

Champlain Canal Aquatic Invasive Species Stakeholder Meeting

November 6, 2008

Municipal Complex Building, Fort Edward, NY

1 pm – 5 pm

Draft Meeting Summary

WELCOME

Steve Sanford, Director of the New York State Department of Environmental Conservation Office of Invasive Species Coordination (NYSDEC – OISC) welcomed everyone to the stakeholder summit meeting sponsored by the Lake Champlain Basin Program (LCBP) and the New York State Canal Corporation (NYSCC). Steve Sanford facilitated the Champlain Canal Aquatic Invasive Species Stakeholder Meeting.

Introduction of the Aquatic Invasive Species Partnership

Bill Howland, Manager of the Lake Champlain Basin Program, started by saying how important it is to have the various partners assembled for the summit: LCBP, NYSCC, NYSDEC, US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), US Environmental Protection Agency (USEPA), The Nature Conservancy (TNC), Lake Champlain Sea Grant, and the Champlain Valley Forest and Wildlife Experiment Station. She reiterated that the NYSCC wants to be a partner in aquatic invasive species initiatives. She recognized Meg Modley of LCBP for her idea about including aquatic invasive species spread prevention messages in the NYSCC weekly radio address. NYSCC is working on a Statement of Partnership with the LCBP to reduce the spread of aquatic invasive species and the NYSCC legal staff are reviewing it as we speak. In closing, she mentioned that they are working with the Quadricentennial Commission to plan special events. She thanked everyone for inviting her to attend.

Lake Champlain Basin Program—Dave Tilton, USFWS

Dave began by saying what an honor it is to be part of the partnership between LCBP and NYSCC. It has been great to see the partnership develop over the last two years and they continue to evolve in very positive ways. On behalf of LCBP and NYSCC, Dave believes this afternoon will produce information that will guide the partnership and help the organizations to work together in a productive way.

Dave is a LCBP Steering Committee Member, and also the Complex Manager of the USFWS Lake Champlain Fish and Wildlife Service Complex. Dave presented some background on the formation of the LCBP and how they are organized. LCBP was created by Congress via the Lake Champlain Special Designation Act of 1990. LCBP is a partnership among Vermont, New York, and Quebec to jointly manage the Lake Champlain Basin with support from USEPA and the National Park Service. He explained that *Opportunities for Action* is the long-term management plan for Lake Champlain Basin that is signed by the Governors of Vermont and New York and the Premiere of Quebec and is coordinated by the LCBP. The four highest

issue for constituents. The NYSCC is a subsidiary of the NY State Thruway Authority and is responsible for maintenance, operations, and promotion of the historic 524 mile New York State canal system. There are 542 full time and 200 seasonal employees that work along the canal waterways which include the Erie Canal (338 mi.), Champlain Canal (50 mi.), Oswego Canal (24 mi.), and Cayuga-Seneca Canal (93 mi.).

Accomplishments range from creating the New York State Canal Recreationway Plan, and investing \$250 million in improving the canal system and its facilities, such as the visitors center in Whitehall, NY. She gave many more examples of specific projects within the Lake Champlain Basin. She noted that, in general, canal traffic was down 22% this year compared with other years. However, there was an increase in commercial trips (42 recorded through September 2008 compared with 15 last year), especially with trucking containers. There are more than 200 recreation or public events on the calendar, such as Cycle the Erie, Canalway Trail Celebration, Canal Splash, and Canal Clean Sweep. These events show the canal is alive. It is the NYSCC's job to educate the public and also remind them that the canal is not just part of the past, but also of the future. She mentioned that over 30,000 people attended events involving the Lois McClure. Many communities planned other events to coincide with the visits from the Lois McClure. She recognized Eric Tichonuck from the Lake Champlain Maritime Museum for his dedication and organization of the journey of the Lois McClure all the way out the Erie Canal and back.

Regarding aquatic invasive species, the NYSCC may not have been considered a partner a few years ago, and now they are very committed. It is important now more than ever, given the economic times. The NYSCC is a member of the New York Invasive Species Council. They have supported the Lake Champlain Water Chestnut control program, and they own the Advisory Committee (TAC) has a subcommittee entitled the Aquatic Nuisance Species (ANS) Subcommittee. Dave is the chair of the ANS Subcommittee which has provided technical advice and review to the NYSCC and LCBP Partnership projects.

