ranged from 1254 fish/mi to 2602 fish/mi. The biomass of yearling and older wild brown trout averaged 128 lbs/ac and ranged from 73 lbs/ac to 266 lbs/ac depending on location. Legal size brown trout (>10 in) comprised 27% of the late summer population, with a density of about 446 trout/mi in 2006. Brown trout >12 in made up 6% of the population while trout >14 in represented 1% of the population in 2006. Late summer yearling wild brown trout averaged 6.8 in, while two year old wild brown trout averaged 9.8 in. These are considered good growth rates for brown trout in New York State. The North Branch and Trout Brook also both supported substantial wild brown trout populations. Fifty six angler diarists reported catching 1,381 brown trout, yielding an average catch rate of 1.34 fish/hr, which is very consistent with those found in 2001 and 1997. Water temperatures were found to get well into the mid-to upper 70s on many occasions at most sites in June, July and August 2006, without apparently having substantial negative impacts on the wild brown trout population.

Wiscoy Creek brown trout

Wiscoy Creek continues to provide anglers with the opportunity to fish over one of the most dense populations of wild brown trout in New York State. The stream is not known for producing large trout due to the high number of fish overall, however a 19 inch fish was captured in this years survey. Anglers have abundant access to this 22 mile long stream with 12.5 miles of public fishing easements, 11 angler footpaths and three angler parking areas. Other areas are open by landowner permission.

Spring Brook

On July 17th, 2006, staff sampled the brook trout population in Spring Brook, located in the Village of Springville, Erie County. This stream had not been sampled since 1992. The stream is unique in Region 9. Wild brook trout are the only salmonid occupying the stream and it is the largest, high fertility stream brook trout are found exclusively in. The stream averages 14 ft in width, with a flow at the time of sampling of 8-10 cfs. In the 1992 survey, there were an estimated 26 lbs/acre of yearling and older wild brook trout (257/mile) in the stream. In this year's survey, we found an estimated 18 lbs/acre of yearling and older wild brook trout (199/mile). The largest brook trout collected was 10.6 inches, however seven of the 31 adult brook trout captured were greater than nine inches. Because of its fertility, this stream has the potential to produce more larger brook trout than most others where they are found in the region. This stream should be able to produce many more brook trout than our surveys have found and there are several limiting factors that need to be addressed. The first limiting factor is water temperature. In the afternoon of the survey, with air temperatures in the low 90s F, we recorded water temperatures at our lower and upper sampling sites of 72°F and 74°F. We recorded temperatures at two bridges above our upper sampling site and found temperatures of 74° at those sites also. High water temperatures are likely due to loss of shade where the stream runs through a golf course, a dairy farm and also due to several large beaver ponds on the upper stream. The second limiting factor is siltation, likely due to beaver activity and poor land use practices throughout the watershed. The wild brook trout population in Spring Brook is a unique resource in Erie County and Region 9 that needs further monitoring, rehabilitation and protection.

Twenty Mile Creek

On July 19, 2006 Region 9 Staff, assisted by the Lake Erie Fisheries Unit, sampled the trout population in Twenty Mile Creek, located near Ripley in western Chautauqua County. The survey was done to evaluate the trout stocking policy in the stream and to evaluate steelhead reproduction known to occur here from fish running from Lake Erie. Based on a survey done in 1991, Twenty Mile Creek is recommended to be stocked in mid-April with 1,100 yearling brown trout over 3 miles from County Route 9 upstream to County Route 6. The stream between these two roads runs through an inaccessible gorge, thus all trout are stocked at these two sites. The lower sampling site was located about 5 miles above the state line (the lower several miles are in Pennsylvania). This lower 5 miles flows through a largely inaccessible gorge with at least two rock formations that may at times act as barriers to steelhead migration. From a regulatory standpoint, Great Lakes tributary regulations apply up to the first barrier (considered to

be near Gage Gulf (T-3)), with inland regulations applying in the stocked section.

Two sites were electrofished in this survey. Site one was located 550 feet below the County Route 9 bridge. Three yearling and one hold-over two year old stocked brown trout were captured at this 557 foot site. We also captured 180 YOY rainbow trout, 18 yearling and two year old rainbow trout and eight other species of fish. The average stream width at this site was 33 feet and the flow was 4.2 cfs. At 10:30 am with 77°F air temperature the water at site one was 70°F. At site two, located on the upstream side of County Route 6, we collected two hatchery yearling brown trout and a wild yearling rainbow trout. Eight other fish species were captured at this site. Just below our site there was a large culvert pool that was too deep to shock, but likely held a number of stocked brown trout and perhaps some yearling or older rainbow trout. The average width at site 2 was 18 ft. At 1:00 pm with 79°F air temperature, the water at site two was 73°F.

Considering that all 1,100 yearling brown trout are stocked at the two sites we electrofished, it does not appear there is significant survival of the stocked trout into the summer on this stream. Whether this is due to high fishing pressure or to high water temperatures is not clear. On opening day in 2002, the author conducted a drive-by survey of angler use in Chautauqua County. At mid-morning six cars were counted at the County Route 9 bridge, with none seen at the County Route 6 bridge. The stream was not stocked until later in April. It is likely that those anglers were there to fish for steelhead, not stocked brown trout. No survey was conducted of the use after stocking.

The wild trout population in this stream is very poorly understood. Based on the age structure of the rainbow trout found in our survey, it is highly likely that the trout in this stream are the migratory steelhead form, not the resident rainbow trout form. At site one 180 YOY were captured, with only 15 yearling and three two year old rainbow trout captured. No three year old (spawning age) trout were captured. Based on findings in streams with resident rainbow trout, there should be significantly more age two and three trout captured in a stream capable of producing the number of YOY we found. We estimated our efficiency on capturing YOY at 25%, however based on the cobble substrate and the abundance of smaller minnows, the efficiency may have actually been lower. At 25% efficiency, the 180 YOY captured expands to an estimated 6,857/mile. If this site is representative of extensive areas of this creek, the potential for the stream to be producing steelhead smolts is impressive. In the 1991 survey at County Route 9, 45 YOY rainbow trout were captured in 600 ft. The estimated efficiency for them in that survey was 60%, thus an estimated 658/mile of YOY rainbow trout were present that year. If a similar efficiency of 25% was applied to the 1991 catch, there would have been an estimated 1,579 YOY per mile.

It seems fairly clear, that at least in most years, significant numbers of steelhead are able to pass what is regulated as the upstream barrier to fish. It is also likely there is a largely (but not completely) impassible barrier to steelhead in the gorge between County Routes 9 and 6. Only the single yearling rainbow trout was captured at the upper site in this year's survey and only one yearling and two young-of-year rainbow trout were captured in the 1991 survey. Another possibility for the lack of rainbow trout at the upper site is that spawning habitat or water temperatures are limiting. The gorge section between the two county roads needs to be walked to determined if there is a likely barrier in that section.

Why the rock formations above Gage Gulf were ever chosen as the "barrier impassible to fish" is uncertain. In 1966, biologist Carl Widmer reported that rainbow trout from Lake Erie were able to make it upstream as far as County Route 9 and that catches of wild 6-7 inch rainbow trout were common in the spring at that site. A 1951 survey at County Route 9 listed young rainbow trout as abundant and recommended that the stream from the state line to T-17 be managed as NSA (natural spawning adequate) for rainbow trout that migrated upstream from Lake Erie. This was likely before New York or Pennsylvania were stocking steelhead into Lake Erie, but these were likely the wild steelhead form of rainbow trout. Consideration should be given to managing the entire stream, or at least the stream up to whatever barrier may be between County Routes 9 and 6 under Great Lakes tributary regulations. If this is done, the stocking policy should be eliminated or reduced to include only the area one half mile above and below County Route 6.

Vandermark Creek

Vandermark Creek is located in south central Allegany County and is tributary to the Genesee River. The stream averages 15-20 ft in width, has a bottom of cobble and gravel with some silt, and has an average summer flow of about 1-3 cfs. The watershed is mostly a mixture of abandoned farmland and small woodlots, with 2,384 ac of state forest in the headwaters. A 5 mile section is stocked with 1,200 yearling brown trout annually (240 per mi). There are no Public Fishing Rights on Vandermark Creek, however the upper 1.5 miles of the stocked section are on the state forest land.

An electrofishing survey at 4 different sites in August 2006 found that about 25 stocked yearling brown trout per mile remained from the original spring stocking. No holdover brown trout from previous years' stockings were collected. Additionally, we found a number of yearling brook trout that did not come from state hatchery fish. Perhaps they escaped from a nearby farm pond or someone may have purchased some fish to stock in the stream. Yearling brook trout were stocked in the nearby Genesee River and perhaps someone caught the fish there and moved them to Vandermark Creek. There was no permit issued for anyone from the public to stock fish into Vandermark Creek and we need to do a better job of educating the public regarding why fish should not be moved from one water to another or stocked without a permit from the DEC, especially with the recent discovery of VHS disease.

The upper half of Vandermark Creek also has a small, native brook trout population. Most of these fish are found in waters on the state forest land and the adult population averages 50-100 fish per mi. After this survey, management will remain the same and Vandermark Creek will annually receive 1,200 yearling brown trout.

Stony Lonesome Hollow

Stony Lonesome Hollow is a tributary to Honeoye Creek and is located in the town of Alma in south central Allegany County. The stream has a cobble, gravel substrate with some larger boulders, an average width of about 8 ft and a normal summer flow of about 1 cfs, although when surveyed in July of 2006 after recent rains the flow was estimated at 4 cfs. The watershed is mostly forested, with logging, oil and gas extraction, and recreation being the main land use activities. During the July survey, it was estimated that there were about 450 adult native brook trout per mile of stream. This compares to an estimated 475 adult fish per mi during a 1999 survey. Both YOY brook trout and brown trout were collected during the 2006 survey, although no adult wild brown trout were seen. In the 1999 survey, the adult wild brown trout population was estimated at about 50 fish per mi. There are no Public Fishing Rights on Stony Lonesome Hollow and most of the stream is posted. Anglers will have to get landowner permission to fish this small, scenic wild brook trout stream.

Orebed Creek

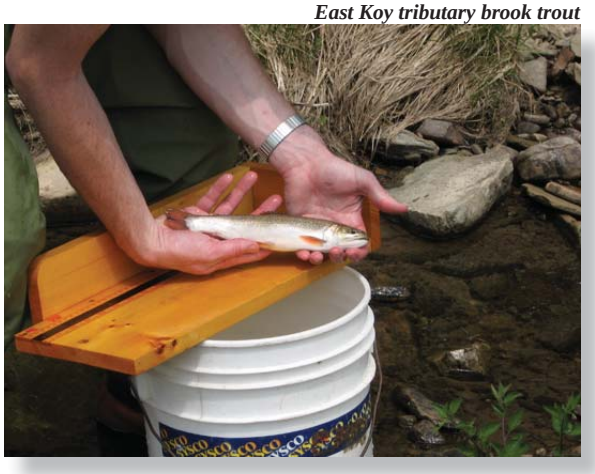
Orebed Creek, tributary to Marsh Creek and ultimately the Genesee River, is located in the town of Willing in south central Allegany County. The stream has a cobble, gravel bottom with some boulders, averages about 8 feet in width and has a summer flow of about 0.5 cfs. The watershed is mixed forest, however there are impacts to the stream from oil and gas production as well as logging. An electrofishing survey was done in June 2006 to monitor the native brook trout population. In late June, it was estimated that there were about 790 adult brook trout per mi of stream. A 1999 survey estimated the brook trout population at 800 fish per mile while a 1992 survey estimated the population at 350 trout per mi. The largest brook trout collected in 2006 was 10 in. The flow was high during the 2006 survey, estimated at 10 cfs and influenced by recent rains. Few YOY brook trout were collected but this was likely due to decrease efficiency because of high flow as well as being early in the summer and the young being of small size. There are no Public Fishing Rights on Orebed Creek and most of the stream is posted. Anglers will have to ask landowner permission to fish this small, scenic native brook trout stream.

Redwater Creek

Redwater Creek, tributary to Marsh Creek and ultimately the Genesee River, is located in the town of Alma in south central Allegany County. The stream has a cobble, gravel substrate with boulders and bedrock in the upper part, and boulders and silt in the lower section. The stream has an average width of 6-8 ft and an average flow of 1 cfs. During an electrofishing survey in July 2006, the stream had a width of 12 ft and a flow of 10 cfs due to recent, heavy rains. The watershed is mostly forested. Logging, oil and gas extraction, and recreation are the main land uses. In July 2006, the wild brook trout population was estimated at 300 adults per mi of stream. There has been a dramatic increase in the wild brook trout in the past 20 years. The brook trout were virtually extirpated in the late 1980s due to illegal brine discharges from oil and gas operations. Upon compliance with DEC regulations, the population returned to a level of about 75 adult fish per mi in a 1999 survey, and now to about 300 per mi.

Unnamed tributary 2 of Redwater Creek was also surveyed in July 2006. It was estimated that there were about 365 adult wild brook trout per mi of stream which was almost the same as an estimated population of 360 adult fish per mi during a survey in 1999. There are no Public Fishing Rights on either Redwater Creek or tributary 2 and most of the streams are posted. Anglers will have to get landowner permission fo fish these small, productive wild brook trout streams.

East Koy tributary brook trout



Two-Story Lakes and Ponds

Region 4

Otsego Lake

Otsego Lake is a 4,226 ac natural lake in Otsego County that is the source of the Susquehanna River. The lake is primarily known for its coldwater fishery, primarily wild and stocked lake trout. The lake is also stocked with brown trout and landlocked Atlantic salmon. In September 2006, five 450 ft long gill net gangs were set overnight at standardized sites to monitor lake trout abundance. This was the 21st such netting since 1969.

The 2006 netting effort resulted in the capture of 104 lake trout ranging in size from 7.3 to 31.9 in with 27 lake trout legal (≥21 in) size. Of the 104 lake trout collected, 78 were wild fish and 26 were fin clipped hatchery fish. The catch of 20.8 lake trout and 5.4 legal lake trout per net were both record catches which suggests that the current lake trout population is at a record high. It is not known if the current high population is sustainable or the result of increasing lake trout abundance that began around 1992.

The current high population can probably be attributed in part to the unauthorized introduction of alewives into the lake sometime in the late 1980s. Alewife were first collected in 1988 and were abundant by 1991. In the pre-alewife period (1969-86), the catch of lake trout ranged from 3.0 to 7.7 fish per net compared to 9.2 to 20.8 fish per net since 1992. The pre-and post- alewife catch rate averaged 4.9 and 12.9 lake trout per net, respectively. The quality of the lake trout population has also improved over the last 40 years. From 1969 through 1986, the catch of lake trout 21 in and larger ranged from 0.1 to 0.9 fish per net compared to the 1.8 to 5.4 fish per net since 1992. This represents an eight fold increase from the average of 0.4 legal fish during the pre-alewife period compared to 3.2 legal fish per net in the post alewife period.

Although the unauthorized introduction of alewife has benefitted the lake trout population, the cisco and lake whitefish populations have declined to very low levels. The on-going fingerling walleye stocking program in the lake will not result in a self sustaining fishery because of alewife predation on the newly hatchery walleye which remain suspended in the water column for six to eight weeks before swimming to the bottom. During this pelagic phase, the entire year class of walleye can be eliminated because of the intense predation by alewife.

Region 5

Lake Champlain Lake Trout and Salmon Restoration

Work on Lake Champlain continued to be dominated by efforts to reestablish landlocked Atlantic salmon and lake trout by controlling the very abundant fish parasite, sea lamprey. These management activities are conducted in partnership with the Vermont Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service.

Increased Federal role sought for sea lamprey control in Lake Champlain

The Lake Champlain Fish and Wildlife Management Cooperative held a Policy Committee meeting and a public meeting on April 11, 2007 to review the status and future of Lake Champlain sea lamprey control. The Cooperative includes the New York State Department of Environmental Conservation, the Vermont Department of Fish and Wildlife and the United States Fish and Wildlife Service. Staff from the Great Lakes Fisheries Commission also attended the meetings, and provided valuable expertise from the Great Lakes lamprey control program. The current control effort in Lake Champlain is not achieving the desired level of benefits for salmonids and other fishes. Lamprey attack rates remain very high on lake trout and salmon. Also, returns of salmon to spawning rivers are poor. Based on the meetings, the Cooperative will pursue shifting certain aspects of the program from the states to the Fish and Wildlife Service. Doing so would be consistent with how lamprey control is conducted in the Great Lakes. However, additional Federal funding will be required prior to switching to the Great Lakes model. The public meeting improved many people's understanding of this complex program. More than 100 stakeholders, plus agency staff, Congressional staff, and press attended the public meeting. Many attendees made statements, and a great diversity of concerns and interests were raised. Also, the attendees asked many questions of the two states, the Fish and Wildlife Service, and the Great Lakes Fisheries Commission.

Sea lamprey abundances and impacts remain high in Lake Champlain

Sea lamprey continue to have severe impacts on their preferred food source, lake trout and landlocked Atlantic salmon. One measure of lamprey impacts is the number of wounds per 100 salmon and lake trout; those wounding rates were very high during 2006 (Table 5). Certain lamprey producing tributaries are presently not being treated, and control needs to be expanded to those tributaries if the lake-wide objectives are to be achieved. One such tributary is the Pike/Morpion system in Quebec. The US Fish & Wildlife Service is working on a lamprey barrier to help control production in that system. Vermont and New York are progressing towards treating the Poultney River (see discussion below). Other tributaries in Vermont remain a problem with a need for permits to conduct treatments.

Table 5. Wounding rates on Lake Champlain lake trout and salmon

Species	Number of lamprey wounds per 100 fish						
	Objective	Pre-control	Eight-year control	2003	2004	2005	2006
Lake trout	25	55	38	90	62	94	98
Landlocked salmon	15	51	22	86	45	54	71

Several treatments conducted to control sea lamprey

Sea lamprey control treatments were completed on Putnam Creek, the Salmon River, Little Ausable River and Ausable River in New York, as well as Lewis Creek in Vermont during the fall of 2006. Post-treatment sampling revealed that all treatments except the Ausable River were successful in reducing sea lamprey number by 95% or better. On the Ausable River, the treatment achieved only

an 86% reduction in larval sea lamprey numbers. An estimated 648,500 sea lamprey larvae were in the Ausable River prior to the fall treatment, and about 89,000 survived the treatment. The vast majority of these sea lamprey (about 80,000) were in the south fork of the Ausable River. Because of the high density of sea lamprey in the south fork, a spring treatment was conducted on that fork. Biologist Lance Durfey, obtained the necessary permit modifications and approvals, and the South Fork was treated with TFM on May 31, 2007 .

The Poultney River, on the border of New York and Vermont is a major sea lamprey producer that has not been treated since 1996. Sampling of the Poultney River in 2006 revealed that the river has an estimated population of 158,000 sea lamprey larvae. Treatment of the Poultney River was postponed for five years following initiation of the long-term sea lamprey control program in 2002. The five-year delay was to allow for the exploration of viable control alternatives to lampricides, and to see if sea lamprey wounding rate objectives for lake trout, landlocked salmon and walleye could be achieved without treatments on the Poultney River. Unfortunately, wounding rates are the highest since sea lamprey control began in 1990, and are far above the established target rates. Nor have viable treatment alternatives to lampricides been developed. However, we have been able to conduct extensive toxicity testing on the non-target organisms of special concern in the Poultney, and results indicate that by using a slightly lower target TFM concentration relative to most other river systems, we can conduct an effective treatment without endangering even the most sensitive non-target organisms tested. Expectations are to treat the Poultney in the fall of 2007. In preparation for that treatment both New York and Vermont are pursuing required permits in each state.

Landlocked salmon with lamprey wound

Toxicity testing

Lampricide toxicity testing, essential for obtaining necessary treatment permits, was completed on two species in 2006. Cylindrical papershell mussels were tested and found to be very resistant to TFM, with a NOEC (No Observed Effect Concentration) of 2.6 times the MLC (sea lamprey minimum lethal concentration). Similarly, when eastern sand darters were tested, they were found to be relatively resistant to the TFM/Niclosamide mixture, with an NOEC of 1.6 times the MLC.

Lake trout abundant, salmon scarce in Lake George

Fisheries staff Emily Zollweg, Matt Presher, Jennie Sausville and Dan DeSorcy set trap nets at Hague, Indian Brook, and Shelving Rock Brook to evaluate landlocked salmon in Lake George. Among the hundreds of lake trout and dozens of largemouth bass caught, there were ten salmon. Nine of the salmon were mature and healthy fish. Five of the ten were advanced yearlings stocked in the fall rather than in the spring. The lake trout continue to be numerous and healthy, and some very nice largemouth and smallmouth bass were caught as well.

A Lake George landlocked salmon

Annual egg take for Adirondack strain lake trout

Each year Fish Culture Staff and Region 5 Bureau of Fisheries personnel join forces to collect lake trout eggs from Raquette Lake in Hamilton County. These eggs are reared at the Chateaugay Fish Hatchery and the resulting lake trout are used to stock Adirondack waters. The 2006 Raquette Lake operation went especially well. With a more normal fall weather pattern than it has experienced in recent years, the fish spawned “on time” and 210,000 lake trout eggs were collected in one week’s effort. The crew leader was Dave Armstrong from Chateaugay Hatchery. He was assisted by Brian Ward and Bruce Hubbard from Caledonia Fish Hatchery and Lauren Watson from VanHornesville Fish Hatchery. Regional staff consisted of Aquatic Biologists Leo Demong and Matt Presher, as well as seasonal Fish and Wildlife Technician Jacob Gnann. The nets were set on October 11, 2006 and the run peaked on October 18, 2006 when more than 60,000 eggs were collected. B. Hubbard was the chief egg taker. His proficiency was reflected in the exceptional egg quality. The initial pick off was 7% compared to an average initial mortality of 12 - 14%. The low mortality rate is notable because this year the eggs were allowed to water harden in a disinfectant solution, in an effort to minimize the possibility of vertical transmission of VHS, a fish disease of concern. It appears that this process was not detrimental to early egg survival.

Sagamore Lake Surveyed

Sagamore Lake (166 ac) is in the Town of Long Lake in Hamilton County. Most of Sagamore Lake borders on the Blue Ridge Wilderness and the recently-approved Unit Management Plan for that area called for updating the status of the fish community. Sagamore Lake was last surveyed in 1986. It has naturally sustained brook trout and lake trout populations. The 2006 survey included five gillnets set for salmonids and suckers, plus four smaller min-

now nets and minnow traps. Lake trout, white sucker and longnose sucker were abundant in the gillnets. However, the lake trout were small - ranging from 11-17 in. The brook trout population seems reduced from historical levels. Moderate numbers of yellow perch, brown bullhead and pumpkinseed were caught along with a single smallmouth bass and single lake whitefish. All of the species caught in 2006 have been noted in past surveys - no new fish species were noted. Sagamore Lake has a maximum depth of 70 ft and excellent dissolved oxygen levels at all depths. Staff noted beaver activity and deadfalls may be blocking access for brook trout to the lake's main tributary. Scale aging will be conducted this winter to assess growth rates for the salmonids. Consideration will be given to reducing the size limit for lake trout and beginning a stocking program for brook trout. Sagamore Lake has roadside access, but motor use is banned.

Upper Saranac Lake Surveyed

Upper Saranac Lake in Franklin County (4,775 ac) is stocked annually with lake trout, rainbow trout and brown trout and also supports a good warmwater fish community. Lake trout are the most commonly sought coldwater species. Little has been heard in recent years from anglers about rainbow and brown trout fishing. Fisheries staff set suspended gillnets at 15 sites around the lake. The nets were set in the thermocline and sampled strictly from 20-35 ft. Nearly every site yielded rainbow smelt - a good indication they were fished at the appropriate depths and temperature. No rainbow trout or brown trout were caught. But surprisingly, five landlocked salmon averaging around 16 in. in length were netted along with some nice-sized lake trout. The salmon are probably migrants from lakes further up the watershed such as Lake Clear, Fish Creek Ponds, or Follensby Clear Pond. Rainbow and brown trout stocking were terminated based on the survey results. Upper Saranac Lake was stocked with landlocked salmon prior to the rainbow and brown stocking. That policy was ended due to outmigration of the salmon and poor growth rates.

Fawn Lake lake trout surveyed

Fawn Lake (290 ac) in the Town of Lake Pleasant, Hamilton County, has a self-sustaining lake trout population that has been maintained by restrictive special regulations. Fawn Lake is surrounded by state land and can be accessed only by foot. However, it is a popular fishery, especially late in the ice fishing season. Reports of large numbers of anglers this winter and diminished catch rates for lake trout prompted a netting effort. Three juvenile gill gangs were set in the preferred temperature range of lake trout. A good catch rate of 10 lake trout per gang was found (30 trout total). However, only three lake trout were above the 18 in minimum size limit for Fawn Lake. Additional analyses will determine whether over harvest is accountable for the low number of legal lake trout or if the slow growth rates observed in the past are still occurring. If over harvest is occurring, additional restrictive regulations may be proposed to maintain this native lake trout population.

White perch illegally introduced in Great Sacandaga Lake

The presence of white perch in Great Sacandaga Lake was confirmed when a Department employee identified a white perch caught by his son while fishing in the vicinity of Scout Island. White perch are originally an east coast estuarine species that can adapt to freshwater. White perch have invaded Lake Champlain, the Great Lakes, and many mid-western waters. It is not a native fish species in Great Sacandaga Lake. Their potential impact on the lake's resident fish population is not known. Their establishment into Great Sacandaga Lake may also open up new sections of the Hudson River (and tributaries) above Corinth for this invasive species. It is not known how white perch were introduced into Great Sacandaga Lake; however, it is possible they were either intentionally stocked or accidentally introduced with discarded baitfish.

Region 6

Portaferry Lake Survey

This was a routine survey of a two-story (coldwater/warmwater) lake. Also evaluated was the success of the brown trout stocking and the continued existence of smelt. Nets were ganged together in order to get small mesh into the depths in an effort to find the smelt but none were caught. Lake trout and smallmouth bass populations were healthy with a decent size structure for the bass. Only one brown trout was caught, though it was a decent size. The temp/DO profile revealed good conditions for this two-story fishery to persist. Brown trout are likely not competing well for food as they do not have a strong pelagic forage base and would compete with bass and lake trout for the shallow and deep benthic forage. The stocking policy is going to be changed back to rainbow trout. This lake was previously stocked with rainbow trout and was switched to brown trout when the hatchery system was dealing with whirling disease.

Currently, public access has been provided by an FWMA agreement with the Boy Scouts of America. The camp has been closed and the property is going to be sold. The DEC is looking to acquire an easement on this property to continue to allow public access.

Sylvia Lake, St. Lawrence County

Sylvia Lake is a deep (~140 ft) oligotrophic lake in central St. Lawrence County. The lake is a two-story fishery with the primary sport fishery consisting of rainbow and lake trout. The last extensive survey of this water was in 1993.

Littoral zone habitat is lacking in Sylvia Lake due to its morphometry. Inlet and outlet areas are primarily soft bottomed with little submerged vegetation in low densities. Curly leaf pondweed, a recent invader to the lake, was encountered in a few dense mats.

Centrarchids, in particular rock bass, were the predominate fish captured in this survey. Both largemouth and smallmouth bass were collected with smallmouth dominating the catch. Habitat availability would tend to favor smallmouth as deep rock/rubble areas are located throughout the lake.

Both rainbow and lake trout were encountered in this survey. Rainbow trout are stocked annually (~3000 fish @ 9 in) whereas lake trout are self propagating. All rainbows captured appeared to be recently stocked, as most fish were from 8-10 in. in length. All lake trout encountered were relatively small with the longest fish at 22 in.

Of special interest with regards to forage is the noticeable lack of Cyprinids (minnows) in the lake. There are no historical records of minnows of any species inhabiting this water. Banded killifish were reported in 1993, but none were encountered during seining efforts. Stomach analysis of trout yielded both small centrarchids and terrestrial insects (surface feeding). A strong thermocline had set up in the lake at the time of survey. Implication that forage is limiting for Salmonids seeking suitable forage, maybe forced out of their preferred thermal range.

Rainbow smelt were stocked prior to 1930 and were last reported in 1955. One lake trout stomach had a partially digested fish which may have been a smelt. It is possible that smelt still exist in the lake at levels that are not detectable with our current sampling methodology. Slimy sculpin were reported in 1993, however none were encountered during this effort.

Freshwater jellyfish were reported in 2004. This single species of freshwater jellyfish has a global distribution. While not uncommon in New York, there documentation is sporadic and their life history is not well known.

Monitoring for aquatic invasive species should be undertaken periodically as this water appears to be vulnerable to vegetative introductions.

Region 7

Cayuga Lake Inlet Fishway Monitoring

Operation of the Cayuga Inlet fishway continued in spring 2007. A total of 141 rainbow trout, 2,983 white suckers and 1,665 adult sea lampreys were captured at the fishway. All of the white suckers were passed upstream and all the adult lampreys were killed to prevent them from reaching their spawning grounds. Thirty-four male rainbows and 41 female rainbows were held at the fishway for the production of Finger Lakes wild strain (97,000 eggs) and "hybrid" strain (36,000 eggs) rainbows. After spawning, 36 of the spawned rainbows were sacrificed for fish health inspection. The other spawned rainbows were passed upstream. No diseases were found in the rainbows inspected. All trout captured at the fishway were examined for the presence of wounds from sea lamprey attacks. No stage I-III lamprey wounds (very recent to fairly recent) were found on the four rainbow trout in our index group (500-549 mm length) and only five stage I-III lamprey wounds were found on all 141 rainbows captured. The fishway was also operated during fall 2006 to pass early run rainbows and to collect landlocked salmon for studies on thiamine deficiency at the USGS Tunison Fish Laboratory.

2006 Cayuga Inlet Deepwater Sea Lamprey Ammocoete Electrofishing Survey

On July 19, 2006, Region 7 and 8 Fisheries staff carried out a deepwater electrofishing survey of lower Cayuga Inlet below the fishway using the Department's deepwater electrofishing boat on loan from Region 5 Fisheries in Ray Brook. This deepwater electrofishing boat is a pontoon boat equipped with an electrofishing unit and pump specifically designed to shock larval lampreys (ammocoetes) out of the bottom mud where they live and pump them to the surface in water as deep as 30 ft.

Three locations consisting of good sea lamprey ammocoete habitat were sampled including a location just below the fishway where ammocoetes were collected in the past using a chemical irritant (Bayer 73). No lamprey ammocoetes were collected at any of the sampling locations. This was a fair indication that lower Cayuga Inlet was not infested with larval sea lampreys and the absence of ammocoetes at the location that was once infested was a fair indication of the success of the region's lamprey control efforts (lampricide treatments and trapping at the fishway).

2006 Cayuga Lake Tributary Sea Lamprey Nest Counts

Since 1979, sea lamprey spawning activity in Cayuga Lake tributaries has been monitored by counting the number of sea lamprey spawning nests found in index sections of Cayuga Inlet, Sixmile Creek, Cascadilla Creek, Fall Creek, Salmon Creek and Yawgers Creek. The nest count information is used to follow long term changes in spawning activity and to determine whether adult lampreys from Cayuga Lake escaped over the Cayuga Inlet fishway barrier and spawned upstream.

During the 2006 nest count surveys, 18 nests were found in Cascadilla Creek and four nests were found in Sixmile Creek. No sea lamprey spawning nests were found in Fall Creek, Salmon Creek, Yawgers Creek or Cayuga Inlet. Results of these surveys suggested sea lamprey spawning activity was very low in 2006. Similar results were noted in other recent Cayuga Lake tributary nest count surveys.

It was very fortunate that no sea lamprey spawning nests were found above the fishway in Cayuga Inlet since this stream has the potential of producing far more sea lampreys than any other Cayuga Lake tributary. The presence of sea lamprey spawning nests in Cayuga Inlet above the fishway is an early indication that escapement and spawning have occurred and lampricide treatment to kill the resulting juvenile sea lampreys may be required.

Many years of Sixmile Creek nest count data combined with Cayuga Inlet fishway and ammocoete electrofishing data suggests sea lamprey spawning in Sixmile Creek (a tributary to Cayuga Inlet entering about one mile downstream from the fishway) is influenced by the presence of sea lamprey ammocoetes upstream in Cayuga Inlet. Pheromone attractant releases from ammocoetes in Cayuga Inlet draw many spawning adult lampreys past Sixmile Creek upstream into the fishway trap. In years when there are very few or no ammocoetes in Cayuga Inlet (e.g., post lampricide treatments) spawning adult lampreys are more inclined to enter Sixmile Creek.

