The Oneida Lake Bulletin

Summer 2002

# Phosphorus and the Oneida Lake Ecosystem

*By Edward L. Mills and John L. Forney*

Phosphorus, symbolized by the letter "P," is one of the key elements that are necessary for the growth of plants and animals, on land and in water. It is, in most cases, the nutrient that determines the amount of algal growth in freshwater lakes.

Phosphorus enters Oneida Lake from surface runoff, groundwater, and atmospheric precipitation. Land use, soil productivity, human activities, pollution, and geology control the quantity of phosphorus that flows into the lake. Chittenango, Canaseraga, and Oneida Creeks, that drain the southern half of Oneida's watershed, contribute the bulk of the lake's phosphorus.

Nuisance blooms of algae, which were particularly common from the 1940's through the 1960's, prompted scientists to focus on phosphorus. Efforts to reduce phosphorus runoff into Oneida Lake began in the early 1970's and were linked to a water quality agreement between the United States and Canada. This accord set target levels for phosphorus in the offshore waters of the Great Lakes. Since the Oneida Lake region is a part of the Lake Ontario watershed, government funding to upgrade existing sewage treatment plants and to construct new ones became available to lakeside communities. Millions of dollars were spent to reduce the phosphorus that originated in the wastewater systems that emptied into Oneida.

New York State banned the use of phosphorus in household detergents in 1973. This further reduced our lake's phosphorus content. In addition, proper farmland management practices, that minimized phosphorus drainage, were encouraged in the lake's watershed. These events cut Oneida's phosphorus concentrations by one half!

Scientists measure phosphorus in parts per billion. For example, one ounce of phosphorus within one billion ounces of water equals one part per billion. Oneida Lake's total phosphorus concentrations averaged 40 to 60 parts per billion in the 1970's and early 1980's. These are high counts. Concentrations plummeted to 20 to 30 parts per billion by the 1990's, and have stayed at that level to the present.

**P = LIFE**

The phosphorus drop enhanced Oneida Lake's water quality. No longer do we experience massive algal blooms and oxygen-deficient conditions. A resurgence of native Oneida Lake organisms is an additional positive result of water quality improvement. Emerald shiners, more commonly called "buckeyes," have dramatically increased their population and a few documented mayfly sightings have occurred. These were the famous Oneida Lake "eel flies" that once occupied a significant place in the lake's food web.

Oneida Lake's fishery has always played a vital role in the lake's ecology, heritage, and economy. In order to optimize recreational use and maintain a productive fishery, it is necessary to strike a balance between excessive and insufficient supplies of phosphorus. Scientists believe that fish production in Oneida has not been compromised at current phosphorus levels, thus far. Further reductions in phosphorus, however, pose risks.

We can draw upon experience from neighboring Lake Ontario, where total phosphorus levels were reduced from an average of 25 to 10 parts per billion. This brought about a drastic reduction in open water algae and zooplankton production. Alewives feed on zooplankton and their population, in turn, fell. The alewives provided sustenance for a world-class salmon fishery and it, of course, declined.

If phosphorus in Oneida Lake were reduced to the levels reached in Ontario, a similar impact on our lake's resources would be anticipated. Oneida Lake's superb warm-water fishery would be at risk.

Phosphorus, indeed, equals life.

*Edward L. Mills and John L. Forney are biologists at The Cornell Field Station.*

# President's Message

Your Board of Directors has been making steady progress in achieving the Association's goals. Here's an issue-by-issue synopsis.

**Double-crested cormorants** – The controlled harassment program's opening date has been pushed up from the day after Labor Day to August 15. This is a significant improvement. About two thousand migrating cormorants arrive on Oneida Lake in early August. There are about six hundred resident birds on the lake then. Each cormorant destroys at least a pound of fish per day. Simple math shows that, after migrant birds land on Oneida, the lake loses at least 1.25 tons of fish every day to cormorant predation – and the bulk of these fish are yellow perch and walleyes.

This is an unacceptable example of environmental destruction. Moving the harassment date into August is a major step at checking double-crested cormorants, but there is a long way to go. The Fish and Wildlife Service's final EIS on cormorants will soon be issued and we hope that it addresses the issue effectively.

In addition, we have been promised that the number of nesting pairs of cormorants will be limited to 100 during the summer of 2002. This did not occur last summer.

**Fishing** – It's been great. Guides Ray Brown and Tony Buffa report nice catches of bass and, occasionally, good counts of walleyes. And, with regard to the lake's future fish populations, Mother Nature seems to have picked up the pace. Cornell reports that there were approximately 590,000 one-year old walleyes in the lake last May. This year class, the "Class of 2001," is the largest class since 1987. Yearling perch numbers last May were also impressive. Effective cormorant control, to protect these fish, would greatly enhance Oneida's fishery.