Dave noted that there are many aquatic invasive species on Lake Champlain's doorstep. The Lake Champlain Basin Program has a number of aquatic invasive species initiatives underway to control their introduction, spread and impact to the region. The ANS Subcommittee has developed a Lake Champlain Basin Rapid Response Action Protocol to help address new aquatic invaders. The Rapid Response Action Plan has 5 steps which are Species Confirmation, Delineation, Isolation, and Preliminary Evaluation, Treatment Selection and Design, Treatment Plan Implementation, and Monitoring and Evaluation. Dave noted a few of the many education and outreach spread prevention initiatives that LCBP is involved with including the Lake Champlain boat launch steward program.

New York State Department of Environmental Conservation Office of Invasive Species
Coordination—Steve Sanford, Director, NYSDEC-OISC

Steve gave a presentation entitled *"Who's Minding the Store?"* He talked about the New York State Invasive Species Task Force convened in 2003 to address invasive species (ISTF). Their role is to assess the aquatic and terrestrial invasive species situation and advise the legislature. Steve stressed the need to prioritize prevention management. His advice in short is, if you have \$1, spend it on prevention. However, it is important to have coordination, control, spread prevention, and rapid response, at the same time. Aquatic invasive species require a multi-pronged approach. The New York State invasive species program is delivered primarily through partners (not through internal group). New York State Environmental Protection Funds are allocated primarily to partners. The legislature created a NY Invasive Species Council (NYISC) and an advisory committee. NYSDEC-OISC staff have recently been added to support the NYISC and advisory committee. The NYISC has nine agency representatives and the advisory committee has twenty-five representatives from groups around the state. The NYSDEC OISC

priorities in the plan are phosphorus reduction, toxic contamination reduction, controlling and reducing the spread and impact of aquatic invasive species, and protecting human health. He explained the LCBP operating structure. There are several advisory committees that advise the Lake Champlain Steering Committee, the governing body of the LCBP (technical, VT, NY, and Protection Agency (USEPA), the Nature and cultural heritage (NVC), Lake Champlain Technical (LCSG), University of Vermont (UVM), Lake Champlain Committee (LCC), VT Agency of Natural Resources (VTANR), NY and VT US Senators and local legislators, the media, and many others. This meeting is an outgrowth of several productive meetings between NYSCC and LCBP about aquatic invasive species spread prevention and the Champlain Canal. The LCBP and NYSCC have formed a partnership and identified some overarching goals including aquatic invasive species spread prevention, the need to maintain and enhance navigation of the canal, exchange information, and explore ballast standard possibilities. Understanding that people relate to the canal resource through their recreation (boating, fishing, sailing), and cultural heritage, Bill stressed the need to keep aquatic invasive species from traveling through the Champlain Canal into the Lake Champlain Basin. The NYSCC and LCBP Partnership has to be proactive about invasive species spread prevention, because once species arrive in the basin, the battle is lost. Today we will hear from aquatic invasive species experts and resource managers and users in the basin that will help guide the direction of the Partnership.

Special Guest: Heather Loneck from US Congresswoman Gillibrand's office spoke to the group. She thanked LCBP, NYSCC, and NYSDEC for addressing the important issue of aquatic invasive species. She said this meeting is a great opportunity for education and action. She talked about how Congresswoman Gillibrand and VT Congressman Welch plan on working together.

PARTNERS

New York State Canal Corporation-Carmella Mantello, Director, NYSCC

Carmella introduced the many NYSCC staff who were in attendance. She explained how the NYSCC is organized. She mentioned that dredging the canal to maintain navigability is a major