Bowman Lake Fish Trap and Transfer

After several requests by Bowman Lake State Park staff, a decision was made to abandon the "trout only" management philosophy which has been employed at the lake since the 1960s. This philosophy was intended to allow for optimum trout growth and survival and Bowman Lake had been "reclaimed" several times in the past to eliminate undesirable fish. However no reclamation efforts had been made in a number of years and bullhead and "sunfish" had re-

portedly become established and stunted. Park staff felt that the introduction of other warmwater species such as bass would provide park patrons a better chance to catch a decent-sized fish during the summer months when trout are hard to catch. Subsequently, members of the Chenango County Sportsman's Federation consulted and agreed to the proposal to abandon the "trout only" management and allow the stocking of warmwater fish into the lake provided trout stocking continue on a "put-and-take" basis.

In July 2006 fish were salvaged from a Broome County owned flood control pond along Airport Road which was scheduled to be drained and dredged. The primary target was largemouth bass but other species were also moved. We anticipate that bass will help control the stunted populations of sunfish and bullhead at the park. The numbers and types of fish salvaged from the pond and stocked into Bowman Lake was as follows: 38 largemouth bass (3 - 16 in), 213 pumpkinseed sunfish (2 - 5 ½ in), 66 black crappie (3 - 15 in), 116 bluegill sunfish (2 - 6 in), 26 brown bullhead (8 - 13 in). Although the number of bass was lower than desired, natural reproduction should allow them to rapidly expand their numbers in the next few years.

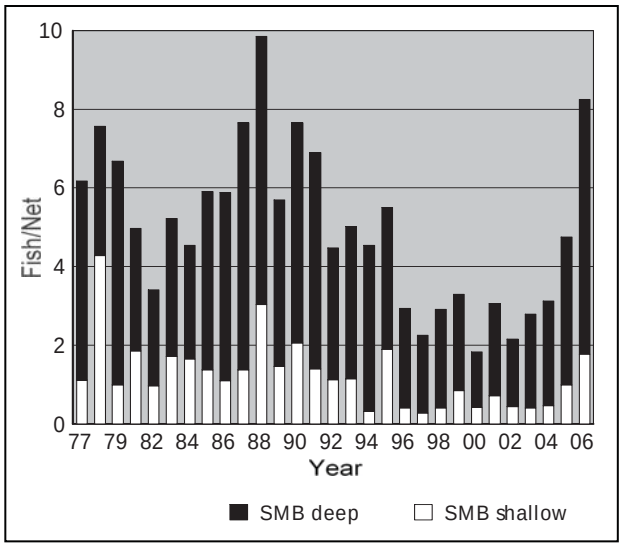
Great Lakes

Region 6

Thousand Islands

Staff completed assessment gill netting in the St. Lawrence River between Clayton and Morristown. The warmwater fish stock assessment program on the Thousand Islands section of the St. Lawrence River provides standardized indices of abundance for major gamefish and panfish stocks, information on year class strength, and age and growth relationships of these stocks. Information obtained is used to evaluate and, if necessary, modify existing fishing regulations. It also provides baseline information for evaluation of environmental disturbances. Results of 2006 sampling with the greatest management significance include: 1) Northern pike abundance continues to decline, recruitment remains relatively poor (this is probably a habitat effect) and 2) smallmouth bass abundance has been depressed but is improving (this was likely a recruitment issue that may have resulted from cold water temperatures during the spring and cormorant predation).

Figure 3. Smallmouth bass abundance in St. Lawrence River



Lake-Run Salmonids

Regional fish and wildlife staff have monitored the Black River chinook salmon run at the Dexter Fishway since 1993. Over 900 migrating salmon were examined in 2006. Monitoring of the fishway is used as a low cost, fishery independent, method of monitoring the returns of lake-run salmonids, primarily chinook salmon, steelhead, and brown trout to the Black River. With the advent of brown trout management in the lower Black River, the fishway may also serve to evaluate the presence of these fish in the river. This year the chinook salmon run was above average by the end of October. Through mid November, the steelhead run (N=32) although not near its expected seasonal peak appeared to be somewhat stronger than in recent years. The brown trout sample (25) was above average. The Black River is not stocked with coho salmon but 47, a record high number, were handled this year.

Lake St. Lawrence, St. Lawrence Co.

This survey is regionally known as the Lake St. Lawrence warmwater assessment (LSLWWA). It is an annual gillnet survey intended to provide a population index for warmwater fish species in the Lake St. Lawrence portion of the St. Lawrence River. Begun in 1983, this survey was at one time shared by NYSDEC and Ontario Ministry of Natural Resources (OMNR). This was the 23rd year of the assessment.

Thirty two experimental gillnets, stratified by depth, are deployed at standard sites in both US and Canadian waters. Biological information taken from fish includes total length, weight, sex and maturity. Scale samples are taken from centrarchids and percids while cleithra bones were removed from esocids for age determination. Small species, such as minnows and darters, are not typically sampled due to gear constraints.

A total of 18 species were collected in 2006. The total CPUE (fish/net-night) was 13.78, lower than the long term average of 16.98. Total CPUE is in large part driven by the yellow perch catch. Year class strength and predation by double crested cormorants are the principle variables which affect yellow perch numbers in Lake St. Lawrence. Yellow perch have been in decline in Lake St. Lawrence since 1988. The 2006 CUE (3.78) was down slightly from 2005 (4.44) but remains relatively stable.

Smallmouth bass CPUE (1.63) declined below the long term average of 2.38 f/n-n. This was the first significant decline in the CPUE since 1997. Juvenile bass are typically collected in low numbers, making it difficult to assess year class strength. Increased growth rates of smallmouth bass in the last five years is likely linked to round goby expansion in the area.

Walleye CPUE (1.91) was the second highest recorded for this assessment. The 2003 and 2004 year classes, which dominated last years catch, appear to remain strong. The population index tends to fluctuate on pulses of immature fish from several net sites near the Hoople Creek (Canada) nursery area. A spawning bed enhancement project for Brandy Brook (New York), scheduled for 2007, will hopefully boost recruitment further in Lake St. Lawrence.

Of interest was a single brown trout (TL=556 mm) collected in this assessment. Other salmonids collected in the past include, rainbow trout and lake trout. Pacific salmon have also been observed on fall spawning runs in Brandy Brook, a tributary to Lake St. Lawrence. While it is possible that these fish could be residents, they are likely migrants from Lake Ontario.

A full report, including age and growth related topics, is incorporated in the Great Lakes Fishery Commission's Lake Ontario Committee Report, 2006.

St. Lawrence River Cormorants

As part of the collaboration between Region 6 Fish and Wildlife and the Ontario Ministry of Natural Resources on the issue of double-crested cormorants in the St Lawrence River, four Public Open House Sessions were conducted in mid-August to give local citizens an opportunity to discuss cormorant and fisheries information and local issues with agency experts. Two sessions were held

in Ontario, Canada and two were in St Lawrence County, New York, all in communities along the river. Total attendance was 82, not including members of the press or young children. Cornwall attracted 11, Massena had 3 citizens and 3 press attend, Brockville had 13 public, and Ogdensburg was the most well attended with 55 participants.

Fifteen to 17 key individuals involved in cormorant and St Lawrence River fisheries issues were present at each of the sessions, which ran from 4 pm until 8 pm. DEC and OMNR Fish & Wildlife and Law Enforcement, along with representatives of USGS and USDA Wildlife Services attended each meeting. Most had developed posters which represented the many parts of the cormorant/ fisheries issues. These were displayed around the room and gave the public a lot of information to digest and which to ask questions from.

The public who came to the open houses appreciated speaking directly to staff who are involved with the issue and being able to ask questions of agency people on the opposite side of the St Lawrence River. People whose thinking stands on opposite sides of the cormorant management divide came out to the sessions and many interested citizens came simply looking for more information and to see what all the fuss was about and to form their own decisions. The staff took advantage of the extra opportunity to collaborate on cormorant, fisheries and related work topics during the times when public were not in the room and viewed this as an added bonus.

Region 7

Lake Ontario Tributary Creel Survey

A creel survey was conducted on all of the major tributaries to Lake Ontario in New York from September through April in 2005-06 and 2006-07. This is the first comprehensive survey of the New York tributaries since the 1984 Great Lakes Angler Survey. Twenty nine tributaries from Fourmile Creek in Niagara County to the Black River in Jefferson County were surveyed to estimate angler effort, catch and harvest of lake-run trout and salmon species.

Total estimated effort for all the tributaries combined for years 2005-06 and 2006-07 was 1,025,994 and 933,029 angler-hours, respectively. This translated to 226,934 (05-06) and 258,306 (06-07) angler trips. The Salmon River in Oswego County accounted for 605,772 (59% of total) and 595,267 (64% of total) of the angler-hours in 05-06 and 06-07, respectively. The number of angler trips on the Salmon River was 99,850 (44% of total) in the first year and 87,539 (34% of total) in the second. Combined estimates from the four highest use tributaries: Salmon River, Oak Orchard and Eighteenmile creeks, and the Oswego River, accounted for 81% of the angler-hours in the first year and 82% in the second. The high use tributaries accounted for 69% of the 05-06 anglers trips and 65% in 06-07. These "high use" tributaries generally drew anglers from greater geographic distances. Non-New York State residents accounted for 60% of the anglers on the Salmon River in both years and from 33% to 49% of the anglers on the other "high use" tributaries. Tributaries with lower levels of use generally had lower levels of non-resident anglers.

Table 6 provides the catch and harvest estimates for the two years. Chinook salmon were the most abundant species in the catch and harvest for both years. Note the increase and change in distribution of the catch for the coho salmon from 05-06 to 06-07. Coho were far more abundant and more widely distributed in 06-07. Conversely, steelhead and brown trout were markedly less abundant in 06-07, particularly in Eighteenmile Creek (Niagara County) for both species and for brown trout in the Oswego River.

Table 6. Salmonid Harvest & Catch Estimates for Lake Ontario Tributaries

		05-06		06-07	
Species	Tributary	catch	harvest	catch	harvest
Chinook salmon	Salmon River	89,488	25,998	96,088	33,530
	other tribs combined	68,581	22,861	55,161	22,809
	total	158,029	48,859	151,249	56,339
Coho salmon	Salmon River	5,659	2,177	14,513	3,002
	other tribs combined	255	177	3,651	1,855
	total	5,914	2,354	18,164	4,857
Steelhead	Salmon River	20,705	2,713	21,489	3,869
	Eighteenmile Creek	28,603	1,046	1,448	186
	other tribs combined	37,605	2,496	28,723	5,160
	total	86,913	6,255	55,715	9,215
Brown trout	Salmon River	9,804	1,177	3,238	613
	Eighteenmile Creek	22,435	1,696	3,411	825
	Oswego River	11,681	430	738	358
	other tribs combined	22,755	3,778	15,260	2,289
	total	66,675	7,081	22,647	4,085

Pacific Salmon Biological Monitoring

Fall monitoring of Pacific salmon at the Salmon River Hatchery revealed improved growth of chinook salmon compared with recent years. Age 2 and age 3 remained about 1.0 and 1.5 lbs below their long term averages, respectively. Condition of chinook (weight relative to length) also rebounded in 2006 from the record low we observed in 2005. The weight of a 36 in chinook rose from 14.8 lbs in 2005 to 16.1 lbs in 2006. The improvement in growth was attributable to the abundance of yearling alewives in 2006.

Salmon River Wild Young-of-Year Chinook Salmon Seining

A cooperative index seining program with USGS conducted to assess natural reproduction of chinook salmon in the Salmon River suggests that 2006 produced the strongest year class of chinook since the surveys began in 2001. Four sights were surveyed weekly during May and June. For the peak three week period of the survey, the average catch per seine haul was 334 YOY chinook. The average catch per haul was higher for all weeks in 2006 than the corresponding long-term average. Fall flows in the Salmon River appear to drive the success of chinook natural reproduction the following spring. Larger year classes are generally produced in years with high fall flows.

Salmon River Bond Act Project

The first phase of the Salmon River Bond act project was completed during the summer of 2006. This phase of the project involved constructing a large bed sill and rock vane structure across a diversion channel which was causing the main stem of the river to bypass the Salmon River Hatchery. Also constructed was a bank-full bench and rock vane to address an eroding bank which was endangering a highway located at the top of the embankment. Plans are to construct another bank full bench and vane structure to protect another eroding bank above the hatchery in 2007.

Salmon River bed sill

Region 8

Sodus Bay Fish Stock Assessment

Standard gang gillnetting was conducted on Sodus Bay from September 25-29, 2006. The purpose of the netting is to periodically assess fish stocks, particularly walleye. A previous survey was conducted in 1990. In 2006, 30 walleyes were caught in 8 nets, for a catch rate of 3.75 walleyes per net. The recent fingerling walleye stockings appear to have been successful in maintaining the walleye population. Other preliminary results include: 17 species (5 gamefish, 6 panfish, and 6 other species) of fish were caught. Panfish species yellow perch, white perch, bluegill sunfish, pumpkinseed sunfish, rock bass, and brown bullhead made up the majority of the catch. Thirteen northern pike were caught.

Sodus Bay Surveyed for Endangered, Threatened Species

Region 8 staff assisted the Bureau's "Lesser known fishes" expert, Doug Carlson in surveying Sodus Bay on April 19 and May 24, 2006 for the threatened pugnose shiner. Plans for large-scale aquatic vegetation management in the bay prompted the surveys because aquatic vegetation is a preferred habitat of this species. Several were caught in the Second Creek area. A highly unusual catch of an American shad was also made.

Lake Ontario Near Shore "Warmwater" Fish Community Sampled

On August 28, 2006, staff set two Lake Ontario warmwater standard gang gillnets in Lake Ontario near Pultneyville, NY. During the late 1990s and early 2000s this area was known for its world-class smallmouth bass fishing. Fishing quality, as measured by the number of angler complaints and the Lake Ontario boat creel census, has been declining since about 2003. The survey was done as an initial attempt to assess the recent decline in smallmouth bass fishing quality in this section of the lake. This area was surveyed in 2001 and 2002. Unfortunately, the lake experienced an upwelling the night before the survey, which displaced the normally warm near shore water with colder offshore water. Only 13 smallmouth bass were caught. Additional warm water species caught were 15 yellow perch and 1 rock bass. Fourteen lake trout (all with AD clips and coded wire tags (CWT's), and 7 brown trout were also caught. Due to the cold near shore water, no further nets were set. The survey will be resumed in 2007.

2006 Lake Ontario Salmonid Pen Rearing

In 1998, concerns over post-stocking survival and imprinting of steelhead and chinook salmon to stocking sites led to the formation of several cooperative sportsmen's groups interested in pen rearing. Western basin concerns included the apparent lack of imprinting and subsequent impaired homing of chinook salmon and steelhead to the stocking streams. After the successful completion of pen-rearing projects at Oswego Harbor and Oak Orchard Creek in 1998, a number of other sportsmen's groups expressed interest in pen-rearing. New sites were added in 1999, including the Lower Niagara River, Sandy Creek, Genesee River and Sodus Bay. In 2006, a steelhead pen-rearing project was initiated at Wilson Harbor and only steelhead were raised at the Lower Niagara and Sandy Creek pen-rearing projects. All sites have been active each year since inception, except for Sandy Creek which was inactive in 2004 and 2005. This report summarizes 2006 Region 8 pen-rearing activities and results.

All sites used similar pen materials, design and netting as described for the 1998 Oak Orchard Creek Project. Standard operating procedures for stocking, maintaining, feeding, and releasing penned salmon were developed and refined by the Department. Observed mortalities for all projects were based on the number of dead fish collected from the pens during captivity and from the bottom of the pens after release. Mortality does not include fish lost to cannibalism or from predators that may have gained access to pens.

<u>Sodus Bay</u>

On April 12, 2006 52,600 chinook salmon were placed into two pens near First Creek at Sodus Bay. Chinooks were piped to the pens directly from the hatchery truck. Feeding was performed five times per day, and pens were cleaned weekly during the rearing period. Water temperature was monitored with a digital recording device starting on April 12, 2006. Dissolved oxygen was measured on May 1, 2006 with a YSI Model 55 meter. On May 6, after 25 days of rearing, the pens were towed into the open lake. The fish were released in approximately 25 ft of water lakeward, and east of, Sodus Bay Channel. Pens were inverted to release the fish.

Chinook grew from 120 fish per lb to 89 fish per lb (mean weight of two samples, one from each pen) after 25 days. The mean total length of a 20 fish sample of the released chinook was 87 mm (3.4 in). Water temperatures measured by the recording thermometer ranged from 48-62°F. During release, the Bay temperature was 52°F and the lake temperature was 47°F. On May 1, 2006 DO at the pen site was measured at 9.8 mg/L.

<u>Genesee River</u>

The Genesee Charter Association, in conjunction with Irondequoit Bay Fish and Game Club and Greater Rochester Sportfishery Association, used six pens located at Shumway Marina in the Genesee River for raising steelhead and chinook. Ten thousand steelhead were placed into two pens on April 11. Chinook salmon (85,250) were placed in four pens also on April 11. The pens were gravity-loaded by piping the steelhead and salmon from the hatchery truck. Feeding was performed five times per day, and pens were cleaned weekly. Water temperature was monitored with a digital recorder starting on 11 April. Dissolved oxygen was measured

on April 28 with a YSI Model 55 meter. Steelhead and chinook salmon were released on April 29 and May 3, respectively, by inverting the pens on site. Chinook salmon were released four days after the steelhead to reduce potential predation by steelhead upon recently-stocked chinook salmon.

Steelhead were released on April 29 and weighed 13 fish per lb (mean weight of two samples, one from each pen), versus a delivery weight of 16 fish per lb. The mean total length of a 20 fish sample of the released steelhead was 164 mm (6.5 in). Chinook released from pens on May 5 weighed 86 fish per lb (mean weight of four samples, one from each pen), versus a delivery weight of 110 fish per lb. The mean total length of a 40 fish sample of the released chinook was 86 mm (3.4 in). Water temperatures measured by the recording thermometer ranged from 48-60°F during the period that both species were in pens. The temperature of the Genesee River at the time of steelhead release was 56°F. On April 28, DO at the pen site was measured at 10.4 mg/L.

Sandy Creek

The Sandy Creek project was a community group effort. Volunteers included SUNY Brockport students, Boy Scouts, high school groups, charter captains, and community members. On April 14, 7,300 steelhead were placed into two pens in the Sandy Creek Marina basin. The steelhead were piped to the pens directly from the hatchery truck. The pens were then towed from the basin to the creek immediately adjacent to the marina, and tied to a private residence dock. The pens were oriented with the pens' long axis parallel to water flow. Feeding was performed six times per day, and pens were cleaned once a day during the rearing period. Water temperature was monitored with a digital recording device starting on April 14. Dissolved oxygen was measured on April 24 and 28 with a YSI Model 55 meter. On April 29, after 16 days of rearing, the pens were inverted to release the fish at the pen site.

Steelhead were delivered at 16 per lb. They were held in the pens for 16 days and released on April 29. The average of two samples (one from each pen) was 12.3 fish per pound. The average of twenty steelhead was 166.8 mm (6.6 in). Water temperatures measured by the recording thermometer ranged from 49-63°F, well within the guidelines and due to the cool spring, cooler than this site had been in the past. The temperature of the creek at the time of steelhead release was 56°F. On April 28, DO at the pen site was measured at 8.0 mg/L.

Oak Orchard Creek

The Oak Orchard Business Association sponsored this pen project. On April 10, 14,000 steelhead were delivered to Lake Breeze Marina and placed into three pens. On the same date, 85,250 chinook salmon were placed into four pens at the same location. A PVC extension pipe was used to transfer steelhead and chinook into pens located farthest from the shore. Trout and salmon were fed four times daily, and pens were cleaned every two days. Water temperature was monitored with a digital recording device starting on April 10. Dissolved oxygen was measured on April 24 with a YSI Model 55 meter. The steelhead and salmon were released after 17 days on April 26 by towing the pens to the river mouth at Point Breeze.

Steelhead were held in pens from April 10 to April 26, a total of 17 days. Two samples of steelhead, one from each pen, weighed 11.3 fish per lb and were 161 mm (6.3 in) total length when released. Chinook salmon were also held for 17 days and released, weighing 86 fish per lb (mean of 4 samples, one from each pen). Mean total length of a forty fish sample was 84.5 mm (3.3 in). Water temperatures measured by the recording thermometer ranged from 49-64°F during the period that both species were in pens. The temperature of the Oak Orchard River release site at the time of release was 55°F. On April 24, DO at the pen site was measured at 8.2 mg/L.

Lake wide, eight sites pen-reared a total of 84,800 steelhead (Washington and Skamania strains), comprising 13.1% of NYSDEC's Lake Ontario rainbow trout/steelhead stocking allotment in 2006. Observed mortalities at the five steelhead rearing sites ranged from 0.068 to 0.5% . Overall, steelhead mortality in 2006 was low in comparison with previous years. Five pen-rearing sites raised a total of 313,100 chinook salmon, representing 18% of Department's 2006 chinook salmon stocking allotment. At the five sites where chinook were penned, mortality estimates ranged from 0.074 to 0.19%. Water temperatures during the pen-rearing period generally benefitted from cool weather during late April and early May. The water temperature criterion (65°F) established for pen projects, was not exceeded at any pen rearing site.

Steelhead target weights (12-15 fish per lb) were reached at all of the eight pen sites. Chinook target weights (90 fish per lb) were achieved at all five of the pen sites, as well. It is likely that a large percentage of the penned fish imprinted to water at their respective pen sites, since a large majority of fish reached target weights.

The ninth year of pen-rearing steelhead and chinook salmon along the New York shoreline of Lake Ontario was very successful due to relatively low fish mortality at most sites, a relatively high percentage of fish being imprinted, and the goodwill generated through growing partnerships in the projects.

Round Gobies and smallmouth bass Test Positive for VHS

In May 2006, staff received numerous calls regarding a large die-off of round gobies and slow moving bass covered with red sores along the Lake Ontario shoreline. Gobies were collected from just west of Sandy Creek and smallmouth bass from Sodus Bay. The fish were transported by Regional staff to Cornell's veterinary lab. Both the gobies and bass tested positive for VHS.

Region 9

Trout and Salmon Pen-rearing Projects

Region 9 Great Lakes waters are home to five pen-rearing projects designed to improve survival and imprinting of stocked trout and salmon. Three of the projects are located in Niagara County on Lake Ontario and the other two are on Lake Erie. The projects are organized and conducted by volunteer groups responsible for identifying suitable sites, obtaining and deploying pens, feeding fish, cleaning pens, documenting pen activities and safely releasing fish. DEC staff from Region 9 and Great Lakes Section staff assist in developing policy and providing technical assistance for the pen projects.

Table 7. Region 9 Pen Projects in Spring 2006

Location	Species	Number	Days Held	Size
		(#fish/lb.)		
Dunkirk Harbor	Steelhead			
Buffalo River	Steelhead	10,000	20	18.8
Lower Niagara River	Steelhead	20,000	22	12.0
Wilson Harbor	Steelhead	5,000	22	11.7
Olcott Harbor	Steelhead	3,500	17	11.4
Olcott Harbot	Chinook salmon	50,000	21	58.8

The volunteer groups have been very successful operating these projects. Growth of penned fish has generally been excellent and mortalities have been very low. The limited assessment studies performed on Lake Ontario pen projects, particularly for steelhead, indicate that penning can significantly increase survival of stocked steelhead. There is a need to evaluate steelhead pen effectiveness in Lake Erie, however there are substantial limitations to performing these assessments for the existing Lake Erie pen sites.

More detailed information on Lake Ontario pen projects is contained in the 2006 Annual Report Bureau of Fisheries Lake Ontario Unit and St. Lawrence River Unit to the Great Lakes Fishery Commission's Lake Ontario Committee, March 2007.

Steelhead pen

Lake Erie and Tributaries

Lake Erie Unit

Autumn Trawl Survey

The trawling program is conducted during October at randomly selected stations between the 50- and 100-ft depth contours in New York's portion of Lake Erie. Standard tow duration is 10 minutes.

In 2006, the most abundant species encountered in the program was emerald shiner. Other species that made large contributions to the trawl collections included round goby, rainbow smelt and troutperch.

The 2006 mean density estimates for age 0, age 1, and adult (age 2 and older) yellow perch were all higher than the previous 14 year mean density estimates for these life stages of yellow perch. The 2006 index for age 1 yellow perch was particularly notable as the highest measured in this trawl series. Juvenile yellow perch growth rates have remained stable over the past several years.

The October trawling program continues to portray an improved status of the yellow perch population relative to a long period of low abundance through the 1990s. These results also closely mirror findings from neighboring jurisdictions and support the view that yellow perch abundance has generally rebounded and perhaps stabilized from the 1990s low ebb. An especially high age 1 yellow perch index in 2006 suggests favorable abundance of adult yellow perch (age 2+) will continue for the near future.

Warmwater Fish Stock Assessment

The standard gill net assessment is the largest and longest standing survey performed by New York's Lake Erie Unit. The annual autumn gill netting survey has been underway since 1981. Four to six, 700 foot, graded mesh nets are set daily, with 40 sites sampled in 2006.

The overall abundance index for walleye in 2006 was well above the long-term average abundance since 1981. The age composition of walleye was composed primarily of age 3 individuals representing the exceptional 2003 year class. Also, the once dominant 1984 year class of walleye is still scarcely detectable at age 22 in the 2006 samples. The gill net assessment has had a juvenile walleye emphasis since its inception, with age 1 and age 2 walleye comprising a large fraction of the overall walleye sample each year. Yearling walleye catch rates in 2006 ranked the 2005 year class as above average, and the seventh largest in the 26 year time series. Age 1 and age 2 walleye were very near long term average sizes for this September netting program.

Overall walleye abundance in 2006 was above average for the time series for the third consecutive year, principally due to the presence of the dominant age 3, 2003 year class. An age 1 cohort also contributed measurably to the 2006 walleye sample. The formerly immense 1984 walleye year class, which dominated gill net samples for more than a decade, still comprises a tiny, but detectable fraction of the annual collections as age 22 individuals. Additional contributions to New York's adult walleye resource are known to occur from summer immigration from western basin Lake Erie walleye spawning stocks. This annual movement remains poorly understood and is an additional factor creating difficulty for forecasting annual walleye abundance and fishing quality. We believe improving our understanding of contributions to New York's summer walleye sport fishery by migratory walleye stocks is a very high information need for effective walleye management. NYS DEC's Lake Erie Unit has been supporting research initiatives to address this important question.

Smallmouth bass catch rates in 2006 were well above the average value for this 26 year time series. Age 1, age 4, and age 7 individuals made large contributions to this 2006 sample that included 16 age groups from age 0 to age 16. The long-term recruitment indi-

ces for age 2 and age 3 smallmouth bass rank the 2003 year class as near average in the time series. Early indications from the same juvenile recruitment index suggest the 2004 year class is below average in abundance as age 2 individuals. Also, particularly notable in the 2006 collections was the large sample of YOY and yearling (age 1) bass which typically are not vulnerable to our gillnets. Age 2 and age 3 smallmouth bass cohorts averaged 11.4 in and 13.6 in total length, respectively. Both age groups were approximately an inch longer than the average for the entire time series and both remained near the longest ever observed in the 26 year time series.

Smallmouth bass abundance remains above the long term average. Standard sub-adult recruitment measures describe moderate to poor recruitment for the 2003 (age 3) and 2002 (age 2) year classes, respectively. However, unusually large catches of YOY and age 1 smallmouth bass in 2006 indicate improved smallmouth bass recruitment will occur in the foreseeable future. This recent recruitment history is receiving close scrutiny as it coincides with the emergence of high densities of round gobies in New York's portion of Lake Erie. There has been concern among fishery scientists that the presence of round goby could represent a new recruitment bottleneck for smallmouth bass. The Lake Erie Unit maintains a robust long-term data series for smallmouth bass, and over time, is in a position to critically examine whether a new round goby recruitment bottleneck has occurred. A publication by Einhouse et al. (2002) relates recruitment patterns of smallmouth bass in New York's portion of Lake Erie to mean summer water temperature. This research predicted poor smallmouth bass recruitment would accompany the cool summer water temperatures Lake Erie experienced in the year 2000 and 2004. Our subsequent gillnet recruitment indices for those year classes validated predictions based on water temperature. Similarly, this recruitment-temperature relationship predicts much better bass recruitment should be expected from 2005 and 2006 year classes, because we experienced much warmer summer water temperatures these years.These smallmouth bass recruitment measures assembled over several years should allow us to gather insights about round goby effects, with the backdrop of our long term recruitment history and new found knowledge of a principal factor controlling bass recruitment.

Elevated smallmouth bass growth rates coincided with the emergence of round gobies as an abundant new prey source in eastern Lake Erie. Both smallmouth bass growth rates and round goby abundance increased sharply after 1999. This increased smallmouth bass growth has also resulted in a new uncertainty for our annual smallmouth bass abundance. The more recent abundance and recruitment indices from gillnets have the potential to produce biased results because sub-adult smallmouth bass are significantly larger than in the past, and gill nets are a very size selective sampling gear. We have not critically examined whether changes in growth may have influenced age-specific catch rates. However, conducting such a critical analysis for these data is an important need to maintain a credible index to assess smallmouth bass recruitment and abundance.

In deeper areas, yellow perch continued to be encountered at generally higher levels of abundance that were first observed beginning in year 2000. Deeper areas have only been sampled since the interagency index gillnet protocol was fully implemented in New York, starting in 1993. Yellow perch are not effectively sampled at the shallower (0 to 50 ft), long-term gillnet sites. Age 1, age 3 and age 5 yellow perch were the most abundant age groups in the 2006 collections and individuals greater than age 7 remained scarce. Only since 2000 have adult cohorts of yellow perch contributed measurably to this annual sample.

The status of the yellow perch population has improved considerably in recent years. Independent gillnet and bottom trawling programs continue to corroborate observations of neighboring jurisdictions that abundance of adult yellow perch has increased in eastern Lake Erie.

Abundance trends for some other commonly encountered species have recently received closer scrutiny due to extensive fish kills observed especially during 2001 and 2002. The species composition of those fish kills consisted largely of freshwater drum, and to a lesser extent, a wide variety of generally benthic species, including rock bass, stonecats, and smallmouth bass. Despite these extensive fish kills, we could not detect population level declines for freshwater drum in our gillnet index. During 2005 we also observed an extensive summertime mortality of channel catfish but were unable to obtain suitable fresh samples for examination by pathologists. Subsequent gillnet indices found channel catfish catches sharply dropped from 2004 to 2006, following progressive increases in abundance between 1999 and 2003. Recently VHS has emerged in the Great Lakes as a serious pathogen of fish. In light of these continuing perturbations, long-term monitoring of the fish community through our warmwater gillnet program has considerable added value for assessing population-level impacts by an array of new stressors to the Great Lakes.

Gillnetting on Lake Erie

Walleye Tagging Study

During the 17 years New York has participated in this interagency tagging study, 20,079 walleye have been tagged in New York's portion of Lake Erie. During April and May 2006, 1,498 walleye were collected in New York waters and affixed with jaw tags as a continuation of this effort to examine walleye distribution and exploitation rates. The two tagging sites sampled in 2006 were Van Buren Bay and Cattaraugus Creek. Walleye were collected by electrofishing and trap nets. Through most of the years of this

study, trap nets contributed a larger portion of the annual sample for this tagging effort.

Since the inception of this tagging study, 1,660 tag recoveries originating from the New York tagging effort have been reported by anglers and the Ontario commercial fishery. Eighty-seven (87) of these recaptures occurred during 2006.

This series of walleye tag recovery data has been annually examined using a model that estimates mean survival and recovery rates for the tagged population. From 1992 to 2005, several potential arithmetic mean survival rates for tagged walleye were derived from the Brownie model. Differing survival estimates were obtained by employing various assumptions concerning survival and recovery patterns, and all point estimates for the annual survival rate exceeded 70 percent. Over the duration of this assessment, maximum likelihood tag recovery rates ranged between 1.4 and 5.1 percent. We have expanded these observed recovery rates to exploitation rates using a multiplier of 2.82 for non-reporting of recovered tags. This current, non-reporting expansion factor was developed from a 2000 reward tag study in the New York waters of Lake Erie and is adjusted annually with each year's new tag recoveries. As such, the mean exploitation rate for tagged walleye from 1992 to 2006 was estimated as 7.74 percent.

