New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Cape Vincent Fisheries Station
P.O. Box 292, 541 East Broadway, Cape Vincent, NY 13618
Phone: (315) 654-2147 FAX: (315) 654-4118
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

Executive Summary

2009 Annual Report of the New York State Department of Environmental Conservation's Lake Ontario Unit and St. Lawrence River Unit

Sport Fishery Assessment

- A 2007 NY Statewide Angler Survey estimated that angler expenditures for fishing trips to Lake Ontario and its five largest tributaries were $114.5 million.

Lake Ontario Fishing Boat Survey

- Total trout and salmon fishing success was the highest in the 25-year data series and 16.0% and 26.3% increases compared to the previous 5-year and 10-year averages, respectively. During 2003-2009 anglers experienced some of the highest catch rates since the survey was initiated in 1985 (Chinook salmon: 2003-2008, coho salmon: 2006-2007 and 2009; and brown trout: 2003, 2007, and 2009; Figure 1).
- The 2009 charter catch rate of Chinook salmon was the 5th highest in the data series. The six highest Chinook salmon catch rates occurred during the six most recent years (2003-2009; Figure 1).
- Charter catch rate for rainbow trout was the highest on record (76.0% higher than the 2004-2008 average) for the 2nd consecutive year. Total trout and salmon catch (228,287 fish) and harvest (122,723 fish) were dominated by Chinook salmon (44.4% and 44.8%, respectively) and rainbow trout (24.0% and 19.8%, respectively) for the 2nd consecutive year (Figure 1).
- Charter catch rate of coho salmon was the 3rd highest in the 25 year data series (Figure 1).
- The 2009 Atlantic salmon catch and harvest estimates were the highest since 1994 and catch rate was the 4th highest in the 25-year data series.
- An estimated 62,599 boat trips targeted trout and salmon in 2009 (80.4% of fishing boat trips). Trout and salmon fishing effort in 2009 was the highest estimated since 2001 and a 13.2% increase compared to the 2004-2008 average.
- The number of lampreys observed per 1,000 trout and salmon caught was estimated at 23.0 in 2009, a 26.3% decrease compared to the 2004-2008 average and comparable to (+2.1%) the previous 10-year average.
- Fishing boat trips targeting smallmouth bass during the traditional open season (3rd Saturday in June through September 30 when the creel survey ends) was an estimated 8,666 in 2009. Fishing quality for smallmouth bass along the south shore peaked in 2002 and has declined since then to the lowest levels observed since the survey began in 1985. Bass catch rate in 2009 declined 82.1% from the 2002 peak. This decline coincides with an exponential increase in round goby catches. Round goby is likely a contributing factor to the poor fishing quality; however, the current status of the southern shore bass population is unknown. An angler diary program and a gill netting assessment are planned.

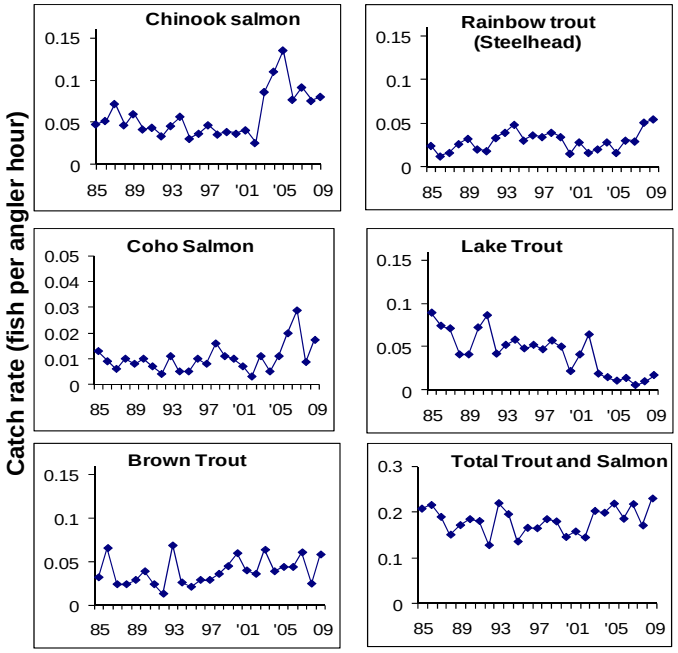

Figure 1- Catch rate of charter boats fishing in the open waters of Lake Ontario from 1985-2009.