**Nutrient Levels** – It appears that some members of the DEC's Division of Water would prefer to see Oneida Lake's water as pure as a swimming pool's. The OLA and the DEC's Bureau of Fisheries recommend maintaining a nutrient level that sustains a healthy fish population. We believe that keeping phosphorus concentrations at a minimum level of 20 parts per billion is essential.

**Water Chestnuts** – Cornell Cooperative Extension of Onondaga County's program for water chestnut removal merits praise. The agency's effective staff has organized a chestnut-fighting campaign for this summer. Please note the related article in this *Bulletin*.

There has been solid progress in every issue that we've addressed, but work remains. Be assured that your Board of Directors will not rest until we obtain viable resolutions.

Have a great Oneida Lake summer!

Tom Pierce

Thomas Pierce
President – Oneida Lake Association

## The Scout vs. The Chestnuts

Hats off to Life Scout Chaz Foland, who lives on Long Point, at Lower South Bay! Chaz, the son of Charles and Denise Foland, has designed a water chestnut awareness project to earn his Eagle Scout ranking.

The Central Square High School freshman will be producing posters and leaflets that detail the chestnuts' characteristics and dangers. He plans to distribute these publications to lake area businesses and homeowners. He will be working with Cornell Cooperative Extension.

Led by their environmentalist son, the Foland family removed over 100 chestnut plants from the area around Long Point during one weekend in mid-June.

The OLA salutes this young conservationist.


## The Oneida Lake Association Inc.

Founded in 1945

The Bulletin is published by the Oneida Lake Association, Inc., that its members may be informed regarding the activities of the Association. The Oneida Lake Association, Inc., was organized in 1945 to restore and preserve the natural resources of Oneida Lake and its environs.




**Enjoy safe boating – observe the "rules of the road"**

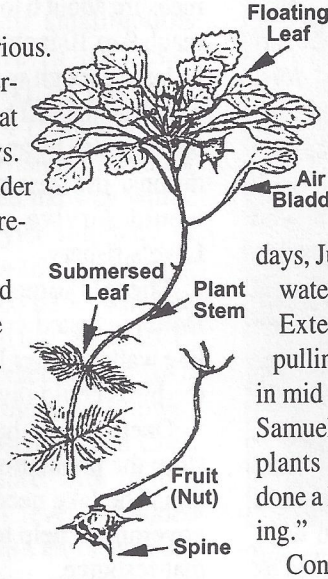
# Water Chestnut Problem Magnifies

## They're coming... and we'd better be prepared

Like an invasion of the shoreline snatchers, water chestnuts have spread from their initial toeholds near Brewerton's Route 81 Bridge. Plants have been found at Big Bay, Long Point, and Lower South Bay, and the Cornell Field Station's staff even captured seeds (called "nutlets") as far east as Shackelton Point.

The situation is serious. Chestnut plants proliferate in dense masses that blanket coves and bays. The plants seriously hinder a body of water's recreational capabilities.

The chestnuts' seed structure makes the plants spread rapidly. One plant can produce up to 300 nutlets! Wind and wave action, powerful forces on Oneida Lake, distribute the nutlets. Amazingly, these seeds can produce plants for over a decade.




Nutlets have sharp spines that stick out from the seed's core. These spines can easily cause painful skin punctures. Waders and swimmers must be extremely careful when they use chestnut-infested waters.

Led by former President Bill Schriever, the OLA has an active role in the chestnut control campaign. Cornell Cooperative Extension of Onondaga County recently joined the fight and organized two chestnut-pulling days, June 25 and July 13. Amy Samuels, a water quality educator for Cooperative Extension, stressed the importance of pulling the chestnuts early. "Nutlets form in mid to late July, after the plants bloom," Samuels stated. "If you can eliminate the plants before the nutlets detach, you've done a lot to stop the chestnuts from spreading."

Congressman James Walsh, a dedicated friend of Oneida Lake, recently secured a $500,000 grant that enables Cornell University scientists to investigate biological controls for water chestnuts. The plants originated in China and, funded through the grant, Cornell is sending research personal to that nation to find natural predators that feed on the chestnuts. University personnel explained that natural controls are, in the long run, less time-consuming and more economical than mechanical harvesting.

What can we do to help curb the chestnut invasion?