Hilary Oles began the presentation with an overview of aquatic invasive species pathways and impacts to the region. The Adirondack Park Invasive Plant Program (APIPP) is affiliated with The Nature Conservancy. Hilary reviewed some basin definitions of species. Native species are historically indigenous, and were found in the region pre-European settlement. Nonnative species are accidental or purposeful introductions of species outside of their historic geographical range. Invasive species are nonnative species that cause economic, ecological or human harm to a region. They rapidly reproduce and displace native species causing measurable harm. Nuisance species are those species that interfere with human activities. Hilary addressed commonly asked questions such as why some nonnative species are invasive. She explained that nonnative invasive species lack predators and other population controls; they can reproduce abundantly and rapidly; they may reproduce sexually or asexually; they have wide tolerances in environmental conditions (ie, pH, temperature, oxygen levels), and they monopolize resources such as light, nutrients, and space. Invasive species impacts are economic or ecological, through native species displacement, disruption of food chains, native population declines and habitat loss (ie, juvenile fish habitat). Invasive species cost the US an estimated \$128 - \$185 billion each year (tracked since 1990s). This includes reduced property values and negative impacts on tourism, which therefore have impacts on a national and local scale. Hilary noted a large number of invasive species that are on the move in the region. Hundreds of thousands of dollars are already being spent annually on aquatic invasive species control in the region. Through a significant investment of resources signage, surveillance, stewards, education, management, research, and regulations have been implemented.

Hilary addressed how invasive species are entering the region. Aquatic invasive species travel along different pathways including canals and waterways that connect previously unconnected watersheds, home gardening, illegal stocking, overland transport, aquarium dumping, and baitfish dumping. Not all of these pathways are linked to intentional introductions. There are a number of new pathways that also have to be addressed including global trade, global warming, genetic engineering, bio-terrorism, and internet sales. Understanding these pathways can help resource managers and citizens prevent their spread.

Mark Malchoff from Lake Champlain Sea Grant discussed some of the specific aquatic invasive species impacts to the region. Mark showed the slide from the LCBP's *2008 State of the Lake Report* about the number of aquatic invasive species in Lake Champlain's surrounding waters. There are 184 known aquatic invasive species in the Great Lakes, 87 in the St. Lawrence River, 91 in the Hudson River, and 48 in Lake Champlain. While geographically isolated, Lake Champlain is connected to these water bodies through the Chambly and Champlain Canals. He spoke about a previously published report that evaluated alternatives for how to reduce the spread of aquatic invasive species through the Champlain Canal. While ballast water is a significant pathway of aquatic invasive species introduction in the Great Lakes, there is almost no ballast water coming directly into Lake Champlain. Mark noted that over a dozen nonnative fish species have entered Lake Champlain through the Champlain Canal. Some organisms that have not come through the canal yet include the blue-back herring. He gave some species profiles, such as zebra mussel that were introduced to the South Lake through the Champlain Canal in 1992, and water chestnut in the 1940s. Asian clam, round goby, quagga mussels and the spiny waterflea are examples of highly invasive species that will likely use the Champlain Canal as a pathway to invade Lake Champlain.

In the case of the zebra mussel invasion, it took ten years for Lake Champlain to be colonized in all parts of the lake with all stages of the zebra mussel life cycle (adults, juveniles, and veligers). Aggressive spread prevention initiatives have prevented this species from infecting inland Adirondack and Vermont lakes and ponds. Mark spoke of the long-term control program for water chestnut coordinated among LCBP, VTDEC, NYSDEC, TNC, NYSCC, and other partners at a cost of roughly \$500K per year. Consistent annual mechanical and handpulling controls have vastly reduced the quantity of water chestnut needing mechanical harvesting, but without consistent management the species would rebound and re-infest southern sections of Lake Champlain. White perch invaded Lake Champlain in 1984, and it is still unclear how it has affected the basin, though it is the most abundant fish species in Missisquoi Bay. Asian Clam was discovered in the Champlain Canal between Locks 7 and 8 in April, 2008 by two New York State Museum scientists. The impact of this species to Lake Champlain is unknown. Spiny waterflea are very small (0.5 inches) crustaceans that are known to have significant impacts to the food web. They typically attach to fishing tackle and look a bit herbaceous. They have been discovered in nearby Great Sacandaga Lake a waterway that drains into the Champlain Canal. Round Goby are present in the western-most part of the Erie Canal system. They have spread botulism to fish-eating ducks. The Lois McClure's hull was exposed to quagga mussels from July through September, 2008 in the Erie Canal. Divers checked the hull on its return to Lake Champlain and found no quagga mussels attached.