Sodus Bay Recreational Fishery Survey

- A recreational fishery survey of Sodus Bay was conducted from April 3, 2008 to March 29, 2009, resulting in a total estimated angler effort of 31,030 angler trips (161,356 angler hours).
- Thirty-two percent of anglers interviewed were fishing for yellow perch, followed by black bass (31%), "anything" (18%), and panfish (13%).
- Most anglers resided in the immediate area (40% from Wayne County, 32% from Monroe).

Prey Fish Assessments

- In spring 2009, the abundance of adult alewife (age-2 and older) in U.S. waters of Lake Ontario was very similar to 2008, and higher than during 2004-2007 (Figure 2). The 2009 biomass index increased from 2008 and was the highest observed since 2001. During 2003-2009, alewife condition in the fall has been higher than in any other period since the late 1970's suggesting that the alewife population was at a level that does not depress food resources.

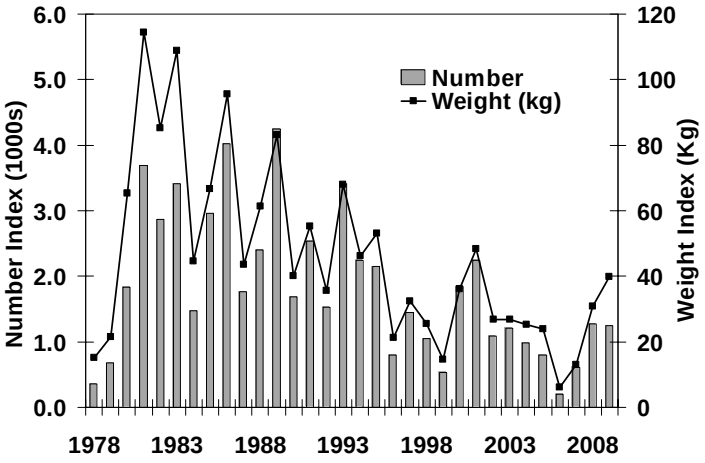

Figure 2- Abundance indices for adult (age-2 and older) alewife in the U.S. waters of Lake Ontario during late April – early May, 1978-2009.

- After reaching historic lows in 2008, both number and weight indices for adult rainbow smelt increased in 2009 and were higher than 2007 or 2008. The number of age-1 rainbow smelt caught in 2009 was over double that observed in 2008, but still only 14% of the most recent high point in 2004. Sixty-five percent of the catch of rainbow smelt in 2009 was yearlings. Larger and older rainbow smelt remained scarce in 2009.
- In 2008, USGS evaluated a completely new net design for conducting the slimy sculpin assessment; a shorter and lighter 39 ft headrope bottom trawl designed to capture benthic fishes while minimizing fouling of the net by dreissenid mussels. All scheduled tows were completed in 2008 and 2009. The new gear will be used to establish a revised time series for slimy sculpin population dynamics.
- During 2009 standard assessment trawling, USGS/DEC caught 66 deepwater sculpins, more than double the number of individuals collected in 2008. This continues the recent trend of increased catches of this species, once thought to be extirpated from Lake Ontario.
- In 2009, both the abundance and biomass indices for round goby decreased considerably from 2008 (Figure 3). Gobies were first detected in 2002 and are now found along the entire south shore of Lake Ontario, with the highest population densities in U.S. waters just east of the Niagara River.