1. Learn the plant's characteristics. Be able to identify them. Note the graphic that accompanies this article. Even though chestnuts grow in dense masses, individual plants can occur.
2. Pull the plants if you find a small quantity. Get as much of the plant as you can and remove it from the water. Chestnuts make good compost.
3. Inform the appropriate government agencies if you find large quantities of chestnuts. These persons and phone numbers are important:

   **Madison County** – Scott Ingmire, County Planning Department, (315) 366-2498

   **Onondaga County** – Amy Samuels, Cornell Cooperative Extension, (315) 424-9485 – ext.233

   **Oswego County** – John DeHollander, County Soil and Water Conservation Department, (315) 592-9663
4. When you hear about a community chestnut-pulling event, attend it and help. Water chestnuts can be stopped, but the campaign needs volunteers.
5. The OLA has plastic supermarket bags with water chestnut identification directions printed on them. The Association sells them for cost - $9 per 1,000 bags. Already, Vella's Supermarkets in Cleveland and Constantia use them. Urge local retailers to follow suit. Businesses can contact Bill Schriever at 676-5908 to order the bags.

## Editorial

The OLA has addressed Oneida Lake's cormorant problem since the mid 1990's. Our members have also voiced their opinions and concerns regarding this critical issue. In this editorial, the members speak...

"I have fished Oneida Lake for over 20 years," wrote Gary Fischer, "And I was always on the water before dawn, near the islands south of Constantia. Watching the sunrise from this vantage point is a memorable experience. Now, though, there are few fish near the islands. Cormorants create such a terrible commotion and stench in this beautiful place that I won't fish there any more."

Jeff Simmons pointed out that "Cormorants are a non-native species. Why would the government protect these birds and let them harm native species, invaluable recreation, and businesses?! Current efforts at controls are laughable. I've seen the birds swimming in the scare tapes, while the harassment boat runs up and down the channel. Come on, boys. If you're going to scare the birds, do it the right way."

Rob Sherwood added a historical perspective when he said, "No other disaster, man-made or natural, has destroyed New York State's fisheries like the cormorants have. The birds have devastated Oneida Lake's walleye and perch fisheries. As long as they remain on the lake, the fishing will decline."

Chuck Rogers, former owner of Brewerton Sports and a founder of the Brewerton Bait shop, wrote, "If the government doesn't start killing double-crested cormorants, my grandson will never have a chance to experience Oneida Lake's great fishing. He's amazed when I tell him stories about what the lake used to produce. The birds have stolen a great angling legacy from the people."

# The OLA Fishing Corner

## Finally...the Class of 2001

At this writing, the Oneida Lake walleye "year class" of 2001 is robust, healthy, and numbers around 590,000 individuals. More simply put, nearly 600,000 walleyes that were born last year reached their first birthday. This is terrific news. Around 100,000 of these fish are "advanced fingerlings" that were stocked last fall.

Oneida has not produced a large year class of walleyes since 1991. The latter group, which bulwarked our walleye population throughout the 1990's, numbered slightly over 500,000 individuals in 1992, when the fish were one year old. Another excellent year class, larger than the classes of 1991 and 2001, hatched in 1987.

Throughout the 1990's, skeptics bemoaned the fact that the lake was not producing successful year classes of walleyes. Zebra mussels clarified the lake's water, making walleye fry and other forage fish more vulnerable to predators. Other factors, however, negated the clarity element and contributed to the class of 2001's survival.

Cornell biologist Randy Jackson, who provided the *Bulletin* with data for this article, explained that 2001 was an ideal year for young walleyes. First, spring weather excelled. Warm days and minimal wave action created superb conditions for stocking walleye fry. Moreover, Oneida contained large numbers of young gizzard shad, white perch, and emerald shiners in 2001. These forage fish were targeted by predators and, thus, acted as a buffer that protected young walleyes.

Walleyes from the class of 2001 now measure about 6 to 7 inches. They should reach 9 to 10 inches by fall. The fish will be large enough so that few other fish will consume them. They are still too short to be harvested by anglers. Under ideal conditions, the vast majority of these fish would survive and enhance Oneida Lake's fishery.

There's one problem, however. Double-crested cormorants prefer yearling walleyes over larger fish. Unchecked, the birds could ravage the class of 2001.

Oneida Lake has done its part to restore the population of its most valuable fish. The lake needs effective, sustained government help to protect and preserve that resource.

## Some Bassin' Tips

It's been a good summer for Oneida Lake anglers. Walleyes have cooperated for dedicated fishermen, although catching fish that measure 18" often proves challenging. Bass fishing, however, rates superlative grades. We asked guides Ray Brown and Tony Buffa for some "bassin'" advice and they eagerly responded.

Ray enjoys bait fishing for bass. He uses three way swivels when fishing with minnows. He ties a small bell sinker to a short line attached to one ring of the swivel, a hook onto a line on another ring, and the main fishing line to the remaining ring. This keeps the minnow above the bottom. He fishes crayfish by using a hook and sinker rig, with the sinker attached to the line above the hook. He recommends drifting baits over productive areas such as Shackelton Shoals and Messenger's Reef. Ray also enjoys bass fishing at the Sylvan Beach rock pile (at the end of the Barge Canal breakwater), where submerged boulders provide excellent structure.