In summary Mark noted that all of these aquatic invasive species tend to be opportunistic and take advantage of available pathways and habitats to invade new water bodies. The Champlain Canal has been identified as a major aquatic invasive species pathway, putting the Adirondacks and other inland lakes in Vermont at risk. There is also equal risk of Lake Champlain species traveling through the Champlain Canal and invading the Hudson River and Great Lakes through the Erie Canal. Management options to reduce the spread of aquatic invasive species do exist and while not perfect, should be explored.

Public Questions on Aquatic Invasive Species

Steve Sanford facilitated a public question session for Mark and Hilary's presentation on aquatic invasive species.

Public Question—Any idea about decline of zebra mussels in Lake Champlain?

Mark Answer—Zebra mussels are known to experience boom and bust cycles that are induced by environmental conditions. The species population is always either building up or declining, but Mark does not have specific data to share today.

Public Question—Is there any legal way to control engine cooling flushing from one body of water to another body of water?

Mark Answer—Currently, there are no laws or rules to address engine flushing in Vermont or New York.

Public Question—Why have round goby not migrated further east in the Erie Canal?

Mark Answer—To our best knowledge, the eastern part of the Erie Canal does not have the best round goby habitat.

Public Question- (Tim Mihuc) Regarding rapid response plans for spiny waterflea and Asian clams, which are nearby, what's being planned? What's being done now? How can we make it work?

Answer—(Dave Tilton) The Lake Champlain Basin rapid response planning process involves financial resources and government agencies adjusting formal legal permit processes. The Plan involves LCBP finalizing Rapid Response Protocol and sending them to state agencies for approval in January. Techniques to do the actual rapid response and spread prevention actions, will involve experts in the Basin including Tim Mihuc.

Answer – (Meg Modley) The Lake Champlain Basin Program has begun to address Asian clam by using the unfortunate infestation in the Champlain Canal as an opportunity to test the Rapid Response Protocol. The ANS Subcommittee received a presentation about Asian clam at their August meeting and partners coordinated to conduct two preliminary surveys in the Champlain Canal which revealed the presence of Asian clam just south of Lock 8 in the Hudson River drainage, but not north of Lock 8 in the Champlain Basin. Absence of evidence is not evidence of absence. This work could not have been achieved without the cooperation of the NYSCC and NYSDEC to acquire necessary permits in a timely fashion. The ANS Subcommittee has also conducted a risk analysis for Asian clam in the Lake Champlain Basin by evaluating the species impacts and invasiveness and the ability to control the species in the basin using the Species Evaluation Questionnaire in the Rapid Response Plan. The ANS Subcommittee has recommended action to control Asian clam if technically and feasibly possible.

Question—Is there a way to stop invasive species at the canal locks?

Answer—Yes. So far education and outreach has been used at the canal locks. A number of different brochures and more than 10,000 pieces of literature have been distributed. The NYSCC are becoming more educated about aquatic invasive species through this partnership effort and more attention will be paid to inspecting boats traveling through the canal locks. Carmella asked everyone to understand that two years ago, this partnership did not exist. Now there are new opportunities for invasive species spread prevention and more than 300 staff have been trained as ambassadors. We are trying to be more aggressive about prevention and we expect to accomplish even more in the future.

Comment—Mark Malchoff mentioned that the Asian clam literature was created quickly and widely distributed.

MITIGATION MEASURE OPTIONS

Aquatic Invasive Species Spread Prevention and Mitigation Measures - Ellen Marsden, University of Vermont

Lake Champlain is a source as well as a recipient of aquatic invasive species. Pathways and vectors for invasive species introductions have been examined and are being addressed. New regulations exist for baitfish and deliberate stocking of nonnative and invasive species. The Champlain Canal remains the largest, unaddressed vector. The Lake Champlain Basin has two canals, the Champlain and Chambly, which are the most likely routes for many aquatic invasive species introductions. The Champlain Canal seems to be the bigger of the two threats. Many species we have entered Lake Champlain through the Champlain Canal, and many threats could arrive through the Champlain Canal.

In order to prevent invasions via the canal a mitigation measure option must be feasible, affordable, not impede boat traffic, and add economic opportunities to the region. The best

option will have minimal non-target species effects, and must be effective against a range of organisms (fish, plants, invertebrates, plankton).

There are a few guiding principles in selecting the best aquatic invasive species mitigation measure in the Champlain Canal. First, no solution is likely to be 100% effective and second, an optimal solution may utilize several strategies simultaneously because different species may require different strategies.

