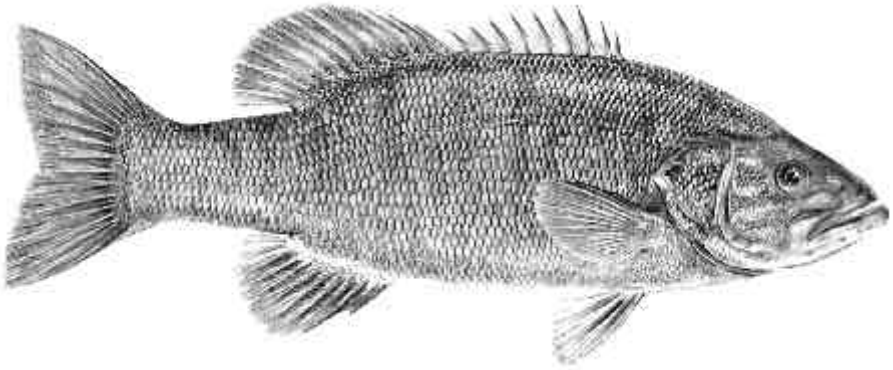
New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources

Bureau of Fisheries



Annual Report
Highlights and Accomplishments 2002/2003

December 2003

George E. Pataki, ***Governor***

Erin M. Crotty, ***Commissioner***

Introduction

The New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Bureau of Fisheries delivers a very 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 state fiscal year 2002/2003, the Bureau of Fisheries logged a total of 41,528 staff days of effort which was valued at more than $7.6 million. Most of this effort was provided by permanent personnel (26,784 staff days), but 14,733 staff days were provided by temporary personnel.

For 2002/2003, Bureau of Fisheries activities were organized under 20 objectives (see Table 1 on next page) which generally describe the intended outcomes from our efforts (e.g. restored, self-sustaining fish populations; healthy hatchery fish; hatchery production to meet demands; additional public fishing access; improved aquatic habitats). The objective which accounted for the greatest amount of total staff effort (36%) was:

> *Meet 100% of hatchery production requirements for all species and life stages by annually*

The second highest amount of total staff effort (27%) was expended on the following objective:

> *Produce 22 million angler days of fishing effort on Great Lakes and inland waters of New York State by the year 2002*

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 41,000-plus days of effort during fiscal year 2002/2003.

This report for state fiscal year 2002/2003 (April 1, 2002 through March 31, 2003) is an effort to highlight many of the findings and accomplishments of activities and efforts carried out by Bureau of Fisheries staff. This report is not inclusive of all Bureau staff activities conducted during 2002/2003. It is a compilation of information that describes activities which were conducted that resulted in significant findings during 2002/2003 or activities from previous years for which results became available during 2002/2003. Information contained in this report was provided by the Regional Fisheries Units, Fish Hatcheries, Great Lakes Fisheries Units, and Central Office staff.

The information is arranged by fishery type (e.g. coldwater stream, warmwater lake) or focus area (e.g. creel and angler surveys, public access) and further by Unit within the Bureau (e.g. Region 1 Fisheries Unit, Adirondack Hatchery, Lake Erie Fisheries Unit) responsible for the accomplishments or findings.

Table 1. - Distribution of Bureau of Fisheries staff effort among twenty Bureau of Fisheries programmatic objectives for the state fiscal year 2002/2003.

Bureau of Fisheries Objective	Total Staff Days	Percent of Staff Days	Total Staff Costs
Prevent degradation of existing quality aquatic habitat and reduce impaired aquatic habitats by 10% by the year 2001	1,334	3.2%	$299,175
Restore 5 additional self-sustaining populations of New York State-listed threatened or endangered fishes by 2006	294	0.7%	$57,067
Maintain self-sustaining populations of 165 species of freshwater and anadromous fishes in New York waters	3,015	7.3%	$548,507
Provide 50 additional fisheries supported entirely by self-sustaining populations of wild fishes in publicly accessible New York waters by 2001	141	0.3%	$28,053
Increase the benefits to cost ratio of producing an angler day of recreational fishing by 10% by the year 2000	822	2.0%	$221,245
Increase angling participation in New York State by 10% by the year 2002 (participation defined by two or more trips per year)	260	0.6%	$51,442
A majority of anglers who solicit information from the Bureau of Fisheries will indicate satisfactory assistance was provided	1,675	4.0%	$337,410
Produce 22 million angler days of fishing effort on Great Lakes and inland waters of New York State by the year 2002	11,268	27.1%	$2,069,402
Based on the 1996 statewide survey, the proportion of anglers indicating that DEC's overall fisheries management programs do not produce good or excellent fishing will decrease by 10% by the year 2002	386	0.9%	$61,575
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 of Fisheries annually	1,022	2.5%	$188,894
Meet 100% of hatchery production requirements for all species and life stages annually	15,166	36.5%	$2,536,972
Acquire 10 miles of Public Fishing Rights (PFR) easements annually and maintain the PFR network for optimal angler use and enjoyment	617	1.5%	$117,392
Acquire new waterway access parcels as opportunities and funding permit. Complete development of 3 Boating Access Sites annually while maintaining the waterway access network for optimal angler use and enjoyment	491	1.2%	$126,364
Safety and performance training. All Bureau of Fisheries field and hatchery staff will participate in an aquatic safety training workshop every 3 years	289	0.7%	$55,864
Training. All Bureau of Fisheries staff will have reasonable opportunity to participate in training to enhance their job performance and promotional preparation	434	1.0%	$88,047
All Bureau staff will have reasonable opportunity to participate in professional and technical conferences/workshops that facilitate and update staff expertise and professional standing	194	0.5%	$49,145
Computer training. All Bureau of Fisheries staff will have ready access to a modern computer and will be trained in use of GroupWise (WordPerfect Office) and other computer software pertinent to their job performance	41	0.1%	$9,345
Increase participation in angling by urban and suburban residents by 25% by 2005	557	1.3%	$109,249
Meet requirements for program reports on schedule and meet internal and external customer needs in a timely manner	905	2.2%	$215,361
Provide effective administrative support and personnel transactions	1,165	2.8%	$204,347
All other Division objectives	1,452	3.5%	$257,917
Bureau of Fisheries Totals	41,528		$7,632,773

Table of Contents

Warmwater Lakes and Ponds

Region 1

Blydenburgh Lake Electrofishing

The Regional Fisheries Unit completed two nights of electrofishing in Blydenburgh Lake on May 20 and 21. The electrofishing survey showed a shift in the largemouth bass population from most individuals in the 9 to 12 inch range when the lake was last surveyed in 1998 to most individuals in the 12 to 15 inch range. The overall catch rate (bass/hour) of largemouth bass declined from 63 in 1998 to 37 in 2002, while the catch rate of bass over 12 inches increased from 3 in 1998 to 31 in 2002. Bluegill, pumpkinseed and yellow perch populations all shifted slightly toward smaller fish. Bluegill and yellow perch catch rates remained essentially unchanged while pumpkinseed catch rates increased. This electrofishing survey will provide some of the background information needed to assess the effects of a regulation change which will allow fishing for bass from March 16 up until the regular Long Island Bass Season reopens on the first Saturday in June. This regulation went into effect in October 1, 2002.

Nassau County largemouth bass No-kill regulation electrofishing evaluation

Between May 6 and June 10, 2002, Massapequa Reservoir, Upper Twin Pond , Massapequa Lake, Lower Twin Pond and South Pond were electrofished to evaluate the Nassau County no-kill regulation that began in October, 1998. Massapequa Reservoir, Massapequa Lake, Lower Twin Pond and South Pond had been electrofished during the spring of 1999 to establish baseline data. Upper Twin Pond has been electrofished every even year since 1992. In four of the five ponds, the largemouth bass PSD almost doubled from either the 1999 or 2000 electrofishing surveys (Figure 1). The Massapequa Reservoir largemouth bass PSD increased from 37 in 1999 to 70 in 2002. The Massapequa Lake largemouth bass PSD increased from 37 in 1999 to 71 in 2002. The Upper Twin Pond largemouth bass PSD increased from 18 in 1998 to 27 in 2000 and 53 in 2002. The South Pond largemouth bass PSD increased from 28 in 1999 to 89 in 2002. The Lower Twin Pond largemouth bass PSD decreased from 50 in 1999 to 27 in 2002. At both South Pond and Lower Twin Pond, the sample sizes were small. Largemouth bass RSD15 increased in 4 of the 5 ponds. Largemouth bass RSD15 decreased in Massapequa Lake from 5 in 1999 to 2 in 2002; however, the high PSD indicates that more bass should move into the preferred size class during the next two years. One concern about Massapequa Lake is that there were no bass caught smaller than 270 mm during the 2002 survey while 13 were caught during the 1999 survey. The cause for this lack of smaller sized bass is unclear. All five ponds also had an increase in the electrofishing catch per hour of 12 inch or larger sized largemouth bass (Figure 2).

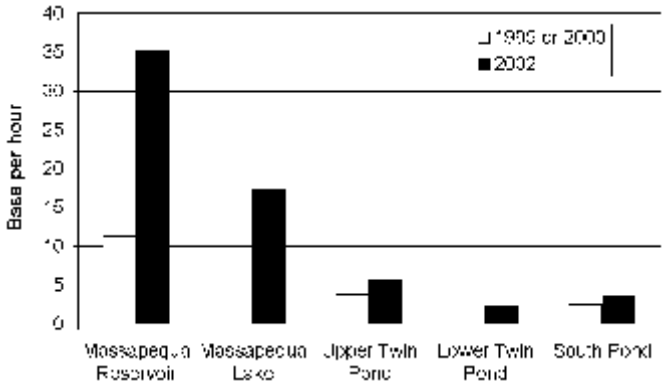


Figure 3 Largemouth bass catch per hour from five ponds in Nassau County, before and after the implementation of a catch and release only regulation.

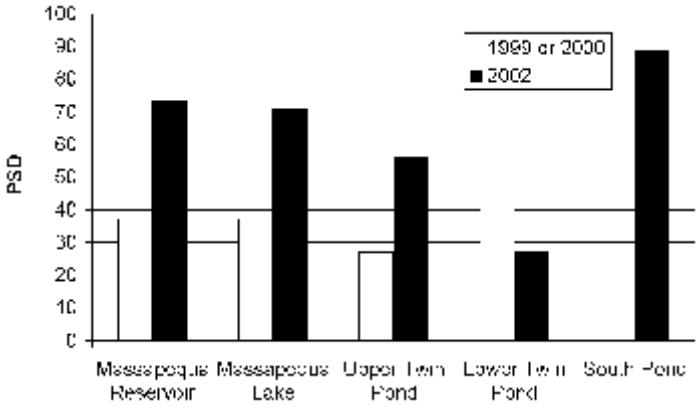


Figure 4 Proportional Stock Density (PSD) of largemouth bass collected from five ponds in Nassau County, before and after the implementation of a catch and release only regulation.

While this increase was not always significant, it did indicate better survival of 12 inch and larger largemouth bass.

Given that all surveyed ponds either had increases in PSD, RSD15 or both and that the CPUE of 12 inch and larger bass increased at all ponds, the conclusion is that the Nassau County no-kill bass regulation is having a desired effect on the stock structure of the bass populations in Nassau County. The results from Massapequa Reservoir are particularly revealing. In 1999, a creel survey of Massapequa Reservoir estimated that 6,300 angler trips (± 625 angler trips) were taken between April 1, 1999 and November 5, 1999. Since Massapequa Reservoir is only 20 acres, that equates to 315 trips per acre during that time frame. Upper Twin Pond also had intense fishing pressure. During the same time frame in 1999, an estimated 4,450 angler trips (± 488 angler trips) were taken. Upper Twin Pond is also 20 acres, which comes out to 223 trip per acre. Both Massapequa Reservoir and Upper Twin Pond had increased PSD and RSD15 despite very intense angling pressure. This is an indication of compliance with the no-kill regulation. In support of this conclusion, during the 1999 creel survey, only six largemouth bass were creeled during 1,154 angler interviews.

Two years of data is not enough to get an accurate picture of what is going on in the ponds. All five ponds will be electrofished in even numbered years to further evaluate the no-kill regulation, with the next survey period in 2004.

Lake Ronkonkoma Walleye Stocking

On July 2nd, Biologist Fred Henson and Laborer Mike DiMarco assisted DEC hatchery staff in stocking walleye into Lake Ronkonkoma as part of an ongoing program to reduce a superabundant white perch population and improve angling in Long Island's largest freshwater lake. Lake Ronkonkoma received 10,000 pond raised walleye fingerlings which averaged one and three quarters inches in length.

Lake Ronkonkoma Juvenile Bass Assessment

Summer beach seine sampling of Lake Ronkonkoma was conducted on August 8th by Fisheries staff. A 100 foot seine net was hauled at seven sites around the shoreline to assess the abundance of juvenile game and forage fish. On average, largemouth bass were caught at a rate of 10.8 fish per haul and smallmouth bass were caught at a rate of 1.8 fish per haul. Juvenile fish dominated the catch for both bass species. For both bass species, the 2002 catch rates were the highest on record since the inception of the beach seining survey in 1990. However, low water levels in Lake Ronkonkoma resulted in the seining of weedbeds not usually included in the standard survey sites. Yellow perch were captured at a rate of 15.4 fish per haul while white perch were caught at a rate of 12.9 fish per haul. Seine catches of these species are extremely variable among years and the 2002 data falls within the historical range. Other species collected during the survey include: black crappie, bluegill, pumpkinseed, golden shiner, and banded killifish.

Peconic River Contaminant Samples Collected

Beginning on July 8th, Biologist Fred Henson, Senior Technician Tom Hughes, and Laborer Mike DiMarco used various gear types over the course of two weeks to collect fish from Swan Pond and the Peconic River impoundments of Donahue's Pond and Forge Pond. The fish will be independently tested for radioisotopes and other contaminants by the NYS Department of Health and by Department of Energy Environmental Staff as part of an ongoing monitoring program to evaluate potential health risks posed by pollution from Brookhaven National Laboratory. Three categories of fish were collected: piscivores (pickerel/bass), panfish (pumpkinseed/bluegill), and benthivores (brown bullhead). Except for Swan Pond, the control water, sufficient tissue in all three categories was obtained to meet the laboratory protocols of both institutions.

DEC and State Parks meet to discuss Hempstead Lake water levels

The drought of 2002, possibly coupled with the inability to completely close the spillway of the Hempstead Lake Dam, resulted in the lake drying up for the first time in the history of the lake. This caused the total loss of the fish community in Hempstead Lake. Regional Director Ray Cowen, Regional Fisheries Manager Chart Guthrie, Regional Water Engineer Eric Starr and Mike Stankiewicz from the Central Office Dam Safety Unit met with State Parks staff to discuss what could be done to bring the lake back and prevent it from drying up again. It was agreed that without a change in the weather the lake would not come back. It was also agreed that the lack of water offered an excellent opportunity to repair the dam and possibly dig out the lake bottom to create a deep water refuge during future droughts. However, before any repair work can be done on the dam, the hazard status of the

dam needs to be determined and an engineering study completed. It was agreed that prior to completing the hazard status assessment, Parks could remove all of the nonfunctional gates in the dam. This would allow the water in the lake to rise no higher than 12.5 feet above sea level and leave all of the gates exposed so that they could be worked on once the hazard status determination and engineering study were completed. From a natural resources perspective, the ideal elevation of the lake is 18 feet above sea level, but this submerges the lowest gates which makes it very difficult to work on them. It is hoped that once the hazard classification and engineering study are complete it will be determined to be safe to maintain the water level closer to elevation 18. (NOTE: The nonfunctional gates were not removed during the drought and by the end of FY2002/03 the lake level had risen above the level of the lower gates).

Prospect Park Electrofishing

On October 21st and 22nd**,** Biologist Greg Kozlowski, Senior Technician Tom Hughes, and Laborers Mike DiMarco and John Lundie assisted Region 2 and New York City Parks with an electrofishing survey of Prospect Park Lake in Brooklyn, New York. During the two days of sampling, many fish were captured, including sunfish, yellow perch, black crappie, common carp, chain pickerel, and largemouth bass. The purpose of the survey was to assess the fish community in the lake and collect fish samples for the toxic substance monitoring program.

Region 2

Prospect Park Lake, Brooklyn

In a two day general biological survey, Regions 1 and 2 BOF staff teamed-up to electrofish the 55 acre Prospect Park Lake. The lake was last sampled in 1997 and a creel survey was completed during the summer of 2001. This lake receives more attention than any other regional water as it receives the highest number of freshwater anglers and has a dedicated staff of City employees, including biologists, who make management of the fishery more effective. This year's electrofishing survey was designed to see how the fishery has withstood the changes in the lake's macrophyte population and fish introductions since the 1997 electrofishing survey. The recent creel survey served this same purpose but was not directly comparable to the 1997 survey. Additionally, the Regional Fisheries staff chose to survey this lake again in order to help develop a strong continuous data set of at least one regional lake. Many of our lakes are similar and can benefit from the knowledge acquired by doing frequent surveys at Prospect Park Lake.

Preliminary analysis of the data show that the largemouth bass population has retained its numbers and healthy size distribution (Table 1.). The bluegill and pumpkinseed populations have improved considerably in their size distribution with the PSDs coming up to respectable numbers. The black crappie population has continued to expand as has the chain pickerel population.

Table 1. Length Distribution of Prospect Park Lake Fish

	Stock Size	Quality Size	Preferred Size	2002 PSD	1997 PSD	2002 RSD (p)	1997 RSD (p)
Largemouth Bass	8	12	15	67.9	61	24.4	42
Black Crappie	5	8	10	75		67.5	
Bluegill	3	6	8	30.8	1	0	
Pumpkinseed	3	6	8	28.9		0	

Van Cortlandt Lake, Bronx

As part of a DEC dredging permit, the NYC Parks Department was asked to do both a pre and a post dredging fish survey of VanCortland Lake in the Bronx. Ichthyological Associates was contracted and surveys were done in conjunction with BOF regional staff on Oct 10, 2001 and on September 17, 2002. The aim of the surveys was to assess the possible impacts of dredging on the fish community. The hydraulic dredging started in November 2001 and ended in February 2002. The lake went from a mean depth of 4 feet to a mean depth of approximately 6 feet. These were the first surveys of the lake and serve as a starting point for fishery management as well as an assessment of the dredging process.

The first survey yielded 355 fish representing the following 10 species: goldfish, common carp, golden shiner, white sucker, brown bullhead, pumpkinseed, bluegill, largemouth bass, black crappie, and yellow perch. The majority of the catch was bluegill (179 of 355), while goldfish, white sucker, golden shiner, and brown bullhead combined to only account for 11 of the

355 fish caught. This trend was confirmed in the second survey though no goldfish, golden shiner and white sucker where captured. There was a strong year class of black crappie and yellow perch that helped raise the mean length from 99mm to 171mm from 2001 to 2002 for black crappie and from 109mm to 151mm for yellow perch. The catch of largemouth bass was similar in 2001 and 2002. The mean size of largemouth declined though due to a strong set of YOY in the 2002 survey. The Parks Dept. has agreed to stock some golden shiners, black crappie and adult bluegills.

Region 3

Greenwood Lake

Greenwood Lake is a 1,920-acre warmwater lake located half in New York and half in New Jersey which supports sport fisheries for largemouth bass, smallmouth bass, muskellunge, tiger musky, walleye, and channel catfish. Bass are managed under a special regulation permitting fishing all year with an April 15 to June 15 "no kill" period. It is a popular recreational lake with several bass tournaments held here annually. New York annually stocks 4,300 tiger musky; New Jersey stocks varying numbers of and sizes of muskellunge, walleye and channel catfish. Alewife are very abundant and support a commercial fishery licensed in New Jersey. Bureau of Fisheries staff conducted a night electrofishing centrarchid survey in May, 2002. Results of this survey suggest the largemouth bass population is declining but walleye are abundant.

The catch rate for largemouth bass 12 inches or longer was only 3/hour in 2002 compared to 21/hour in 1990 and 9.7/hour in 1997. Total largemouth catch rates were 3/hour in 2002 compared to 31/hour and 22/hour in 1990 and 1997, respectively. PSDs were 100 in 2002, 65 in 1997, and 74 in 1990. Largemouth reach legal length (12 inches) during their fourth year.

Smallmouth bass were more abundant than largemouth bass in 2002. Catch rate for bass 12 inches or longer was 9/hour compared to 2/hour in 1990 and 8/hour in 1997. Total smallmouth catch rates were 15/hour in 2002 compared to 5/hour and 17/hour in 1990 and 1997, respectively. PSDs were 58 in 2002, 64 in 1997, and 61 in 1990. Smallmouth reach legal length (12 inches) during their fifth year.

Walleye, first stocked by New Jersey in 1992, are now more abundant than largemouth and smallmouth bass. The catch rate for legal length walleye (18 inches or longer) was 25/hour in 2002 compared to 7/hour in 1997. Total walleye catch rates were 35/hour in 2002 (14/hour in 1997). PSDs were 90 in 2002 and 100 in 1997. Walleye reach legal length during their fourth year.

Muskellunge and tiger musky have not been collected effectively with electrofishing gear; however, each April New Jersey collects muskellunge brood stock in trap nets and incidentally traps tiger musky. In 2001, the most recent year for which data were reported, 23 muskellunge ranging from 32 to 45 inches (8.0 to 22.1 lbs) and 3 tiger muskys (no lengths reported) were collected during 36 net nights.

Results of the 1997 and 2002 electrofishing surveys were surprising in that they not only documented survival of walleye but confirmed they have been very successful in this alewife dominated water, making Greenwood Lake a premier walleye water in Region 3. Survey results also provided troubling information regarding the largemouth bass population. Additional spring electrofishing surveys should be conducted to help determine the status of largemouth in this lake and assess fisheries management options.

Swinging Bridge Reservoir

This reservoir was an experimental stocking target for walleye with the objective of establishing a self-sustaining population. Pond fingerlings (20,000/year) were stocked annually from 1993 - 1997, with an additional 5,000,000 fry stocked in 1998. No wild walleye were documented in the reservoir until 2000 and 2001, when routine fall electrofishing collected substantial numbers of wild fingerling walleye.

This documentation of successful walleye recruitment for two years in a row remains both exciting and perplexing, in that it appears the original objective of the experimental walleye stocking program has been met, in spite of an historically abundant alewife population which shouldn't allow for walleye fry survival.

Fall night electrofishing in October of 2002 failed to collect any fingerling walleye, indicating failure of the

2002 walleye year class. Future sampling will continue to document the status of this developing walleye population, while simultaneously attempting to document the dynamics of the alewife/walleye interactions that have allowed for two successful years of walleye recruitment.

Region 5

Lake Durant Surveyed

Lake Durant, Hamilton County, was boat electrofished to assess its bass population and a tiger musky stocking policy. This shallow, weedy lake is easily accessed from Route 30 and DEC's Lake Durant Campground. A quality largemouth bass population was found and several large tiger musky were caught or observed. A total of 1.5 hours was spent targeting all fish species with an additional 2.5 hours spent targeting gamefish. The CPUE for largemouth bass was 32/hour with a good number of quality sized fish. Other species captured were golden shiner, common shiner, rock bass, pumpkinseed, yellow perch, banded killifish, brown bullhead, white sucker and central mudminnow. The tiger musky stocking policy for this lake will be continued and the quality largemouth bass population will be mentioned in appropriate fishing brochures.

Lake Abanakee Surveyed

Lake Abanakee, Hamilton County, was gillnetted in the deeper portions of the lake to assess survival of walleye fingerlings. The fingerlings were stocked by the Town of Indian Lake under a permit from DEC in the mid-1990's. This shallow impoundment is subject to frequent water releases from the Lake Abanakee and Indian Lake dams. No walleye were captured in the netting. Additional walleye stocking is not recommended in the future.

Oxbow Lake Surveyed

Oxbow Lake in the Town of Arietta, Hamilton County was boat electrofished in mid-June 2002 to assess its warmwater fish population. Complaints have been received in recent years about declines in the largemouth bass population. Utilizing a new Smith-Root electrofishing boat, virtually the entire shoreline of the lake was sampled during daylight runs. Four 15-minute runs capturing all fish were done and 4.3 hours of further sampling was directed at capturing gamefish only. A total of 33 smallmouth bass and 45 largemouth bass were captured yielding a CPUE of 14.7 bass/hour. This sampling effort was intended to sample inshore spawning bass, but unusually warm spring conditions resulted in early spawning conditions in this shallow, dark-bottomed lake. Many unoccupied bass nests were observed. Pumpkinseed spawning was in full progress, however, and large numbers of adult sunfish were captured. Other species captured were chain pickerel, brown bullhead, yellow perch, golden shiner and chubsucker. Captured bass ranged from 9-19.6 inches, with many in the 12-16 inch bracket. Chain pickerel were about as abundant as bass, but many were of small size. Oxbow Lake is bordered by Route 8, but has limited public access. This survey indicated the lake has a good bass fishery potential. Improved public access needs to be developed on state lands bordering the north or eastern shores of the lake. The Hamilton County regulation permitting harvest of five chain pickerel of any size is probably helping to sustain the bass fishery in this lake by keeping pickerel numbers under control.

Piercefield Flow Surveyed

Region 5 staff encroached on Region 6 administrative territory to sample the fish population in Piercefield Flow, Town of Piercefield, St. Lawrence County in June, 2002. The hydroelectric dam on this impoundment is going through FERC relicensing and this survey was needed to update information on the general fisheries community. The Flow is located close to Tupper Lake in Region 5 and Region 6 staff willingly agreed to allow us the honors of netting the lake. Five Swedish experimental gillnets were set along the old river channel in this shallow impoundment. Species and number captured were walleye (7), northern pike (4), brown bullhead (115), rock bass (31), yellow perch (13), pumpkinseed (21), white sucker (15) and cisco (1). Piercefield Flow is shallow, with many old stumps and rocks to slow down unwary boaters. The impoundment is usually drained in the fall as a flood control measure. The fish community in Piercefield Flow would benefit if a more stable lake level regime could be established.

Region 6

Butterfield Lake

During 2002, Region 6 Fisheries staff surveyed Butterfield Lake to assess the status of resident fish

populations. In particular, the objective of the study was to evaluate the impact annual stocking has had on the lake's walleye fishery and its management goal: *To increase the CPUE and size quality of its existing fishery*. As per the protocol of the Percid Sampling Manual, this effort involved June gillnetting (12 net nights) and October night-time boat electrofishing (2.74 hours of on-time directed at walleye).

Overall, fifteen species were represented in the samples. Bluegill, captured at the rate of 453 per hour of electrofishing, was the most common species sampled. Of the game-fish species, largemouth bass were the most abundant, captured at a rate of more than 52 per hour. The largemouth bass PSD and RSD values of 56 and 27 (respectively) indicate that Butterfield Lake offers a quality bass population. In contrast, survey results indicate Butterfield Lake's walleye population is very sparse, and suggests survival from past stocking of both fry and fingerlings, has been negligible. At catch rates of 0.7 per hour of electrofishing and 0.2 per gill net night, Butterfield Lake joins the ranks of other Region 6 waters (eg. Clear, Sixtown and Grass Lakes) where stocking success has been limited. A likely contributor to Butterfield's situation is its high abundance of other predator species, largemouth bass (CPUE = 52 per hour) and northern pike (CPUE = 16 per hour). Despite these poor results with walleye, angler interest in the Butterfield Lake walleye fishery and their reports of modest walleye catches offer support for continuing walleye management in the lake.

Horseshoe Lake

Horseshoe Lake (399 acres) is located in the SE corner of St. Lawrence County, in the Town of Piercefield. As an integral part of the Horseshoe Lake Wild Forest, the lake and its shores are popular with anglers, boaters and campers. Prior to 1985, Horseshoe Lake was managed as an Adirondack Brook Trout Pond. Post reclamation re-infestation of the lake with yellow perch however, limited its success as a coldwater fishery. In the mid-1980s, stocking policies for both tiger muskellunge (1,300 fingerlings) and walleye (fry) were established for the lake with the goal of establishing new populations of these species. The tiger muskellunge policy is still in effect, while the walleye fry stockings were dropped after 1988. In the place of walleye approximately 200 adult smallmouth and largemouth bass (100 each) were stocked into the lake (in 1989) with hopes of establishing self-sustaining populations of one or both bass species.

Surveys in 1990 and 1994 detected some survival of tiger muskellunge and documented successful natural recruitment of both smallmouth and largemouth bass. No walleye were sampled or observed during these surveys. Angler reports over the past 10+ years indicate a black bass fishery has developed, but dissatisfaction over a lack quality sized individuals was expressed. The only reports of tiger muskellunge being caught by anglers have been during the winter, where fish up to 15 pounds have been reported harvested.

During 2002, Region 6 Fisheries staff surveyed Horseshoe Lake to assess the status of resident fish populations. In particular, the objectives of the study included evaluations of post stocking success relative to the lake's walleye, black bass and tiger muskellunge populations. As per the protocol of the Percid and Centracid Sampling Manuals, this effort involved June gillnetting (10 net nights) and October night-time boat electrofishing (1.72 hours of on-time directed at gamefish).

Overall, nine species were represented in the 2002 samples. Yellow perch, captured at the rates of >1,000 per hour of electrofishing, and > 43 per net night, was by far, the most common species sampled. In comparison to past surveys, where electrofishing catch rates were > 100 per hour (1990) and gillnet catch rates were >23 per net night (1987 ALSC), yellow perch abundance appears to have increased substantially over the past decade, despite the introduction and establishment of four different predator species.

Of the gamefish species, smallmouth bass were the most abundant, captured at a rate >30 per hour. Largemouth bass, collected at a rate of >16 per hour, were also common in the sample. Based on these catch rates, density of both species is considered to be moderate in comparison to other New York State waters. The smallmouth and largemouth bass PSD and $RSD_{preferred}$, were 35 and 29, and 60 and 50, respectively. Contrary to angler reports received to-date, survey results indicate that the size structure of the Horseshoe Lake bass populations includes enough

15+ inch fish to provide potential for quality bass angling opportunity.

The total 2002 Horseshoe Lake sample of tiger muskellunge (electrofishing and gillnetting combined) was six. This is up from three in 1990 and zero in 1994, suggesting survival may have increased over the past ten years. At 2.3 per hour of electrofishing, however, the musky density in the lake is still considered to be low. The 2002 walleye CPUE (> 8 per hour), considered good in comparison to other NYS stocked walleye waters, is substantially higher than 1990 and 1994's zero catches. The improved catch rate documents some initial success relative to achieving the walleye management objective for the lake: *establishment of a new population*. The appearance of walleye in the 2002 Horseshoe Lake surveys appears to be a direct result of pond and advanced fingerling fingerling stockings, which occurred in 1999 and 2002, respectively. Survivors from these two groups, represented as YOY and three-year-olds comprised 18 of the 19 walleye sampled. At a mean length of approximately 11 inches, these age groups have yet to enter the lake's sportfishery, currently regulated by a 15 inch minimum size limit.

Carry Falls and Stark Falls Reservoirs
Region 6 Fisheries staff conducted one-night boat electrofishing surveys of Carry Falls and Stark Falls

Reservoirs (p 35b & 35 c Raq) during October, 2002. The objectives of the surveys included:

1. Monitor survival of tiger muskellunge stocked annually in both reservoirs since 1997.
2. Monitor population abundance of reservoirs' most common resident fish species.

No tiger muskellunge were sampled (or observed) during the 2002 surveys, suggesting they are either not surviving, or migrating out of the reservoirs post stocking. This represents no change from 1999, when tigers were not sampled from either reservoir. In addition, there have been no reports or observations of anglers encountering tigers in Carry, Stark or any of the downstream impoundments. Based on these results, it is recommended that tiger muskellunge stocking policies for Carry and Stark Falls Reservoirs be deleted, starting in 2003.

Since the early 1990s, when comprehensive surveys of both impoundments were conducted, walleye abundance appears to have changed slightly, while growth rates have remained stable. The walleye CPUE for Stark increased slightly, from 40 to 46 /hour. Averaging only 10.9 inches, Stark walleyes continue to grow slowly, with the bulk of the population at or below the minimum size for angler harvest (12 inch). Carry recorded a substantial increase in CPUE, from 31 to 63 /hour. This increase is exaggerated, however, as the 2002 sample was heavily skewed in favor of 1 year olds (85 % of the catch). Minus the 1 year olds, the Carry CPUE actually decreased substantially, to 10 /hour, suggesting a substantial decline in abundance. The growth rate for Carry walleyes also continues to be very slow. Due in large part to the high proportion of 1 year olds, the mean length of walleye sampled in 2002 was only 5.9 inches. On the positive side, the high abundance of 1 year olds detected in the population, documents a very high rate of walleye recruitment through their first 18 months of life. Recommendations for future walleye management includes maintaining existing statewide angling regulations (15 in and 5 /day) and resurvey within five years.

Although still considered moderate to high by statewide standards, smallmouth bass abundance in both Carry and Stark appears to have declined. Size distributions, which favor smaller (< 10 inch) size classes remain the result of slow growth. Despite the slow growth issues, adequate numbers of legal (12 inch +) and quality (15 inch +) sized bass are available to support and enhance the reservoirs' sportfisheries. Recommend maintaining statewide regulations (12 inch and 5 /day) and resurvey within five years.

Yellow perch continue to be the principal prey fish species in these impoundments. Their abundance has declined in both reservoirs since the early 1990s. For Stark, perch CPUE declined from 80 /hr to 35 (55%) while Carry's catch rate declined more than 99% to 1 /hr. To verify these numbers, a survey, directed at measuring yellow perch abundance, should be scheduled for 2003 or 2004.

Other species sampled during 2002 included (in order of high to low abundance) rock bass, northern pike and pumpkinseed (Table 1). Except for rock bass in Stark which appear to have increased by 40 %, abundance

of these species in both reservoirs seems to have remained stable.

Low's Lake's Fish Populations

The establishment of largemouth bass in Low's Lake (Town of Piercefield , St Lawrence County), and the resulting sport fishery, following their illegal introduction in the late 1980s have been documented. Energized by the lake's initial high abundance of forage fish, and the complete lack of piscivorous competition, bass growth rates became high, while their numbers quickly expanded. By the mid 1990s, anglers frequently reported high catch rates of trophy-sized (3 to 5 pound) bass. Since 2000, however, conditions have changed. Today, instead of anglers encountering an abundance of quality sized bass, they are reporting catches of fewer, smaller fish. Individual bass greater than 3 pounds have become uncommon.

During June of 2001 and 2002, Region 6 Fisheries staff surveyed Low's Lake to evaluate the status of resident fish populations. In particular, the objective of the 2001 effort was to quantify the abundance, and size and age structures of the lake's largemouth bass population. This component involved night-time boat electrofishing; the total effort included 2.5 hours of on-time. Sampling during 2002 was geared towards collecting data which would be more comparable with gill net catch results from 1986 and 1987. The 2002 effort included four over-night sets, using 150' experimental mesh gillnets.

For the two years combined, five species were represented in the samples: largemouth bass, white sucker, brown bullhead, pumkinseed and golden shiner. This is down from eight species sampled in 1986-87. Despite the particularly low largemouth bass 2002 gill net catch of 1.0 per net, the 2001 electrofishing catch rate indicates bass abundance is relatively high in Low's Lake. White sucker abundance, based on both gill net (14.0 / net) and electrofishing (0.0 / hour) catch rates, on the other hand, is considered low to moderate. Population densities of bullhead, pumpkinseed and golden shiner are all considered to be low to very low.

In comparison to results from 1986 and 1987, changes in both the diversity and abundance of Low's Lake's fish species can be quantified. First, the addition of a self-sustaining population of largemouth bass to the ecosystem during the past 15 years can be recognized simply by their presence and absence in the 1986-87 and 2001-02 data sets, respectively. Based on recent data, bass up to 11 years old are now present in the lake; younger (less than 4 years old), smaller (< 12 inch) individuals comprise the bulk of the population (Figures 1 & 2). In comparison with other New York waters, growth rates are considered low. In conjunction with an analysis of PSD (46) and RSD_{15} (10), the data suggests that while bass stocks appear to be recruiting well to the lake, their population may be out-of-balance with their food supply and/or experiencing moderately high (angler) mortality in the quality size ranges (> 14 in).

Since the establishment of largemouth bass in Low's Lake, all other fish species (present in 86-87) appear to have declined substantially, while their population age structures have been altered noticeably. Most conspicuous are changes in the abundance and size structures of white sucker and brown bullhead. In 86-87, white suckers ranging from 6 to 18 inches, were sampled at a rate of 26 per gill net. In 2001, no suckers were sampled by electrofishing, while 14 per gill net, ranging from 16 to 20 inches, were collected during 2002. Based on this data, sucker abundance declined almost 50% while their mean length doubled. Similarly, the catch of bullhead declined approximately 70 %, while their mean size increased from 7 to 12 in (Table 1). Length frequency distributions for both white sucker and brown bullhead sampled in 1986-87 and 2001-02 (Figure 3 on next page), implicate bass predation as the cause of their population declines. In both cases, the bulk of the current population appears to be comprised of larger individuals who have outgrown their potential as bass forage. The same appears to be true for the lake's few remaining pumpkinseed and golden shiner. In addition, once abundant minnows, such as common shiner and creek chub, which were not sampled at all in 01-02, appear to be even more severely impacted.

Looking to the future, the prognosis for the Low's Lake's native fish populations, in the presence of the current level of largemouth bass predation, is bleak. It appears bass are consuming the lake's annual yields of all non-bass species faster than they can be produced. Some species such as rainbow smelt, may have already disappeared from the lake. Others species such as the white sucker, while present as the most

abundant non-bass species in the lake today, show no evidence of year class recruitment since 1996 (Figure 4 on next page). If the white sucker mortality rate does not decrease enough to allow year class survival to adult within the next few years, they too may disappear from the lake.

Without forage, the future of Low's Lake's largemouth bass fishery is also in jeopardy. At present it appears bass have already out-grown their forage supplies, and it is likely that cannibalism is occurring. Over the next few years, I expect the quality of the bass fishery to decline even further as mortality factors remove the remaining older, larger bass from the population. It is anticipated that predation on the lake's forage fish species will lessen as bass numbers continue to decline. Hopefully, at some point, non-bass fish populations will rebound and largemouth bass abundance will stabilize at a level which still provides some measure of sport fishery opportunity. Unfortunately, the unavoidable ecological consequences of the introduction of non-indigenous species such as the largemouth bass, may prevent this from being realized.

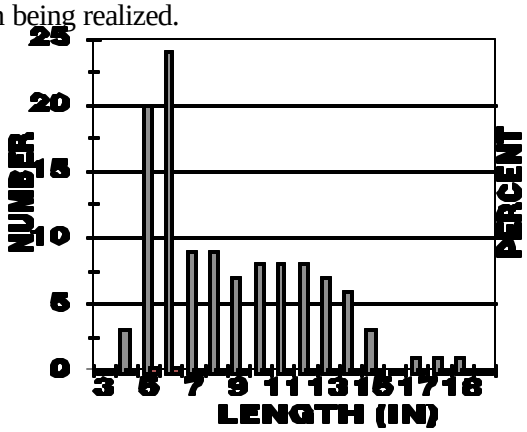


Figure 1 - Largemouth bass length distribution. Low's Lake, 2001-02.

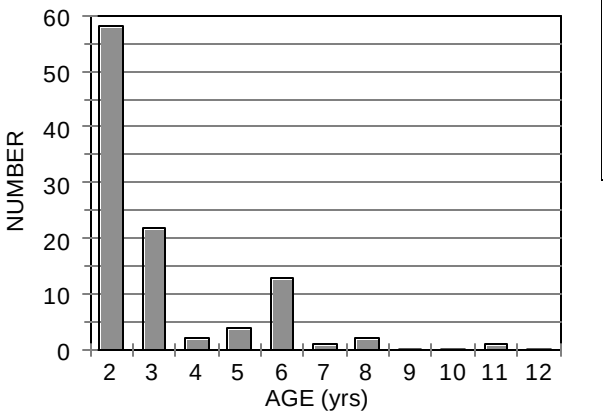


Figure 2 - Largemouth bass age distribution. Low's Lake, 2001-2002. 2 years represents 1 & 2 year olds combined.

Region 7

Whitney Point Reservoir Sampling

Night electrofishing in October has been conducted at four standard sites to assess abundance and growth of YOY and yearling walleye in Whitney Point Reservoir since 1994. In 2002 all sites were sampled and a total of only 13 YOY were collected. This results in a population estimate for YOY (age 0) walleye, using Serns (1982) methodology, of 1,110. Following is a list of the estimated population of YOY in all the years surveyed to date:

1994 -8,087 1998 - 2,825 2001 - 31,141
1995 -10,437 1999 - 55,275 2002 - 1,110
1997 - 106,704 2000 - 842

A total of 67 yearling (2001 year class) walleye were collected in 2002 providing a population estimate for age 1 walleye, again using Serns (1982) methodology, of 4,734. Yearlings collected in 2002 exhibited good

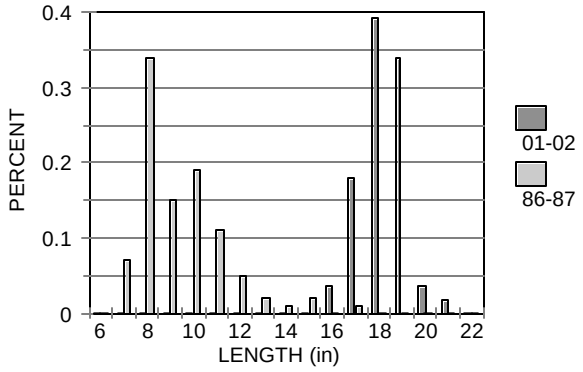


Figure 3 - White sucker length distributions, 1986-87 and 2001-02, Low's Lake.

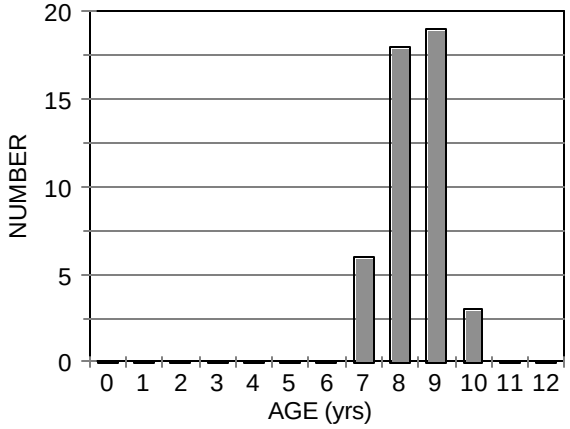


Figure 4 - White sucker age distribution, 2002. Low's Lake.

growth, averaging over 12.5 inches in length. The 2002 estimate of yearling abundance is only 14.9% of the estimated population from the previous fall. This low level of abundance would indicate that the population is subject to high mortality, significant emigration or a combination of both factors. Similar declines from one year to the next have been observed in the past. Estimated abundance of yearlings from the 1998 and 1994 year classes were 12.9% and 6.4%, respectively, of the YOY estimated population levels from the previous years. Note however that the population decline of the strong 1997 year class was much less dramatic (35% where still around the following year).

Oneida Lake Management

Regional and Central Office Fisheries staff met with Cornell fisheries scientists to review survey work conducted in 2002 (fisheries assessment and monitoring of Oneida lake's fish community and fishery is done by Cornell University under contract to DEC.). Survey results pertaining to the strength of the 2001 walleye year class were inconclusive because of sampling bias caused by the long hot summer. Two separate indices of abundance provided population estimates which were very different. One resulted in an estimated addition of 27,000 adult walleye to the population in 2005 while the other resulted in the addition of 162,000. The second estimate is believed to be closer to the truth but more sampling is needed in 2003 to confirm. If the higher population estimate is correct than the walleye regulation will be changed to allow harvest of 15 inch walleye instead of the current 18 inch regulation. If the lower population turns out to be accurate then the 18 inch size limit will be retained. The daily limit of three (3) will remain in effect whether or not the size limit is changed. Other work by Cornell indicated that cormorant predation accounted for a 30-50% reduction in survival of walleye between age 1 and age 4 and 30% reduction in survival of yellow perch between age 1 and age 3. Clearly cormorants are having a major impact on the Oneida Lake fishery and planned attempts to reduce predation impacts of double-crested cormorants by hazing fall migrants were done again in 2002 by USDA - APHIS.

Chittenango Creek Walleye Population Estimate

In a cooperative effort with Cornell University, Chittenango Creek was electrofished in April 2002 to complete the second half of a mark and recapture population estimate to determine the number of adult walleye in the 2001 Chittenango Creek spawning run. A total of 403 adult walleye were collected, marked (fin-clipped) and released in 2001 and 680 adult walleye were collected and inspected for marks (clipped fins) in 2002. Ten (10) of the 680 walleye inspected for marks in 2002 were recaptures from the 2001 electrofishing effort. The Chittenango Creek spawning adult walleye population was estimated to be 25,000 fish based on the number of walleye marked in 2001 and the number recaptured in 2002. This population estimate was used in conjunction with population estimates from Scriba Creek and Fish Creek to generate a tributary specific population estimate of adult walleye in Oneida Lake.

Data collected from this study also contributed to our knowledge of walleye spawning movements in Oneida Lake. A fair number of walleye collected in Chittenango Creek had fin clips indicating they were originally marked and released in Scriba Creek or Fish Creek. This result suggested more mixing of walleye is occurring during spawning runs than previously thought. Following are the fin clips observed on adult walleye collected from Chittenango Creek during April 2002 (RP- right pectoral, RV-right ventral, LV-left ventral):

Total number of walleye collected	680
Number of unmarked walleye	613
Number with ½ RV clip (Scriba Creek 2001)	23
Number with ½ RP clip (Fish Creek 2001)	16
Number with ½ LP clip (Chittenango Creek 2001)	10
Number with LV clip (Scriba Creek 1999)	8
Number with ½ LV clip (Scriba Creek 1997)	6
Number with RP clip (unknown- possibly congenital)	3
Number with the double clip LV - ½ RV (Scriba 1999, Scriba 2001)	1

Town of Skaneateles Pond Stocking

In response to a request from the Town of Skaneateles, fisheries staff captured and transferred adult largemouth bass, bluegill and bullhead from Whitney Point Reservoir to a pond on Town property which had just recently been opened to the public. The pond, which was formerly off limits to the general public as part of a federal agricultural research facility, had previously been stocked with trout which had long since died out.