Jaw tag on walleye

Beginning in 2005, the ongoing walleye jaw tagging study was expanded to incorporate a PIT (Passive Integrative Responder) tagging component. The walleye PIT tagging study is a 3-year inter-agency research initiative to independently develop estimates of exploitation and survival without a reliance on voluntary tag returns from fisheries. A secondary objective of this PIT tag initiative is to evaluate tag loss. In the absence of voluntary returns by fishers, the PIT tagging study requires a supplemental effort by agency personnel to examine large numbers of walleye encountered at fish cleaning stations and creel survey locations. During 2006, New York PIT-tagged 1,492 walleye, examined 1,017 angler-caught walleye for the presence of PIT tags, and detected 4 tags. A summary of the inter-agency PIT tag study will be prepared as a separate report upon the conclusion of this investigation. New York will participate in PIT-tagging at least one more year (2007), but the examination of walleye for PIT tag recoveries is expected to extend many years.

Lake Trout Assessment

This standard August gill net assessment has been employed to assess lake trout populations in the New York waters of Lake Erie since 1986. Approximately 60 sets of 500 ft, graded mesh nets are set annually in coldwater habitat.

The total gill net catch of lake trout in New York's portion of Lake Erie in 2006 was 353 individuals in 60 lifts. Eighteen age classes, from age 2 to 22, were represented in the sample of 331 known-aged fish. Similar to the past five years, young lake trout ages 2 - 5 were the most abundant cohorts, representing the majority (80%) of the total catch. No age 1 lake trout were sampled in the New York waters of Lake Erie; yearlings (Slate Island strain) were stocked in Spring 2006 in Ontario waters of the Eastern Basin for the first time. Cohorts older than age 7 remain in low abundance. Three age 21 and two age 22 lake trout were sampled, which were the oldest lake trout ever caught in the survey. Both of these successful cohorts were the first stockings to benefit from sea lamprey treatments.

Lake Trout Growth

Mean lengths-at-age and mean weights-at-age of sampled "Lean strain" lake trout were consistent with averages from the previous 10 years (1996-2005) up to age 8. Low sample sizes contributed to variation in mean length and weights in the older age groups. Mean length and weight of Klondike strain lake trout was slightly lower compared to Lean strain lake trout at ages 2 and 3. The largest lake trout sampled was a 21 year old fish that measured 39.4 in and weighed 25.3 lbs. This was the largest lake trout ever sampled in this program.

Lake Trout Maturity

Maturity rates remained consistent with past years where males are nearly 100% mature by age 4 and females by age 5. Ninety-six mature females were sampled in New York waters of Lake Erie in 2006. These fish ranged from age 4 to 22, but only 17 were older than age 6 and 65 (68%) were age 5. Mean age of mature females was 6.32 years. This is the fourth consecutive year that the mean age of mature females fell below the target of 7.5 established in the Strategic Plan (Lake Trout Task Group 1985) and continues to reflect the absence of older age-classes in the Lake Erie lake trout population.

Abundance of Coldwater Species

The relative abundance of lake trout caught in standard size meshes of 1.5 - 6.0 in has been on a general increase since its time-series low in 2000. Overall abundance continued to increase in 2006 to 5.3 lake trout/lift, an increase over the previous years estimated CPUE (4.0 fish/lift) and well above the time series average of 3.83 fish/lift. The increase was mainly due to excellent survival of age 2 Klondike strain lake trout. Burbot abundance increased slightly in 2006 following a sharp decline in 2005. Overall burbot abundance was estimated at 3.4 burbot/lift, still well-above the time-series average of 2.09 fish/lift, but well below the peak abundance of 4.7 fish/lift in 2004. Whitefish catches continue to be highly variable in this survey, both between years and within years. The abundance of whitefish declined sharply in 2006 to 0.75 whitefish/lift, the lowest abundance estimate since 1996 and an 85% decline

from the 2005 estimate of 5.1 fish/lift. Abundance estimates fell below the time series average of 2.16 fish/lift for the first time in three years. Other salmonids caught during the survey include 20 brown trout and one steelhead.

The relative abundance of lake trout by age of the 2006 standard gill net assessment catch illustrates the higher abundance of the younger cohorts between the ages of 2 and 5 and the relatively lower and more sporadic abundance of age 8 and older age-classes. Klondike strain lake trout comprise all of the age 2 and 65% of the age 3 age-classes. Younger age-classes have dominated the catches since 2002 while lake trout moving into the age 7-9 age groups have seemingly disappeared. The abundance of older lake trout (age 10+) has declined from over 30% of the total abundance in 2001 to only 3.3% in both 2005 and 2006.

The index of abundance for age-5-and-older lake trout more than doubled from last year, increasing from 1.03 fish/lift in 2005 to 2.42 fish/lift in 2006. This increase was mainly due to the recruitment of the abundant 2002 stocking to age 5. Adult abundances are above the time-series average of 1.60 fish/lift and at their highest levels since 1997, but still remain well below the peak abundances observed in the early and mid-1990's. Despite the increase in overall adult recruitment, the relative abundance of age 7-and-older lake trout shows a steady decline over the past decade. Further analysis shows that declines in adult stocks aged 5+ are due to declines in age 7+ fish; lake trout age 5 and 6 show a variable recruitment pattern with no apparent trend.

The CPUE of mature females >4500g (10lbs) in Lake Erie is 0.5 in 2006, well below the target of 1.0. In fact, the CPUE of females >4500g (10lbs) has been below target for the entire time-series with the exception of 1997. Overall trends in abundance of females >4500g (10lbs) generally follows trends in total female abundance through 2003, but there appears to be a separation thereafter with females >4500g (10lbs.) showing further decline than overall female abundance.

Lake Trout Recruitment

The age 1-3 relative abundance index for lake trout increased for the first time in the last four years to 1.97 fish/lift. The increase was mainly due to the higher-than-expected survival and recruitment of age 2 and 3 Klondike strain lake trout. Age 1 lake trout were absent from catches in New York waters. The age 2 recruitment index, which is an abundance index of survival to age 2 standardized for the number of stocked yearlings, increased to 1.85 in 2006, its highest value in the time-series. This was due to the excellent recruitment of age 2 Klondike strain lake trout stocked at relatively low stocking densities (54,200 yearlings). Klondike strain lake trout also exhibited substantially higher recruitment in 2005 compared to Finger Lakes strain lake trout.

Lake Trout Survival

Cohort analysis estimates of annual survival (S) were calculated for lake trout by strain and year class using a 3-year running average of CPUE with ages 4 through 10. A running average was used due to the high year-to-year variability in catches. Mean overall adult survival estimates were highest for the Lake Ontario (LO) strain (0.81) and lowest for the Lewis Lakes (LL) strain (0.59). Survival rates for the Lake Erie (LE) strain were also high (0.79), but this was based upon two year classes with relatively poor returns. The Finger Lakes (FL) and Superior (SUP) strains, the most commonly stocked lake trout strains in Lake Erie, had overall mean survival estimates of 0.76 and 0.71, respectively. Survival estimates prior to 1986 are low due to the effects of a large sea lamprey population. Survival of the 1987 –1991 year classes were comparably higher as the sea lamprey population declined and the number of adult lake trout increased, decreasing the affect of host density. Survival estimates during this period (1987-91) were highest for the FL strain (0.83) and lowest for the SUP strain (0.79). The LO strain, a cross between SUP and FL strains, was intermediate at 0.81. Survival estimates declined again beginning with the 1992 year class as the lamprey population increased. Mean overall survival estimates for all strains were above the Stategic Plan's target goal of 60% or higher except for the LL strain. However, three out of five survival estimates prior to lamprey control (1983-85) were below the target goal, indicating the importance of lamprey control on the adult lake trout population.

More recent estimates of survival indicate declines well below target levels. Survival estimates of the 1997-1999 year-classes of SUP strain lake trout using catch curves from ages 5-8 or 4-7 ranges from 0.33-0.42. Survival estimates from the 1997 FL strain also declined to 0.62. Both of these survival estimates are well below the ranges that were observed for these strains during the period of high-lamprey control.

Lake Trout Strains

Similar to the last five years, six different lake trout strains were found in the 333 fish caught with hatchery-implanted coded-wire tags (CWT's) or fin-clips. Finger Lakes (FL) and Superior (SUP) strain lake trout have been the most numerous strains in Lake Erie due to their stocking prevalence, but Klondike (KL) strain lake trout, despite being stocked in low numbers for only two years, increased substantially in 2006 returns and now comprise a significant portion of the population. Lewis Lake (LL), Lake Ontario (LO), and Lake Erie (LE) strains remain minor contributions to the Lake Erie stock. The FL strain was the most prevalent strain in Lake Erie catches in 2006 due to its consistent stocking over the past 20 years. Lake trout were caught from each year of stocking through age 13, and then at some of its older stockings (ages 16, 21, 22). The Superior strain continues to be the most prevalent strain in the younger cohorts. However, it is absent from stockings at older ages. Returns at ages 5-7 are artificially high due to the size-at-stocking paired planting study which resulted in a 2x return rate for the larger-sized SUP strain fish. Overall, there were poor returns from all strains over age 7.

Diet of Lake Trout and Burbot

Analysis of the stomach contents of lake trout and burbot revealed diets almost exclusively comprised of fish. However, the composition of the prey continues to evolve with the emergence of invasive species and an ever changing lake ecosystem. Rainbow smelt, the longtime main prey item for lake trout, declined significantly in lake trout diets in 2006, while round gobies increased. The frequency of occurrence of round goby and smelt was equal in lean

strain lake trout stomachs (53%) while round gobies were twice as common in Klondike strain fish (68% vs. 32%). This represents a major change for lean strain lake trout as smelt have comprised over 88% of their diet since 1999. Gobies tend to be more prevalent in Klondike strain lake trout, possibly due to their orientation closer to the bottom compared to lean lake trout strains. Other fish species comprised minor portions of both lean and Klondike strain lake trout diets.

Burbot diets remain more diverse than lake trout diets with nine different fish and invertebrate species identified in stomach samples. Round gobies were once again the most prevalent prey item, occurring in 63% of the stomach samples while smelt declined to 19%, the lowest frequency since gobies arrived. Yellow perch comprised a measurable portion of the burbot diet, most likely due to their high abundance in the lake. All other fish and invertebrate species were occasional occurrences in the burbot diets.

Paired Plantings of Lake Trout

Evaluation of five consecutive years of paired plantings of yearling lake trout to compare survival and growth rates of large versus small stocking size was continued in 2006. The plantings began in 2000. In general, the results of the first three years of stocking using SUP strain fish have favored the larger stocked fish at a ratio of 2:1, and this has remained fairly consistent up to age 7. Returns of the 2000 stocking (1999 year-class) have dwindled dramatically from age 4 through age 7, presumably due to lamprey mortality, and survival estimates for this once abundant year-class were low (S=0.367; ages 4-7; r2 = 0.9993). Results of the last two years of the paired plantings (2003, 2004 stockings) using FL strain fish remain inconclusive due to poor returns from either of these stockings. Overall smaller stocking sizes, especially in 2004, or differences in sampling variability or fish behavior may be responsible for the poor return rates. However, excellent returns from Klondike strain lake trout stocked at similar sizes and at less densities than FL strain fish (31.6K vs. 40K) in 2004 indicate that behavior differences in strain, or poor post-stocking survival is most likely contributing to poor returns of FL strain lake trout, not small stocking size. There were no significant differences in growth between any of the paired stockings. Growth differences observed at earlier ages has diminished at older ages.

While some aspects of the Lake Erie lake trout population are promising, such as recruitment of young lake trout post-stocking, the status of the adult population is at a critical stage. Several indices show that recruitment to the older ages (7+), which are the prime spawners, is poor. The increase seen in the age 5+ index in 2006 was due to the recruitment of the 2002 stocking to age 5, and these fish comprised over 2/3 of the index. Trends in recruitment to age 7+ reveals declining abundance despite increased lake trout abundance at ages 5 and 6, indicating that lake trout mortality is high within these age-classes. Survival estimates for lake trout cohorts from the late 1990's confirm this with survival rates ranging from 0.33-0.42, about half of the rates found earlier in the decade and well below the target rates of 0.60 stated in the Lake Trout Management Plan. The CPUE of adult females >4500g remains well below the target and may indicate why naturally produced fish have not been observed yet in Lake Erie.

Assessment of Klondike Strain Lake Trout

Initial returns of the Klondike strain lake trout indicate excellent post-stocking survival. Returns of 31,600 yearlings stocked in 2004 were over four times higher at age 3 than a paired stocking of 80,000 Finger Lakes strain lean lake trout when adjusted for stocking rates. Stocking-adjusted return rates of the 2005 stocking (54,200 yearlings) at age 2 were the highest in the time-series.

Growth of this strain appears to be slightly slower than for Lean strains at ages 2 and 3, but not to a significant degree. Mean lengths are around one inch smaller at age and mean weights about 20% less. Maturity rates at ages 2 and 3 are similar to Lean lake trout strains. More data will be needed to determine if these fish do have different growth rates, especially after maturity.

Slower growth may be beneficial if it deters predation by sea lampreys. Studies show that larger lake trout are the main targets for sea lamprey. Wounding rates on different size-classes confirm this in Lake Erie with the majority of the fresh wounds occurring on lake trout larger than 25". If Klondike strain lake trout mature earlier and exhibit slower growth, this could be an advantage over Lean strain lake trout for avoiding excessive mortality from lamprey attacks.

Analysis of stomach contents of both Lean and Klondike strain lake trout reveals a higher percentage of round gobies in the diets of Klondikes, and may indicate that Klondikes are more bottom-oriented than Lean lake trout strains which tend to prey more heavily on smelt. If Klondikes are indeed a more bottom-oriented strain, this could lead to higher catch rate returns due to their increased susceptibility to bottom-set sampling gear. It may also make them more prone to lamprey attacks when they reach vulnerable sizes. Future surveys will continue to monitor the progress of these fish, and compare their growth, maturity, and wounding rates to the currently stocked Lean lake trout strains.

Sea Lamprey Assessment

Sea lamprey invaded Lake Erie and the Upper Great Lakes in the 1920's with the opening of the Well and Canal connecting Lakes Erie and Ontario. Although not completely responsible for the demise of the lake trout population in Lake Erie, they undoubtably played an integral part in the eventual failure of the original stocks. Populations of lampreys were left untreated in Lake Erie until the Strategic Plan for Lake Trout Restoration in Eastern Lake Erie document was formulated in 1985 and pointed to the lack of lamprey treatment as a bottleneck in the establishment of a lake trout population. The Sea Lamprey Management Plan for Lake Erie followed with a set of goals to achieve lamprey control. Since 1986, the Great Lakes Fisheries Commission has conducted regular treatments of key Lake Erie tributaries to control lamprey populations and the damage they inflict on the Lake's coldwater fishery resources.

The fresh A1-A3 wounding rate on lake trout greater than 21 inches total length was 16.0 wounds per 100 fish in 2006. This was slightly lower than 2005 (17.0 wounds/100 fish) but still over three times higher than the target rate of 5 wounds per 100 fish. Wounding rates have remained well above target for 10 of the last

11 years following more relaxed lamprey control measures in the mid- 1990's. Lampreys continue to target larger fish with lake trout >29 inches receiving the highest percentage of fresh wounds, followed by fish in the 25-29 inch range. There were no wounds found on lake trout less than 21 inches.

Fresh A1 wounds are considered indicators of the attack rate for the current year at the time of sampling (August). A1 wounding in 2006 was 0.024 wounds per adult lake trout greater than 21 inches, which was lower than 2005 (0.03) but still above the series average of 0.021 wounds/fish. A1 wounding rates have remained at or above average for nine of the last ten years, but the rate has remained stable since 2000. All of the A1 attacks occurred on lake trout >25 inches in length.

The past year's cumulative attacks are indicated by A4 wounds. The 2006 A4 wounding rate increased for the fourth consecutive year to 70.4 wounds per 100 fish for lake trout greater than 21 inches. This is the highest A4 wounding rate in the time series, including the pre-treatment years, and 3.7 times the series average of 19.2 wounds/100 fish. Similar to past surveys, the majority of the A4 wounds were found on fish greater than 25 inches in total length. Twenty-nine of the 45 lake trout sampled >29 inches in length (64.4%) possessed A4 lamprey wounds, and many of these fish had multiple wounds.

Sea lamprey nest count surveys occurred on 20-21 June, 2006. Nest count sampling was later than usual due to colder-than-normal water temperatures. The overall index for sea lamprey nesting increased slightly to 24.6 nests/mile in 2006. This nesting rate was above the series average of 15.4 nests/mile and the highest rate recorded in the last eight years. The highest nest counts were once again found in the main branch of Clear Creek (33.0 nests/mile), a tributary to Cattaraugus Creek. This is the highest nesting rate on this stream since 1998. Sea lamprey nesting rates also increased in both Delaware and Canadaway Creeks, but declined in North Branch Clear Creek.

Sea lamprey abundance continues to be high in Lake Erie despite regular control measures in the major tributaries. Fresh wounding rates (A1-A3) remained well above target levels, A1 wounds remained above average and at levels similar to the past six years, A4 wounding rates increased to unprecedented heights, and lamprey nesting counts increased. In addition, anglers are reporting high numbers of wounds on other lake fishes, especially steelhead.

Population projections using the Lake Erie Lake Trout Simulation Model indicate that lamprey control is one of the major influences on the lake trout population in Lake Erie, and that adult lake trout populations cannot reach levels needed for successful rehabilitation efforts without good lamprey control. Unfortunately, adult lake trout, especially the larger fish over 29 inches, continue to decline rapidly within the lake trout population, presumably due to high lamprey mortality. Almost 1/3 of the lake trout >29 inches exhibited recent lamprey attacks, and the average number of A4 wounds per fish was greater than one. Estimates from recently stocked SUP strain year-classes indicate that survival is only half of what it was when lamprey wounding rates were below target levels. Mortality estimates extrapolated from wounding rates suggest 34% of the adult population died from lamprey attacks in 2005 with the majority of those losses occurring in the larger adults. Other estimates of sea lamprey induced mortality rates based on fresh wounding observed in 2006 were estimated at 0.15 for lake trout over 25 inches. In order to proceed with successful lake trout rehabilitation, consistent measures need to be taken to reduce mortality and increase survival of the adult lake trout population and attain levels where successful natural reproduction is possible.

Sport Fishery Assessment

Since 1988, a direct contact sport fishing survey has been conducted to monitor boat fishing activity. This has been a standard, annual program that extended from May through October along the entire New York portion of Lake Erie. From 1993 to 1997 this survey was augmented by a spring creel survey of the nighttime walleye fishery, and those results were reported annually in earlier editions of this report. This nighttime survey component was suspended from 1998 to 2005, and then resumed in 2006 to update the status of this fishery. This spring, nighttime walleye fishery survey is now scheduled to proceed at regular 3-year intervals.

Overall 2006 open water sport fishing effort in New York waters of Lake Erie was estimated as 277,779 angler-hours. Peak fishing activity occurred during June and the most frequently used site was the Cattaraugus Creek Harbor. The 2006 fishing effort estimate was the lowest annual total of the 19-year time series. During the 2006 fishing season, walleye angling was the largest component of the boat fishery with 49 percent of the overall angling effort. Smallmouth bass angling ranked second in boat fishing effort with 26 percent of the total. Among the remaining effort, anglers fishing for yellow perch ranked 3rd with 17 percent of the overall effort, and anglers fishing for "anything" accounted for 6 percent of the total in 2006. The remaining 2 percent of the fishing effort total was distributed mostly among trout specialists, and Ecosid specialists returning to the Buffalo Small Boat Harbor.

A notable decline in boat fishing effort, first observed in 1999, briefly stabilized in 2003 and 2004, but dropped further thereafter. Lake Erie's recent decline in fishing effort remains consistent with broad trends observed in other waters and is likely attributable to factors independent of fishing quality. Likely contributors to declines in fishing effort beginning in 2005 were coincident sharp increases in fuel prices, and in 2006, especially inclement weather during late summer and autumn.

The total estimated daytime walleye harvest was 37,157 fish, ranking the 2006 walleye harvest about 48% above the average for the previous 10 years, and the seventh largest in the 19-year survey series. The 2006 walleye fishing effort accompanying this walleye harvest was approximately the same as measured in 2005, and 40% greater than the low ebb for walleye fishing effort measured in 2004. Despite increased walleye fishing activity relative to the 2004 low ebb, 2005 and 2006 targeted walleye fishing effort remained among the lowest measured in this 19-year data series.

The 2006 walleye sport fishery occurred mostly between Barcelona Harbor and Silver Creek, New York. The overall targeted

walleye catch rate during the 2006 fishing season was 0.28 fish per hour, which was identical to the 2005 measure and highest observed in the 19-year data series. The average total length of harvested walleye in 2006 was 21.8 in or roughly 2 in below the average (24.1 in) observed for the previous 10 years.

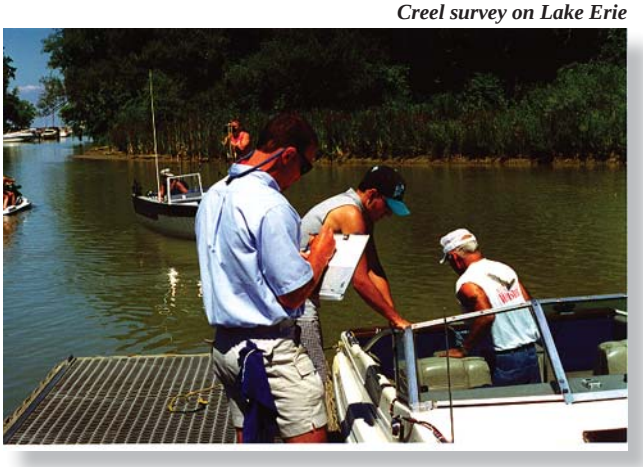
In 2006 daytime walleye fishing was excellent. August was the peak month for walleye harvest and catch rates, but the excellent walleye fishing quality extended from June through August. Age 3 walleye, from the dominant 2003 year class, accounted for 39 percent of the overall walleye harvest. The age 5, 2001 year class, was the second most abundant age group, and cohorts age 10-and-older together accounted for 23 percent of the 2006 walleye harvest.

The 2006 survey year also provided an opportunity to assess a smaller, infrequently monitored walleye fishery that briefly emerges in evening hours as the walleye season opens each spring. This nighttime survey found 7 percent of overall walleye fishing effort and 10 percent of the harvest occurred at night in 2006. In addition, nighttime walleye fishing quality (fish/hour) was superior to companion daytime measures. Both the daytime and night walleye catch rates describe superb fishing quality for eastern Lake Erie. Nighttime walleye fishing effort and harvest totals are only a minor contributor to the total walleye fishing effort and harvest in a year. However, a relatively small cadre of nighttime walleye anglers experience better fishing quality than their daytime counterparts. As a minor contributor to a very important sport fishery continued periodic surveys (every 3rd year) of the nighttime fishery seems to be an appropriate frequency for ongoing assessment.

Smallmouth bass harvest was estimated as 4,623 fish, which ranks 2006 with the lowest annual bass harvest for the 19-year survey. Overall 2006 bass fishing effort was approximately 50 % below the mean for the previous 10 years and declined 29 % from 2005. The 2006 smallmouth bass harvest also remained very small, relative to the bass catch by boat anglers. Smallmouth bass were the second most frequently caught species (61,969 fish) by boat anglers. The largest component of the smallmouth bass catch and harvest was by anglers encountered at Buffalo's Small Boat Harbor. The 2006 overall catch rate by bass anglers was 0.80 bass per hour, and mean length of harvested smallmouth bass was 16.9 in. in 2006. The 2006 targeted catch rate remained 17 % below the long term average value.

Overall fishing quality experienced by bass anglers has been reasonably similar among recent years, as measured by angler catch rates and average size of harvested smallmouth bass. These measures characterize Lake Erie's bass angling as an excellent quality fishing experience. Conversely, in recent years smallmouth bass harvest totals have plummeted to the lowest observed in the time series. Part of the reason for these conflicting measures of bass fishing quality and bass harvest is found in the characteristics of Lake Erie's boat angling community. Through recent years there has been a notable trend of increasing catch-and-release fishing preferences by bass angling specialists. In addition, much of the smallmouth bass harvest from Lake Erie's sport fishery includes anglers who do not describe themselves as targeting black bass and, nevertheless, account for most of the smallmouth bass harvest. The contribution to the annual smallmouth bass harvest by anglers targeting other species, or no particular species, sometimes is as much as 70 percent of the total smallmouth bass harvest in any given year. As such, smallmouth harvest estimates for the entire sport fishery do not necessarily mirror targeted catch or harvest rates by bass specialists who mostly do not choose to harvest black bass. Since 2001, catch rates by smallmouth bass anglers have diverged from overall harvest totals for Lake Erie. Harvest rates may have been further depressed by the common knowledge of botulism induced fish kills, which undoubtedly reduced motivation to harvest smallmouth bass among some anglers. Also, the recent emergence of excellent quality yellow perch and walleye fishing may represent a more palatable alternative for anglers interested in consuming their day's catch. Independent indicators of the smallmouth bass population suggest the adult bass population remained abundant in 2006, despite the measured low angler harvest.

Creel survey on Lake Erie



The yellow perch harvest (65,706 fish) in the 2006 sport fishery was the fifth highest observed in the 19-year survey. The 2006 yellow perch sport harvest was centered in the vicinity of Silver Creek, New York. All other areas produced a markedly lower harvest of yellow perch. The 2006 overall yellow perch catch rate was 1.46 perch per hour and remained similar to the highest values observed in the time series. The mean length of harvested yellow perch was 11.0 in. in 2006.

Round gobies remained a frequently encountered nuisance species for anglers in 2006. Lake trout was the most caught (880 fish) salmonid species, but only a small fraction of them (207 fish) were harvested. Rainbow trout and brown trout were the other salmonid species detected during the 2006 creel survey. In all, 20 species were reported caught, representing an estimated total catch of 244,928 individual fish from the 2006 angler survey. Smallmouth bass, yellow perch and walleye comprised approximately 73 percent of the total 2006 catch. These same three species accounted for 98 percent of the 2006 harvest.

Beginning in 2001, a significant yellow perch fishery emerged and has continued through 2006. The recent improvement in yellow perch fishing quality was consistent with other independent indicators that suggest the status of the yellow perch population has improved from very low levels measured during the mid-1990s.

Forage Trawl Survey
Annual bottom trawling to characterize the forage fish community in Lake Erie has been underway since 1992. This survey has an additional objective of assessing the status of yellow perch. New York's annual forage fish abundance measures are also merged with broader lake wide assessments of forage fish populations and reported with the inter-agency Forage Task Group.

Each year, the principal functional group among forage fishes in the New York waters of Lake Erie are soft-rayed fishes. Until 2001, this soft-rayed group encountered by nearshore bottom trawling has been annually dominated by rainbow smelt. In the past, an alternate year cycle of expanded yearling smelt abundance has been a conspicuous, predictable characteristic of annual forage abundance. In the absence of an abundant yearling cohort of smelt, YOY smelt had typically remained as the most abundant forage fish component. Beginning in 2001 several other species also began to make significant contributions to this soft-rayed segment of the forage fish community, including emerald shiners, trout-perch and round gobies. From 2000 through 2003, yearling-and-older (YAO) smelt abundance remained at low abundance, ending their predictable alternate-year abundance cycle. During 2004 YAO smelt briefly re-emerged as the most abundant forage fish component in this trawling survey then subsided to lower abundance in 2005 and 2006. Round goby emerged in the late 1990's as a new species among this soft-rayed forage fish group and their abundance peaked during 2004. The 2006 abundance index for round goby remains as the second highest observed in the trawling series. Beginning in 2001, emerald shiners also became a predictable annual contributor to forage biomass and abundance. In 2006, emerald shiners became the most abundant species encountered in this trawl survey and were also measured at their highest abundance in the 15 year history of this survey. Overall forage fish abundance and diversity in 2006 remained at high levels relative to the entire time series.

Bottom trawling suggests that autumn forage fish densities in the New York waters of Lake Erie during 2006 were high relative to the history (1992-2006) of this program. In past years, large annual fluctuations in forage fish abundance observed in both acoustic and bottom trawl assessments have been attributed to an alternate-year cycle in rainbow smelt abundance. In 2004 high densities of yearling smelt briefly emerged following four years of relatively low abundance then subsided in 2005. Overall forage fish abundance as measured by the trawl survey remained high in 2006. The largest contributor to the 2006 forage fish index in both numbers and biomass was emerald shiners. This 2006 survey was also the first occasion in 15 years of assessment that a native fish species was the most abundant component of the forage fish community.

Lake Ontario and Tributaries

Lake Ontario Unit

Lake Ontario Fishing Boat Census
The Lake Ontario fishing boat census provides trend through time data on angling effort and success, and performance of stocked salmonids. While the census targets the open water salmonid fishery, valuable data on other fish species are also collected. The 2006 angling season marked the 22nd consecutive year (1985-2006) that the census was conducted. Methodology has changed little over the history of the census, with sampling covering boat access channels along 190 miles of New York's Lake Ontario shoreline for the period April 1 to September 30 each year.

Trout and salmon fishing quality in 2006, as measured by catch rate (number of fish caught per fishing boat trip) among boats fishing for trout and salmon (2.53 fish per boat trip) was excellent. The 2006 estimate was 12.6% lower than in 2005, and 1.2% lower than the previous 5-year (2001-05) average. The April-September 2006 chinook salmon catch rate (1.21 fish per boat trip) declined from the 2005 record high (1.74 fish per boat trip), however was still the fourth highest on record. Catch rates were above their respective previous 5-year averages for coho salmon (+106.0%) and rainbow trout (+32.2%). Catch rates for brown trout, lake trout and Atlantic salmon were below their respective previous 5-year averages.

Despite excellent fishing quality in 2006, particularly for chinook salmon, total fishing effort declined to the lowest level (66,906 fishing boat trips) in the 22-year census history and was 23.4% below the 2001-2005 average. Trout and salmon fishing effort in 2006 was the second lowest estimate among the years censused and 12.5% below the previous 5-year average. Anglers targeting trout and salmon accounted for 49,223 fishing boat trips, or 73.6% of the April - September 2006 total. Fishing boat trips targeting smallmouth bass during the open season declined to 13,586 (+/- 22.9%) in 2006, 48.2% below the 2001-2005 average and the second lowest estimate among years censused.

Total trout and salmon harvest in April-September 2006 was estimated at 78,166 fish. Chinook salmon was the most commonly harvested salmonid in 2006 (39,439 fish), comprising 50.5% of the total. The 2006 chinook harvest rate was the third highest observed among the 22 years censused, and increased 15.9% compared to the previous 5-year average, and increased 51.9% compared to the longer term (1985-2005) average harvest rate. Brown trout harvest in 2006 was estimated at 15,642, comprising 20.0% of the total harvest. This estimate was a record low harvest estimate among all years censused and represented a 24.8% decrease compared to the previous 5-year average. Rainbow trout was the third most commonly harvested species, with an estimate of 10,750 fish. This represents a 42.3% increase over 2005, and a 7.2% increase compared to the previous 5-year average. Coho salmon harvest in 2006 was estimated at 9,370 fish, representing 12.0% of the total salmonine harvest in 2006 and a 106.0% increase compared to the 2001-2005 average. Lake trout harvest in 2006 declined to a fourth consecutive record low 2,964 fish. In 2006, no Atlantic salmon were observed among the 2,239 fishing boat interviews. The declines in harvest rates for brown trout and lake trout may be attributable, in part, to the excellent Chinook salmon catch rates over the last two years and the excellent coho fishing in 2006.

Smallmouth bass was the most commonly harvested species in the census from 1995-2003; however, Chinook salmon harvest increased dramatically from 2004 through 2006 while smallmouth bass harvest declined, indicating a possible shift in angler prefer-

ence. The 2006 smallmouth bass harvest (17,759 +/-61.3%) was the lowest seasonal harvest among the years censused and a 62.8% decrease relative to the previous 5-year average.

Lake Ontario Prey Fish Abundance

The USGS and the NYSDEC have cooperatively assessed Lake Ontario prey fishes annually since 1978 using bottom trawls during spring, summer, and fall along twelve transects distributed across the New York shoreline of the lake. Alewife and rainbow smelt are the dominant prey species for Lake Ontario salmonids. NYSDEC also conducts a summer hydroacoustic survey of prey fish populations cooperatively with the Ontario Ministry of Natural Resources.

In 2006, the abundance index for adult alewife (age 2 and older) was the lowest on record, 71% lower than in 2005 and 94% lower than the peak in the 1980s. The numerical abundance index for age 1 alewife in 2006, however, was 5 fold higher than that of spring 2005, approximately double the long-term mean. In 2007, we expect strong recruitment of age 2 fish from the large 2005 year class to increase the adult alewife abundance index to 2002-2004 levels.