Ellen presented a number of mitigation options for the Champlain Canal and reviewed the pros and cons of each option. The six options presented included do nothing, install a biological barrier, chemical barrier, behavioral barrier, physical barrier, or close the canal. The option to do nothing to prevent the spread of aquatic invasive species was presented as the status quo. The second biological barrier option involves adding predator or grazing species to the canal to target invasive species. This option may be difficult to manage and added predators and grazers will not be effective against a range of organisms. There would be non target species effects and it could require a difficult regulatory process. The third chemical barrier option involves heating the water in the canal, adding toxins, or changing the water chemistry (pH, oxygen). This option will also have significant regulatory and permitting challenges, is expensive, and must be ongoing to be effective. A chemical barrier would have significant impacts on non target species. The fourth behavioral barrier option might entail creating a bubble curtain to repulse fish and some plankton, the use of acoustics and a strobe which some fish would avoid, or an electric barrier to repulse and kill fish. These types of behavioral barriers address a limited group of aquatic invasive species, have few non target species effects, but do not work well against plants. Ellen referred to the Chicago Sanitary and Ship Canal as a current example that is an electric barrier. This example is very expensive, only works well for vertebrates, and is the cause of some human safety concerns. The fifth hydrological separation option is a physical barrier such as a closed canal lock that interrupts water connectivity. Hydrologic separation is feasible and addresses all organisms with minimal non target species impacts. Initial installation costs would be high, though maintenance would be minimal. An example of a hydrologic separation barrier is the Big Chute Marine Railway in the Trent-Severn Canal, Ontario. This barrier was built to prevent the introduction of sea lamprey into Lake Simcoe. This hydrological separation barrier includes a boat lift to move vessels over the barrier with minimal threat of moving aquatic invasive species with the vessel during overland transport. The Fox River lock system in Winnebago, WI was shut down entirely and has no plans to reopen due to white perch and sea lamprey threats. This option would cause slight delays in Champlain Canal traffic while they are moved on a boat lift over a barrier, but would add an economic opportunity to the region. Ellen shared the example of the Falkirk Wheel, a hydrological separation barrier in Scotland that moved boats over an 80 ft. change in elevation. While not designed for invasive species management, the Falkirk Wheel is a huge tourist attraction. Boat lifts at hydrological separation barriers also allow for education and outreach about aquatic invasive species to take place, including the inspection of boat hulls and gear. The sixth and last option presented was closing the Champlain Canal. Closing the Champlain Canal would cause a significant loss of revenue and would negatively impact a valued cultural heritage and recreation corridor.

Public Questions on Mitigation Measure Options:

Question - Is a hydrologic separation doable?

Answer- Yes, boat hoists exist that can lift all boats that would be able to go through the Champlain Canal. The technology does exist.

Question- Is there anything people can do now to keep Asian clam and spiny waterflea out of Lake Champlain?

Ellen Answer- No, because the vectors are open. It is difficult to transport these species, unless they are on a boat. It is worth the time to conduct boat inspections, but these two particular species are difficult to prevent from entering. There is a high probability that these will enter the lake.

Question- Is it possible to get a barrier on the Great Sacandaga River, not the canal?

Answer Ellen- It is possible to install a barrier on the Great Sacandaga River, but filtering water is difficult and an electrical barrier may not be possible and might not be effective.

Question- Once a species is established, can you get rid of it? Why are we spending money when they will enter and integrate into the system anyway?

Answer Ellen- Lake Michigan used to be a productive resource but now has many exotic species which has led to the extinction of fisheries. Now we are stocking exotic species to control exotic species and we are paying for a resource. These management costs are very high.

Question - How much revenue does the Champlain Canal bring in?

Answer Carmella- NYSCC has an annual budget of \$70-80 million (for full canal network). Operation costs \$40 million/year. In an economic impact analysis it was estimated that the canal brings in \$2-3 million dollars, this estimate does not take into account the \$380 million estimated in tourism revenue. In short, the value of the canal outweighs our annual budget.

Comment (Bill Wellman) - Does the Champlain Canal, as a route for invasive species, create economic benefit or economic detractor to the region. In other words, can we compare the amount of money spent to control aquatic invasive species that have entered Lake Champlain through the canal to the amount of revenue the Champlain Canal brings to the region?