Region 8

Conesus Lake Walleye Population Estimate
A Petersen population estimate of walleye was conducted in the early Spring of 2002. Trap nets and stream electrofishing gear were used to capture spawning walleyes for marking. The migratory behavior of adult walleye presented us with an ideal way to capture a large number of fish to be marked. From April 3 to 12, 2002, 719 walleye were caught from Conesus Inlet and South McMillian creek using stream electrofishing gear. After capture, the fish were held in aerated tanks and metal tags were inserted through the jaw and a hole punched in the caudal fin. After marking, the fish were released into Conesus Lake. In contrast, from March 26 to April 5, 2002, 53 walleye were captured and marked using a trap net set in shallow water along the shore of Conesus Lake. Far more fish could be easily captured and marked during the spawning run in the stream than could be captured in a net in the lake. The recapture sample took place from April 23 to May 7, 2002. One hundred and seventy two walleye were caught in shallow water along the shore of the lake at night using an electrofishing boat. Males dominated both the mark and recapture samples. From this data, approximately 20,000 adult walleye are estimated to live in Conesus Lake.

Conesus Lake Walleye Fingerling Stocking Success Evaluated
Nighttime electrofishing in accordance with the DEC's Percid Sampling Manual was conducted October 8-9, 2002. The purpose of the survey was to evaluate the success of fingerling walleye stocking done in the summers of 2001 and 2002. No age 1+ walleye from the 2001 stocking nor young of year from the 2002 stocking were captured. Data analysis is still underway, although it appears that CPUE of predators greater than 381 mm is likely to be high.

Region 9

Chautauqua Lake Warmwater Surveys
Regional staff assisted Chautauqua Hatchery staff with the tending of the trapnets to monitor the adult muskellunge population. Nets were fished for approximately 21 net nights and produced a catch per net index of 22. This was below the recommended management level of 28 muskellunge per net established by the Chautauqua Lake workgroup. Approximately eleven percent of the adult muskellunge (>32 inches) had open redspot lesions and females continued to predominate the catch at a ratio of 10 age-6 females to every age-6 male. Age-4 to age-6 finclipped muskellunge contributed 62% of the total catch, with the age-4 cohort making up a disproportionate 48% of the total catch. These cohorts were stocked at mean lengths of 7.3 (age-6), 6.8 (age-5) and 8.4 (age-4) inches. Assisted by the contribution of minnows by the Chautauqua Musky Hunter organization, Chautauqua Hatchery was able to stock 10,000 fingerlings averaging 9.4 inches in length. These were the largest fingerlings stocked by the hatchery since 1976.

Experimental gill nets were fished once per month from June to October to assess the abundance of sportfish and panfish. This assessment has provided regional biologists with trends in abundance of several species since 1978. The pooled catch indicated a continued decline in abundance of walleye and an increased abundance of crappie and sunfish. White perch continue their exponential increase in abundance with 4,274 fish caught.

Fisheries staff completed fall electrofishing surveys targeting muskellunge, walleye and black bass. Adult walleye abundance had declined from 2000 and was consistent with data derived from the gill net assessment. Age-0 walleye abundance was low and was similar to data collected by trawl, showing low recruitment of walleye since 1996.

Cuba Lake
Late spring electrofishing produced catch rates of 82 smallmouth bass and 87 walleye per hour. Rock bass and yellow perch were the dominant panfish, followed by pumpkinseed sunfish. Walleye fry stocking was discontinued in 1999 because of slow walleye growth rates and to evaluate natural reproduction. Fall electrofishing captured 27 age 0+ walleye/hour and 7 age 1+ walleye/hour. Northern pike, an illegal introduction in the early 1990s, continue to increase in abundance, with 8 consecutive year classes documented.

Allen Lake
Allen Lake is a 23 hectare (58 acre) man-made lake located on a 981 hectare (2,421 acres) state forest in

western New York. Historically the lake has been managed as a "put-and-take" trout fishery. Illegal introductions of sunfish, golden shiners and brown bullhead became a nuisance to anglers as these fish overpopulated and stunted in the absence of a controlling predator. Adult largemouth bass were stocked in the spring of 1996 at a rate of 4.4 fish/hectare (1.7 fish/acre) to provide a self sustaining recreational fishery and to better balance the fish community.

Successful largemouth bass spawning took place in 1996 and in every year through 2002. In 2002, October daytime electrofishing produced a catch rate of 117 bass/hour (excluding young-of-year fish). Growth rates of pumpkinseed sunfish and golden shiner increased from 1995 to 2002. The proportional stock density (PSD) of pumpkinseed sunfish increased from 0% in 1995 to 18% in 2002. Positive changes have also taken place in zooplankton indices since the introduction of largemouth bass, including an increase in the density of zooplankton, the average size of zooplankton and the percentage of *Daphnia* sp.

Cassadaga Lakes Warmwater Surveys - Assessment of Slot Limit Regulation

To increase growth rates and length distributions of black bass and panfish, a 12-15 inch protected length limit (slot) was imposed for black bass in 1994. Electrofishing in spring, 2002 continued to show an abundance of black bass within and exceeding the protected slot, with acceptable recruitment of bass below the slot. Electrofishing catch rates for largemouth bass greater than 15 inches in length increased from 2.4 per hour (pre-slot limit) to 12.0 per hour (post-slot limit). Smallmouth bass experienced a comparable increase from 0.15 per hour (pre-slot limit) to 1.6 per hour (post-slot limit). Panfish stock density indices, expected to increase as predation on small panfish increased, have actually declined for both bluegill and pumpkinseed. Fisheries staff will continue to evaluate this special regulation to complete assessment over two full generations (10 years/2003).

Central Office - Inland Section

Analysis of fish population trends in Oneida and Canadarago Lakes

Researchers at the Cornell Biological Field Station on Oneida Lake completed their annual assessment of the fish community in Oneida and Canadarago Lakes. The Federal Aid to Sportfish Restorations funded Oneida and Canadarago Lake fishery monitoring projects are the two longest running warmwater fishery assessment projects in New York State and have provided an excellent insight into the complex dynamics associated with warmwater fish populations in large northern lakes.

Oneida Lake. The walleye population is currently estimated to be 317,000 age 4 and older fish, which continues to be substantially lower than the long-term average. Walleye population decline can be attributed to increased mortality at two life stages 1) from 9-day-old larvae to their first fall, and 2) between age 1 and 4. Cormorants likely cause the latter. Declining phosphorus loading, invasion of zebra mussels and disappearance of the alternative prey species may all have contributed to the low walleye recruitment since 1992. Evidence of change in the lake is the higher water clarity and lower phytoplankton biomass observed since 1992.

Yellow perch population was estimated at over 2 million age 3 and older, which is an increase since the last mark-recapture estimate and higher than the population present through the 1990s. Zebra mussels have cleared the water but not affected yellow perch growth rates presumably because zooplankton production has not declined. Increased light levels should also increase foraging efficiency of perch on benthic invertebrates. Abundance of larval walleye (9-day old) was normal in 2002 but survival was poor due to a cold spring. Abundance of YOY yellow perch continues to be low. Cormorant predation on adult yellow perch is similar to angler catch rates, but cormorants also feed on sub-adults. For adult walleye, anglers are the more important predator. Current management actions include a limit to cormorant nesting success and harassment during the fall migration. There is also an increase in the walleye size limit. These two management actions in concert should result in a slow increase in both populations. Population data from 2002 is consistent with these expectations.

Canadarago Lake. Electrofishing catch rate of YOY walleye suggests abundance was low in 2002. This should not be a concern since large numbers of YOY were found in 2001, 1999, 1995, and 1993. Adult walleye catch rate (15.3/h) was lower than average, but still within the range seen since 1990. For yellow perch, 2002 catch rates were much higher than any seen since 1990. It appears Canadarago Lake is presently maintaining high abundance and good size structure of both walleye and perch, with good recruitment every few years for both species. No alewives were caught in any sampling in 2002.

Daphnid biomass was the lowest seen since before 1990. Average Secchi disk transparency in 2002 was the lowest since before 1990, and has shown a declining trend for at least 4 consecutive years. Alewife have not yet become abundant, if they still remain in the lake. Such evidence and indices suggest high predation rates by planktivorous fish, which is likely from yellow perch in 2001 and 2002.

Statewide Walleye Management Progress Report Completed

The Bureau of Fisheries Warmwater Unit completed an update to the 1987 walleye management synopsis entitled "Recommended Walleye Management Actions for New York Waters - 2003 Synopsis and Progress Report". Based upon reports from the 8 regions currently involved in walleye management in New York State, excluding Lake Erie, the current walleye resource in New York State is comprised of 157 waters, encompassing 422,000 acres. This represents an increase of approximately 9,400 acres from that reported in the last progress report in 1992. With the addition of two new walleye fisheries on Long Island, the distribution of walleye in New York State now includes all of its watersheds. Eighty-two percent of the state's walleye fisheries are found in DEC Region's 5, 6 and 7.

The New York State Walleye Management Plan lists 4 major objectives designed to enhance walleye fishing in New York State:

1. Restoration of self-sustaining and abundant walleye populations in 32 waters.
2. Introduction and establishment of new walleye populations in 21 waters.
3. Provision of adequate angler access to 15 waters now unavailable to the general public.
4. Increasing walleye abundance in 89 existing fisheries.

Although evaluation of some of these objectives has oftentimes been inadequate to properly assess the progress made, significant progress towards many of these objectives has been attained. Since 1987, 26 waters have been stocked with DEC produced walleye fry or fingerlings with the management goal of restoring a former walleye fishery. Survival of stocked walleye has been noted in virtually all waters, with 10 having developed walleye populations of medium to high abundance. Definitive evidence of natural reproduction has been reported in 4 waters to date, including 3 waters (Jamesville Reservoir, North Sandy Pond, Silver Lake) on the original 1987 walleye restoration list. Natural reproduction is also suspected in a number of other waters but has not yet been confirmed. Restoration of former walleye populations remains an objective for 23 of the 32 waters on the original list. An additional 11 waters, comprising 56,167 acres, have been targeted for restoration in the current synopsis.

Seventeen waters that did not contain walleye historically have been stocked with the objective of introducing and establishing either major or secondary walleye fisheries. Nine of these waters have developed walleye fisheries of medium to high abundance, with an additional 6 that have not yet been assessed. Of these waters, natural reproduction has been confirmed only in Swinging Bridge Reservoir in Region 3. This is particularly interesting since alewife are abundant in the reservoir and successful natural reproduction had not previously been noted in an alewife water in New York State. Unconfirmed walleye reproduction has been reported from Region 3's Wallkill River, and is suspected in a number of other waters. The successful stocking of walleye in Fort Pond and Lake Ronkonkoma on Long Island marks a first for this species in this watershed. The primary purpose for stocking walleye in both waters was to control an overabundant white perch population. Although white perch remain abundant, a decrease in abundance and increase in average size of adult fish appears to indicate that walleye are having a positive impact in both waters. Establishment of major or secondary walleye fisheries is an objective for 32 waters (27,664 acres) in the 2003 synopsis .

Progress has also been made towards providing better public access to walleye waters, with new or improved sites, or agreements to utilize existing non-DEC sites on Goodyear Lake in Region 4; Loon Lake, Fern Lake and Lake Lonely in Region 5; Delta Lake, Grass Lake, Indian River, Oswegatchie River, Payne Lake, Sixberry Lake and the St. Regis River in Region 6; and the Susquehanna and Main Branch Tioughnioga River in Region 7. A new site is also planned for the near future on Otisco Lake in Region 7 and Loch Sheldrake in Region 3. Currently, 45 waters, encompassing 26,960 acres are included in the updated synopsis with the recommended management action of acquiring, reestablishing or improving public access.

Progress towards the objective of increasing walleye abundance, catch rate or size quality of existing walleye resources has been the most difficult to measure, with no assessment of angler catch rates reported on any of the waters listed under this management objective. Based on fishery survey data and angler reports, walleye abundance appears to have increased in the Hudson River in Region 4, as well as the Black River, Blake Reservoir, Indian Lakes, Oswegatchie River and Sixtown Pond in Region 6. Increases in walleye abundance were also noted in the Susquehanna River and Whitney Point Reservoir in Region 7, as well as the Chemung River and Honeoye Lake in Region 8. Creel surveys or angler diary programs will need to be undertaken on these waters to determine whether this increased walleye abundance is reflected in increased angler catch rates. Increasing walleye abundance, catch rate or quality is an objective for 116 waters (excluding Lake Erie), encompassing 346,000 acres in the 2003 synopsis.

The most significant walleye research activity over the past 10 years has been the completion of the Cornell University study of survival of fingerling walleye stocked in New York State waters (Brooking et al. 2002). Sixteen waters ranging in size from 109 to 857 acres were included in the study. Each of these waters was stocked with both pond reared and intensively reared (advanced) walleye fingerlings and survival of both was monitored over the course of the study. With the exception of 518 acre Cayuta Lake, where alewives dominate the forage fish community, pond fingerlings outperformed advanced fingerlings in all study waters. Predation risk was determined to be the most important factor influencing the survival of stocked fingerlings. Abundance of largemouth bass and esocids over 15 inches in size was noted to have the most influence on fingerling survival. Little or no walleye fingerling survival was observed in waters where electrofishing catch rates for large fish predators (>15 inches) exceeded 6 per hour. The results of this study will be used to better guide future walleye stockings and underscores the importance of conducting a baseline survey of predator abundance prior to deciding on whether or not to stock walleye in a body of water.

Coldwater Lakes and Ponds

Region 1

Trout Stocking

Region 1 Fisheries Staff coordinated the stocking of 31,180 trout in 52 locations on 27 waters across Long Island. In the spring 3,300 yearling brown trout, 5,250 two year old brown trout and 15,100 yearling rainbow trout were stocked. Another 7,500 fall yearling brown trout were stocked in 13 ponds and three streams in October and November. This included 11 new fall stocking locations in Suffolk County. The fall stockings in Suffolk County were designed to provide fall and winter trout fishing opportunity in these waters. This was made possible by new regulations, which became effective October 1, 2002, allowing trout fishing all year in most waters in Suffolk County. Assistance was received from the Staff of the Catskill Fish Hatchery who raised and transported the fish and members of the Long Island and Art Flick Chapters of Trout Unlimited who helped with the stocking.

Swan Lake Electrofishing Survey

On May 14th, DEC staff conducted an electrofishing survey of Swan Lake in Patchogue. Swan Lake had last been surveyed in 1985. The new survey was prompted by angler diary data showing a three year decline in wild brook trout catch. The objective of the survey was to characterize the warmwater fish community, particularly those species likely to prey on brook trout. Largemouth bass ranging from 4.6 to 13.1 inches were caught at a rate of 11 per hour. The most abundant fish were American eel with a catch rate of 160 per hour and brown bullhead with a catch rate of 64 per hour. These results are similar to those of the previous survey. Five brown trout and seven rainbow trout were caught but no brook trout. Brook trout were not caught by electrofishing during the 1985 survey either. The brown and rainbow trout were recently stocked yearlings. No holdover trout of hatchery origin were found. Because no substantial changes in the bass population or the broader fish community were evident, predation is unlikely to be the cause for the decline in brook trout catch. The stream above Swan Lake was also surveyed to further investigate the status of the brook trout population (See Coldwater Streams).

Region 5

Canada Lake Surveyed

Canada Lake, in the Town of Caroga, Fulton County, was surveyed to assess lake trout natural reproduction and the stocking policy. Canada Lake is in the Ferris Lake Wild Forest, but much of the shoreline is privately owned. Gill-nets were set in relatively deep water to catch primarily lake trout. A total of 66 lake trout ranging from 6 to 26 inches were captured, along with yellow perch, brown trout, some big smallmouth bass (up to 19"), a single rainbow smelt and a single creek chubsucker. Rainbow smelt have not been reported in this lake previously. Lake trout age and growth will be determined from scale samples, however the preponderance of fin-clipped lake trout in the catch (85%) indicates the lake trout fishery is largely dependent upon stocking.

Rock Pond Stocking

DEC's proposed amendment to the Pharaoh Lake Wilderness UMP to allow the stocking of Rock Pond and Little Rock Ponds with round whitefish was approved by the APA. The UMP had originally stated that upon reclamation, Rock Pond and Little Rock Ponds would be stocked with a heritage strain of brook trout and common shiners. The amendment allows the substitution of round whitefish for common shiners. Round whitefish are classified as endangered in New York State. The ponds were stocked with Little Tupper heritage strain brook trout in October 2002. Round whitefish stocking is anticipated to occur in late spring 2004.

Holmes Lake Limed

Holmes Lake in the Town of Bleecker, Fulton County, was limed with 20 tons of agricultural limestone during March. Holmes Lake, within the Shaker Mountain Wild Forest, lies in an acidified area of Fulton County and requires periodic treatment to enable the pond to support a trout fishery. The liming of Holmes Lake was determined to be a non-jurisdictional matter by the Adirondack Park Agency in 1990. The pond has been treated three times since then. Each treatment has resulted in a satisfactory rise in pH and alkalinity, and a popular and productive trout fishery resulted. The liming was a cooperative effort involving the aviation and electronics units, Lowville and Northville

Operations, Forest Rangers and regional fisheries staff. In addition, the Adirondack Lake Survey Corporation provides periodic water chemistry analysis for monitoring Holmes Lake's acidification status.

Region 6

Pond Liming

During winter 2003, Peaked Mountain Lake (Herkimer County) was successfully limed. Lime was moved to this remotely located acidic fishless lake via US Army helicopters from Fort Drum. Peaked Mountain is in close proximity to Evergreen and Hidden Lakes, also limed with the help of Fort Drum Aviation. Peaked Mountain has already been stocked with Little Tupper brook trout in hopes of establishing a new sportfishery and eventually another NSA heritage strain brook trout population.

Evergreen and Hidden Lakes

Evergreen and Hidden Lakes were treated with lime in 1997 and 1999, respectively. Since their treatments, both lakes have been stocked with Little Tupper strain brook trout annually. Surveys of the lakes in 2000 showed excellent survival rates of the stocked brook trout. A popular sportfishery has developed.

On July 15-17, 2002, Region 6 Fisheries staff surveyed the two lakes to collect data on the numbers and sizes of the brook trout living in the waters. This data will be used to reevaluate these populations. The survey of Evergreen Lake was also designed to sample round whitefish, an endangered species in New York State. This species was experimentally introduced into Evergreen Lake in 2000.

Four gill nets (2 set in each lake) caught 64 brook trout, and 16 round whitefish. This catch of brook trout was similar to the catch in the 2000 survey, and shows the population of brook trout remains relatively abundant in both lakes. The average size of the brook trout collected from Evergreen and Hidden Lakes was 11.6 and 10.5 inches, correspondingly. The maximum length of the brook trout sampled in Evergreen Lake was 17.1 inches, while the largest trout collected from Hidden measured 14.8 inches. These maximum lengths suggest quality sized fish are present in the lakes, which helps explain why their sportfisheries have become popular with anglers.

The age frequency distributions of the brook trout sampled suggest that stocked fingerling trout have relatively high survival rates in both lakes. They also suggest poor survival rates for the older fish. Evergreen's two nets caught 30 trout but only four of those were older than 2 years. The length frequency distributions further support these conclusions. High numbers of smaller, younger trout, ranging in length from 7-9 inches were evident in both samples. The low number of older fish in Evergreen Lake may reflect a sportfishery impact or the population could be experiencing other unknown mortalities. Either way the population of larger, older trout is not growing in Evergreen. For Hidden, three year olds, the oldest possible trout in the lake, were poorly represented.

The 16 round whitefish caught in Evergreen Lake shows an excellent survival rate from those stocked in 2000. The average length for the round whitefish sampled was 12.3 inches. The females collected had developing eggs and appeared to be preparing for spawning in the fall. This experimental stocking of whitefish introduced into the lake has had no apparent effects on the brook trout population. Establishing a whitefish population is an added bonus to the lake.

Bubb and Sis Lakes

Bubb and Sis Lakes, located in the town of Webb, Herkimer County, were successfully treated with the pesticide rotenone on September 13, 2000, to eradicate populations of yellow perch and brown bullhead, which had become very abundant in the lakes. Post treatment, Little Tupper strain brook trout were stocked in the lakes to establish new populations. Yearling brook trout were stocked during spring 2001, followed by a fall-fingerling stocking during the fall of 2001.

On July 11-12, 2002 Region 6 Fisheries staff surveyed Bubb and Sis Lakes, evaluate brook trout post stocking survival. This was accomplished with gill nets set overnight. The survey also included water chemistry (pH, Acid neutralizing capacity and conductivity) and physical habitat assessment (water temperature and dissolved oxygen profile).

Combined, the nets caught 42 brook trout from the two lakes, at a rate of more than 14 per net night. In comparison to other Adirondack brook trout lakes, this

is a very satisfactory catch, indicating that survival overall has been very good. Looking closer however, the survey results indicate that only one of the two year classes of brook trout stocked into the lake survived. One year olds stocked as fingerlings during the fall of 2001 were present, while two year olds, stocked in the spring of 2001 were absent. Apparently these trout did not survive. Length frequency distributions for the Bubb and Sis catches show only one peak, which represents the abundant 2001 year class. This supports the above conclusions.

Since the lakes were reclaimed, it was expected that there should only be stocked brook trout in the lakes. This was not the case however, as one brown bullhead was sampled from each of the lakes, confirming that some brown bullhead survived the rotenone treatment.

Region 7

Tri-County Pond Stocking

On June 28, 2002 twenty-four (24) largemouth bass were stocked into Tri-County Pond. Stocked bass ranged in length from 4.5 - 10.2 inches in length with most being around 8 inches long. This stocking occurred as a direct result of the findings from a June 2001 biological survey. Tri-County Pond has been managed with a put-grow-and-take rainbow trout stocking of 200 fish for several decades but in the 2001 survey over 400 black crappie were captured along with some golden shiners and brown bullhead. The bass were stocked in an attempt to diversify the fishery and hopefully provide predatory pressure on the overabundant, slow growing crappie population. The other option at hand would have been to eradicate the non-trout species with the use of rotenone (a fish poison). However, we felt that the likelihood of future reintroduction of unwanted fish species by anglers was too high to warrant an effort to eradicate non-trout species. In addition, we instituted a change to the fishing regulations to allow ice fishing on Tri-County Pond.

Region 8

Status of Lake Trout assessed at Hemlock Lake

Hemlock lake is a deep, 1,800 acre Finger Lake. As a water supply lake for the city of Rochester, its undeveloped shoreline offers a suburb salmonid fishery in an Adirondack-like setting within an hour's drive of the city. Lake trout have been stocked at least since 1900. From June 18 to 24, 2002, Region 8 fisheries staff assessed the lake trout population with standard gang gill netting. Twelve nets caught 92 lake trout (7.67 per net), and very few other salmonids (3 brown trout). This catch rate is similar to that observed in 1986 (10.0 per net) and is higher than observed in 1989 (4.6) and 1983 (3.25). The largest fish was a 33 inch, 13 pound lake trout. Several in the 28 to 30 inch range were also caught. Although full data analysis has yet to occur, preliminary observations of the data suggest that, like earlier surveys showed, lake trout growth rates are outstanding in Hemlock Lake.

Warmwater Rivers and Streams

Region 3

Hudson River Estuary Black Bass Study

The Hudson River Estuary Management Program funded a three year study beginning in 1999 to examine the status of the largemouth and smallmouth bass populations in the Hudson River. The consulting firm of Lawler, Matusky & Skelly Engineers (LMS) was contracted for the study. The last major survey of this type was contracted to Cornell University from 1989-91.

The five primary objectives for the current study are:

1). Estimate the number of black bass greater than 11 inches in the Hudson River Estuary.

2). Locate smallmouth bass wintering areas.

3). Locate smallmouth bass spawning areas and determine their importance to the fishery.

4). Determine black bass exploitation rate from angling.

5). Determine the effects of repeated catch/move/release of black bass from tournament fishing.

A brief description of some of the preliminary findings through 2001 was included in previous Bureau of Fisheries annual reports. Due to a freeze on appropriated funds for this project in this fiscal year, LMS could not be paid for work and therefore temporarily stopped progress on the final report. The final report is anticipated in 2003-04.

Wallkill River and Sturgeon Pool Walleye

A walleye stocking program for the Wallkill River and Sturgeon Pool, Ulster County, was initially implemented in 1993. The goal of this program was to produce a self sustaining walleye population where ultimately stocking will not be necessary. The extent of these stockings was expanded in 2002 to include an additional 6.5 miles of the Wallkill River and the inclusion of 10.4 miles of Rondout Creek downstream of Sturgeon Pool. This makes the entire stocked portion of the Wallkill/Rondout system a continuous 34.5 miles, encompassing 1,009 acres. It is too early to tell if our goal will be reached, but we should have a good idea of this in the next five years. At this point we have caught walleye from each of our stockings (1993, 1998, 1999, 2000 and 2002). The stocked reaches are as follows:

- Wallkill River: Rte 44/55 Gardiner to Sturgeon Pool (15.5 miles) stocked with 7,100 fingerling walleye in 1993, 1998, 1999, 2000 and 2002. Scheduled for one more year of stocking (2003).
- Wallkill River: Village of Wallkill to Rte 44/55 Gardiner (6.5 miles) stocked with 2,800 fingerling walleye in 2002. Scheduled for four more year of stocking.
- Sturgeon Pool (215 acres) stocked with 4,300 fingerling walleye in 1993, 1998, 1999, 2000 and 2002. Scheduled for one more year of stocking (2003).
- Rondout Creek from Eddyville to High Falls (10.4 Miles) stocked with 6,000 fingerling walleye in 2002 which followed a smaller stocking through part of this section in 1999. Scheduled for three or four more years of stocking.

The 2002 fall electrofishing samples resulted in the collection of 34 walleye from the Wallkill River, 8 from Rondout Creek and 32 from Sturgeon Pool. Included in this sample were 48 fingerling size fish which could have been from the 2002 stocking or may have been wild (naturally spawned) fish originating within the system. The 2-inch fingerling walleye stocked in June of 2002 in these waters were marked with oxytetracycline (OTC). This mark enables us to determine if the fish in this sample originated from this stocking or if it was of wild origin. A sample of these 48 fish was sacrificed to assess whether they indeed have this mark. A determination of whether natural reproduction is contributing to this population will be made once analysis for this mark is complete.

Esopus Creek Electrofishing Surveys

Electrofishing surveys were conducted at three sites on Esopus Creek below the diversion from Schoharie Reservoir in September 2002. The 2002 surveys will be used to make comparisons to other surveys completed in 1970's, 1980's, and 1990's. Population estimates from previous surveys indicate that the trout densities have averaged between 95 and 430 juvenile and adult trout per acre, with a long term average of about 240/acre. The three sites in 2002 averaged about 160 juvenile and adult trout per acre and ranged between 82 and 280.

In October 2002, an electrofishing survey of one site on Esopus Creek above the diversion from Schoharie Reservoir was conducted. This standard site was also sampled in 1977, 1988, 1990 and 1994. Previous population estimates indicated trout densities averaged 335 juvenile and adult trout per acre, and ranged between 150 and 509. The 2002 population estimate was very low, with a juvenile and adult trout density of only 18 per acre. The very warm and dry conditions experienced throughout this watershed from mid-summer on was the likely cause of this reduction. Even though temperatures were also unusually warm below the diversion from Schoharie Reservoir in the summer of 2002, a decline of the magnitude above the diversion did not result. This was likely due to the fact that a consistent release of water from the diversion did offer some limited cooling and wetted habitat. As indicated in the next section however, the warmer water temperatures in the creek below the diversion were not without impact, and may have been partly responsible for the 2002 density estimates being below the long term average.

Esopus Creek Flow and Temperature

High spring and early summer releases from Schoharie Reservoir in 2002 resulted in a premature depletion of the coldwater available for release to Esopus Creek later in the summer. Esopus Creek temperatures below the Shandaken Tunnel diversion from Schoharie Reservoir were therefore higher than normal through much of the summer. Through most of August, the diversion temperature was in the 70°'s F, rather than the usual mid to lower 60°'s F. Late July and early August had above normal air temperatures with numerous days in the 90°'s F and very little cooling effect in the evening. This resulted in daytime water temperatures at Coldbrook, at the lower end of the tailwater trout fishery, in the upper 70°'s and low 80°'s F. We were concerned that the coldwater ecosystem may have been jeopardized by these prolonged excessively warm conditions.

In an effort to document the presence/absence of fish inhabiting the lower tailwater portion of Esopus Creek during these elevated temperatures, and to determine if fish found any thermal refugia, we snorkeled several stream sections in August. The snorkeling surveys indicated either no trout or low numbers of trout, and lower than expected numbers of other fish species, in the lower half of the tailwater.

The most notable observation however was the presence of stressed and dying slimy sculpin. We observed dead sculpin, and others barely alive and slowly tumbling along the bottom. Numerous mergansers (a fish eating duck) were feeding in the area and were likely finding prey easy to capture.

We hypothesize that the normal coldwater fish communities in lower Esopus Creek were stressed, forced to emigrate, or killed by the abnormally warm water conditions prevailing during the summer of 2002.

Region 4

Delaware Tailwaters Striped Bass

In response to a growing number of complaints about the increasing abundance of striped bass in the Delaware Tailwaters (West Branch Delaware River downstream of Cannonsville Reservoir, East Branch Delaware River below Pepacton Reservoir and the Delaware River from Hancock to Callicoon), the Delaware River was boat electrofished for 5.6 mi from the confluence of the East and West Branches downstream to the Pennsylvania boat launch at Buckingham on May 23, June 4, and September 3, 2002. Study objectives were to gather baseline information on abundance, size distribution, and age structure. Since the Tailwaters are being managed for trout, anglers are concerned about the impact of growing striped bass abundance on trout populations especially in the Delaware River and lower East Branch where trout abundance is relatively low. In addition, large numbers of trout in these two river reaches concentrate in thermal refuges during periods of elevated water temperature where they would be especially vulnerable to predation. Anglers would like to see a reduced size limit from the current 28 inches.

No striped bass were collected or observed on the Delaware River in 2002. However, striped bass were present since they were observed in the West Branch at Balls Eddy (RM 4.2) in mid-June. In 2001, six striped bass 20.8 to 26.8 inches were collected at Balls Eddy. Anglers report catching striped bass in the Delaware River into the fall. In the East Branch, reliable reports indicated that striped bass have been observed above Fish's Eddy (RM 10.6).

The failure to collect or observe striped bass in the Delaware River in 2002 suggests a sparse population. However, it is expected that striped bass abundance in the Delaware River will continue to increase over the coming years as the Atlantic seaboard population continues to expand. In the Delaware Tailwaters, striped bass were first collected October 1, 1996, when a 21-inch fish was captured in an eel weir on the East Branch. According to DEC representatives to the Atlantic States Marine Fisheries Commission (ASMFC) which oversees regulation for marine species along the Atlantic seaboard, ASMFC is unlikely to approve any reduction in the minimum size limit for striped bass. In fact, they are more likely to impose more restrictive regulations. Future conflicts are likely since trout anglers would like more liberal striped bass regulations on the Delaware Tailwaters.

Catskill Creek Walleye Tagging

A fishery survey was conducted on the lower reach of Catskill Creek, from the mouth upstream 2.6 miles, in April to assess the reports of walleye being caught and creeled and to locate spawning activity. Catskill Creek is a tributary to the Hudson River and the mouth is considered good black bass wintering habitat, but walleye were historically absent. Walleye have not been stocked in the immediate area, but were stocked in a tributary impoundment, Basic Creek Reservoir, from 1996-1998. The reservoir was essentially drained in 1995 and walleye fry stocking in 1996 had good potential for success due to the absence of predators. Fishing is no longer allowed in Basic Creek Reservoir, but some walleye have apparently escaped down-stream and taken up residence in lower Catskill Creek.

Using boat electrofishing with about 4.7 hours of on time, we caught 139 walleyes, a catch rate of about 30 fish per hour. The walleyes ranged in size from 16 to 24 inches. Aging from scales taken has not been completed, but almost all of the fish appear to be 6 years old, putting them in the 1996 year class. Most of the fish taken were also spent, indicating that spawning had been completed and the fish may have been staging in the lower creek prior to dispersal into the Hudson River. We were able to boat up to a set of rapids at about RM 2.6, but could go no further and caught few walleyes in that part of the stream. Of the 139 walleyes sampled, 133 were jaw tagged prior to being returned to the water. To date, no tags have been returned. We plan to sample Catskill Creek and other lower Hudson River tributaries in the spring of 2003 to look for walleyes with jaw tags and to get a better picture of walleye distribution in the Hudson River estuary system.

Hoosic River Small Fish Sampling

In June of 2001 a chemical was discharged to the Hoosic River that killed fish downstream for a distance of 10.2 miles. Proximate to the June 28 anniversary date of the kill, staff examined the river to demonstrate presence and abundance of small fish. The river between Hoosick Falls and Buskirk is difficult to access and effectively sample. The geomorphology of the channel is not highly sinuous, but the thalweg is deep. Sampling depended on low flow conditions, and options being limited, beach seines were used, a 75 foot long, 1/4 inch mesh net, and a 25 foot 1/8 inch mesh bunt-equipped net.

All locations except one were gravel bars suspected to support populations of small fishes and which afforded conditions suitable for the gear. Composed of aggraded gravel, it was believed that this substrate would be free of hangs and in conjunction with reduced current, would allow for establishing the presence or absence of small fish. For both nets, at all locations and for all replicate sets the gear did not hold tightly to the bottom. Current caused the net to rise up, a problem exacerbated by fine mesh. Sometimes too, cobbles or debris caused the leadline to ride up and over, allowing fish to escape. YOY fishes smaller than 15 or so millimeters passed through the mesh, even the 1/8 inch mesh. Actual catches though, are considered representative of the sizes and species expected to utilize this habitat type during the summer. Not always retained by the gear, YOY fishes were abundant and could be captured by simply swishing a small wire-handled aquarium net through the water.

Sixty-nine percent of the combined catch (all sites, all replicates) was identified to the species level. Twelve species of fish common to the Hoosic River drainage were identified. Rainbow trout fingerlings (3) were only taken above Hoosick Falls. No other game fish species were captured or observed. Of the individual fishes that were identified, the large net caught 7 species, mostly bluntnose minnow and spottail shiner, whereas the small net caught all 12 species, the bulk of which was bluntnose minnow, blacknose dace, and white sucker. Total length frequency by net shows

very similar average, minimum, and maximum lengths. Modal values are quite different though. That for the small net sample reflect the catch of 20 to 30 mm YOY fishes. The catch for this gear was also concentrated between 50 and 65 mm. The large net by comparison sampled sizes in 40 to 55 mm range. Estimates of catch per unit area were made using the total catch and the approximate area swept by the gear. For 3 sets the small seine was swept in the same place right after using the large seine. Additional fish were taken each time, illustrating sampling inefficiency and selectivity. Regarding the catch estimates, any inference on the relative or absolute abundance of small fish reaches beyond the intent of this reconnaissance.

Excepting rainbow trout, tessellated darter, and white sucker, the species encountered are of the Family Cyprinidae, minnows and carps. A review of these fishes shows that the typical size attained by each species in the State is larger than what was captured in this sampling. Some adults may have been in the catch, but it was largely YOY and juvenile fish. Small inshore fishes, shown here to be mostly minnow species, are dependent on clear and shallow moving water. This environment provides the conditions and forage that small planktivorous/herbivorous species require, a key element in identifying critical nursery habitat.

Region 6

St. Lawrence River- Lake St. Lawrence Warmwater Assessment

Lake St. Lawrence was sampled for the 17th consecutive year of a standardized gillnet assessment program in 2002. This index originated as a cooperative assessment program with the Ontario Ministry of Natural Resources (OMNR) in 1986 to monitor Lake St. Lawrence recreational fisheries.

Thirty two gill net sets at standard sites were fished in mid-September. Fish community data were analyzed with respect to CPUE, growth rates, and age distribution. Total CPUE increased 14% over 2001 to 17.9 fish/net/night. Smallmouth bass CPUE remained similar to 2001 at 2.53 fish/net/night. The walleye CUE remained relatively constant primarily due to a continued strong 1999 year class. Yellow perch increased for the first time since 1999 as a result of the full recruitment of the 1999 year class and lowered predation from Double-Crested Cormorants nesting on Strachan Island.

St. Lawrence River- Chippewa Bay Northern Pike Enhancement

Depressed northern pike populations in the Thousand Islands have led to general angler dissatisfaction in this region. As a result, a cooperative northern pike enhancement program was established in 2001 between Region 6 fisheries staff and the Chippewa Bay Fish and Game Club. Under this 7-year experimental program, fisheries personnel acquire fertilized eggs from local genetic stocks for culture by the Fish and Game Club. Progeny are stocked as advanced fry into four wetland sites within Chippewa Bay. Stocking success is evaluated by seining for fingerlings in August and through monitoring of an established gill net index. The following results to date were:

- 2001 - Stocking site evaluation of fish species composition, and habitat suitability.
- 2002 - Approximately 5,000 fry stocked, despite problems with the culture facility.

Region 7

Susquehanna River American Shad Restoration

Regional fisheries staff assisted with the stocking of 150,000 American shad fry in the Susquehanna River. This was the first stocking of American shad in the New York portion of the Susquehanna River drainage in more than two decades. Unfortunately, fewer fish than anticipated were stocked due to unexpected high mortality of shad fry at the Pennsylvania Fish and Boat Commission Hatchery where the fish were raised. All fry were stocked at the newly constructed DEC boat ramp in Apalachin, NY. These fish were stocked as part of a multi-state cooperative effort to restore a self-sustaining population of shad in the Susquehanna River. Regional and central office Bureau of Fisheries staff 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.

Efforts by Region 7 Fisheries staff to collect juvenile shad in August were unsuccessful but collections made in Pennsylvania and Maryland revealed that shad stocked in NY (including the Chemung River) survived better than shad stocked anywhere else in the basin.

Region 8

Chemung River Boat Access User Survey 2002

The Chemung Basin River Trail (CBRT) is a cooperative effort among numerous state (including NYSDEC), local, and private groups and consists of 11 boating access sites either completed or proposed from just west of Corning to the PA/NY border. A user survey consisting of car counts and postcards on windshields was conducted to determine baseline effort and user characteristics from five sites along the upstream portion of the river from the Town of Erwin to the Town of Big Flats. Because funding was not available, and at the urging of CBRT partnership, individual volunteer groups were assigned a specific access site in order to collect use data from May - October 2002. Because of numerous deviations from the survey design, effort estimates should be viewed with caution. Total effort was estimated at 10,457 party hours. July, August, and September were the periods of highest use with July alone accounting for 41% of the total effort. The majority of the use was by vehicles without trailers. Of 83 postcards returned, 50% of use was related to fishing, 23% was for boating only, and 27% for other recreational activities. Fish species targeted in order of preference by individuals angling were any fish, bass, walleye, bullheads, and other species. Eighty-six percent of users were from local counties. Most respondents relayed positive comments about the access sites. Although the volunteer groups were dedicated, because of the large number of people involved, there were numerous discrepancies from the survey design. This survey documented that these access sites are utilized throughout the summer and a significant portion of this use is geared toward fishing activities. If this survey is repeated, it is suggested an alternative approach be used.

American Shad Introduction into the Chemung River

On June 25, approximately 200,000 American shad fry were stocked in the Chemung River at the recently constructed boat launch site at Dunn Field in Elmira. Additionally, American shad fry were stocked earlier in June in the Susquehanna River near Binghamton. The shad fry were obtained from the Pennsylvania Fish and Boat Commission's (PAFBC) Van Dyke fish hatchery in cooperation with the Susquehanna River Anadromous Fish Restoration Cooperative (SRAFRC). Other partners in the Cooperative include U.S. Fish and Wildlife Service, National Marine Fisheries Service, Susquehanna River Basin Commission, and Maryland Department of Natural Resources.

Currently, the only unpassable barrier that would keep migrating shad from entering NY waters is an inflatable dam near Sunbury, PA where a fish passageway is slated to be developed by 2004. By stocking fry in New York waters, it is hoped that these fish will imprint on these nursery areas and return to spawn in future years. No shad were collected in late summer sampling in the vicinity of the shad stocking site. However, collections of juvenile shad at downstream locations in southern PA indicated excellent survival of the NY stocked shad. Of 68 hatchery shad captured, 20 came from the Chemung River stocking. Overall, although NY received only 14% of all stocked shad, they accounted for 44% of hatchery marked fish collected. Stocking will continue for a five-year period. Although the above results are promising, it could be decades until American shad return in numbers to provide significant angling opportunities.

Interest in the return of the American shad to the Chemung River has initiated discussions with the Division of Water, U.S. Fish and Wildlife Service, and the City of Elmira about constructing a fish passageway at a lowhead dam located in Elmira. The USFWS has submitted several designs with anticipated costs. Currently funding sources are being sought to implement these designs.

Canisteo River

A total of seven sites within the Canisteo River were sampled during September with backpack electrofishing gear to determine the current status of the smallmouth bass and walleye fishery. Low water levels and lack of a small portable boat electrofishing unit prohibited a repeat of all sites sampled during similar survey conducted in 1982-83. Smallmouth bass

were the dominant gamefish, with 61 fish ranging in size from 65 - 285 mm collected. This was the same number of bass collected in the early 1980's survey, but with considerably less effort and sampling sites. Age 1+ bass were the dominant size group in the population. Additionally only one bass older than age 3 was collected. Current size limit is 10 inches and only two legal sized bass were collected. Growth was average compared to other New York waters. Because sampling was limited to only areas accessible to backpack electrofishing, habitat conducive to adult smallmouth bass was inadequately sampled and this factor probably accounts for the limited collection of legal sized bass.

Only one walleye was collected. Few reports are received about catches of walleye in the Canisteo River, therefore it appears that they contribute little to the overall fishery. Rock bass were abundant throughout the river and may provide additional angling opportunity.

Central Office-Inland Section

St. Lawrence River Esocid Study

Federal Aid to Sportfish Restoration funded efforts to assess and manage Esocids (members of the pike family) in the St. Lawrence River continued in 2002. Researchers at the State University of New York School of Environmental Sciences and Forestry completed the following activities:

Muskellunge Angler Diary Program

Nineteen diaries were distributed to anglers; four were returned (21% return rate). Each diary recipient was contacted by mail and phone to encourage participation and diary returns. The participation rate has declined and many anglers that did not return diaries indicated fishing was exceptionally poor last year. The poor fishing was also indicated by the returned diary data. Catch per angler hour was lower in 2002 than in all other years of the program. Anglers fished a total of 906 hours; only 15 muskellunge were caught (CPUE = 0.017 fish/hour). All fish were released. The total length of the muskellunge ranged from 36.5 to 54.0 inches with a mean of 45.6 inches.

Monitoring of Juvenile Esocids

Monitoring of juvenile esocids continued in 2002. YOY muskellunge and northern pike were monitored in 11 bays using fine mesh (30') seining from Cape Vincent downstream to Alexandria Bay from July 15- July 31, 2002. The 30 ft seine resulted in a total capture of 145 muskellunge and 25 northern pike. Large mesh (60') seining was conducted in the same sites from August 15th to September 6th and 83 muskellunge and 24 northern pike were captured. The CPUE in the August seining series was substantially higher in 2002 than the previous two years for muskellunge at 0.92 fish per haul; the CPUE for northern pike (0.27 fish per haul) was relatively low.

Northern Pike Spawning Marsh Management

Efforts to evaluate the use and reproductive success of northern pike in managed marshes continued in 2002. In 2002 ten adult pike were captured at Cranberry Marsh. There has been a dramatic decline in the number of spawning fish at Cranberry Marsh since monitoring began, but the mean size has remained relatively stable. At Wilson Bay, twenty adult northern pike were captured in 2002. Mean total length of males was 507 (309-640 mm) and 707 (492-870 mm) for females. The mean size of northern pike in Wilson Bay is substantially larger than that observed for Cranberry Marsh.

In addition to monitoring spawning adult northern pike, YOY northern pike have been monitored for emigration at Cranberry Marsh since 2000. Massive emigration of YOY northern pike was observed in 2002. Evidence suggests that an extensive resident population of adult northern pike inhabits the marsh, since the spawning population entering the marsh has decreased each year, but production of young of the year has increased substantially. In 2002, 692 YOY northern pike leaving the marsh were captured and fin-clipped; 59 grass pickerel were also captured and processed.

Results of the recent work at the Cranberry Creek and Wilson Marshes demonstrate that productivity of YOY northern pike has been low. Production of YOY fish has been inconsistent; in addition few spawners entered the marsh in 2001 and 2002. However, greater production of young in 2002 was achieved with only 8 females added to the marsh. Results from trapnetting within the Cranberry Marsh in 2002 indicated that a resident population of northern pike was present, and that they likely contributed to potential egg deposition.

Fish Community and Habitat Associations in Nursery Bays

Seining efforts were expanded to include the entire fish community, for the purposes of helping identify species community assemblages and habitat associations contributing to esocid nursery bays. Eleven sites and 90 seine hauls were evaluated during the fine-mesh seining series in July and 12 sites and 96 seine hauls were examined in the large-mesh August series. Habitat variables including water depth and temperature, substrate type, and vegetation cover were measured at the beginning, midpoint, and end of each 100-foot seine haul.

