Feasibility Study to Eradicate Aquatic Invasive/Nuisance Species in Canaan Lake, North Patchogue and Upper and Lower Lakes, Yaphank

1st Public Meeting for Upper and Lower Lakes, Yaphank

April 21, 2010
Yaphank Fire House
7:00 – 9:00 PM

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Note: Names in bold are members of steering committee.

Chic Voorhis began the meeting at 7:30 and introduced County Legislator Kate Browning.

Leg. Browning indicated this study administered by Suffolk County through the Suffolk County Water Quality Protection and Restoration Program and Land Stewardship Initiatives (WQPRP). [Funding came from the additional ¼% sales tax for environmental protection which was approved by the electorate and extended through 2030 during the 2007 election for use on environmental programs (e.g. habitat restoration, open space protection, etc.)]. It is a $200,000 contract, but it won't fix the lakes yet. This study is necessary to assess the feasibility of management options to control aquatic invasive plants in Upper & Lower Lake, as well as Canaan Lake. Browning congratulated the Carmans River Task Force for their involvement and momentum in moving things forward. Browning then introduced Town Councilwoman Connie Keppert.

Councilwoman Keppert said a few words and thanked Adrienne Esposito from Citizens Campaign for the Environment for her work on the Carmans River Task Force.

Sara N. da Silva and Chic Voorhis presented: "*Understanding the Problem – A Feasibility Study to Eradicate Aquatic Invasive/Nuisance Species in Upper and Lower Lakes, Yaphank.*" Tonight's program will focus on characterizing the history and existing conditions of the lakes in order to be able to equally assess the options, costs and environmental impacts of management alternatives for Upper & Lower Lake, as well as Canaan Lake. This will enable the most efficient mechanisms for removing the invasive species that have severely impacted the lakes. Carefully studying the past and current conditions in conjunction with available methods of invasive species eradication will ensure that funding is not wasted on methods that will only provide short term, temporary remedies to the problem. At the end of the study, the most viable long term solutions to address the control of invasive species in these lakes will be selected, a pilot project among the three lakes will be selected, and the permitting process will be initiated.

Also included as part of the contract for this study is the design of conceptual fish passage alternatives at Upper & Lower Lake Dams. Due to the relationship of the lakes and their dams to the Carmans River, a significant fish and wildlife resource, remedies to increase fish passage on the Carmans River must be considered in tandem with feasibility options to restore the health of the lakes. Any changes to the dams and spillways, including the installation of fish ladders, must be considered from the perspective of how it will affect the lakes themselves, the conditions for aquatic invasive plants within the lakes, as well as fish passage. With this approach, the most viable solutions for control of aquatic invasives and fish passage can be determined so that implementation of solutions can follow once all funding is in place.

Stakeholder involvement and public outreach was identified as a key component of this study. The Suffolk County Lakes Website (www.suffolkcountylakes.net) was developed specifically for this study to keep the public informed and provide another avenue for coordination and input.

Lakes Characterization & Existing Conditions (presented by NP&V and SUNY). Timeline of the project was discussed. The next steering committee meeting would be in late July. This is when NP&V plans to have three of the four sets of sampling data completed – which once collected will be sent to SUNY Stony Brook labs for analysis. Current lake characterization and existing conditions work includes identifying and characterizing the watershed, watershed area land use & existing public lands, ownership of underwater land, pollution & shoreline inventory within 100 feet of Upper and Lower Lake, water quality review, water quality monitoring and sediment composition, bathymetry & muck depth, density of aquatic invasive plants with comparison from 2007, and 2009 invasive plant distribution map for both lakes. From the invasive plant density and distribution maps from 2009 we see that currently, in Upper Lake *Cabomba caroliniana* (Fanwort) is the primary plant with a tiny bit of milfoil in the southeast corner. In Lower Lake, there is only *Myriophyllum heterophyllum* (Variable leaf watermilfoil) – no *Cabomba* was noted. Small stands of *Phragmites* were found along both southern shorelines.