Question- How much did the Falkirk Wheel cost to construct.

Answer Ellen- The Falkirk Wheel cost \$83 million dollars in 2001.

Comment (Tim Mihuc) – Studies to prevent the spread of spiny waterflea have been conducted. For example, a 10% Clorox solution can be used effectively to clean out the live well and bilge. This practice could be mandated and regulated on Great Sacandaga Lake to reduce its chance of spreading via boats to other water bodies. This is an action that could be taken immediately. I can provide a fact sheet about specific spread prevention measures.

General Discussion – The stakeholders had a larger discussion about possible spiny waterflea containment and spread prevention measures. Great Sacandaga Lake is a reservoir that was created in the 1930s for commercial, electric, and flood control purposes. The Great Sacandaga Lake drains through a pulse release system into the Sacandaga River which drains into the Hudson River. However, the Glens Falls Feeder Canal connects Great Sacandaga Lake to the Champlain Canal just above Lock 8 in the Champlain Canal. There could be some management opportunities in the Glens Falls Feeder Canal which channels roughly 250 cfs of water into the Champlain Canal during the summer when additional water is needed. The stakeholders discussed the possible use of ultraviolet light in the Glens Falls Feeder Canal or closing that connection to prevent the spread of spiny waterflea into the Champlain Canal. It is unknown if spiny waterflea are already in the Champlain Canal.

The stakeholder group also discussed other education and outreach activities already being implemented in the region to prevent the spread of all invasive species. School programming, brochures, early detection and monitoring, grants programs, web-sites, stewardship programs and other efforts were discussed. A number of stakeholders emphasized the importance of boat launch steward inspection programs that are being implemented across the nation as part of an overall invasive species spread prevention strategy.

United States Army Corps of Engineers and the 2007 Water Resources Development Act – Jen Thalhauser, USACE

Jen is a project manager with the New York district of the USACE. Jen works in the Hudson River watershed and participates in ecosystem restoration projects. Jen explained the language in the Water Resources Development Act of 2007. In this bill the USACE was given the authority to investigate the possibility of a dispersal barrier for aquatic invasive species on the Champlain Canal. If a feasible option is found, the USACE is authorized to design, construct and maintain at full federal cost such a barrier. The authorization in the bill exists, but the money has not been appropriated yet.

The USACE would be involved with the project by meeting with partners and sponsors and making a schedule for a feasibility study. A feasibility study would look at the conditions of the Champlain Canal system, investigate alternatives for a dispersal barrier, evaluate cost effectiveness of alternatives, and recommend and request approval for design construction, maintenance and operation.

An example of a USACE constructed dispersal barrier is the Chicago Sanitary and Ship Canal. The USACE's next steps include providing updates on FY09 appropriations bills and funding status. If funding for the Champlain Canal barrier is appropriated, the USACE would begin the feasibility study.

Public Questions on US Army Corps of Engineers and 2007 Water Resources Development Act

Question- Why do you need funding to work with your partners to discuss what the feasibility would look like? Can't this be achieved without money?

Answer Jen - We have a general idea. It is the contract and detailed scope of work that we have to have an appropriation to move forward with. Right now we are moving forward as much as we can, but we do need funding to do the feasibility study.

Question (Candy Page) - Does the USACE have any discretion in their spending?

Answer Jen – No, we are at the mercy of Congress, and can do only what we are funded to do.

Question- Are there interim steps we could take?

Answer Jen- It is good to have congressional representation here (Heather Loneck for Congresswoman Gillibrand) and have them bring messages and concerns from this meeting back to Washington. Stakeholders who support this project need to let their representatives know that this is a priority. Congress needs to know that this is an important project that should be funded.

Question - How long would it take, if you had the funding?

Answer Jen – It would probably take 2 years, depending on what data needs to be collected and what is already known, to complete the feasibility study. This public stakeholder meeting would be one of the USACE's first steps.

Question- For the species that are on our doorstep, could the USACE be a savior?

Answer Jen – No, we are one of the strategies.