During the August sampling, data was gathered on esocid diets using gastric lavage and stomach samples were taken from 71 muskellunge and 13 northern pike. Thirty-two species were captured with a total count of 46,630 fish in both seining series. The July seining series was dominated by centrarchid, minnows, and unknown fry (identification pending), while the August series was dominated by percids and centrarchid . In both series, the esocids were the smallest fraction of the shallow littoral fish community.

Coldwater Streams

Region 1

Carlls River Trout Assessment

The Long Island Chapter of Trout Unlimited has become very interested in the possibility of developing the Carlls River into a trout fishery between Southards Pond and Argyle Lake. This section of stream has been stocked as a put and take stream from 1931 to 1937, 1953 to 1964, and 1982 to present. In order to assess the temperature suitability of the Carlls River for trout in the target reach, Trout Unlimited purchased four data loggers and placed them in the stream from early May through October 1, 2002. The data loggers were located from immediately downstream of Southards Pond to the footbridge upstream of Park Avenue, with two locations spaced in-between. Daily minimum water temperature exceeded 70EF degrees immediately downstream of Southards Pond for approximately two months straight and was at least 80EF on seven days. While other locations didn't have daily minimum temperatures that exceed 70EF for as long, all locations had daily minimum water temperatures exceeding 70EF for at least one week straight and other shorter terms sporadically through the summer. Daily maximum temperature exceeded 70EF from mid June through October 1, 2002 at all locations with a few scattered breaks of cooler water temperatures. The results of this temperature survey clearly indicated that water temperatures were unsuitable for trout in the majority of the river. A few springs might provided some limited thermal refuge for trout during the summer, but it is unlikely that there would be enough thermal refuges for a fishable population of trout.

A second phase of the Carlls River Trout Assessment involved an assessment of winter holdover of fall stocked brown trout. Trout Unlimited assisted the fisheries unit by scatter stocking 100 brown trout in the Carlls River between Southards Pond and Argyle Lake. An electrofishing survey of the target reach was conducted on March 17, 2003, to determine holdover of the fall stocked brown trout and to assess survival of brook trout fry stocked as part of the Trout in the Classroom program. Twenty-one brown trout were captured during the survey, ranging in size from 8.8" to 14.3 inches. No brook trout were captured. Other fish captured during the survey included chain pickerel, largemouth bass, bluegill, pumpkinseed, yellow perch, brown bullhead, golden shiner, tesselated darter, eastern mudminnow, and American eel. Chain pickerel ranged up to 14.0 inches, yellow perch ranged up to 7.6 inches and pumpkinseed ranged up to 6.1 inches. The strong warmwater fish community and high water temperatures are the most likely reasons for the failure of the brook trout fry stocking. The 20+% holdover rate of brown trout indicated that the scatter stocking was effective and that the trout survived well during the winter, providing an extended fishing opportunity through the winter season (the Carlls River is open year round). Scatter stocking of fall brown trout should be continued with some thought to shifting some of the spring yearlings to fall stockings.

Swan River Brook Trout Survey

From June 7-12, fisheries staff used backpack electrofishing gear to sample three sections of the Swan River upstream of Swan Lake. The purpose of the survey was to assess the status of the wild brook trout population in the watershed. Extensive natural reproduction was documented. At one site 136 brook trout were caught, of which 128 were YOY. The largest specimen measured 10.5 inches. In 1995, 53 brook trout, of which 38 were YOY, were caught at the same site. The numbers of adult trout were similar between years. The difference in the abundance of juveniles likely reflects the time of year. The 1995 survey was done in the autumn. The data suggest that the brook trout population remains stable.

Beaver Brook Brook Trout Restoration Project

During 2001, Beaver Brook, Mill Neck, was electrofished to remove non-native brown trout from the stream system. Ninety-six brown trout were removed during three days of electrofishing. Mark recapture statistics indicated that one or two yearling brown trout remained in the system after electrofishing. After the brown trout were removed, 500 yearling and 200 two-year-old brook trout were stocked into Beaver Brook during August 2001. Additionally, brook trout fry were stocked in February of 2002. Beaver Brook was electrofished on September 30, 2002 to determine success of the brook trout stockings and removal of brown trout. There was some concern that brown trout that were not removed during the 2001 electrofishing could enter the stream

and spawn. During the 2002 electrofishing, 779 fish were captured, including 237 brook trout, 153 American eel, 98 pumpkinseed, 77 golden shiner, 65 yellow perch, 54 banded killifish, 33 white perch, 26 nine-spine sticklebacks, 16 *Lepomis sp.* (presumed to be pumpkinseed), 15 American brook lamprey, 4 brown bullhead and 1 brown trout. Brook trout ranged from 3.4 to 10.3 inches, including ripe males as small as 4.5 inches. All indications are that brook trout have been successfully re-established into Beaver Brook and that breeding pairs of brown trout have been removed. Due to the numbers of brook trout in Beaver Brook, no further stockings will be conducted. A follow up survey in 2003 will be conducted to determine spawning success of the introduced brook trout.

Region 5

Stream Trout Stocking Assessment Surveys Conducted

Staff electrofished a number of streams and rivers to assess current stocking policies using Catch Rate Oriented Trout Stocking (CROTS) guidelines. The Sacandaga River and West Branch Sacandaga River in Hamilton County were surveyed to provide data for CROTS policies updates for these streams. The Little Trout River, Franklin County, also received a CROTS survey. Results of these surveys were analyzed and the needed stocking policy changes have been made.

Whirling Disease Sampling

The Marble River and a tributary of Collins Brook in Franklin County were electrofished to take specimens of wild trout yearlings for whirling disease testing. Similar sampling was done in Meco Creek and Hale Creek in Fulton County. These four waters have tested positive for whirling disease in the past. All four waters continue to have exceptional wild trout populations. A population estimate was conducted on two sites in the Marble River. Population estimates were also run on the Rocky Branch in Essex County which is being monitored as a control stream. Similar surveys are being conducted by regional fisheries units across the state to judge the impacts of whirling disease on wild trout populations. Testing results from the Rome Laboratory later indicated that whirling disease was still present in the Collins Brook tributary, Meco Creek and Hale Creek, but the disease was absent from the Marble River. Flood damage to the Rocky Branch has seriously impacted the brook trout and rainbow trout populations and biases any use of that stream as a control comparison.

Indian River and Deer River CROTS Surveys

The Indian River, Town of Indian Lake, Hamilton County, was electrofished on August 14th and 16th to help establish Catch Rate Oriented Trout Stocking (CROTS) stocking policies. Two sites, one directly below the Lake Abanakee Dam and another at the Three Islands area about three miles downstream, were surveyed using five backpack shockers. Unusually low water levels permitted the crews to shock this large river. Hot, dry weather probably also contributed to the zero catch of trout. Species captured were smallmouth bass, largemouth bass, rock bass, cutlips minnow, longnose dace, blacknose date and slimy sculpin. The sculpin are generally good indicators that water conditions are suitable for trout. It is likely that trout utilize this section of river when temperature and flow conditions are most suitable in the spring and fall months. The trout stocking policies for the Indian River will be continued, but numbers and species stocked will be revised per CROTS guidelines.

The Deer River, Town of Dickinson, Franklin County was surveyed using CROTS guidelines on August 20 and 21 at five locations. Species captured were brown trout, creek chub, smallmouth bass, stonecat, American eel, brown bullhead, pumpkinseed, rock bass, tessellated darter, blacknose dace, fallfish, longnose dace, fantail darter and white sucker. The American eels were exceptionally large. All but one brown trout were of hatchery origin. The river temperature was acceptable for trout despite the recent drought and hot spell. A significant portion of the formerly-stocked section had to be dropped from the CROTS policy due to posting and lack of public fishing rights. However, the river will continue to be stocked according to CROTS criteria.

Region 7

Whirling Disease Inspections at Private Hatcheries

Fisheries staff assisted the Fish Disease Control Unit by collecting fish samples at 3 private fish hatcheries in the region**.** Samples where processed, packaged and

frozen before being transported to the Rome Lab for testing. Current NYSDEC regulations require that a valid fish health inspection report showing that fish are Whirling Disease free be obtained before a private hatchery can sell any salmonid for stocking purposes.

Genegantslet Creek Temperature Monitoring
Five recording thermographs were placed in the Genegantslet Creek, in an eight mile stretch from Art Lake Road north of Smithville Flats to the Route 206 bridge, from July 1 to October 4. These thermographs were placed on the creek bottom, in a riffle/run, in the middle of the stream and were set to record water temperature once every 30 minutes. The purpose of this survey was to document summer water temperatures to determine the streams suitability for sustaining trout. Thermographs were placed at: the Fisherman Parking Area (FPA) at Art Lake Rd.; the FPA at the no-kill section on RT220; the RT41 bridge; at the end of Quinn Rd; and at the RT206 bridge. All recorders provided complete information through the time period except the Art Lake Road thermograph which failed almost immediately. Little difference was noted between the four sites with temperatures at all sites regularly reaching the mid to upper 70's (degrees F) on days when air temperatures reached the mid-80EF mark. However, evening water temperatures at three of the four sites always dropped below 70E. The other site, Quinn Road, had temperatures which stayed above 70E on 11 days. The streams ability for temperatures to decrease each evening, given the severity of the temperatures during the hot dry summer of 2002, is promising for trout survival in most years. This study will be repeated in 2003. A table of the monthly average stream temperatures (EF), from upstream to downstream, is presented below:

Site	July			August			September		
	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High
Rt 220	63.3	67.5	72.0	65.1	69.1	73.3	59.4	62.7	65.8
Rt 41	63.7	67.7	72.5	65.0	69.4	74.5	59.5	62.9	67.0
Quin Rd	64.7	68.5	72.5	66.5	69.8	73.3	60.0	62.8	65.9
Rt 206	63.7	67.6	72.4	64.2	68.5	74.0	58.6	61.8	66.5
Air (Bing-hamton)	60.6	70.4	79.6	60.1	71.2	81.2	52.6	63.2	73.2

Catch Rate Oriented Trout Stocking (CROTS) Survey - Spafford Brook
An electrofishing survey of Spafford Brook located in Onondaga County occurred in August of 2002. The purpose of this survey was to assess the current stocking policy utilizing CROTS methodology. A total of 69 trout were collected at 4 sites ranging in size from 4.8 to 14.3 inches. Of the 69 trout collected only 6 were determined to be of hatchery origin. A CROTS based stocking policy will be developed shortly from the survey results.

Region 8

Neils Creek Electrofishing Survey
Neils Creek, a major tributary of the Cohocton River, was surveyed in late summer to determine population characteristics of the wild brown trout population. Neils Creek serves as a major spawning area and nursery for the Cohocton River, and contains almost five miles of Public Fishing Rights. Four sites were sampled from its headwater to the confluence with the Cohocton River. Densities ranged from 0 - 190 trout/acre, averaging 88 trout/acre. YOY trout were collected at three of the four sites. Headwaters have been negatively impacted by beaver activity. The population consisted of five age classes, with yearling trout being the dominant age class collected. No change in current management is anticipated.

Cryder Creek Electrofishing Survey
Cryder Creek, one of the only brook trout fishing streams within Region 8 with PFR, was electrofished to evaluate current population characteristics. No brook trout were collected in the three sampling stations surveyed. Water temperatures at the three stations ranged from 62° to 66° F. An impoundment has negatively impacted Cryder Creek immediately downstream of its location. This area had the highest water temperature and species collected included largemouth bass, pumpkinseed, and brown bullhead. Reasons for the absence of trout in our other samples are unknown. Some beaver activity and relatively poor habitat with little shelter and cover for trout may have impacted other areas of the stream. However, Region 9 staff surveyed a different area near one of our sites and collected a total of 15 brook trout ranging in size from 55 - 161mm. Three year classes (YOY, 1+ and 2+) of brook trout were represented in the sample. Although there was little cover in this area, shelter and vegetation was high, with riprap abundant. Also, the stream temperature was 58° F, which is more

conducive to brook trout. These few habitat differences may explain the difference in sampling results. We had no problem collecting other species of fish with our sampling gear, so we do not think that was the reason for the difference between regions. Further investigation is warranted to determine why brook trout were absebt from our samples.

Oatka Creek Electrofishing Survey
This is the fifth year of a wild brown trout population assessment to evaluate the effects of a no kill trout fishing regulation. The September 2002 survey represents the second post-regulation change survey. On October 1, 2000 the trout fishing regulations in a special regulations area of the stream were changed from 12 inch minimum size, three trout per day creel limit to no kill. The season remains year round and only artificial lures can be used. Data analysis is still underway, but late season standing crop estimates are quite variable between the three years preceding the regulation change and the two years post regulation change. One more year of post-regulation change assessment is scheduled for September 2003.

Catch Rate Oriented Trout Stocking (CROTS) Surveys
In the late summer and early fall of 2002, two streams were surveyed utilizing the CROTS methodology to update their stocking policies. Most of the region's stocked trout streams were originally surveyed under CROTS in 1990-1992, meaning they haven't been re-examined in about a decade. The two streams surveyed were: Spring Creek in Genesee County and Canaseraga Creek in Steuben County. In Spring Creek, we estimate that there were approximately 31 wild YOU, 42 wild yearling, and 63 wild 2 year old brown trout per acre, along with 115 hatchery yearling and 21 hatchery two year old brown trout per acre. Only one brown trout was captured in Canaseraga Creek. Extreme low flow conditions during the summer of 2003 probably affected brown trout survival or caused them to migrate out of the study areas of Canaseraga Creek.

Finger Lakes Wild Rainbow Trout Evaluation
On March 24, 2003, Springwater Creek, a tributary to Hemlock Lake, was surveyed to evaluate wild rainbow trout spawning. Due to cold water temperatures and moderately high flows, only 3 adult rainbow trout were caught. This contrasts sharply with 2001 and 2002 when 22 and 17 adult rainbows were caught, respectively.

Region 9

CROTS
It has been over 10 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 survey key stocked trout streams on a 10 year rotational basis. As a result, we have completed about 10 CROTS surveys per year with all CROTS waters surveyed within each 10 year period. In 2002, seven streams were surveyed to update their CROTS stocking policies. Of these, Buffalo Creek, Beaver Meadow Creek, Cryder Creek and Red House Brook's stocking policies remained unchanged. Little Buffalo Creek's stocking decreased due to posting, while Goose Creek's stocking increased due to habitat improvements since the last sampling. Fenton Brook was removed from the stocking list based on the presence of a high wild trout population and apparent light use by anglers.

Genesee River water temperature monitoring
A report summarizing daily high and low summer water temperatures recorded at eight sites on the Genesee River between the Pennsylvania state line and the Belmont Dam was completed in 2002. The report showed that water temperatures generally increased from upstream to downstream as expected. During the 92 day study period, the number of days where the daily high water temperature was above 70F ranged from 35 at the PA state line to 82 below the Village of Wellsville. The number of days where the daily high water temperature rose above 75F ranged from 4 to 21 also at the state line and village sites respectively. High summer water temperatures were likely the reason that the Genesee River has not supported a wild trout population. Mild to moderate summers may allow for holdover of some stocked yearling trout, while few fish probably hold over in more severe summers.

East Koy Creek water temperature monitoring
Daily high and low summer water temperatures were recorded at four sites on East Koy Creek over the 13 mile stocked section. An electrofishing survey was also done to estimate wild brown trout biomass at the

four sites. Water temperatures were coolest at Hardy's Corners, the most upstream site, and warmest at Shearing Road, only 3.3 miles downstream of Hardy's Corners. The water then cooled somewhat downstream of Shearing Road as recorded at Jordan Road and Griffin Road. Wild brown trout biomass was highest at Hardy's Corners and lowest at Shearing Road. The abundance of wild brown trout showed a negative correlation to the number of days that the daily high water temperature exceeded 70F and a positive correlation to the number of days that the daily low water temperature was less than 60F. East Koy Creek averages about 26 lb/acre wild brown trout but has a carrying capacity exceeding 100 lb/acre. High summer water temperatures were likely one reason why East Koy Creek does not support a higher wild brown trout population.

Ischua Creek

In 2002, automated thermometers were employed at 10 sites on Ischua Creek, over 25 miles of stream from headwaters to mouth. Thermometers recorded data every 30 minutes, 24 hours a day, from June 20 to September 18; a total of 91 days. Ischua Creek's headwaters are impounded by flood control reservoirs and beaver ponds, thus it was not surprising to find poor water temperatures for trout survival in the upper section of the creek near Machias. The most upstream site recorded daily high water temperatures above 70EF on 85 of the 91 days sampling occurred. Above the Village of Franklinville, the stream is augmented by deep gravel springs and the resulting temperatures were excellent for trout survival; averaging in the 60s or very low 70s. From a few miles downstream of Franklinville to the mouth, daily high water temperatures frequently rose well into the 70s and most importantly, failed to drop below the upper 60s at night. These high temperatures presented poor conditions for survival of stocked trout. This temperature information corresponds well to past electrofishing surveys indicating that the Franklinville area supports the best wild trout population and holds over hatchery trout into the summer much better than upstream or downstream stream sections.

Elton Creek

A survey of the trout stocked section of Elton Creek (E-23-48) was done in late July, 2001 following the CROTS methodology. During that survey, three stations located upstream of Delevan had excellent water quality, a high wild trout population and high numbers of yearling hatchery trout remaining. In addition, electrofishing was done in this section of stream in mid-September and large numbers of hatchery trout were encountered. Based on these findings, we attempted to duplicate the July electrofishing efforts at two stations in late March, 2002 (prior to trout opener), to determine if hatchery trout were surviving over the winter in this stream.

Our hypothesis was that even in streams like Elton Creek, which have good summer water temperatures for hatchery trout to survive, over-winter survival of hatchery fish to the next fishing season is very poor (< 5%). Some studies have shown low over-winter survival of stocked trout. Causes for these losses are attributed in part to the hatchery trout's domestication and poor fitness for survival in wild environments. In New York, studies have shown a natural mortality for hatchery yearling brown trout of about 0.002/day or 52% per year, but this value varied widely.
At one site, 27 hatchery yearling brown trout were collected in July, 2001 and eight were collected in March, 2002 (30% survival). Twenty two hatchery yearling brown trout were captured at the second site in July, 2001 but only one was captured in March, 2002 (5% survival). Combining the numbers for both standardized sites, we determined an 18% survival of hatchery yearling trout. The validity of this data was based on the premise that 1) few trout were harvested by anglers after July, 2) trout did not migrate from the sampling sites, or 3) that emigration was equal to immigration.

While not directly comparable, the 18% survival rate for hatchery trout in Elton Creek was similar to the number of hold-over trout found (23%) from an early season creel survey on the Genesee River in 1993, but higher than that found (5%) for East Koy Creek in 1997.

This limited study appears to discount the assumption of extremely poor over-winter survival of stocked trout in Elton Creek but the 18% survival rate is still much lower than CROTS assumptions for survival of hatchery trout in our stocking policy formulas. We recommend that similar studies be done in Region 9 and elsewhere to determine if the CROTS assumptions of overwinter survival are consistent with actual survival rates.

Nine inch minimum size limit stream evaluations
In 2002, four wild trout streams with a nine inch minimum size limit were sampled in late summer to evaluate the impact of the size limit on wild trout populations. All of the streams have been sampled four times between 1995 and 2002, although not necessarily in the same years. Changes in the trout populations are apparent but have not been definitively associated with the 9 inch size limits. In Clear Creek, there were about 250 more wild brown and rainbow trout per mile than existed in 1996 (920 RT/mile, 703 BT/mile in 2002). This stream has the highest wild rainbow trout population in western NY. In Lime Lake Outlet, the wild brown trout population has remained fairly stable since 1996 (700 BT/mile in 2002), while the wild rainbow trout population has increased four-fold (460 RT/mile in 2002). Hosmer Brook seems to be on the path to recovery since severe flooding in 1996 and 1998 damaged instream habitat. Brown trout abundance in 2002 (460/mile) was about the same as 1995, while rainbow trout abundance (270/mile in 2002) was lower than measured in 1995. Numbers for both species were lowest in 1998. McKinstry Creek's wild trout population in 2002 (280 BT/mile and 230 RT/mile) was well above the numbers determined in 1995. This increase is likely due to the cessation of stocking hatchery trout after 1996. It should be noted that McKinstry Creek did not have the size limit applied until October, 2002 indicating that regulations alone could not account for changes in these trout fisheries.

Small wild trout streams
In 2002, three small unstocked streams were sampled to determine their trout populations. Spring Mills Brook, Spencer Brook and Fulmer Vallery Creek all continue to support wild brook trout populations although they are threatened by habitat and water quality problems from siltation associated with road runoff, logging operations and abundant beaver populations.

Central Office - Inland Section

Stocking Book
The Coldwater Unit continued to maintain the Statewide Stocking Book using database software. A total of 152 stocking policies were modified, 47 were deleted, and 71 new policies were added. Many of the new policies related to the splitting of two-year-old brown trout policies that spanned multiple yearling policies. All two-year-old policies now share common boundaries with yearling policies. There are a total of 2,388 policies in the 2003 stocking book.

For most species, hatchery production was at or near policy number, and fish were stocked at policy number or prorated equally across all policies. The only exception was for yearling brown trout, which were allocated at 88% of policy for great lakes stockings, and at 81% of policy for inland stockings. Two-year-old brown trout were allocated among regions based on the number of coldwater fishing trips in streams per Region (except for Region 1, which received 5,000 two-year-olds).

A new project to map stream stocking sections and stocking points was initiated this year. This project will produce a statewide GIS layer of stream stocking policies, as well as printed atlases for use by hatchery drivers and regional staff. There will be linkages from the GIS layers to the stocking book and CROTS database, so that stream sections can be displayed by species stocked, CROTS classification, or other variables in the CROTS database. If time allows, the project will be expanded to include lake and pond stockings.

Coldwater Fisheries Research and Management
This is a five-year study within the Bureau's Federal research and development grant. A major accomplishment this year pertained to the trout population modeling used in DEC's trout stream stocking methodology, Catch-Rate-Oriented Trout Stocking (CROTS). Specifically, the trout 4x4 population model was converted from spreadsheet software to Visual Basic. The resulting version of the model is much easier to follow, and modifications to input parameters or the model itself are much more easily made than in the spreadsheet version. Trout biomass predictions over time made by the new version of the model were compared to predictions made by the spreadsheet versions for various CROTS stream types to ensure that the model is functioning as intended.

The new Visual Basic version of the Trout 4x4 model is currently being used as a test of how well predictions made by the model match actual trout

populations. Regional staff were asked to submit stocking and population survey data for streams in their region for this effort. The results will hopefully allow us to determine if there are systematic biases in CROTS and/or the parameters that were used to develop the CROTS stocking tables.

Progress was also made in a number of modeling efforts, including predicting temperatures in streams from a set of thermographs, predicting stream flows from large-scale datasets, and a new method to estimate fish population size using depletion survey data.

Publications prepared as a part of this project include:

- Gardner, B., Sullivan, P. J., and Lembo, A. 2003. Predicting stream temperatures: geostatistical model comparison using alternative distance metrics. Submitted to Canadian Journal of Fisheries and Aquatic Sciences Can. J. Fish. Aquat. Sci. 60: 344–351
- Treska, T, Boomer, G. S., Sullivan, P. J., and Kraft, C. 2003. A Visual Basic Model for Catch Rate Oriented Trout Stocking. Draft NYDEC Report.
- Ross, Z., and Sullivan, P. J. 2003. Armchair Flow Evaluation: Predicting Stream Flow in the Black River Watershed Using Landscape-Based Characteristics. Draft NYDEC Report.
- Sullivan, P. J., and Boomer, G. S. 2003. An Empirical Bayes Approach for Estimating the Binomial N from a Multiple Pass Depletion Survey with Application to Trout Streams in a New York State Watershed. Draft Submitted to Biometrics.

Beaver Kill Watershed Trout Study

In the spring of 2000, the New York State Department of Environmental Conservation, along with fisheries scientists from Cornell University and Trout Unlimited, began a comprehensive study to determine the status and potential for enhancement of the trout resources in the Beaver Kill and Willowemoc Creek. When complete, findings from this study will help form the scientific basis for developing a long-term fisheries management program for the watershed.

Some key findings to date include the following:

An estimated 63,400 hours of angling effort occurred during 2002 on the 15 census reaches, which equates to about 18,300 individual angler trips. Heaviest use occurred in the three no-kill areas. Angler use in the three no-kill reaches accounted for 48% of the total effort in 2002. This percentage has ranged from 48 to 54 percent during the course of the study.

Interviewed anglers reported catching 4,202 trout in 11,028 hours of fishing during the 2002 season for an overall catch rate of 0.38 trout/hour. As in the previous two years of the survey, a relatively small number (12.8%) of caught trout were kept, however, this number is strongly influenced by the no-kill areas where much of the use was concentrated. Outside the no-kill areas, almost 25% of the trout caught were kept in 2002. Over the course of the study, roughly 1/3 of the anglers who caught trout outside of the no-kill areas kept at least one. Using effort estimates derived from angler counts, we estimate a total catch of 24,160 trout and a total harvest of 3,090 trout

Based on angler interviews, brown trout comprised 86.0% of the total catch in 2002, compared to 91.5% in 2001 and 94.5% in 2000. As in 2001, noticeable proportions of rainbow trout were reported caught in the Trout Brook and Lower No-Kill reaches of the lower Beaver Kill (34.0% and 13.4% , respectively), while brook trout comprised 35.5% and 48.2% of the catch in Mongaup Creek and the upper Willowemoc, respectively.

Of 1,530 brown trout creeled by interviewed anglers during the course of the study, 90% were fin clipped and known to be of hatchery origin. The angler diary cooperators reported catching 74% hatchery fish, which is roughly the same proportion of hatchery vs wild trout that were observed in the previous two years' diary programs.

A major finding in 2002 was the collection of yearling rainbow trout in Abe Wood Brook and fingerling rainbow trout in Stewart Brook. These were the first collections of rainbow trout in the Willowemoc Creek tributary system. This along with the first collection of rainbow trout in Shin Creek, a tributary that enters the Beaver Kill in Lewbeach, indicates a continuing expansion of rainbow trout throughout the Beaver Kill-Willowemoc drainage. Except for a small, isolated population in the upper Beaver Kill, rainbow trout became established in the watershed sometime in the 1980's, probably after 1985. Long term, it is anticipated that rainbow trout will be found in all suitable

tributaries and they could someday become the most abundant wild trout in the Beaver Kill and Willowemoc Creek.

A comparison of the maximum water temperatures observed on the Beaver Kill in 2000, 2001 and 2002 demonstrates a 10E to 15E F difference that occurred between the relatively wet summer with moderate temperatures (year 2000) and two dry summers with warmer weather (years 2001 and 2002). In 2000 only the lowest few miles of the river experienced temperatures above 70EF - considered stressful for trout. In contrast, both 2001and 2002 had one week where stream temperatures averaged 75EF or higher from the mouth to RM 15 (Junction Pool) and 70EF up to RM 23 which is just upstream of Berry Brook.

A major new component that will be added to the study in 2003 is a radiotelemetry project involving stocked trout. Approximately 120 hatchery-reared trout (80 yearlings and 40 two-year-olds) with surgically implanted radio transmitters will be released along with regularly stocked fish in the upper no-kill area on the Beaver Kill and in the no-kill area on the Willowemoc. These fish will be tracked throughout the spring and summer, and will hopefully provide us with information on the movement patterns and fate of stocked fish.

Two-Story Lakes and Ponds

Region 3

Kensico Reservoir

Since 1987 the New York State Department of Environmental Conservation has been utilizing angler diary information to better understand Kensico Reservoir's trout fishery. Due to post 9-11 security concerns New York City did not allow boat fishing on this 2,218 acre reservoir in 2002. This reduced the number of anglers returning diaries to only two from a range of eight to13 in the previous five years and this resulted in a reduction in hours fished to 72 from a range of approximately 750 to 1,440 hours in the previous five years. In 2002 a total of 35 trout were recorded. Included in the catch were 30 lake trout and 5 brown trout. Overall catch rate was 0.48 trout per hour. This was somewhat lower than the 0.58 trout per hour rate reported in 2001, when a total of 435 trout were reported. It was however similar to the average catch rate of 0.46 trout per hour achieved by cooperators fishing from 1987 to 2001.

Lake trout comprised a total of 86% of the catch in 2002 compared to 98% of the 2001 catch, 95% in 2000, 86% in 1999, 95% in 1998, 93% in 1997, 90% in 1996 and 77% in 1995. Average size was 19.5 inches compared to 18.6 inches in 2001 and 2000. Overall catch rate was 0.42 per hour. Catch rate for legal sized lake trout (21 inch minimum) was 0.12 per hour. Cooperators reported 100% of legal size lake trout kept which was much higher than the 25% to 48% range reported for the previous five years when the number of cooperators was higher. The average length of harvested lake trout was 22.6 inches, similar to the averages recorded in the nine previous years. Fin clips were recorded on 40% of lake trout caught which was down from 55% reported in 2001 (57% in a separate gill net collection). Although now abundant at sizes up to and slightly above the 21 inch minimum size limit, a relative lack of larger and older lake trout suggests that Kensico Reservoir may have become over stocked with lake trout. Given the increase in lake trout abundance, it is likely that many of the approximately 10,000 nine inch brown trout yearlings stocked annually are now being consumed by lake trout. In an effort to improve growth rates for lake trout and increase the number of larger lake trout (26 inches and larger), as well as improve the survival of brown trout, the annual stocking recommendation for lake trout was reduced from 7,200 yearlings to 3,600 in 2000 and will be 1,800 in 2003. Fortunately fishermen will again be allowed to fish from boats in 2003 and the diary program will continue to be used to monitor the fishery.

New York City Croton System Reservoirs

In 2001 fish were collected for toxic substance analysis from Boyd Corners, Cross River, Croton Falls, Kensico and New Croton Reservoirs. In 2002 additional fish were collected at Amawalk, Bog Brook, Diverting, East Branch, Middle Branch, Muscoot, Titicus, and West Branch Reservoirs. At each reservoir the goal has been to collect 10 edible/legal sized fish which people prefer to consume. Preferred species include smallmouth bass, walleye, brown trout, lake trout, yellow perch and largemouth bass. Since not all of these species can be collected in each reservoir other edible fish, such as carp, white perch and black crappie, have been collected in some cases. Based on analysis of fish collected, the New York State Health Department has issued health advisories, based on elevated mercury levels, against eating more than one meal per month of certain fish species from the following waters:

Amawalk Reservoir - largemouth bass and smallmouth bass larger than 16 inches.
Bog Brook Reservoir - walleye larger than 21 inches.
Boyd Corners Reservoir - largemouth bass larger than 16 inches and walleye (all sizes).
Cross River Reservoir - largemouth bass and smallmouth bass larger than 16 inches.
Diverting Reservoir - walleye (all sizes).
East Branch Reservoir - walleye (all sizes).
Titicus Reservoir - white perch (all sizes).
West Branch Reservoir - walleye (all sizes).

It is worth noting that wherever walleye were collected and analyzed a health advisory was issued.

Pocantico River

In June 2002, a siphon was installed at Pocantico Lake to transfer cold water from the lake's hypolimnion, up and over the spillway, to the Pocantico River below. This work was done to improve thermal conditions for brown trout in the stream. At the time of installation siphon flow was 48°F when it poured into the

Pocantico River via a four inch PVC pipe and valve thus providing some cooling to a relatively high spillage of 75°F surface water. Since the volume of hypolimnetic water is fairly limited, we hope to have the ability to release from 0.3 - 1.0 cubic feet per second during the summer. It is estimated that, under normal midsummer stream flows, a release of this nature will represent approximately 10 to 30 percent of the stream's flow immediately below the dam. It is anticipated that by mixing hypolimnetic water with surface spillage that stream temperatures will be cooled enough to bring a modest improvement in thermal conditions for trout inhabiting the Pocantico River further downstream in the Rockefeller State Park Preserve. To measure stream temperatures, two thermographs were deployed to take hourly water temperatures.

West Branch Reservoir

In May 2002, 1,500 yearling landlocked Atlantic salmon were stocked at West Branch Reservoir. The fish, which averaged 6 to 7 inches long and were marked with an adipose fin clip, were stocked from shore from approximately one half dozen sites adjacent to Washington Road and Route 301. During a September gill netting survey two 11 inch salmon were collected. Since then, anglers have reported catching several 12 to 15 salmon. It is anticipated that salmon will start to reach the 18" minimum size limit by the fall of 2003 when anglers will be allowed to keep one per day. It is hoped that these relatively conservative regulations will afford the salmon a chance to utilize an abundant rainbow smelt forage base to reach their growth potential. The reservoir will remain open for an all year season and ice fishing will be permitted.

Region 4

Lake Trout Evaluation in Otsego Lake

Otsego Lake, the source of the Susquehanna River, is a 4,226 acre natural lake supporting a diversified coldwater and warmwater fishery. It is best known for its lake trout fishing. The lake is currently stocked with lake trout, landlocked Atlantic salmon, brown trout, and walleye.

In September, 2002, six 450 foot long gill net gangs were set overnight as part of a long term effort to monitor lake trout populations. A record catch of 14.8 lake trout per gill net gang was recorded. The previous high of 13.5 lake trout per net was recorded in 2001. The high abundance of lake trout in 2001 and 2002 was due to a strong 1998 year class. These age 4 fish, which averaged 13.7 inches in 2002, comprised 23% of the lake trout catch and should attain the legal size of 21 inches in 2004 as age 6 fish. Wild lake trout comprised 58% and stocked lake trout 42% of the total catch. The catch of brown trout and landlocked Atlantic salmon averaged 2.0 and 0.2 fish per net, respectively.

Lake trout abundance in Otsego Lake is at record levels for reasons not totally understood; but a major contributing factor is probably the presence of alewives which were the result of an unauthorized introduction in the late 1980's. Alewives were collected for the first time in 1988, abundant by 1991, and are now the dominant forage species in the lake. In the 12 nettings from 1969 through 1986, the lake trout catch averaged 4.9 fish (range was 3.0 to 7.7) per net compared to the 11.6 fish (range was 9.2-14.8) per net in the seven nettings since 1992.

Walleye Restoration in Otsego Lake

The walleye fishery in Otsego Lake collapsed sometime in the 1970's. Since then anglers have expressed interest in restoring this fishery. In 1999, the SUNY Oneonta Biological Field Station received a large donation to be used towards the re-introduction of walleye into the lake. In a joint effort, DEC provided the Field Station with approximately 200,000 fry annually in 2000, 2001, and 2002. The Field Station used the donations to fund private aquaculture facilities to rear the walleye to fingerling size. Approximately 71,000 fingerlings were stocked in 2000 and 53,000 in both 2001 and 2002. Most of the fish were stocked in July but a few thousand were stocked as fall fingerlings in 2001 and 2002. Spring and fall electrofishing captured relatively few walleye suggesting minimal survival. In September, 2002, ten 150 foot combination monofilament gill nets were set and 124 walleye were collected of which 87 were legal ($15 in) size. The largest fish measured 18.9 inches. Fish from all three stockings were collected. Age 1 and 2 walleyes averaged 12.5 and 16.1 inches at the time of capture, respectively. Overall, walleye comprised 45% of the total gill net catch. The catch of 12.4 fish per net indicates that walleye are abundant in Otsego Lake. The netting effort demonstrated that the

walleye stocking has been successful and should be continued. Although walleye will spawn in spring, 2003, this and future spawning effort is expected to fail because of alewife predation on the pelagic walleye fry. It is anticipated that a maintenance stocking program will be required to maintain the walleye fishery.

Cannonsville Reservoir Brown Trout Monitoring
This 4,800 acre New York City water supply reservoir in Delaware County was netted in July, 2002, to assess the impact of the previous year's drawdown of record on the wild brown trout population. The reservoir is not stocked. On November 26, 2001, the water elevation was 98.2 feet below the dam crest and available storage was reduced to 3.4%. A second objective was to collect fish for contaminant analyses.

Six 450 foot long gill nets were set overnight at standardized sites used since 1969. A record catch of 4.8 brown trout per gill net gang was recorded. The previous high of 4.3 brown trout per gill net gang was recorded in 1990. In the 12 nettings from 1969 through 2002, the average catch per gill net gang was 2.5 brown trout. The increased catch in 2002 was due to an abundance of trout less than 15 inches. The number of trout 15 inches and larger was comparable to previous years. Although brown trout abundance was not impacted by the 2001 drawdown, large trout were slim for their size. Stomach contents indicated that these large trout were feeding on smallmouth bass and yellow perch. Anglers reported the same findings. It appears that the normally abundant alewife population, the primary forage fish in the reservoir, was greatly reduced because of the 2001 drawdown which probably concentrated both alewife and predators (trout, bass, and pickerel) in a relatively small area. The result was intense predation on the alewife forage base. If alewife populations do not recover to their former level of abundance, brown trout populations in the reservoir will likely decline to a lower level and result in a greatly diminished fishery.

Ten brown trout (12.4-25.2 inches), 10 yellow perch (8.3-13.4 inches) and 1 brown bullhead (11.8 inches) were collected for contaminant analyses. Mercury concentrations in the brown trout, yellow perch, and brown bullhead averaged 0.41, 0.96, and 0.54 ppm, respectively. The elevated mercury levels in yellow perch resulted in a one meal/per month health advisory effective June 4, 2003. There is already a one meal per month advisory on smallmouth bass 15 inches and larger which has been in effect since 2000. Ten smallmouth bass (13.9 - 16.6 inches) collected in October, 1999, averaged 1.07 ppm of mercury.

Region 5

Piseco Lake Surveyed
Piseco Lake, Hamilton County was gillnetted to assess its lake trout population on August 27-29, 2002. Numerous complaints had been received from anglers in recent years claiming very few legal trout (the size limit is 18 inches) were being caught, while sublegal lake trout were common. A total of nine sites were sampled utilizing standardized juvenile lake trout gillnet gangs at depths ranging from 45-90 feet and at water temperatures ranging from 46- 49 degrees Fahrenheit. This targeted fishing effort captured 106 lake trout and 11 lake whitefish. Thus, nearly 12 lake trout were caught per gang-night plus slightly more than 1 lake whitefish per gang-night. The lake trout catch rate is high compared to many other Adirondack lakes. Of the 106 lake trout caught, only 44 or 41% were stocked fish. Lake trout lengths ranged from 7.8 to 25.3 inches, with only three trout exceeding the current size limit of 18 inches. The lake whitefish captured were all adults ranging from 14.8 to 17.8 inches. It was possible to release 50 of the 106 lakers captured alive.

The Piseco survey confirms angler reports of abundant sub-legal lake trout. It is apparent that natural reproductive success in the lake has increased greatly in recent years with 60% of the current population being wild fish. This finding will resulted in the stocking rate of 4,700 yearling lake trout/year being reduced to improve growth rates for the entire population. Adjustments to the special regulations concerning the minimum size limit and daily bag limit were also made after growth rates were analyzed. Proposed regulation and stocking changes were reviewed with area sportsmen. Past surveys of Piseco Lake have generally captured nearly equal numbers of lake trout and lake whitefish with juvenile lake whitefish a common catch. The catch of only a few adult lake whitefish in this survey may be indicative of a failing whitefish population. Lake whitefish are a nonnative species for the Adirondacks.

Dye Study Conducted on the Winooski River, Vermont

Eight regional staff traveled to Winooski, Vermont for a week to assist the Vermont Department of Fish and Wildlife with a dye plume study of the Winooski River. The purpose of the dye study was to track where the dye went and how long it persisted after it entered the lake. This will ultimately help establish where water use advisories should be in effect following a potential sea lamprey control treatment of the Winooski River. The Winooski was not included in the original eight-year experimental sea lamprey control program, and so a dye study to predict water use advisory zones had not yet been conducted there. Recent information on the sea lamprey population in the river indicates it warrants treatment in the near future, so gathering this information was a critical preliminary step. The information gathered will be used by University of Vermont researchers to build a computer model that will incorporate different wind speeds and directions to establish conservative water use advisory zone boundaries.

Court Upholds Lake Champlain Sea Lamprey Control EIS

New York intervened in a lawsuit concerning sea lamprey control on Lake Champlain. In that action, New York, the State of Vermont, and the US Fish and Wildlife Service (who collectively make up the Lake Champlain Fish and Wildlife Management Cooperative) defended a long-term sea lamprey control program to be conducted cooperatively by the three agencies. Part of the control program includes the use of a chemical, known as TFM, which kills young lamprey. Under the program TFM would be applied to lamprey-infested streams in Vermont and New York State that drain into Lake Champlain. (TFM has been used in the Great Lakes and the Finger Lakes for 40 years. In addition, the Lake Champlain program was based on an eight-year, experimental project that used TFM in the lake.)

The Plaintiffs (VPIRG, the Audubon Society, and an individual Vermont resident) sued under the Administrative Procedures Act and National Environmental Policy Act (NEPA) arguing that the Cooperative did not conduct sufficient review of the program's effects on non-target salamanders and mussels including short- and long-term toxicological impacts, the chemical make-up of TFM, and a stream by stream analysis of the proposed TFM application sites. John Sipos of the Attorney General's Office led New York in the intervention and summary judgment motions.

On September 6, 2002, the U.S. District Court for the District of Vermont issued a decision upholding the environmental review conducted by the Cooperative to support a long-term program to control and reduce the population of sea lampreys in Lake Champlain. The court's decision is 69 pages long and carefully refutes each of plaintiffs' NEPA arguments. Thus, on the merits the Court sided with the Cooperative and the defendants' arguments. The Court further determined that the Audubon Society's affidavits did not establish that group's standing.

Deepwater Electrofishing Surveys Completed

Lake Champlain deepwater electrofishing sea lamprey surveys were completed on the Salmon, Little Ausable and Ausable River Deltas and the South Channel Ausable River. The Salmon and Little Ausable surveys resulted in zero catches of sea lamprey, revealing that scheduled sea lamprey control treatments there for 2003 are unnecessary. The Ausable surveys indicated that a treatment is needed on the delta and South Channel, but that only about half the acreage treated in the past will require treatment in 2003.

Lake George Salmon Achieve Record Growth

Lake George, Warren County, was trapnetted at two locations in November 2002 as part of an annual effort to monitor landlocked Atlantic salmon growth rates. The average size of two-year-old salmon was 19.3 inches, a slight decrease from the record average size of 19.7 inches found in 2000 and 2001. In 1995, the average size of two-year-old salmon was only 16.9 inches. Three-year-old salmon had a record average size of 23.8 inches in 2002. This is an improvement of over four inches from their average size of 19.7 inches seen in 1993. While salmon growth rates are excellent in Lake George, there is evidence from the angler diary program that survival of salmon is declining. Catch and creel rates for salmon have been below target levels for several years and complaints about the fishery have increased. Predation and/or angling mortality may be cropping off smaller salmon. An experimental stocking program of holding about 3,000 yearling salmon to an advanced size and stocking in the fall has now been instituted. These fish are

finclipped to distinguish them from spring yearlings.

Great Sacandaga Lake Fisheries Survey Reporting and Angler Diary Program Move Forward

Staff aged all scales and otoliths from the walleye, yellow perch, smallmouth bass, and trout collected from the gill netting survey conducted on Great Sacandaga Lake in August 2001. Preparation has begun on a summary report.

Great Sacanadaga Lake, Fulton County, is a well known warmwater fishery, but has been stocked in recent years with rainbow trout by the Great Sacandaga Lake Fisheries Federation. A training session for volunteer angler diary cooperators for a new angler diary program on Great Sacandaga Lake was done in June 2002. A diary program was last conducted on Great Sacandaga Lake in the 1980's. Results from the current program will be compared to results from the last program for indications of any major changes in the fishery. Both coldwater and warmwater species will be monitored by this diary program. A total of 18 usable diaries were received from the 2002 season. Results indicate the fishery for walleye and northern pike is very similar to that during the 1980's, but that smallmouth bass catch rates have improved markedly, perhaps indicating an expanded smallmouth bass population. The catch rate for trout and salmon (0.22 fish per hour) demonstrates that the Fisheries Federation's program of stocking large, catchable-sized rainbow trout has produced a decent trout fishery.

Lake Champlain Tributary Assessments for Lake-run Salmonids Completed

Two sampling events occurred at each of four New York tributaries to Lake Champlain (Saranac, Little Ausable, Ausable and Boquet Rivers) using an SR-20 electrofishing boat. Sampling began on April 15 and concluded on April 25, 2002. Seventy-eight (78) landlocked Atlantic salmon were captured for information and released. No brown trout or rainbow trout were encountered during sampling. Based on past catches using the same technology at the same locations and at the same time of year, catches were unusually low. Sea lamprey wounding was high and smaller fish (one winter in the lake) are being targeted by sea lamprey at a higher rate than seen in the past. In view of the increased sea lamprey predation, it was surprising to see some older (multiple winter) salmon, the preferred prey of sea lamprey, represented in the sample.

Sea Lamprey Treatments Successfully Conducted on Five Lake Champlain Tributaries

Sea lamprey control treatments were conducted on the Salmon, Ausable, and Little Ausable Rivers in Clinton and Essex Counties, NY in September. Post-treatment assessments estimated a total of about 110,000 lamprey larvae were killed, including about 46,600 on the Ausable, 40,500 on the Salmon and 23,500 on the Little Ausable. Non-target mortalities were very light. The treatments required weeks of effort from more than a dozen NYSDEC staff plus substantial assistance from the US Fish and Wildlife Service, and the Vermont Department of Fish and Wildlife. All of the treatments were subject to rescheduling due to river flows that quickly fluctuated from too low, to excessively high and back to too low.

In October, two more tributaries to Lake Champlain, Lewis and Putnam Creeks, were treated to control sea lamprey abundances. Several New York staff traveled to Vermont to assist Vermont and US Fish and Wildlife Service staff with the Lewis Creek treatment. More than 70,000 lamprey were killed in Lewis Creek which was last treated in 1994. Generally, streams should be treated every four years to achieve an effective level of lamprey control. New York, Vermont and Federal staff also teamed up for the Putnam Creek treatment in Essex County, NY. About 7,500 dead lamprey were counted on Putnam Creek, but the actual number killed may have been much greater. An abundance of leaves in the creek probably concealed many dead lamprey. The above counts do not include young-of-the-year lamprey which, due to their very small size, are difficult to count. Mortality of non-target organisms were very low based on non-target counts in both streams, plus caged non-target organisms placed in Lewis Creek during that treatment.