The exotic round goby continued its expansion along New York waters of Lake Ontario. The numerical abundance index for round goby in 2006 was similar to that in 2005, but the weight index continued to increase, perhaps indicating a leveling-off of the population with a higher number of older, larger fish.

Trawl net full of alewives

Lake Ontario preyfish trawling assessments are incorporating several methods to improve accuracy, including hydroacoustic evaluation of areas between trawl transects, and informed allocation of sampling effort. Results showed no spatial differences in fish abundance estimated by acoustic sampling compared to bottom trawling, and acoustic sampling did not identify any potentially large sources of error in allocation of trawling effort, i.e., trawling effort was allocated to depths at which fish were mostly present.
The 2006 hydroacoustic survey consisted of five cross-lake transects and an Eastern Basin transect. The hydroacoustic estimate of age-1 and older alewife abundance (1.03 billion fish) rebounded from the record-low level observed in 2005, probably as a result of the strong 2005 alewife year class. The 2006 acoustic estimate for alewife abundance was equal to the number observed in 2000, when the strong 1998 and 1999 year classes began recruiting to the yearling and older alewife population. The 2006 hydroacoustic estimate of smelt was 126 million fish. The smelt population declined by 42% from 2005, and was the 3rd lowest on record from the acoustic survey. Abundance and biomass were 38% and 49%, respectively, below the long term averages.

In October 2006, we continued use of the tickler chain modification to resume the slimy sculpin index survey. Catches of slimy sculpins in 2006 were lower than in 2005 for all depths. During 2006 sampling, we also caught 16 deepwater sculpin [52 - 108 mm (2.0 - 4.3 in)], continuing the 2005 trend of increased catches of this species, once thought to be extirpated from Lake Ontario.

Eastern Lake Ontario Warm Water Fisheries Assessment

Assessment of trends in the warm water fish community of the New York waters of Lake Ontario's eastern outlet basin has been conducted annually since 1976 using a standardized gillnet sampling program. Since 1976, the warm water fish community has undergone significant changes, declining from a high catch-per-unit-effort (CPUE) of approximately 200-250 fish per overnight gill net set in 1976-79 to a record low 14.9 fish in 1995. Most fish species have experienced significant declines in abundance, however, the decline in warmwater fish abundance is primarily attributed to declines in white perch, yellow perch, gizzard shad, alewife and rock bass abundance. Since 1995, mean stratified CPUE for total warmwater fish catch has varied without trend, averaging 22.7. The species dominating the catches have changed over time, changing from a community dominated by white perch, yellow perch and gizzard shad to one dominated by smallmouth bass and yellow perch by 1990.

In 2006, total mean CPUE was 28.2 fish, comparable to the 2005 estimate, and 30.0% and 37.2% higher than the previous 5-year and 10-year averages, respectively. The smallmouth bass CPUE trend has varied over time and reached record to near record lows during 2000-2004 (mean CPUE=4.2). The decline in smallmouth bass at that time was primarily attributable to double-crested cormorant predation. Smallmouth bass CPUE increased substantially in 2005 (CPUE=11.3) and remained near that level in 2006 (CPUE=10.6). The 2006 smallmouth bass CPUE was 148.6% higher than the previous 5-year average. Concurrent with increased CPUE, growth of smallmouth bass has increased in recent years and condition was at record high levels for all length increments examined in 2006. The recent increase in smallmouth bass CPUE may be due to several factors including recruitment of a strong year class, improved catchability, and reduced predation by double-crested cormorants. Yellow perch abundance in 2006 was 11% higher than the previous 5-year average. Walleye abundance in 2006 was comparable to the previous 5- and 10-year averages. Lake sturgeon, a threatened species in New York State, have been collected in ten of the last twelve years. Round gobies first appeared in the Eastern Basin assessment in 2005 and, in 2006, appeared in greater frequency in both gillnets (N=5) and in smallmouth bass stomachs (20.3% of non-empty stomachs).

Setting gillnet on Lake Ontario

Impacts of Double-crested Cormorant Predation on Smallmouth Bass and Yellow Perch

For the eighth consecutive year, Region 6 Wildlife staff continued double-crested cormorant population control at Little Galloo Island through oiling of eggs with food grade vegetable oil and culling of adults birds. Nest destruction and culling of adult birds were utilized to discourage nesting on Bass and Gull Islands. A total of 170 cormorants were culled by shooting at Bass Island, and 620 at Little Galloo Island. Target levels of fish consumption by cormorants, as measured by the Weseloh and Casselman feeding day model, were very nearly reached in 2006.

Diet studies of cormorants from Little Galloo Island in the Eastern Basin of Lake Ontario have been conducted each year since 1992. In 1999 these studies were expanded to include two cormorant colonies in the Canadian waters of the Eastern Basin of Lake Ontario, Pigeon and Snake Islands, as well as three colonies in the Canadian waters of the upper St. Lawrence River (Griswold, McNair and Strachan Islands).

Egg-oiling reduced cormorant chick production by approximately 97% on Little Galloo Island in 2006, thereby reducing fish consumption by 90,000 smallmouth bass and 338,000 yellow perch. Since 1999, the cormorant egg oiling program on Little Galloo Island has reduced fish consumption by chicks at the colony by 45.2 million fish, including approximately 8.3 million yellow perch and 2.2 million smallmouth bass. Smallmouth bass abundance in the Eastern Basin as measured in index gillnets increased in 2005 and 2006, possibly indicating a population response to reduced cormorant predation. The 2006 smallmouth bass harvest rate in the Eastern Basin increased to the highest level since 1989, lending additional evidence of an increase in smallmouth bass abundance. Estimated total fish consumption by cormorants from the Little Galloo Island colony in 2006 was 10.1 million fish, including 6.9 million round goby, 1.01 million alewife, 0.96 million yellow perch, 0.34 million rock bass, 0.31 million pumpkinseed and 0.14 million smallmouth bass.

Estimated total fish consumption by cormorants from three upper St. Lawrence River colonies (Ontario waters) in 2006 (7.32 million fish) was the highest observed over the last six years. Average annual fish consumption by cormorants from Griswold, McNair, and Strachan Islands since 1999 is 6.16 million fish. Total combined consumption in 2006 included 1.7 million yellow perch, 2.6 million round gobies, 0.47 million rock bass, 0.4 million pumpkinseeds, and 0.06 million smallmouth bass. Since 1999, Double-crested cormorants from these colonies have consumed an estimated 49.28 million fish including 23.18 million yellow perch, 8.12 million rock bass, 4.91 million cyprinids, 4.12 million pumpkinseed, 0.49 million smallmouth bass, and 0.31 million esocids(pike, pickeral and muskellunge).

Lake Ontario Unit staff are continuing efforts to promote a coordinated binational, regional approach to cormorant research, monitoring, and management.

Lake Ontario Lake Trout Restoration

The USGS and the NYSDEC cooperatively assess juvenile and adult lake trout in Lake Ontario. The mid-summer bottom trawl survey targeting age 2 lake trout has been conducted annually since 1979. A September gillnetting survey targeting adult lake trout has been conducted annually since 1983. The total yearling lake trout stocking target (U.S. and Canada) for lake Ontario is currently 1 million fish annually.

Lake Ontario Juvenile Lake Trout Assessment

First year survival of stocked lake trout was relatively high for the 1979-1982 year classes but then declined by about 32%, and fluctuated without trend for the 1983-1989 year classes. First year survival began declining in the early 1990s and has remained low for more than a decade. In 2006, the total catch of one age 2 lake trout was the lowest recorded and the survival index was 99% below the average for the 1983-1989 year classes. In four out of the last six years the survival index (for the 1997, 1999, 2000, and 2002 year classes) was about 3.5 times higher than the lows seen for the 1994–1996 year classes. Although this modest increase in the survival index was encouraging, it has not persisted and nearly all of the age 2 fish caught in those years were from sites near the western end of the lake suggesting that yearling survival in western Lake Ontario is higher than in eastern Lake Ontario.

Lake Ontario Adult Lake Trout Abundance

A total of 505 adult lake trout were captured in the September 2006 gill net survey. Catch rates for mature lake trout remained remarkably stable from 1986 to 1998. The catch-per-unit-effort (CPUE) of mature fish, however, declined by 31% between 1998 and 1999. Declines in adult numbers after 1998 were likely due to poor survival of hatchery fish in their first year post-stocking and lower numbers of fish stocked since the early 1990s. After the 1998-1999 decline, the CPUE for mature lake trout remained relatively stable during 1999-2004 (mean 11.0), but then declined by 54% in 2005. The 2006 CPUE (7.3) for adult fish rebounded somewhat to a level 58% below the 1986-1998 mean and 33% below the 1999-2004 mean.

Lake Ontario Sea Lamprey Wounding Rate Index

Sea lamprey wounding rates on lake trout remain much lower than pre-1985 levels, but have been above the planned target level of 2.0 A1 wounds per 100 fish for seven of the last ten years. Wounding rate in 2006 was 2.9 A1 wounds per 100 fish. Numbers of lampreys observed attached to lake trout caught by boat anglers par-

ticipating in the boat census was 22.0% higher than the 2001-2005 average, but was 36.3% lower than the 2005 record high.

Gillnetted lake trout

Survival of Adult Lake Trout in Lake Ontario

Survival of Seneca strain lake trout has been about 20-45% greater than that of Superior strain for the 1984-1995 year-classes. Lower survival of Superior strain lake trout was likely due to higher susceptibility to and mortality from sea lampreys. Survival of both the Lewis and Jenny Lake strains was similar to the Superior strain suggesting that they are highly vulnerable to sea lamprey predation. In recent years, survival of the remaining Ontario strain fish (Seneca X Superior strain) approached that of the Seneca strain. Use of coded wire tags was only limited for the 1996-2002 year classes, therefore, adult survival values for the 1996-1998 year classes could not be estimated for the untagged Seneca strain fish which made up 69-89% of those stockings. Tagging all lake trout stocked into New York waters of Lake Ontario resumed in 2004 (2003 year class).

Natural Reproduction of Lake Trout in Lake Ontario

In 2006, seven naturally produced age 2 (6) and age 3 (1) lake trout (7.6 to 12.9 in total length) were caught with bottom trawls. Survival of naturally produced lake trout to the fingerling stage in summer and fall occurred each year during 1993–2004. Further, survival to older ages has been apparent, demonstrating the feasibility of lake trout rehabilitation in Lake Ontario. The distribution of catches of wild fish suggests that lake trout are reproducing throughout New York waters. No wild yearling lake trout were caught in 2005 or 2006, and there is no evidence of a naturally produced year class in 2005.

Annual Angler Harvest of Lake Trout from Lake Ontario

The estimated annual harvest of lake trout from U.S. waters of Lake Ontario declined over four-fold since the slot limit (25 to 30 in) was re-instated in 1992 compared to years without size limits. The slot limit was imposed to protect adult fish during the age period of peak spawning potential. In 2006, lake trout harvest (2,964), catch (8,656), and harvest rate were the lowest on record, but total trout and salmon angling effort was also the second lowest observed since the creel survey began in 1985. The percentage of lake trout harvested by anglers that were of trophy size (>30 inches) declined to 22.5%, down from the record value observed in 2003 (48.5%). The relatively low catch and harvest rates for lake trout may be due, in part, to both a shift in angler preference to take advantage of excellent chinook salmon fishing, and recent declines in adult population.

Lake Trout Stocking Study

A study evaluating the effect of location (onshore vs. offshore) and timing (May vs. June) of stocking on the survival of lake trout is being conducted at Olcott and Sodus, New York. Catches of age 2 through age 7 lake trout from Olcott indicate offshore stocking improved survival compared to shore stocking in May or shore stocking in June by a 1.9 : 1.0 : 1.1 margin. In addition, lake trout stocked at Olcott yielded catches 5.8-fold higher than those stocked at Sodus. Sodus catches showed a trend similar to that observed at Olcott with offshore stocking improving survival over May and June shore stockings by a margin of 2.3 : 1.4 : 1.1. The 2-fold greater returns for offshore stocking over both shore stockings indicates that predation on shore stocked fish has likely contributed to the declines in first year survival of stocked lake trout observed since 1991. Both the trawl survey (< age 2 lake trout) and the adult gill net survey indicate that survival and recruitment of stocked lake trout is greater for fish released west of Rochester compared with those released east of Rochester.

Lake trout offshore stocking

Eastern Basin Lake Whitefish Spawning Study

The USGS and Lake Ontario Unit staff are cooperating in an ongoing assessment of the reproductive habits of lake whitefish and lake herring in the U.S. waters of the Eastern Basin of Lake Ontario. In 2006, a study investigating the disease status and genetic make-up of spawning lake herring and whitefish was conducted. Lake Ontario Unit staff collected 19 lake whitefish and 37 lake herring from Chaumont Bay in November 2006. All fish were determined to be disease-free by NYSDEC Rome Laboratory, and genetic analyses were conducted by USGS Wellsboro for comparison to Coregonines from other Great Lakes. Genetic analyses revealed that lake herring from Lake Erie are most likely a distinct remnant stock most closely related to Lake Huron stocks. Fish from Lake Ontario are more genetically divergent and have higher genetic diversity than Coregonines collected from other lakes. DEC will use this and other information in developing a deep-water Coregonine restoration plan for Lake Ontario in 2007.

Chinook Salmon Energy Content Study

Chinook salmon are Lake Ontario's dominant, large predator

and highly regarded sport fish. The Lake Ontario Unit initiated a project in 2003 to monitor the energy content of chinook salmon in the lake. Energy content is a strong indicator of chinook nutritional status, which is dependent upon their ability to capture prey items with sufficient nutritional value. A low energy content would suggest that either there are few prey available, or that the prey they are consuming are widely dispersed and/or low in energy content. The Lake Ontario study is based on, and in conjunction with, studies being done on the upper Great Lakes coordinated by researchers at Michigan State University. It has been found that the traditional method of measuring a fish's condition by using the relationship between its length and weight may not be appropriate for use with chinooks. As with many pelagic or open-water fish species, chinook maintain their body form to keep an efficient hydrodynamic profile for prolonged swimming. They achieve this by taking on more water in their tissues to replace unavailable fat. Therefore a fish which is low in energy content (body fat) may appear and weigh normal, while in fact they are actually retaining more water. A salmon with water content greater than 78 percent indicates nutritional stress.

During the summer of 2006, tissue samples from approximately 120 chinook salmon were obtained from fish cleaning stations at Olcott ("western" sample) and Oswego ("eastern" sample). The fish were measured, weighed and had a small section of muscle removed from their backs, from which the water content was determined. Average water content of Chinook salmon from eastern (72.1%) and western (72.9%) ports was not statistically different. Average water content declined as fish aged. Mean water content of age-1 fish (75.8%) was significantly different from older ages. No salmon in 2006 had water content greater than the 78% threshold that would indicate nutritional stress. Average water content of salmon was lower in 2006 compared to 2003 and 2004 indicating an improved nutritional condition of salmon in Lake Ontario. This study will supplement the ongoing long-term prey fish assessment information that the DEC currently uses to help make management decisions regarding the balance between predator and prey in Lake Ontario.

Walleye Rearing and Stocking - Eastern Lake Ontario/St. Lawrence River

Lake Ontario Unit and Region 6 Fisheries staff, in collaboration with the Village of Cape Vincent and the Lake Ontario Fisheries Coalition, reared and stocked over 122,000 summer fingerling walleye in 2006. Walleye brood stock were collected from Mud Bay in Eastern Lake Ontario. Walleye were stocked at three Lake Ontario and four St. Lawrence River sites, and averaged 1.7 in. in length at time of stocking.

Walleye hatching jars

Region 6

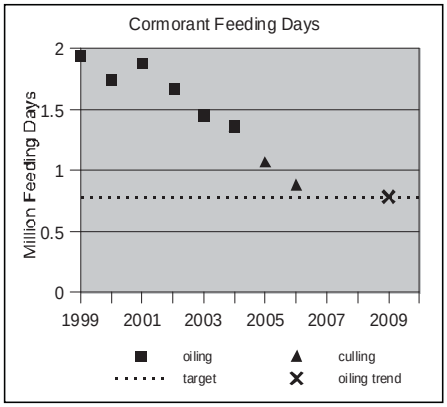
Enhanced Survival of Stocked Salmonids

Fisheries and Operations staff, along with fish culture staff and a contract vessel operator stocked 48,000 domestic brown trout into Lake Ontario off Stony Point, Jefferson County. Fish were stocked off-shore by landing craft in order to minimize losses due to bird and fish predation. Brown trout are stocked to support a fishery.

Cormorant Management

The goals of cormorant management in eastern Lake Ontario are: 1) restoring the structure and function of the warmwater fish community 2) reducing the negative impacts of Double-crested Cormorants on nesting habitats and other colonial waterbird species. 3) improving the quality of smallmouth bass and other fisheries and 4) fostering a greater appreciation for Great Lakes colonial waterbird resources. Management of cormorant colonies in NY has involved egg oiling, nest removal, harassment of migrant cormorants and habitat modification. Lethal control of adults has been applied for several years. Results of cormorant management at Little Galloo Island include: 1) reduced cormorant reproductive success by 95+% 2) reduced overall fish consumption, especially yellow perch 3) reduced consumption of smallmouth bass. In recent years much of the cormorant predation has focused on round goby.

Figure 4. Cormorant Feeding Days



Creel and Angler Surveys

Central Office- Biological Survey Unit

2007 New York Statewide Angler Survey

In order to manage New York's fisheries in ways that maximize human benefits, comprehensive information is needed periodically on the fishing patterns, preferences, and attitudes of anglers as well as the economic benefits of New York's fisheries. Such information is most efficiently obtained from a statewide mail survey of anglers. The Bureau has not conducted a study of this type since 1996. Numerous changes in regulations, stocking, and fish populations over the past decade warrant that a new survey be developed and deployed to garner information for effective management.

In 2006 a seven person team developed the angler survey. The primary goal was to develop a survey that would be less lengthy than those of the past and which would yield a higher response rate amongst surveyed anglers. In the end the team developed a total of 16 questions to gather key information and to evaluate progress toward meeting Bureau management objectives. The Bureau also entered into a contractual agreement with professionals from the Human Dimensions Resource Unit of Cornell University to refine the questionnaire, define the sampling pool, implement the survey and aid in the analysis of collected data.

Roughly 54,000 anglers will be randomly selected from the Department's automated licensing system (DECALS) to receive surveys. Unlike previous surveys that asked anglers to remember fishing experiences for an entire year, the 2007 survey will be conducted in three phases to minimize the time horizon for recollection and hopefully reduce the amount of bias associated with long-term recall. The phase one mailing to 17,000 anglers will take place in June of 2007. Subsequent mailings will take place in the fall and winter of 2007. A final report on the results of the survey will be available in the spring of 2009.

Region 1

Suffolk County Trout Stocked Waters Creel Census

The Region 1 Fisheries Unit initiated a Creel Census of eight trout stocked waters in Suffolk County in the fall of 2006. The program objectives for this two year survey are:

1. Determine angler use, speciestargeted, catch composition, catch rates and harvest rates from trout stocked ponds in Suffolk County.

2. Determine angler use and harvest from fall stocked waters in the fall and winter.

3. Determine angler attitudes and satisfaction levels with fishing quality and fish management policies in trout stocked ponds in Suffolk County.

4. Determine compliance with the current fishing regulations. Provide education on the purpose and need for those regulations.

5. Determine numbers of Canada geese and double crested cormorants utilizing survey waters.

Project results for the reporting period:

- From October 7, 2006 to March 31, 2007, 1,777 count surveys were completed and 124 anglers interviewed. Count surveys were performed each visit at each lake and include counts of Canada geese, double crested cormorants, and anglers by shore, wading, boat, and ice. Figure 1 shows the average number anglers counted by angling type observed for each lake/pond and river. Randall Pond was the only freshwater where an ice angler was observed and interviewed.
- From October 8, 2006 to March 31, 2007, the NYSDEC Region 1 Fisheries Unit interviewed 124 anglers. Of the interviewed anglers, 71.2% (N=118) were at least satisfied with the sizes of fish caught, and 64.4% (N=118) were at least satisfied with the numbers of fish caught.
- The proposed trout regulation states "The current trout season for this water body is year-round with a catch limit of 3 trout per day of any size (except Nissequogue River - 3 trout per day, minimum length 12 in). The Department is considering creating a period of catch and release only for trout fishing immediately after stocking for X amount of time (in weeks)." Seventy-nine percent (N=82) of the interviewed anglers are in support of this change. Seventy-four percent of those in agreement with this proposal would like to see the catch and release fishing for 4 weeks.
- Table 8 shows CPUE's, HPUE's, and total amount of angling hours when trout were targeted for each of the surveyed lakes through April 17, 2007. As the table shows, Upper Yaphank Lake had the highest amount of angling hours exerted by anglers, Sayville Mill Pond had the highest average CPUE, and West Lake was the only lake where trout were harvested.

Table 8. Trout fishing effort by lake. Data collected are preliminary at this time. Sample size (n) represents total amount of anglers interviewed at the corresponding lakes

Lake Name	Total fishing effort (hrs)	Average CPUE (trout/hour)	Average HPUE (trout/hour)	Sample size (n)
Canaan Lake	2.1	0	0	1
Swan Lake	2.8	1.2	0	3
Sayville Mill Pond	9.8	5	0	4
Randall Pond	13	1.2	0	14
Kahlers Pond	31.1	0.1	0	7
Nissequogue River	51.5	0.04	0	26
Lower Yaphank Lake	60.9	0.1	0	15
West Lake	129.1	0.5	0.6	17
Upper Yaphank Lake	144.1	0.3	0	44

Region 4

Delaware Tailwaters Angler Diary Program

The West Branch Delaware River (West Branch) downstream of Cannonsville Reservoir, the East Branch Delaware River (East Branch) downstream of Pepacton Reservoir, and the Delaware River from Hancock to Callicoon comprise the upper Delaware Tailwaters, a unique fisheries resource in New York. Coldwater releases from Cannonsville and Pepacton Reservoirs have resulted

in popular, high quality trout fisheries totaling 75 miles. A multi-year angler diary program was established in 2002 to monitor the fishery throughout the Delaware Tailwaters. The objective of this study is to monitor trout catch rates, species composition, and size distribution for the West Branch, East Branch, and Delaware River.

During the 2006 trout season, 41 angler cooperators made 788 trips throughout the Delaware Tailwaters totaling 1,988 hours. Cooperators caught 78 hatchery brown trout, 942 wild brown trout, 136 rainbow trout, 9 brook trout, and 1 tiger trout for an overall Delaware Tailwaters catch rate of 0.61 trout per hour. This was down from the 0.83, 0.84 and 0.70 trout per hour recorded in 2003, 2004, and 2005, respectively.

West Branch cooperators made 450 trips totaling 1,101 hours and they caught 710 trout of which 482 were legal size (≥12 in). Brown trout comprised 93% of the catch. The riverwide catch rate averaged 0.65 trout per hour and 0.44 legal trout per hour. Approximately 22% and 8% of all trout caught were 18 inches plus and 20 inches plus, respectively. The West Branch is not stocked.

East Branch cooperators made 229 trips totaling 452 hours and they caught 318 trout of which 170 were legal size (≥12 in). The riverwide catch rate averaged 0.70 trout per hour and 0.38 legal trout per hour. In the upper East Branch (upstream of the Beaver Kill), anglers averaged 0.78 trout per hour compared to the 0.49 trout per hour in the lower East Branch (downstream of the Beaver Kill). Approximately 11% and 4% of all trout caught were 18 inches plus and 20 in plus, respectively. Brown trout comprised 89% of the total catch of which 24% were hatchery brown trout. The upper East Branch is stocked with approximately 1,500 yearling and 800 two year old brown trout annually.

Delaware River cooperators made 109 trips totaling 344 hours and they caught 138 trout of which 99 were legal size (≥14 in). The riverwide catch rate averaged 0.40 trout per hour and 0.29 legal trout per hour. Approximately 22% and 5% of the trout caught were 18 in plus and 20 in plus, respectively. The Delaware River is not stocked and brown trout comprised 54% of the trout catch.

Canadarago Lake Angler Diary Program

An angler diary program was established in 2004 on the 2,000 acre natural lake in Otsego County to assess the quality of the walleye and bass fishery. Eleven cooperators made 180 trips totaling 715 hours during the 2006 open water season. They caught 424 walleye, 27 largemouth bass, 22 smallmouth bass, 18 chain pickerel, and 1 tiger musky for an overall catch rate of 0.69 game fish per hour. In 2004 and 2005, cooperators averaged 0.33 and 0.42 game fish per hour.

Angler targeting walleye averaged 0.67 fish and 0.36 legal (≥ 15 in) fish per hour in 2006 compared to 0.41 fish and 0.30 legal walleye per hour in 2005. Sixty five percent of the 221 legal size walleye caught were creeled for a creel rate of 0.23 fish per hour. Walleye ranged from 7 to 24 in with an average length of 14.9 in and creeled walleye averaged 17.4 in. The high catch rate of walleye demonstrates that Canadarago Lake supports an excellent walleye fishery and this fishery should remain good to excellent in the coming years.

Targeted effort for bass was too low in 2006 to provide meaningful catch statistics. In 2004 and 2005, bass anglers averaged 0.33 and 0.70 bass per hour. The 2004 and 2005 effort indicated that the bass fishery has changed dramatically since similar studies were conducted from 1976 through 1980 and again in 1988 and 1989. During the 1976-80 study, the largemouth bass catch rate averaged 0.03 fish per hour (range was 0.02 to 0.05 fish/hour) and 0.55 smallmouth bass per hour (range was 0.39 to 0.65 fish/hour). In 1988 and 1989, the smallmouth bass catch rate was 0.44 and 0.20 fish per hour compared to less than 0.05 fish per hour for largemouth bass. Bass anglers in the 2004-05 study averaged 0.29 and 0.57 largemouth bass per hour and 0.04 and 0.13 smallmouth bass per hour, respectively. The reason for the shift from a bass fishery dominated by smallmouth bass, to one now dominated by largemouth bass is uncertain.

Schoharie Reservoir Diary Program

An angler diary program was established in 2004 on this 1,150 ac New York City water supply impoundment to assess the quality of the walleye fishery. Twelve cooperators made 60 trips totaling 223 hours during the 2006 open water fishing season. The low fishing effort recorded in 2006 was due to the extensive and extended drawdowns that were required to make emergency repairs to the dam. The intent was to maintain the water level at 60 feet below the crest of the dam from early spring into the fall which meant that the reservoir would have been at 20% capacity.

Despite the drawdowns, shore anglers targeting walleye averaged 0.35 fish per hour and 0.28 legal (≥15 in) fish per hour. The creel rate was 0.27 walleye per hour. The size of walleye caught by shore anglers ranged from 12 to 25 in with an average size of 16.5 in and 11% of the walleye were 20 in and larger. Boat anglers targeting walleye averaged 0.40 fish per hour and 0.36 legal fish per hour. The creel rate by boat anglers was 0.29 walleye per hour. The size of walleye caught by boat anglers ranged from 13 to 26 inches with an average size of 17.8 in and 18% of the walleye were 20 in and larger. Schoharie Reservoir supports a good to excellent walleye fishery.

The impact of the 2006 drawdowns on the Schoharie Reservoir walleye fishery is not known. There were no reports of any fish kills. The rainy summer and lack of any prolonged hot weather probably helped in minimizing any negative impacts. The 2007 cooperator study should help in better accessing the 2006 drawdown impacts.

Pepacton Reservoir Angler Diary Program

An angler diary program was established in 2004 on this 5,700 ac New York City water supply impoundment to assess the quality of the brown trout fishery. Shore angler cooperators made 125 trips totaling 565 hours and they caught 65 brown trout and six brook trout for an average catch of 0.13 fish hour and 0.06 legal (≥15 in) fish per hour. In 2004 and 2005, shore anglers averaged 0.20 fish per hour both years with 0.17 legal fish per hour caught in 2004 and 0.12 legal fish per hour caught in 2005. In 2006, the average

size trout caught averaged 14.9 inches. Shore anglers creeled 0.03 trout per hour averaging 16.8 inches.

Boat angler cooperators made 598 trips totaling 2,677 hours and they caught 791 brown trout and 2 rainbow trout for an average catch of 0.30 fish per hour and 0.23 legal fish per hour. The catch of 0.30 trout per hour in 2006 was almost identical to the 0.29 and 0.28 trout per hour recorded in 2004 and 2005, respectively. Brown trout 21 in and larger numbered 131 fish for an average catch of 0.05 large trout per hour. Boat anglers creeled 210 brown trout averaging 20.2 in for a creel rate of 0.08 trout per hour. The average brown trout caught averaged 17.0 inches with 78% of the brown trout caught legal size.

Pepacton Reservoir is stocked with approximately 10,000 yearling brown trout annually. Shore and boat anglers caught 335 adipose fin clipped brown trout ranging in size from 7 to 25 in. Fin clipped fish from the 2004-06 stocking represented 39% of the total brown trout catch. Hatchery holdovers from the 2004 and 2005 stockings represented 34% of the 646 legal size brown trout caught in 2006.

Cannonsville Reservoir

An angler diary program was established in 2004 on this 4,800 ac New York City water supply impoundment to assess the quality of the brown trout fishery. Shore angler cooperators made 31 trips in 2006 totaling 84 hours and caught 6 brown trout, of which four were of legal size for an average catch of 0.07 trout/h and 0.05 legal trout/h. In 2005, shore anglers averaged 0.17 trout per hour. Boat angler cooperators made 157 trips totaling 565 hours and they caught 82 brown trout for an average catch of 0.15 fish per hour and 0.13 legal (≥12 in) fish per hour. The 2006 catch rates for all size and legal brown trout were much lower than the 0.25 fish per hour and 0.19 legal fish per hour in 2005. Ninety-one percent of the brown trout caught were legal size, 27% were 21 in and larger; and 11% were 25 in or larger. Creeled brown trout averaged 18.5 in.

An experimental stocking program of approximately 5,000 brown trout yearlings annually began in 2005. All stocked fish were fin clipped. In 2006, 21 hatchery brown trout from 10 to 18 inches were caught and comprised 24% of the total brown trout catch. Nineteen of these 21 fish were holdovers from the 2005 stocking. The presence of holdover hatchery fish in the 2006 catch suggests that the adverse conditions present in 2005 still provided sufficiently favorable habitat for these hatchery fish to survive even though Cannonsville Reservoir was drawn down 59 ft to 26% capacity by October 10.

Schoharie Creek Angler Diary Program

A five year angler diary program was started in 2004 to assess the walleye fishery in the 48 mi reach of Schoharie Creek from lower Blenheim-Gilboa dam downstream to the Mohawk River. Unfortunately all cooperator effort was limited to the upper 32 mi which lies almost entirely within Schoharie County. Since only five cooperators participated in the 2006 program, targeted effort was too small to provide meaningful catch statistics so all effort and catch data were combined. In 2006, all cooperators combined averaged 0.13 walleye per hour compared to 0.11 and 0.08 walleye per hour in 2004 and 2005, respectively. In general, open water non-targeted catch rates of 0.05 to 0.10 walleye per hour is considered fair fishing, 0.10 to 0.25 fish per hour as good to very good and anything over 0.25 fish per hour as excellent walleye fishing. By these standards, Schoharie Creek provides fair to good walleye fishing. The average walleye caught measured 18.8 in.

Although the focus of this study was on walleye, the smallmouth bass catch rates were also of interest. Shore, boat, and all anglers combined averaged 0.88, 2.07, and 1.07 smallmouth bass per hour, respectively. The 237 smallmouth bass caught ranged from 5 to 20 inches and 56% were 12 in and larger, compared to 37% and 55% in 2004 and 2005, respectively.

The abundance of 12 in and larger smallmouth bass in 2004, 2005, and 2006 suggests that the premise for the no size limit on bass upstream of Esperance and a 10 in size limit downstream of Esperance is no longer valid. Implementation of the statewide 12 in size limit would be appropriate for all of Schoharie Creek downstream of lower Blenheim-Gilboa Dam. This regulation change will be discussed with the three county sportsmen federations following completion of this study in 2008.

Region 7

Otisco Lake Angler Diary Program

Angler participation in the Otisco Lake diary program increased substantially in 2006. Sixteen cooperators recorded effort from 316 trips and caught 477 legal gamefish. They were successful in catching at least one gamefish in 69% of their outings. Walleye fishing was very good with cooperators catching a total of 160 legal fish. Legal length gamefish caught by cooperators also included 99 smallmouth bass, 175 largemouth bass, 35 brown trout and eight tiger muskellunge. Of the legal gamefish caught, anglers harvested only 107 walleye, 14 smallmouth bass, 6 largemouth bass, and 16 brown trout.