PUBLIC COMMENTS AND DISCUSSION

Formal Statements:

Jim Hood, New York State Federation of Lake Associations and Chair of the New York Invasive Species Advisory Committee

Jim will submit written comments. He stressed that there are many options available to treat aquatic invasive species. Many of these strategies will have to be employed and he asked that we keep the momentum going to build a comprehensive strategy. Many opportunities for education are already underway. There is a need to keep the big picture in mind and consider what is feasible to address a host of species instead of species specific strategies. Please don't let the momentum stop!

Tim Mihuc, Lake Champlain Research Institute

Tim stressed that it is about time that this public stakeholder meeting occur, but there is no more time left to wait to address aquatic invasive species in the Champlain Canal. Two years ago when the NYSCC and LCBP Partnership started, there was no immediate threat, but now we have Asian clam and spiny waterflea threatening Lake Champlain. There are two invasive species that are eminent, they are here in the Champlain Canal and if the spiny waterflea gets into Lake Champlain it will restructure our food web. The Lake will not be the same if these species come in. The action has to be taken now, in the next few weeks or months, it can't be 2 years from now after a feasibility study. Perhaps we should close lock 8 or 9 temporarily until we have a better strategy to address invasive species in the Champlain Canal.

Jim Davis, Adirondack Council

Jim will submit written comments. This public stakeholder meeting is a good start to addressing aquatic invasive species in the Champlain Canal. The Adirondack Council will support whatever mitigation measures are necessary so that the Champlain Canal ceases to be a vector for aquatic invasive species introductions. Barriers and education measures are vital to this goal.

Mike Winslow, Lake Champlain Committee

Mike expressed deep concern for the impacts of aquatic invasive species to Lake Champlain. He has witnessed many devastating effects, including physical changes to the natural environment, from invasive species. He thanked the LCBP and NYSCC for forming a partnership to address this important issue and urged the partnership to focus their efforts on an effective barrier option. Education and outreach efforts, while part of a comprehensive spread prevention strategy, are not enough. The NYSCC, as the organization in charge of the Champlain Canal which connects two previously separated water bodies, has a responsibility to take action to prevent the spread of invasive species through the canal.

Ron Jackson, New York Citizens Advisory Committee

Ron thanked everyone for coming. This canal is different than many canals, the water of the Hudson is not that different from the water here in Fort Edward, NY. There is a height of land that separates Lake Champlain from the Hudson drainage. If you drain the canal or break the connection you cannot have a canal. There are things that can be done, don't think the status quo means no action. Lots of education and outreach progress has been made and he thanked Meg. Boaters on the whole are ecologically minded. Fouled hulls take more gas to operate. Voluntary

boat washing stations would be a good idea. There is no water flowing between the Hudson River and Lake Champlain, the water is coming from the feeder canals and other than swimmers, the only invasive species are hitchhikers, not the floaters. There are simple things we can do to get rid of the hitchhikers. With increasing commercial traffic, Ron would like to fund a special barge designated for the Champlain Canal that is designed with a double hull and deep well pump to change water in the ballast of other ships. Currently barges are not equipped to change ballast, so this special ballast water changing barge would be a good idea. This barge would cost money to construct, but if heavy lift cargoes use the barge it would be effective.

Emily Debolt, Lake George Association

Emily is concerned about invasive species in Lake George and in other surrounding lakes. While Lake George is not connected to the Champlain Canal, it is part of the Lake Champlain Basin and is connected to Lake Champlain through the LaChute River. Lake George's northernmost boat launch is three miles away from Lake Champlain. There are a number of regattas that travel up the Champlain Canal to Lake George. Lake George currently has three invasive species on their doorstep (Asian clam, spiny waterflea, and alewife). The Lake George Association would like to congratulate LCBP and NYSCC for developing a partnership to address aquatic invasive species spread prevention. The Lake George Association encourages the partnership to move forward with a comprehensive plan that stresses education and outreach efforts.

Paul Marangelo, The Nature Conservancy

The Nature Conservancy is dedicated to maintaining biodiversity. Compared to the Great Lakes, there are many fewer aquatic invasive species in Lake Champlain. Spread prevention cannot be underestimated. It is one of the most important ways to protect biodiversity. Paul encouraged the partnership to move forward with spread prevention measures and hoped that the USACE will conduct the feasibility study to make the canal barrier a reality.