Fall Salmonid Assessments Completed for Lake Champlain

A total of 148 salmonids were captured in NY waters of Lake Champlain using nearshore electrofishing during six sampling nights from late October to mid-November. Whallon's Bay, Willsboro Bay and Willsboro Point index sites were sampled for discreet

landlocked Atlantic salmon (LLS) CPUE estimates. During separate sampling events all salmonids were captured for population information and wounding rate analysis at Whallon's Bay and Willsboro Bay. Data were recorded for 88 lake trout (LT), 58 salmon and 2 rainbow trout.

The LLS catches were markedly down from previous years and it was difficult to find salmon in numbers regardless of the site sampled. Lake trout were still numerous but were badly wounded by sea lamprey. A total of 13 LLS were captured within the slot size (432-533mm) selected for evaluation and had a wounding rate (fresh and healing wounds) of 38.5 per 100 salmon. A total of 18 LT were captured within the slot size (533-633mm) selected for evaluation and had a wounding rate of 105.6 per 100 LT.

Sea lamprey predation is likely suppressing the adult salmon population (high mortality likely) and the lake trout wounding rates are the highest seen. Long-term sea lamprey control efforts begun this fall should begin to take effect next year (2003), but a full response will take a few years to show in the salmonid fishery. That response will depend on the control effort exerted and the ability to target sea lamprey where they reside as larvae.

The Willsboro Fishway was closed for the season and winterized. Only 10 adult salmon were collected in the fishway during 2002: four during late June/early July; and six during October. The largest salmon was 23 inches long and weighed 5.5 pounds. The low numbers of adult salmon in the fishway are consistent with reports for 2002 from other tributaries to Lake Champlain. High attack rates by sea lamprey are the probable cause for the low abundance of adult salmon.

Region 7

Cayuga Inlet Fishway Monitoring

Operation of the Cayuga Lake Inlet fishway continued in the spring of 2003. A total of 403 rainbows and 5,964 white suckers were passed upstream while 305 adult sea lampreys were killed to prevent spawning. Rainbows were also sent to the Bath hatchery for the production of Finger Lakes Wild (153,000 eggs) and hybrid (51,000 eggs) trout. After spawning, the adults were returned to the Inlet. All rainbows were examined for sea lamprey attacks. The mean number of adult stage I-III wounds on trout in the 500-549 mm length group is 0.07, well below the threshold for unacceptable mortality of trout and salmon (0.27). Sea lamprey control on Cayuga Lake Inlet, the primary spawning and nursery habitat for lampreys, is done primarily by removing adult lampreys at the fishway and preventing access to spawning habitat. In addition, unit staff assisted USGS staff by collecting male rainbow trout at the fishway. The fish were transported to the Tunison Laboratory and injected with thiamine to evaluate the effects of the thiamine on sperm viability.

Finger Lakes Zooplankton Sampling

Water chemistry and zooplankton samples were taken twice annually (mid-May and mid-August) to monitor zooplankton densities and size distribution in Cayuga, Owasco, Skaneateles, and Otisco Lakes.

Region 8

Aquatic Nuisances Species / Finger Lakes Zebra Mussel Monitoring and Ecological Assessment Program (FLZMAP)

The FLZMAP program completed its eighth year of data collection in 2002. This data set may be the longest continuous running data set on the Western Finger Lakes. Water quality during 2002 remained stable in three of the seven Finger Lakes sampled. Data from these lakes revealed mixed trophic status results between Secchi disk transparencies and chlorophyll a. Conesus Lake showed a 6 percent decrease in transparency in 2002 over the 1995-2001 average (2.9m vs. 3.1m) and a non-corresponding 3.5 percent decrease in chlorophyll a (6.94 mg/l vs. 7.19mg/l).

Hemlock Lake showed a 16.6 percent increase in transparency in 2002 over the 1995-2001 average (4.9m vs. 4.2m) with a non-corresponding 4 percent increase in chlorophyll a (3.25 mg/l vs. 3.13mg/l). Honeoye Lake showed an 8.5 percent increase in transparency in 2002 over the 1995-2001 average (3.8m vs. 3.5m) and weak non-corresponding 0.6 percent increase in chlorophyll a (8.84mg/l vs. 8.79mg/l). Zebra mussels were first detected in Honeoye in 1998. Comparing transparency and chlorophyll a data from pre to post zebra mussel

infestation reveals increased water quality with transparency increasing 37.9 percent (4.0m vs. 2.9m) and chlorophyll a decreasing 28.5 percent (7.34mg/l vs. 10.26 mg/l).

Data from three of the remaining four western Finger Lakes indicated increasing water quality trends, while only one lake exhibited a decreasing trend. Canadice Lake showed a 15 percent increase in transparency in 2002 over the 1995-2001 average (6.3 vs. 5.5 meters) and corresponding 31 percent decrease in chlorophyll a (1.69 mg/l vs. 2.44mg/l). Keuka Lake showed a 35 percent increase in transparency in 2002 over the 1995-2001 average (8.4m vs. 6.2m) and corresponding 43 percent decrease in chlorophyll a (1.40 mg/l vs. 2.44mg/l). Seneca Lake showed a 15 percent increase in transparency in 2002 over the 1995-2001 average (8.6m vs. 7.5m) and somewhat weaker corresponding 2 percent decrease in chlorophyll a (1.85 mg/l vs. 1.89mg/l).

The one lake with decreased water quality in 2002 versus its 1995-2001 average was Canandaigua Lake. Canandaigua Lake showed a 11 percent decrease in transparency in 2002 over the 1995-2001 average (7.1m vs. 8.0m) and corresponding 29 percent increase in chlorophyll a (1.84 mg/l vs. 1.43mg/l). It is thought that this decrease in water quality was related to a massive 2001 zebra mussel die off. It is important to note that Canandaigua Lake is still classified as an oligotrophic lake with excellent water quality.

Lake Trout Assessment in Canandaigua Lake

Lake trout populations in Canandaigua Lake were assessed with Finger Lakes standard gang gillnets in summer 2002. Population characteristics were compared with previous surveys conducted since 1978, the latest occurring in 1998 and 1999. A total of 150 lake trout were collected in 22 net nights of effort for a CPUE of 6.8 fish/net night, slightly lower than recent surveys. Surveys in 1998 and 1999 indicated a strong 1996 year class. This strong year class was still evident in 2002, accounting for 20% of the nine age groups collected. The continued strong presence of this year class should contribute to increased catches of larger fish in future years. Growth of fish was slightly faster than recent years, with fish recruiting into the fishery (381 mm; 15 inches) at around age 4+ instead of age 5+. Condition of lake trout is generally poor up until about 400 mm, at which time condition improves to a more desirable level. It is hypothesized that competition for forage for smaller sized salmonids is high resulting in slow growth of the younger year classes in Canandaigua Lake. When fish reach about 400 - 500 mm, growth accelerates presumably because fish are able to eat larger, more abundant alewives.

Based on the results of this study, it does not appear that population characteristics of lake trout have significantly changed. Although population density estimates based on gillnet CPUE were at their lowest recorded level, there are other indications that population levels are not much different from earlier years. Current stocking rates of 24,000 lake trout fingerlings, 12,000 yearlings, and 8,000 brown trout yearlings will continue with periodic monitoring recommended.

The biggest change occurred in the lake during summer 2001, when huge rafts of white foam appeared. The foam continues to persist at reduced levels. Although chemical analyses by several universities could not positively identify the source, some evidence suggests a zebra mussel die off. However, further investigation reveals that recruitment of young zebra mussels has occurred, filling in the temporary void caused by the die-off.

Park Station Pond

Park Station Pond is a 100 acre flood control pond located within the Chemung County Park system. A survey was conducted to evaluate both the warmwater fish community and monitor current trout stocking policies relating to summer survival. Although temperature and oxygen conditions limited suitable trout habitat to an approximate five foot layer in late August, 41 trout, both rainbows and browns, were collected in two gillnets. There was no indication of poor condition of the trout collected. The last stocking of trout occurred two months prior to sampling. Therefore it appears there is adequate survival of stocked trout and current stocking policies will not be adjusted.

Largemouth bass were the dominant gamefish collected in night electrofishing samples. CPUE was estimated at 84 bass/hour. Estimates of population variables indicate that the overall fishery is in balance. Largemouth bass growth appears to be moderate to

slow. When the pond was last surveyed, there were some concerns about yellow perch becoming overpopulated. Based on sampling, that does not appear to have happened to date. Overall, Park Station Pond provides some good bass fishing along with additional opportunities for panfish and trout.

Great Lakes

Lake Ontario and tributaries

Region 6

Cormorant Management The goals of cormorant management in eastern Lake Ontario are:1) restoring the structure and function of the warmwater fish community2) 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. There has been no lethal control of adults or chicks. Results of egg oiling at Little Galloo Island include: 1) reduced cormorant reproductive success by 95+ % at L. Galloo I. annually since 1999 2) reduced overall fish consumption by 5.8 million fish by LGI colony in 2002 and over 23 million since 1999 3) reduced consumption of smallmouth bass by 270,000 fish in 2002, 1.4 million since 1999. Recent declines in the number of nesting cormorant pairs are consistent with oiling effect models.

Thousand Islands 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 2002 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 is still depressed (this is a recruitment issue that may be a result of cold spring water temperatures and cormorant predation).

Eastern Basin Chinook Study The major objectives of this study are to examine the homing, straying and return-to-the-creel of morpholine exposed versus non-exposed chinook and non- exposed cage reared versus direct released (normally stocked) fish. Secondarily we monitor some characteristics of walleye and smallmouth bass populations in the Snowshoe Bay/Association Cut area and the steelhead run in the Black River at Dexter. Generally, chinooks exposed to morpholine in cages and those that were caged only, return to the creel better than the average chinook stocked in Lake Ontario. Both treatments stray to the Black River at similar rates. This suggests that survival is above average for both caged treatments. Fish released directly into Snowshoe Bay returned to the creel at near average or less than average rates. Although "soft release" effects may contribute to this improved survival, the major advantage of caging may be to release larger fish without sacrificing imprinting on the receiving water. The greater return of morpholine exposed fish to the Snowshoe Bay area is consistent with the hypothesis that morpholine exposure improved the homing performance of these fish. Data on returns of chinooks exposed to morpholine in hatchery tanks is not yet conclusive but suggests that tank exposure has a lesser effect. Since 2000 there have been poor returns of both experimental and control fish, which may indicate that under current water clarity and cormorant predation levels, Snowshoe Bay is no longer a favorable location for chinook stocking.

Region 7

Tributary Regulations
New regulations were enacted in October 2002 in an attempt to reduce illegal snagging of salmon and steelhead in Great Lakes Tributaries. The use of "J-Plug" type lures which have multiple treble hooks attached to a harness was banned. Other regulation changes included a maximum distance of 4 feet between any added weight and the terminal tackle in all tributaries and the elimination of the use of weight below the hook in selected waters. See the fishing regulations guide for details.

Net Pen Project Added at Little Salmon River
This project is the first "new" net pen project added since a moratorium was placed on new projects pending evaluations of some of the current projects. Exceptional performance of pen reared steelhead at

Oswego (see below) provided the justification. The Little Salmon River project is in Texas NY (near Mexico). This project reared 5,000 summer run Skamania steelhead. The fish experienced very low mortality and showed excellent growth in the pens. We will look for the first returns in a couple of years.

Oswego Net Pen Project
Tag returns from the Oswego net pen steelhead study continue to come in. Paired plantings of pen reared and traditionally stocked fish were done from 1998-2000. All of the fish were adipose clipped and lots were uniquely identified with coded wire tags. To date, returns overwhelmingly favor the pen reared fish from all return locations. Overall, 61 of 73 tags in hand are from pen reared fish: 23 of 30 returns from the Oswego River were pen fish, 35 of 39 returns to Salmon River Hatchery were pen fish, and 3 of 4 returns from Lake Ontario were pen fish.

Salmon River Steelhead Stocking Site Study
Another steelhead study in progress is the Salmon River stocking study. Fish were stocked at 4 sites; the smolt release pond at Salmon River Fish Hatchery (SRH) on Beaverdam Brook, the pumphouse at SRH (main stem of the river), the estuary and the last group was boat stocked off the mouth of the river 1999-2001. These fish are all fin-clipped LV or LVAD and the different lots are identified by post-ocular injections of flourescent elastomer. Returns to date suggest some very different results for fish stocked in different years and for fish stocked in a given year returning in different years. Initial returns of age 3 fish (stocked in 1999) to SRH in the spring of 2001 heavily favored fish stocked in the smolt release pond. Age 4 returns of the same group in 2002, however, were much more evenly distributed among the four stocking sites with the greatest number coming from the estuary site. Age 3 (2002) and age 4 (2003) returns from the fish stocked in 2000 heavily favored the lower river stocking sites with the boat stocked fish showing a slight advantage over the estuary stocked fish. We saw our first returns of the fish stocked in 2001 as age 3 fish in 2003. These returns were almost evenly distributed from the estuary, pumphouse and smolt pond but boat stocked fish returned in lesser numbers. Overall, fish returned in the greatest numbers from the estuary but returns from the other sites are not far behind. We still have a couple of more year of returns to monitor but we have clearly learned that we can stock steelhead in the lower river and get them to return to the hatchery.

Pacific Salmon Biological Monitoring
Fall monitoring of Pacific salmon growth at Salmon River Hatchery revealed reduced growth of age 2 and age 3 chinook salmon in 2002. Condition (weight relative to length) of large chinook was also very low. Growth of the smaller age 1 chinook and age 2 coho salmon was good. Chinook jack (age 1 male) returns to Salmon River Hatchery are a good indicator of year class strength. The 2001 year class returned 1,209 jacks to the hatchery. This is down from the very high returns in 2001 (2,393) and the record set in 2000 (3,196) but still in the range of a moderate strength year class.

Salmon River Steelhead Creel Survey
A creel survey was conducted on the Salmon River for steelhead fishermen during the fall of 2002. This was the 6th year for the survey which has occurred annually since 1997. Anglers fished an estimated 9,381 angler days from the middle of October through December 1st. This was a lower level of effort than seen in the 3 previous years. A very cold November probably contributed to the decline in effort. The catch rate was 0.043 steelhead/angler hour which was intermediate among years sampled. The catch was estimated at 2,743 steelhead and the estimated harvest was 555. As in previous years, nonresidents comprised about 2/3 of the angler effort.

Oswego Walleye Diary Cooperator Program
A small angler diary program for walleye in the Oswego area of Lake Ontario was conducted for a 5th year in 2002. As in previous years, the average size of walleye caught was very large (28.1 inches). The catch rate was 0.17 walleye/angler hour. Age frequencies of the catches in 2000 through 2003 revealed that these large fish were coming from several year classes with good numbers of fish as old as age 17 represented in the catch. In 2001, we even had one fish that was 23 years old that was hatched in 1978. The age structures of the catches suggest that, despite the fact that these are very large fish, angler exploitation on the population is light. Because of the lack of small fish in the catch, the real question is where these fish are coming from. One potential source of fish is the Bay of Quinte on the Ontario side of Lake Ontario. Recruitment of fish from there has

declined dramatically in recent years because of colonization of the Bay by zebra mussels and reduction in phosphorus inputs which led to increased water clarity and poor walleye recruitment. The Oswego River system including Oneida Lake is another potential source of fish. In any event, we plan to continue monitoring this fishery and the age structure of the catch.

Region 8

Pen Rearing

Numerous organizations from Lake Ontario's Western Basin have contacted the NYSDEC with interest in pen-rearing salmonids. The driving force behind their interest is the belief that chinook salmon raised at the NYSDEC's Salmon River Hatchery are imprinted to the Salmon River and leave the western basin to return there in the fall. These organizations hypothesize that if chinook salmon or steelhead are allowed to smolt in Western Lake Ontario tributaries they will imprint on and return to those rivers to spawn, thus providing an improved late summer and autumn fishery in the western basin.

Anglers from the western basin also speculate that the discontinuation of chinook salmon culture at the Caledonia Hatchery in 1990 has had a negative impact on the western basin's fishery. To address these concerns, the NYSDEC developed a multi-year study to evaluate these concerns.

There are currently four cooperative pen-rearing sites in Region 8. Sites include Sodus Bay with 50,000 chinook; Genesee River with 75,000 chinook and 10,000 steelhead; Sandy Creek with 25,000 chinook and 7,300 steelhead; and Oak Orchard Creek with 75,000 chinook and 14,000 steelhead.

A four year (1999-2002) marking study was conducted to evaluate the relative performance of chinook salmon stocked at Oak Orchard Creek and Lower Niagara River. Three lots of 40,000 fin clipped fish were stocked at Oak Orchard in 1999 and 2001 and Lower Niagara River in 2000 and 2002. One lot consisted of fish raised at Salmon River Hatchery and stocked directly into the stream, the second lot was raised at Caledonia Hatchery and stocked directly, and the third lot was Salmon River reared fish stocked into net pens. The fish stocked into the pens were reared for an additional period of approximately 2-3 weeks and then released.

Table 1

Chi square tests for 1:1:1 return ratios of chinook salmon stocked from the Caledonia Hatchery (direct/CD), the Salmon River Hatchery (direct/SR) and Salmon River Hatchery fish reared in net pens (pen/SR) at Oak Orchard 1999-2001

Year Class	Year Returned	direct CD	direct SR	pen SR	p
1999	2001	20	4	27	<.01
	2002	18	9	31	<.01
	All	38	13	58	<.01
2001	2002	1	0	1	- - -

A multi-year creel survey was started in 2001 on both Oak Orchard Creek and Lower Niagara River, and the Salmon River Hatchery. The first two years of data yielded similar results at Oak Orchard with pen-reared Salmon River Hatchery fish returning best, followed by Caledonia direct stocked, followed by Salmon River direct stocked. There was little difference in the return rates between two and three year old fish (Table 1.) This has not been the case at the Lower Niagara River, see Region 9 under this section. The creel survey will continue in 2003. Detailed reports on the pen-rearing aspect and creel survey can be found in the NYSDEC's Bureau of Fisheries Lake Ontario Unit and St. Lawrence River Unit to the Great Lakes Fishery Commission's Lake Ontario Committee - 2002 Annual Report.

Brown Trout Barge Stocking

Concerns over the possible loss of shore-stocked brown trout to nearshore predators in west-central Lake Ontario prompted a comparison study of traditionally shore-stocked versus barge-stocked brown trout.

An earlier study addressing the possible effects of cormorant predation on newly stocked brown trout in south-eastern Lake Ontario revealed that barge-stocked brown trout returned to the creel 3.9 times better than shore stocked brown trout (Eckert 2002).

Starting in 2001, and continuing into 2002, two lots of 20,000 brown trout from the NYSDEC Salmon River Hatchery were fin-clipped for a paired stocking at Sodus Bay and two lots of 20,000 brown trout from the NYSDEC Caledonia Hatchery were fin clipped for a paired stocking at Oak Orchard. At each site, one of the uniquely clipped lots of fish was traditionally shore-stocked and the other uniquely clipped lot was barge-stocked.

Shore-stocking took place at the traditional shore-stocking locations. Barge-stocking was accomplished by taking hatchery trucks by landing craft offshore, approximately 0.7 miles off Sodus and 0.8 miles off Oak Orchard, where the fish were stocked at the 30 foot (approximate) contour.

Fish from the 2000 year class stocked in 2001, became readily available to the fishery as age 2 fish in 2002. Fish were surveyed from the tributaries and open water habitats using several methods. Data were collected as part of the chinook creel census from Oak Orchard Creek and the Lower Niagara River. The major sampling effort from the open water habitat came from the NYSDEC Boat Census. In addition, data were collected from surveys conducted by the United States Geological Survey (USGS) and NYSDEC.

Table (1) shows the number of clipped fish observed during the tributaries and open water surveys.

Table 1. Fin Clipped brown trout collection in NYSDEC and USGS sampling in 2002.

	Shore	Barge	Shore:Barge
Tributaries	174	88	1.98
Open Water	53	39	1.36
Total	227	127	1.79

Brown trout surveyed during the chinook creel census revealed a 1.98 to 1 advantage of shore-stocking versus barge-stocking. Fish sampled from the open waters of Lake Ontario revealed a 1.36 to 1 ratio favoring shore-stocking. Overall, brown trout traditionally stocked from shore return fish to the creel at a rate of 1.79 to 1 compared to barge-stocked brown trout.

A Chi-square test for association revealed that the returns of brown trout were not distributed differently for the two survey methods ($P^2 = 2.3$, $p = 0.13$, $df=1$). This suggested that neither method was biased allowing us to combine the data for an overall chi-square test for a 1:1 expected return ratio. The test revealed that the shore stocked fish returned significantly better than the barge stocked fish ($P^2 = 28.2$, $p = <0.01$, $df=1$).

The final year of stocking marked fish is planned for 2003. Data collection will continue through 2005 and 2006.

A detailed report on the on barge stocking study can be found in the NYSDEC's Bureau of Fisheries Lake Ontario Unit and St. Lawrence River Unit to the Great Lakes Fishery Commission's Lake Ontario Committee - 2002 Annual Report.

References

Eckert, T.H. 2002 Lake Ontario Fishing Boat Census 2001. Section 2. In 2001 Annual Report. Bureau of Fisheries Lake Ontario Unit and St. Lawrence River Unit to the Great Lakes' Fishery Commission's Lake Ontario Committee. New York State Department of Environmental Conservation. Albany, New York.

Region 9

Trout and Salmon Pen-Rearing Project

Niagara River Anglers Association (NRAA) continued their cooperative pen-rearing project for a fourth year in 2002. NRAA volunteer workers took delivery of 75,000 pre-smolt chinook salmon and 10,000 pre-smolt steelhead in late April, 2002. Approximately 40,000 of the penned salmon were finclipped for subsequent evaluation (see following project description). The fish were held in pens located in the Lower Niagara River at Williams Marine Inc., Youngstown, N.Y. and released in late May. The purpose of the pen-rearing project was to improve imprinting and survival of anadromous chinook salmon and steelhead to enhance the sportfishery in the Lower Niagara River. A more detailed description of the NRAA pen project, as well as five other pen projects along the New York portion of the Lake Ontario shoreline is contained in Pearsall, Wilkinson, and Bishop (2002 Interim evaluations of pen-reared steelhead and chinook, NYS-DEC manuscript, 2003).

2002 Evaluation of Pen-Reared Chinook Salmon in the Lower Niagara River

2002 was the second year for evaluating results of the Niagara River Anglers Association (NRAA) chinook salmon pen-rearing project on the Lower Niagara River. Fin-clipped chinooks stocked in 2000 were expected to return as 2-year olds in fall 2002. During the evaluation effort, survey workers collected over 1,100 chinook salmon at the Lewiston fish-cleaning station, and shore-fishing facilities along the Lower Niagara River from September to November, 2002. Most fish sampled during the evaluation were caught by charter fishing guides who cooperated by allowing DEC staff to examine their catches. In fall 2002, returns of age-2 chinooks (stocked in 2000) revealed no statistical difference for returns from the three different stocking methods: Salmon River direct stocked, Salmon River pen-reared and Caledonia direct stocked. The 2002 results were different from returns of the same cohort observed as age-1 jacks in fall 2001. Jack returns favored the Salmon River direct stocked fish, followed by the Salmon River pen reared fish. The Caledonia direct stocked fish performed poorest.

Only one fin-clipped salmon from the 2000 year class of Niagara River fish was observed in fall, 2002 at the Salmon River hatchery. This suggests that straying to the Salmon River of Niagara River stocked salmon occurs infrequently. More detailed information regarding the evaluation portion of the pen project can be found in Bishop, Pearsall, and Wilkinson, (2002 interim evalutaions of pen-reared steelhead and chinook salmon, NYS-DEC manuscript, 2003).

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 2002 angling season marked the eighteenth consecutive year (1985-2002) 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.

While fishing effort remained relatively constant from 1997-2001, 2002 marked a record low estimate of 86,401 fishing boat trips. This estimate represents an 11.2% decline from the 1997-2001 (previous five years) average. Anglers targeting trout and salmon accounted for 52,674 fishing boat trips, or 61% of the April-September 2002 total. Anglers targeting smallmouth bass from opening day (June 15) through the end of September accounted for 27,920 fishing boat trips, or 32.3% of the April-September 2002 total.

Changes in fishing effort were in part responsible for changes in numbers of fish harvested. Total trout and salmon harvested in April-September 2002 was estimated at a record low 59,719 fish. Chinook salmon was the most commonly harvested salmonid in 2002 (18,307 fish), comprising 30.7% of the total, followed by brown trout (16,811), comprising 28.2% of the total. Lake trout harvest in 2002 was 15,718, the highest harvest estimate since 1996. In contrast to trout and salmon, effort targeted at smallmouth bass has generally increased over the years censused, along with harvest. Smallmouth bass harvest in June-September 2002 was estimated at 43,161 fish. Catch rate among anglers seeking smallmouth bass in 2002 during the open season was 12.3 bass per boat trip, the highest catch rate among years censused.

Trout and salmon fishing quality, as measured by harvest rates, declined to a record low 1.13 fish per boat trip. By a small margin, this represents the lowest harvest rate observed in the 18 year history of the census. Comparisons by species show that April-September 2002 harvest rate was above its respective 1997-2001 April-September average for lake trout, but below their respective 1997-2001 April-September averages for coho salmon, chinook salmon , rainbow trout, and brown trout.

Comparisons of the 2002 harvest rates with their respective 1997-2001 averages show declines in the months of April-August and in the west and east/central geographic areas, and essentially average conditions in the month of September (-4.1%) and the east area (-1.4%). The west/central area was the only area or month to show a substantial increase in harvest rate in 2002 compared to its 1997-2001 average (+123.2%). Unfortunately, due to the relatively small amount of fishing effort within this area (7.8% of trout and salmon fishing effort), total trout and salmon

harvest within the west/central area was still only 15.8% of the seasonal total.

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 gill net sampling program. During this period, the warm water fish community has undergone significant changes, declining from a high of approximately 200-250 fish per net gang in 1976-79, to a record low 15.73 fish per net gang in 2001. The majority of the fish species that were abundant at the start of the assessment program have all experienced significant declines in abundance. Catches of warmwater fish in the 2002 Eastern Basin index gill netting program rebounded from the record low levels observed in 2001. Smallmouth bass abundance also increased slightly from the record low, 2001 level. Three year moving average catches for smallmouth bass, walleye, and rock bass are declining, whereas three year moving average catches for yellow perch and pumpkinseed are increasing. Lake sturgeon, a threatened species in New York State, have been collected in six of the last eight years.

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

Diet studies of double-crested cormorants (DCC) 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 DCC 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). In 2002, smallmouth bass and yellow perch predation by DCC's from the three Lake Ontario colonies combined totaled 570,000 and 5.29 million fish, respectively. For the first time, exotic round gobies were documented in the diets of cormorants from Snake and Pigeon Islands

Data on smallmouth bass fishing in Lake Ontario collected from the 1985-2001 fishing boat censuses were analyzed in more detail as part of the evaluation of the impacts of DCC predation. From 1985-1990, harvest rates were nearly equal to or greater than the lake-wide average harvest rates and averaged 1.16 smallmouth bass harvested/angler hour. From 1991-2002, harvest rates at Henderson Harbor, adjacent to the Little Gallo Island cormorant colony, were all below the lake-wide average. The Henderson Harbor site continues to be the only localized bass fishery that has experienced a decline in harvest rate.

Egg oiling on Little Galloo Island has been conducted each year since 1999, and has reduced cormorant chick production by approximately 93% in 2002. These efforts reduced the number of cormorant feeding days by 740,000, resulting in a reduction in fish consumption estimated at 270,000 smallmouth bass and 712,000 yellow perch.

After increasing for three consecutive years, estimated fish consumption from three Canadian cormorant colonies in the upper St. Lawrence River declined slightly in 2002 to 5.76 million fish. Total, combined consumption in 2002 included 2.75 million yellow perch, 880,000 rock bass, 920,000 cyprinids, 640,000 pumpkinseeds, and 40,000 smallmouth bass**.**

Lake Ontario Forage Fish Abundance

The U.S. Geological Survey and the NYSDEC have cooperatively assessed Lake Ontario prey fishes each year since 1978 through bottom trawling during spring, summer, and fall along twelve transects distributed across the New York shoreline of the lake. Adult (age-2 and older) alewife abundance in 2002 bottom trawl surveys declined relative to levels observed in 2000 and 2001. The weight of a 165 mm alewife, used as an index of adult alewife condition, was the second lowest on record. Catches of age-1 alewife in 2002 suggest that the 2001 year class will increase adult abundance in 2003 above the near record-low levels observed in 2002. Numbers and biomass of age-1 and older rainbow smelt in 2002 were similar to 2001, and just above the record-low levels observed in 2000. Slimy sculpin abundance at depths >75 meters increased for the third consecutive year, however, abundance remains well below the peak observed in 1991.

In addition to bottom trawl surveys to assess forage fish populations, NYSDEC also conducts Lake Ontario-wide hydroacoustic surveys in cooperation with the Ontario Ministry of Natural Resources. Lake-wide hydroacoustic estimates of yearling and older alewife in 1997-2002 varied between 0.4 and 1.0 billion

fish. Following reduced abundance in 1997 and 1998, abundance increased in 1999 and 2000 due to an exceptionally strong 1998 year class. Abundance in 2001 declined due to reduced presence of the 1998 year class. Abundance did not decline further in 2002, presumably due to recruitment of the 2001 year class

Lake Ontario Lake Trout Restoration

Lake Ontario Juvenile Lake Trout Assessment

Catches of age-2 and age-3 hatchery origin lake trout during trawl and gill net surveys in New York waters declined to an all time low during the period from 1996 to 1998 (1993 to 1996 year classes). Catch of age-2 lake trout rebounded to 1992 levels in 1999, but fell again to a record-low level in 2000 (1998 year-class). Catches of age-2 lake trout in 2001 (1999 year class) rebounded to just below the level observed in 1997, but declined slightly in 2002. Trends in numbers of age-2 lake trout caught in trawls and age-3 fish caught in gill nets for the 1975 to 1995 year classes suggested that recruitment of hatchery fish to the population was governed by survival during their first year after stocking. Subsequent to the 1995 year class, this relationship has deteriorated, suggesting increased mortality of stocked lake trout during their second year in the Lake.

Lake Ontario Adult Lake Trout Abundance

A total of 695 adult lake trout were captured in the September 2002 gill net survey. Catch rates for mature lake trout remained remarkably stable from 1986 to 1998. The CPUE of mature fish, however, declined by 30% between 1998 and 1999. Poor survival of hatchery fish was likely responsible for declining abundance of immature lake trout since 1989 and current declines in adult numbers. The CPUE's for mature lake trout in 2001 and 2002 declined to 31% and 38%, respectively, below the 1986-98 average.

Lake Ontario Sea Lamprey Wounding Rate Index

Overall sea lamprey wounding rates on lake trout remain much lower than pre-1985 levels, but have been above the planned target level of 2 wounds per 100 fish for four of the last six years. The length of A1 marked fish in 2002 ranged from 585 to 770 mm (mean = 698 mm, n = 6). Numbers of lampreys observed attached to fish caught by boat anglers participating in the boat census decreased markedly in 2002 relative to 2001.

Survival of Adult Lake Trout in Lake Ontario

Survival of Seneca strain lake trout has been about 30% to 50 % greater than that of Superior strain for the 1984-1991 year-classes. Lower survival of Superior vs. Seneca strain lake trout was likely due to higher susceptibility to and mortality from sea lampreys. Survival of Lewis Lake strain lake trout in Lake Ontario, calculated for the first time in 2000, was poor (44%) and similar to survival of Superior strain cohorts from stockings in the late 1970's. Assuming constant recruitment, average age of mature females is an auxiliary measure of lake trout survival; as survival improves, a greater number of older females accumulate in the population. Average age of mature female lake trout has been increasing steadily since the mid 1980's. The average age of 9.55 years in 2001 reflected a population comprised of the oldest group of mature females since the rehabilitation program was initiated. Accurate calculation of the average age of mature, female lake trout is no longer possible due to a lack of funding for coded-wire tags.

Natural Reproduction of Lake Trout in Lake Ontario

In 2002, a total of 8 naturally produced lake trout (72 to 391 mm 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 1993–2002. Further, survival to older ages has also been apparent. The distribution of catches of wild fish suggests that lake trout are reproducing throughout New York waters.

Annual Angler Harvest of Lake Trout from Lake Ontario

The estimated annual harvest of lake trout from U.S. waters of Lake Ontario since the slot limit (635 - 762 mm) was re-instated in 1992 has been more than 4 times lower than previous years when no size limits were in effect. Harvest reached its lowest level in 2000 with an estimated 7,319 lake trout creeled, and increased to 9,866 fish in 2001. Lake trout harvest in 2002 increased to 15,718 fish, likely due to relatively poor summer fishing success for other species. The percentage of lake trout harvested by anglers that were of trophy size (> 762mm or >30 in), remained near 25% from 1997-2000, and increased to 44% in 2001. In 2002, trophy lake trout harvest represented 26% of harvested fish.

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. Preliminary results suggest that offshore stocking substantially enhances catches of stocked, age-1 lake trout in bottom trawl surveys

Lake Ontario Commercial Fishery

Commercial fishing activity in the New York waters of Lake Ontario is limited to the embayments and nearshore open waters of the eastern end of the lake. Commercial fishing gear includes gill nets, trap nets, and fyke nets. Commercial harvest is generally targeted at the following species (in decreasing order of abundance): yellow perch (*Perca flavescens*), brown bullhead (*Ameiurus nebulosus*), sunfish (*Lepomis* sp.), white perch (*Morone americana*), rock bass (*Ambloplites rupestris*), and black crappie (*Pomoxis nigromaculatus*). In 2002, six active fishers reported 41,548 pounds of fish caught with an estimated total value of $47,472. The commercial catch was dominated by yellow perch (37,113 pounds, $43,807).

Lake Erie and Tributaries

Lake Erie Unit

Juvenile Warmwater Fish Assessment

This current trawling program is conducted during October at randomly selected stations between the 15- and 30- meter depth contours in New York's portion of Lake Erie. Standard tow duration is 10 minutes.

In 2002, the most abundant species encountered in this program was YOY rainbow smelt, but several species made large contributions to the trawl collections, including alewife, trout-perch, emerald shiner and round goby.

The 2002 mean density estimates for yearling and adult yellow perch were above the previous overall 10-year mean density values for these life stages. The YOY index for yellow perch was low, ranking close to the other low values observed in the time series. Conversely, the yearling yellow perch abundance index in 2002 was the second highest value in the time series. Trends in juvenile yellow perch growth rates continue to be stable. The mean length of age-0 yellow perch in 2002 was the highest value in the data series. However, age-1 yellow perch length in 2002 was at the average value for the entire time series.

Warmwater Fish Stock Assessment

This annual autumn gill netting survey has been ongoing since 1981. Four to six 213 meter graded mesh nets are set daily, with 40 sites sampled in 2001.

The overall abundance index for walleye in 2002 remained below the long-term average abundance since 1981. The age composition of this walleye sample was dominated by the age-1 cohort, representing the 2001 year class. This gill net assessment has had a juvenile walleye emphasis since its inception, with age-1 and age-2 walleyes comprising a large fraction of the total walleye sample each year. Yearling walleye catch rates ranked the 2001 year class above average, relative to the entire time series. Age-2 walleye mean length in 2002 continued a 3-year trend of increasing length and produced the highest value of the time series at 453 mm (17.8 inches). However, age-2 walleyes were also particularly scarce in 2002 with wide confidence limits around our point estimate. This 2002 walleye sample only comprised 3 age-2 individuals; nevertheless, it continued a trend of increased age-2 length-at-age observed since 1999.

Smallmouth bass catch rates in 2002 remained well above the average value for this 22-year time series. Two age groups (age 3 and age 4) made particularly large contributions to this 2002 sample. Altogether, 16 age groups from age 0 to age 18 contributed to the sample. Although young adult (age-3 and age-4) smallmouth bass age groups dominated the 2002 sample, older, adult cohorts also remained common in the collections during recent years. The long-term recruitment indices for juvenile, age-2 and age-3, smallmouth bass rank the 1999 year class as largest in the time series. However, early indications suggest the 2000 year class is very scarce. These age-2 and age-3 cohorts averaged 272 mm and 332 mm total length, respectively, in this fall 2002 gill net collection. Both age groups were longer than average for the time series. Size of the age-3 bass in 2002 remained near the longest ever observed in the 22-year time series.

In the 15- to 30-meter stratum, yellow perch continued a marked increase in abundance first observed in

2000. This deeper stratum has only been sampled since the interagency index fishing protocol was fully implemented in New York, beginning in 1993. Yellow perch are not effectively sampled at the shallower (0 to15 meter), long-term gill net sites. Age-4 and age-6 yellow perch were the most abundant age group in the 2002 collections. These age groups, representing the 1998 and 1996 year classes, together comprised 64 percent of the yellow perch sampled in this gill net assessment. Only since 2000 have adult cohorts of yellow perch contributed measurably to this annual sample.

Of the remaining commonly encountered species in this 2002 gill net sample, only gizzard shad and channel catfish were caught in higher abundance than the long-term mean catch rate. White sucker catch rates have undergone a gradual, long-term decline and remained near a low ebb in 2002. Rock bass have also experienced a more recent, sharp decline in abundance. White perch and white bass catch rates declined sharply between the 1980's and 1990's, however, white bass increased sharply in 2002 collections. Freshwater drum remained a species of particular concern in 2002 due to observations of extensive fish kills during late summer. The past two years of our September gill net assessment occurred largely after the observed drum die-offs. The 2002 abundance index for drum increased from 2001 and was near the long-term (1981-2001) average measured in the shallow stratum (<15 meter), but in 2002 produced the highest value for the deeper (15-30 meter) stratum. Drum catch rates have been found to be characteristically higher in the deeper survey stratum every year that both shallow and deep sampling areas have been monitored since 1993.

Walleye Tagging Study

During the 13 years New York has participated in this interagency tagging study, 16,049 walleye have been tagged in the New York portion of Lake Erie. During April 2002, 1137 walleyes were collected in NY waters and affixed with jaw tags as a continuation of this effort to examine walleye distribution and exploitation rates. Three tagging sites were sampled in 2002, including Van Buren Bay, the Lackawanna shoreline, and a new tagging site in the lower reach of Cattaraugus Creek. Walleyes tagged for this study were collected by trap nets and boat shocker.

Since the inception of this tagging study, 1,348 tag recoveries originating from the New York tagging effort have been reported by anglers and the Ontario commercial fishery. Seventy-five (75) of these recaptures occurred during 2002.

This time series of walleye tag recovery data has been annually examined using a model that estimates mean survival and recovery rates for the tagged population (Brownie et al. 1978). From 1992 to 2002, several potential arithmetic mean survival rates for tagged walleye were derived from the Brownie et al. (1978) model. These differing survival estimates were obtained by employing various assumptions concerning survival and recovery patterns, and all exceeded 69 percent. Over the duration of this assessment, first-year tag recovery rates ranged between 1.2 and 4.5%. We have expanded these observed recovery rates to exploitation rates using a multiplier of 2.80 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 adjusted annually with each year's new tag recoveries. As such, the mean exploitation rate for tagged walleye from 1992 to 2002 was estimated as 6.85%.

The continuing walleye survival and exploitation estimates produced for New York's spawning stocks suggest total mortality remains very low, and this population is lightly exploited. The calculated exploitation rate for walleye in 2002 remained among the lowest measured in the entire time series.

Lake Trout Assessment

This standard August gill net assessment has been employed to assess lake trout populations for the New York waters of Lake Erie since 1985. Approximately 60 sets of 152 meter graded mesh nets are set annually in coldwater habitat.

Total unbiased gill net assessment (all gear types) of the lake trout population residing in New York's portion of Lake Erie in 2002 sampled 226 individuals in 59 lifts, a decrease of 23 fish (9%) over the 2001 survey. Fifteen age classes, from age 1 to 16, were represented in the sample of 205 known-aged fish. Similar to 2001, young lake trout (ages 2, 3, and 4) were the most abundant cohorts, representing the

majority (73%) of the total catch. Unlike the previous few years, however, older (age 10+) cohorts were poorly represented in this year's survey.

Maturity rates remained consistent with recent years, where males are 100% mature by age 4 and females by age 5. Mean lengths-at-age and mean weights-at-age of sampled lake trout were slightly higher than long-term (1985-2000) averages through age 7, but remained consistent in the older age classes. The largest lake trout sampled measured 886 mm and weighed 8.48 kg. Thirty-four mature females, 23 less than last year, were sampled in New York waters of Lake Erie in 2002. Twenty-seven of these fish contained either fin clips or coded-wire tags and could be assigned ages. These fish ranged from age 4 to 16 and generated a mean age of mature females captured in our sampling of 7.7 years. This marks the fifth consecutive year that mature, female lake trout in Lake Erie have met or exceeded the target mean age, established in the Strategic Plan, of at least 7.5 years (Lake Trout Task Group 1985a).

The overall trends in relative abundance of lake trout caught in standard size meshes of 1.5 to 6.0 inches show a slight increase over last year and a two-year increasing trend from the low observed during the 2000 survey. Burbot abundance has been relatively consistent over the past three years, remaining at a high in the time series. The time series does show a steadily increasing abundance of burbot since 1985 in the Lake Erie coldwater fish community. Whitefish abundance is highly variable in this survey and was down after peaking in 2001. Two coho salmon were the only other salmonids caught.

The relative index of abundance for age-5-and-older lake trout declined again after showing a slight rebound in 2001. The age 5+ index of 0.47 was the lowest index since the rapid build-up of the adult population due to improved survival following initial sea lamprey treatments in 1986-1987. Conversely, the age 1-3 relative abundance index increased for the third consecutive year with both age 1 and age 3 fish registering the highest catch rates since 1986 and 1988, respectively. The overall index of 2.10 was at its highest level since 1988. The age 2 recruitment index, an index of survival to age 2 standardized for the number of stocked yearlings, showed a slight decline in 2002. However, the overall index is still high and comparable to the late 1980s and early 1990s when recruitment of stocked fish to age 2 was considered good.

The relative abundance, by age, of the 2002 standard gill net assessment catch illustrates the high numbers of the younger cohorts and the relative absence of the older age classes. The age 7 through 10 cohorts remain almost non-existent within the Lake Erie lake trout population.

Similar to last year, six different lake trout strains were found among the 205 fish caught with hatchery-implanted coded-wire tags (CWTs) or fin-clips. The majority of the lake trout were Superior (SUP) strain fish, which have been the most numerous stocked strain over the last four years. Finger Lakes (FL), Lewis Lake (LL), and Lake Ontario (LO) strains were also main contributors to the Lake Erie stock. Also similar to last year was the prevalence of the Superior strain in the younger cohorts, but absence in the older lake trout cohorts, despite regular stockings from 1980-1991. With the exception of one LL strain fish (age 10), every fish older than age 9 had some connection with the FL strain (either a FL strain, a FLxSUP cross, or a LO strain.

Analysis of the stomach contents of lake trout and burbot revealed diets almost exclusively made of fish in both species. Rainbow smelt remained the main prey item in lake trout stomach samples, occurring over 90% of the time. Other prey items included round gobies, alewife, gizzard shad, and unknown fish. This was the first observation of gobies in lake trout stomachs during this survey. Burbot diets were more diverse with 10 different fish and invertebrate species found in stomach samples. Smelt remained the most abundant item, occurring in over 42% of the stomachs. Round gobies have also become a significant diet item, occurring in almost 30% of burbot stomachs. Whitefish diets consisted entirely of invertebrates, with quagga and zebra mussels (44%) and tubifex worms (52%) making up the bulk of the diet.

Sea Lamprey Assessment

Observed fresh wounding on lake trout greater than 532 mm total length was only 33 wounds per 100 fish in 2002, the lowest rate since 1992 and the first time since 1994 that wounding rates were below the target rate of 5 wounds per 100 fish. All of the fresh lake

trout wounds were found on fish between 533 and 734 mm. No fresh wounds were found on fish >734 mm, which in recent years has been the length group with highest wounding rates. Similar to past years, no wounds were found on lake trout from 432-532 mm in length.

Fresh wounds (A1) are considered indicators of the attack rate for the current year at the time of sampling (August). For the first time in 10 years, no A1 wounds were observed on any of the 152 lake trout greater than 532 mm. The 2002 A1 wounding rate ends a period of high A1 wounding rates that began in 1997 and is comparable to rates in the early-1990's when sea lampreys were considered to be under control in Lake Erie.

The only wounding rate that was still above average in 2002 was A4 wounds, which indicate the past year's cumulative attacks. The 2002 A4 wounding rate of 15.8 wounds per 100 fish for lake trout greater than 532 mm was lower than 2001, but still higher than the rates observed during the early 1990's. Unlike the fresh (A1-A3) wounding rate, most (74%) of the A4 wounds were observed on lake trout >734 mm.

The overall index for sea lamprey nesting in 2002 was 8.9 nests/km, an increase from 2001, but still substantially lower than the 1999 and 2000 survey results. The majority of the nests were still found in the main branch of Clear Creek, which had a nesting rate of 12.3 nests/km. A substantial number of nests were also found in the North Branch of Clear Creek, a tributary of Clear Creek. This nesting rate was still low for this creek, however, when compared to the high rates found in 1997 and 1998. Only one nest was found in Canadaway Creek and none in Delaware Creek. Nest counts in the Lake Erie tributaries should remain low after lampricide treatments in both 1999 and 2001 in the Cattaraugus Creek watershed, and more treatments are scheduled for 2004.