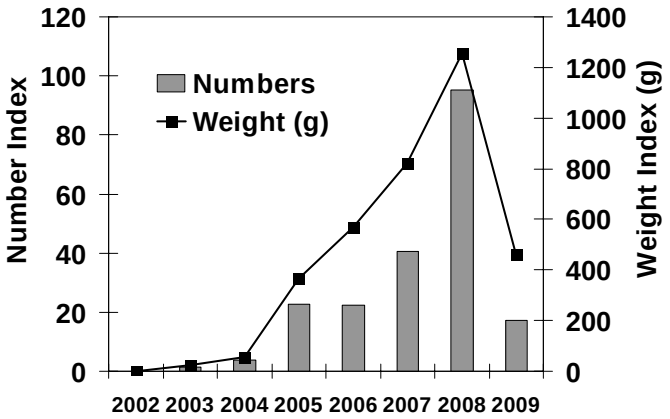

Figure 3- Stratified mean catch of round goby with bottom trawls in U.S. waters of Lake Ontario shoreward of the 160-m (525 ft) bottom contour in late April - early May, 2002-2009 (no round gobies were caught prior to 2002). For weight index, 454 g = 1 lb.

Coldwater Fisheries Management

- Fish stocking in the New York waters of Lake Ontario in 2009 included 1.76 million Chinook salmon, 250,420 coho salmon, 727,680 rainbow trout, 511,180 lake trout, 538,960 brown trout, and 50,000 Atlantic salmon.
- The 2009 mean length (35.2 in) and weight (19.45 lbs) of age-3 Chinook salmon in August, as measured from the open lake boat fishery, were the lowest and 2nd lowest observed in the data series, respectively. Despite the declines in length and weight, Chinook salmon condition as determined from predicted weights of given length fish was average for larger fish (i.e. 36 in and 40 in).
- At Salmon River hatchery, the mean weight of age-1 Chinook males (jacks) sampled in 2009 was about 0.25 pounds above the long-term average. Age-2 male Chinook salmon were 0.3 pounds heavier than their historical average and females were a pound lighter than their historical average, but significantly heavier than the all-time low measured in 2007 (Figure 4). Age-3 fish of both sexes were almost 2 pounds below their historical averages but significantly heavier than lows observed in

recent years.

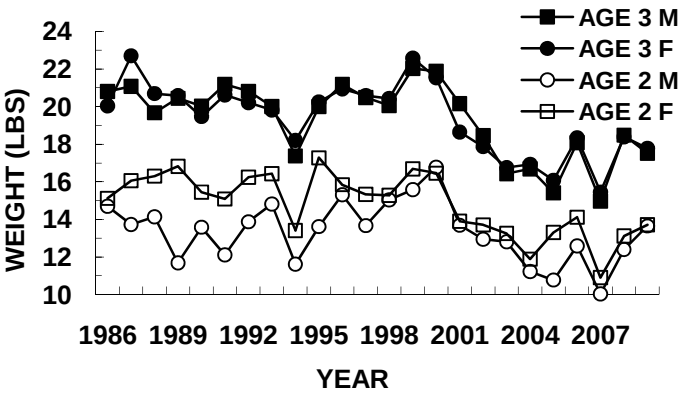

Figure 4- Mean weights of male and female Chinook salmon ages 2-3 at Salmon River Hatchery 1986-2009.

- Steelhead are sampled in the spring and, unlike Chinook and coho salmon, do not reflect growth during the 2009 growing season. Weights reported here reflect conditions prior to and including 2008 (Figure 5). The mean weight of Age-3 males was 5.2 lbs, only 0.1 lb lighter than the long-term average. The mean weight of Age-3 females was 6.1 lbs, 0.75 lbs lighter than the long term average, and significantly lighter than those sampled in 9 of the previous 21-years. The mean weight of Age-4 males was 8.0 lbs, 1.1 lbs lighter than average, but rebounding 1.5 lbs from the low observed in 2008. Age 4-females weighed 8.7 lbs, 0.8 lbs lighter than average and significantly lighter than 9 of the previous 21 years.