2006 Cayuga Lake Angler Diary Program

Sixty-one coldwater cooperators caught 1,684 legal salmonids in 1,013 trips for an average of 1.7 fish per trip. Legal salmonids were caught at an average rate of 3.0 hours per fish. Coldwater lake cooperators were successful in catching at least one legal salmonid in 74 percent of their trips. Cayuga Lake coldwater cooperators caught 1,543 legal lake trout, 35 legal rainbow trout, 58 legal brown trout and 48 legal landlocked salmon. Catch rates for these species were 1.52, 0.03, 0.06 and 0.05 legal fish per trip while harvest rates were 0.71, 0.02, 0.03 and 0.03 legal fish per trip, respectively. Lake trout comprised 92 percent of the legal salmonid catch while rainbow trout, brown trout and landlocked salmon were two, three and three percent, respectively.

Fourteen Cayuga Lake warmwater cooperators caught 88 legal smallmouth bass, 59 legal largemouth bass, 19 legal northern pike and eight legal chain pickerel in 133 trips for an average of 1.3 legal warmwater gamefish per trip. A total of 30 smallmouth bass, 16 largemouth bass and one northern pike were kept by warmwater cooperators. The largest smallmouth bass, largemouth bass,

northern pike and chain pickerel caught were 19.0, 18.5, 40.0 and 18.0 inches, respectively. The north end of the lake produced all the pickerel while the south end produced all the northern pike and most of the smallmouth bass and largemouth bass.

2006 Owasco Lake Angler Diary Program
Thirty-six Owasco Lake coldwater cooperators caught 815 legal salmonids in 314 trips for an average of 2.6 legal fish per trip. Legal salmonids were caught at an average rate of 1.8 hours per fish. Coldwater lake cooperators were successful in catching at least one legal salmonid in 82 percent of their trips. Owasco Lake coldwater cooperators caught 777 legal lake trout, 31 legal rainbow trout, six legal brown trout and one legal landlocked salmon. Catch rates for these species were 2.47, 0.09, 0.02 and 0.003 legal fish per trip while harvest rates were 0.58, 0.04, 0.01 and 0.00 legal fish per trip, respectively. Lake trout comprised 95 percent of the legal salmonid catch while rainbow trout and brown trout were four and one percent, respectively.

Twelve Owasco Lake warmwater cooperators caught 33 legal walleye, 48 legal smallmouth bass, 21 legal largemouth bass and seven legal northern pike in 108 trips for an average of 1.0 legal fish per trip. A total of 29 walleye, 17 smallmouth bass and one largemouth bass were kept by our cooperators. The largest walleye, smallmouth bass, largemouth bass and northern pike caught were 26.5, 21.0, 18.3 and 32.5 inches, respectively. Burtis Point and the north end produced most of the walleye, smallmouth bass and largemouth bass while the south end produced most of the northern pike.

2006 Skaneateles Lake Angler Diary Program
Thirty-six Skaneateles Lake coldwater cooperators caught 686 legal salmonids in 519 trips for an average of 1.3 fish per trip. Coldwater cooperators were successful in catching at least one legal salmonid in 66 percent of their trips. Legal salmonids were caught at an average rate of 2.9 hours per fish. Skaneateles Lake coldwater cooperators caught 321 legal lake trout, 276 legal rainbow trout, one legal brown trout and 88 legal landlocked salmon. Catch rates for these species were 0.62, 0.53, 0.002 and 0.17 legal fish per trip while harvest rates were 0.30, 0.31, 0.00 and 0.11 legal fish per trip, respectively. Lake trout comprised 47 percent of the legal salmonid catch while rainbow trout and landlocked salmon were 40 and 13 percent, respectively. The benefits of increased salmon stocking were noted in the 2006 lake catch. An additional 64 sub-legal salmon were caught and released which suggested good salmon fishing would likely continue in 2007.

Three Skaneateles Lake warmwater cooperators caught 80 legal smallmouth bass in 28 trips for an average of 2.8 legal fish per trip. Sixty-two of these fish were harvested by our cooperators. The harvested smallmouth bass averaged 14.8 in and the largest was an impressive 20.0 in.

To achieve uniformity with the other Finger Lakes and to be consistent with the increased abundance of 12 in and larger bass, the minimum legal length of Skaneateles Lake smallmouth bass and largemouth bass was increased from 10 in to 12 in on October 1, 2006.

Region 8

Conesus Lake Angler Diaries
Fishing effort by angler diary cooperators in 2006 was the lowest of the six years the Conesus Lake diary program has been in existence. The lowest number of days fished and angler trips were recorded in 2005-2006. It took diary-keeping anglers 1.78 hours to catch one legal game fish. This catch rate is a result of an abundant largemouth bass population. For anglers targeting largemouth bass, the catch rate was 0.79 legal bass/hour, which is better than the statewide average of 0.26 legal bass/hour. Largemouth bass dominated the catch with 81% of the total game species caught. The largemouth bass catch was composed of 98% legal sized (>12 in) fish. Of the legal largemouth bass caught, all but one were released. Although the majority of the bass were less than 15 in, anglers did catch some memorable fish with 26 largemouths greater than 18 in caught. Smallmouth bass comprised 10% of the total game fish catch, all were legal size, and all were released. Nine (24%) of the smallmouths caught were larger than 18 in. Northern pike made up a smaller portion of the total game fish catch than last year (6% down from 21%). Eighty four percent were legal size, with creeled fish averaging 27.3 inches. Diary keepers caught two northerns greater than 36 in. Tiger muskies made up only 1.0% of the game fish catch, with 5 of them caught and released by diary anglers. The tigers caught averaged 24.5 in. in length. Walleye made up only 2% of the total game fish catch with fish averaging 22.7 in. in the creel. All walleye caught were legal size. These numbers are similar to previous years. Anglers specifically targeting walleye caught 0.11 walleye per hour- less than the best catch rate of 2003-2004, but similar to other years. This is about half of the New York State objective of 0.2 walleye per hour, or one legal walleye for every five hours of fishing. Only 72 panfish were caught by diary keepers. All were caught by anglers who were after any game fish, or not specifically targeting any species of fish. Most were caught by bass fishermen. Catch rates for panfish species (i.e. perch, bluegill, pumpkinseed, and rock bass) were good, even though they were not targeted by those anglers. Most of the panfish catch was represented by rock bass (86%), black crappie (8%) and bluegill sunfish (69%). No yellow perch were reported.

Honeoye Lake Angler Diary 2006
This was the 18th consecutive year for the Honeoye Lake Angler Diary program. Four hundred forty two fishing trips were recorded, the lowest number ever. Anglers averaged only 0.95 hours to catch one legal gamefish. This is the best catch rate observed since this angler diary program began. Largemouth bass represented 93% of all gamefish caught. Anglers specifically targeting bass caught 1.83 legal bass/hour, a slightly higher catch rate than last year. The average length of harvested largemouth bass was 14.4 in. Several trophy-sized largemouth bass were caught with six fish over 20 in. in length reported. Honeoye Lake is providing great bass fishing opportunities in Region 8.

This year 167 walleye were reported, slightly more than last year. Anglers specifically targeting walleye caught 0.16 walleye/hour, slightly lower than the catch rate objective for New York waters. Catch of larger walleye decreased from the previous year with 14% of walleye with recorded lengths greater than 20 in. One walleye

greater than 27 in was reported. This was the first time a fish this large has been reported since at least 2000. More walleye smaller than the legal 15 in were reported this year, with almost half of all reported walleye sub-legal. These sub-legal walleye should be contributing to the fishery in the coming years. Approximately 20% of all walleye were caught through the ice, down slightly from last year. Honeoye Lake is providing anglers with walleye catch rates comparable to other New York waters.

Oatka Creek Creel Survey Report Completed

The report for this Federal Aid funded survey was completed and submitted for Bureau review. The abstract is:

Oatka Creek is a high quality western New York trout stream. Fisheries resources in certain areas within the stream are managed by stocking hatchery raised yearling and two-year-old brown trout. Another section of the stream is managed for wild, naturally produced brown trout with restrictive harvest regulations. The trout fishing regulations in a portion of the wild area were changed from a high size and low creel limit to a no kill regulation on October 1, 2000. The trout fishing regulation in the stocked area was changed on October 1, 2002 from a no size and liberal creel limit to a regulation that limits the number of large trout that can be harvested (5 per day any size with no more than 2 larger than 12 in, known as the "5/2" regulation). Creel censuses were conducted prior to (2000), immediately after (2001) and three years after (2004), the regulation changes. The 2000 and 2001 surveys found that immediately after implementing a no kill regulation, total angler effort, total catch, and total harvest over both survey areas (wild and stocked) increased proportionally similar among management types and months. Catch rates remained the same between the two years among management types and months and harvest rates in the stocked areas were the same. As expected, harvest rates in the wild area immediately dropped from a low rate to nearly zero, but the near zero harvest rate unexpectedly did not persist in 2004. In 2004, effort in the wild area was slightly higher than 2000. It is not likely that the no kill regulation alone induced higher fishing pressure in the wild area, since effort was higher in both the stocked and wild areas in 2001 compared to both 2000 and 2004. Favorable air temperature and stream flow conditions were probably the reason why higher angler effort occurred in 2001, immediately after the no kill regulation change, because both 2000 and 2004 had unfavorable weather and stream flow conditions. The 2000 and 2001 surveys also determined that under the right weather and flow conditions, anglers targeting the larger stocked two-year-old brown trout were very successful at catching and creeling these fish immediately after they were stocked. Stocked area effort, catch, and harvest in 2004 were the lowest of the three survey years. The 2004 catch and harvest of large (>12"TL) brown trout from the stocked area were also the lowest of the three years surveyed. In 2004, the wild area catch and catch rates of large brown trout were the same as 2000 and 2001. The no kill regulation did not increase the density of anglers, the catch rate of, or the number of anglers catching, large brown trout in the wild area. The "5/2" regulation may have caused reduced angler effort, catch, and harvest rates of large brown trout, but does not appear to have appreciably spread the harvest of large brown trout among more anglers over a longer period of time in the stocked area.

Canadice Lake Angler Diary Program 2006

This was the first year that the Canadice Lake Angler Diary cooperator program was conducted since 1994. Eleven cooperators reported 73 trips. Anglers targeting any salmonid averaged 2.8 hours to catch one legal salmonid. This catch rate is higher than any of the previous angler diary catch rates from 1980 through 1994 for Canadice Lake. Lake trout represented 87.3% of all trout caught. A total of 110 lake trout were caught and only 44 were harvested. A total of 16 brown trout were caught and only two were harvested. No rainbow trout were reported in 2006. Canadice's trout population is maintained by annual stockings of 2,100 yearling lake trout, 2,500 yearling brown trout, and 2,500 yearling rainbow trout. Significant natural recruitment of lake trout has been found in the past.

Canandaigua Lake Angler Diary Program 2006

This was the 34th year of the Canandaigua Lake diary cooperator program. A total of 599 legal-sized lake trout were caught in 2006. It took 1.6 hours to catch one legal sized trout. The same as last year. For comparison, diary cooperators on Keuka and Seneca Lakes average 1.3 and 1.7 hours, respectively to catch one legal trout. Lake trout continue to be the driving force behind the coldwater fishery representing 91% of all trout caught. Anglers specifically targeting lake trout took only 1.1 hours to catch a legal lake trout, up slightly from last year when it took only 1.0 hours. Length and weight of lake trout averaged 21.4 in and 3.6 lbs, very similar to the 30-year average. June, July, and August provided 52% of the lake trout catch. Rainbow trout, Canandaigua Lake's only completely wild salmonid species, averaged 20.3 in and 3.5 lbs in the 2006 catch, slightly higher than recent years. The rainbow trout population is supported entirely by natural reproduction with Naples Creek being the main nursery stream. These trout typically spend two growing seasons in high quality tributaries before migrating downstream to Canandaigua Lake.

Hemlock Lake Angler Diary Program 2006

This was the first year that the Hemlock Lake Angler Diary cooperator program was conducted since 1994. Seventeen cooperators reported 172 trips. Anglers targeting any salmonid averaged 12.4 hours to catch one legal salmonid. This catch rate is similar to those reported in the past from Hemlock Lake angler diaries. Lake trout represented 44.1% of all trout and salmon caught. A total of 45 lake trout were caught and only four were harvested. A total of 36 brown trout were caught and only 14 were harvested. Rainbow trout and landlocked salmon diversified angler catches. Some large fish were reported from Hemlock Lake in 2006. The four harvested lake trout averaged over 8 pounds. Hemlocks's trout and salmon population is maintained by annual stockings of 3,200 yearling lake trout, 6,600 fingerling lake trout, 5,000 yearling brown trout, and 4,100 fingerling landlocked salmon. The Regional Management Unit is currently evaluating the extent of rainbow trout natural reproduction in Springwater Creek and its contribution to the fishery.

Warmwater gamefish were included in 2006. Anglers averaged 4.4 hours to catch a legal gamefish. A total of 89 smallmouth bass were caught and only four were harvested. A total of 4 largemouth bass were caught and none harvested. Twenty-four walleye were

caught and 20 were harvested. Anglers who were specifically targeting walleye averaged 14.4 hours to catch a legal walleye.

Keuka Lake Angler Diary Program 2006

Initiated in 1968, Keuka Lake is the longest running angler diary program in Region 8. A total of 1,096 legal sized lake trout were caught in 2006. Catch rate of legal sized trout was very similar to recent years with anglers taking only 1.3 hours to boat a legal salmonid. For comparison, diary cooperators on Canandaigua and Seneca Lakes' average 1.6 and 1.7 hours, respectively to catch one legal trout. Lake trout continue to be the driving force behind the coldwater fishery representing 98% of all trout caught. Anglers specifically targeting lake trout took only 1.4 hours to catch a legal lake trout, slightly higher than recent years but still an excellent catch rate. The lake trout population in Keuka Lake is sustained entirely by naturally reproduced fish. Other trout and salmonids contributed very little to the overall fishery, although they continue to provide some diversity to anglers' catches. The rainbow trout population is completely dependent on natural recruitment, which occurs mainly in Cold Brook. Surveys have shown that Cold Brook supports an abundant population of young rainbow trout. However, as these young rainbow trout migrate to the lake, they are preyed upon heavily by the abundant lake trout population and other salmonine species. Bond Act monies have been allocated for work on Cold Brook to improve the stream habitat via rock rip-rap, willow plantings and construction of pool diggers. Work began this year and should be completed in 2007. In addition to the Bond Act project, preliminary work is being conducted to evaluate the causes and potential solutions to problematic conditions of the stream channel near the Mercury Aircraft plant upstream of Hammondsport.

Seneca Lake Angler Diary Program 2006

A total of 1,677 legal sized lake trout were caught in 2006. Of these, 769 or 46% were harvested. Catch rate of legal sized trout was very similar to recent years with anglers taking 1.7 hours to boat a legal salmonid. For comparison, diary cooperators on Canandaigua and Keuka Lakes average 1.6 and 1.3 hours, respectively to catch one legal trout. Lake trout continue to be the driving force behind Seneca's coldwater fishery representing 90% of all trout caught. Anglers specifically targeting lake trout took only 1.2 hours to catch a legal lake trout. Length and weight of lake trout kept averaged 21.8 in and 3.5 lbs and was slightly higher than recent years. Estimates from recent surveys indicate the natural recruitment rate accounts for approximately 60-70% of the fish that have been surveyed. Continued increases in natural recruitment may allow for a decrease in lake trout stocking in future years. Other trout and salmonids contributed little to the overall fishery, although they continue to provide diversity to anglers' catches. Anglers caught a total of 98 Atlantic salmon, harvesting approximately 61% of legal fish caught. The rainbow trout harvest was the highest in recent years. The rainbow trout population is completely dependent on natural recruitment, which occurs mainly in Catherine Creek.

Creel survey being conducted

Habitat Management, Protection and Restoration

Region 1

Peconic River Invasive Species Control

The Region 1 Fisheries Unit worked with the Peconic Estuary Program (PEP), The Nature Conservancy, the Freshwater Anglers of Long Island, and the Peconic Lake Estates Civic Organization to develop a plan for removal of *Ludwigia peploides*, also known as floating primrose willow, from the Peconic River. This plant, a South American native, was discovered in Peconic Lake, the largest impoundment on the Peconic River, in 2003. By the summer of 2005, the plant had overrun much of the lake's native vegetation and spread downstream to the head of the tidewater. The PEP with the assistance of the Regional Fisheries Unit applied for and received a grant for this project through the DEC's Aquatic Invasive Eradication Grant Program.

Ludwigia removal

The original plan called for two days of manual removal of the invader each year for three years, In 2006 the scheduled manual removal days were June 10 and August 19. On June 10, a total of 61 DEC staff and volunteers descended upon the water removing enough of the invasive species to fill a 20 cubic yard dumpster. On August 19, Fisheries staff and volunteers, about 50 individuals, pitched in to remove nearly 40 cubic yards of Ludwigia from about 55% of the infested shoreline of Peconic Lake.

Although several large patches were not removed during the two days of removal, most of the small patches around the lake were, including several near the spillway. This removal helped to prevent the further spreading of Ludwigia downstream.

The good news is that the areas that were cleared in June had not grown back in August. Based upon the removal results in Peconic Lake, extra removal days were scheduled for 2007. The August removal was moved into July to get the removal completed before the plants go to seed and to get in ahead of the massive biomass increase during the heat of the summer.

Regional Fisheries Unit staff also assisted with an additional manual removal operation of Ludwigia downstream from Peconic Lake. This operation was coordinated by the Peconic River Fish Restoration Commission with help from the Town of Riverhead and concentrated on Grangable Park, immediately above the tidewater and the spillway at Upper Mills Pond in between Peconic Lake and Grangable Park. This effort resulted in the removal of about 5 cubic yards of the plant from these areas.

Region 5

Sediments released from a dam on the Chateaugay River impact excellent trout habitat

On about September 5, 2006, a drain gate at the Chasm Hydro dam on the Chateaugay River in Franklin County was opened, allegedly causing the release of large quantities of sand and silt downstream. The Chateaugay River in this area was a very high-quality trout stream. Law enforcement, Water Quality and Fisheries staff investigated the complaint. Staff observed the impoundment behind the dam had been drained to perform repairs to the dam. A plume of sediment extends for more than three miles downstream. The sediment consists of a light brown fine, silty sand and a black organic muck. Pools were filled with sediment, and sediment covered the rocks and adjacent banks. Estimates indicate that about 4,000 cubic yards of sediment had been discharged, significantly damaging the river's ecosystem. Clean-up efforts by suction dredging were authorized by the Department on three pools in the river where about 50% of the sediment had accumulated. An estimated 200+ cubic yards of sediment were removed from the river before high flows from heavy rains in late October scoured most of the remaining sediment and carried it downstream toward the Canadian border. The Chasm Hydro Partnership has been served with an official Notice of Complaint from the Department and an adjudicatory hearing is anticipated.

Program initiated to reduce impacts of road culverts on stream biota

If installed improperly, road culverts can have significant negative impacts on stream fishes. Culverts can become barriers to natural movements of fish, blocking access to critical spawning, summer, or winter habitats. Also, undersized culverts are likely to wash out during large storm events. Such washouts damage stream habitat and pose risks to people using the road. To improve road culvert design and installation, an Interagency Culvert Workgroup was formed, including representatives from the Department of Transportation, the US Fish & Wildlife Service, Army Corps of Engineers, DEC, and Adirondack Park Agency. The intention is to formulate guidelines on sizing, installation methods, and natural resource protection. The guidelines would be used by government agencies and landowners involved with installing culverts

Many tons of mining overburden enter the Hudson River

A slope failure at the Glens Falls Lehigh Cement Company sent rock, clay, soil and vegetation into the Hudson River downstream of the City of Glens Falls. Department staff and the US Army Corps of Engineers conducted inspections and held numerous meetings with representatives from the facility. An estimated 30,000 cubic yards of waste slumped off a large, overburdened stockpile area for the cement mine. Negotiations are leading towards a settlement that will include removing the material from the river, and stabilizing upland material.

Region 6

Grass Carp
Otter Lake in Oneida County was stocked with triploid grass carp after several years of environmental studies and review, as well as repair of the dam necessary to keep the fish in the lake. As part of the permit, the lake will be monitored for 5 years to document changes. Many lake residents believe the fish have reduced the plant population already.

Post stocking inspections and interviews of landowners of ponds stocked with grass carp in Herkimer and Oneida Counties at the maximum allowable rate of 15 fish per acre has shown that aquatic vegetation has been drastically reduced in most cases. Fish stocked at 10 fish per acre are providing more desirable results. Most of the applicants want the aquatic weeds controlled not eliminated.

Environmental Protection
The extensive flood damage in Herkimer and Oneida Counties in late June required an emergency response of Fisheries staff to review the nearly 50 expedited permits authorized by the DEC. Staff also spent many hours assisting landowners who suffered flood damage but ultimately did not take any corrective action for various reasons. Major damage was done on East Canada Creek, Fulmer Creek, Moyer Creek, and Steele Creek. Staff also manned a booth at the emergency coordination center established by FEMA and New York State for several days.

Windpower
Staff reviewed a Draft Environmental Impact Statement for the proposed St. Lawrence Windfarm. This proposed 96-turbine facility would be located in the Towns of Cape Vincent and Lyme. The Project also would result in the construction of approximately 29 mi of gravel access roads, 44 mi of underground interconnect cables, an electrical substation, and an operations and maintenance building.

Staff also reviewed a Draft Generic Environmental Impact Statement for the proposed Horse Creek Windfarm. The proposed 62-turbine windfarm would be located in the Towns of Clayton and Orleans. The Project also would result in the construction of approximately 16 miles of gravel access roads, 28 miles of underground interconnect cables, an electrical substation, and an operations and maintenance building.

French Creek Wildlife Management Area
A cooperative project between Region 6 DEC, the USFWS, and SUNY ESF to restore wetland habitat for both fish and wildlife is currently underway. This project will utilize passive restoration techniques rather than the construction of an active flow-control device that would impede the connectivity of the French Creek System to the St. Lawrence River.

Region 7

Ninemile Creek Habitat Improvement Project
Work was completed on a habitat improvement project which began in 2005 and utilized over $40,000 of Environmental Damages money that was derived from a major pollution violation which had occurred in Ninemile Creek. The project was a cooperative effort that utilized staff and/or equipment from the NYS Department of Transportation, Village of Marcellus Public Works, Town of Marcellus Public Works, U.S. Fish and Wildlife Service, and Region 7 Fisheries staff. Overall, nearly 3,400 ft of stream was renovated to address issues which included bank erosion, bridge scour, exposed water lines, and poor fish habitat. "Natural Stream Design" techniques were utilized throughout the work area and nearly $20,000 in extra heavy stone was used to make numerous cross vanes, j- hooks, rock vanes, and boulder clusters. Most of the rock work was completed in August 2005 but nearly $8,000 worth of willows were planted under contract with SUNY ESF in the spring 2006.

Ninemile Creek Restoration

Willow Planting
Region 7 staff distributed 9,000 willows, raised at the New York State Nursery, to various organizations for planting on trout streams throughout the Region.

Region 8

Cold Brook Aquatic Habitat Restoration Project
In October 2002, this project was awarded Clean Water Clean Air Bond Act funds during the 2001-2002 appropriation cycle. In October 2006, construction began on the downstream-most sites. Improvements include stream bank stabilization via rock rip-rap, willow plantings and construction of pool diggers and fish passage enhancement. The majority of the project sites will be constructed in the summer of 2007. In addition to the Bond Act project, preliminary work is being conducted to evaluate the causes and potential solutions to problematic conditions of the stream channel near the Mercury Aircraft plant upstream of Hammondsport.

Region 9

Wiscoy Creek Stream Restoration
Repairs were completed to a stream bank restoration project on Wiscoy Creek in Wyoming County, partially funded by Habitat/Access Stamp monies. Tree revetments and a tapered flood plain had been utilized to fix a badly eroding length of stream bank in August 2005. Severe flooding in the fall and winter since the project was completed caused damage to the revetments and flood

plain. On April 10-11, staff, along with Trout Unlimited volunteers and the Wyoming County SWCD, anchored the tree revetments and installed angular rock to prevent further problems at the site. The undercut tree revetments are providing excellent trout habitat while the rock is protecting the toe of the stream bank from erosion. Willow live posts were installed behind the rock and the entire flood plain was also planted with shrubs and trees in late April.

Wiscoy Creek Restoration

Habitat Management, Protection and Restoration

Staff completed settlement negotiations with the New York Power Authority (NYPA) on the Federal Energy Regulatory Commission re-licensing of the Niagara Power Project, one of the largest hydro power facilities in North America. The operation of the facility causes water fluctuations in the upper Niagara River that impact fish and wildlife species and habitat. The settlement consists of constructing 8 Habitat Improvement Projects (HIPs) estimated in 2007 dollars to cost 12 million dollars, an enhancement and restoration fund of 1 million dollars per year, land acquisition fund of 1 million dollars and improvements at 3 public access sites.

Staff worked with DOT on a number of projects:

- A wetland mitigation area built in the 1980s for wetland losses caused by the construction of I-86 was restored and enhanced. The project in this 40 ac site included reestablishing the hydrology in the wetland ponds, deepening a fishing pond, placing fish attraction structures, a 100 ft plastic wood fishing platform with accessible ramp, 2 osprey nest platforms and a blacktop walking path.

- A hands-on workshop on stream stabilization and restoration was presented. The workshop introduced nearly 60 DOT, county and local township highway staff to bank stabilization, bio engineering, re-directive methods to restore/create fish habitat, control erosion and thalweg management. The week long workshop stabilized 350 ft of stream and protected an equal length of highway in Allegany county.

- A stream restoration and enhancement mitigation project on a trout stream in Cattaraugus county was designed. The work on the 2,500 ft reach of stream is required for impacts associated with the first phase of the Rt. 219 expansion project. The project involves raising the streambed to reconnect it with its floodplain and preventing an adjacent wetland from draining, creating a more balanced riffle/pool spacing, buffer areas, vernal pools, and bank erosion protection. Project completion is scheduled for the summer of 2007.

Staff worked with the local county Soil and Water Conservation District to obtain Great Lakes and Fish America grants for stream bank restoration, habitat enhancements, thalweg management for flooding and ice jams, and fishing access improvements along a 750 foot reach of Chautauqua Creek, a trout protected tributary of Lake Erie. The project included bank stabilization, bio-engineering, thalweg management using bendway weirs, hydraulic cover stones and holding/resting pools for migrating steelhead and brown trout and a stoned walking path.

Staff participated in a culvert workgroup involving representatives from DOT, Army Corps of Engineers, Adirondack Park Agency and US Fish and Wildlife staff. The goal of the workgroup is to develop a standard protocol for culvert installation that will not impede movement of both aquatic and terrestrial species,while meeting the needs of transportation safety.

Extension, Education and Outreach

Central Office- Public Use & Outreach Section

Free Fishing Days/National Boating and Fishing Week

Each year up to 4 Free Fishing Events can be designated by the Department of Environmental Conservation in each DEC region. These events not only provide an opportunity to experience fishing without the need to purchase a fishing license, but also provide a mechanism for beginning anglers to learn basic fishing techniques. Fifteen free fishing events were held throughout the state in 2006. Several other events were held on June 23 and 24, New York's free fishing weekend.

Table 9. 2006 Free Fishing Events

Region/County	Date	Location
Region 1	April 1, 2006	Belmont Lake State Park
	August 12, 2006	Hempstead Lake State Park
	October 21, 2006	Hempstead Lake State Park
Region 2	April 22, 2006	Crotona Park
	October 7, 2006	Crotona Park
Region 6	May 13, 2006	Wilson Hill Causeway & Boat Launch
	May 20, 2006	Remington Pond
	June 3, 2006	Sauquoit Creek, Washington Mills Athletic Park
	July 15, 2006	Cranberry Lake & Oswegatchie River (Cranberry Lake Campground)
Region 7	April 29, 2006	Tunison Laboratory- Gracie Road, Cortland
	May 13, 2006	Mill Run Park, Whorrall Pavilion- Mill Street, Manlius
	June 11, 2006	Falcon Sportsmen Club- Turnpike Road, Auburn
	September 23, 2006	Nathanial Cole Park- 1674 Colesville Road, Harpursville
Region 8	May 18, 2006	Powder Mill Park- Powderhorn Lodge
Region 9	June 3, 2006	Hyde Park Lake, Niagara Falls
	June 3, 2006	Letchworth State Park
	June 10, 2006	Tift Farm
	June 17, 2006	Forness Park, Olean

Brochures and Publications

Two new brochures have been added to the Bureau of Fisheries inventory. "Career Opportunities in the Division of Fish, Wildlife & Marine Resources" was updated from a previous version. The full-color trifold brochure contains information for individuals interested in pursuing a career in natural resources. Also produced was a "Fishes of NY" tip-strip. Requested by Doug Carlson, this strip was designed to inform people of sources of information on the various fishes of New York State. The strip contains a "quiz" where people can match up questions about a fish species with the associated image of that species. The intention is get people to visit the two main web addresses that house information on the fishes of NYS - the DEC Freshwater Fisheries web page and Cornell's Inland Fishes of NY web page.

The Angler Achievement Awards brochure was updated and reprinted in March 2007. The one color trifold brochure contains information on the program, along with rules and an entry form.

Angler Achievement Awards

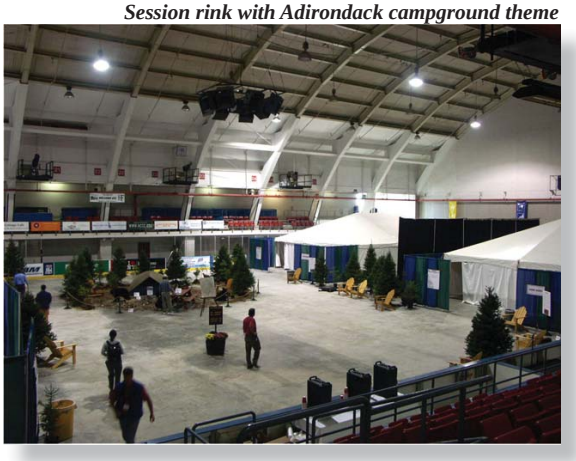
The Angler Achievement Award program, which recognizes anglers catching trophy fish in New York waters, continues to be a very popular outreach effort. Awards and/or recognition is provided to anglers catching popular New York fish species that exceed minimum qualifying criteria. In total, 177 entries were received during FY 2006-2007. Sixty-six percent of the entries received were Catch and Release entries. One new State Record was established during the period: a 4 lb. 15 oz. brook trout caught by Jesse Yousey in the Five Ponds Wilderness Area in Herkimer County. A summary of the award winners for the past 6 years, along with applications and entry information, can be found at: http://www.dec.ny.gov/outdoor/7980.html

58" muskellunge caught from the St. Lawrence River

136th Annual Meeting of the American Fisheries Society- A Resounding Success

After 4 years of planning, the 136th Meeting of the American Fisheries Society was successfully completed during the period September 10-14, 2006. Attendance exceeded all expectations with approximately 2,000 attendees finding their way to Lake Placid. This makes the 136th Annual Meeting the largest ever held in the lower 48 and second largest in AFS history. This is particularly significant considering the relative inaccessibility of this location in comparison to past big city AFS meeting locations. All aspects of the meeting, including technical sessions and social events went extremely smoothly thanks to careful planning and oversight by the conference organizing committee and over 70 volunteers. In total over 1,100 oral presentations and 200 poster presentations were made over the course of the meeting. At times, as many as 16 sessions were conducted concurrently at the Lake Placid Olympic Center and Crowne Plaza. Social arrangements included a Welcome Social held on the Lake Placid Speed Skating Oval, a Trade Show Social held on the Olympic Center's 1980 Rink and an off-site Fishtoberfest held at the Lake Placid Show Grounds. Fishtoberfest attendees were treated first to an aerial skiing show at the ski jumps, before being treated to an authentic German Oktoberfest complete with band. The evening came to a close with a fireworks exhibition sponsored by the Lake Placid Convention and Visitors Bureau.

Session rink with Adirondack campground theme



Feedback from meeting attendees has been very favorable, with most enjoying the small village/rural atmosphere provided in Lake Placid. One of the most telling comments was from a member of the San Francisco (AFS 2007) organizing committee who commented: "How are we going to top this? All we have to offer is San Francisco!" AFS 2006 was an example of the outstanding things that can occur through collaboration and the organizing committee would like to thank all of the volunteers, as well as the Division of Operations and Law Enforcement who assisted us with this successful endeavor.