The effects of regular sea lamprey treatments in Lake Erie tributaries by the Great Lakes Fishery Commission began to show in the lake trout population in 2002. Fresh lake trout wounds were at their lowest rates in the past 10 years, and no A1 or A2 wounds were found on any lake trout. A4 wounds were the only rate that was still above early-1990's levels when sea lamprey abundance was low. Nesting rates were also above early-1990's levels, but were substantially reduced from nest counts in 1997 and 1998.

Wild Steelhead Assessment

Assessment of wild steelhead production has mainly focused on tributaries to Cattaraugus Creek. Spooner Creek has been sampled since 1995 and has shown that it is capable of producing substantial numbers of wild YOY steelhead trout. Derby and Coon Brooks, Clear Creek, and North Branch Clear Creek have also been sampled with natural steelhead reproduction found in all these tributaries, although to a lesser degree than Spooner Creek.

A comprehensive, multi-year stream electrofishing survey cataloging Lake Erie tributaries for steelhead reproduction potential began in fall 2002. Candidate streams for the survey included all of the streams known to have adult steelhead runs in the fall and/or spring. Each stream was surveyed at various locations from its mouth to its headwaters with a generator-powered backpack electrofishing unit. All fish were netted and released. General observations on YOY steelhead abundance, other fish species present, water temperature, and instream and shoreline habitat were recorded at each station.

A Reproductive Potential (RP) Index was developed and assigned to each sampled stream, indicating its potential for producing wild steelhead trout. The index is based upon the abundance of YOY steelhead, instream habitat, water flow, canopy, and temperature. The RP Index values ranged from 0 (stream with no adult access) to 5 (high potential for natural reproduction, i.e. Spooner Creek). The values were assigned as follows:

RP = 0: Adult steelhead do not have access to run this stream.

RP = 1: Spawning potential is very low. Few, if any, YOY trout are found. Limited habitat for spawning and rearing available. Drainage reaches high summer temperatures due to lack of canopy and/or poor water flow.

RP = 2: Moderate spawning potential. Good spawning and rearing habitat in small parts of the stream. YOY steelhead are present, but are only found in specific habitats. Stream is probably still limited by canopy, water flow, and/or water temperature.

RP = 3: Average spawning potential. Stream possesses adequate spawning and rearing habitat in

larger sections of the creek. Good numbers of YOY steelhead and maybe a few holdovers (age 2) are present. Stream may be limited in terms of water temperature, canopy, or water flow that hinders it full potential.
RP = 4: Good spawning potential. Large numbers of YOY and some holdovers are present. Stream possesses adequate canopy, water flow, and temperature for YOY production and survival. However, some other factor, such as a barrier, limits overall production to a reduced area.
RP = 5: High spawning potential. Large numbers of YOY and holdovers present. Stream not limited by any factor. Has potential to produce large numbers of naturally produced fish in a large portion of its reach.

A total of 10 streams were sampled between August 28 and October 2, 2002, bringing the two- year total to 13 streams cataloged for potential YOY steelhead production. An additional two streams (Corell and Bell Creeks) were visually evaluated during the summer, as part of a road construction process. All of the sampled streams were known to have runs of adult steelhead and most were on the lake plain. Except for Connoisarauley Creek and Bell Creek, RP Index values were either 1 or 2 for all the streams sampled this year. Nonetheless, the abundance of YOY trout in some of the streams was unexpected.

1) Delaware Creek (E.21) - RP Index = 1
Electrofishing was conducted at four different locations on August 28, 2002, in Delaware Creek. Ten YOY steelhead trout were found in the lower end of the stream. All but two were between Herr Road and Route 5, and all were sampled from deep riffle and rock habitat. The majority of this creek is bedrock in the lower section changing to sand and silt in the upper reaches. There is little spawning habitat, and what is present consists of broken shale or gravel from road and railroad crossings. Water temperatures were in the mid-60's, which was adequate and most likely due to the full tree canopy surrounding the creek. The lack of overall spawning and rearing habitat made the reproductive potential of the creek little to negligible, despite a few YOY trout being found.

2) Big Sister Creek (E.20) - RP Index = 1
This stream was only visually inspected at several locations on August 28, 2002, because water temperatures and stream conditions were inadequate for trout survival. Water temperatures ranged in the upper 70s; bedrock dominated the entire stream. There was little spawning and rearing habitat available for juvenile trout. The creek had little flow or gradient.

3) Muddy Creek (E.22) - RP Index = 1
Muddy Creek was visually inspected on August 28, 2002, and electrofished in the town of Farnham on September 25, 2002. Muddy Creek is a lake plain stream with little summer water flow and is typical of most streams on the lake plain with sandy and silt bottom. Some areas of gravel were found near Farnham, and residents confirmed that adult steelhead do spawn in this area in the springtime. However, no trout were sampled and the fish species were more typical of a warmwater stream. Sections of this stream were full of downed trees, trash, and broken glass, making it impossible to sample or fish.

4) Reiters Creek (E.30) - RP Index = 2
Reiters Creek is a small lake plain stream located between Dunkirk and Silver Creek. Although small, it receives a good run of adult steelhead in the fall and spring. This creek was sampled on August 29, 2002, at five locations from the mouth to its headwaters. Dozens of YOY steelhead were sampled from the mouth upstream to a railroad crossing. No trout were found above this. One holdover or resident trout was found that was estimated to be around 178 mm (7 inches). Similar to Delaware Creek, all YOY trout were found in deep riffle areas around large rocks or in undercut banks. The stream habitat was diverse, with bedrock intermixed with gravel and silt in the pools, but mostly rocks and gravel in the riffle areas. Water temperatures were in the upper 60's, and the stream is fully canopied. There is an increasing amount of sand, silt, and bedrock above the railroad bridge in this stream.

5) Scott Creek or 1st Gulf (E.32) - RP Index = 1
1st Gulf is another lake plain stream located just to the northeast of Dunkirk. Like most of the smaller streams that have an accessible stream mouth, adult steelhead readily migrate into this stream in the fall and spring. This stream was sampled on September 3, 2002, from its mouth near Route 5 upstream to a railroad crossing. No other roads access this creek. Gravel, cobble, and broken shale occupy the creek bottom from the mouth upstream above Route 5, but the habitat gradually changes to mostly bedrock above this. Two YOY trout

were sampled in an undercut bank and one holdover (125 mm) was found in a large pool. Although adequate spawning and rearing habitat was found in the lower section of this creek and water temperatures were below 70°F due to the full tree canopy, water flow was severely limiting with no areas of fast moving water found anywhere in this stream. Because of this, the reproductive potential index remained 1. However, this creek has the potential to produce more YOY steelhead in years with better summer rainfall.

6) Beaver Creek or 2nd Gulf(E.31)-
RP Index = 2

2nd Gulf is also located to the northeast of Dunkirk and was sampled on September 3, 2002, from its mouth upstream to the Dunkirk airport. Nice gravel beds and pools were found between Route 5 upstream to a railroad bridge. Bedrock with sporadic gravel and riffle areas were indicative of the habitat upstream of the railroad bridge. YOY trout were caught in good numbers between Route 5 and the RR bridge, and occasionally above all the way up to Werhle Road near the Dunkirk Airport, where a series of natural barriers prohibits further migration. Again, most of the trout were found in pools and deeper riffle areas. This stream possessed marginal water temperatures when sampled (72°-76°F), but did have a full canopy and good water flow.

7) Connoisarauley Creek (E.23-27) -
RP Index = 3

Connoisarauley Creek is a tributary to Cattaraugus Creek and has been sampled in the past by NYSDEC personnel for wild steelhead reproduction. The stream possesses an abundance of spawning and rearing habitat, including gravel spawning areas, deep-water gravel and cobble riffles, deep pools, and instream vegetation. Water flow was excellent. Despite this, only 3 YOY and 4 yearling-sized trout were caught in extensive sampling at two locations on September 30, 2002. Past surveys have found moderate catches, but none have been indicative of the good habitat that is available in the stream. A likely explanation is that the stream is temperature limited during the summertime due to its open canopy. Nigh Brook, a tributary to Connoisarauley Creek, may be a possible spawning area and may be sampled next year.

8) Beaver Creek off Canadaway Creek (E.37-2)
RP Index = 1

Beaver Creek is a small tributary of Canadaway Creek located just west of Dunkirk on the lake plain. This stream has also been sampled in the past, with YOY rainbow trout observed in 1984, but dry conditions found in 1999. A small section of the lower end was sampled on October 2, 2002. Water temperatures on the creek were 72°F, high for the beginning of October and most likely indicative of lethal summertime temperatures. The stream canopy was less than 25% covered. Water flow was also very low in the stream. Little spawning habitat was found with bedrock and silt making up the majority of the bottom substrate. No trout were found in the limited sampling.

9) Slippery Rock Creek (E.50) - RP Index = 1

Slippery Rock is a lake plain stream located halfway between Dunkirk and Westfield. It was sampled near its mouth and further upstream near Brocton in October 2002. Bedrock mixed with rubble and a little gravel dominated the instream habitat downstream, turning to more of a mixture with sand above. There were very few holding pools for adults, and virtually no spawning and rearing habitat. Water flow and temperature may be a limiting factor in the summer, especially further upstream near Brocton where the canopy is more open. No trout were sampled.

10) Crooked Brook (E.36) - RP Index = 1

Crooked Brook was visually inspected only on October 2, 2002. It is a lake plain stream that flows through Dunkirk. Water temperatures were 69°F and little flow occurs in the creek. Bottom substrates consisted mostly of silt mixed with some cobble and larger rocks. The overall habitat and water conditions were not deemed suitable for trout reproduction, even though adults migrate into this stream.

11) Corell Creek (E.51) - RP Index = 1
Bell Creek (E.75) - RP Index = 0

Corell Creek and Bell Creek were visually inspected only on July 18, 2002, as part of a road construction project. Neither of these creeks have been sampled before. Corell Creek is just west of Slippery Rock Creek, about half-way between Dunkirk and Westfield in the town of Portland. Instream habitat consisted mainly of bedrock with a few sections of bedrock and gravel mix. Water temperatures were in the mid-70's

and the creek still had some water flow, despite little recent rainfall. The main question for this stream was access to migrating steelhead, which was possible, but only during high flow periods due to bedrock ledges at the mouth and just upstream.

Bell Creek is located west of the village Westfield. Water flow in this creek was not as good with intermittent pools only with water. The bottom substrate was mostly bedrock with broken slate and gravel mixed. Access was a problem for this creek with a series of natural bedrock falls near the stream mouth. It was deemed highly unlikely that steelhead can access this stream.

Stream assessment surveys conducted during fall 2002 confirmed that successful wild steelhead production occurs in many Lake Erie tributaries. Nine of the 10 streams sampled this fall were lake plain streams, typically not considered ideal for trout production. Yet, 4 of these streams had YOY steelhead present, and a few contained older trout, as well. Modest numbers of YOY steelhead were found in both Reiters Creek and 2nd Gulf. Both of these streams possessed gravel areas for spawning, deep riffle and rock areas, and a full tree canopy to stabilize summer water temperatures. Delaware Creek and 1st Gulf also produced some YOY trout, but both were limited by the overall habitat and water conditions. The five creeks in which no trout were found (Big Sister, Muddy, Beaver, Slippery Rock, and Crooked Brook) lacked adequate spawning habitat, had low flows, and had high water temperatures.

In higher production creeks, such as Spooner Creek and Little Chautauqua Creek, juvenile trout are generally found in all the available habitat types. In marginal trout streams, such as the lake plain streams sampled in 2002, deep riffle with rock areas appear to be the preferred habitat type for YOY trout. These areas might offer lower water temperatures, increased oxygen, better foraging opportunities, or good cover. Trout were absent from the lake plain streams that lacked this habitat.

Habitat degradation, mainly manmade, was evident in a few of the streams. The most obvious example was Muddy Creek, which was scattered with trash and broken glass. ATV tracks were found in a few of the creeks, but the most noticeable was 1st Gulf where it appeared that they were regularly driven up the middle of the creek, potentially ruining the little available spawning habitat. Crooked Brook suffered from siltation, probably a result of growth from the city of Dunkirk. Beaver Creek, off Canadaway Creek, may also have had longtime habitat degradation. YOY rainbow trout were found in this creek in 1984, but sampling conducted in 1999 and 2002 found little water in this creek and poor spawning habitat.

Results from this survey will be used to develop a comprehensive map of steelhead spawning waters in New York Lake Erie tributaries. Over time, key areas for natural reproduction will be identified and surveyed to develop estimates of overall wild steelhead production. This survey can also identify areas to target for stream improvement to increase wild trout production.

Sport Fishery Assessment

Since 1988, a direct contact sport fishing survey has been conducted to monitor the open water fishery. This standard, annual program extends from May through October along the entire New York portion of Lake Erie.

Overall 2002 open water sport fishing effort in New York waters of Lake Erie was estimated as 341,860 angler-hours. This 2002 fishing effort estimate ranks as the lowest annual total of the 15-year time series. During the 2002 fishing season, walleye angling was the largest component of the boat fishery. Bass angling ranked second in boat fishing effort on New York's portion of Lake Erie. Among the remaining effort, targeted yellow perch effort continued a sharp increase that began in 2001.

During 2002, the springtime boat fishing effort (1st Saturday in May to 3rd Saturday in June) was comprised mostly of bass anglers. However, springtime bass angling effort in 2002 was the second lowest total measured since the inception of the special, springtime bass fishing season established in 1994. Springtime walleye fishing effort in 2002 was the lowest measured in the entire 15-year time series.

The total estimated daytime walleye harvest was 18,378 fish, ranking 2002 as producing the third lowest walleye harvest in the 15-year survey. The 2002 walleye fishing effort total that produced this walleye

harvest was the lowest observed in the entire 15-year time series. In addition, walleye total catch and harvest estimates have remained similar in 2002, suggesting nearly all the walleyes boated in the sport fishery were harvested. The 2002 walleye sport fishery was centered in offshore waters, generally east of Silver Creek, New York. Areas in the vicinity of Dunkirk, Barcelona and further west produced a markedly lower harvest of walleyes. The overall targeted walleye catch rate during the 2002 fishing season was 0.12 per hour, which ranks this walleye fishing season as average for the previous 10 years of the survey. The average total length of harvested walleyes in 2002 was 607 mm (23.9 inches).

Smallmouth bass harvest was estimated at 11,552 fish, which ranks 2002 as the second lowest bass harvest for the entire 15-year survey. The overall 2002 bass fishing effort also declined to the lowest total observed during the period that expanded spring bass fishing opportunities have existed, beginning in 1994. The 2002 smallmouth bass harvest also remained very small, relative to the bass catch by boat anglers. Smallmouth bass remained the most frequently caught species (97,600 fish) by boat anglers by a very wide margin. The 2002 overall catch rate by bass anglers was 0.71 bass per hour, and mean length of harvested smallmouth bass was 394 mm (15.5 inches).

Yellow perch were the most harvested species (45,863 fish) in the 2002 sport fishery, and fishing effort extended by yellow perch anglers was the highest observed since 1992. The 2002 yellow perch sport harvest was centered in the vicinity of Silver Creek, New York. Most other areas produced a markedly lower harvest of yellow perch. The 2002 overall yellow perch catch rate was 1.28 perch per hour and was similar to the highest values in the time series observed in 2001 and during the late-1980's. The mean length of harvested yellow perch was 267 mm (10.5 inches) in 2002.

Rainbow trout ranked fourth in the 2002 harvest (1,559 fish), with the second highest harvest estimate in the 15-year time series. Rainbow trout were the only prominent salmonine species encountered in 2002. A surprisingly high harvest of freshwater drum (848 fish), contributed to the 2002 harvest. In all, 22 species were reported caught, representing an estimated total catch of 274,227 individual fish from the 2002 angler survey. Smallmouth bass, yellow perch and walleye comprised approximately 63 percent of this total catch. These same three species accounted for 93 percent of the estimated 2002 harvest.

The notable decrease in overall boat fishing effort, first observed in 1999, has apparently continued through 2002. However, the 2002 results are somewhat clouded by a change in survey methodology. Lower totals in 2002 may also be attributable to a new survey design that measures fishing statistics from only five major access sites. Our previous creel survey methodology employed instantaneous aerial counts for all of New York's portion of Lake Erie. If significant angling effort occurs from additional access sites beyond the five major harbors monitored in 2002, then we would expect our 2002 effort and harvest estimates to be biased lower than the previous time series of estimates. We are planning new investigations over the ensuing two years to assess the comparability of aerial survey and access creel survey methods.

Creel and Angler Surveys

Region 1

Region One Angler Diary Program

Region One continued to support angler diary programs for both warmwater and coldwater gamefish in 2002. Diaries were mailed out in March and April and return envelopes were mailed out in November.

In 2002, 159 anglers volunteered to keep warmwater diaries and 112 anglers volunteered to keep coldwater diaries. Coldwater diary cooperators logged 510 trips and caught a total of 2,193 trout. Warmwater diary cooperators logged 614 trips and caught a total of 2,102 warmwater game fish.

Little progress was made on the 2000 Warmwater Diary Report during FY 2002-03. The report was begun in FY 2001-02 and is approximately 50% complete at this time. The lack of progress is partially due to the planned reallocation of angler diary program effort from report-writing to a systematic overhaul of the data entry system and partially due to new non-angler diary program assignments including I FISH NY, the Lake Ronkonkoma Stump Project, and service on the State Wildlife Grants Steering Committee.

During FY 2002-03 an entirely new set of MS Access tables, queries, and forms was designed and incorporated into the Angler Diary Cooperator Database to supersede the obsolete Lotus-based diary data entry system. All trip and fish data from the 2002 diary season has been entered into the new forms. Thus far, the new system is performing satisfactorily from the perspective of data entry and data retrieval. Substantial gains in efficiency should be realized in FY 2003-04.

Region 2

Region 2, Baseline Data Survey for "I Fish NY" Goal Evaluation

The "I Fish NY" steering committee developed a set of goals for the initiative. In order to evaluate our success in meeting these objectives, we needed to conduct a baseline survey to assess the current status of the knowledge level of the focus area anglers. The goals that we are trying to assess focus on angler's understanding of fish identification, biology, regulations, health advisories, fishing tackle types, and habitat concerns. Region 2 completed 167 surveys in both fresh and saltwater fishing locations. The average age of the anglers surveyed was 46. Most of the anglers were African American (34 %), followed by Caucasian (32%) , Hispanic (25%), and Asian (6%). Of the 8 quiz questions asked pertaining to their knowledge of fishing, the average score was 66%.

Region 4

Otsego Lake Angler Diary Program

Twenty-three angler diary cooperators logged 424 trips on Otsego Lake totaling 1,925 hours fishing for lake trout, brown trout, and landlocked Atlantic salmon. Cooperators caught 581 lake trout, 112 brown trout, and 110 landlocked Atlantic salmon for an overall salmonid catch rate of 0.42 fish per hour compared to 0.33 and 0.34 fish per hour in 2000 and 2001, respectively. The catch of lake trout, brown trout, and landlocked Atlantic salmon in 2002 averaged 0.30, 0.06, and 0.06 fish per hour respectively. The catch of legal size lake trout ($21 inch), brown trout ($18 inch), and landlocked Atlantic salmon ($18 inch) averaged 0.19, 0.03, and 0.01 fish per hour, respectively.

Boat anglers averaged 0.30 lake trout per hour in 2002 compared to 0.24 and 0.27 lake trout per hour in 2000 and 2001, respectively. The catch of legal size lake trout has increased from 0.11 in 2000 to 0.19 fish per hour in 2002. The brown trout catch rates were basically the same for all three years at about 0.06 fish per hour. Although the landlocked Atlantic salmon catch rate of 0.06 fish per hour was low, it was still the highest catch rate recorded to date.

The largest lake trout, brown trout, and landlocked Atlantic salmon reported measured 40, 29, and 28 inches, respectively. The percentage of lake trout 30 inches and larger caught during 2002 was 4.1% compared to 5.4% and 5.5% during the open water season in 2000 and 2001, respectively. All brown trout and landlocked Atlantic salmon are hatchery fish. Approximately 24% of the lake trout caught were fin clipped which indicates that these fish were of

hatchery origin but this should be considered a minimum estimate because not all fin clips were recognized or reported. Fin clipped lake trout caught in 2002 ranged from 8 to 28 inches. Anglers creeled 87 lake trout of which 28% were fin clipped.

North-South Lake

A fishery survey was conducted on North-South Lake (Greene County) to evaluate the state of the fishery on a lake that is surrounded by a NYSDEC campground. North-South Lake is a relatively shallow, warmwater impoundment on the source of Kaaterskill Creek. The lakes were combined in 1973 when the dam on South Lake was raised 4.5 feet. The combined lakes total 84 acres with a maximum depth of 12 feet, at an elevation of 2,142 feet. The productivity of the water is low, but typical of a high mountain lake (conductivity of the water is very low, measured at 16 micro siemens). The last survey conducted by regional personnel in 1983 employed gill and trap nets. In contrast to our recent survey, in 1983 brown bullhead dominated the catch and black crappie were found, but largemouth bass were very rare and yellow perch were not abundant. Our regional electrofishing boat was effective in conducting a standard centrarchid sampling assessment over a two night period in early June.

The catch rate for stock size (8 inch or longer) largemouth bass in the combined lakes was 12 fish per hour of electrofishing, with a PSD of 70 and an RSD 15 of 17. The catch rate for legal size bass was 8.5 fish per hour. The largemouth bass catch rate was somewhat better in the deeper South Lake compared to North Lake (8 feet maximum depth). Two chain pickerel were also captured during the survey. The most common panfish was yellow perch at 319 per hour of electrofishing, but only 13 of 319 were 8 inches or greater. Based on this and previous surveys, North-South Lake is considered a low to moderate quality fishery. Options to improve the lake fishery are being considered.

Region 7

Cayuga Lake Angler Diary Program

Fifty-five coldwater cooperators caught 2,253 legal salmonids in 1,164 trips for an average of 1.9 fish per trip. Legal salmonids were caught at an average rate of 3.0 hours per fish. Our coldwater lake cooperators were successful in catching at least one legal salmonid in 79 percent of their trips. Coldwater lake cooperators caught 1,534 legal lake trout, 110 legal rainbow trout, 201 legal brown trout and 408 legal landlocked salmon. Catch rates for these species were 1.3, 0.09, 0.17 and 0.35 legal fish per trip while harvest rates were 0.80, 0.08, 0.14 and 0.29 legal fish per trip, respectively. Lake trout comprised 68% of the legal salmonid catch while rainbow trout, brown trout and landlocked salmon were five, nine and 18%, respectively.

Nine Cayuga Lake warmwater cooperators caught 134 legal smallmouth bass, 163 legal largemouth bass, four legal northern pike and 48 legal pickerel in 117 trips for an average of 3.0 legal warmwater gamefish caught each trip. Only 38 smallmouth bass and six largemouth bass were kept by our warmwater cooperators. The largest smallmouth bass and largemouth bass caught by our cooperators were 19.5 inches and 18.5 inches, respectively. Most largemouth bass were caught at the north end while most smallmouth bass were caught at the south end. Myers Point and Taughannock Point also produced fair numbers of smallmouth bass.

Otisco Lake Angler Diary Program

Eight angler cooperators caught 51 legal gamefish in 61 trips for an average of 0.8 fish per trip. Legal gamefish were caught at an average rate of 5.5 hours per fish. Otisco Lake cooperators were successful in catching at least one legal gamefish in 53 percent of their trips. Cooperators caught 19 legal smallmouth bass, 17 legal walleye, 11 legal largemouth bass, three legal brown trout and one legal tiger muskellunge. Catch rates for these species were 0.31, 0.28, 0.18, 0.05 and 0.02 legal fish per trip, respectively. Smallmouth bass comprised 37% of the legal gamefish catch while walleye, largemouth bass, brown trout and tiger muskellunge comprised 33, 22, six and two percent, respectively. Of the 51 legal gamefish caught, 16 walleye, two brown trout and one largemouth bass were kept.

The 2001 and 2002 Otisco Lake angler diaries showed a decline in walleye catch rate. This decline was probably caused by the lack of walleye stocking in 1999, 2000 and 2001. Fortunately, walleye stocking resumed in 2002 and is scheduled to continue on an annual basis. Continued annual stockings should

gradually improve walleye fishing in Otisco Lake to levels enjoyed in the 1990s.

Owasco Lake Angler Diary Program
Thirty-six coldwater cooperators caught 1,624 legal salmonids in 576 trips for an average of 2.8 fish per trip. Legal salmonids were caught at an average rate of 1.6 hours per fish. Our coldwater lake cooperators were successful in catching at least one legal salmonid in 88 percent of their trips. This was the highest success rate since 1966. Coldwater cooperators caught 1,374 legal lake trout, 143 legal rainbow trout, 105 legal brown trout and two legal landlocked salmon. Catch rates for these species were 2.40, 0.25, 0.18 and .003 legal fish per trip while harvest rates were 0.76, 0.09, 0.07 and 0.0 legal fish per angler trip, respectively. Lake trout comprised 85% of the legal salmonid catch while rainbows, browns and landlocked salmon were nine, six and less than one percent, respectively.

Owasco Lake warmwater cooperators caught 124 legal walleye, 51 legal smallmouth bass and one legal northern pike in 171 trips for an average of 1.0 legal warmwater gamefish caught each trip. An additional 27 walleye and 19 smallmouth bass were caught by our coldwater lake cooperators. Of the 176 legal warmwater gamefish caught by our warmwater cooperators, 92 walleye, 12 smallmouth bass and one northern pike were kept. An additional 31 sub-legal walleye and 21 sub-legal smallmouth bass were caught and released. In 1996, the Owasco Lake Anglers Association initiated an Owasco Lake walleye stocking program which ended in 2001. In 2002, DEC began stocking Owasco Lake with walleye fingerlings raised at the Chautauqua Fish Hatchery in Mayville, NY. It is clear from the 2002 angler cooperator catch that stocked walleye are doing very well in Owasco Lake. Quality walleye fishing should continue as the lake's walleye population continues to grow.

Skaneateles Lake Angler Diary Program
Twenty-seven coldwater cooperators caught 875 legal salmonids in 418 trips for an average of 2.1 fish per trip. Coldwater lake cooperators were successful in catching at least one legal salmonid in 76% of their trips. Legal salmonids were caught at an average rate of 1.7 hours per fish. Cooperators caught 435 legal lake trout, 392 legal rainbow trout and 48 legal landlocked salmon. Catch rates for these species were 1.0, 0.9 and 0.1 legal fish per trip while harvest rates were 0.6, 0.7 and .07 legal fish per trip, respectively. Lake trout comprised 50 percent of the legal salmonid catch while rainbow trout and landlocked salmon were 45% and 5%, respectively. Benefits of three consecutive years of increased salmon stocking were noted in the 2002 lake catch. A fairly large number of sub-legal salmon were caught and released along with the legal salmon which was a good indication of a growing salmon population.

Region 8

Seneca Lake Angler Diary Program
Sixty six volunteer anglers returned diaries during the 2002 season. On average it took these anglers 1.6 hours to catch a legal salmonid, which is consistent with the catch rate for the past seven years. These excellent catch rates are a reflection of very hungry lake trout that are more willing to strike an angler's lure due to a declining forage base. To reduce the pressure on the forage base and compensate for the added numbers of wild fish, we lowered lake trout stocking rates by 38% to 20,000 yearlings and 40,000 fingerlings in 1999. We also started fin clipping 100% of the stocked lake trout in an effort to accurately estimate future lake trout natural reproduction rates.

We conducted an extensive gill net survey during the summer of 2002 to further evaluate lake trout and forage populations. The catch per lift of lake trout declined substantially when compared to a similar netting in 1999. Past nettings show that approximately half of the total sample is composed of lake trout age one through three. The 2002 sample had a very poor showing of this age group with only 15% of the total sample age one through three. Because both stocked and wild lake trout showed poor recruitment, these smaller lake trout may have been eaten. Natural recruitment continues to be high at 75% for both the 1999 and 2002 nettings. Potential reasons for this increase in natural recruitment include: (1) zebra mussels are providing increased spawning substrate, (2) historical spawning beds are clearing of sediments, (3) a decline of predatory rainbow smelt. No rainbow smelt were netted or observed in the stomachs of sampled lake trout. Mysis (freshwater shrimp) have declined in the stomachs of smaller lake trout and this important food item was replaced with increased

numbers of sculpin. The majority of larger lake trout had alewives in their stomachs. Growth rates of lake trout continue to be depressed, but may be showing a slight improvement. Sea lamprey wounding rates have increased steadily of the past several years and may be a reflection of water quality rather than an increase in the numbers of adult lamprey. Clearer water as a result of zebra mussel infestation result in sight feeders like lamprey feeding on more individual prey species, resulting in more marks observed on lake trout. Future reductions in lake trout stocking rates may be necessary if growth rates continue to decline and wild fish continue to expand.

The diversity in Seneca's fishery is helped by the wild rainbow trout population and stocked browns and landlocked salmon. The number of these species caught by anglers continues to be low. For the near term brown trout will be stocked at the current annual rate of 21,600 yearlings and 43,000 fingerlings. Landlocked salmon are stocked at a rate of 24,000 yearlings annually.

Keuka Lake Angler Diary Program

Forty three volunteer anglers returned diaries for the 2002 season. For the past nine years Keuka Lake angler diary keepers have experienced an excellent catch rate of approximately 2.0 hours to catch a legal salmonid. These excellent catch rates are the result of a very abundant wild lake trout population with a few landlocked salmon, brown trout and rainbow trout included for diversity. Lake trout continue to exhibit good size in recent diary catches, averaging approximately 21 inches in length and 3.0 pounds in weight. To, date zebra mussels have not resulted in declining growth rates. However, the abundant wild lake trout population is a strain on the declining forage base with rainbow smelt becoming very scarce. We will be conducting and extensive gill net survey of the lake trout population and related forage species during the summer of 2003. To reduce the pressure on the forage base we may have to reduce the stocking rates for brown trout and landlocked salmon. For the near future we plan on continuing the annual stocking of 22,300 landlocked salmon and 9,400 brown trout yearlings. The rainbow trout population is completely dependent on natural recruitment, which occurs in Cold Brook.

Canandaigua Lake Angler Diary

This was the 30th year since the diary program was initiated on Canandaigua Lake. A total of 28 cooperators, a near record low, returned usable coldwater diaries. Canandaigua Lake produced some excellent fishing throughout the year for coldwater fishes, primarily lake trout. The catch rate was similar to 2001, with diary anglers fishing on average 1.7 hours to boat one legal trout, a catch rate that is similar to Keuka and Seneca Lakes. Lake trout continue to be the driving force behind the coldwater fishery representing about 85% of all trout caught. Anglers specifically targeting lake trout took a little less than 1 hour to catch a legal laker, which is an excellent catch rate. Harvested lake trout averaged 21.6 inches and 3.4 pounds, similar to the ten-year average (20.8 inches and 3.4 pounds) during the 1990's. Brown trout, which are stocked, and rainbow trout, which are self sustaining, comprise the remainder of the trout fishery in Canandaigua Lake. This past year NYSDEC continued stream restoration work in Naples Creek and Grimes Creek, primary spawning tributaries, with the use of State Bond Act monies. Over time natural stream processes in conjunction with vegetative plantings of willows and grasses which occurred this past year, will result in increased in-stream habitat and bank stabilization reducing erosion and sedimentation. These changes will greatly benefit future rainbow trout populations.

Honeoye Lake Angler Diary 2002-03

A total of 40 diary cooperators returned usable warmwater diaries. On average, anglers took only 1.19 hours to catch one legal gamefish, the best catch rate since the diary program began in 1989. Largemouth bass remain the dominant gamefish in Honeoye Lake accounting for 86% of all gamefish caught. Anglers directing their effort toward any bass caught 1.56 legal bass/hour, a phenomenal catch rate and much greater than the statewide average of 0.26 legal bass/hour. Sixty-five percent of largemouth bass caught were legal sized (>12 inches) fish. Also, several trophy sized bass were caught with 13 fish over 20 inches in length reported. Honeoye Lake remains one of the best areas in Region 8 for some great bass fishing action.

This was the second full year for the 15 inch size limit for walleye and most results are similar to last year. Anglers reported catching a total of 491 walleye, with 92% of these fish being legal sized. Seventy-one percent of legal walleye caught were harvested.

Anglers specifically targeting walleye caught 0.44 walleye/hour, identical to last year. Based on the analysis of statewide catch surveys, the catch rate objective for New York is 0.2 walleye/hour, or 1 legal walleye for every 5 hours of fishing. Additionally, a catch rate of 0.25 walleye/hour is indicative of an abundant walleye population. Based on these statewide objectives, Honeoye Lake provides above average walleye fishing opportunities in New York.

Cohocton River Creel Census 2002

A survey of the recreational fishery of the Cohocton River was conducted to provide current information regarding effort, harvest, and catch rate of trout. Additionally, the survey will aid in the evaluation of the new 5/2 regulation (i.e. 5 trout only 2 of which can be >12 inches) which was implemented October 1, 2002. Less than 2% of anglers harvested the 5 fish limit, although sampling methodology would lead to an underestimation of anglers harvesting their limit. Overall effort was estimated at 15,632 hours (192 hrs/acre). Only 10% of the total effort occurred in the two special regulation areas (i.e. 2 trout, > 12 inches, artificial lures only). An estimated 16,300 brown trout were caught with only 13,000 trout stocked throughout the creel period. Over 95% of the trout were caught outside of the special regulation areas. Although only 2,820 2Y trout were stocked, an estimated 4,500 2Y trout (i.e. >12 inches) were caught indicating the occurrence of catch and release practices, potential holdover of stocked yearlings, and the presence of wild trout age 2 and greater. Anglers caught 1 trout/hour which is twice the statewide goal of 0.5 trout/hour. Anglers harvested about 30% of all fish caught and 40% of all fish stocked with 2Y trout representing over 50% of the harvest. Approximately 75% of 2Y trout stocked were harvested within one week of stocking. The goal of the 5/2 trout regulation is to spread the catch and harvest of 2Y stocked trout over a longer period of time. It is recommended that Cohocton River fishery be censussed in 2005 to determine if 1) the goal of the 5/2 regulation was met and 2) if the estimated effort estimate was negatively impacted by inclement weather and stream conditions.

Oatka Creek Creel Census

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. To determine whether the no kill regulation would cause an immediate increase in the number of anglers seeking this type of recreational experience, and to see if angler catch rates would increase, creel surveys were conducted. A creel census was conducted from late March 2000 through October 2000, prior to the regulation change. Another creel survey was conducted from March 2001 through October 2001, after the change. In 2002, a full report was completed for submission to the USFWS Federal Aid office. Total angler effort over all survey areas (wild and stocked) increased by 51 % in 2001. This increase was proportionally similar among management types and months. Total catch and harvest were 56% and 21% higher in 2001, respectively. These too, were proportionally similar between the years among management types and months. Catch rates remained the same between the years among management types and months. Harvest rates in the stocked areas were the same in 2000 and 2001. As expected, harvest rates in the wild area dropped from a low rate (0.01 fish/hour) in 2000, to nearly zero in 2001. Higher angler effort in 2001 explains the increase in catch and harvest in 2001. It is not likely that the no kill regulation alone induced higher fishing pressure in the wild area, since effort increased in both the stocked and wild areas. Unfavorable air temperature and stream flow conditions may explain why low angler effort occurred in 2000. More anglers fished the wild section of the Oatka in 1970 than 2000 or 2001. Catch rates were lower and harvest rates were higher in 1970 than in 2000 or 2001. Under the right weather and flow conditions, anglers targeting the larger stocked two-year-old brown trout are very successful at catching and creeling these fish immediately after they are stocked. All of the stocked two-year-old brown trout were creeled within a week of stocking in 2000.

Conesus Lake Creel Survey

A creel survey of boat and shoreline open water season and ice fishing anglers was conducted on Conesus Lake from May 2000 to March 2001. A mail survey of residents of the lake shoreline and an angler cooperator diary program were conducted, as well. In 2002, a full report was completed for submission to the

USFWS Federal Aid office. The creel survey estimated that from May to October, 2000 approximately 60,400 angler hours of fishing effort occurred. Boat fishing during the daytime represented the majority of the effort, and shore fishing at night represented the least amount of effort. During the open water season, anglers targeted in decreasing preference: largemouth bass, "any fish", northern pike, "any game fish", walleye, brown bullhead, panfish (bluegill and pumpkinseed sunfish, rock bass, black crappie, and brown bullhead), smallmouth bass, tiger muskellunge, and yellow perch. Approximately 49,100 fish of 10 species were caught by anglers fishing during the open water season. Panfish were the most-caught fish species followed by largemouth bass, smallmouth bass, northern pike, yellow perch, tiger muskellunge, and walleye. Approximately 7,000 fish of 9 species were harvested by anglers fishing during the open water season. Panfish were the most-kept fish species followed by largemouth bass, yellow perch, northern pike, walleye, and smallmouth bass.

From December 2000 to March 2001 approximately 25,900 angler hours of ice fishing effort occurred during 84 days of safe ice. This ice fishing effort is drastically reduced from historical levels. During the ice season, anglers targeted in decreasing preference: northern pike, panfish,"any fish", yellow perch, walleye, "any game fish", and largemouth bass. Approximately 54,600 fish of 8 species were caught by anglers fishing during the ice season. Panfish were by far the most-caught fish species followed by yellow perch, northern pike, largemouth bass, tiger muskellunge, and smallmouth bass. No walleye were caught through the ice. About 22,500 fish of 8 species were harvested by anglers fishing during the ice season. All of the smallmouth bass, 98% of the yellow perch, 54% of the northern pike, 55% of the largemouth bass, and 40% of the panfish caught were kept.

Results of the mail survey indicate that open water night time catch rates from the creel survey may be underestimated, and therefore, total catch and harvest underestimated. The error is likely minor, since open water season night time fishing is a small part of the total effort. Diary keeper catch rates can be used as an index that reflects the general angling population for large and small mouth bass, and tiger muskellunge. As an index for the general angling population, angler diary cooperator catch rates may overestimate catch rates for walleye and northern pike, and underestimate panfish catch rates.

Walleye, and particularly yellow perch, catch rates were drastically reduced from levels found historically in Conesus Lake. Largemouth bass, northern pike, tiger muskellunge, and panfish catch and harvest rates provided satisfactory fishing, given the rates at which they were targeted. Release rates for bass are high, indicating that most bass angling is "catch and release". The annual effort, catch and catch rate, harvest and harvest rate objectives outlined in the 1980 DEC Strategic Fisheries Management Plan for Conesus Lake have not been met for walleye, black bass, yellow perch, and probably panfish. Northern pike objectives have been met. The restoration of self-sustaining walleye and yellow perch fisheries is viewed as the most significant enhancement of the Conesus Lake fishery available. Suppression of the exotic alewife is viewed as the most needed fishery management measure to enhance the walleye and yellow perch populations. The strategy to achieve this should be to stockpile piscivorus walleye and tiger muskellunge through fingerling stocking.

Habitat Management, Protection and Restoration

Region 1

Hempstead Lake Plantings
On May 15, 2002, Regional Fisheries Staff collected water lilies, water shield, iris and cattail from Lower Twin Pond in Nassau County and transplanted them into Hempstead Lake. This was part of an effort to take advantage of the low water conditions in Hempstead Lake that made it easy to plant the water lilies closer to the dam than was previously possible. While at the lake, Fisheries Staff inspected the cattail and softstem bullrush that was planted during December 1999. Two clumps of cattail sprouted and all four clumps of softstem bullrush sprouted. Fisheries staff will continue to monitor the planting efforts. Hempstead Lake has poor cover in the lake and around the lake shore. Establishing vegetation in the lake and around the shore will help increase cover for fish and wildlife.

Tidal Nissequogue River Plantings
On May 10, 2002, Regional Fisheries Biologist Gregory Kozlowski planted 100 streamco willows supplied by the state nursery on the banks of the tidal Nissequogue River immediately upstream of State Route 25. This section of stream is suffering from eroding banks. The plantings were undertaken to stabilize the banks and to provide overhead cover. Depending on the success of these plantings, more plantings will be considered for 2003.

Tree stumps converted to fish habitat by DEC sponsored partnership - On December 17, in an exciting finale to a project that required nearly a year of planning by Region One Fisheries Staff, a UH-60 "Blackhawk" helicopter from the New York Army National Guard placed weighted oak tree stumps on the bottom of Lake Ronkonkoma to enhance fish habitat. Such woody structure offers places to feed, hide, and rest to largemouth bass and other gamefish. It also offers a productive fishing area to the angler. The addition of natural woody material to waters where fish habitat is scarce is a widely practiced fishery management technique across North America. Once submerged, oak decays very slowly. Thus, Lake Ronkonkoma's fish will be able to enjoy their new homes for a century or more.

Previous efforts to increase structural fish habitat in Lake Ronkonkoma were limited to using Christmas trees, which were light enough to push into the lake from a small boat. Unfortunately, the Christmas trees had a relatively short life expectancy. The current project became a reality thanks to the airlift support provided through GuardHELP, the New York Army National Guard's community support program linking the Guard's training requirements to community needs across New York State. This exercise provided the Guard's flight crews with valuable training in "slingload" operations while they helped to provide a lasting benefit to local anglers.

In addition to the National Guard and DEC, many other partners made crucial contributions to the project. The stumps were provided by the NYSDOT who arranged for their delivery to the DEC facility in Ridge for storage. As the time approached for sinking the stumps, North Shore Express Carting Company transported the stumps to Lake Ronkonkoma County Park.The Members of the Long Island Bassmasters, using materials donated by Barrasso and Sons Mason Supply weighted and assembled the stumps for airlift. The Suffolk County Parks Department was instrumental in allowing the use of their property, preparing the work site, and providing law enforcement. Backup and safety support was provided by the Lakeland Volunteer Fire Department.

Fisheries Staff were responsible for the coordination of these diverse partners and for obtaining the permits necessary to carry out the project. With the assistance of the Regional Operations Unit, Fisheries Staff completed final assembly and preflight inspection of the stump structures. Operations and Law Enforcement supported the project throughout its development. The end result should benefit Lake Ronkonkoma, its aquatic community, and human community for many decades to come.

Region 3

Shandaken Tunnel Management
The first New York City water supply reservoirs built west of the Hudson were Ashokan Reservoir on Esopus Creek and Schoharie Reservoir on Schoharie

Creek below Prattsville. Water is diverted from Schoharie Reservoir through an 18-mile tunnel cut through West Mountain that enters Esopus Creek about 11.25 miles above Ashokan Reservoir. Since 1925, water from the tunnel has substantially altered stream flow and trout habitat in the "Big Esopus" below Shandaken.

Reservoir Release legislation was passed in 1976 (Article 15, Title 8 of Environmental Conservation Law), which authorized DEC to make regulations designed to improve aquatic habitat below certain reservoirs. In 1978, Part 670 of 6NYCRR was created to regulate diversions through the Shandaken Tunnel, primarily with the intent of smoothing out water transfer through Esopus Creek and ensuring more stable conditions for aquatic organisms and recreational fishing in the tailwater. These regulations helped maintain one of the most popular trout fisheries in the Catskills, with standing crops of trout (hatchery brown trout and wild browns and rainbows) typically in the range of 30-60 pounds per acre.

Observations and monitoring since the regulations were imposed revealed that conditions in the Esopus tailwater were not always well suited to the stream's coldwater communities. Schoharie Reservoir is a relatively small impoundment (less than 20 billion gallons) in a large drainage area (over 300 square miles). Excessive diversions early in the summer occasionally exhausted the reservoir's cold water supply, and releases to Esopus Creek later in the summer sometimes exceeded 70EF. Additional warming downstream could then result in marginal or unsuitable water temperatures for trout and other associated species in lower reaches of the tailwater.

Turbidity in the water discharged from Schoharie Reservoir has been recognized as an issue since the inception of the Catskill System. In fact, Ashokan Reservoir is the only reservoir in the New York City water supply system that was constructed with a dividing weir that causes the upper third of the impoundment to function as a settling basin. The fine glacial silts and clays prevalent in the Schoharie drainage are easily disturbed and transported to the reservoir, where they stay suspended in the water column for extended periods. Diversions made to Esopus Creek at these times can create turbid conditions in the entire 11+ miles of stream. A major flood event in January of 1996 further de-stabilized the Schoharie tributary system, and Esopus Creek was highly turbid for the next two seasons. This prompted a civil suit brought under the Clean Water Act by Trout Unlimited and others. Ultimately, the litigation resulted in a court ruling that the diversion of water from Schoharie Reservoir to Esopus Creek was in fact a "discharge" pursuant to the CWA, and that the discharge required a SPDES permit from DEC.

Region 3 Fisheries staff has been involved with these issues since the early 1990's. In 2002, we proposed regulatory and operational changes in water management from Schoharie Reservoir to better utilize the available cold water supply and to deal with turbidity issues in the system. These proposals are expected to be an important contribution to the complex SPDES permitting process within DEC and subsequent negotiations with DEP .

Releases from NYC's Delaware Reservoirs

New York's reservoir releases legislation also provided the basis for Part 671 of 6NYCRR, which governs releases from Pepacton, Cannonsville and Neversink reservoirs in the Delaware River drainage. These releases support approximately 70 miles of quality trout resource in the tributaries below the dams and in the upper main river. Although flows and temperatures are usually conducive to trout growth and survival, there are circumstances that create marginal or even lethal conditions as well. For over 20 years, staff from DEC's Divisions of Water and Fish, Wildlife and Marine Resources have worked diligently to optimize water management opportunities provided by the regulations and to negotiate improvements to the regulations themselves. Since the Delaware is an interstate water body, complex multi-party Court rulings, compacts and agreements make even minor changes a challenge.