As explained by Dr. Chris Gobler, his SUNY lab is conducting detailed 4-season water quality and sediment sampling as part of this study to better understand the relationships among various water quality parameters, and to determine if toxic forms of blue-green algae (cyanobacteria) are present in the lakes. Having data from different seasons is necessary for a complete analysis and this will complete the characterization phase of the project (Task 1). Sampling so far has shown that water quality is generally good, but upcoming sampling in June and July is still needed to assess water quality under

summer conditions. Water quality data is being collected bi-weekly since June 2009 by the Coalition to Save the Yaphank Lakes. [The landfill plume and MTBE plume are both south of the study area].

Options for fish passage at upper and lower lakes. (presented by NP&V) The conceptual fish passages structures for Upper and Lower Lakes are being designed by two other members of the consultant team - Dr. Richard Orson and engineers at Nelson & Pope. The fish passages presented were designed mostly for alewives as they are poor swimmers. As for the passage at Upper Lake, it would only be opened seasonally as the fish are not constant all year. But the open passage could be extended into the fall for brook trout spawning. NPV explained that a rock ramp option was also assessed for potential installation through the spillway and whether the spillway could be widened to accommodate the ramp – there is not enough distance to do so as resultant velocity of the water due to slope would be too high for alewife. It is not feasible to continue the rock ramp below the roadway without impacting the road. In the concept design, all dam modifications should be addressed at once, including spillway widening if determined to be necessary. [After heavy March rainfalls, Mill House Inn parking lot was a lake and the spillway was defeated on both sides. The dam falls under jurisdiction of Town of Brookhaven Department of Parks and Recreation. They have issued an RFP for repair of the spillway].

The design for Lower Lake was harder to design because of the culvert and steep drop in elevation; fish will have to make their way up a fish ladder and enter a turn box before exiting the ladder into the lake. Replicating the rock ramp passage like the one in Riverhead (300' long) is not an option at either lake because of the short distances and elevations of the culverts. Discussions by the group included opening up the currently closed spillway bypass (steel tube which used to feed the Saw Mill) at Lower Lake as an alternative option. Using the old pipes will be even more difficult for the alewives because it will have a high velocity and no air within the pipe, which is not feasible to direct fish passage. Secondary problems with this included impacts from scouring of downstream wetland vegetation and resultant turbidity. However, use of bypass spillway may be necessary to compensate for reduced spillway capacity if fish ladder is installed through culvert. Use of bypass will also likely be necessary during construction of the fishway. The bypass was traditionally opened once or twice a year for the saw mill, but not done since Kenny Hard donated the bottom of the Carmans River to the Town in 1964-65. Once the Town took it over, they stopped opening the bypass spillways.

DEC Dam Safety will want to know safety/capacity concerns known and addressed before issuance of a permit for dam modifications. Required DEC permits will include Wild and Scenic Recreational Rivers, Freshwater Water, and Dam Safety. Town is working on securing funding for hydrologic analysis necessary to obtain the dam safety permits (not part of this contract).

Management Alternatives (presented B. Laing Associates). This portion of the study is just starting, as we have compiled historic and existing information and now are beginning to assess feasibility of options. The consultant team will provide recommendations and supporting information for permitting. The County and Town will make the final decision.

Potential management alternatives (e.g. benthic barriers, biological, chemical, dam removal/modification, draw down, dredging, harvesting, shading, combination (integrated plant management) were briefly described.

- There is no silver bullet – the selected approach will have to be aggressive due to the magnitude of the problem, and will likely involve a combination of methods in appropriate phases.
- Conditions need to be made less favorable for long-term control (i.e. increasing depth, reducing nutrient load, reducing water temperatures, increasing flow).
    - The lakes are 95% groundwater fed, but impoundment results in warmer temperatures and less flow.
    - Most of the incidents of invasive plants correlate with the locations of storm water inputs and areas of higher development in the south end of the lakes.
- Recent harvester use on Lower (Lily) Lake was not found to be successful and may have worsened the problem – it couldn't get close enough to the shoreline to cut and collect fragments (which floated into the shallows and may have contributed to spread of the plant). Similar conclusion on Donahue Pond. Also, for harvesting to have an impact, it needs to be done aggressively and frequently.