Trade Show Social

VHS Extension Efforts

The outbreak of Viral Hemorrhagic Septicemia (VHS) in New York during 2006 and the subsequent emergency regulations necessitated an outreach effort to inform anglers and interested parties about the disease. A double sided tri-fold brochure titled "Keep Fishing Great! Use Certified Bait!" was produced in March, 2007. The brochure contained background information on VHS establishing credibility that VHS was a threat, new bait fish regulations and Q&A on the regulations. Six hundred thousand of the brochures were produced and sent out to fishing license agents for distribution. Additionally, the brochure was made available to bait fish sellers to hand out to their customers. Also, the information from the brochure was placed into the Revised 2006-2008 New York State Freshwater Fishing Regulations Guide.

Gregory Kozlowski produced several articles for the print media to increase awareness of VHS and other diseases effecting fish. An two page article titled "How the New Fish Health Regulations Affect Angling on the Hudson River" was written for the April 2007 issue of Boating on the Hudson & Beyond magazine. An article titled "New York State's Response to VHS" was written for Aquatic Invasives magazine for a Spring 2007 release. The article focused on the decision making process of the DEC through March 2007.

Nine informational meetings on VHS were held during early January, 2007. Meeting locations were held throughout the state, including Buffalo, Waterloo, Chenango Bridge, Watertown, Mexico, Plattsburgh, Albany, Yonkers - Lower Hudson Valley and New Paltz. The meetings covered the history of VHS, steps the DEC was taking to halt the spread of VHS, and the emergency regulations restricting the use of bait fish and the transport of fish in New York.

Emergency regulations were put into effect to halt the spread of VHS. The regulations affect a variety of groups that obtain licenses from the Department. In late November 2007, letters explaining the new regulations were sent to bait fish collectors and sellers, commercial fishermen, licensed fish hatcheries, fishing preserves and triploid grass carp importers and sellers. The release of a revised set of emergency regulations necessitated that a second letter be sent to bait fish collectors and sellers on March 29, 2007. A copy of "Keep Fishing Great! Use Certified Bait!" accompanied these letters.

Several web pages were placed on the DEC website during December 2006, informing visitors of the potential problems associated with VHS and other diseases. The web pages were updated as necessary.

Region 9 Website Pages

During 2006, Region 9 fisheries staff developed extensive content on a variety of topics, including trout fishing opportunities, lake and pond information, fishing warmwater rivers information, and fish survey information. This information along with pictures was given to Central Office for development into web pages. Site visitors have expressed satisfaction with the new content.

Website Re-design

The Department redesigned it's website into a web-content management system. The new system will allow for better control over the website, will prevent broken links, can set dates for when pages are active on the website. One of the decisions during the re-design was that content was going to be organized by topic and geographic area, not by region. For example, Regions 8 and 9 would be combined into "Western New York." Approximately 480 web pages associated with the Bureau of Fisheries had to be re-coded and all the links, pictures and table re-done. The work was in the process of being completed at the close of the fiscal year.

New York State Freshwater Fishing Regulations Guide 2006 - 2008

The New York State Freshwater Fishing Regulations Guide was updated to include over 100 regulation changes from the 2004-2006 guide. A phone list of all the Environmental Conservation Officers was included in the guide, resulting in the loss of some previously included information.

Cover of Regulations Guide

Region 1

I FISH NY Fishing Promotion and Education Efforts

Spring Fishing Festival

The Region 1 Fisheries Management Unit kicked off the 2006 fishing season with their annual Spring Fishing Festival at Belmont Lake State Park on April 1. Over 2,400 people came out to enjoy a free day of fishing provided by the New York State Department of Environmental Conservation and New York State Office of Parks and Recreation. Many volunteers from organizations such as Freshwater Anglers of Long Island, Long Island BassMasters, Long Island Fly Rodders, and Suffolk County Seniors Fishing Club, were on hand to fill bait cups, detangle fishing rods, teach casting methods, clean fish, and hand out rods. Volunteers lent out over 500 rods to eager participants—each of the Fisheries Unit's 222 rods was loaned out at least twice! Other scheduled events included fishing seminars by David Kennedy and Mark Malenovsky; and fly casting demonstrations by Art Flick and the Long Island Chapters of Trout Unlimited.

In addition, the event featured various children's activities such as a magic bouncy slide and temporary tattoos. The Festival also saw its first casting contest, organized by the Knights of Columbus. Throughout the day, children under 16 years of age could win fishing rods, tackle boxes, t-shirts, or hats donated by Orvis, radio stations WBLI 106.1 and WBAB 102.3, New York Fishing Tackle and Trade Association, NYSDEC, and Westbury Sports Authority.

In preparation for the event, DEC personnel along with Trout Unlimited volunteers stocked Belmont Lake with over 1,000 fish from the Catskill Fish Hatchery. Six hundred, nine inch rainbow trout and 420 brown trout averaging 13.5 in. in length were released in the lake on the afternoon of March 30. Some of the brown trout exceeded 16 in. in length. New York State Parks also released 1,000 brook trout from the Connetquot River Fish Hatchery the day before the event.

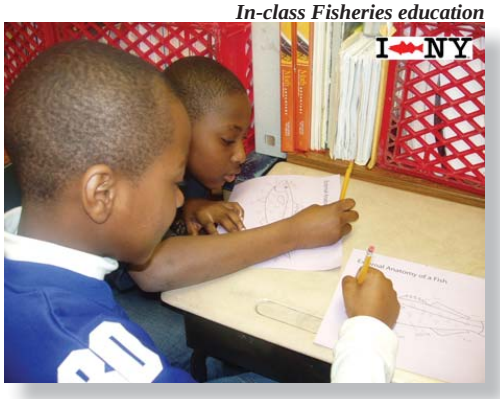
I FISH NY Fishing Festival

In-Class Education

In an effort to implement a classroom program, staff partnered with the Board of Cooperative Educational Services (BOCES) in both Nassau and Suffolk Counties. BOCES offers fishing field trips aboard various party boats to elementary and high school students. Staff visit schools prior to their fishing trip; introducing fisheries related topics and helping prepare students for their upcoming trip. Aboard the fishing boat, staff heads a fish dissection station; discussing proper fish handling and safety procedures. Throughout the fiscal year, the I FISH NY Program reached 1,536 students; 7 Nassau County schools, 9 Suffolk County schools, and 1 Bronx County school. Prior to the partnership, less than 60 students were seen each school year.

Three new lesson plans were created with implementation set for the Spring/Summer 2007; Fish Anatomy and Adaptations, Food Web, and Aquatic Ecology/Classification. During the Fish Anatomy and Adaptations lesson plan, students are introduced to the external anatomy features of a fish through local fish identification. Students then role play to become scientists in the future, creating their own fish designed to live and survive on a pre-created planet. Students learn that form influences function, and how this information can help them when fishing. To understand relationships that exist in an ecosystem, students become organisms within an aquatic environment during the Food Web lesson plan. Visual linkages help students to recognize their role in a food web as well possible bait selections while fishing. The Aquatic Ecology/Classification lesson plan gives students a chance to become scientists, identifying and classifying various pond invertebrates. Students are then presented with the larger organisms within the ecosystem, the vertebrates. In each of the lesson plans, students are introduced to local fish species and proper fish handling techniques.

In-class Fisheries education



Out-of-Class: Public Education

The I FISH NY Program offered seven free public fishing events, clinics and festivals, reaching a total of 4,002 residents. For the first time in the program, staff partnered with NYS Parks and Recreation to offer two saltwater clinics at Captree State Park and Jones Beach State Park. Over 70 people attended each event; it was agreed to make these annual events. Freshwater events included: Spring Family Fishing Festival at Belmont Lake State Park in April, Free Fishing Day at Lake Ronkonkoma County Park in June, Family Fishing Clinic at Hempstead Lake State Park in August, and Fall Family Fishing Festival at Hempstead Lake State Park in October. The Spring Family Fishing Festival at Belmont Lake State Park saw its largest numbers to date, 2,400 participants! Unfortunately due to bad weather, Free Fishing Day at Lake Ronkonkoma was cancelled.

Through a raffle, staff were able to gather some information from participants and begin to evaluate the program. Over 50% of our

participants are between the ages of 0-10; less than 10% between the ages of 11-15; less than 1% between the ages of 16-30; and about 30% were adults, over the age of 30. Residents from both Nassau and Suffolk Counties attended events, as well as some Kings, Queens, and New York County residents. Moreover, about 30% of program participants are first time anglers, and about 22% of participants were attending more than one event, both fresh and saltwater.

Out-of-Class: Youth Groups
The I FISH NY program expanded its youth group fishing schedule through partnerships with BOCES, Girl Scouts of America, and the Nassau County Office of the Physically Challenged; over 794 students were reached.

Two new summer camps were added to the program schedule: Nassau and Western Suffolk BOCES. Nassau County offers a three week marine biology camp for high school students at Caumsett State Park. Staff visited the camp two days, one education day and one fishing day. Education day included fish identification, fish dissection, casting practice, rules and regulations, and fishing techniques with lures. During the fishing day, campers were able to try their hand at using artificial baits and surfcasting on the North Shore. For four weeks, Western Suffolk BOCES partners with various upstate BOCES to offer students the opportunity to experience New York's marine environment. Students are awarded a one week free marine biology summer camp on Long Island through an essay contest. The program introduced "upstaters" to surfcasting/pier fishing for two hours each week during the four weeks.

In addition to the summer camp fishing program with the Girl Scouts at Camp Edey in Sayville, the I FISH NY Program offered a new environment for the girls to experience fishing—at night! On alternating Wednesdays staff either visits the Camp for the day, offering several different education stations followed by open fishing, reaching between 100-200 girls each session; or spends the evening fishing, which is open to scouts and individuals with their parents.

The Nassau County Office of the Physically Challenged, in conjunction with the I FISH NY Program, offered a freshwater fishing day for Cerebral Palsy students at Roosevelt County Park in Roosevelt. Over 60 students came out and fished for the day, ages ranged from 5 to 30. The event was made annual and will be held each May.

Literature, Website, and Media Relations
In the spring of 2006, staff launched the I FISH NY Newsletter. A tri-annual publication, the Newsletter has over 100 mail and over 40 e-mail recipients. The Newsletter includes a feature story, local hot spots in New York City and on Long Island, seafood health and safety information, fishing tips and techniques, and lists upcoming events.

I FISH NY's website (www.ifishnewyork.org) was unveiled in 2005, with major revisions in 2006. New York Sea Grant is currently overhauling the website, with a projected release date of Fall 2007. New additions include a teacher's page with lesson plans, photo gallery, and student artwork.

In cooperation with the Division of Public Affairs and Education, a revised media list was compiled and a new press release format was designed. Since the restructure, I FISH NY-LI has been featured in Newsday, Suffolk Life, The Fisherman Magazine, and on local radio stations.

Table 10. Participants reached through I FISH NY Program for the 2006-2007 Fiscal Year

Outreach Effort	Number Reached
In-Class Education	1,536
Out-of-Class: Public Education	4,002
Out-of-Class: Youth Groups	794
Newsletter Recipients	140
Total Reached	**6,472**

Nassau Coliseum National Sportfishing, Hunting & Outdoor Expo
Region 1 Fisheries Unit coordinated the DEC presence at the 14th Annual Sportfishing, Hunting and Outdoor Expo held in the Nassau Veterans Memorial Coliseum in Uniondale, NY from January 19-21, 2007. Department staff from Freshwater Fisheries, Sportsmen Education, Environmental Education, Environmental Conservation Officers, and Marine Fisheries all participated in the event. There were 18,000 attendees at the Expo over the three day event. The show brought various Bureaus within the DEC together, and the team created many action plans to implement. Questions were asked by the public and answers were given by the DEC team based upon each type of question. The majority of questions were in relation to the Artificial Reef Program, NYC Reservoir fishing, fluke regulations, the upcoming I FISH NY Program season, trout stocking activities, and the possibility of a saltwater license being required to fish the marine district of New York State. The center of attention at the expo appeared to be the Bureau of Fisheries electrofishing research vessel which was built by the DEC Bureau of Electronics, animal pelts, and fish mounts. Many fishing hot spots were shared amongst the Department employees and sportsmen. The team also recruited 27 volunteers for the Freshwater Angler Diary Program. Overall, the Expo was a huge success as the Department drew the majority of the attendees to further inform the public on current issues and events.

Region 2

I FISH NY Fishing Promotion and Education Efforts

During 2006-07, 2,492 constituents were reached through in-class programs, youth group outreach, fishing clinics, and newsletter, as part of the DEC's I FISH NY Program.

In-Class Education
I FISH NY classroom programs reached 1,439 students, taking over 1,200 of them fishing. The program was limited to 3rd graders and above (previously the program accepted all grade levels).

Over 200 more students were involved than the previous year. The 16 participating schools represented all five of NYC's boroughs. Staff made two classroom visits before taking classes fishing where they learned fishing techniques, local fish species, and fishing regulations.

This year we focused on producing 500 Go Fish! card decks, which augmented our existing fish anatomy lesson. With permission from Florida Fish and Wildlife Conservation Commission to use artwork, I FISH NY Program staff conceived of and designed the cards. The game is an adaptation of the classic children's game, but features New York State fish, grouping the fish by family. Through playing the game, the students learn about fish identification, classification, and local diversity. Using these cards, we also created another lesson "Mystery Fish," where students pretend they are teams of scientists who discover a new fish. From their newly acquired observational skills and understanding of traits families have in common, they discuss, debate, and then justify the correct family for their "mystery fish."

In order to evaluate the program's efficacy, this spring 921 evaluation forms were distributed to teachers to administer to their students. The evaluations asked students to describe how to fish (angling skills) and how to conserve fish (stewardship principles). Twenty-six percent of the forms were returned and will be used to adjust the lessons for the next school year.

Out-of-Class: Youth groups
Staff taught 253 children outside of the formal classroom setting. Working with DEC's Division of Public Affairs and Education staff from Region 2, we participated as one module of their After School Conservation Club. When unable to fish, students practiced angling skills indoors, catching mock fish and then assessing whether these fish followed marine regulations. Additionally, we worked with summer schools, community groups, and the Virtual Y.

Out-of-Class: Public Education
The I FISH NY Program reached 660 people by offering several public fishing clinics and distributing literature at organized public events. We fished with 160 people at our public clinics and distributed consumption advisories, fishing regulations and demonstrated fishing techniques. For the first time, we sent a representative to the Hong Kong Dragon Boat Festival, which takes place in Meadow Lake in Queens, NY, the only water body in New York State where invasive snakehead fish have been discovered. Our representative distributed 500 copies of literature in both English and Chinese at an event that was attended by 30,000 people.

Staff joined the DEC's exhibit booth at the NY Boat Show, attended by over 63,000 people. Staff displayed dioramas of fresh and saltwater fish of NYS, the program's Go Fish! cards and an interactive fishing knot tying display.

Professional Development
Staff taught 30 future teachers in the Student Conservation Association how to use sport fishing to teach natural history and fish identification.

Literature, Website, and Media Relations
Staff produced two issues of the I FISH NYnewsletter (see Region 1 Outreach section). The NYC office was responsible for editing, writing health articles, art directing, and generating graphics.

Program staff revised the I FISH NY website (see Region 1 Outreach section). In June 2005 to June 2006 there were 5,779 visits to the website. During the same period the following year, there were 16,059 visits, a 278% increase in viewings.

I FISH NY was featured in several publications: Coastlines (New York Sea Grant publication), Empire State Magazine, as well as numerous online newsletters. In addition, illustrations by staff were featured in The Conservationist magazine, Nearshore Saltwater Sportfish of New York (NYS DEC brochure), and the Go Fish! cards.

Table 11. Participants reached through I FISH NY Program for the 2006-2007 Fiscal Year

Outreach Effort	Number Reached
In-Class Education	1,439
Out-of-Class: Youth	253
Out-of-Class: Public Programs	660
Newsletter Recipients	140
Total Reached	**2492**

Region 5

Bureau of Fisheries continues a tradition of leadership in the profession of aquatic sciences:
The 136th Annual Meeting of the American Fisheries Society was held in Lake Placid September 10-14, 2006. The meeting drew fisheries and aquatic scientists from more than 30 countries, with an attendance of approximately 2,000 people. DEC fisheries programs were highlighted at this premier gathering of fisheries professionals. Presentations included Bill Schoch, Regional Fisheries Manager for Region 5, talking about the DEC's brook trout restoration program in the Adirondacks. That presentation was part of a day-long symposium titled "Brook Trout: Conservation Challenges at Multiple Scales." Dan Bishop, Regional Fisheries Manager for Region 7, talked about steelhead trout management in a similar symposium on steelhead. Several aspects of the Lake Champlain sea lamprey control program (a cooperative program between NYSDEC, the US Fish and Wildlife Service, and the Vermont Fish and Wildlife Department) were presented by agency and university staff at a sea lamprey symposium. Each of those three symposiums, as well as the numerous other symposiums, were attended by some of the top professionals in the respective areas of expertise. As such, they were exceptional opportunities to interact with the profession's best. In addition to the scientific and technical aspects of the meeting, the Department received high accolades from the attendees for hosting and organizing this logistically daunting event. Dozens of Department staff contributed their time to running what all agreed was an outstanding meeting.

Region 6

Conservation Education Days

Staff participated in 3 of the region's 5 counties' conservation education days. Fisheries and fishing messages are taught to 6th graders at all of the events. The hands on lessons are taught in an outdoor setting and repeated 12 to 17 times throughout the day. St. Lawrence County held their event at the Indian Creek Nature Center on Upper and Lower Lakes where approximately 600 students where taught how to cast and were given an interactive presentation on the local aquatic food web. Four members of the regional fisheries staff participated in Jefferson County Environmental Awareness Days at Westcott Beach State Park, coordinated by Cornell Cooperative Extension. Over 1,100 sixth graders were presented with information regarding Lake Ontario fish communities and environment. Hands on activities with live and preserved fish generated considerable interest and enthusiasm.

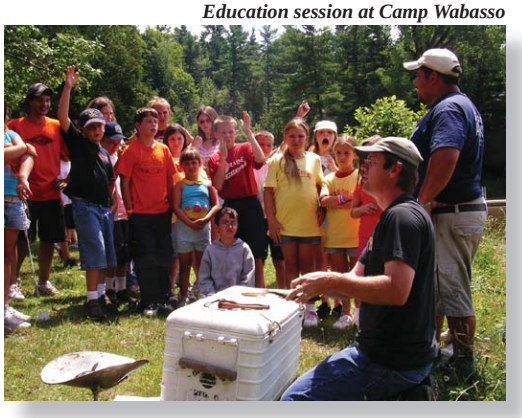
Envirothons

Region 6 staff prepared and delivered Envirothon questions for the Aquatics section for Lewis, Jefferson, Herkimer, Otsego, Montgomery, and Fulton Counties. Lewis and Jefferson Counties had their own individual events, whereas Herkimer, Otsego, Montgomery and Fulton Counties combined their schools to hold one event. Each Envirothon has test sections in Aquatics, Forestry, Soils, Wildlife and a unique Current Issue section each year. Teams of up to five students work together to answer questions in all 5 sections to compete to win their county and get a chance to go to the state championship. The 2006 state championships were held in Oswego and a team from Tioga County won.

Camp Wabasso

Staff from the Region 6 Bureau of Fisheries conducted an outreach event at the 4H Camp Wabasso on Millsite Lake. Approximately 50 campers were taught the basics of fish collection methodology, fish identification and fish fileting. Gillnets and a seine produced numerous bass, bluegill, pumpkinseed, pike, bullhead and various minnow species, for the campers to work with. The presentation is part on an on-going effort to introduce those attending Camp Wabasso to the aquatic fauna in their back yard.

Education session at Camp Wabasso



Lewis County Fishing Camp

Fishing was great in northern New York State for more than 60 people at the eleventh annual Youth Sportfishing Camp held June 16 -18, 2006, at Beaver Camp on Beaver Lake in the Town of Watson, Lewis County. This weekend event was organized by Joe Hulbert at the North Country Sportfishing Camp, a feature attraction also supported and sponsored by Teen Anglers, the Department of Environmental Conservation and Walmart's All American Fishing Derby. Its goal was to have a fun-filled and educational weekend of fishing.

The sportfishing camp gives youth ages 8 - 16 a better understanding and appreciation for sportfishing, conservation and angler's ethics. During skill-sessions, campers learned about making lures and spinners, fly fishing, fly-tying, fish identification and conservation and outdoor skills like hiking. They shared in the joys of fishing and canoeing while practicing sportsmanship and stewardship of our renewable natural resources.

Campers caught chain pickerel, bullheads, sunfish a few yellow perch. They also saw many large bullheads that were caught in DEC trap nets. Participants came from several nearby counties to take part in this year's event. The young anglers included both boys and girls and many repeat campers. "Fish cleaning started by mid-afternoon and was followed by a fish bake where everyone enjoyed the fillets of bullhead and sunfish," noted Joe Hulbert, organizer of the camp.

Cranberry Lake Fishing Derby

Staff from the Region 6 Bureau of Fisheries conducted an outreach event at the DEC campground at Cranberry Lake. Approximately 20 kids were given use of fishing gear to compete in a derby to win prizes provided by a local sporting goods store. Prior to the derby, anglers were given instruction in proper use of the tackle and fish handling techniques. Nearly all the participants caught fish and won some sort of prize.

Region 7

Fishing Events/Clinics

Fisheries staff conducted a number of education and outreach events throughout the region. A family fishing day clinic held on June 3, 2006 at Carpenters Brook Fish Hatchery drew in more than 100 kids and adults. Staff assisted the Iroquois Chapter of Trout Unlimited on May 13, 2006 for a family fishing day clinic at Mill Run Park on Limestone Creek. Other events include a kids fishing derby at Chenango Valley State Park on September 23, the 13th Annual Finger Lakes Fishing Festival on April 29, a kids fishing derby held by the Falcon Sportsmen Club on June 11, a Conservation Field Day at SUNY Morrisville on May 25 and Onondaga County Family Sportsmen's Days on September 23 and 24. Fish identification, regulations and ethics, tackle basics, fish anatomy were just some of the topics covered at the events. A large aquarium was set up at most of the events for a more hands-on experience.

Fishing Outreach

New York State Fair

Several Region 7 Fisheries personnel worked at the annual New York State Fair helping staff the Division of Fish, Wildlife and Marine Resources booth inside the DEC Aquarium Building. Thou-

sands of hunting and fishing licenses were sold using the DECALS automated licensing system which operated with very little down time. Questions from the public were answered during the license sales process. This was a 12 day event which ran from August 24 through September 4, 2006.

New York National Boat Show
Held at the Jacob Javits Center in New York City, a Region 7 Fisheries Biologist helped staff the Division of Fish, Wildlife and Marine Resources booth from December 30, 2006 through January 2, 2007. This high profile event draws over 100,000 people annually and is an excellent opportunity to promote New York's fishing resources to a wide and diverse audience.

Fishing Hotline
Both telephone and Department Website versions of the Region 7 Fishing Hotline were updated on a weekly basis. The telephone version received 150 - 400 calls per week and the Website version continues to be one of the top 10 most frequently visited pages on the DEC website.

A proud angler with her catch

Region 8

Over 100 students get hands-on fisheries experience
Fisheries staff teamed up with the non-profit Delta Labs for the fifth consecutive year to bring hands-on learning to area high school biology students. In the fall of 2006, close to 100 students observed a DEC staff electrofishing demonstration. This allowed students to see the different type of fish collected by this method. Students collected biological data from the fish, including learning how to age fish, along with basic limnological data from the canal. This year's events were well received by students, teachers and staff.

Region 9

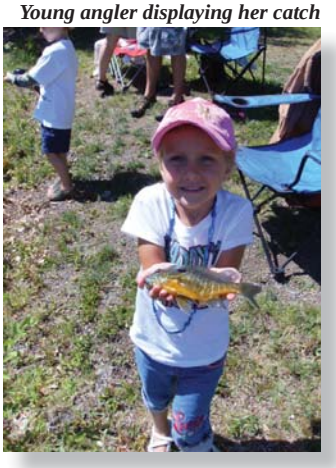
Participation in Outdoor Sporting Shows
Fisheries staff participated in the Hamburg Outdoor Show, the Erie County Fair and the Niagara Falls Fish and Wildlife Festival.

Youth Fishing Clinics and Aquatic Education Efforts
Regional Fisheries staff conducted educational efforts to introduce young people to sportfishing and spark interest in aquatic ecology. The outreach events were typically conducted in partnership with local sponsors such as sportsmens federations and local government entities. A total of three free family fishing clinics were held (Hyde Park Lake-City of Niagara Falls, Tifft Nature Preserve-Buffalo Museum of Science, Chestnut Ridge Park-Erie County Parks Dept.) in Erie and Niagara Counties in 2004/2005.

Young Fishing Clinics
In 2006, Regional Fisheries staff continued to conduct educational efforts to introduce young people to sportfishing and spark interest in aquatic ecology. The outreach events were typically conducted in partnership with local sponsors such as sportsmen's federations and government entities. Two free family fishing clinics were held at Chestnut Ridge County Park and Tifft Nature Preserve (Buffalo Museum of Science) in Erie County.

In Fall 2006, staff participated for the first time in two outreach events: the Wildlife Festival at the New York Power Authority Vista Facility in Niagara County and the Fall Festival at the NYS DEC Reinstein Woods Facility in Erie County. Both events attracted large crowds and were considered worthwhile events for continued participation next year.

Young angler displaying her catch



Public Access and Use

Central Office- Public Use & Outreach Section

2006-07 Public Fishing Rights and Waterway Access Progress
Acquisition of fishing easements to valuable stream fisheries in New York State remains a high priority with the Bureau of Fisheries. Although various staff changes within the Public Use Section had an impact on progress during the period, a number of purchases were completed and many others are currently in the process of being completed. Completed acquisitions include a 2.3 mi section of the Delaware River in Region 4 and 1.1 eq mi on Mansfield Creek in Region 9. PFR purchases currently in the process of finalization include: .18 eq mi on Esopus Creek, .14 eq mi on the Pine Kill, .03 eq mi on the Neversink and .012 eq mi on the Willowemoc in Region 3; .37 eq mi on the West Branch Delaware in Region 4; .51 eq mi on the Ausable River in Region 5; .284 eq mi on the Cohocton River, .22 eq mi on Cayuta Creek and .05 eq mi on Mansfield Creek in Region 8; .076 eq mi. on Elm Creek in Region 9. Acquisitions are also underway on Butternut Creek in Region 7 and West Branch Fish Creek in Region 6.

The highlight of the waterway access program in 2006-2007 was the purchase of a $2 million Conservation Easement to ensure that the Narowal Marina in the Hamlet of Bolton Landing on Lake George remains a public access point on Lake George. Narowal Marina is one of the busiest access points on Lake George, both for anglers and campers on the Lake George islands. The Conservation Easement provides for the continued operation of the site as a marina, but prohibits any additional commercial or residential development of the site. Had the State of New York not made this purchase, it his highly likely that this parcel would have fell into private hands and all public access to the lake from this site would have been lost.

2006-07 Boat Launch Rehabilitation Projects
No major boat launch modernization projects were completed during the period. Disabled access improvements continued in Region 5 with work completed at Cossayuna Lake, Northville, Saratoga County and West Lake boat launches. Significant effort was also put towards design drawings for funded boat launch projects in the City of Plattsburgh (Lake Champlain) and Town of Moreau (Hudson River). Major rehabilitation projects completed during 2005-2006 on Schroon Lake, Ticonderoga (Lake Champlain), Long Lake, Narrowsburg (Delaware River) and the Mohawk River (Amsterdam and Nelliston) have all held up well through their first year of use.

Mohawk River site

In response to increasing concerns about the spread of nuisance invasive species, the Bureau of Fisheries has also begun the installation of Nuisance Invasive Species Disposal Stations at select boat launches. These stations provide both information and a dedicated location for disposal of aquatic plants or other invasive species found clinging to boating and fishing equipment. Additional stations will be installed as needed at DEC sites throughout the state.

Nuisance Invasive Species Disposal Station

Clean Vessel Assistance Program (CVAP)
Bureau of Fisheries administration of the Clean Vessel Assistance Program (CVAP) continued in 2006-2007. CVAP funds the construction and maintenance of septic pumpouts and dumpstations, as well as information and education programs associated with it. A new contract with the New York State Environmental Facilities Corporation was finalized which allows EFC to continue to run the CVAP program for an additional 3 year period. During the past year, 39 projects were funded for $592,309. To date, CVAP had funded 359 projects totaling approximately $4.193 million. A new operation and maintenance grant program was initiated in 2006 with 24 applicants receiving awards of $26,682. Four information and education projects were completed over the past year. CVAP staff also attended the New York National Boat Show, the Quality Communities Canal Conference and the Clean Marina/Green Marina event in New York City. CVAP advertising was placed in the Captains Guide, Canal Times, Seaway Trail, Long Island Boating World and Soundings magazines.

Region 5

Work continues to make Bureau of Fisheries facilities accessible to Americans with disabilities
In the ongoing effort to make DEC facilities accessible, work progressed at several Bureau of Fisheries access facilities. At the Second Pond Boat Launch (provides access to Lower Saranac Lake) the toilet building has been made accessible, an accessible walkway from the parking lot to the dock was constructed, and reserved accessible parking has been designated. Similar improve-

ments were completed at the Upper Saranac Lake Boat Launch. Improvements at Lake Colby include an accessible port-a-john, an accessible pathway to the water, and reserved parking.

Progress continued towards an accessible fishing pier on South Bay of Lake Champlain. The Town of Dresden, Washington County, local sportsmen, and the Department are combining efforts to rebuild the South Bay Fishing Pier and to make it universally accessible with 19 parking spaces, benches, rod holders, and a roofed area at the end of the pier. Construction was expected to occur during the summer of 2007, but delays resulted when the initial round of bidding yielded unexpectedly expensive cost estimates. The cost issue is close to being resolved, and construction may yet begin during 2007. This will be a very important project for the community, providing a fishing opportunity for people of all abilities.

Repairs and modernization completed on several boat launch sites

Schroon Lake Village Boat Launch: The Department and the Town of Schroon Lake partnered to improve the Town Boat Launch, located in the hamlet of Schroon Lake. The Department provided funding to demolish the old concrete ramp, which was in poor condition, and replace it last year with a modern structure installed at an optimum pitch. The Town of Schroon Lake has now installed modern floating docks along the new ramp. These attractive, wood-decked docks will provide for a quality launch and retrieval experience. The Bureau of Fisheries appreciated the efforts of the Town of Schroon to provide boating access to Schroon Lake.

Newly modified Schroon Lake Boat Launch

Ticonderoga Boat Launch overflow parking now open to the public: The Ticonderoga State Boat Launch, which provides valuable boating access to Lake Champlain at Fort Ticonderoga, was modernized during 2004-2005, making it a premier boat launching site in northern New York. However, an overflow parking area to accommodate parking on busy weekends and during fishing tournaments was completed only recently. This parking area was surfaced with a modern stabilization material called "grass pave," which allowed the site to remain vegetated while still providing a durable surface during wet and rainy periods. It was desirable to retain a natural surface rather than pavement for two reasons. The overflow parking area was of concern from an archeological perspective; therefore, it was best to leave it undisturbed. Also, retaining the area as grass was an environmentally sound way to lessen storm water runoff. The overflow parking area was closed to the public for an extended period, due to technical difficulties with the grass pave installation. Those problems were solved and the area is now open and ready for business. The Bureau of Fisheries is particularly grateful to Fort Ticonderoga Director Nick Westbrook for his support of this project.

Ticonderoga Boat Launch (Lake Champlain)

A Cooperative Effort with the Town of Caroga restores a flood-damaged boat launch: The West Lake Boat Launch, which is the only public boat launch serving Canada Lake, West Lake and Green Lake (Fulton County) was made inoperable by flood events. The concrete boat ramp and the adjacent area were completely filled with sand and gravel from a washed out road bed. Bureau of Fisheries staff obtained approvals to conduct an emergency excavation of the site from the Adirondack Park Agency, the US Army Corps of Engineers, and DEC Water Quality and Permits offices. Then Leo Demong of Fisheries and Rudy Peters from the Division of Operations joined forces with the Town of Caroga Highway Department to remove the material from the boat launch. Department staff installed a silt screen fence and floating oil boom around the work site, while the Town of Caroga crew excavated the material. Many cubic yards of deposited material were removed from the launch ramp and immediate area. The Bureau of Fisheries would like to thank the Town of Caroga for their willingness to join forces to solve this dilemma.