In 2002, these efforts continued. DEC's objective was to negotiate another "interim" agreement among the Parties to provide less risk to the tailwater communities for a limited time (3-5 years) while additional studies and modeling were undertaken that could lead to fundamental, long term revisions to water management in the basin. The primary issues were increased protection during the various stages of drought and an increased "bank" of water to be used to maintain both temperature and habitat (flow)

targets. In the end, only a one year agreement was achieved, but the stage was set to develop a multi-year experimental regime in 2003.

Region 4

Copake Lake Sonar Treatment Evaluation
A fishery survey of Copake Lake (Columbia County) was conducted immediately after the lake was treated with an application of Sonar. The survey's purpose was to obtain baseline data on the impact of weed removal on resident fish populations. Copake Lake is a 410 acre warmwater lake with a mean depth of 15 ft, a maximum depth of 32 ft. A thick ring of weedbeds existed around the entire lake perimeter, extending out 100-500 ft from shore, with an estimated total coverage of 130 acres. Eurasian watermilfoil, an exotic invasive plant, constituted an estimated 95% of the biomass of all rooted aquatic plants.

Our sampling plan followed the centrarchid manual. Sampling was conducted over a three night period in late May. Much of the sampling was conducted in or near the weed beds (though treatment with Sonar had already started, the plants were still standing at the time of the sampling). The electrofishing catch rate for stock size (8 inch or longer) largemouth bass was 55 fish per hour, with a PSD of 31 and an RSD 15 of 25. The catch rate for stock size (7 inch or longer) smallmouth bass was 17 per hour with a PSD of 30 and an RSD 14 of 26. The catch rate for legal size black bass was 21 fish per hour. Copake Lake could be characterized as having a good quality fishery for black bass, but with the opportunity through management for increasing the number of legal size bass. One sub-legal walleye was captured during the survey. The most common panfish were pumpkinseed at 383 per hour and yellow perch at 266 per hour of electrofishing. A follow-up survey is planned for 2003 to evaluate the effects of the almost total removal of the thick weed beds on fish populations.

Region 5

Barrier Dams Repaired With Help From Americorps
Operations staff directed and assisted a crew from Americorps in completing repairs to three fish barrier structures: on St. Regis Pond; on Little Fish Pond; and on Lydia Pond. The pedestrian railing on the St. Regis Pond Dam, a public safety issue, was also replaced. The Bureau of Fisheries gives special thanks to Darius Collins for putting up with a week of buggy conditions to oversee this work.

Region 6

Walleye Sampling in Lower Fish Creek
Walleye mark and recapture sampling in lower Fish Creek as part of the Oneida lake walleye study was conducted later in the spring of 2002 than 2001 due to cold weather. Unlike 2001 where the catch was equally divided between trap nets and electrofishing, the 2002 sample was predominantly electrofished. Although numerous Fish Creek spawners were recaptured in 2002, fish marked by Region 7 crews in their study streams also showed up in moderate numbers. The total number of fish captured was down slightly from 2001.

Due to the harsh winter, the Utica fisheries office fielded an unusually high number of requests for help on winter fish kill events. Most of the inquiries were handled over the phone.

Fulmer, Moyer, and Steele Creeks Flood Control
Working with the Army Corps of Engineers and Albany DEC staff, Region 6 staff designed an EIS for the Fulmer, Moyer, and Steele Creeks flood control project. All three streams are quality trout resources even in the villages. Steele Creek is unique in the upper Mohawk Valley with its wild rainbow trout population. Under direction of the ACOE, a consultant is conducting the field work in the summer of 2003.

The Otter Lake grass carp application process continues with no permit issued yet. Progress was made with the EIS(minus the fish barrier design) reviewed. After several revisions, the document has been approved pending the fish barrier design submittal. A member item for $75,000 has been granted to the Otter Lake Association through the Town of Forestport. The Oneida County SWCD is designing the dam replacement. Based on Region 6 experience with stocking rates in the Herkimer-Oneida county area, the association has been informed the Bureau of Fisheries will not permit the maximum

allowable stocking rate at this time. It is anticipated the permit will be issued for the 2004 stocking season.

Utica Fisheries staff Sreviewed and provided input for 96 Article 15 permit applications in Oneida and Herkimer counties.

Region 7

Whitney Point Reservoir Habitat Improvement Evaluation

Twenty (20) large root wads were anchored in place in March 2002 as part of a cooperative effort between area sportsman and NYSDEC to improve fish habitat in the reservoir. An evaluation of how well these habitat structures remained in place was conducted after ice-out in March 2003. Sixteen of these structures were still completely anchored in their original position, two were partially flipped with 2 of 3 anchors still holding, and two were pushed up onto shore by the ice. Overall, the anchoring system worked very well but we would still like to experiment with a different style of anchor to see if it works even better. We will plan to work with local anglers to add more stumps to the reservoir this winter.

Mill Brook Channelization Project

Staff attended several meetings with staff from the Army Corps of Engineers, Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), and Village of New Berlin in an effort to modify the existing flood control plan which has been proposed by the NRCS. The existing plan calls for putting over 800 feet of the lower end of Mill Brook (a wild brook trout stream) into a concrete culvert to alleviate flood concerns in the village. However, it is the contention of the Corps, USFWS and Region 7 fisheries staff that this project does not need to impact the stream in such a severe fashion to attain the level of flood protection needed in the village. We have asked the NRCS to re-evaluate the project using a more natural approach to determine if the stream channel can be reconfigured without the use of concrete culvert pipes so that this section of trout stream can be preserved and perhaps improved.

Limestone Creek Survey

At the request of Trout Unlimited, Limestone Creek was surveyed in August, 2002 to assess the impact of a landslide on the stream's fish and aquatic invertebrate populations. Several hundred feet of clay bank was sliding into Limestone Creek at a power line crossing on Kiley Road in Madison County, causing extreme turbidity for many miles downstream. Sites upstream and downstream from the landslide were electrofished, duplicating as much as possible the sites electrofished during 1996 and 1997 surveys. Records from these surveys provided biological, physical and water chemistry data for comparison. The 2002 survey results did not show a decline in wild trout abundance since the 1996 or 1997 surveys. All three surveys showed considerably lower wild trout abundance in the downstream sites compared to the upstream sites. Similar results in all three surveys suggest any impact from the landslide began years before the 1996 survey and turbidity caused by the landslide went unnoticed for years until it became excessive. The most notable result of the 2002 survey was the observed negative impact turbid water and subsequent sediment deposition had on aquatic invertebrates in the downstream sites.

Soil savings from correcting the erosion problem caused by the Limestone Creek landslide has been estimated at 1,232 tons per year. The Madison County Planning Department with support from DEC has applied for a Great Lakes Basin Soil Erosion and Sediment Control grant to design and implement a plan to reduce the impact of this landslide.

Environmental Permit Reviews

Unit staff reviewed and commented on numerous Article 15 permit applications in addition to participating in reviews for DOT projects and the Whitney Point Reservoir Stored Water Reallocation Plan. Fortunately, in 2002 Region 7 Bureau of Habitat staffing levels increased, enabling Region 7 Fisheries personnel to relinquish the bulk of the Article 15 application review responsibility back to Habitat staff.

Stream Reclassification Surveys

Thirty-eight (38) unprotected streams, in Broome, Chenango, Cortland, Tioga, and Tompkins Counties, were surveyed in the summer of 2002 for the presence of trout. Wild trout were documented in 18 of the streams surveyed. Of these 18 streams, young-of-year trout were found in 15 indicating natural reproduction is occurring. The presence of wild trout in these streams, given the severity of the 2002 drought, is

compelling evidence that these streams warrant additional protection. This and other data collected in recent years will be presented at future watershed reclassification hearings, when scheduled, to give them protection under Article 15 of the Environmental Conservation Law.

Toxic Substances Monitoring Program
Fish samples where collected for 3 long term monitoring programs during the fiscal year. These included 25 smallmouth bass, 25 largemouth bass, 10 yellow perch, 10 white perch, 10 brown bullhead, 6 walleye and 2 pumpkinseed for the *Onondaga Lake Mercury Trend Analysis*; 30 coho salmon and 30 chinook salmon for the *Lake Ontario Contaminant Trend Analysis*; and 25 coho salmon for the *USEPA Great Lakes Contaminant Trend*. After processing each fish according to standard procedures the samples were frozen and transported to the Hale Creek Field Station in Gloversville.

Region 8

Catharine Creek Aquatic Habitat Restoration Project
Work continued in 2002 on this Clean Water/Clean Air Bond Act funded project. Additional monies from the Environmental Protection Fund were awarded to this project in 2000. These funds were used to complete the lower priority sites not covered by the original grant. During the late summer and fall of 2002, approximately 1,300 lineal feet of rock rip rap, two rock stream barbs, and one vortex rock weir were constructed by DEC Operations staff. Two log pyramid bed sills were constructed by Camp Monterey inmates supervised by DEC Operations staff. Of the bed sills proposed in the *Catharine Creek Aquatic Habitat Restoration Plan*, only four replacement structures and two repairs to existing structures remain to be constructed.

Naples Creek Aquatic Habitat Restoration Project
In July 2000, this project was awarded Clean Water Clean Air Bond Act funds during the 1999-2000 appropriation cycle. Most of the project was constructed in 2001. Some minor remedial work was needed at a few sites. Willow bank stabilization plantings, the minor remediation, and all of the proposed sites on Grimes Creek were constructed in the spring and summer of 2002. The final main stem site still needs to be constructed. Additional funds from the Bond Act and the Great Lakes Restoration Program were awarded in 2003. An additional site on Grimes Creek that was not part of the original project, but discovered during construction in 2002, will be constructed in the summer of 2003.

Whole Lake Fluridone Treatment permit issued
According to the Lake Association, recreational use of Waneta and Lamoka Lakes is hampered by the submersed aquatic plant, Eurasian water milfoil. In response to this problem, the Association applied for Aquatic Herbicide and Freshwater Wetlands permits to treat both lakes with the systemic herbicide, fluridone (brand name Sonar). The systemic mode of action of this chemical requires that the whole lake be treated with a low dose (6-12 ppb) over a 60 day period. Under this treatment regime, fluridone apparently targets only milfoil. After reviewing the Draft Supplemental Environmental Impact Statement (DSEIS), DEC staff persuaded the Association to treat Waneta Lake first, and if that treatment was successful (i.e., only milfoil density reduced with little or no reduction in native aquatic vegetation), Lamoka Lake could be treated the following year. A legislative hearing was held in November 2002. Considerable staff time was spent crafting permit conditions and criteria that would form the basis of defining a successful treatment. The treatment is scheduled to occur in May of 2003.

Conesus Lake Watershed Management Plan
The Livingston County Planning Department has been developing a watershed management plan for Conesus Lake for several years and recently formed working groups to finalize the plan. Staff actively participated on the Lake Management Issues and Recreational Use Issues work groups. A State of the Lake Report and the final Watershed Management Plan were completed in 2002. The Plan calls for controlling aquatic vegetation using a number of integrated methods, of which herbicides were not recommended. Herbicide treatments were not recommend because of water use restrictions and Conesus Lake serves as a public water supply for several towns and villages. Nonetheless, the Conesus Lake Association, who participated in the work groups, decided to apply for a blanket aquatic herbicide permit for the use of endothol

by association members. This would potentially allow large habitat areas of the lake to be disrupted by the treatments. Considerable staff time was spent meeting with Association representatives and reviewing their permit application. The Association finally decided to test the herbicide treatment on only a small 2.5 acre area located several miles from the public water intakes.

Region 9

Wiscoy Creek
Fisheries unit staff expended six man-days of effort in cooperation with the Western New York Chapter of TU to finish the Wing Farm Project by planting hundreds of trees, to provide shade along Wiscoy Creek.

Quaker Run
Fisheries Unit staff spent four man-days in a cooperative effort with the Red House Brook Chapter of TU to install stream improvement and bank stabilization devices and planting trees along Quaker Run in Allegany State Park.

Extension, Education and Outreach

FW FISH
During the period June 1, 2002 (when usage counts were initiated) and March 31, 2003, 590 e-mail messages were received and answered via the **FW FISH** internet mailbox through March 2003. Thirty-one percent of these messages involved information on regional fishing opportunities. Other common message categories included questions on angling regulations and enforcement issues (12%), questions concerning sporting licenses (9%) and questions concerning Bureau fish stocking plans (9%). Monthly message totals ranged from 33 in November, when many angler's thoughts turn to hunting, to 106 in March, when over 30% of the messages received requested information on spring trout stocking. The FW FISH mailbox remains a very valuable means for our constituents to communicate with us and its use will likely increase in the future as more and more of our anglers realize the convenience of this service.

Training of DEC Education Camp Staff
The outreach unit leader assisted with the training of staff working at DEC Education Camps by providing a training session on teaching youth to fish. The session, which was conducted at the Pack Forest Educational Facility in Warrensburg, included a segment on identification of common NY fish species, an overview of the Bureau of Fisheries program and a general discussion of fishing tackle and techniques with an emphasis on gear and tactics best suited for youngsters. The presentation was enthusiastically received by camp staff.

Future of Angler Education in NY meetings held
A series of 5 meetings were held in Avon, Ithaca, Saratoga, Stony Brook and New Paltz to discuss the decision to end the Sportfishing and Aquatic Resource Education Program (SAREP) and to describe and receive feedback on plans for a new angler education initiative in New York. Attendance at the meetings ranged from 3 individuals at Ithaca to 14 at Stony Brook. Although a number of participants questioned the capability of DEC to develop a new program, most were pleased with the conceptual design for it. Current plans are for the new program to be implemented in one or more trial locations by fall 2004.

New Angler Education "Mascot" Created
One of the first tasks completed as part of the new youth fishing initiative in New York was to develop a readily recognizable "icon" and logo for the program. With the assistance of a local Albany graphics artist, "Splash" the fish was created, as well as a new logo featuring Splash, complete with baseball cap and fishing rod, jumping out of the DEC logo. The name Splash was generated from a kids "name the mascot" contest held at the New York National Boat Show in January 2003. Splash will be the official mascot of the "New York Angling All-Stars" children's fishing program that is currently being developed. Over 200 suggestions were received, with the winning entry receiving a Shakespeare baitcasting outfit.

I FISH NY
Although progress has been slow due to difficulties in hiring staff to implement the program, a steering committee composed of regional and central office staff completed the development of a set of goals, objectives and actions to be used to implement and evaluate this initiative in the New York metropolitan area. An important baseline survey of freshwater and marine shore anglers in New York City and Long Island was completed which measured each angler's knowledge of fishing techniques, fish identification, local fishing opportunities, basic fish biology, aquatic ecology and local fisheries issues. During summer and fall 2002, nearly 1,100 anglers were interviewed. Of these 1,100 interviews, 750 were conducted of anglers as they were actually fishing local waters and another 350 were conducted of people attending DEC fishing clinics and festivals, prior to the actual event. The information gathered from these surveys will be used to measure the success of the I FISH NY initiative in improving the knowledge of local anglers on fishing, fish and the waters they inhabit.

Internet
As with previous years, the Internet continues to explode in popularity and users are requesting additional materials be made available on the web. To address this, more time and effort is spent on internet activities, and less on print-based materials. Bureau staff continued to convert existing Bureau of Fisheries materials into HTML format to go on-line, plus developed additional materials for inclusion on the

web. In addition, the site was redesigned in 2002, and so all the fisheries web pages had to be redone.

DEC's website www.dec.state.ny.us continues its rapid growth in both content and public use. The site currently contains more than 1,500 pages of fish, wildlife and marine content. Fish, wildlife and marine content remains among the most popular on the site. In addition to updating materials currently on the site, some of the bureau information completed for the web this year includes: fish stocking lists by DEC Region; information on Lake Champlain; information on botulism outbreaks on Lake Ontario and Lake Erie; lead sinker alternatives; the Angler Achievement Awards Program; and updating of the fishing regulations.

In addition, Bureau staff continued to maintain the FW FISH mailbox on the Department website (www.dec.state.ny.us). FW FISH is one of the more popular mailboxes on the Departments web-site. Over 1,500 e-mails were either directed to the Regions or other programs for answers, or answered directly by Central Office staff. Common e-mail requests included assistance with the interpretation of fishing regulations, spring trout stocking plans and finding appropriate fishing locations for various species throughout the state. The mailbox is also a popular locations for anglers to express opinions on the overall Bureau of Fisheries program, as well as the reporting of violations of the Environmental Conservation Law.

Region 1

2002 Spring Fishing Festival

On April 13, 2002, the Region 1 Fisheries staff conducted the Annual Spring Fishing Festival in cooperation with Belmont Lake State Park. This was the sixth spring festival held at Belmont Lake State Park over the past 7 years. The festival is held in conjunction with trout stockings from DEC hatcheries and from the Connetquot River State Park hatchery. People attending the festival were able to borrow a rod, get free bait, attend fishing seminars or get instruction in fly fishing. Kids also could spend time in the kids bounce, get a temporary tattoo, and had a chance to win a raffle prize (if they attended one of the seminars). This year, approximately 1,600 people attended the festival and 418 fishing rods were loaned out during the day. Fishing licenses were sold by DEC Staff and J&J Sports, with over $725 in fishing licenses sold. By all standards, this festival was a success. This success depended on the assistance provided by the Long Island and Art Flick Chapters of Trout Unlimited, Long Island Bassmasters, Freshwater Anglers of Long Island, the New York Fishing Tackle Trade Association, and volunteer DEC workers. Additional sponsors included Rich Johnson of The Fishing Line and Entenmann's Bakery. Without those groups graciously donating their time and materials, a festival of this magnitude would never be possible by the four member regional fisheries staff.

Conservation Education Days

Two Conservation Education Days were attended by Region 1 Fisheries Staff: Suffolk County on April 30 and Nassau County on May 7. The format for both days was the same: six classes in 20 minute sessions. The Suffolk County presentation covered fish collection equipment and a demonstration in sampling technique to show how sampling can be used to investigate fish populations. The Nassau County presentation covered sampling gear and freshwater fisheries identification and biology. The kids attending the presentations showed enthusiasm for the material covered.

Envirothon

On May 1, 2002, Regional Fisheries Biologist Gregory Kozlowski ran the Aquatics station at the Long Island Regional Envirothon. Six schools attended the Envirothon with 5 students representing each school. Students competing in the Envirothon are expected to study 5 natural resource concentrations: aquatics, forestry, wildlife, soils and a special topic which was biodiversity this year. Farmingdale High School from Nassau County and Longwood High School from Suffolk County were this year's winners. They will represent their counties at the statewide Envirothon. At the request of the teacher coaching the Farmindale High School students, Mr. Kozlowski gave a special presentation on May 14th to help prep the students for the statewide competition. He covered basic limnology, fish species the students should know, aquatic insects, important statewide fisheries issues and some wetland identification. Mr. Kozlowski was surprised by the enthusiasm shown by the students to learn the material and the questions they asked. He considered it well worth the time to bring real life biology into the

classroom.

Long Island Chapter Trout Unlimited Meeting
On May 21, 2002, Regional Fisheries Biologist Gregory Kozlowski gave a digital presentation on fishing opportunities on Long Island at the May meeting of the Long Island Chapter of Trout Unlimited. Approximately 35 members attended this presentation. The main focus of this presentation was fishing opportunities other than trout since the summer weather signals the end of most trout fishing on Long Island. Mr. Kozlowski incorporated some of the electrofishing results from 2002 into his presentation, including digital photos less than 24 hours old from the Blydenburgh Lake survey. He also presented some of the Nassau County no-kill electrofishing data which pleased the members as the results were positive and upbeat.

Sweet Water Angler
The *Sweet Water Angler* continued to be produced during the 2002 fiscal year. Due to increased turnaround time at the printer, delivery of the Spring 2002 issue of the *Sweet Water Angler* was delayed. In an attempt to alleviate this problem, e-mail delivery of the *Sweet Water Angler* was first offered to subscribers for the Summer 2002 issue. Initially, the e-mail version of the *Sweet Water Angler* was sent to subscribers in PDF format, however the file was too large for some internet service providers. To solve this problem the PDF file of the *Sweet Water Angler* is posted on the Region 1 Fisheries web-pages and a link is e-mailed to subscribers. All subscribers are blind copied for privacy. All back issues of the *Sweet Water Angler* (32 total issues through Spring 2003) have also been posted on the DEC web site at: http://www.dec.state.ny.us/website/reg1/sweetwater2.html.

The mailing list grew from 4,466 people for the Summer 2002 issue to 4,750 subscribers for the Spring 2003 issue (a 6% increase). Unfortunately, the 4,750 subscribers never received the Spring 2003 issue due to a no-print order as a result of the emergency austerity measures instituted at the end of the fiscal year. As the Spring 2003 issue contained a questionnaire on the proposed freshwater fishing regulations changes, this lack of printing impacted the Regional Fisheries Unit's ability to poll its constituents on the proposals. A final paper copy for the Summer 2003 issue announcing the end of paper copy delivery of the newsletter with instructions on how to sign up for electronic delivery is planned. The Spring 2003 issue marked the 10th year of production of the *Sweet Water Angler*.

Lake Ronkonkoma Fishing Festival
On June 29, 2002, a fishing festival was held at Lake Ronkonkoma County Park to take advantage of a free fishing weekend. Sponsors of the festival included the NYSDEC Region 1 Fisheries Unit, Suffolk County Parks Department and Ronkonkoma Outfitters. Approximately 400 people attended the festival. People who attended could borrow a fishing rod and get free bait (provided by Ronkonkoma Outfitters). Almost everyone caught either white perch, yellow perch or sunfish. Participants also had the opportunity to attend several fishing seminars, talk to bass tournament anglers, or learn how to fly cast. Children 16 years of age or younger could participate in a casting contest where they could cast off the front of a Triton bass boat hull. A free raffle was held at the end of the festival. To enter the raffle, the participants filled out a short fisheries questionnaire that was tied into the "I FISH NY" program. These questionnaires will be used to help evaluate the "I FISH NY" program. The festival was considered a big success, and is planned to be held again next year.

Girl Scout Fishing Clinics
The Regional Fisheries Unit conducted evening fishing clinics at Camp Edy in Suffolk County on June 5, and September 25, 2002. Approximately 20 girl scouts attended on June 5 and 70 attended on September 25. The scouts attended 4 educational stations at the beginning of the clinic covering basic freshwater fishing techniques, freshwater fish identification, pond ecology, and conservation law and ethics. After the educational stations, the scouts were given the chance to fish. Girls who had never caught a fish before were given special attention and nearly all of them caught their first fish. Most of the other girls also caught fish with several girls catching three or four fish. The clinics began at 5:30 p.m. and only ended when it became too dark to see. The girls would have happily fished longer. Before they left, each girl was given a packet of information to reinforce their learning experience.

Boy Scout Clinic
The annual Father's Day weekend Boy Scout Clinic for the Nassau County Council was held on June 15, 2002 by Regional Fisheries Staff at Deep Pond. Approximately 75 scouts attended the event. The scouts attended 4 educational stations at the beginning of the clinic covering basic freshwater fishing techniques, freshwater fish identification, pond ecology, and conservation law and ethics. After the educational stations, the scouts were given the chance to fish. Almost all the scouts caught some of the plentiful sunfish or yellow perch that can be found in the pond. A few lucky anglers even caught banded killifish, the first time any of the staff attending had ever seen banded killifish caught hook and line!

Fishing Seminars
Nine seminars were held during the Summer of 2002. The seminars are held during weekday evenings with instruction provided by volunteer instructors. Topics ranged from beginner bass techniques, specific bass techniques, panfishing, and flyfishing. Approximately 10 to 15 people attended each seminar for a total of approximately 110 people. Attendees that had been at past seminars commented on how their fishing had improved since they had attended the seminars. There is usually some time devoted to giving participants a chance to try the techniques they learned during the seminar before they go home. One attendee showed off his newly acquired skills by catching a 16-inch bass: a memorable experience for him! The program will be continued in 2003.

Cub Scout Pack 363 Clinic
The annual Cub Scout Pack 363 fishing clinic was held on July 20, 2002. Approximately 20 cub scouts and their parents attended the clinic. They were given a brief presentation on freshwater fish identification, freshwater fishing techniques, and how long it takes litter to bio-degrade. Despite the low water levels in South Pond, most of the kids caught at least one fish.

Women's Outdoor Weekend
On September 13th, Technician Tom Hughes and volunteer SAREP instructor Mark Capazzola taught a course on basic fishing and aquatic ecology at the 2nd Annual Women's Outdoor Weekend in Suffolk County**.** Tom and Mark took participants to Laurel Lake for an afternoon of fun and fishing. The weather was great, but the fishing was only so-so. However, as luck and good fortune would have it, the only two women in the group who had never caught a fish before landed all the big fish on this day...two big bluegills and a scrappy largemouth bass.

Fall Fishing and Children's Festival 2002
The Regional Fisheries Unit successfully coordinated the Tenth Annual Fall Fishing and Children's Festival on Saturday, October 19. Due to low water levels at Hempstead Lake State Park the Festival was held at Belmont Lake State Park. The weather was windy and overcast with rain predicted, but despite the weather nearly 1,000 people attended the festival. Bait was provided to all who needed it and rods were loaned to 357 people during the day. Seventy-two per cent of the rods loaned out were to children under 16 years old and 35% were to people who had never fished before. The rods used were donated by Shakespeare, The New York Tackle Trade Association (NYFTTA) and The Art Flick Chapter of Trout Unlimited. Belmont Lake was stocked with 2,000 trout from the Connetquot River State Park hatchery the day before the event. Fisheries Staff offered a fish cleaning service to anyone wanting to keep their catch. Over 50 trout and a number of sunfish were cleaned for festival participants during the event. In the Casting for Pumpkins contest children could cast into a pumpkin field and keep the pumpkin they hit. The field was also seeded with prizes donated by NYFTTA. Next to fishing, this was the most popular activity at the Festival. Boy Scouts from the Theodore Roosevelt Council ran the casting for pumpkins contest. Children could get their picture taken with their catch and keep the photo. The Polaroid film was provided by The Fishing Line. This event was declared a Regional Free Fishing Day so that fishing licenses were not needed for those attending the event. Cosponsors of this event included State Parks, The Fishing Line, NYFTTA and Entenmann's Bakery. Participants included members of Trout Unlimited, the Long Island Bassmasters, The Freshwater Anglers of Long Island, The Long Island Flyrodders, Suffolk Alliance of Sportsmen, the Boy Scouts, New York Sportfishing Federation and other interested sportsmen. In addition to the Region 1 Fisheries Staff, Joelle Meschino from Marine Resources and Fisheries Outreach Coordinator, Ed Woltmann also participated in the Festival.

Long Island Freshwater Fishing Locations on Web Site

The Regional Fisheries Unit supplied the information needed to get the Eastern Suffolk Waters on to the Region 1 Web Site at:
http://www.dec.state.ny.us/website/reg1/reg1bof.html
This along with the Western Suffolk waters and Nassau County waters posted earlier completes the list of ponds and lakes accessible for fishing on Long Island. Visitors to the Web Site can see the location of the waters on an area map and click on links to individual waters to get information on the species present in the waters, access type and restrictions, special regulations and a contour map if available. Development of the Web Pages was completed by Region 1 Citizen Participation Specialist Bill Fonda.

"Phil Genova Memorial Classic" Saltwater Fly Fishing Camp

From October 11-13, technician Tom Hughes attended the "Phil Genova Memorial Classic" at the Peconic Dunes Environmental Camp in Peconic, NY. About 30 to 40 youths and adults attended the event organized by USFWS - Long Island Field Office and the Community Fly Fisher. The Tompkins County based Community Fly Fisher is an organization that promotes youth development through fly fishing and environmental education. The goal of the "Classic" was to provide saltwater fly-fishing opportunities and education in Long Island's resources while raising money for the family trust of Phil Genova, a long time environmental educator and contributor to the Community Fly Fisher**.** Although the weather was rainy and windy for most of the weekend, "Classic" participants were involved in some pretty interesting activities, including beach seining on Peconic Bay, fly-tying with the Eastern Fly Rodders, and presentations on fly-fishing by local professional guides**.** Although Tom's freshwater ecology instruction was cancelled due to the poor weather conditions, he did have the opportunity to share his knowledge of Long Island's resources and freshwater fishing opportunities with attendees throughout the weekend.

Huntington Fall Festival

On October 12, the Region 1 Fisheries Unit attended the Huntington Fall Festival at Hecksher Park, with a crew of Greg Kozlowski, John Lundie and Michael DiMarco. The unit offered loaner fishing rods, free bait, and their own fishing expertise to all. A volunteer group of Troop 34 Boy Scouts, with Doug Stewart as Scoutmaster, also provided technical support, and were a big help in erecting the fishing station. The weather was damp and windy, but the anglers were eager to brave the elements. Many of the young anglers were first timers and the parents were novices also. The fish cooperated, with many youngsters catching fish. Several nice bass were caught and one little girl caught a 16 inch largemouth bass as her first fish! A good time was had by all, with positive angling outreach as the result.

Fish Biology Presentation to Kindergarten and Second Grade Classes

Regional Fisheries Manager Chart Guthrie gave one hour presentations on fish biology and ecology to Ms. Anthony's Kindergarten class and Ms.Gordon's Second Grade class at the Riley Avenue Elementary School in Riverhead. The presentations included identification of local freshwater fishes and aquatic invertebrates, development of a food web and a short video showing electrofishing. The students were excited and inquisitive and many stayed after the presentations to learn more about local freshwater life.

New York City Boat Show

The Region 1 Fisheries Unit assisted at the 93rd annual New York National Boat Show at the Jacob K. Javits Convention Center in New York City held from December 28, 2002 through January 5, 2003. Unit staff were integrally involved with the setup, exhibition, and takedown of the Division of Fish, Wildlife, and Marine Resources' display that prominently featured the state record fish mounts, fisheries information, and photographs of regional fish and wildlife resources. In addition, Region 1 provided an electrofishing display that included the Unit's 18- foot electrofishing boat and an education video produced by the Division of Information and Education. Other highlights of this year's show included the Bureau of Fisheries' Bass Casting Contest, Twiggy the Amazing Water Skiing Squirrel, and Master Illusionist Lawrence Gregory. Fortunately, the state display was located right in the center of all the action, and state biologists were on hand to assist with Twiggy's rescue after he was washed from his water skis into the cold, treacherous depths of the bass casting pool.

Patchogue Elementary School

Biologist Fred Henson and Seasonal Laborer Mike DiMarco delivered an educational program to three

first grade classes at the River Avenue Elementary School in Patchogue. The thirty-five minute program consisted of three segments: fish identification and ecology, aquatic insect identification and ecology, and what do fish biologists do? Students were particularly excited about the live insects brought into the classroom, but less so about the other portions of the program. However, when asked about the environmental needs of fish and about why there needed to be rules for fishing, the students came up with thoughtful answers that showed a basic understanding of conservation.

Peconic Dunes Ice Fishing

On February 13th, Mike DiMarco assisted with an ice fishing demonstration at Great Pond in the Town of Southold, Long Island. Mike presented to a group of young teenagers, all of whom had never ice fished before, as part of a new environmental, conservation-based stewardship program initiated by Cornell Cooperative Extension of Suffolk County and the Suffolk County Department of Probation.

Mike and the other instructors covered several topics, including tackle, dressing for the cold, ice safety, ice fishing techniques, and fish preparation and catch. All of the kids got a chance to drill holes, set and bait tip-ups, and catch yellow perch. Much to the kids' delight, the expedition concluded with a lakeside fish-fry! One of the kids remarked at the end of the trip, "It was a good day, but a cold one." Everyone was asking when they could go ice fishing again.

Regional Fisheries Manager Speaks at Freshwater Anglers of Long Island Monthly Meeting

Regional Fisheries Manager, Chart Guthrie was the featured speaker at the March meeting of the Freshwater Anglers of Long Island. The presentation included an overview of the spring trout stocking program, the Lake Ronkonkoma stump project and walleye stocking program, new regional fishing regulations and the Regional Fisheries Unit's fishing outreach program. Proposed regulation changes were presented and feedback was elicited from members.

ECO Block Meeting

Fisheries staff attended the Region One ECO Block Meeting on March 19 to brief the officers on changes in the fishing regulations and law enforcement concerns likely to emerge during the coming season. Fisheries staff also provided the officers with a supply of brochures likely to be of interest to the anglers they will encounter while on patrol.

Regional Fisheries Unit Coordinates DEC Display at Long Island Sportsman Show

The Regional Fisheries Unit coordinated the DEC Display at the 2nd annual Long Island Sportsman Show held at Suffolk Community College March 28-30. Other Units participating included Wildlife, Sportsman Ed, Marine Resources, Forest Rangers and Law Enforcement. The Fisheries Unit arranged to have a DECALS computer delivered to the Region so that Fishing Licenses could be sold at the show. Unfortunately when set up, the computer did not work so no licenses could be sold. This was unfortunate, because at the show in 2002 over $1,500 in Fishing Licenses were sold. Although attendance at the show was somewhat lighter than expected, many people were provided with information about DEC programs, hunting and fishing opportunities in the Region and alternate locations to buy sporting licenses.

Cold Spring Harbor Presentation

On March 22, 2003, Regional Fisheries Biologist Gregory Kozlowski gave a Fishing the Freshwaters of Long Island presentation at the Cold Spring Harbor Fish Hatchery. Approximately 50 people attended the talk. Mr. Kozlowski covered cold water and warm water fishing opportunities. In addition, the audience was informed about regulation changes that took effect on October 1, 2002. Mr. Kozlowski also went over the Nassau County no-kill bass regulation and evaluation as an example of how regulations are formed and how they are evaluated. The audience response was very favorable to the talk. It was the forth consecutive year the presentation was given at the Cold Spring Harbor Fish Hatchery.

Summary of Extension Efforts (Includes Urban and Suburban Fisheries outreach)
The Regional Fisheries Unit reached the following numbers of people through Extension, Education and Outreach efforts (Including I FISH NY):

Fishing Clinics (6)	455
Fishing Festivals (3)	3,000
Fishing Seminars (9)	110
In School Programs (6)	970
I FISH NY Angler Interviews	598
Sweet Water Angler	4,700
Girl Scout Camp (7)	800
Other Events (5)	175

Region 2

New York National Boat Show, Manhattan
For the sixth consecutive year, staff from various Divisions and offices came together to make the GNOSTIC exhibit at the NY National Boat Show (New York City: December 28-January 5) a huge success. This year we employed 37 DEC staff to cover the nine days of the show that was attended by nearly 100,000 people. Our exhibit provides the DEC with a great opportunity to answer the wide variety of questions that downstate New Yorkers have about our environment.

In our 30 X 50 foot space we exhibited; a 40-foot Fish Wildlife & Marine wall display featuring many freshwater state record fish, the state/world record weakfish, very large examples of fluke and striped bass as well as a pictorial of the great variety of fishing opportunities available throughout the state. Our space also included a wall display featuring the Conservationist magazine where Public Affairs staff offered a special boat show promotion. Also, featured was an 18-foot electrofishing boat from Region 1, and a 180-gallon aquarium containing 12 different native marine species of fish and invertebrates. The Hudson River Estuary section drew a lot of attention with their dissecting scope attached to a video monitor that allowed people an opportunity to get a close look at aquatic insect larvae. This section also contained a set of Hudson River beach artifacts and a 6-foot Atlantic sturgeon. Additionally the exhibit had a DEC police jet ski used to patrol the Hudson, an informative section with pollution prevention materials, and finally a table manned by Division of Water staff that disseminated information on many issues related to our water environment.

As a special bonus attraction we once again ran a series of casting contests. This outreach event uses a set of specially designed Back Yard Bass and the front half of a bass boat provided by Triton boats to teach youngsters how to cast. Each participant is guaranteed to walk away with a big bag of Getting Started in Fishing materials and many landed one of the great prizes provided by Shakespeare. In total we had approximately 500 participants, gave away 50 rod and reel combos, 20 kids fishing chairs, 50 mini tackle boxes, 20 sets of Back Yard Bass, and 15 subscriptions to the Conservationist magazine.

This year's show was set during a week when many DEC staff typically take vacation. We would like to thank all the DEC staff members from various offices and Divisions that came together to make this year's show a possibility and then a grand success.

Bayside Marina, Queens
Fisheries staff from the I Fish NY initiative worked to bring a new twist to the Bayside Anglers annual snapper fishing derby held August 24, 2002. Typically the derby is solely a competition to see who can catch the most juvenile bluefish (snappers) but this year the Region 2 Fisheries staff helped them bring some fishing education to the event. In typical fishing clinic fashion the participants were sent through a set of education sections before the actual fishing got started. The children were taught the basics of fishing tackle, fishing ethics, fish identification, and regulations. Historically the snapper derby has produced streaky catches as the bluefish move around in schools that may or may not find their way past the pier. This year a couple of small schools passed and anglers caught one or two each. The top three anglers won rods donated by Chaos Rod Co.

Pouch Camp on Staten Island
Fisheries staff from the I Fish NY initiative held a fishing clinic on August 5, 2002 for 180 YMCA day campers. The event was the first at Ohrbach Lake located within the Boy Scout's Pouch Camp. During the summer weekdays the camp is occupied by the YMCA campers while the Boy Scouts use the camp on weekends and throughout the spring and fall. The event consisted of 4 education stations that focused on fishing tackle, fish identification, pond ecology, and fishing regulations and ethics. Once the campers visited each station they were given use of DEC

fishing rods and bait. Fishing lasted throughout the steaming hot day and most anglers caught more than one fish. The lake supports a nice diversity of warmwater species including largemouth bass, pickerel, bluegill and pumpkinseed. Most anglers caught sunfish though a few pesky turtles were dragged in. Members of the Conservation Fund Advisory Board witnessed the clinic in process as they were able to make a detour by Ohrbach Lake during a hiking tour of some of the neighboring state land.

Lower East Side Park in Manhattan
In a first time event, the Region 2 Fisheries staff conducted a fishing clinic on July 11, 2002 as part of an environmental day for 600 children from NYC day camps. The event was coordinated by the Lower East Side Ecology Center and the City Department of Youth. Other presenters included the City Department of Environmental Protection and the Arm of the Sea theater group.

Due to the large size of the group and the limited amount of time, we had to make some special adaptations to our normal clinic format. Camp members attended one of three 30 minute educational presentations and were given use of the tackle in 30 minute blocks. Participants were taught the local fishing regulations, tackle types, fishing ethics and fish identification. The park has a long expanse of bulkhead along the East River that provided plenty of access. Fishing was slow and the strong tide made tangled lines commonplace, but participants had fun and walked away having removed any inhibitions they may have had towards trying their hand at fishing in the future.

Kennedy Marina in Yonkers
Fisheries staff from the I Fish NY initiative held a fishing clinic on June 1, 2002 as part of a large cooperative event entitled "I Fish Yonkers". The event was initiated and organized by the Beczak Environmental Center. Co-sponsors included the Hudson River Estuary Program, Yonkers Department of Parks, Recreation and Conservation, *Boating on the Hudson*, Yonkers Paddlers and Rower Inc., U.S. Volunteer Lifesaving Corp., Cornell Cooperative Extension SAREP instructors, and the New Jersey Chapter of the Hudson River Anglers Group. More than 500 people showed up for the event on June 1. Participants were given a chance to learn about fishing and then given tackle and bait to try their luck. The SAREP instructors maned the casting contest from the bow of a Triton bass boat while the volunteers from the Hudson River Anglers group gave shore side assistance to anglers in need. Additionally, crab pots were provided by the Beczak Center and used to catch numerous blue crabs.

Kissena Lake, Queens
Fish On!! Fishing was hot on June 29, 2002. In an event organized by the Bayside Anglers Group and Region 2 Fisheries, 30 families were taught the basics of freshwater fishing and then given an opportunity to compete for the Angler of the Day trophies. The action was fast and furious. The Bayside Anglers were hopping from hooked fish to hooked fish taking measurements and calling in the length to the derby recorder via walkie talkies. Participants caught bluegill, pumpkinseed and largemouth bass ranging from just a couple inches to 13 inches. The events winner landed a 13 inch largemouth on a worm.

Getting Started in Fishing Program
As part of the "I Fish NY" initiative, Region 2 fisheries staff have guided our Student Conservation Association (SCA) members in the development of a new classroom based fishing education program called "Getting Started in Fishing". This is a two part program where we go into classrooms in the fall and winter months to teach topics related to fishing, then take these same students on a fishing field trip in the spring.

Our lessons and field trips agree with the NYS Board of Education Standards. The first lesson consists of a basic introduction to fish in which the students learn general fish anatomy. Activities may discuss adaptations that fish have that allow them to survive in water as well as species specific adaptations. They may create their own fish with a variety of different adaptations and discuss what type of habitat that fish could live in. Topics covered in the second lesson may include the food chain, fishing ethics and an introduction to basic fishing gear and skills. They may test their knowledge on our fishing pond poster, in which they can choose a habitat to "fish" in as well as bait and equipment. The activities that we do with each class provide the students with an interactive and thought provoking way of learning about one of New York City's most abundant natural resources.

During the winter of 2001-2002 we made it into 38 different classrooms, teaching students from Kindergarten to Eighth grade**.** This winter we took a hit in production as our SCA member found a permanent job before finishing her term. With the help of Betsy Ukeritis, the Region's new environmental educator, and Natalie Schneider, an SCA member in the Bureau of Lands and Forest, we were able to complete the program with 20 different classes. The program has been well received by local teachers and will continue to grow assuming we can keep a strong SCA presence in Region 2.

Region 6

Thirty five young anglers attended a fishing derby along Sauquoit Creek in New Hartford. In spite of heavy rain at times, the volunteers and novice fishermen caught plenty of fish. Several area sportsmen clubs assisted along with area businesses. All agreed another derby should be held next year.

Region 7

Special Regulation Justification/History Summary
As part of a statewide initiative to clarify our fishing regulations, the Region 7 Fisheries Unit reviewed all of the Special Regulations by County and prepared a written history and justification of when and why each regulation was enacted. This summary will be made available to the general angling public. A similar effort will be made in the future to provide a summary of all regulations pertaining to the Great Lakes and Finger Lakes in Region 7.

Stocking Maps
A mapping project was completed showing stocking locations for each county. Also included were posting along stocked sections and PFR county-wide. Maps were printed showing stocked sections and forwarded to Albany.

9th Annual Finger Lakes Fishing Festival
On April 27, 2002 Regional Fisheries Unit assisted the Lime Hollow Nature Center in this highly successful event which uses the "Pathways to Fishing" program to introduce young people and their parents to fish and fishing. Over 200 children attended and moved through 10 learning stations where they were instructed on everything from casting and knot tying to fish biology and regulations. After completing the Pathways stations the children got the chance to catch their first trout in a stocked pond.

Falcon Sportsmen Club 50th Annual Children's Fishing Derby
On June 9, 2002 Regional Fisheries staff provided a live fish display at this event which was attended by approximately 300 children and their families. A large aquarium was set up and filled with a variety of warmwater fish. This allowed for close inspection by the children of many fish species common to central New York. Two large "fish petting tubs" were placed on the ground giving even the youngest angler a chance to make friends with the fishes.

Annual Fishing Day Clinic at Rogers Environmental Center
Held on June 29, 2002 during the Free Fishing Days weekend, Regional Fisheries staff assisted the Rogers Center by providing a live fish display with many warmwater species common to the area. Children were able to view fish up close in a large aquarium and learn the correct way to pick up and hold fish from the tubs set up on the ground.

Family Fishing Day Clinic at Chenango Valley State Park
The Regional Fisheries Manager and a Fisheries Biologist assisted in this event held May 18, 2002. Those attending received instruction on fish identification, fish ecology and fishing techniques.

New York State Fair
Several Region 7 Fisheries staff members worked at the fair helping to man the Division of Fish, Wildlife and Marine Resources booth inside the DEC Aquarium Building. This year the new DECALS automated licensing system made its debut the first day of the fair. Despite some initial startup problems thousands of hunting and fishing licenses were sold and questions from the public were answered at the booth during this 12 day event from August 22 - September 2, 2002.

Salmon River Hatchery Open House
Regional Fisheries Staff assisted the hatchery in sponsoring this popular event held on National Hunting

and Fishing Day September 28, 2002. A table was manned by a Regional Biologist and Technician to answer questions on the management of Lake Ontario and Salmon River Fisheries. Brochures were available on salmon fishing techniques, maps of the river, life history writeups of the Lake Ontario salmonids, stocking information and species identification. A technician also set up a live fish display on the hatchery grounds with an aquarium and "fish petting tubs". Visitors could view and handle many species of fish common to central New York. Coinciding with the major fall run of pacific salmon this event was attended by over 1000 people.

Conservation Field Days at SUNY Morrisville
On October 15, 2002 the Madison County public school system held this educational event for several hundred 6th grade school children from all over the county. A Regional Fisheries Biologist and Technician provided a live fish display and gave lectures to 8 classes on fish anatomy and identification.

Cayuga County Conservation Field Days
This two day event was held at Emerson Park in Auburn during September 24-25, 2002. A Regional Fisheries Biologist and Technician provided a live fish display and gave lectures on fish ecology and biology to over 300 6th graders who came from school districts all over Cayuga County.

NYC Boat Show
Held at the Jacob Javitt's Center in New York City, a Region 7 Fisheries Biologist helped staff the Division of Fish, Wildlife and Marine Resources booth for 9 days from December 28, 2002 through January 5, 2003. 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 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 received even greater usage.

Region 8

Family Fishing Clinic
The Fisheries Unit, in conjunction with the Region 8 Fish and Wildlife Extension Unit, conducted it's fourth summer fishing clinic. This year's target audience was families. The event was conducted at the pond located at the Regional headquarters. Approximately 25 people were given instruction in fish identification, fishing techniques, casting, regulations and cooking. Despite excellent advertisement, the attendance did not justify the effort, although the attendees were very appreciative. There are no plans to continue this effort.

State of Seneca Lake
On March 5, 2003 the Region 8 fisheries staff were the main speakers at a meeting sponsored by the Finger Lakes Troller's Association regarding the status of the fisheries in Seneca Lake. Approximately 80 sportspersons attended this meeting held at the Clute Park Center in Watkins Glen, Schuyler County, NY. Dr. Randy Johnson from Cornell University also gave an informative presentation on how invading exotic species change the ecosystems of a lake.