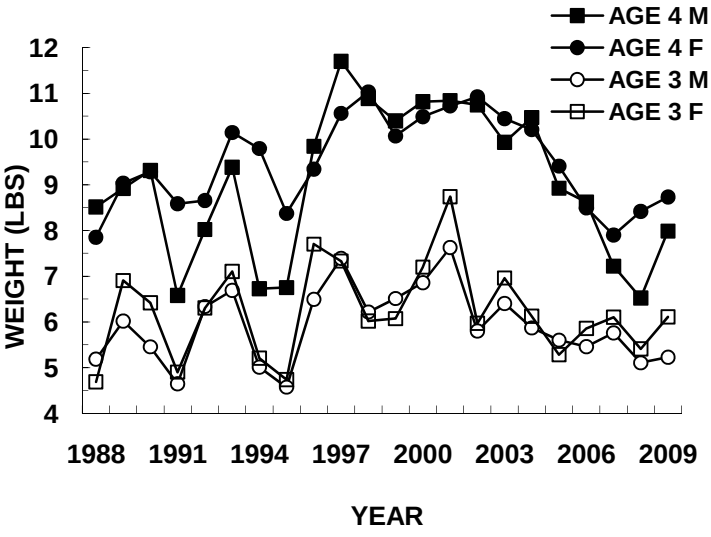

Figure 5- Mean weights of Washington steelhead ages 3-4 at Salmon River Hatchery 1988-2009.

- Since the institution of seasonal base flows in the Salmon River, a dramatic increase in natural reproduction of Chinook salmon continues to be documented. Numbers of young-of-the-year Chinook salmon caught in 2009 were lower than anticipated, with a mean peak catch of 93 per haul during the last 3 weeks of May (mean=195, 2001-2008). This was probably a result of high flows that caused a relatively high rate of flushing of fish from the river during that time period. Flow during the previous October and average flow during May are both important factors for predicting parr year class strength (r^2=0.86).
- The twelfth year of pen-rearing steelhead trout and Chinook salmon along the New York shoreline of Lake Ontario was very successful due to low fish mortality at all sites, and a relatively high percentage of fish reaching target weights. A total of 94,060 steelhead trout (Washington and Skamania strains) were raised at nine pen sites comprising 14% of NYSDEC's Lake Ontario rainbow trout/steelhead stocking allotment in 2009. Six pen-rearing sites raised a total of 313,600 Chinook salmon, representing 18% of NYSDEC's 2009 Chinook stocking allotment.
- In 2008 and 2009, NYSDEC and the Ontario Ministry of Natural Resources began "mass marking" all stocked Chinook salmon (adipose fin clip on all Chinook; selected lots also receiving coded wire tags). This study will determine the relative contributions of wild and hatchery stocked Chinook salmon to the fishery. In 2010, mass marking technology will be used to begin evaluations of the performance of pen-reared Chinook salmon.

Lake Trout Restoration

- In 2009, the juvenile lake trout survival index was 2.4 times greater than 2008, but remained low overall (72% below the average for the 1983-1989 year classes).
- A total of 527 adult lake trout were captured in the September 2009 gill net survey. The 2009 CPUE (7.6) for adult fish was 56% below the 1986-1998 mean and 31% below the 1999-2004 mean. The 2005-2009 mature lake trout CPUEs were similar to the 1982 and 1983 values which pre-dated effective sea lamprey control and recruitment from the first large stocking in 1979
- Sea lamprey wounding rates on lake trout remain much lower than pre-1985 levels, but were above the target level of two A1 wounds per 100 fish for eight of the last thirteen years. A1 wounding rate in 2009 was 1.22 wounds per 100 fish and was below target for the second consecutive year.
- In 2009, three naturally produced (wild) age-2 (mean size: 220.3 mm, 8.7 in) lake trout were caught during bottom

trawling. Survival of naturally produced lake trout to the fingerling stage in summer and fall occurred each year during 1993-2007 representing production of 15 consecutive year classes.