Upper Saranac Lake Boat Launch repaired: Ice damage and contractor misuse had made the bulkhead and dock structure unusable at the Upper Saranac Lake Boat Launch in Franklin County. Just prior to the boating season, the dock had to be closed to public traffic. The operations crew of Don Durkee, Ross Robert and Ed Hoyt came to the rescue and did an exceptional job of repairing the structure. They also extended the dock several feet to allow docked boats to avoid underwater debris. The Bureau of Fisheries is very grateful to Operations staff for getting this work accomplished in a timely fashion. Thanks to those mentioned above and Conservation Operations Supervisor Greg White.

Region 6

FWMA Agreement with Town of Webb
An agreement was reached to allow fishing access for Wheeler Pond, Clear Pond, Gibbs Lake, Independence Lake, Round Pond, Little Safford Lake and the North Branch of Moose River from April 1 - Sept 15. These waters are located just north of the village of Old Forge and are easy to reach from the network of snowmobile trails on the property. Both Gibbs and Independence have wild brook trout populations and the DEC is looking to reclaim both Clear and Wheeler to allow brook trout populations to be reestablished. Round Pond does not offer much of a fishery and Little Safford has a fishery for both largemouth yellow perch. In exchange for formalizing fishing access to these waters the Bureau of Fisheries will actively manage them to provide the best fishing possible.

Region 7

Lake Access
Jamesville Reservoir - Through a permit with the Canal Corp, staff constructed a parking area and developed a shoreline fishing access site at the Jamesville Reservoir dam, Onondaga County, Town of LaFayette.

Salmon River Reservoir - Constructed a Fisherman Access Site (FAS) at Redfield Island, Oswego County, Town of Redfield.. The site includes a concrete ramp, parking for 30 car and trailer units, and an ADA accessible fishing pier.

Oneida Lake - Extended a Fish & Wildlife Management Act (FWMA) Agreement between the State and the new owner of Lewis Point (south shore), thus ensuring shoreline and ice fishing access at this extremely popular location. The previous owner had always allowed ice fisherman to use the site but with the change in ownership this access had been threatened.

River Access
Seneca River - Purchased an aluminum skid dock for the Port Byron boat launch site on Rt. 38, Cayuga County, Town of Mentz.

Oneida River - Purchased an aluminum skid dock for the Bonstead Road boat launch site, Onondaga County, Town of Clay.

Public Fishing Rights
Cayuga Inlet- Purchased 0.33 eq mi of PFR and a 530ft footpath in Tompkins County, Town of Newfield.

Owasco Inlet - Purchased 0.17 eq mi of PFR and a Fisherman Parking Area in Cayuga County, Town of Moravia.

Butternut Creek - Purchased a Fisherman Parking Area to enable off-road parking along US Rte. 20 in Onondaga County, Town of LaFayette.

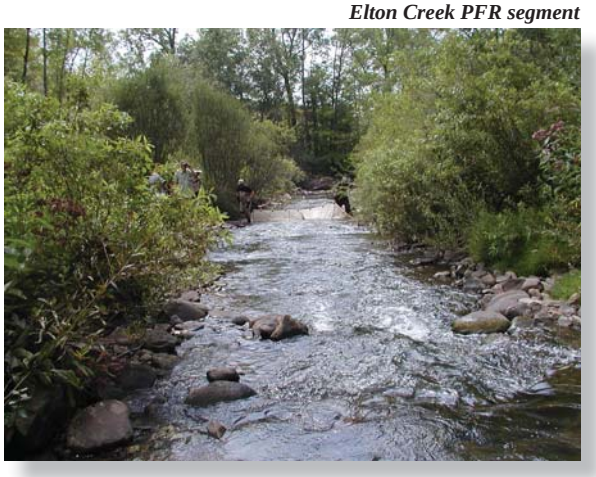
Region 8

Enhancement of the existing East Bay Fishing Access Site on the barrier bar
A new road will enable car top launching directly into the bay instead of a long carry.

Region 9

Stream Access
Public fishing easements were acquired on 4 streams (Elton Creek, Mansfield Creek, Ischua Creek and 18 Mile Creek), totaling 1.703 miles and easements were signed, but not completed on 6 other streams (18 Mile Creek, Wiscoy Creek and N. Branch, Ischua Creek, Mansfield Creek and Canadaway Creek), totaling 1.01 mi. With the help of Town and County DPW's, fisherman parking areas were developed on Chautauqua Creek and Cattaraugus Creek. Fisherman access sites were developed at Tonawanda Creek and Birch Run Ponds.

Elton Creek PFR segment



PFR maps and website
Updates were made to the twenty one brochures which show Public Fishing Areas on all 28 streams in Region 9 with Public Fishing Rights. The color brochures are printed in the Regional office as needed. In addition, all the brochures were available on the Bureau website in PDF format. Updates will be made to the brochures yearly as new PFR is acquired and regulation and management changes occur.

Fish Culture

Central Office- Fish Culture Section

Hatchery Infrastructure Needs

A report summarizing the current status of DEC's Fish Hatchery System infrastructure repair needs was completed in winter 2003 and implementation of some of the identified repair needs continued in 2006. Major projects that were completed included replacement of the South Otselic Hatchery water supply pipeline and pond inlet structures, and replacement of the broodstock holding ponds at Rome Laboratory. The South Otselic project was paid for using funds from a Capital appropriation and was constructed via contract. Most of the Rome Lab broodstock replacement work was done by Fish Culture Section staff under the expert direction of Bill Hajdasz from Rome Hatchery. The Rome Lab was funded using EPF Stewardship and Capital funds. Exploratory work for additional shallow infiltration wells at Salmon River Hatchery resulted in "finding" one successful well, which will be connected to existing piping and electrical service in the future. In 2006 a total of $5,000,000 was appropriated for hatchery repairs in the state budget. A portion of those funds will be used to secure the full time dedicated service of a design engineer in the Division of Operations, which will speed up the process of getting large projects designed and built. The first projects that will be addressed by this new capability will be raceway enclosures for the east pond series at Rome Hatchery and the design of a new office/early rearing building at Rome Hatchery.

Trout in the Classroom Project Guidelines

Guidelines were developed to standardize the procedures used by sponsoring organizations to obtain eggs for these classroom projects and the subsequent stocking of fish into receiving waters. DEC is the largest source of eggs to these projects, typically providing about 150-200 eggs for each classroom project. Due to the rising popularity of these projects across the state, the sudden and troubling appearance of VHS in portions of New York in 2006, and the adoption of emergency regulations to limit the spread of VHS and other fish pathogens into or throughout the state, standard procedures needed to be developed and communicated to project participants. These procedures and their underlying rationale were presented and discussed with approximately 60 participants, primarily school teachers, at a workshop in March 2007. Attendees included the Superintendent of Fish culture and Catskill Hatchery Manager Scott Covert, who gave a tour of the hatchery later in the day. In addition to the need to obtain certified disease free eggs and obtain stocking permits before any fish are released, workshop attendees were instructed to keep the focus of these projects on the educational experience rather than view them as small scale stocking programs for a particular species or strain of fish. DEC currently supplies eggs to about 200 projects statewide.

Coolwater Workshop

Tom Kielbasinski from South Otselic Hatchery, Carl Rathje from Oneida Hatchery, and Phil Hulbert from Central Office attended a coolwater species workshop in New Jersey. Tom presented a paper discussing the pond fingerling walleye rearing program at South Otselic, and included some preliminary results evaluating different pond fertilization regimes and variation in age of fry placed into the ponds. Discussions with colleagues from other states, particularly Iowa, provided valuable opportunities to compare respective rearing programs and techniques for intensively reared walleye. Based on those discussions, alternate starter diets and rearing techniques will be evaluated at Oneida Hatchery later in 2006. The workshop also provided the opportunity to explore alternate sources of tiger muskellunge for DEC's program. For many years Pennsylvania Fish and Boat Commission staff provided tiger muskellunge gratis to New York but their source waters were close to Lake Erie, which was identified as a VHS positive water in 2006. To lessen the chance of inadvertently importing VHS positive eggs or fry, tentative arrangements were made to receive tiger muskellunge from New Jersey, which has some captive muskellunge and northern pike brood fish at one of their hatcheries. The tiger muskellunge would be reared at DEC's South Otselic Hatchery as normally occurs.

Bath Fish Hatchery

IPN (Infectious Pancreatic Necrosis) was discovered at the Allegheny National Fish Hatchery in September of 2005. The entire hatchery was depopulated and sterilized. This was done to prevent the spread of this virus to other waters. Allegheny normally supplies 620,000 yearling lake trout for stocking in Lakes Erie and Ontario.

The Bath Hatchery raises 215,700 Finger Lakes strain lake trout yearly for stocking in the Finger Lakes and Lake Champlain. Of this number 94,500 are stocked as spring yearlings. It was decided that for the spring of 2006 we would forego stocking the Finger Lakes and instead raise these fish for stocking in Lake Ontario. Lake Champlain would still receive its normal allotment of 25,000.

The number of lakers stocked in the fall of 2005 was reduced and 15,000 fish were sent to the Pittsford National Fish Hatchery to raise and stock in Lake Champlain. After doing this, 117,820 lakers remained for the spring 2006 stocking in Lake Ontario. All of these fish required a Coded Wire Tag (CWT) and adipose clip for identification. The equipment needed to do this was at the Allegheny Hatchery. The assistant manager of Allegheny, Dave Blick, coordinated moving the equipment and supplying the manpower to accomplish this task. From April 3 to April 12, 2006 the tagging operation was carried out at the Bath Hatchery. On May 8 and May 9, 2006 all the fish were stocked by landing craft at Olcott. Olcott was chosen because past records indicated that stocking survival was very good at this site. This project could not have been accomplished without excellent cooperation from the Allegheny crew especially Dave Blick and the manager Tracy Copeland.

Allegheny will not be able to raise lake trout until they finish a rehabilitation of their facility. In the meantime the National Fish Hatcheries at Pittsford and White River in Vermont will raise the

fish. New York State has already supplied eyed lake trout eggs from Cayuga Lake in 2005 and 2006 to keep the program going.

The Bath Hatchery clips a large number of lake trout and wild rainbow trout each year. The clipping shed that is used for this is in bad shape. During the winter of 2006-2007 a clipping trailer was built to replace the old shed. The new trailer is a hut built on top of a boat trailer that was supplied by the Region 8 Operations Unit. The new trailer has two pumps that supply water to a holding tank inside as well as a trough that pushes the fish out of the trailer after they are clipped. The trailer was used by seasonal laborers this past spring to clip 88,000 lake trout and 30,000 wild rainbows.

Catskill Fish Hatchery

Catskill Hatchery not only met but also exceeded annual production requirements. Nearly 22K surplus summer Brown Trout fingerlings (4 in) and 15K (9 in) Brown Trout yearlings were distributed to other hatcheries & regions throughout NYS. Spring 2007 was one of the most challenging spring stocking seasons ever. Weather and a major truck breakdown raised havoc. However through cooperation between hatcheries, quality and caring hatchery staff, and direction and decision making from Central Office Fish Culture & Operations staff, we were able to accomplish our mission on time.

Due to a quality caring staff and some newly tested water supply manipulation Catskill was able to save over $15K in electric cost by turning off production wells (not to mention wear and tear on expensive equipment) for 2+ months during the early rearing cycle (parts of January, Febuary, March). The wells had always been used because they are +/- 4 degrees warmer than the spring water. From now forth (unless there is an emergency) they will be used during the incubation stage and the intial feeding stage. Once the YOY fish are feeding properly they will be switched over to gravity flow spring water and the wells will be turned off. Studies at the hatchery have shown that eggs and intial fry have better survival rates on well water. Once feeding the difference was insignificant. The difference in size from 7/1/06 (all well water) to 7/1/07 was .02 in. Being fully staffed, having a properly trained and quality staff makes all the difference.

October 2006 was the tenth year of the Trout-in the-Classroom (TIC) program. Catskill Hatchery has provided quality eggs for the program since it's inseption, which started with 8 schools and has since grown to over 125 with more schools coming in every year. On average each school gets 100 eyed brown trout eggs from Catskill. TIC is used in all studies science, math, music, english and art. Other oranizations are also involved. Along with the Fish Culture Unit TU, NYC DEP and DEC Fisheries Management staff are also main sponsors.

In spring 2007 Supt. of Fish Culture Phil Hulbert met 40+ TIC participants at the Catskill Flyfishing Center. Supt. Hulbert outlined the newly adopted regulations of transferreing eggs/fish from water to water. DEC will now be the sole provider of the eggs for the program. TIC has their own web site www.troutintheclassroom.org. TU hired Rochelle Gandour as the coordinator.

Chateaugay Fish Hatchery

Chateaugay Fish Hatchery produced 99,000 lbs. of trout in the 2006-2007 operating year. Rainbow trout, brown trout, Temiscamie hybrid brook trout, domestic brook trout, Raquette Lake strain lake trout, and splake comprised the species reared at Chateaugay. A total of 377,000fish weighing 74,000 lbs. were stocked by Chateaugay and an additional 668,000 fish with a total weight of 52,000 lbs.were transferred to and from other facilities.

A total of 210,000 lake trout eggs were taken from lake trout netted at Raquettte Lake and sent to Chateaugay to be hatched. In addition 208,000 Temiscamie hybrid brook trout, 450,000 rainbow trout, 130,000 domestic brook trout, and 27,000 splake eggs were transferred to Chateaugay from other facilities.

Chateaugay Hatchery staff participated in the preparation and presentation of the American Fisheries Society meeting in Lake Placid in the fall of 2006. All hatchery staff co-ordinated various activities both at the hatchery and at the Lake Placid Convention to help make the meeting a success.

Preparation began for the construction and installation of a 10 kilowatt alternative energy windmill demonstration project. A full Environmental Quality Review, Full Environmental Assessment Form was completed for the project and preconstruction layout work was completed. The wind turbine is due to be constructed in the summer of 2007.

Two Fish and Wildlife Technicians were hired to replace two items that were vacated by two technicians transferring to Chautauqua and Adirondack Fish Hatcheries. Training of the new technicians began in the operation of fish transport and forklift vehicles. Training will continue throughout 2007-2008.

Chautauqua Fish Hatchery

The staff of Chautauqua Fish Hatchery began exploring ways to run their Muskellunge and Walleye production programs on one water source (well) in the spring of 2007. Due to potential threats of VHS virus being introduced into our second source of water (Chautauqua Lake), in addition to it already being contaminated with Zebra Mussels, it was deemed wise to develop a plan to operate on well water only.

The main use of Chautauqua Lake water at the hatchery is our extensive pond culture program of both walleye and muskie. This involves filling 12 one-acre ponds once in the spring for walleye, and six ponds in late July for muskie. Ponds are set up for use of lake water only.

The facility's two wells are located relatively close to the pond complex. By using the two-inch blow-off assembly on each well, and purchasing two-inch plastic pipe, we were able to fill all twelve ponds with well water for this spring's walleye program.

The other use of lake water is from mid-June until the beginning of August and is for the intensive muskie culture program. By elimi-

nating lake water, muskie culture could continue with heated well water. Heated well water is presently used from egg incubation until lake water reaches 65°F and then lake water is supplemented for the well water. In the well water only scenario, the well water would have to be heated to 65°F until August 1st, when muskie fingerlings are normally ponded.

The hatchery's natural gas fired cultural boiler heats the well water. We found that the boiler can only produce 80 gallons per minute of 65°F heated well water. This proved to be a limiting factor in implementation of a well water only intensive program. If a more efficient cultural boiler that can heat 350 gallons per minute could be utilized, the well water only intensive muskie program would be feasible.

Oneida Fish Hatchery

In April 2007, NYS Oneida Hatchery netted 23,291 adult walleyes, collecting 321 million walleye eggs from Oneida Lake. Over 210 million walleye fry were stocked throughout New York and 78,000 five inch fall fingerlings were stocked into ten New York waters in the fall 2006.

Retrieving walleyes from trap net

The hatchery produced 4,000 round whitefish two inch fingerlings which were stocked into Little Green Pond (1,000), Rock Lake (1,300), and Bug Lake (1,700) (Region 5) in May 2006.

The hatchery produced 367 paddlefish(15 inches), which were tagged and stocked into Conewango Creek (Chautauqua County) in August 2006.

In January 2007, Carl Rathje (Assistant Manager) attended the national coolwater workshop at the Hackettstown Fish Hatchery, NJ. After listening to new positive research involving new transition diets and darkened environments for walleye production in Iowa, the Oneida hatchery will conduct several experiments during the 2007 season. These include comparing Inve Epac diet to standard New York diets, and rearing walleyes in darkened tank environments with submerged lighting versus traditional overhead lighted tanks during 28 day diet transition period. Results will be reviewed at the end of 2007.

Rome Fish Hatchery

Rome Hatchery produced 178,000 lbs of Brown and Brook trout from April 1, 2006 - March 31, 2007. Feed usage was 209,000 lbs for a conversion of 1.17 and a cost of .50/lb.

In the Spring of 2006 over 200 waters were stocked by Rome Hatchery. Over 650,000 Brown trout and another 125,000 Rainbow and Brook trout were stocked by Rome or transferred to other State Hatcheries to be stocked throughout NYS. Air stocking occurred in the Spring with 32 ponds being stocked, including the Upper Hudson River.

In the Fall of 2006 Rome Hatchery stocked over 190 different waters of which 170 were stocked by pantoon plane or helicopter. These waters are stocked with Temiscamie Hybrid Brook trout along with some Little Tupper and Horn Lake strain brook trout.

A new living stream display was constructed this past Winter. This will help us to continue to provide a service to different County Fairs and sportsmen groups by having two units ready.

The design phase of a pavilion style pond cover along with preliminary designs for a new hatchery building were started in the Fall of 2006. The pond covers are be started in the Fall of 2007.

Living stream exhibit

After 21 years of service our truck mounted pellet feeder is being replaced by a new one. Delivery is expected Summer of 2007.

Paving is also to be completed from remainder of Lab pond project along with finishing of outside raceway fiberglassing.

Rome is currently fully staffed with 11 employees. They are Hatchery Mgr., Asst. Mgr., two Fish Culturist II's, two Fish Culturist I's, Maintenance Supervisor, Secretary, and a Seasonal Laborer.

Salmon River Fish Hatchery

The Salmon River Fish Hatchery raised about 165,000 lbs of fish in 2006-07. Our normal average is about 130,000 lbs.

With the occurrence of VHS in Lake Ontario and policy changes, chinook salmon production was increased to 1.75 million fish and the winter brown trout fingerling program was cut.

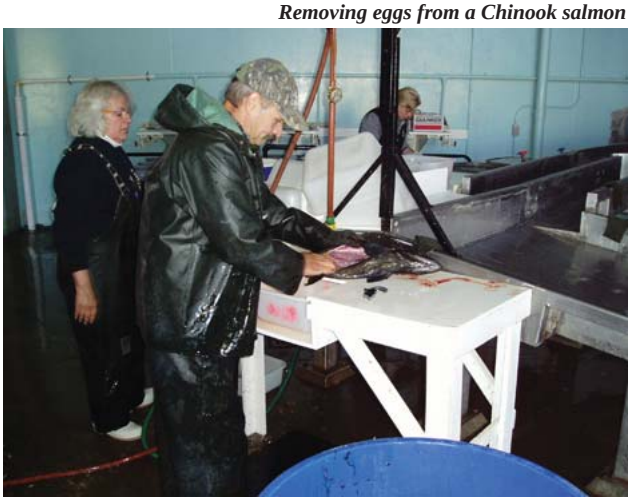
The spring steelhead egg take was a success with 1.85 million Washington strain eggs and 149,000 Skamania strain eggs. Once again, the total requirement of Washington eggs were taken from marked adults.

Through manipulation of the available well water supply, about 333,000 chinook fingerlings, and 100,000 steelhead yearlings were provided to sportsmens pen rearing groups on the Great Lakes by mid April. This was 2-3 weeks earlier than normal. Also started was additional water recirculation on some of the coho's inside with the in-house construction of a filter system. About 100 gpm water is passed through a sand filter and an ultraviolet filter. The intent is to maximize the use of well water.

The fall salmon egg take was successful. About 3.5 million chinook eggs and 1.8 million coho eggs were taken. This was the first year for our new egg disinfection program to prevent the spread of VHS into our facility. With only a few alterations in the routine, that went well.

A lot was accomplished this year, being almost fully staffed for most of the year with a young, mostly inexperienced crew.

Removing eggs from a Chinook salmon



Fish Disease Control Unit

Fish Pathogen Inspection Program

The FDCU has conducted annual fish pathogen inspections of DEC fish hatcheries since the early 1980's. In November 2006, our program expanded to include privately-owned fish hatcheries possessing licenses to culture bass and trout, in accordance with new regulations enacted to minimize the introduction fish diseases into New York. For 2006-7, we inspected 9070 fish from over 90 locations. Results from the DEC hatchery inspections were consistent with previous inspections and revealed nothing new. Aeromonas salmonicida, the cause of bacterial furunculosis in trout and salmon, was isolated from wild, adult coho salmon at the Salmon River State Fish Hatchery. Preventive measures are currently in place to minimize the transmission of this disease to fish in the main culture facility nearby. From private hatchery inspections, two prominent disease pathogens were isolated from two hatcheries. Infectious pancreatic necrosis virus (IPNv) was isolated from a trout hatchery and an extensive plan was developed to remediate the hatchery program. From another hatchery, Yersinia ruckeri, the cause of enteric red mouth (ERM), was isolated from one yellow perch. Because Y. ruckeri is treatable, extensive remediation plans were not necessary. The overall health of fish in our state hatchery system is excellent and we are working with private aquaculturists to improve their fish health issues.

Routine Clinical Disease Investigations

In 2006, the most common diseases in the state hatchery system were columnaris, bacterial gill disease, Ichthyopthiriasis ("Ich"), and saprolegniasis. All of these diseases are widely found throughout the world and are effectively treated with a variety of methods. The DEC currently cooperates in a program with the U.S. Fish and Wildlife Service and Cornell University to use Chloramine T to treat bacterial gill disease and Oxytetracycline to treat a variety of bacterial diseases.

Research projects

The presence of viral hemorrhagic septicemia (VHS) in wild fish in the Great Lakes has lead to management changes intended to minimize disease introduction into our hatcheries. Although VHS has not spread to any of our 12 state hatcheries to date, the threat of VHS entering our hatchery system is very real and research intended to address protecting our hatcheries from VHS and other newly-emergent diseases is underway. We recently determined that iodophor (betadine) disinfection has no effect on walleye or muskellunge egg survival when used immediately after fertilization. We will next address whether iodophor compounds will effectively destroy VHS when used as an egg disinfectant. If so, iodophor egg disinfection will be a useful tool to help protect our hatchery stocks.

The FDCU is also collaborating with Dr. Cliff Starliper from the USGS National Fish Disease Laboratory (Leetown, WV) to develop an improved method for detecting a persistent pathogen in our state hatchery system, Flavobacterium branchiophilum, the bacterium that causes bacterial coldwater disease in salmonids (BCWD). BCWD plagues trout hatcheries around the country and clinical diagnosis has been ineffective because current diagnostic methods are very slow. We are currently trying to develop an improved bacterial growth medium that allows rapid identification of BCWD so that fish may be treated more promptly.

Report Date 8/21/2007

ANNUAL STOCKING REPORT - BY SPECIES

January 1, 2006 - December 31, 2006

	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
SPECIES	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
Cold Water														
Brook Trout	3,850	0	63,835	1,813	314,890	12,561	10,670	862	16,910	2,819	179,610	64,403	589,765	82,458
Brown Trout					45,710	3,390	22,550	2,169	53,840	8,722	1,764,545	560,280	1,886,645	574,561
Rainbow Trout			132,800	2,120			55,200	5,102	3,000	526	380,775	103,554	571,775	111,302
Steelhead					563,200	29,574	269,690	23,585	20,000	2,667			852,890	55,826
Lake Trout							157,590	9,224	70,940	5,903	156,680	24,833	385,210	39,960
Splake											16,010	4,147	16,010	4,147
Landlocked Salmon	5,890	320	95,200	42	19,400	753	172,330	17,459	85,270	10,395	19,450	6,366	397,540	35,335
Coho					155,000	10,534	109,900	9,158					264,900	19,692
Chinook			1,826,900	20,786									1,826,900	20,786
Cold Water Total	**9,740**	**320**	**2,118,735**	**24,761**	**1,098,200**	**56,812**	**797,930**	**67,559**	**249,960**	**31,032**	**2,517,070**	**763,583**	**6,791,635**	**944,067**
Warm Water														
Walleye	09,988,000	2,785	482,900	371	77,785	2,821							210,548,685	5,977
Muskellunge	543,000	21	21,700	4							22,700	2,419	587,400	2,444
Tiger Muskellunge					49,000	1,314					109,560	13,000	158,560	14,314
Panfish											2,500	500	2,500	500
Paddlefish											367	122	367	122
Warm Water Total	**210,531,000**	**2,806**	**504,600**	**375**	**126,785**	**4,135**					**135,127**	**16,041**	**211,297,512**	**23,357**
Grand Total	**210,540,740**	**3,126**	**2,623,335**	**25,136**	**1,224,985**	**60,947**	**797,930**	**67,559**	**249,960**	**31,032**	**2,652,197**	**779,624**	**218,089,147**	**967,424**

Report Date 3/29/2007

COLD WATER ANNUAL STOCKING REPORT - BY HATCHERIES

APRIL 1, 2006 - MARCH 31, 2007

	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
SPECIES	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
Brook Trout														
Adirondack	3,850	0	30,590	923	86,380	3,306					20,500	6,005	141,320	10,234
Bath											4,205	1,583	4,205	1,583
Caledonia											400	78	400	78
Catskill											7,070	2,021	7,070	2,021
Chateaugay			4,375	122	29,490	1,552	10,670	862	13,210	2,184	33,880	9,969	91,625	14,689
Oneida											750	375	750	375
Randolph											42,595	17,870	42,595	17,870
Rome			28,870	768	199,020	7,703			3,000	508	62,210	24,194	293,100	33,173
Salmon River									700	127	4,000	950	4,700	1,077
Van Hornesville											4,000	1,358	4,000	1,358
TOTALS	**3,850**	**0**	**63,835**	**1,813**	**314,890**	**12,561**	**10,670**	**862**	**16,910**	**2,819**	**179,610**	**64,403**	**589,765**	**82,458**
Brown Trout														
Adirondack							650	65			71,640	18,959	72,290	19,024
Bath					43,000	3,209					119,140	37,295	162,140	40,504
Caledonia									30,410	4,943	276,850	110,365	307,260	115,308
Catskill											390,690	144,357	390,690	144,357
Chateaugay							1,100	124			138,460	32,811	139,560	32,935
Oneida											200	1,111	200	1,111
Randolph											175,495	66,070	175,495	66,070
Rome					2,710	181	18,000	1,648			308,150	77,476	328,860	79,305
Salmon River									23,430	3,779	139,310	29,768	162,740	33,547
Van Hornesville							2,800	332			144,610	42,068	147,410	42,400
TOTALS					**45,710**	**3,390**	**22,550**	**2,169**	**53,840**	**8,722**	**1,764,545**	**560,280**	**1,886,645**	**574,561**

COLD WATER ANNUAL STOCKING REPORT - BY HATCHERIES

APRIL 1, 2006 - MARCH 31, 2007

	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
SPECIES	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
Rainbow Trout														
Adirondack											41,600	9,604	41,600	9,604
Bath			78,800	952			40,000	3,704			40,700	10,423	159,500	15,079
Caledonia											45,000	12,343	45,000	12,343
Catskill							2,000	208			42,980	12,783	44,980	12,991
Chateaugay			1,500	36							62,690	19,243	64,190	19,279
Randolph											10,815	6,134	10,815	6,134
Rome			8,000	128							72,440	17,340	80,440	17,468
Salmon River							1,200	119			11,850	2,466	13,050	2,585
Van Hornesville			44,500	1,004			12,000	1,071	3,000	526	52,700	13,218	112,200	15,819
TOTALS			**132,800**	**2,120**			**55,200**	**5,102**	**3,000**	**526**	**380,775**	**103,554**	**571,775**	**111,302**
Steelhead														
Chateaugay					20,000	952							20,000	952
Salmon River					543,200	28,622	269,690	23,585	20,000	2,667			832,890	54,874
TOTALS					**563,200**	**29,574**	**269,690**	**23,585**	**20,000**	**2,667**			**852,890**	**55,826**
Lake Trout														
Adirondack							28,580	2,056	4,020	339			32,600	2,395
Bath							121,200	6,666			127,820	21,228	249,020	27,894
Catskill									9,240	776			9,240	776
Chateaugay							7,260	462	47,290	3,920	28,860	3,605	83,410	7,987
Rome							550	40	10,390	868			10,940	908
TOTALS							**157,590**	**9,224**	**70,940**	**5,903**	**156,680**	**24,833**	**385,210**	**39,960**
Splake														
Adirondack											3,410	853	3,410	853
Chateaugay											11,310	3,038	11,310	3,038
Rome											1,290	256	1,290	256
TOTALS											**16,010**	**4,147**	**16,010**	**4,147**

COLD WATER ANNUAL STOCKING REPORT - BY HATCHERIES

APRIL 1, 2006 - MARCH 31, 2007

	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
SPECIES	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
Landlocked Salmon														
Adirondack	5,890	320	95,200	42	19,400	753	129,610	13,041	80,950	9,760	390	1,032	331,440	24,948
Bath							37,440	3,879					37,440	3,879
Catskill									4,320	635			4,320	635
Chateaugay											19,060	5,334	19,060	5,334
Van Hornesville							5,280	539					5,280	539
TOTALS	**5,890**	**320**	**95,200**	**42**	**19,400**	**753**	**172,330**	**17,459**	**85,270**	**10,395**	**19,450**	**6,366**	**397,540**	**35,335**
Coho														
Salmon River					155,000	10,534	109,900	9,158					264,900	19,692
TOTALS					**155,000**	**10,534**	**109,900**	**9,158**					**264,900**	**19,692**
Chinook														
Caledonia			414,000	3,237									414,000	3,237
Salmon River			1,412,900	17,549									1,412,900	17,549
TOTALS			**1,826,900**	**20,786**									**1,826,900**	**20,786**
Total Trout and Salmon	**9,740**	**320**	**2,118,735**	**24,761**	**1,098,200**	**56,812**	**797,930**	**67,559**	**249,960**	**31,032**	**2,517,070**	**763,583**	**6,791,635**	**944,067**

Report Date 3/29/2007

WARM WATER ANNUAL STOCKING REPORT - BY HATCHERIES

APRIL 1, 2006 - MARCH 31, 2007

	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
SPECIES	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
Walleye														
Bath	1,312,000	17											1,312,000	17
Caledonia	8,780,000	116											8,780,000	116
Chateaugay	2,284,000	30											2,284,000	30
Chautauqua	267,000	3	289,500	181									556,500	184
Oneida	177,487,000	2,366			77,785	2,821							177,564,785	5,187
Rome	5,200,000	69											5,200,000	69
Salmon River	5,950,000	68											5,950,000	68
South Otselic			193,400	190									193,400	190
Van Hornesville	8,708,000	116											8,708,000	116
TOTALS	**209,988,000**	**2,785**	**482,900**	**371**	**77,785**	**2,821**							**210,548,685**	**5,977**
Muskellunge														
Chaut/Bath											4,800	459	4,800	459
Chaut/Chat	79,000	3											79,000	3
Chautauqua	464,000	18	21,700	4							17,900	1,960	503,600	1,982
TOTALS	**543,000**	**21**	**21,700**	**4**							**22,700**	**2,419**	**587,400**	**2,444**
Tiger Muskellunge														
South Otselic					49,000	1,314					109,560	13,000	158,560	14,314
TOTALS					**49,000**	**1,314**					**109,560**	**13,000**	**158,560**	**14,314**
Panfish														
Chautauqua											2,500	500	2,500	500
TOTALS											**2,500**	**500**	**2,500**	**500**
Paddlefish														
Oneida											367	122	367	122
TOTALS											**367**	**122**	**367**	**122**
Total Warm Water Fish	**210,531,000**	**2,806**	**504,600**	**375**	**126,785**	**4,135**					**135,127**	**16,041**	**211,297,512**	**23,357**

Report Date 3/29/2007

ANNUAL STOCKING REPORT - BY SPECIES

APRIL 1, 2006 - MARCH 31, 2007

	LESS THAN 1"		1" - 4.24"		4.25" - 5.74"		5.75" - 6.74"		6.75" - 7.74"		7.75" Plus		TOTAL	
SPECIES	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
Cold Water														
Brook Trout	3,850	0	63,835	1,813	314,890	12,561	10,670	862	16,910	2,819	179,610	64,403	589,765	82,458
Brown Trout					45,710	3,390	22,550	2,169	53,840	8,722	1,764,545	560,280	1,886,645	574,561
Rainbow Trout			132,800	2,120			55,200	5,102	3,000	526	380,775	103,554	571,775	111,302
Steelhead					563,200	29,574	269,690	23,585	20,000	2,667			852,890	55,826
Lake Trout							157,590	9,224	70,940	5,903	156,680	24,833	385,210	39,960
Splake											16,010	4,147	16,010	4,147
Landlocked Salmon	5,890	320	95,200	42	19,400	753	172,330	17,459	85,270	10,395	19,450	6,366	397,540	35,335
Coho					155,000	10,534	109,900	9,158					264,900	19,692
Chinook			1,826,900	20,786									1,826,900	20,786
Cold Water Total	**9,740**	**320**	**2,118,735**	**24,761**	**1,098,200**	**56,812**	**797,930**	**67,559**	**249,960**	**31,032**	**2,517,070**	**763,583**	**6,791,635**	**944,067**
Warm Water														
Walleye	09,988,000	2,785	482,900	371	77,785	2,821							210,548,685	5,977
Muskellunge	543,000	21	21,700	4							22,700	2,419	587,400	2,444
Tiger Muskellunge					49,000	1,314					109,560	13,000	158,560	14,314
Panfish											2,500	500	2,500	500
Paddlefish											367	122	367	122
Warm Water Total	**210,531,000**	**2,806**	**504,600**	**375**	**126,785**	**4,135**					**135,127**	**16,041**	**211,297,512**	**23,357**
Grand Total	**210,540,740**	**3,126**	**2,623,335**	**25,136**	**1,224,985**	**60,947**	**797,930**	**67,559**	**249,960**	**31,032**	**2,652,197**	**779,624**	**218,089,147**	**967,424**

Species of Greatest Conservation Need

Central Office- State Wildlife Grants Program

State Wildlife Grants Program and the Comprehensive Wildlife Conservation Strategy

Bureau of Fisheries Central Office staff member Lisa Holst continues to manage the Division-wide State Wildlife Grants Program (SWG). DEC was notified in May of 2006 that its Comprehensive Wildlife Conservation Strategy (CWCS) was accepted by US Fish and Wildlife Service. This acceptance ensures that NY will remain eligible for SWG funds for 10 years.