Seth Green Chapter of Trout Unlimited
Staff made a presentation at the February 2003 monthly meeting of the Seth Green Chapter of Trout Unlimited. The main topic was the evaluation of the Oatka Creek no kill trout fishing regulation. Results of the recently completed creel censuses and the biological monitoring were presented. The new trout fishing regulations that were enacted in October 2002 that were a result of the June 2001 forum were also discussed. Chapter members appear to be happy with these regulations.

The Fishing Line
Region 8 was extremely fortunate to have two staff people dedicated to fish and wildlife education and outreach. These individuals produced the popular Fishing Line, a weekly update on area fishing. The Fishing Line was sent to 66 outlets by mail, fax and email and listed on Region 8's portion of the Department's web page. Information from the Fishing Line was also included in the Region's weekly Hunting and Fishing Radio Reports taped by sixteen western New York radio stations. Due to the retirement of one, and the well-deserved promotion of the other, the outreach unit was dissolved effective April 2003.

Public Information a Major Effort in Region 8
Participation in public gatherings was used to disseminate information on area fisheries resources and its management. Two events attended by Regional staff that drew thousands of people were the Rochester Outdoor Show and the Region's National Hunting and Fishing Day celebration.

In addition to the above mentioned meetings, staff also made over 50 presentations on the fisheries resources management and aquatic environment at meetings ranging from school groups to adult audiences.

Region 9

Participation in Outdoor Sporting Shows
Fisheries staff participated in the Hamburg Outdoor Show, March 7-9, 2003.

SAREP Family Fishing Day at Letchworth Park
The third annual Letchworth State Park SAREP Family Fishing Day event was held on Memorial Day weekend in 2002. Although attendance was slightly less than the first year of the event, it still exceeded expectations with over 200 children and over 200 adults attending the 6 hour event. Regional BOF had extensive input and participation at the event, which included teaching fishing at the stocked park trout pond, providing presentations on fish ID, and manning a fisheries display.

Internships/Volunteers
The Region 9 Fisheries Unit finds it helpful to use adult volunteers when needed. These volunteers come from angler groups such as Trout Unlimited or other interested sportsmen. In 2002, approximately 30 volunteers contributed over 75 days of service to the Region. All interns and volunteers are approved through the Regional Director with appropriate paper work submitted.

Youth Fishing Clinics and Aquatic Education
The Region continued to conduct educational efforts to introduce young people to sportfishing and spark interest in aquatic ecology. The outreach events are typically conducted in partnership with local sponsors such as conservation organizations or municipalities. Free family fishing clinics were held at four locations (Hyde Park Lake, Forness Park Pond, Tifft Nature Preserve and Chestnut Ridge Park Reservoir), as well as the weekly program conducted at the Rushford Environmental Camp. Many other youth group clinics were attended, such as Boy Scout, Cub Scout, LOTSA Youth Clinic and Trout Unlimited clinics.

Public Access and Use

Stream Rights Acquisition

Activity continued during FY 2002-03 in acquiring public fishing easements to streams throughout the state, along with parking areas and footpaths servicing these areas. Regional fisheries personnel obtained purchase agreements for 15.76 equivalent miles of public fishing rights (PFR) and 20 fisherman parking areas (FPA) during the period 4/1/02 - 3/31/03 (Table 1). This includes new agreements on Rondout Creek and Willowemoc Creek in Region 3, Town Brook in Region 4, West Canada Creek, Black River, North Sandy Creek and the North, Middle and South Branches of the Grass River in Region 6, Chenango Creek and Ninemile Creek in Region 7, Cayuta Creek, Cohocton River, Catharine Creek, and Mill Creek in Region 8, and the South Branch of Eighteen Mile Creek in Region 9. FPAs acquistions over the period included areas serving easement sections on the Beaver Kill, Town Brook, Butternut Creek, Catskill Creek and West Branch Delaware River in Region 4, West Canada Creek, Black River and Felts Mills Creek in Region 6, Mill Creek and Cohocton River in Region 8 and Mansfield Creek and Wiscoy Creek in Region 9. Parking areas were developed on the Beaverkill in Region 3, Catskill Creek in Region 4 and California Hollow Brook in Region 9. Just under $84,000 was expended on PFR acquisitions during the period.

Table 1: Summary of Public Fishing Rights Acquisition During the Period 4/1/2002-3/31/2003

DEC Region	Program Effort (Staff Days)	Eq.- Miles Acquired	Additional Eq. - Miles Under Agreement	Fisherman Parking Areas Acquired	Fisherman Parking Areas Developed
1	0	No Program			
3	30	0.0	0.175	1	1
4	55	0.18	0.635	5	1
5	0	0	0	0	0
6	80	1.469	2.324	2 (+3 Right of Ways)	0
7	35	4.087	4.087	3	0
8	47	1.020	1.730	2 (+2 Right of Ways)	0
9	35	0.0	0.057	2	1
Totals	**282**	**6.756**	**9.008**	**20**	**3**

Access to Lakes, Ponds and Rivers

Although acquisition of new boating/fishing access sites remains a high priority within the Public Use Section, lack of dedicated funding towards this program area has significantly restricted progress. Despite this fact regional staff continue to seek new opportunities for public access, primarily through cooperative agreements with municipalities and other state agencies. During the period FY 2002-2003, 8 new parcels were acquired for fishing access purposes; three of which have been developed. Efforts also continued towards modernization and rehabilitation of existing sites. Although no general fund capital appropriations have been provided in recent years, a number of boat launch modernization projects have been funded via allocations from the Environmental Protection Fund and the CW/CA Bond Act. The status of all currently funded projects is as follows:

Project	Amount/Source	Status
Upper Chateaugay Lake	$280,000 Bond 99/00 $220,000 Bond 00/01	Completed 2002
Chazy Lake	$150,000 Capital 85/86 $ 50,000 Bond 00/01	Completed 2002
Tupper Lake	$400,000 EPF 99/00 $ 60,000 EPF 00/01	Completed 2002
Delaware River @ Narrowsburg	$200,000 EPF 99/00	In design & permitting
Lake Champlain @ Ticonderoga	$550,000 Bond 00/01 $650,000 EPF 99/00	In design & permitting

The high quality of the design and construction of recent projects has been recognized by the States Organization of Boating Access (SOBA) who presented DEC with the prestigious “Small Access Project Excellence Award”in 2002. Michael Gann, Leo Demong and Deanne Blanke of DEC were also recognized by the Franklin County Federation of Fish and Game Clubs for the design and reconstruction of the Tupper Lake Boat Launch.

In addition to these major modernization projects that are either planned or completed, smaller scale rehabilitation projects completed during the period included ramp repairs at the Fourth Lake and Seventh Lake fishing access sites and the dredging of a mound of sediment at the base of the Lake Champlain-Westport FAS in Region 5.

Engineering Design/Capital Construction

The Bureau of Engineering Services within the Division of Operations provided the Public Use Program with 2.0 staff-years of services this year consisting of: two staff years of design services from the "pool" of design engineers, and 1.0 year of design services provided by Deanne Blanke, Parks Engineer. This group provides all design work, permitting assistance, project bidding, contract award and construction oversight for the projects listed above. Significant efforts were also made towards design of American Disabilities Act (ADA) improvements at various fishing access/boat launch sites.

Habitat Management

The habitat management program segment continued at a very low level in 2002/03. Much of the limited work that was accomplished was with the aid of volunteer labor. Table 3 summarizes all the traditional activity in this program segment for the year. The Lake Ronkonkoma habitat improvement project and the Region 6 pond liming efforts deserve special recognition, as both received substantial assistance from the military. At Lake Ronkonkoma, UH-60 "Blackhawk" helicopters from the New York Army National Guard air-lifted and dropped stumps into the lake to provide fish habitat. The project also involved substantial assistance from the Long Island Bassmasters and a host of other partners.

Retirement of Michael G. Gann

The public use section would like to recognize Michael G. Gann for his service to boaters and anglers throughout New York. Michael recently retired after 37 years in the Bureau of Fisheries. Mike became the first head of the newly created Public Use Section of the Bureau of Fisheries in 1990, having spent 6 years prior to that in Central Office working on public access programming. Much of the progress made in acquisition, modernization and rehabilitation of fishing access sites in New York State can be directly attributed to Mike's foresight and leadership. During Mike's tenure in the Public Use program, 130 equivalent miles of public fishing rights were acquired and 97 new fishing/boating access sites were developed. Four of these sites (Hudson River at Yonkers, Lake Erie at Sturgeon Point, Lake Champlain at Westport and Sacandaga Lake at Moffit Beach Campground) received national recognition by the State's Organization for Boating Access. We wish Mike all the best in his well deserved retirement.

Stream/Lake Habitat Management Work During the Period 4/1/02 - 3/1/03

Region – Water	Gravel bar shaping	Rip rap-new (Ft)	Pool Digger-new	Deflectors-repair	Deflectors-new	Dam-repair	Willows-dogwood Planted (1,000)	Pond Limings	Other
1 – Lk. Ronkonkoma									Stump structures
3 – None									
4 – Kinderhook Cr.							0.7		1 riparian packet
East Kill							0.4		2 riparian packets
West Kill							0.3		1 riparian packet
Fox Creek							2.0		10 riparian packets
Cobleskill Cr.							1.0		3 riparian packets
Catskill Cr.									2 riparian packets
Stony Clove Creek							0.3		1 riparian packet
5 – St. Regis Pond						x			
Lydia Pond						x			
Little Fish Pond						x			
Holmes Lake								x	
6 – Peaked Mt. Pond								x	
Evergreen Lake								x	
7 – Factory Brook							1.5		
Cayuga Inlet							1.0		
Oquaga Creek							0.5		
Genegantslet Cr.							0.5		
Cayuta Cr.							3.0		
8 – Catharine Cr.		1385	2						1 rock vortex weir
Sleeper Cr.		200							
9 – Wiscoy Creek							1.0		5 "Riparian Pkg."
Upper Genesee							1.0		2 "Riparian Pkg."
Clear Creek							1.0		3 "Riparian Pkg."
Quaker Run	1			2	3		1.0		Instream boulder placement

Region 3

Willowemoc and Beaver Kill
Public fishing access to the upper Willowemoc was enhanced with the acquistion of a parcel of state land with 2,097 feet of stream frontage and a small but important PFR acquistion of 350 feet on the right bank and 200 feet on the left bank of the stream. Another angler parking area was developed on the Beaver Kill.

Loch Sheldrake
Under a cooperative agreement signed in 2002 with the Town of Fallsburg, a car top fishing access will be constructed on this 64 acre private water in Sullivan County. This access will also provide access for ice fishing on this walleye-inhabited water.

Region 4

During the period April 1, 2002 to March 31, 2003, 0.635 equivalent miles of PFR easement was signed on Town Brook (a tributary to the West Branch of the Delaware River) including the right to build a Fisherman's Parking Area (FPA). Four other FPA's were acquired: 1 on Butternut Creek, 2 on Catskill Creek and 1 on West Branch of the Delaware River.

PFR Incursions
While doing the easement sign maintenance, the seasonal fish and wildlife technician also recorded incursions which are private posters prohibiting fishing within the PFR easements. These landowners were contacted and advised to remove the 'Fishing' reference on the poster. To date 30 incursions have been resolved by mail. An additional number were resolved in person where the landowner was present. While many follow up calls were generated and a few letters sent with additional information, there were no challenges to NYS's ownership of the easement; and one Fisherman's Parking Area was built where it had been authorized on the original deed but not previously constructed.

Region 5

Tupper Lake BLS Modernization Completed
The Tupper Lake Boat Launch features a double wide concrete ramp, new steel sheet pile bulkheads, floating aluminum docks, and an improved traffic flow pattern. The site also has a separate barrier-free gangway and dock to accommodate handicapped persons. Regional Operations staff recently completed a major upgrade to the toilet facility which included making this structure handicapped-accessible. The site is one of which the Department can be proud.

Chateaugay BLS Modernization Completed
The Chateaugay Lake Boat Launch features a double wide concrete ramp, new steel sheet pile bulkheads, floating aluminum docks, modern traffic flow, and upgraded parking surface. The Department will have a handicapped accessible-porta-john maintained seasonally at this site. The Chateaugay Lake Boat Launch is also now a first- rate boat launching facility.

Internet Public Fishing Rights Maps
Development of HTML Public Fishing Rights (PFR) maps of several regional streams for the internet has been completed. They show the approximate location of PFR and fisherman parking areas along streams where DEC has such facilities. These maps have been added to the Department's website: the Batten Kill, Chateaugay, Kayaderosseras, Mill Creek, North Creek, Lower Schroon River, and Marble River. In addition, preparation is proceeding for numerous other streams' PFR maps for addition to the website including the Ausable River main stem, Boquet, East Branch Ausable, Glowegee, Hatch Brook, Hudson River, Little Salmon, North Branch Chazy, North Branch Saranac, North Branch Boquet, Putnam Creek, Saint Regis River, Salmon River (Clinton County), Salmon River (Franklin County), Saranac River, Schroon River, Snook Kill, Spruce Mill Brook, True Brook, Deer River and West Branch Ausable River.

Unit Management Plans Progressing
Fisheries staff continue to be heavily involved with numerous unit management plans (UMP's) now being developed for all state lands in the Adirondacks. Governor Pataki has mandated that all plans will be completed within five years. Staff have written the fisheries portions of plans for the Moose River Wild Forest, Saranac Lakes Wild Forest, St. Regis Canoe Area, Silver Lake Wilderness, Dix Mountain Wilderness and Giant Mountain Wilderness. In addition, staff attended a variety of in house committee meetings and public scoping sessions.

Use of Aircraft in Wilderness Needed to Complete Unit Management Plans.
The Fisheries Unit submitted a packet of Conceptual Use Plans for Administrative Access by Aircraft to the Forest Preserve for essential fisheries research work in 2002. This work is necessary to complete unit management plans (UMPs) in accord with Governor Pataki's initiative. Research surveys are needed on thirty-nine waters in the Silver Lake Wilderness Area, the St. Regis Canoe Area, Hoffman Notch Wilderness Area and the West Canada Lakes Wilderness Area.

The Regional Fisheries Manager met with six Adirondack Park Agency staff to discuss the use of aircraft. The issue of aircraft use has not yet been resolved at this writing.

Region 6

Provided guidance to the Town of Marshall and Village of Deansboro as they constructed a handicapped fishing deck on Oriskany Creek at Deansboro. Designed and coordinated the construction of a fishing deck at the Camp Russell Boy Scout facility on White Lake.

Completed the acquisition of over 1.46 equivalent miles of Public Fishing Rights on West Canada Creek, Herkimer County and the North, Middle and South Branch of Grasse River in St. Lawrence County. A Fisherman Parking Area and vehicle Right of Way were also acquired with the West Canada Creek parcel. Agreements were signed for another 0.855 eq. miles of Public Fishing Rights on North Sandy Creek and the Black River, both in Jefferson County. An agreement was also signed for a Fisherman Parking Area and footpath to an existing piece of PFR on Felts Mills Creek, Jefferson County. This stream is stocked annually and experiences heavy angler effort being adjacent to Ft. Drum.

Hancock Property
This area of the Central Tug Hill Region is the headwaters of the Salmon River and East Branch of Fish Creek. It was formerly owned by Lyons Falls Pulp and Paper Co. and has numerous private Fish and Game Clubs located on the area. We are currently involved in negotiations to purchase fee strips along the streams and easements in other areas to protect this unique area which also serves as the City of Rome's watershed. It has not been surveyed since the original Biological Survey in 1927. In the summer of 2002 we had the opportunity to survey seven stations on the E.B. Salmon River and its Forks. Two additional downstream sites with existing Public Fishing Rights were also surveyed. Wild Brook Trout up to 12 inches dominated the upper headwater stations. Further downstream, wild Rainbow and Brown Trout are added to the catch. The largest brown trout collected was 19 inches with rainbows up to 13 inches. When this acquisition is complete it will not require stocking to maintain a trout fishery.

Region 7

NYS DOT Environmental Initiative Projects:
East Branch of Owego Creek at NYS Rte 79- In conjunction with a bridge replacement in the Hamlet of Richford, Tioga County, the New York State Department of Transportation constructed a 10 car Fisherman Parking Area . The parking surface is gravel, with boulders place to delineate the parking area. Trees were also planted at the site, and a footpath graded down to the water's edge.

Owasco Inlet at NYS Rte 38- In conjunction with a bridge replacement on Owasco Inlet, between the Hamlets of Locke and Groton, in Cayuga County, the New York State Department of Transportation constructed an 8 car, gravel surfaced Fisherman Parking Area.

River Access:
Susquehanna River at Nineveh- Through a fee title purchase, 1.3 acres was acquired near the Hamlet of Nineveh, Broome County. This site is currently being used as an informal boat access site as well as for shore fishing. Future plans include a gravel surfaced parking area, and a single lane concrete launch ramp. When completed, the parking area will accommodate 6-8 car/trailer units.

Susquehanna River at Afton- Through a fee title purchase, 3.73 acres was acquired adjacent to the NYS Rte. 41 bridge in the Village of Afton, Chenango County. This site is currently being used as an informal boat access site as well as shore fishing. Future plans include a concrete launch ramp, and a gravel surfaced parking area for 10-12 car/trailer units.

Public Fishing Rights:
Chenango River, Madison County- Dealing with two separate landowners, a total of 2.29 equivalent miles of Public Fishing Rights was purchased. Along with the PFR, three Fisherman Parking Areas were purchased, fee title, with a combined capacity of 18 vehicles.

Nanticoke Creek, Broome County- Following up on an effort started by the Al Hazzard Chapter of Trout Unlimited several landowners along Nanticoke Creek have been contacted regarding the sale of PFR. In total these landowners own more than a mile of this heavily fished stocked trout stream located just outside of the Triple Cities. All of the landowners appear willing to sell easements and as many as three parking areas. Work is ongoing to finalize the agreements to purchase the fishing easements.

Region 8

Public Fishing Rights
Fishing Rights (2.082 equivalent miles) were acquired on Mill Creek in Steuben County, Cohocton River in Steuben County and Cayuta Creek in Chemung County. Two Fisherman Parking Areas were also acquired; a 0.096 acre FPA on Mill Creek and a 0.117 acre FPA on the Cohocton River. Agreements were also signed on an additional 0.504 equivalent miles of PFR on Catharine and Sleeper Creeks.

The region has produced a set of high quality brochure / maps showing PFR and other fishing opportunities in the region. The 15 brochure set shows fishing sites from 20 different streams and 10 different near shore sites along the region's south shore of Lake Ontario. The maps can be printed to order on a laser printer. Future plans include having the brochures downloadable from the DEC website.

Region 9

Stream Access
PFR and Angler Parking Area agreements were signed on Wiscoy Creek, Mansfield Creek and South Branch 18 Mile Creek, increasing public access to popular fisheries for wild brown trout and lake-run steelhead. Considerable effort was expended to properly locate and sign 29 angler foot paths on various trout streams in the region. This has mostly been successful, with little vandalism damage so far and numerous positive comments from anglers on the increased opportunity to reach important streams. Additional effort was made to be sure PFR areas are properly signed so anglers can find these sections.

Fish Culture

Fish Culture Section

Stocking Truck Purchase
Thirteen new stocking trucks were purchased using Capital Equipment funds. The trucks were outfitted with new electronic controls for the life support systems, and new transport tanks were purchased to replace any older tanks that had deteriorated. The control systems were designed and installed by staff from the Bureau of Electronics. Installation of the tanks and life support systems was completed in time for the spring 2003 trout stocking season.

Since 2000, a total of 19 fish transportation/stocking trucks has been purchased, completely replacing the fleet of regular stocking trucks. With these purchases, DEC should have a very reliable fleet of stocking trucks for more than a decade.

Fish Health Training Course
Dr. John Schachte and Chris Petrie of the Fish Disease Control Unit at Rome Lab presented a training course entitled "Introduction to Fish Health Management" to 20 members of the Fish Culture Section. The course topics included use of laboratory equipment; the relationship of host, pathogen, and environment to fish disease, detailed fish anatomy, recognizing signs of disease, a review of internal and external parasites, disinfection techniques, and methods used to administer therapeutic chemicals to treat disease. The course was focused on providing fish health information to new staff and to others who had not previously received received such training. The course was conducted at SUNY Morrisville, which graciously provided classroom and laboratory facilities to DEC for the 3-day course.

Whirling Disease Studies
Dr. Schachte continued research efforts directed at confirming the presence or absence of Myxobolus cerebralis (the parasite responsible for whirling disease) at Randolph Fish Hatchery and identifying possible vectors. Field exposures using sentinel trout placed in cages at three locations on hatchery property were conducted in 2002. Analysis of the exposed fish, which were rainbow trout (the species most susceptible to the parasite), indicated the parasite was present. Similar studies conducted in 2001 falied to detect the parasite. In cooperation with staff of the US Department of Agriculture, the gut contents from a small number of blue herons were analyzed using DNA-based testing; however, no evidence of the parasite was detected in the birds. Based on the 2002 results, trout production at Randolph Hatchery will continue to focus on species that are less susceptible than rainbow trout to the parasite. Randolph Hatchery staff initiated investigation into identifying sources of groundwater that could be used to fill stocking trucks transporting fish from the hatchery. This would eliminate the need to use salt treatments as a means of controlling the parasite in fish transport water.

EPA Aquaculture Facility Surveys and Proposed Regulations
As part of a proposal to develop national effluent limitation standards and guidelines for the aquaculture industry, EPA sent surveys to all DEC fish culture stations. Ten facilities received a brief survey, whereas detailed questionnaires were sent to the Bath and Adirondack stations. The detailed questionnaires provided information on the scope and magnitude of fish rearing programs, operating costs, water supply, and measures to reduce pollutants in hatchery effluent. Comments on EPA's proposal to develop national effluent limitation standards and guidelines for aquaculture facilities were developed from the perspective of possible implications to DEC's hatchery system. If implemented as proposed, EPA would require development of Best Management Practices plans, would impose total suspended solids limits for all but very small facilities, but would not impose standards for nutrients such as phosphorus. DEC's facilities would be able to meet the proposed limits for total suspended solids with little or no impact to current rearing programs.

Adirondack Fish Hatchery
In 2002-2003 the Adirondack Fish Hatchery produced 33,298 pounds of landlocked Atlantic salmon. This production includes two year classes of stockable fish and two year classes of broodstock production fish The landlocked Atlantic salmon produced at the hatchery are stocked as fry and as smolts in waters located throughout New York State.

Adirondack Hatchery's 2002 eggtake produced 1.3 million eggs for incubation. Broodfish held here produced 950,000 of the eggs; the remaining 350,000 were taken from fish in Little Clear Pond which is a broodstock pond located on the hatchery grounds.

Adirondack Hatchery personnel stocked approximately 900,000 coldwater fish in 2002-2003. Species stocked included landlocked salmon, brook trout, brown trout, rainbow trout, lake trout, splake, and kokanee salmon. Staff at the hatchery also stocked 51,600 walleye in several different waters.

Eggs from Adirondack Fish Hatchery were given to 30 different school groups from Clinton, Franklin, Essex, and Onondaga counties. Each school received 200 eggs for incubation at the school. The students incubated the eggs until they hatched, and then stocked the fry in local waters.

In 2002-2003 staff at the hatchery renovated the visitor center located at the hatchery. Several new displays were constructed, and some of the older displays were improved. In addition, two TV monitors were installed. One TV is used for viewing videotapes of local fishing interest, and the other shows a live video feed from a camera located in one of the tanks holding broodfish at the hatchery. This video feed gives a unique and closeup view of the fish, and also provides a better view for our handicapped visitors.

The waste treatment facility at the hatchery was also modified in 2002-2003 to allow for more efficient cleaning. A 18-inch pipe was installed for water removal prior to cleaning. The pipe was successfully installed by staff from Region 5 operations with assistance from hatchery staff. The new pipe has helped reduce the time necessary for hatchery staff to clean the waste treatment facility.

Bath Fish Hatchery

The Bath Hatchery produced 80,000 pounds of fish during 2002-03. Species consisted of brown trout; domestic, hybrid and wild rainbow trout as well as lake trout. These fish were stocked in 9 southern tier counties including most of the Finger Lakes.

A LS-700 Living Stream Unit was purchased this past year. A display area to house this unit was constructed over the winter by the hatchery crew. Three of the five incubator stacks were removed to make room for the 7 X 2 foot aquarium. The two remaining stacks are sufficient to accomodate the lake trout and rainbow eggs which are taken from Cayuga Lake fish each year. The finished display has been a hit with visitors. It allows the viewing of trout from the side instead of the top. People are able to enjoy the unique markings and colorings of these fish.

There are four water sources that feed the hatchery for a total of 1,400 gallons per minute (gpm). One of the more important sources is the spring creek. It gravity feeds 450 gpm to the outside races and ponds. The amount that can be utilized in the10 races has been limited by the height of the dam on the creek. We decided to raise the dam by 2 feet to increase the head pressure and therefore increase the flow. The DOT bridge crew at Kanona supplied materials for construction of the concrete forms. New PVC valves and piping were purchased as well. The finished project has allowed us to increase the flow to the races from 300 to 400 gpm.

Other R&I projects were accomplished with the use of contractors. A new 200 amp electric feed and panel were installed in the residence. An underground feeder from the residence to the garage was installed. The garage received a new roof and foundation. A propane fired steam boiler was installed in the house.

Caledonia Hatchery

The Caledonia Fish Hatchery, the oldest fish hatchery in the western Hemisphere, continued to raise over 95% of the two year old brown trout for NYS. A large portion of the two year olds are stocked directly by Caledonia staff or driven by Caledonia staff to other hatcheries for distribution. In addition, Caledonia is responsible for stocking streams, lakes and ponds in 11 counties, including the western half of the Finger Lakes, a portion of Lake Erie, and the western basin of Lake Ontario. Over 120,000 chinook salmon were raised as part of a rearing study.

Several improvements to infrastructure were made last fiscal year. The second of two new Lightnin' 5 hP, three-phase aerators was installed in the intake pit. The intake building had several improvements to 30 year old equipment, including new wiring, a new ABB high efficiency drive to control the traveling screen and backwash pump, a new digital timer for the screen and

pump, and a new backwash pump and associated plumbing. Two new valves were installed in order to eliminate entry into a confined space. New dam boards were made on site out of aluminum at a significant savings over purchasing wooden stop logs, plus they should last "forever". A gazebo was purchased and prepared in-house as a visitor display. A new Bobcat Skidsteer Loader was purchased to be used for off loading fish food, chemicals, etc. A new bi-fuel pick up truck was delivered.

In addition, the Cedar Springs Fish Hatchery operates as an annex to the Caledonia Fish Hatchery. About 7,500 two year old brown trout and 60,000 yearling rainbow trout were produced. Also, major improvements were made last year to increase rearing capacity and a settling pond and was built along with associated plumbing. This year improvements were made to the electrical system including installation of ground-faulted power pedestals.

Catskill Hatchery

The Catskill Hatchery accomplished all production and stocking goals. Three years of experimenting with salt bath treatments to increase three year old female (1st spawner) brood fish survival yielded good results. Over the last three years survival has gone from 55% to 98%. This has allowed us to rear fish for Catskill Hatchery and other NYS hatcheries using only the eggs from four year old female (2nd spawner) brood fish. Second spawner brood fish provide more, bigger and higher quality eggs that result in a better quality fish.

Chateaugay Hatchery

Chateaugay Fish Hatchery produced 85,000 pounds of fish in 2002-2003. Rainbow trout, brown trout, hybrid brook trout, lake trout and splake comprised the species reared at Chateaugay. A total of 99,600 pounds of food was fed for a conversion of 1.18 and a cost per pound of $.39 per pound. A total of 515,000 fish were stocked with a total weight of 81,000 lbs. An additional 50,000 pounds of fish were also transferred to and from other facilities totaling 1,280,000 fish of various sizes.

A total of 250,000 lake trout eggs were taken from lake trout netted at Raquette Lake. In addition, 576,000 rainbow trout, 320,000 hybrid brook trout, and 38,000 splake eggs were received from other facilities to be hatched at Chateaugay. A total of 230,000 brown trout fingerlings were transferred in from other facilities in the summer of 2002 for rearing and eventual stocking.

The hatchery pond screen R&I project was completed with the installation of aluminum channel and removable screens and the reconstruction of the bird deterrent screens. Two overhead doors and a concrete ramp were constructed to facilitate moving of feed with the fork lift tractor. New moisture proof, low energy use light fixtures with new conduit and wiring were installed in the hatch house rearing area. New Sweeney type vibrating feeders were purchased and installed to replace the Loudon type feeders that did not function properly in the high moisture area of the hatch house. These new feeders were used along with belt type automatic feeders on the outside raceways to increase the stocking size of the Raquette Lake Strain Trout from 6 ½ to 8-inch average stocking size. Other Re-hab projects included remodeling of the office and visitor area of the hatchery building area. Brochure displays were constructed and combined with new fish hatchery posters to accommodate the visiting public.

Two new fish distribution vehicles were prepared for the upcoming stocking season with the mounting of tool boxes, fire extinguishers and platforms to carry hoses and wheel chocks. A one ton flatbed truck was received for use as a small stocking/utility vehicle. A new mid size 4 wheel drive tractor was purchased to facilitate snow removal and the mowing of the shoulder areas of the hatchery entrance road.

Two Fish and Wildlife Technician items were filled with new employees to replace vacancies created earlier in the year. The new technicians were prepared, trained and tested for the CDL license, fork lift operation, and general hatchery health and safety procedures. Assistant Manager David Armstrong attended training for certification to train and test fork lift operators and completed the training and testing of all hatchery employees in the state who operate a fork lift vehicle. Hatchery employees participated in various training courses for Fish Culture Techniques, Fish Health, helicopter fuel truck operation and water safety training.

Chautauqua Hatchery

Muskellunge: Nine trap nets set in Chautauqua Lake

caught 192 adult muskellunge, which produced 1,224,000 eggs. Staff stocked 237,000 spring fingerlings and 17,300 fall fingerlings in New York State waters from the 2002 egg take.

We provided ripe muskie females for Pennsylvania's tiger muskie program. Of the 18 females supplied, 1,151,000 green tiger muskie eggs were produced.

We fed one lot of muskellunge fry dry feed exclusively until the end of July. Normally, muskie fry are started on dry feed and brine shrimp for the first 15 days, then dry feed until ponding. Survival was 9 % for fish on just dry feed, from 14,450 fry hatched.

Each year intensively-reared musky are fed medicated feed for 10 days prior to ponding. This prophylactic treatment is to protect fingerlings from columnaris disease, which could occur from the handling stress of ponding. Once ponded, there would be no treatment available. In 2002, we treated half the muskie fingerlings (3 ponds) and the other half were untreated (3 ponds) to see if there were any differences in survival. None was noted as the survival for treated ponds was 53 percent and 52 percent for untreated.

Walleye: A total of 240,000 walleye pond fingerlings were stocked in 2002. Twelve earthen ponds were utilized in intensive walleye culture. As in 2001, three different fertilization rates were tried to increase size of pond fingerlings at harvest. The results were the same as last year. Overall survival to harvest was 67%, and fish averaged 1.4 inches total length. It seems that survival rate may have more effect on size at harvest than fertilization rate, and high survival rates result in smaller fingerlings at harvest.

Brook Trout: Chautauqua received 345,000 eyed, domestic strain brook trout eggs from Randolph hatchery. Transfers were made to three different New York hatcheries, and totaled 218,800 2-inch fingerlings in the spring of 2003. In past years, we have raised brown trout from 300,000 eyed eggs shipped from Randolph. These brown trout would eventually be transferred to Caledonia Fish Hatchery.

R & I Projects/Equipment: Chautauqua Fish Hatchery's 90,000 gallon water storage tank was in need of a paint job. Exterior surface areas were visibly damaged from corrosion. Bureau of Operation's staff in Albany developed specifications for the job, and the contract went out for bid on September 30, 2002. Ideal Coating, Inc. of Jamestown, NY was low bidder. They sanded, primed and put three coats of paint on the tank in early November.

One Kuhn Model #E62-180 power tiller was our equipment purchase for 2003. The tiller was purchased from Clinton Tractor and Implement Company, Clinton, NY and will be used to rototill hatchery pond bottoms.

Oneida Hatchery

The New York State Oneida Fish Cultural Station is located on the northern shore of Oneida Lake, in the town of Constantia. The hatchery's primary function is to culture walleyes for stocking New York's various waterways, enhancing and restoring native populations. In addition, several other fish species, which are classified as threatened or endangered by the state are produced. The following is a summary of the 2002 activities;

Walleye - 321 million eggs collected from Oneida Lake, 192 million fry stocked or transferred, 158,165 fall fingerlings produced and stocked in twelve NYS waters, and 100,000 fall fingerlings held until March 2003 for stocking in New York waters. In addition 103,000 walleye yearlings, over-wintered at Oneida and South Otselic Hatcheries, were stocked into Oneida Lake during March 2002.

Paddlefish - Estimated 10,000 eggs received from Kentucky in April 2002. The hatchery produced a total of 790 paddlefish at 3.8 fish/pound (14.3 inches). These were coded wire tagged, and stocked into Allegheny Reservoir on August 7, 2002.

Lake Sturgeon - No eggs collected in 2002 due to problems in the netting and holding of spawning adult fish at the St. Lawrence River, Massena, NY.

Round Whitefish - Approximately 20,000 fertilized eggs received from Cascade Lake in November 2001, held overwinter at the hatchery, resulting in 5,930 fry being produced. The two inch fry were stocked into three Adirondack waters during May 2002. No eggs were collected in the fall of 2002.

Kokanee Salmon - Spawning adult fish were collected from Twin Ponds and transferred to the hatchery during October 2002. Eggs were collected from ripe females, fertilized and transferred to NYS South Otselic Fish Hatchery for incubation. A total of 3,180 eggs were collected .

Randolph Hatchery

The Randolph Fish Hatchery is currently staffed with six employees. Permanent staff consists of one Fish Culturist II, two Fish Culturist 1's ,two Fish /Wildlife Tech. 1's , and one Maintenance Assistant. No staffing changes have been made since 1998. A seasonal laborer was hired last fall to assist with the egg take. Two staff, the Asst. Mgr and one Fish/Wildlife Tech. 1 attended the Fish Disease workshop at Morrisville College given by Dr. John Schachte and Chris Petrie. One Fish/Wildlife Tech. 1 also attended a water safety workshop in Herkimer. Hatchery staff also attended several retirement banquets for division staff who recently retired.

The Randolph Hatchery this past year produced 90,000 pounds of trout. Hatchery staff stocked 306,000 trout this past year. Two hundred stocking trips were made to 100 different waters in four counties and the Great Lakes. Several stocking trips to the Allegheny National Fish Hatchery in Warren, Pa were also done by staff to stock lake trout into Lake Ontario. Eight hundred paddlefish were stocked into the Kinzua Reservoir . One thousand tiger muskies and 5,500 walleyes were also stocked by hatchery staff. In the fall 8,200 brood stock trout ranging in size from 10" to 28" were stocked out by hatchery staff. Hatchery staff spawned 1,200 trout for five million green eggs. Eggs were shipped to Virginia, Pennsylvania, and three county hatcheries: Carpenter Brook, Manlius , and Warren County. Eggs were also shipped to other state hatcheries across New York to meet egg requirements.

The Randolph Hatchery had some high mortality in brown trout brood stock last fall. Fungus and low dissolved oxygen levels caused significant loses in both 1st and 2nd spawners. Aerators will be installed in early August to keep oxygen levels at 7-8 ppm. and treatments of hydrogen peroxide will be used to alleviate fungus on our brood stock to hopefully reduce mortality problems. Hatchery staff also concluded a three year whirling disease study being done at this facility. Wild rainbow trout from the Finger Lakes were placed into three isolation cages within the hatchery. One cage was placed in the tail end of one of the original infected ponds from the year 2000, one into our Hatch House which receives straight spring water and the last one was put into the catch basin where both creek and spring water mix before entering the hatchery. All three cages had rainbows that tested positive for Whirling disease in the fall . PCR(polymerase chain reaction) tests were used to determine the presence of Whirling disease in these rainbows. The PCR tests that were applied used DNA based technology which can detect the presence of the disease in lower levels than the histological confirmation tests that were used in previous years .

The Randolph Hatchery received two new stocking trucks this year. Both trucks were outfitted for spring stocking and worked out very well . The hatchery also received a new John Deere tractor this year . A representative from John Deere came and trained all staff on its proper usage and operation.

Rome Hatchery

Rome Hatchery produced 152,000 pounds of brown and brook trout from April 1, 2002 to March 31, 2003. A total of 185,400 pounds of feed was fed for a conversion of 1.22.

In spring 2002 we stocked over 160 waters. A total of 650,000 yearling brown trout were stocked by Rome or transferred to other State hatcheries for stocking. Another 140,000 rainbow, brook and lake trout were stocked in Rome's areas of Region 5,6 & 7 by Rome and other State hatcheries.

In fall 2002 over 150 waters were stocked by Rome. Some by truck, most by State helicopter or pontoon planes in the remote areas of the Adirondacks.

Rome staff mounted 78 fish transportation tanks on 13 new GMC stocking trucks. They also fabricated catwalks for each truck and transported the vehicles to Albany to have the electronics put on them. It was great having dependable stocking trucks. We had no breakdowns or down time due to vehicle failure.

We were able to minimize our fish loss from avian predators by covering our ponds with framed chicken

wire, fencing and netting. Our inventory numbers held up well after spending much time and money on the job.

Our newest technician John Draper attended the fish health portion of a cold water fish culture course offered by the State of Vermont at their Grand Isle Hatchery. More of the course will be offered later this year. Staff also took training in welding, fork lift operation, water safety and helicopter fuel truck operation.

Salmon River Hatchery

During the 2002-2003 production year we raised 138,000 pounds of fish which includes brown trout, steelhead, chinook and coho salmon.

We were involved with 6 sportsmen's pen rearing sites on Lake Ontario and 1 site on Lake Erie. We provided 285,000 chinook fingerlings and 70,000 steelhead yearlings as well as fish food for the program. This expanding project provides excellent interaction between DEC and sportsmen.

During our annual fall egg collection, we handled about 6,800 fish total, of which 5,300 were chinook salmon. We collected 3.1 million chinook eggs and 989,000 coho eggs. After eye up, we provided the Ontario Ministry of Natural Resources with 30,000 eyed coho eggs.

Our spring steelhead egg collection, which started in late March, yielded 2.3 million Washington strain eggs. Adults used were all marked fish originating from this facility. Overall, we handled 3000 fish. We also provided the state of Vermont with an additional 200,000 steelhead eggs. Combinations of late fall and spring collections of Skamania steelhead eggs yielded 149,000 green eggs.

South Otselic Hatchery

Species produced:

- 1,840 Little Tupper strain brook trout - 1 water stocked
- 20,540 - kokanee salmon - 2 waters stocked
- 114,275 Oneida Lake strain walleye pond fingerlings - 14 waters stocked
- 31,615 Oneida Lake strain advanced fingerlings - 6 waters stocked

There were several significant events and accomplishments during the 2002 rearing season, beginning with what we hope to be the successful eradication of the eye fluke problem that has plagued the facility's walleye ponds the past few years. Joint participation of hatchery staff and several graduate students from Cornell University to examine the pond fingerlings in 2002 found only two fish total with any signs of fluke infestation. In the fall, two major leaks in the hatchery's main supply line were repaired, and a permanent grade 8 Fish & Wildlife Technician position was filled by Mr. Bruce Ryan, bringing the staffing to four and a full compliment of workers. Bruce is eager to learn all phases of fish culture at South Otselic and is an enthusiastic worker. Grounds keeping, a major part of the workload at So. Otselic, was made easier with the purchase of a new 72 inch cut Ferris commercial out-front mower. Two new fiberglass rearing tanks were also purchased for the facility. The staff at So. Otselic also participated in another successful Oneida Lake walleye egg take in April 2002 and a successful Finger Lakes lake trout egg take in October 2002.

Annual Report of Fish Species Production by Hatchery
April 1, 2002 - March 31, 2003

	Fry		1" - 4 1/4"		4 1/2" - 5 3/4"		6" - 6 3/4"		7" - 7 3/4"		8" plus		Total	
Species	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**
Brook Trout														
Adirondack			95,049	2,366	23,230	883					14,840	4,795	133,119	8,044
Bath											3,810	1,268	3,810	1,268
Caledonia							400	44					400	44
Catskill											6,790	2,377	6,790	2,377
Chateaugay			35,470	850	7,700	339	2,200	255			37,040	10,526	82,410	11,970
Randolph											12,265	4,497	12,265	4,497
Rome			13,073	163	177,760	6,481					35,270	12,024	226,103	18,668
Salmon River					2,000	63					7,700	1,925	9,700	1,988
Van Hornesville			600	16							2,080	548	2,680	564
Total			**144,192**	**3,395**	**210,690**	**7,766**	**2,600**	**299**			**119,795**	**37,960**	**477,277**	**49,420**
Brown Trout														
Adirondack							650	63			61,170	16,777	61,820	16,840
Bath			95,000	1,874	28,250	1,788			2,600	477	159,810	52,218	285,660	56,357
Caledonia							700	82	21,900	4,018	271,290	105,911	293,890	110,011
Catskill											404,410	144,523	404,410	144,523
Chateaugay					800	57	300	31			126,630	33,209	127,730	33,297
Randolph			160,000	2,566	14,750	1,003	5,200	433			154,200	48,904	334,150	52,906
Rome					31,400	2,133	2,400	226	1,200	164	324,400	90,971	359,400	93,494
Salmon River					134,420	4,201			7,820	1,372	190,490	37,948	332,730	43,521
Van Hornesville					2,800	179					145,290	40,822	148,090	41,001
Total			**255,000**	**4,440**	**212,420**	**9,361**	**9,250**	**835**	**33,520**	**6,031**	**1,837,690**	**571,283**	**2,347,880**	**591,950**
Rainbow Trout														
Adirondack					12,000	706					28,160	8,210	40,160	8,916
Bath			53,000	571			44,000	4,696	28,000	4,445	20,115	6,019	145,115	15,731
Caledonia											67,950	17,844	67,950	17,844
Catskill							2,000	165			44,340	12,538	46,340	12,703
Chateaugay					56,500	4,122	69,000	6128			84,960	25,801	210,460	36,051
Randolph									2,000	292	39,380	14,015	41,380	14,307
Rome											51,330	12,603	51,330	12,603
Salmon River											7,880	1,926	7,880	1,926
Van Hornesville							3,270	314			27,190	8,780	30,460	9,094
Total			**53,000**	**571**	**68,500**	**4,828**	**118,270**	**11,303**	**30,000**	**4,737**	**371,305**	**107,736**	**641,075**	**129,175**

Annual Report of Fish Species Production by Hatchery
April 1, 2002 - March 31, 2003

	Fry		1" - 4 1/4"		4 1/2" - 5 3/4"		6" - 6 3/4"		7" - 7 3/4"		8" plus		Total	
Species	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**
Rt-steelhead														
Chateaugay					20,000	662							20,000	662
Salmon River					563,800	22,482	195,000	14,871					758,800	37,353
Total					**583,800**	**23,144**	**195,000**	**14,871**					**778,800**	**38,015**
Lake Trout														
Adirondack							29,250	2,024	450	36			29,700	2,060
Bath							121,200	6,774			89,500	15,411	210,700	22,185
Caledonia							111,500	7,892	240,000	20,086			351,500	27,978
Catskill							11,100	793					11,100	793
Chateaugay							6,850	496	39,600	3,288			46,450	3,784
Rome							8,350	618	4,150	323			12,500	941
Salmon River							36,000	2,666	112,000	8,746			148,000	11,412
Van Hornesville											5,000	1,000	5,000	1,000
Total							**324,250**	**21,263**	**396,200**	**32,479**	**94,500**	**16,411**	**814,950**	**70,153**
Splake														
Adirondack									3,540	578			3,540	578
Chateaugay									300	49	5,600	1,902	5,900	1,951
Rome									3,500	588	5,200	1,090	8,700	1,678
Total									**7,340**	**1,215**	**10,800**	**2,992**	**18,140**	**4,207**
Landlocked Salmon														
Adirondack			594,500	572	81,000	2,594			193,380	22877	500	3,605	869,380	29,648
Bath									52,000	6,011			52,000	6,011
Catskill									3,000	349			3,000	349
Chateaugay							41,220	4,087	37,930	4,734			79,150	8,821
Rome									1,950	227			1950	227
Salmon River							49,600	3,900					49,600	3,900
Van Hornesville									4,200	525			4,200	525
Total			**594,500**	**572**	**81,000**	**2,594**	**90,820**	**7,987**	**292,460**	**34,723**	**500**	**3,605**	**1,059,280**	**49,481**
Coho														
Salmon River					155,000	6,145			101,000	11,663			256,000	17,808
Total					**155,000**	**6,145**			**101,000**	**11,663**			**256,000**	**17,808**

Annual Report of Fish Species Production by Hatchery
April 1, 2002 - March 31, 2003

	Fry		1" - 4 1/4"		4 1/2" - 5 3/4"		6" - 6 3/4"		7" - 7 3/4"		8" plus		Total	
Species	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**
Chinook														
Caledonia			126,610	1,096									126,610	1,096
Salmon River			1,502,800	16,286									1,502,800	16,286
Total			**1,629,410**	**17,382**									**1,629,410**	**17,382**
Kokanee														
Adirondack			160,000	706									160,000	706
Catskill			4,800	23									4,800	23
Rome			21,820	122									21,820	122
Van Hornesville			15,200	39									15,200	39
Total			**201,820**	**890**									**201,820**	**890**
Total Number Trout & Salmon			**2,877,922**	**27,250**	**1,311,410**	**53,838**	**740,190**	**56,558**	**860,520**	**90,848**	**2,434,590**	**739,987**	**8,224,632**	**968,481**
Walleye														
Adirondack					32,930	1,220							32,930	1,220
Bath	9,970,000	133											9,970,000	133
Caledonia			36,340	63									36,340	63
Catskill			10,000	21	9,000	391							19,000	412
Chateaugay	2,284,000	30	10,000	27	9,100	297							2,303,100	354
Chautauqua			235,500	187									235,500	187
Oneida	169,753,000	2,261			103,000	4,478							169,856,000	6,739
Randolph			5,500	11	5,500	204							11,000	215
Rome	5,200,000	69	6,120	13									5,206,120	82
Salmon River	6,650,000	89	16,500	27	16,500	611							6,683,000	727
Van Hornesville	8,678,000	116	14,500	30	3,600	133							8,696,100	279
Total	**202,535,000**	**2,698**	**334,460**	**379**	**179,630**	**7,334**							**203,049,090**	**10,411**
Muskellunge														
Bath											5,800	446	5,800	446
Chautauqua	362,000	13	198,000	24	12,700	146					21,900	1,931	594,600	2,114
Total	**362,000**	**13**	**198,000**	**24**	**12,700**	**146**					**27,700**	**2,377**	**600,400**	**2,560**
Tiger Muskellunge														
Bath											12,030	1,835	12,030	1,835
Caledonia											9,500	1,384	9,500	1,384

Annual Report of Fish Species Production by Hatchery
April 1, 2002 - March 31, 2003

	Fry		1" - 4 1/4"		4 1/2" - 5 3/4"		6" - 6 3/4"		7" - 7 3/4"		8" plus		Total	
Species	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**
Catskill											9,450	1,383	9,450	1,383
Chateaugay											1,900	271	1,900	271
Randolph											1,500	214	1,500	214
Rome											21,950	3,098	21,950	3,098
Salmon River											10,440	1,358	10,440	1,358
So. Otselic											3,000	461	3,000	461
Van Hornesville											20,150	2,868	20,150	2,868
Total											**89,920**	**12,872**	**89,920**	**12,872**
Paddle Fish														
Randolph	1,878	498											1,878	498
Total	**1,878**	**498**											**1,878**	**498**
Panfish														
Chautauqua											3,000	600	3,000	600
Total											**3,000**	**600**	**3,000**	**600**
Total Number Warmwater Fish	**202,898,878**	**3,209**	**532,460**	**403**	**192,330**	**7,480**					**120,620**	**15,849**	**203,744,288**	**26,941**

Hatchery Fish Production Annual Summary by Species
April 1, 2002 - March 31, 2003

	Fry		1"- 4 1/4"		4 1/2" - 5 3/4"		6" - 6 3/4"		7" - 7 3/4		8" plus		Total	
Species	**Number**	**Weigh t**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**	**Number**	**Weight**
Cold Water														
Brook Trout			144,192	3,395	210,690	7,766	2,600	299			119,795	37,960	477,277	49,420
Brown Trout			255,000	4,440	212,420	9,361	9,250	835	33,520	6,031	1,837,690	571,283	2,347,880	591,950
Rainbow Trout			53,000	571	68,500	4,828	118,270	11,303	30,000	4,737	371,305	107,736	641,075	129,175
Rt-steelhead					583,800	23,144	195,000	14,871					778,800	38,015
Lake Trout							324,250	21,263	396,200	32,479	94,500	16,411	814,950	70,153
Splake									7,340	1,215	10,800	2,992	18,140	4,207
Landlocked Salmon			594,500	572	81,000	2,594	90,820	7,987	292,460	34,723	500	3,605	1,059,280	49,481
Coho					155,000	6,145			101,000	11,663			256,000	17,808
Chinook			1,629,410	17,382									1,629,410	17,382
Kokanee			201,820	890									201,820	890
Total Number Trout & Salmon			**2,877,922**	**27,250**	**1,311,410**	**53,838**	**740,190**	**56,558**	**860,520**	**90,848**	**2,434,590**	**739,987**	**8,224,632**	**968,481**
Warm Water														
Walleye	202,535,000	2,698	334,460	379	179,630	7,334							203,049,090	10,411
Muskellunge	362,000	13	198,000	24	12,700	146					27,700	2,377	600,400	2,560
Tiger Muskellunge											89,920	12,872	89,920	12,872
Paddle Fish	1,878	498											1,878	498
Pan Fish											3,000	600	3,000	600
Total Nuimber Warmwater Fish	**202,898,878**	**3,209**	**532,460**	**403**	**192,330**	**7,480**					**120,620**	**15,849**	**203,744,288**	**26,941**
Grand Total of Trout & Warmwater Fish	**202,898,878**	**3,209**	**3,410,382**	**27,653**	**1,503,740**	**61,318**	**740,190**	**56,558**	**860,520**	**90,848**	**2,555,210**	**755,836**	**211,968,920**	**995,422**

Endangered, Threatened, and Special Concern Species

Region 1

Banded Sunfish Rescue in Zeeks Pond
On August 27, 2002, staff from the DEC Region 1 Fisheries Unit, USFWS, Brookhaven National Laboratory and Cold Spring Harbor Fish Hatchery and Aquarium cooperated to collect banded sunfish (*Enneacanthus obesus*) from Zeeks Pond, a small coastal plain pond located at the eastern end of the Brookhaven National Laboratory Reservation. During periods of low groundwater levels Zeeks Pond has been reported to dry up completely. The drought conditions in the summer of 2002 resulted in unusually low groundwater levels and Zeeks Pond declined to a single pool no larger than 20 X 50 feet and 1.5 feet deep.