Tony loves to bass fish on days when there's a very light breeze, just enough to nudge his boat across the lake's surface. He ties a floating jig head to the "hook line" of the three-way swivel, and baits the jig with a minnow or crayfish. He seeks out rock shoals where weeds are "thin" and prefers depths of 8 to 15 feet. The floating jig head passes through the weeds, enticing smallmouths to strike the attached bait. The Shackelton Shoals and Buoy 113 locales provide ideal habitat for this type of bass drifting.

Tony occasionally pursues largemouths by drifting along the shore of Upper South Bay and flipping plastic worms and rubber frogs into openings in the dense weed beds. Grape, jet black, and "motor oil" are effective worm colors.

Forty years ago, the late William "Bill" Taylor, chief photographer at Vernon Downs, perfected a unique smallmouth-catching technique. Taylor knew that smallies are aggressive, curious fish, and reasoned that dragging an anchor, while drifting, would disturb the bottom enough to lure bass to a boat. He fished crayfish near the anchor and made sure to strike hard, away from the anchor line, when a bass hit. On calm days, Taylor anchored on rocky reefs and, every few minutes, tapped a little bottom percussion with the weight. Bill's catches testified to his techniques' effectiveness and his friends still praise his time-tested, avant-garde methodology.

# "Take A Child Fishing" Contest Nets the Big Ones

The fish were biting and scores of children, with their adult sponsors, hooked up in the OLA's annual "Take A Child Fishing" Contest, held at Brewerton Sports on June 29 and 30.

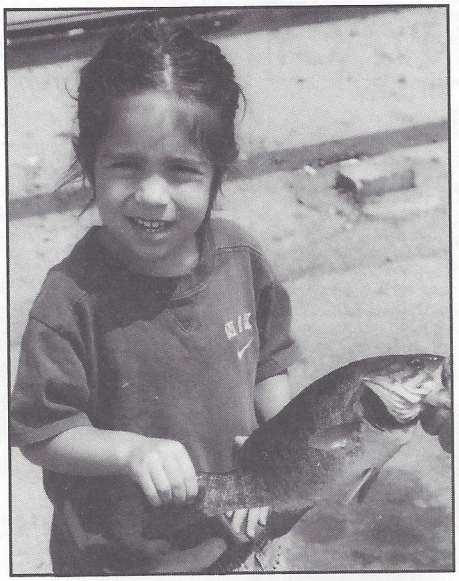
Ryan Pike of Baldwinsville and John Savoca of Brewerton tied for first place in the bass category of the "Age 6 and Under Division." Their smallmouths measured an impressive 16 1/2 inches apiece. Matt Wilcyynski, of Lakeport, placed second with a 14 1/2 inch fish.

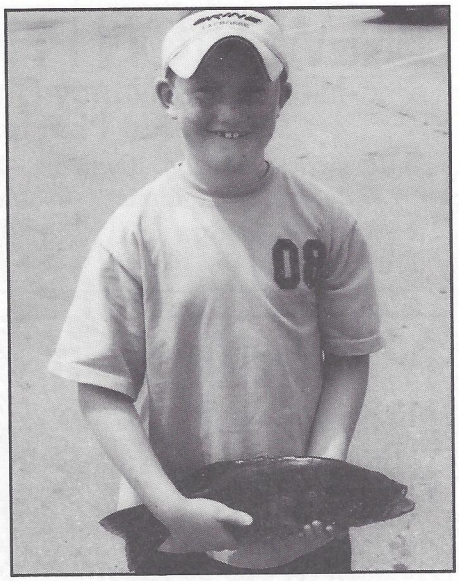
In the "Ages 7-9 Division," Matthew Larson, of Syracuse, led the way with a 21 3/4 inch walleye. Tyler Tomminy, of Onondaga Hill, landed a 16 1/2 inch bass, followed by Adam Sacco's 15 3/4 incher.

Bass also highlighted the "Ages 10-12 Division." Jonathan Hagenmyer's 16 1/2 inch smallmouth led the way, followed by Dustin Day, of Constantia, and Chris Therre, of North Syracuse, with 16 inch fish. Justin Coffin, of Cleveland, added variety to the entries with an 11 inch silver bass and a 28 1/2 inch catfish.

Some nice walleyes appeared in the "Ages 13-15 Division." Shawn Calabria's 22 1/4 incher took first, followed by Mark Mousso's 18 1/2 inch pike. Shane Carrick, of Cicero, nailed a fine 17 1/2 inch bass, followed by Matt Brownell, of Bridgeport, with a 16 1/2 inch smallmouth and Bryan Fernon, of Cicero, with a 16 1/4 inch beauty.

Special thanks go to Steve Rogers and the staff at Brewerton Sports for sponsoring and organizing the tournament.





*Two proud tournament participants display their catches.*

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