The program has grown over the past year with the hiring of 10 new Biologist 1 positions. Nine of these biologists are assigned to manage the 11 watersheds delineated in the CWCS. Their role is coordination of the program with local partners and DEC staff in each watershed, and to create individual work plans based on recommendations in the CWCS for each watershed. Two of these biologists are supervised by Regional Fisheries Managers. The 10th Biologist 1 is based in the Central Office in Albany and is responsible for managing data related to SWG species and the data generated by SWG funded projects.

The SWG program used its Federal Fiscal Year 2005 funding to create a $2.94 million grants program for our partners to help implement the recommendations in the CWCS. The program issued its first Request for Applications in January of 2007, and received 93 applications that collectively requested over $12 million in grant funds. Project awards are expected in summer 2007.

The SWG program identifies over 530 fish and wildlife Species of Greatest Conservation Need. The CWCS includes recommendations for 40 species of freshwater fish and several diadromous species that range inland from coastal waters. Several projects related to freshwater fish have been funded by the program. Some highlights from these projects follow.

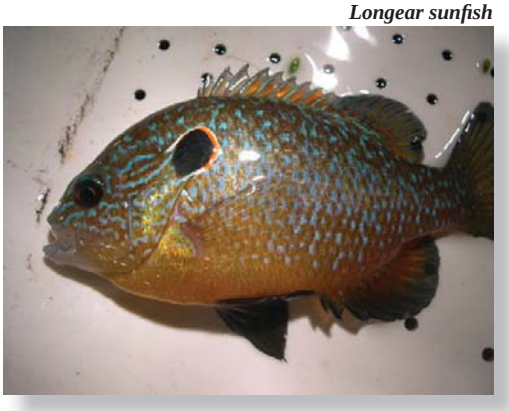
Adirondack Round Whitefish Investigation

Field work was concluded in spring 2006 and the final report was delivered in February 2007. The report includes an assessment of the status of round whitefish throughout its range in NY, a habitat model identifying the most important biological variables in their distribution and identification of the probable factors in their decline. It also proposes a draft recovery strategy and a prioritized list of Adirondack lakes that would be the best candidates for restoration of the species through re introduction.

Longear Sunfish

This project was completed and the final report was delivered in spring of 2007. The report describes the population characteristics of longear sunfish and their current status in NY. Field work conducted in 2005 involved intensive sampling of 124 sites in 13 waters throughout the former range of the fish in NY. Longear sunfish were found only in a single 2.3 mile stretch of Tonawanda Creek. A management plan was presented along with habitat indicators intended to predict the suitability of other waters for longear sunfish. This has resulted in experimental hatchery rearing and restoration of longear sunfish into additional waters of the State. Also in 2006-07 longear sunfish are being cultured in ponds and were stocked in a tributary of Oak Orchard Creek and of Buffalo River. A second brood stock was acquired from Moira River of Ontario and a third from Tonawanda Creek. Propagation efforts were summarized by Reynolds in an article in American Currents (2007).

Longear sunfish



Rare Fish of Oswayo Creek and the Upper Allegheny River

The project objective is to determine the status and distribution of rare fish in the Allegheny watershed. Sampling of over 70 locations in 2006-2007 extended the known range in NY of bluebreast darter and Ohio lamprey. Two other species of interest in this watershed, gilt darter and gravel chub were not caught despite diligent efforts. This project, expected to be completed in 2008, will also gather data on the habitat requirements and other factors that may be limiting the populations of these fish. These findings will support restoration and management efforts by the Bureau.

American Eel, Inland

The objectives of this project include compiling the current and historic eel population data in each of the State's major drainage basins, summarizing commercial catch reports, analyzing population trends and identifying limiting factors contributing to their widespread decline. Previous population assessments indicate alarming declines in numbers of eels in the Lake Ontario – St. Lawrence River population. Work began in June 2006 and numerous distribution maps and draft analyses have been developed. The project is expected to continue through March 2008 and to coordinate with a complementary project assessing juvenile eels returning to the marine waters of the state from their spawning range in the Sargasso Sea. Final products from this project will include a statewide management plan for eels.

Glass eels (juvenile stage)

Region 1

Banded Sunfish Surveys

Regional Fisheries Unit staff members Chart Guthrie, Heidi O'Riordan, David Kennedy; Cobleskill Intern Joe Albanese and Larry Cowden from Environmental Permits began surveys for the banded sunfish in the Peconic River system. The banded sunfish is listed as a threatened species in New York State. Prior to initiating survey work, the Bureau of Fisheries Statewide Database was searched for all historic records of banded sunfish collections and they were mapped on ArcGIS. In addition all surveys where banded sunfish were sought but not collected were noted and mapped. Possible locations for banded sunfish populations that had not been surveyed were also noted and land ownership was determined with the assistance of Heather Amster from Real Property. Preliminary field surveys consisted of comparisons of gear effectiveness between dip nets and a small seine in waters where banded sunfish were known to exist. The two techniques were both effective in catching banded sunfish, but the effectiveness varied depending upon the type of habitat sampled. In three days of surveys banded sunfish populations were reconfirmed in five waters, their absence was confirmed in two waters, and a population was documented in one water that had not been previously surveyed. In addition a NYS Endangered Species, the tiger salamander was documented in a ninth water.

Banded sunfish

Region 5

Restoration of the endangered round whitefish

Historically round whitefish were found in about 70 Adirondack lakes and ponds. Their distribution has declined dramatically and they are currently listed as endangered in New York. Recent efforts to restore round whitefish include: annual egg take, hatchery production and stocking; pond reclamations to eliminate introduced fishes and to establish a broodstock pond; and survey and planning efforts by Cornell University scientists.

Little Green Pond, reclaimed in 2003, received a third stocking of round whitefish. Also, Rock Pond, located in the Pharaoh Lake Wilderness received a second stocking of round whitefish. About 1,300 round whitefish fry were carried by backpack into Rock Pond. The fry averaged 1.5 in when stocked.

Expectations are that Little Green Pond will become New York's primary brood stock water for round whitefish. The pond was netted in the fall of 2006 in a first attempt to obtain round whitefish eggs from this waterbody. Oneida style trap nets fished for 20 net nights. All three year classes of whitefish were netted. Growth rates were excellent with age 0 fish averaged 6.7 in, age 1 averaged 11 in, and age 2 whitefish averaged 13 in. A total of 94 round whitefish were caught, 66 of which were the large, age 2 fish. Most of the fish were immature: only one ripe female and few ripe males were captured. The relative lack of mature round whitefish is not surprising - the oldest round whitefish in the pond were age 2, yet the parental stock of round whitefish in the Cascade Lakes do not mature until age 3. Due to the lack of adult brood stock fish in Little Green Pond, no stocking occurred in 2006-2007.

Apparently this population will spawn very late in the fall. Nets were set periodically starting in mid-November. No ripe fish were handled until November 30. The net catch picked up markedly in early December, suggesting timing of the real run. Unfortunately rainbow smelt were also captured in the netting. This species was thought to have been eliminated from the pond during the reclamation (and that is still believed to be the case). Smelt spawn in the Little Green outlet each spring and the barrier dam which prevents their entry from Little Green is located immediately adjacent to the pond. Heavy human, pet and wildlife traffic in this area creates a difficult situation in our attempts to keep smelt out of Little Green Pond.

Region 9

Fertilizing whitefish eggs

Paddlefish Restoration

First initiated in 1998, New York's effort to restore paddlefish entered its ninth year in 2006. Paddlefish reared at Oneida Hathchery were released into Allegheny Reservoir (1998 - 46, 1999 - 535, 2000 - 135, 2001 - 1,878, 2002-762 , 2003-778, 2004-803, 2005-1433). Starting in 2006 the Conewango Creek was a new release site with 367 fish stocked. Minute coded wire tags were inserted into the paddles of all paddlefish before release for subsequent identification of stocking site origin and date. Four reports of paddlefish either observed swimming, stranded or caught angling were received in 2005 and six in 2006 with the largest paddlfish reported at approximately 45 in. Stocking and tag recovery information was forwarded to Mississippi Interstate Cooperative Resource Association (MICRA).

Paddlefish

Rare, Threatened and Endangered Fish Program

The discovery of VHS in New York State waters forced a halt in the lake sturgeon hatchery rearing program during 2006-2007. DEC staff hope to fine alternate hatchery facilities or brood stock sources to allow this effort to continue in the future.

This was the fifth year of surveys of lesser-known fishes referred to as watershed updates to fill-in knowledge typically not included in Regional surveys. The watershed summaries have tables showing which major waters have which species, and there are species annotations. For the Black watershed and Mohawk watershed, we sampled at 132 locations in 2006 and summarized catches for 75 and 88 species respectively. These reports will later be combined with the previous ones, for the eight watersheds to the south and west, to develop an article for the NYS Museum Circulars. The first one will be called "Fish survey updates for watersheds of central, western and southern New York". The Ontario watershed and Erie watershed fish survey updates were also completed with samples from 1999-2007 and will later be melded into that same overview report. Field sampling and data reports were completed with the assistance of Eric Reynolds in the summer, fall and winter.

Exceptional catches from miscellaneous surveys in 2006 (at 157 sites) and early 2007 included: Iowa darters from Mendon Ponds, black bullhead repeat-records from the only two streams where they are known (in ditches of Iroquois Nat. Wildl. Refuge and in Mud Creek next to the Champlain Canal), repeat records of summer suckers in the three lakes where they are known (Squaw Lake in 2006 and L. Moose and Elk lakes in 2007), pugnose shiner and American shad in Sodus Bay, and longear sunfish in Tonawanda Creek at Millersport. The number of surveys and sites in each region in 2006 are listed at the end of this report.

Some of these samples were part of biomonitoring work (at 4 sites at Quacken Kill) that will help in the development of an IBI. This was done in conjunction with RIBS work on macroinvertebrates by Bob Bode's group, where we now have 120 sites with calculated values for cross referencing the indices or two taxonomic groups. A preliminary examination of the metrics used in the watershed updates was accomplished by borrowing data from Dr. K. Murray (USGS, Troy) and seeing how her IBI values at reference sites compared to values using my 12, more generalized metrics. Further analysis is possible using chemistry and macroinvertebrate ratings for those USGS sites. Our work on an IBI for Lake Ontario bays and tributary mouths from 1996-2000 was finally advanced to a publication that was printed (in a book edited by Simon and Stewart) in December 2006.

NY Biological Survey fish data from 1927-28 were entered into the Fisheries database because of omissions in the electronic records. Unfortunately, the catches in the first 5 years, 1926-30 were not recorded on field sheets as completely as from 1931-39, and only catches of sportfish have been available in electronic files for 1926-30. The catch records by Greeley et al. for Oswego and Erie watersheds (1927-28) were reconstructed from records at the State Museum and the Catalogue stored at CU. All these have been entered for Erie (267 sites) and about 2/3rds are entered for Oswego (214 sites). The remainder for Oswego will be completed in winter 07-08. The catch records are still not a complete listing of all kinds and numbers that were likely caught, but they at least represent most of the species.

Administration

Statewide

Emergency Regulations Enacted to Limit the Spread of Viral Hemorrhagic Septicemia (VHS)

Starting in the Fall of 2006, the Bureau of Fisheries conducted a year long and continuing statewide effort to help prevent the spread of the Viral Hemorrhagic Septicemia (VHS) to additional waters in the state. VHS was first confirmed in freshwater fish in New York waters in May 2006 in Lake Ontario and the St. Lawrence River, since spreading to a few inland waters. There is no known cure for VHS and the virus is nearly always fatal to fishing coming down with the disease. With it's ability to spread, the virus poses serious potential impacts to fisheries, recreation, and the economy of New York (note that VHS is a fish pathogen and does not pose any threat to public health).

Emergency regulations were first put in place in November of 2006 and a final permanent rule making was filed in June of 2007. The new regulations place limits on the possession, sale, transfer, taking and release of certain bait fish and on other live fish species to be placed in New York waters. While the rule making is complex due to the all of the considerations that needed to be taken into account, the major focus was limiting the use of bait fish (both personal and commercial use) to the same body of water; allowing for the commercial sale of bait fish for use in other waters (other than the same water body from which collected) if they have been certified as being free of certain fish pathogens; and requiring that all live fish, destined for release into the waters of the state be inspected and free of certain fish pathogens. Information pertaining to the outreach efforts on VHS, including to anglers, commercial bait fish operators and private hatcheries, is included elsewhere in this report.

Central Office- Biological Survey Unit

Survey Processing

There were 743 fisheries surveys sent to the Biological Survey Unit (BSU) for inclusion into the Fisheries Survey Database in 2006 compared to 316 sent in 2005. These surveys represent a broad array of data collection events used to determine present day and long-term trends in fish presence, abundance, water chemistry and habitat. Of particular significance in 2006 is the addition of vast amounts of historic fisheries data collected from the Finger Lakes in Region 7.

Regional staff also submitted 550 survey abstracts. A survey abstract briefly describes the where, what and how's of a survey effort. Many of these abstracts relate current survey results to previous sampling endeavors and serve as an excellent means for historical perspective on a given resource. Through the abstracts the Bureau is laying down "written tracks" and the value of these documents will increase as data become more historic in nature.

Historic Database

Currently the Bureau has electronic records and a functional database for almost all inland survey work from 1988 to present. "Historic" fisheries survey data (1924 – 1988) is in electronic medium but not in a usable format. The BSU has analyzed the historic data and determined that much of it can be integrated into the existing Modern Fisheries Database. Integration will yield one comprehensive survey database and add 57,000 surveys covering 100,000 site locations. Data will be limited to Site Location, Summary Fish, Water Chemistry and Comments. An algorithm to create survey numbers has been developed and all survey and site location data has been reformatted for integration. The BSU hopes to have the first draft of the new Statewide Fisheries Database completed by the end of August 2007.

Database Conversion

The database has almost doubled in size since 2000 and our current software is becoming overburdened. The BSU is working with DIS to convert the DB from Access to Oracle. Once in Oracle the DB, which is currently distributed via CD will be delivered over the agency network. Once this is accomplished the BSU will begin a pilot program for data entry in the field via handheld data collectors. Process on this initiative has been slow. The BSU is waiting for DIS to upgrade Oracle to 10G and provide workspace on the server.

Fisheries GIS

After three years of hard work the BSU has finally completed the digital tagging of over 80,000 water bodies in the National Hydrography Dataset (NHD) with unique identifiers. The creation of this tagged water layer will serve as the first stepping stone toward the development of a GIS based Fisheries Information Management System which will include the integration of other BOF database and hopefully some new ones such as a fisheries management database. The Bureau envisions a GIS that will provide a means for one stop shopping for all fisheries related information. Via a point and click map interface users will be able to view survey data, stocking information access points, etc. Development of an in-house application will begin in 2007. The Bureau hopes to provide the public with a similar tool via the website in the future.

Central Office- Coldwater Unit

Eastern Brook Trout Joint Venture

In recognition of the need to address regional and range-wide threats to brook trout, DEC joined a group of public and private entities formed the Eastern Brook Trout Joint Venture in 2004. The goals of the Joint Venture are to halt the decline of brook trout and restore fishable populations. The Joint Venture includes Fish and Wildlife agencies from 17 states, USGS, USFS, USFWS, NPS, Trout Unlimited, The Nature Conservancy, the Izaak Walton League, and academic institutions.

Joint Venture scientists, in cooperation with state agency biologists, assessed each of more than 11,400 subwatersheds for brook trout population status and threats across its eastern range. For New York State, it was found that only 5% of watersheds that historically contained brook trout in streams and rivers remain intact, primarily in portions of the Adirondacks and Tug Hill plateau.

Western and south central New York suffered the greatest losses of brook trout. Data gaps remain in the central part of the state from Albany to Syracuse. While many lakes and ponds contain brook trout, losses have been substantial due to competition with non-native fish and acid rain.

In 2006, states prepared individual Conservation Strategy documents designed to meet the challenges identified in the range-wide assessment. New York's Conservation Strategy identified 19 goals and 39 strategies. State strategies were combined to produce a range-wide Eastern Brook Trout Conservation Strategy, which includes five overarching range-wide objectives to be completed by 2025, with smaller regional goals to be completed by 2012. Success will be measured against the baseline status and threats assessment completed in 2005.

One of the range-wide goals is to determine the status of brook trout in watersheds where recent, quantitative data is lacking. We have begun that effort in Region 4 under the Coldwater Federal Aid project, and Trout Unlimited has submitted a SWG proposal to undertake a similar effort in Regions 5 and 6.

Region 5

Emily Zollweg was inducted as President of the New York Chapter of the American Fisheries Society on February 8, 2007. The American Fisheries Society is the professional organization for fisheries scientists. As such, it brings together fisheries experts from state agencies, universities, Federal agencies, and private business. Congratulations to Emily for receiving this honor, and thanks for her extra effort on behalf of our fisheries resources.

Region 7

Permits and Licenses
The following number of permits and licenses were issued by the Fisheries Unit:
Bait Licenses - 63; Farm Fish Pond Licenses - 142; Triploid Grass Carp Permits - 231; Permits to stock or remove fish - 31; Piranha Permits - 1.

Region 8

Triploid Grass Carp Permits
Region 8 issued 334 permits in FY 2006-07. There appears to be a slight trend downward in the number of permits issued since the high of 429 in 2003-2004.

Farm Fish Pond Licenses
The Region issued 154 farm fish pond licenses in FY 2006-07. The numbers of permit issued appears to be stable. There is no fee for these licenses.

Stocking Permits
The Region issued 11 stocking permits during FY 2006-07. There is no fee associated with this permit.

Bait Licenses
The Fisheries Keyboard Specialist has the responsibility of issuing bait licenses. Eighty five (85) licenses were issued with seven hundred forty three dollars ($743.00) collected in FY 2006-07.

Piranha Permits
The Region did not issue any piranha permits in FY 2006-07.

Region 9

Large Waters Fisheries Research Boat
Region 9 staff received their 22 ft aluminum research boat (the "Cecil Heacox") from American Metalcraft Corporation of Clayton, New York. The boat, representing the first large water boat built specifically for fisheries work in Region 9, will be used on Chautauqua Lake, the Niagara River and as a backup boat to the Lake Erie Unit.

New Region 9 Research Boat

Triploid Grass Carp, Farm Pond and Stocking Permits
Once again new permits and renewals continued to increase. We issued 570 Triploid Grass Carp Permits in 2006. That is the most we have ever issued in a single year.

In 2006, 3 new Fish Stocking Permits were issued in Region 9.

In 2006, 72 Farm Fish Pond Permits were issued, which is about the regional average. Below is the number issued by county:

Allegany- 8
Cattaraugus- 18
Chautauqua- 15
Erie- 23
Niagara- 3
Wyoming- 5

Bureau of Fisheries Staffing

CENTRAL OFFICE

Administration

Stang, Douglas	Biologist 4 (Aquatic)

Public Use and Extension

Woltmann, Ed	Biologist 3 (Aquatic)
Kozlowski, Greg	Biologist 2 (Aquatic)
Meschino, Joelle	Environmental Educator Asst.

Inland Fisheries

Keeler, Shaun	Biologist 3 (Aquatic)
Daley, James	Biologist 2 (Aquatic)
Hurst, Steve	Biologist 2 (Aquatic)
Loukmas, Jeff	Biologist 2 (Aquatic)
Holst, Lisa	Biologist 2 (Aquatic)
Herzog, Carl	Biologist 1 (Ecology)
McKelvey, Amy	Env. Program Specialist 1
Richmond, Linda	Agency Program Aide
Andersen, James	Clerk 1
Michasiow, Casey	Fish & Wildlife Technician 1 (seasonal)

Fish Culture

Hulbert, Phil	Fish Culturist VI
Buell, Henry	Fish Culturist V
LaBoissiere, Mary	Secretary 1

REGION 1

Guthrie, Charles	Biologist 2 (Aquatic)
O'Riordan, Heidi	Biologist 1 (Aquatic)
Latremore, Erik	Fish & Wildlife Technician 2
Kennedy, David	Fish & Wildlife Technician 2 (resigned 6/28/07)
Pries, Joseph	Fish & Wildlife Technician 1 (seasonal)
Felice, Tom	Seasonal Laborer (½ time)
Fradua, Jon	Fish & Wildlife Technician 1 (seasonal)
Nichol, Malynda	Recreational Fisheries Specialist *Sea Grant*
Albanese, Joe	Cobleskill Intern (5/15/06-8/15/06)

REGION 2

Pane, Joseph	Biologist 3 (Aquatic)
Cohen, Melissa	Biologist 1 (Aquatic)
Lee, Nim	Recreational Fisheries Specialist *Sea Grant*
Bruner, Sarah	Environmental Educator Asst.

REGION 3

Elliot, Wayne	Biologist 2 (Aquatic) (retired 4/06)
Flaherty, Mike	Biologist 1 (Aquatic) (promoted to Biologist 2- 6/06)
Pierce, Ron	Biologist 1 (Aquatic)
Angyal, Bob	Biologist 1 (Aquatic)
Surprenant, Leslie	Biologist 1 (Aquatic) (transferred 2/07)
Wilson, Larry	Biologist 1 (Aquatic)
Falk, Art	Fish & Wildlife Technician 3 (retired 5/06)
Wysocki, Linda	Fish & Wildlife Technician 2 (promoted to Tech 3- 8/06)
McNamara, Tim	Fish & Wildlife Technician 1 (Seasonal)
Zerkle, Tony	Fish & Wildlife Technician 1 (Seasonal)

REGION 4

Lorence, Steve	Biologist 2 (Aquatic)
McBride, Norm	Biologist 1 (Aquatic)
Zielinski, Dan	Biologist 1 (Aquatic)
Cornwell, Dave	Fish & Wildlife Technician 2
Linhart, Fred	Fish & Wildlife Technician 3
Collins, Kandy	Keyboard Specialist 2

REGION 5

William Schoch	Regional Fisheries Manager
Leo Demong	Biologist I (Aquatic)
Lance Durfey	Biologist I (Aquatic)
Richard Preall	Biologist I (Aquatic)
Matthew Presher	Biologist I (Aquatic)
Emily Zollweg	Biologist I (Aquatic)
Jennifer Sausville	Fish & Wildlife Technician 3
David Armstrong	Fish & Wildlife Technician 2
Bethany Stephenson	Environmental Educator Assistant (Seasonal)
Nathan Favreau	Fish & Wildlife Technician 1 (Seasonal)
Sara Duensing	Fish & Wildlife Technician 1 (Seasonal)
David LaRusso	Fish & Wildlife Technician 1 (Seasonal)

REGION 6

Flack, Frank	Biologist 2 (Aquatic)
McCullough, Russ	Biologist 1 (Aquatic)
Klindt, Rodger	Biologist 1 (Aquatic)
Hasse, Jack	Biologist 1 (Aquatic)
Carlson, Doug	Biologist 1 (Aquatic)
VanMaaren, Chris	Biologist 1 (Aquatic)
McDonald, Dick	Biologist 1 (Aquatic)
Adams, Dick	Fish & Wildlife Technician 3
Hart, Jessica	Fish & Wildlife Technician 1 (Seasonal)
Hart, Silas	Fish & Wildlife Technician 1 (Seasonal)
Niewieroski, Greg	Seasonal Laborer
Rice, Travis	Seasonal Laborer
Ambrose, Jake	Fish & Wildlife Technician 1 (Seasonal)

Reynolds, Eric	Cobleskill Intern
Gordon, Aaron	Fish & Wildlife Technician 1 (Seasonal)
Alexander, Amanda	Fish & Wildlife Technician 1 (Seasonal)
Bailey, Melissa	Fish & Wildlife Technician 1 (Seasonal)

REGION 7

Bishop, Dan	Biologist 2 (Aquatic)
Lemon, Dave	Biologist 1 (Aquatic)
Robins, Jeff	Biologist 1 (Aquatic)
Davall, Russ	Fish & Wildlife Technician 3
Everard, Jim	Biologist 1 (Aquatic)
Hines, Janet	Secretary 1 (retired 12/15/06)
Fox, Shawn	Fish & Wildlife Technician 1 (seasonal- 4/1/06-9/29/06)
Richardson, Denise	Fish & Wildlife Technician 1 (seasonal- 9/16/07-2/7/07)

REGION 8

Pearsall, Webster	Biologist 2 (Aquatic)
Sanderson, Matt	Biologist 1 (Aquatic)
Hammers, Brad	Biologist 1 (Aquatic)
Austerman, Peter	Biologist 1 (Aquatic)
Mahar, Amy	Biologist 1 (Ecology)
Angold, Fred	Fish & Wildlife Technician 3
Olsowsky, David	Fish & Wildlife Technician 2
Verna, Marvin	Fish & Wildlife Technician 2 (transferred to Wildlife)
Burdett, Anna	Keyboard Specialist
Deres, Bob	Fish & Wildlife Technician 1 (seasonal)

REGION 9

McKeown, Paul	Biologist 2 (Aquatic)
Evans, Joe	Biologist 1 (Aquatic)
Wilkinson, Mike	Biologist 1 (Aquatic)
Cornett, Scott	Biologist 1 (Aquatic)
Galati, Joseph	Biologist 1 (Aquatic)
Zanett, James	Fish & Wildlife Technician 3
Clancy, Mike	Biologist 1 (Aquatic)
Holevinski, Robin	Biologist 1 (Ecology)
Sztukowski, Jon	Fish & Wildlife Technician 1 (seasonal)
Anderson, Chris	Fish & Wildlife Technician 1 (seasonal)

LAKE ERIE UNIT

Culligan, William	Biologist 3 (Aquatic)
Einhouse, Don	Biologist 1 (Aquatic)
Markham, Jim	Biologist 1 (Aquatic)
Zeller, Doug	Fisheries Research Vessel Captain
Zimar, Richard	Fish & Wildlife Technician 2
Beckwith, Brian	Fish & Wildlife Technician 2
Szwejbka, MariEllen	Secretary 1
Dusablon, Mark	Fish & Wildlife Technician 1 (seasonal)
Haley, Adam	Fish & Wildlife Technician 1 (seasonal)
Landahl, Brian	Fish & Wildlife Technician 1 (seasonal)

LAKE ONTARIO UNIT

LaPan, Steve	Biologist 2 (Aquatic)
Lantry, Jana	Biologist 1 (Aquatic)
Connerton, Michael	Biologist 1 (Aquatic)
Fairbanks, Alan	Fisheries Research Vessel Captain
Massia, Gaylor	Maintenance Assistant
Eckert, Thomas	Fish & Wildlife Technician 1 (Seasonal)
King, M. Ellen	Environmental Educator Asst.
Grant, Beverly	Secretary 1

ADIRONDACK FISH HATCHERY

Grant, Edward	Fish Culturist 3
Wallace, Michael	Fish Culturist 2
Aldinger, Fritz	Fish Culturist 1
Klubek, Ken	Fish Culturist 1
Jackson, Matt	Fish Culturist 1
Delisle, Jon	Seasonal Laborer

BATH FISH HATCHERY

Osika, Kenneth	Fish Culturist 3
Sweet, Robert	Fish Culturist 2
Klesa, Rodney	Fish Culturist 1
Raab, Kelly	Fish Culturist 1
Todd, Michael	Fish Culturist 1

CALEDONIA FISH HATCHERY

Mack, Alan	Fish Culturist 4
Krause, Mark	Fish Culturist 3
Hubbard, Bruce	Fish Culturist 2
Stein, Robert	Fish Culturist 2
Hayden, Kevin	Fish Culturist 2
Zenzen, Steve	Fish Culturist 1
Ward, Brian	Fish Culturist 1
Schirmer, Jason	Fish Culturist 1

CATSKILL FISH HATCHERY

Covert, Scott	Fish Culturist 4
Anderson, John	Fish Culturist 3
Gennarino, Joe	Fish Culturist 2
Anstey, Tim	Fish Culturist 1
Judson, Jim	Fish Culturist 1
Speziale, Mike	Fish Culturist 1
Sherwood, Steve	Fish Culturist 1

CHATEAUGAY FISH HATCHERY

Brue, Peter	Fish Culturist 3
Ventiquattro, Thomas	Fish Culturist 2
McCarthy, Neil	Fish Culturist 1
Goodale, Zachary	Fish Culturist 1

CHAUTAUQUA FISH HATCHERY

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

ONEIDA FISH HATCHERY

Babenzien, Mark	Fish Culturist 4
Rathje, Carl	Fish Culturist 3
Dixon, Michael	Fish Culturist 2
Evans, William	Fish Culturist 2

RANDOLPH FISH HATCHERY

Mellon, Jonathan	Fish Culturist 3
Borner, Richard	Fish Culturist 2
Rambuski, James	Fish Culturist 2
Hohmann, Barry	Fish Culturist 1
Robb, Steve	Fish Culturist 1
Hulings, Raymond	Maintenance Assistant

ROME FISH HATCHERY

Lewthwaite, Robert	Fish Culturist 4
Wanner, Scott	Fish Culturist 3
Woodworth, William	Fish Culturist 2
Grabowski, Steven	Fish Culturist 1
Draper, John	Fish Culturist 1
Stercho, Jonathan	Fish Culturist 1 (Trainee)
Gray, John	Fish Culturist 1 (Trainee)
Matt, Kimberly	Keyboard Specialist 1
Hajdasz, William	Maintenance Supervisor

ROME FISH DISEASE CONTROL UNIT

Noyes, Andrew	Pathologist 2 (Aquatic)
Henson, Fred	Biologist 1 (Ecology)
Batur, Mark	Fish Culturist 1

SALMON RIVER FISH HATCHERY

Greulich, Andy	Fish Culturist 3
Dolan, Steve	Fish Culturist 3
Nelson, Bob	Fish Culturist 2
Domachowske, Andy	Fish Culturist 2
Edmonds, Brian	Fish Culturist 1
Boyer, Brian	Fish Culturist 1 (Trainee 2)
Zoladz, Justin	Fish Culturist 1 (Trainee 1)
Tabolt, Casey	Fish Culturist 1 (Trainee 1)
Hurd, Karen	Keyboard Specialist 1

SOUTH OTSELIC HATCHERY

Emerson, Patrick	Fish Culturist 2
Kielbasinski, Thomas	Fish Culturist 1
Ryan, Bruce	Fish Culturist 1

VAN HORNESVILLE FISH HATCHERY

Kroon, Larry	Fish Culturist 3
DuBois, Craig	Fish Culturist 2
Watson, Larry	Fish Culturist 1