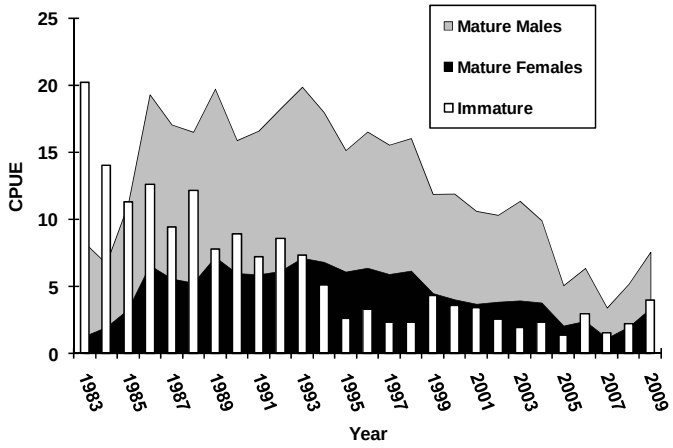

Figure 6- Catch per unit effort of immature and mature lake trout from 1980-2009.

- Condition of adult lake trout (weight of a 700 mm or 27.6 in total length fish) in 2007-2009 increased from the relatively low 2003-2006 values to a level equivalent to the high levels observed during 1996-1999 (mean of 3679.6g, 8.1 lb; the highest values in the data series).

- In 2009, lake trout harvest (4,733), catch (11,241), and harvest rate were among the lowest values recorded. Relatively poor fishing for lake trout in 2009 was likely due, in part, to the declines in adult population size since 2004 and the relatively good fishing for Chinook salmon, coho salmon and rainbow trout

Warmwater Fisheries

- A total of 95,600 fingerling walleye were stocked into Lake Ontario embayments and the Lower Niagara River.

Lower Niagara River Muskellunge Sampling

- In 2009, young-of-the year (YOY) and adult muskellunge were sampled in the lower Niagara River for the first time since 1995. Electrofishing and seining efforts yielded a total of 12 adult and 12 YOY muskellunge.

Irondequoit/Sodus Bay Warmwater Assessments

- Nine net sets in Irondequiot Bay in 2005 yielded a catch of 1,352 fish comprising 27 species. Yellow perch dominated the catch (38%), followed by white perch (28%), quillback (7.9%), walleye (6.2%), and white sucker (5.7%).
- In Sodus Bay, nine net sets yielded a catch of 959 fish of 19 species in 2006. The catch was dominated by yellow perch (42%), followed by white perch (12%), gizzard shad (11%), bluegill (9%), and brown bullhead (7%).

Eastern Lake Ontario Warmwater Assessment

- Catch-per-unit-effort (CPUE) of warmwater fish was 31.4 fish/gillnet and comparable to (+5.8%) the previous 5-year (2004-2008) average. The catch was dominated by smallmouth bass (31.2%) and yellow perch (23.4%)

- Smallmouth bass abundance in 2009 (CPUE=9.8) was 133.2% higher than the 5-year period (2000-2004) when CPUE was at record low levels. Recent improved smallmouth bass growth and condition continued in 2009 with record or near record high mean length-at-age for all ages 2-10, and continued high condition of larger bass (Figure 7).

- Yellow perch abundance in 2009 (CPUE=7.4) was a 33.8% decrease compared to the 2004-2008 average. The decline in yellow perch CPUE may be due to the relatively high variability of yellow perch catch in the gill nets. The NYSDEC Lake Ontario fishing boat survey estimated the two years of highest yellow perch harvest occurred in 2008 and 2009, indicating relatively higher yellow perch abundance in areas outside of the eastern basin (Figure 7).

- Walleye abundance in 2009 was 36.9% and 52.0% above previous 5-year and 10-year averages, respectively. In 2009, we observed the second highest catch of age-1 walleye since the assessment began in 1976, suggesting a strong 2008 year class.

- White perch was the 3rd most commonly caught fish in the assessment in 2009 and CPUE (3.0) was 19.8% and 73.3% higher than the previous 5-year and 10-year averages, respectively (Figure 7).