In an attempt to prevent the total extinction of the banded sunfish population in Zeeks Pond a small seine was pulled numerous times through the remaining pool of Zeeks Pond. Banded sunfish, pumpkinseed (*Lepomis gibbosus*) and brown bullhead (*Amerius nebulosus*) were collected. The sunfish ranged from 20 to 75 mm and were transferred to an aerated cooler without attempting to separate them by species. The bullhead were destroyed to reduce competition with the remaining sunfish. Approximately 150 banded sunfish and 100 pumpkinseed were collected and transported to the Cold Spring Harbor Hatchery for rearing.

Since August, 2002, rainfall has been above average. Zeeks Pond will be inspected in 2003 and if the water level has come back up, it will be surveyed to determine if the banded sunfish population survived the drought. If water levels are suitable, then the banded sunfish held at the Cold Spring Harbor Hatchery will be returned to Zeeks Pond.

Region 9

Paddlefish Restoration
In 2002 paddlefish were released into Kinzua Reservoir (1998 - 46; 1999 - 535; 2000 - 135; 2001 - 1,878; 2002-762) for the fifth consecutive year. The paddlefish measured 7.7 inches (eye to fork of tail) and appeared to be in good condition when released. A coded wire tag was inserted into the paddle of all paddlefish before release. Reports of eleven paddlefish that were either stranded (10) or caught by angling (1) have been received. The majority of these fish were reported below Kinzua Dam after high discharge events that required the opening of the lower (deeper) gates. Stocking and tag recovery information was forwarded to MICRA for subsequent evaluation.

Statewide

Sampling was completed in 205 sites, and three short interpretative reports were developed from surveys in the Genesee basin, Buffalo River basin and Chemung basin. Two extensive reports were completed as: 1) a species inventory by watershed and 2) comparisons of fish communities in shallow areas of bays of Lake Ontario and the St. Lawrence and Niagara rivers. Short reports were also developed about sampling in the Genesee, Chemung and Buffalo river basins.

Major accomplishments for the year include:
Starting the resurvey of watersheds to fill-in knowledge of species and stream sections not encountered in normal Regional surveys. This is the "Lesser Known Fishes Project", and we sampled 46 sites in the Genesee basin in 2002. Regional assistance was provided staff from Regions 8 & 9.

1) We updated the Round Whitefish Recovery Plan with input from Region 5. Small fingerling (stocked at 1 inch) continue to be stocked, for the third year, into Adirondack lakes to gain "refugia populations" and for experiments with survival. Evaluations by Region 6 biologist, Bill Gordon, showed favorable growth and maturity of whitefish after 3 summers in Evergreen and Trout Lakes. We succeeded in establishing a contract study with State Wildlife Grants, to identify reasons for whitefish decline and to choose the best locations for restoration. A brood stock water will be developed by Region 5 in Little Green Pond, after reclamation.

2) Stocking and recovery efforts continue with lake sturgeon (8^{th} year completed) and paddlefish (4^{th} year

completed), through the support of the Oneida Hatchery. Sturgeon evaluations by Region 6 showed favorable survival after 5 years in the Oswegatchie River, where 6 gill nets in August captured 36 juveniles, 13-36-inch long. Two cooperative projects for 2003 include: a sturgeon stocking evaluation in the St. Regis River by the USGS and Akwesasne-Mohawk, and an evaluation of juvenile habitat-use in the lower Genesee by the FWS and USGS. Paddlefish stocking in Allegheny Res. may be continued beyond 2003 to better establish a juvenile population, pending decisions on staff support.

3) Biomonitoring work with fish continues toward development of an IBI. This has been companioned with the rapid assessment sampling of invertebrates by Bode, Novak and Abeale. This year we sampled Cohocton, Canisteo and Chemung rivers at 16 sites coordinated with water quality assessments.

4) Highly-valued catches from miscellaneous surveys include comely shiner in Wilseyville Creek, swallowtail shiner in Cohocton and Chemung rivers, black redhorse in Buffalo River, channel darter in Oswegatchie River, blueback herring in the St. Lawrence River and deer toe mussel in Oatka Creek.

5) Museum collection records from SUNY Geneseo and from the Roosevelt collection at ESF were put into spreadsheets for electronic sorting and storage. These records proved useful for the documentation of blackchin shiner in Conesus Lake (Livingston Co.) in 1974 and banded sunfish in Lake Stahahe (Rockland Co.) in 1919.

Participation as a committee member for the State Wildlife Grants Program allowed for the advancement of four projects important to fisheries programs: 1) round whitefish field investigations, through Cornell Univ., 2) development of a conservation plan for Conewango Creek of the Allegheny basin, through the Nat. Heritage Prgm, 3) development of a management plan for American eel in inland waters of NYS, by USGS, Cortland and 4) continuation of the funding for co-worker, Jessica Hart, in this “Lesser Known Fish Project.

Urban and Suburban Fisheries

Region 1

Urban Park Ranger Training
On April 9th and 10th, Senior Fish and Wildlife Technician Tom Hughes assisted with a SAREP training in New York City. Tom along with Region 1 SAREP Coordinator Richard Hilary and SAREP instructor Mark Capazolla provided instruction on basic fishing and natural resource concerns. The training was at the Dana Discovery Center in Central Park during the first day and Inland Hill Park on the Hudson River during the second day. About 45 Urban Park Rangers and Americorps Volunteers participated.

I FISH NY Baseline Angler Survey
In an effort to assess the average angler's general knowledge of fishing regulations, equipment, and fish identification, as well as their opinions regarding the quality and quantity of our local access sites and collect general demographic information on the angling population and those interested in learning about fishing the I FISH NY program conducted interviews with anglers at various fresh-water and marine access sites in Nassau and western Suffolk Counties and distributed questionnaires at fishing events held throughout 2002. The fresh-water locations surveyed included Blydenburgh Lake, Lake Ronkonkoma, Belmont Lake, Massapequa Reservoir, Twin Lakes in Wantagh, Hempstead Lake, South Pond and McDonald Pond. Marine anglers were surveyed at Green Island, Jones Beach Piers, Jones Beach West End, Sunken Meadow State Park, Captree State Park and Oyster Bay. Angler interviews were conducted at various times on both week days and weekends from June 22 to November 9. A total of 598 angler interviews were conducted. Angler questionnaires were distributed at Camp Edey and the Ronkonkoma Fishing Festival in June, the Belmont Lake Fishing Clinic in August, the Suffolk Alliance of Sportsmen show in September and the Huntington Festival and Belmont Lake Fall Festival in October. A total of 339 completed questionnaires were returned.

The interviews proved to be an excellent opportunity to distribute literature, answer questions, and educate the general public on all aspects of fishing (including regulations). In particular, this interaction has allowed us to enlighten many who were unaware of or unclear about different fishing regulations, such as size restrictions and creel limits. In several cases, people in possession of illegal fish or crabs returned them to the water when asked to do so. Therefore, another major benefit of the interview process was the establishment of a DEC presence throughout the summer at many of our most popular fishing locations. Overall, the interviews seemed to be a favorable experience for the vast majority of anglers, and all seemed to go away with a positive attitude towards the DEC.

The responses to all 598 angler interviews and 339 completed questionnaires were entered into an Access Database prepared by Fisheries Outreach Coordinator, Ed Woltmann. The results of these surveys will provide the background information necessary to determine the effectiveness of the I FISH NY program in reaching the angling public.

I FISH NY Girl Scout Camp Fishing Program
The I FISH NY Program worked with the Suffolk County Council of the Girl Scouts to develop a fishing program at Camp Edey in the Town of Islip. Camp Edey is a day camp that has programs for about 150 girls from all over Suffolk County each week for eight weeks. The program began with instruction for the counselors on June 26. The intent was for the counselors to pass on their new knowledge to the campers coming to the camp this summer. The fishing program evolved to Fisheries Staff and volunteers providing instruction to the campers every Tuesday for the duration of the camp with some assistance from camp staff. Six sessions of 45 minutes were conducted each day for groups of 25 girls ranging from 6 to 12 years old. Each session included basic instruction on aquatic ecology, fish identification and how to use the fishing equipment. The girls were then given an opportunity to fish in the camp pond. For many of the girls this was their first fishing experience and most of them caught their first fish. In addition to the basic instruction and opportunity to fish, each camper was provided with literature on fishing regulations and local fishing opportunities. Both the campers and the camp counselors were very excited about the fishing program. Through practice, several of the counselors learned how to assist with the program. The girls' enthusiasm for the program seemed to grow after each week. Through the summer the program evolved

into a very successful and strong program utilizing Fisheries Unit Staff, camp counselors and volunteers that reached an incredible number of young girls (about 800 over 6 weeks) and served well to promote the aquatic resources available in New York State and Camp Edey. In addition, a new partnership emerged between NYSDEC Freshwater Fisheries staff/volunteers and the Suffolk County Girl Scouts. Working together, we created a unique and positive fishing and aquatic ecology program.

I FISH NY Staten Island Clinic for the YMCA

On August 5th, technician Tom Hughes and I Fish NY seasonal David Kennedy assisted Region 2 with an all day fishing clinic at Ohrbach Lake on Staten Island. About 150 to 200 kids from the YMCA participated in the event. The clinic started with a "round-robin" teaching session that included basic fishing tackle, freshwater ecology, ethics/regulations, and fish identification. After the instruction, the kids fished Ohrbach Lake and caught many sunfish and bass. Several kids caught their first fish!

I FISH NY Family Fishing Clinic

The Regional Fisheries Unit conducted the eleventh annual Summer Family Fishing Clinic on August 17. Due to the drought the event was moved from Hempstead Lake State Park, where it had been held for the last ten years, to Belmont Lake State Park. Over 150 people attended. All attendees were given instruction in fish identification, aquatic ecology, basic fishing tackle, regulations and angler ethics, and care and preparation of the catch. Children participating in the clinic, then participated in a casting contest with prizes provided by the Regional Fisheries Unit, the New York Fishing Tackle Trade Association and the New York Aquarium. After the casting contest everyone who wanted to fish was provided with a rod and bait so that they could fish in Belmont Lake and most kids caught at least one fish. This event was designated as a Free Fishing event so fishing licenses were not needed to participate.

Lynbrook Expo

On September 14, Technicians Tom Hughes and John Lundie, along with the Environmental Conservation Officers and Forest Rangers, participated in the Lynbrook Expo at Greis Park. Several people visited the Fisheries display throughout the day. Tom and John worked hard to promote the new I FISH NY program and the upcoming Fall Fishing and Children's Festival at Belmont Lake. Other groups at the festival included the U.S. Coast Guard, U.S. Army, Nassau County Police Department, and the Lynbrook Baby Hooters.

Region1 Fisheries Staff Attends Training on Working with Children

Region 1 Fisheries Manager, Charles Guthrie and Technician Tom Hughes participated in two workshops at the Five Rivers Environmental Education Center on December 10, 2002. The workshops focused on working with children both inside and outside the classroom. They were designed for people without a formal background in education, who are working with school or youth groups, acting as guest speakers, leading nature walks, or going into a classroom to provide educational programs. The workshops were very helpful in helping identify needs and possible problems in implementing classroom fishing instruction through the I FISH NY program.

Freshwater Ecology Program for Pine Park Elementary School

The Region 1 Fisheries Unit and Cornell Cooperative Extension participated in a two day educational program organized by the Sport Fishing Federation at the Pine Park Elementary School in Brentwood, NY. The Pine Park Elementary School consists of 29 kindergarten classes for a total of 525 students. Each class was given 30 minutes of instruction divided equally between the marine and freshwater environments. Cornell Cooperative Extension covered the marine instruction and the Regional Fisheries Unit provided the freshwater instruction.

The Regional Fisheries Unit used models of a largemouth bass, brown bullhead and bluegill to explain what a fish is and how different species of fish are adapted to their environment. The children showed a lot of interest in the different types of fish. They did a good job of identifying fins and gills as characters that distinguish fish. The children showed particular interest in the fact that a brown bullhead actually tastes the MUD on the bottom of a pond to find its food and that a bluegill eats BUGS!!

The second part of the Fisheries Unit presentation involved showing the children living examples of local freshwater invertebrates (BUGS). Many children could identify a picture of a dragonfly and were

enthralled with seeing a living dragonfly nymph. Cranefly larvae were also a big hit, with most children venturing to touch the larvae. Hellgrammites, leeches, caddisflies amphipods and isopods were also displayed, much to the delight of the children.

Each teacher was provided with *Getting Started, A Beginner's Guide to Freshwater Fishing* and a enough copies of *Fishing the Freshwaters of Long Island and New York City*, *The Basics**, *My First Fish*, *The Sweetwater Angler** and *Fishing for Panfish** for each child. The teachers and students were very appreciative and excited about the program (though not all of the teachers wanted to touch the BUGS).

Regional Fisheries Manager, Chart Guthrie, and Senior Fish and Wildlife Technician, Tom Hughes, found that they were able to use much of what they had learned at the Working with Kids Workshop that they attended in December at the Five Rivers Environmental Education Center. The workshop stressed the value of keeping the students' attention by focusing on hands on, interactive programs and keeping the program segments short. This approach kept the children interested and involved throughout the program.

*These publications are available in PDF format on the internet at the Region 1 Fisheries web site: http://www.dec.state.ny.us/website/reg1/reg1bof.html

Region 2

NYC Urban Park Ranger Training

NYC SAREP helped organize a training of the NYC Parks Department Urban Park Rangers. The event served both as the annual training that the Rangers receive from us and as a forum to discuss the end of the SAREP program and the start of the Angling Allstar program that the "I Fish NY" steering committee is developing**.** The Rangers conduct their own fishing events throughout the NYC Parks system every year. The DEC and SAREP have historically teamed up to train the Rangers on how and what to teach at these fishing events. The Rangers were pleased to hear that their annual training was not going to be disrupted by the change from SAREP to the Angling Allstar program.

Administration

Region 1

Statewide Fisheries Database During fiscal year 2002, the Region 1 Fisheries Unit completed the task begun in 2001 of submitting/resubmitting old surveys into the new fisheries database format. Forty-four surveys were submitted to the biosurvey unit (including 18 surveys from 2002). Seventy- three surveys were finalized into the database, some of which had been initially submitted during 2001. As of March 31, 2003, there were 419 surveys finalized for Region 1 (dating back to 1988). Regional Fisheries Database Coordinator Gregory Kozlowski attended two database meetings and provided regional input on various aspects of the database.

Region 1 Fisheries Unit Completes Bleiker Citizen Participation Course
Regional Manager Chart Guthrie and Biologists Greg Kozlowski and Fred Henson completed the three day Systematic Development of Informed Consent course taught by Hans and Annemarie Bleiker of the Institute for Participatory Management and Planning. The course was sponsored by the Northeast Division of the American Fisheries Society and provided valuable insights into the development of informed consent among constituents and the public participation process.

National AFS Meeting
From August 19- 22, Technician Tom Hughes attended the Annual Meeting of the American Fisheries Society in Baltimore, Maryland. The theme of this year's meeting was "Turning the Tide: Forging Partnerships to Enhance Fisheries." Over 1,500 fisheries professionals from across the nation and around the world attended the meeting. On August 19, Tom presented the results of his Master's research - "Population characteristics, habitats, and movements of lake sturgeon in the lower Niagara River." About 100 people attended his talk, and it generated quite a bit of enthusiasm and interest from those folks working with lake sturgeon.

Freshwater Wetlands Regulatory Training
On October 29 and 30, Technician Tom Hughes attended a Freshwater Wetlands training course at Marine Resources in East Setauket. The course was sponsored by the Bureau of Habitat and the Division of Environmental Permits. The course covered wetland ecology, delineation, regulations, and permitting. In addition to classroom instruction, participants visited Gibbs Pond and the headwaters of the Connetquot River at Lakeland County Park.

Fire Academy Training
In support of Region One Natural Resource Program staff training goals, biologist Fred Henson and seasonal laborer Michael DiMarco successfully completed a course in Basic Firefighting and Wildfire Behavior during the week of October 28. Meanwhile, biologist Greg Kozlowski completed the firefighting refresher course and renewed his firefighter certification. The courses were taught at Brookhaven National Laboratory as part of the 2002 New York Wildfire and Incident Management Academy. The course work is of particular relevance in Region One due to the increasing use of fire as a vegetation management tool on Eastern Long Island, the number of freshwater resources located within fire prone vegetation types, and the need for assistance from the wider regional staff in the event of a significant wildfire.

Federal Aid Project Leaders Course
On November 7, Manager Charles Guthrie and biologists Fred Henson and Greg Kozlowski successfully completed the Federal Aid Project Leaders Course. This course, provided by the U.S. Fish and Wildlife Service Division of Federal Aid, covered the various federal aid programs relevant to the NYSDEC Division of Fish Wildlife and Marine Resources and regulations, roles, and responsibilities associated with each. The grants management process was examined from the level of USFWS regulations and procedures to the stipulations contained in the enabling acts of Congress. A central focus of the course was to enable students to efficiently navigate the body of forms, requirements, and regulations governing federal grants to find the guidance relevant to their specific grant. To that end, students were provided with a "toolkit" consisting of approximately 200 linked electronic documents on a compact disk and given exercises to develop skill in the use of the "toolkit."

Field Safety Training
On November 13, Technician Tom Hughes and Seasonal Laborers Mike DiMarco and John Lundie attended an all-day field safety training presented by Larry Enoch from Health and Safety. Topics discussed included poisonous plants and animals, Lyme disease, rabies, right-to-know toxicology, and safe lifting.

Steam, Floodplain and Wetland Restoration Training
On November 12-14, 2002, Regional Fisheries Manager Charles Guthrie and Regional Fisheries Biologists Greg Kozlowski and Fred Henson attended the Stream, Floodplain and Wetland Restoration workshop held at Bear Mountain State Park. The workshop covered a variety of topics involving natural channel design, dam removal, no adverse impact floodplain management and stream restoration, and source water protection and watershed management. Of particular interest to Region 1 staff was dam removal due to issues on several Long Island waters that might involve dam removal. Natural channel design was also of particular interest due to several projects Fisheries Staff is working on or reviewing.

State Wildlife Grants Steering Committee Participation
In FY 2002-03 biologist Fred Henson volunteered to serve on the State Wildlife Grants Steering Committee. This committee accomplished the following objectives: recommended to the Division Management Team a public involvement process, recommended to the Division Management Team a list of species of greatest conservation need, and coordinated the development of an Application for Federal Assistance. To accomplish this final objective the committee reviewed input from agency experts, academics, and the general public identifying New York State's species of greatest conservation need and projects to address those conservation needs. After considerable debate the committee recommended to the Division Management Team a package of projects totaling $3.7 million in federal funds.

The Application for Federal Assistance required to secure those funds was largely written by committee members. On February 7, Biologist Fred Henson and State Wildlife Steering Committee Colleagues finished assembling, editing, and proofreading the grant narrative, project statements, and budget for the Fish and Marine Species Grant Application for State Wildlife Grant Funding. The overall narrative was written by Fred Henson. This grant application was subsequently reviewed and approved for funding by the U.S. Fish and Wildlife Service without further revisions.

It remains to be seen whether it will be possible to make full and effective use of these federal funds given the staff reductions within the Division of Fish, Wildlife, and Marine Resources.

Annual NY Chapter American Fisheries Society Meeting
Region 1 Fisheries Manager Charles Guthrie, Senior Fisheries Technician Tom Hughes, and Biologists Greg Kozlowski and Fred Henson all attended the annual meeting of the New York Chapter of the American Fisheries Society from January 8 - 10, 2003. The theme of this year's meeting was "Restoring Natural Flow Regimes: Dam Removal as a Tool in River Restoration." This topic was of particular interest to Region 1 since there are several bodies of water on Long Island that are either directly or indirectly affected by dams. The meeting featured several outstanding presentations, including talks by Laura Wildman from American Rivers, Scott Carney from the Pennsylvania Fish and Boat Commission, and Doug Sheppard from the NYSDEC. Over 100 fisheries professionals attended the meeting, and organizers remarked that this year's meeting was among the best in recent years.

DEC Training
On January 29th, technicians Tom Hughes and Mike DiMarco traveled to East Setauket to attend a training entitled "Dealing with Difficult People." The course, instructed by Alan Alcon from DEC Training and Organization Development taught participants how to communicate and deal with different types of difficult people. Tom and Mike will certainly benefit from the course, since they encounter plenty of difficult people while performing their duties out in the field.

Region One Staff Receives GIS Training
Biologist Fred Henson participated in the introductory ArcView class given on February 5. Biologist Greg Kozlowski and Regional Fisheries Manager Charles Guthrie participated in separate sessions of the

advanced ArcView class given on February 6 and on the 13. Both classes were given in East Setauket. While the training provided staff with a better appreciation of the capabilities of the software and some useful reference materials, there was general agreement that, in both classes, too much material was presented to be absorbed by the students in the allotted time. Furthermore, the format of the exercises was not conducive to remembering the material.

Region 1 Fisheries Storage Barn destroyed by fire

An early morning fire on March 22, completely destroyed the Fisheries Storage Barn at the Region 1 DEC Facility in Ridge. The Regional Fisheries Unit stored nearly all of its field equipment in this barn and everything in the barn was a total loss. Fisheries sampling equipment lost includes five electrofishing units (two electrofishing boats with trailers, a stream shocker and two backpack shockers), all sampling nets (hoop nets, gill nets, seines and dip nets), safety equipment (waders, gloves, life jackets etc.), fish processing equipment (measuring boards, electronic scales, lights for night work, coolers and fish holding tanks), water chemistry equipment (dissolved oxygen and conductivity meters, sampling bottles and secchi disks) and other equipment that allowed us to conduct work outdoors and on the water (outboard motors, electric trolling motors, oars, generators, marine batteries, battery chargers, anchors, etc.). Additionally nearly 200 fishing rods, used in Fisheries Outreach Programs were lost. Fortunately, with the help of the New York Fishing Tackle Trade Association, the Regional Fisheries Unit will be able to replace the lost rods in time for our Spring Fishing Festival on April 5. In addition to the Fisheries Unit, Operations, Law Enforcement and the Forest Rangers also lost equipment in the fire.

Region 3

Triploid Grass Carp Stocking Permits

Region 3 issued a total of 363 permits (176 reissues) to stock triploid grass carp (TGC) in 2002. From 1991 through 2002 a total of 3,302 TGC permits have been issued in the region. Over one third of these were reissued permits for waters that already had permits to stock these fish in previous years. Also during this period, 106 of these permit applications required additional review following the SEQRA process given that the ponds were over 5 acres in size or had permanently flowing outlets. We estimate that over 2,200 different water bodies in Region 3 have received permits to stock TGC since 1991.

Region 5

Bill Miller Retires

Biologist Bill Miller retired effective March , 2003, after 30 years with the Bureau of Fisheries. Bill's wide ranging knowledge and experience will be missed.

Les Saltsman Retires

Principal Fish & Wildlife Technician Les Saltsman retired effective March 24, 2003, after 28 years with the Bureau of Fisheries. He will be missed, as will his knowledge and expertise.

Stocking Atlas Completed

An atlas of 162 stream segments stocked in Region 5 was developed. This atlas is part of a statewide effort to map stocked stream segments. The atlas shows the stocked reach and stocking points for each stream. The maps will be utilized by hatchery personnel to facilitate trout stocking.

Region 6

Jack Hasse served as lead instructor for two sessions of the statewide water safety course taught for DEC staff at Herkimer County Community College with field exercises in West Canada Creek, and conducted CPR and First Aid classes for Regional DEC staff at several regional locations.

Region 6 Fisheries staff participated in the selling of sporting licenses via the new DECALS system at the New York State Fair. Questions from the public were also answered during this twelve day event which had an attendance of close to one million people.

Region 7

Fisheries Database Management

A total of 81 surveys were sent into the Biosurvey Unit during the past year for entry into the Statewide Fisheries Data Base.

Unit Management Planning
Staff supplied fisheries resource data and management information for one Division of Lands and Forests Unit Management Plans (UMP) for the Broome State Forests UMP. Additional input was provided on the Rogers Center and Five Streams UMP, both of which are in Chenango County.

Permits and Licenses
The following number of permits and licenses were issued by the Fisheries Unit:
Bait Licenses - 63; Farm Fish Pond Licenses - 197; Triploid Crass Carp Permits - 250; Permits to stock or remove fish - 32; Piranha Permits - 1.

Region 8

Triploid Grass Carp Permits
A record number of triploid grass carp permits were issued in FY 2002. The 390 permits issued surpasses the previous high of 379 issued in FY 2001. The Region issued 324 permits in FY 2000, 371 in FY 1999, and 342 in FY 1998. Most were for individually owned ponds less than one acre in surface area. No permit fee is charged and the administration involved with this program is substantial.

Farm Fish Pond Licenses
The Region issued 203 farm pond licenses in FY 2002. There is no fee for this five year license.

Bait Licenses
With the elimination of sporting license sales in the Region, the Fisheries Key Board Specialist adopted an additional duty of issuing bait licenses. Eighty-four bait licenses were issued and $1,021.00 collected in license fees.

Stocking Permits
The Region issued 15 stocking permits during FY 2002. There is no fee associated with this permit.

Piranha Permits
The Region issued one Piranha permit in FY 2002. There is no fee associated with this permit.

Region 9

Triploid Grass Carp Permits
The number of grass carp permits issued in 2002 was 518 which is the most ever issued in the region since the program began in 1991.

Inland Fisheries

Statewide Fisheries Survey Database
The Biological Survey Unit (BSU) has completed restructuring the Modern Fisheries Database. The Bureau now has a fully functional relational database management system in place to store and retrieve all recorded inland fisheries survey information from 1988 to present. Containing 6,500 fisheries surveys referencing data collected at more than 23,000 site locations, the database will be used to provide staff with accurate data for fisheries resource management and protection purposes. In addition to the 500,000 individual fish records, the database also has site specific physical and chemical information on various freshwater resources.

To ensure effective use of the database, the Bureau, in conjunction with MicroKnowledge Inc.®, provided customized training to 57 staff members in the spring. The training was deemed a success with participants feeling more confident in being able to query the database for decision making needs.

Biosurvey Unit staff processed more than 600 fisheries surveys and reduced its average turn around time for processing from 210 days in FY2001 to 85 days in FY2002. The BSU will continue to develop, enhance and support the Modern Fisheries Database. With assistance from the Bureau's Statewide Database Committee, the BSU will begin integrating and developing additional databases, which will link to the Modern Fisheries Database to form a comprehensive information management system.

Bureau of Fisheries
2002-2003 Staffing

CENTRAL OFFICE

Administration

Stang, Douglas	Biologist 4 (Aquatic)
Pell, Clark	Biologist 2 (Wildlife)
Brandt, Robert	Biologist 2 (Aquatic)
Stegemann, Eileen	Sr. Engineering Research Editor
Smollin, Mary	Secretary 1

Great Lakes Fisheries

Lange, Robert	Biologist 3 (Aquatic)

Public Use and Extension

Gann, Michael	Biologist 3 (Aquatic)

Inland Fisheries

Festa, Patrick	Biologist 3 (Aquatic)
Woltmann, Ed	Biologist 2 (Aquatic)
Daley, James	Biologist 2 (Aquatic) - started 8/16
Hurst, Steve	Biologist 1 (Aquatic)
Linda Richmond	Program Aid
James Andersen	Clerk I
Tanashelia McGill	Clerk 1 (Seasonal)

Fish Culture Section

Hulbert, Philip	Fish Culturist VI
Buell, Henry	Fish Culturist V
Sarrge, Beverly	Secretary 1

REGION 1

Guthrie, Charles	Biologist 2 (Aquatic)
Kozlowski, Gregory	Biologist 1 (Aquatic)
Henson, Fred	Biologist 1 (Aquatic)
Hughes, Tom	F&W Tech 2 (Resigned 3/27/03)
DiMarco, Michael	Laborer (Seasonal)
Kennedy, David	Laborer (Seasonal)
Lundy, John	Laborer (Seasonal)

REGION 2

Van Maaren, Chris	Biologist 1 (Aquatic)
Casey Jenson	Laborer

REGION 3

Elliot, Wayne	Biologist 2 (Aquatic)
Pierce, Ron	Biologist 1 (Aquatic)
Angyal, Bob	Biologist 1 (Aquatic)
Surprenant, Leslie	Biologist 1 (Aquatic)
Flaherty, Mike	Biologist 1 (Aquatic)
VanPut, Ed	Fish and Wildlife Technician 3
Falk, Art	Fish and Wildlife Technician 3
Wysocki, Linda	Fish and Wildlife Technician 2
McNamara, Tim	Fish and Wildlife Technician 1 (Seasonal)
Moore, Denise	Fish and Wildlife Technician 1 (Seasonal)
Motluck, Lisa KC	Fish and Wildlife Technician 1 (Seasonal)

REGION 4

Slingerland, Donald	Biologist 2 (Aquatic)
McBride, Norm	Biologist 1 (Aquatic)
Zielinski, Dan	Biologist 1 (Aquatic)
Sicluna, Joe	Biologist 1 (Aquatic)
Cornwell, Dave	Fish and Wildlife Technician 2
Linhart, Fred	Fish and Wildlife Technician 3
Martel, Al	Fish and Wildlife Technician 3
Collins, Kandy	Keyboard Specialist 2
Ryan, Bruce	Fish and Wildlife Technician 1 (Seasonal)
Strassenburg, Jeff	Fish and Wildlife Technician 1 (Seasonal)
Krutz, John	Fish and Wildlife Technician 1 (Seasonal)
Kenney, Jim	Laborer/ FWMA Patrolman (Seasonal)

REGION 5

Nashett, Lawrence	Biologist 2 (Aquatic)
Miller, William	Biologist 1 (Aquatic)
Durfey, Lance	Biologist 1 (Aquatic)
Preall, Richard	Biologist 1 (Aquatic)
Schoch, William	Biologist 1 (Aquatic)
Demong, Leo	Biologist 1 (Aquatic)
Brown, Raymond	Fish and Wildlife Technician 3
Sausville, Jennifer	Fish and Wildlife Technician 2
Shanahan, Thomas	Fish and Wildlife Technician 1
Beatty, Jeannine	Secretary 1
Nettles, David	Fishery Biologist (USFWS)
Morehouse, Burton	Fish and Wildlife Technician 3
Saltsman, Leslie	Fish and Wildlife Technician 3
Inglee, Jeffrey	Laborer (Seasonal)
Stephenson, Bethany	Fish and Wildlife Technician 1 (Seasonal)
Fellion, Melissa	Fish and Wildlife Technician 1 (Seasonal)
Duensing, Sara	Fish and Wildlife Technician 1 Seasonal)

REGION 6

McCullough, Russ	Biologist 1 (Aquatic)
Gordon, William	Biologist 1 (Aquatic)

Flack, Frank	Biologist 1 (Aquatic)
Carlson, Douglas	Biologist 1 (Aquatic)
Hasse, Jack	Biologist 1 (Aquatic)
Klindt, Roger	Biologist 1 (Aquatic)
Adams, Richard	Fish and Wildlife Technician 3
Town, Blanche	Fish and Wildlife Technician 2
Colesante, Mark	Fish and Wildlife Technician 1 (Seasonal)
Gordon, David	Fish and Wildlife Technician 1 (Seasonal)
Hart, Jessica	Fish and Wildlife Technician 1 (Seasonal)
Covey, Julia	Fish and Wildlife Technician 1 (Seasonal)
Edmonds, Brian	Fish and Wildlife Technician 1 (Seasonal)
Farmer, Richard	Laborer (Seasonal)
Gordon, Aaron	Laborer (Seasonal)
Helmetsie, Robert	Laborer (Seasonal)
Hopkins, Lucas	Laborer (Seasonal)

REGION 7

Les Wedge	Biologist 2 (Aquatic)
Dan Bishop	Biologist 1 (Aquatic)
Tom Chiotti	Biologist 1 (Aquatic)
Dave Lemon	Biologist 1 (Aquatic)
Jeff Robins	Biologist 1 (Aquatic)
Russ Davall	F&W Technician 3
Jeff Eller	F&W Technician 2
Paul Moore	F&W Technician 2
Bob Rathman	F&W Technician 2
Janet Hines	Secretary 1
Shawn Fox	Seasonal F&W Technician 1 (4/15/02 -10/15/02)
Heather M. Seamon	Seasonal F&W Technician 1 (7/11/02 -12/26/02)

REGION 8

Abraham, Bill	Biologist 2 (Aquatic)
Kosowski, David	Biologist 1 (Aquatic)
Pearsall, Web	Biologist 1 (Aquatic)
Sanderson, Matt	Biologist 1 (Aquatic)
Hammers, Brad	Biologist 1 (Aquatic)
Angold, Fred	Fish and Wildlife Technician 3
Olsowsky, David	Fish and Wildlife Technician 2
Verna, Marvin	Fish and Wildlife Technician 2
Richardson, Denise	Fish and Wildlife Technician 2
Burdett, Anna	Keyboard Specialist 1
Deres, Bob	Fish and Wildlife Technician 1 (Seasonal)
DeLong, Martin	Fish and Wildlife Technician 1 (Seasonal)
Mulhall, Daniel	Fish and Wildlife Technician 1 (Seasonal)
Webb, James	Fish and Wildlife Technician 1 (Seasonal)
Holland, Douglas	Fish and Wildlife Technician 1 (Seasonal)

REGION 9

Mooradian, Steve	Biologist 2 (Aquatic)
McKeown, Paul	Biologist 1 (Aquatic)
Evans, Joe	Biologist 1 (Aquatic)
Wilkinson, Mike	Biologist 1 (Aquatic)
Cornett, Scott	Biologist 1 (Aquatic)
Rende, Emilio	Fish and Wildlife Technician 2
Spinelli, Jim	Fish and Wildlife Technician 1 (Seasonal)
Preston, Ron	Fish and Wildlife Technician 1 (Seasonal)
Telecky, Jason	Fish and Wildlife Technician 1 (Seasonal)
Adams, Connie	Fish and Wildlife Technician 1 (Seasonal)

LAKE ERIE UNIT

Culligan, William	Biologist 2
Einhouse, Donald	Biologist 1
Markham, James	Biologist 1
Zeller, Douglas	Fisheries Research Vessel Captain
Zimar, Richard	Fish and Wildlife Technician 2
Beckwith, Brian	Fish and Wildlife Technician 2
Szwejbka, MariEllen	Secretary 1
McCarthy, Patrick	Fish and Wildlife Technician (Seasonal)
Smith, Brandon	Fish and Wildlife Technician (Seasonal)
Sek, Daniel	Fish and Wildlife Technician (Seasonal)

LAKE ONTARIO UNIT

LaPan, Steven	Biologist 2 (Aquatic)
Eckert, Thomas	Biologist 1 (Aquatic) - retired 3/31/03
Massia, Gaylor	Maintenance Assistant
Grant, Beverly	Secretary 1
Holland, Douglas	Fish and Wildlife Technician 1 (Seasonal)
Holland, Derek	Fish and Wildlife Technician 1 (Seasonal)
Turner, Kristen	Fish and Wildlife Technician 1 (Seasonal)
Pallo, Nick	Fish and Wildlife Technician 1 (Seasonal)
Ryan, James	Fish and Wildlife Technician 1 (Seasonal)
Edmonds, Brian	Fish and Wildlife Technician 1

	(Seasonal)
Hoag, Greg	Fish and Wildlife Technician 1 (Seasonal)
Geiger, Randy	Fish and Wildlife Technician 1 (Seasonal)
Mincer, Daniel	Laborer (Seasonal)
Lane Deneesha	Laborer (Seasonal)
Hinckley, M. Ellen	Laborer (Seasonal)
Larkins, Mike	Laborer (Seasonal)
Black, Kate	Green Thumb Staff
Haller, Ralph	Green Thumb Staff

ADIRONDACK HATCHERY

Grant, Edward	Fish Culturist 2
Miller, Douglas	Fish Culturist 1
Wallace, Michael	Fish and Wildlife Technician 1
Aldinger, Fritz	Fish and Wildlife Technician 1
Klubek, Kenneth	Fish and Wildlife Technician 1

BATH HATCHERY

Osika, Kenneth	Fish Culturist 2
Sweet, Robert	Fish Culturist 1
Klesa, Rodney	Fish and Wildlife Technician 1
Raab, Kelly	Fish and Wildlife Technician 1
Schirmer, Jason	Fish and Wildlife Technician 1

CALEDONIA HATCHERY

Mack, Alan	Fish Culturist 3
Stein, Robert	Fish Culturist 1
Zenzen, Stephen	Fish and Wildlife Technician 1
Kelley, Charles	Fish Culturist 1
Hubbard, Bruce	Fish Culturist 1
Krause, Mark	Fish Culturist 2
Hayden, Kevin	Fish and Wildlife Technician 1
Ward, Brian	Fish and Wildlife Technician 1

CATSKILL HATCHERY

Covert, Scott	Fish Culturist 3
Anstey, Timothy A.	Fish and Wildlife Technician 1
Judson, James L	Fish and Wildlife Technician 1
Anderson, John	Fish Culturist 2
Gennarino, Joseph	Fish Culturist 1
Geiger, Randall	Fish and Wildlife Technician 1

CHATEAUGAY HATCHERY

Brue, Peter	Fish Culturist 2
Armstrong, David	Fish Culturist 1
Jackson, Matthew	Fish and Wildlife Technician 1
Ventiquattro, Thomas	Fish Culturist 1
Gordon, David	Fish and Wildlife Technician 1
Hoag, Gregory	Fish and Wildlife Technician 1

CHAUTAUQUA HATCHERY

King, Larry	Fish Culturist 2
DeFries, Eric	Fish Culturist 1
Rambuski, James	Fish and Wildlife Technician 1
Gruber, Bradley	Fish and Wildlife Technician 1

ONEIDA HATCHERY

Babenzien, Mark	Fish Culturist 3
Colesante, Richard	Biologist 1 (Aquatic)
Rathje, Carl	Fish Culturist 2
Evans, Bill	Fish Culturist 1
Dixon, Michael	Fish Culturist 1

RANDOLPH HATCHERY

Mellon, Jon	Fish Culturist 2
Kriger, Richard L.	Fish Culturist 1
Hohmann, Barry	Fish and Wildlife Technician 1
Baginski, Kenneth	Fish and Wildlife Technician 1
Borner, Richard	Fish Culturist 1
Hulings, Raymond	Maintenance Assistant

ROME HATCHERY

Lewthwaite, Robert	Fish Culturist 3
Woodworth, William	Fish Culturist 1
Wanner, Scott	Fish Culturist 1
Talbot, Clifford	Fish Culturist 2
Benn, Eugene	Fish and Wildlife Technician 1
Matt, Kimberly	Keyboard Specialist.
Batur, Mark	Fish and Wildlife Technician 1
Erway, David	Fish and Wildlife Technician 1
Grabowski, Steven	Fish and Wildlife Technician 1
Nessel, Robert	Maintenance Supervisor
Draper, John Jr.	Fish and Wildlife Technician 1

FISH DISEASE CONTROL CENTER

Schachte, Dr. John	Pathologist 2 (Aquatic)
Petrie, Christopher	Fish and Wildlife Technician 2
Jalbert, Barbara	Keyboard Specialist
Flisnitz, Cindy	Keyboard Specialist

SALMON RIVER HATCHERY

Dolan, Stephen	Fish Culturist 2
Greulich, Andreas	Fish Culturist 3
Wrotniak, Kathleen	Fish Culturist 1
Domachowske,David	Fish and Wildlife Technician 1
Gosier, Corbin	Fish and Wildlife Technician 1
Hurd, Karen	Keyboard Specialist

Everard, James .	Fish and Wildlife Technician 1
LaShomb, Ronald	Fish Culturist I
Nelson, Robert	Fish and Wildlife Technician 1

SOUTH OTSELIC HATCHERY

Emerson, Pat	Fish Culturist 2
Kielbasinski, Thomas	Fish Culturist 1
Schara, William	Fish and Wildlife Technician 1
Ryan, Bruce	Fish and Wildlife Technician 1

VAN HORNESVILLE HATCHERY

Kroon, Larry	Fish Culturist 2
DuBois, Craig	Fish Culturist 1
Watson, Lauren	Fish and Wildlife Technician 1

Common Abbreviations and Units of Measurement Used

CPUE *catch per unit of effort* – such as fish caught per hour or fish caught per net.

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

PSD *proportional stock density* – describes the proportion 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 all largemouth that were 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 the sample of all largemouth bass that were 8 inches and larger.

RM *river mile* – denotes the distance upstream from the river mouth for a given location.

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