- Use of grass carp in Canaan Lake was discussed; they initially offered some relief but not long term. Magnitude of the invasion, too few carp, and milfoil not being their favorite food may have all played a role in their not being a long term solution.
- Euclid moths from Europe have been tried in the Finger Lakes to control Eurasian milfoil, but the moths are also non-native and may carry their own risk if introduced. They will be assessed as a potential biological control.

Community Input:

Priorities

- Focus on clearing up the lakes, not fish passage. Do not want fish passage to hold up remediation of the lakes.
- 1) Fix roads, 2) fix spillways, 3) fix stormwater.

Integrated Approach

- An integrated solution is needed for the river that addresses the weeds as well as fish and wildlife.
- Replanting of native species would be most beneficial near the shoreline.
- There should be use of fertilizer controls in near vicinity of lakes. Encroachment by adjacent land uses should continue to be monitored by the Town.
- Pilot studies to test several management options in a small area should be considered, but may get confounded effects in-situ because of the open lake system.
- Removed plant material should be considered for reuse as fertilizer or compost.

Herbicides

- Concern over whether the water flow is too fast for herbicides. It appears to be slower in areas with dense weeds. Assurances for herbicide safety will be needed (e.g. during heavy rainfall events).
- Concern as to potential downstream impacts. NYSDEC may have looked into this at Donahue Pond.
- Dredging – muck areas are deeper than 4-5' in a section of Lower Lake. There has been significant infill of sediment, expansion of islands and subsequent growth of woody vegetation along the lake edges that is decreasing the width of the lakes.

Grass Carp

- Herb Brand pointed out a grass carp proposal which was permitted in Great Patchogue Lake in conjunction with hand harvesting – this project description was provided to the consultant team. Butch Stroud indicated he has observed 20 carp in Lower Lake; the exact species and their origin is not known
- Carp have worked well upstate, but alone may not be able to tackle current density of weeds in the Yaphank lakes. They also eat native plants.
- Concern that grass carp will have negative impacts on other fish, as they eat other fish nests.

Dam Removal

- Many are strongly opposed. "The dams make Yaphank Yaphank."
- Economic impact of dam removal may be substantial (e.g. lost residential value).

Dredging

- Muck needs to be removed. Multiple dredging options to consider: dragging an I-Beam through the lake to remove plants and roots; hydraulic removal; clamshell bucket; drain and bulldoze.
- Increasing water depth through dredging may not increase the depth enough to be an effective temperature control.
- Beneficial reuse of dredged material for constructing an island within the lakes could be considered.

Shading

- UV filters (e.g. shading compounds) may be possible, but achieving sufficient residence time for them to work could be difficult due to flows.

Other

- Water fountains may not be useful at this time because there is no oxygen problem at the present.

- Draining the lake, drying it out and replanting should be considered. This may not be feasible because it is a groundwater fed system and would never fully dry out.

Information Resources

- Muck areas are deeper than 4-5' in a section of Lower Lake. There has been significant infill of sediment, expansion of islands and subsequent growth of woody vegetation along the lake edges that is decreasing the width of the lakes.
- Warm temperatures and low flow are main reasons weeds are thriving.
- Bypasses at each dam were traditionally opened 1-2 times per year, allowing more cold water into the system.
- Artesian wells may be a potential option for attaining cooler water column temperatures to manage weeds.
- Don't reinvent the wheel – utilize methods demonstrated to work elsewhere; but, any methods need to be assessed to determine whether or not they would be effective here given current conditions and location of the lake on a highly significant and sensitive river system.
- Buddy Corwin and his father are caretakers of Southaven Park and identified as good resources for additional local knowledge.
- The Peconic River fish ladder was removed and replaced with a rock ramp – thousands of fish are now able to pass the dam.
- Peconic River Sportsman's Club has been effectively using the herbicide fluridone to control aquatic weeds (John Rau is contact) in Donahue Pond. They have reached 90% of their target without killing of reptiles, fish or amphibians. The 1st treatment cost $150K. Is a cost-effective approach. The County should provide monitoring reports from Donahue Pond.

Next steps

The power point and meeting minutes will be made available on the project website. The Steering Committee Meeting on July 26th will discuss each of the alternatives in more detail. Will be followed by a public meeting in August/September.

The meeting ended at 10:00 pm