- Lake sturgeon have been collected in the Eastern Basin assessment in 11 of the last 15 years suggesting improvements in population status.

- Round gobies first appeared in the Eastern Basin assessment in 2005 in both gillnet catches and smallmouth bass diets. Goby occurrence in predator diets (i.e. walleye, northern pike, brown trout, and bass) has increased each year since. In 2009, gobies were present in 59.0% of non-empty smallmouth bass stomachs (144 stomachs examined).

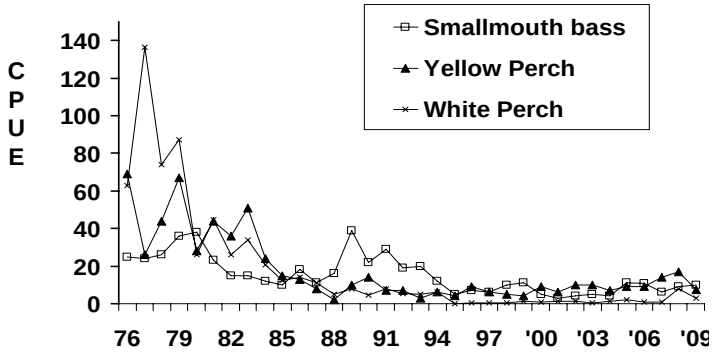

Figure 7- Catch per unit effort of smallmouth bass, yellow perch and white perch in the Eastern Basin index gillnetting program from 1976-2009.

Thousand Islands Warmwater Assessment

- Smallmouth bass abundance increased from 2003-2006, but has shown no discernable trend since. Growth rates have increased, which likely explains increased catches of younger bass relative to earlier surveys.
- From 2001-2009, northern pike abundance has generally declined. Ongoing poor recruitment is likely related to impaired spawning habitat and predation by Double-crested cormorants.
- Yellow perch abundance increased dramatically in 2006 remained high in 2007 and 2008, and then declined in 2009. Growth rates have generally increased since 1994.

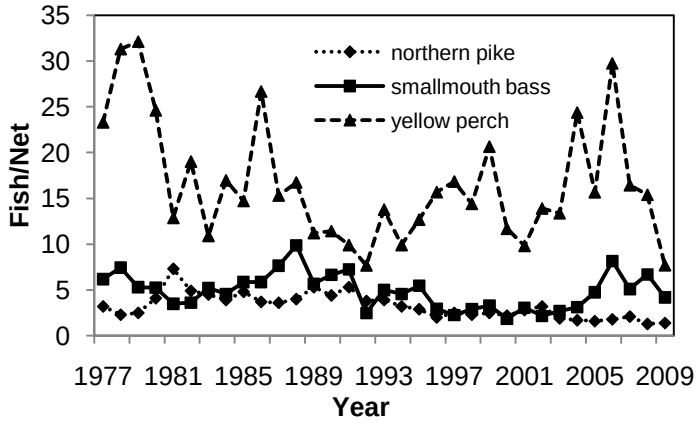

Figure 8- Catch per unit effort of yellow perch, smallmouth bass and northern pike in the Thousand Islands Warmwater Assessment Netting from 1977-2009.

Lake St. Lawrence Warmwater Assessment

- Smallmouth bass abundance declined to a record-low level, however, poor representation of all age/size groups suggests an anomalous sampling year.
- In spite of documented Double-crested cormorant predation on yellow perch, perch abundance was relatively high in 2007-2009.
- Walleye abundance increased to a record-high level in 2009; age 2 fish (2007 year class) dominated the catch.

Double-crested Cormorant Studies

- Estimated total fish consumption by cormorants from the Little Galloo Island colony in 2009 was 13.11 million fish including 12.70 million round goby, 0.36 million alewife, 0.36 million yellow perch, 0.16 million rock bass, 0.10 million pumpkinseed, and 0.02 million smallmouth bass.
- Egg oiling on Little Galloo Island in 2009 reduced cormorant chick production by approximately 86%, thereby reducing the number of cormorant chick feeding days by 345,424. The resulting reduction in fish consumption was estimated at 18,000 smallmouth bass and 156,000 yellow perch.
- Estimated total fish consumption by cormorants from three upper St. Lawrence River colonies (Ontario waters) in 2009 was 13.90 million fish (0.71 million pounds). Average annual fish consumption by cormorants from Griswold, McNair, and Strachan Islands since 1999 is 7.41 million fish. Since 1999, cormorants from these three colonies have consumed an estimated 81.5 million fish including 31.3 million yellow perch (38.4%), 13.3 million rock bass (16.3%), 17.5 million round goby (21.5%), 7.7 million pumpkinseed (9.5%), 5.8 million cyprinids (7.1%) and 0.7 million smallmouth bass (0.9%).
- For the eleventh consecutive year, cormorant population control was continued through oiling of eggs with food grade vegetable oil at the Little Galloo Island colony, and culling of adult birds by shooting was employed again in 2009. Nest destruction and culling of adult birds were utilized to discourage nesting on Gull and Calf Islands, but were not necessary on Bass Island due to landowner activity. A total of two cormorants were culled by shooting at Calf Island and 798 at Little Galloo Island. Target levels of fish consumption by cormorants, as measured by the Weseloh and Casselman feeding day model, were very nearly reached each year since 2006.

Lake Ontario Natural Resources Damages Project Update

To date $1.9 million has been spent or encumbered for projects identified in the Lake Ontario NRD Program spending and restoration plan. The following projects are complete or in development:

Complete or on-going

- Autofish Mass Marking Trailer- Purchase of trailer and initiation of marking/tagging studies for Chinook salmon on Lake Ontario. $1,416,000 (on-going project)
- Sandy Creek Fishing Access Site- rehab parking area $25,000 (complete)
- Village of Lewiston boat launch- replace ramp and enhance fish cleaning station. $75,000 (complete)
- Net Pen projects have received assistance in the form of new nets and other equipment. $5,000 (on-going project)

Nearly Complete

- Mud Bay Cartop launch site (Jefferson Co.) - provides small boat access for summer as well as ice fishing. $100,000 (nearly complete)
- Fish Island access site enhancements in Dexter. $45,000 (nearly complete).
- Town of Wilson boat launch- Replace boat ramp. $30,000 (nearly complete).
- Town of Newfane- improvements at Olcott Pier East Fishing Access site. $60,000 (nearly complete)

To Begin Soon

- Salmon River Fish Hatchery- A contract has been let to conduct hydrogeological surveys aimed at improving the supply of well water. $82,500 (set to begin this April)
- Develop angler parking areas at Lindsey creek and Stoney Creek (Jefferson Co. $20,000)
- Maxwell Creek fishing access site (Wayne Co. $50,000)
- Slater Creek fishing access site (Monroe Co. $75,000)
- Acquisition of hydro-acoustic gear for the Lake Ontario prey fish monitoring program $55,000
- Port Bay east fishing access site (Wayne Co. $2,000)
- The Irondequoit Streambank Stabilization project is set to be possibly expanded through cost sharing with the Great Lakes Fisheries Enhancement and Restoration Program, administered by the USACOE.
- The Salmon River Streambank Stabilization project is also the process of being considered by the the Great Lakes Fisheries Enhancement and Restoration Program, administered by the USACOE.
- Several additional projects are set to begin in 2010/11, that could entail spending as much as $2.4 million, they include:
- Village of Morristown- State assistance grant in place to improve access site. $50,000 (in design process).
- Renovations at Golden's Marina (Jefferson Co. $300,000)
- Salmon River Hatchery Aquaria and Interpretive display (Oswego Co. $100,000)
- Possibly begin capital improvements to the Salmon River Hatchery, pending the results of the Salmon River Hatchery hydrogeological study. Up to $2,000,000
- Renovations at Bachy's Marina (Jefferson Co. $241,000)