Leslie Matthews, Vermont Department of Environmental Conservation

Leslie Matthews presented a formal letter from Laura Pelosi, the Commissioner of the Vermont Department of Environmental Conservation, in support of the stakeholder meeting. She highlighted some points in the letter. Aquatic invasive species have had a profound impact to the ecology of Lake Champlain and the Lake has served as a conduit for aquatic invasive species to inland water bodies in Vermont. More than \$2 million dollars state and federal dollars are spent annually to control aquatic invasive species in Vermont in addition to significant volunteer efforts. The Vermont Agency of Natural Resources has created and implemented many programs to address aquatic invasive species. For example, Vermont has instated regulations to prevent the spread of invasive species with a transport law which makes it illegal to transport a number of species and the new baitfish rule prohibits possession and overland transport of certain bait. The Department supports boat inspection programs and provides technical invasive species spread prevention support to towns where public water access is located. The Vermont Department of Environmental Conservation will work with the NYSCC and LCBP partnership to prevent invasive species from entering Lake Champlain.

Mark Malchoff, Lake Champlain Sea Grant

Ballast water is not that much of an issue for the Champlain Canal. If commercial traffic increases in the Champlain Canal, then the threat of aquatic invasive species may increase. One of the last vessels to travel through the Champlain Canal was a ferry purchased by Lake Champlain Transportation, the Cumberland Ferry, which travels from Grand Isle, VT to

Plattsburgh, NY. Lake Champlain Transportation purchased roughly 70,000 gallons of fresh water from Troy to use as ballast so the contaminated ballast would not be discharged into Lake Champlain. This was a voluntary action.

Open Discussion:

Steve Sanford led the stakeholder group in a discussion about Champlain Canal mitigation measures. Ellen Marsden noted that a hydrological barrier with a boat lift for recreational boaters would significantly reduce the spread of aquatic invasive species in the Champlain Canal. The hydrological barrier could be opened a few times a year to allow for the occasional passing of a barge vessel or Lake Champlain ferry so that the use of the canal is not impeded. Jim Hood recommended involving as many stakeholders as possible in the discussion, beyond the local groups represented at this meeting.

The discussion shifted to the spiny waterflea population in Great Sacandaga Lake. Stakeholders asked the NYSCC if they had any ideas of ways they could try to prevent the spread of spiny waterflea through the Glens Falls Feeder Canal. It is uncertain if spiny waterflea have passed through the Glens Falls Feeder Canal and sampling in the feeder canal as well as in the Champlain Canal would inform possible mitigation control measures to reduce their spread. The NYSCC is aware of the infestation in Great Sacandaga Lake and noted that the Glens Falls Feeder Canal might be conducive to a control measure such as a barrier, screening, or UV light treatment because there is no traffic on this canal and it is not part of the navigable system of the Champlain Canal. Occasionally canoes and kayaks may use the canal, but not motorized boats.

Many stakeholders emphasized the importance of forming partnerships to address invasive species challenges and focusing on actions that can be taken today. A few stakeholders mentioned how impressed they were with the quality of the meeting presentations and they felt optimistic that that aquatic invasive species issues can be solved with the enthusiasm and expertise present at the meeting.

Steve Sanford noted that in some cases there is an opportunity for rapid response actions to prevent the spread of an invasive species or eradicate it altogether if a species is detected early. This is not always the case, but the group must not underestimate the value of education and outreach and regulation which might be part of the solution in preventing spiny waterflea from spreading into the Hudson River and Lake Champlain. Some stakeholders felt that the case of the spiny waterflea in Great Sacandaga Lake would be a good case for the NYSCC and LCBP partnership to address with the goal of preventing the spread of the species to Lake Champlain. The group discussed the potential for spread prevention and mandatory boat wash stations.

The discussion shifted back to the Glens Falls Feeder Canal and possible mitigation measures to prevent spiny waterflea from traveling through the canal into the Champlain Canal. Howard Goebel from the NYSCC drew a map of the Great Sacandaga Lake, the Glens Falls Feeder Canal and its connection to the Champlain Canal. An average of 250 cfs (max 500 cfs) is discharged through the feeder canal during the navigation season (April – November) to maintain water levels in the Champlain Canal. The Glens Falls Feeder Canal flows into the Champlain Canal just north of Lock 8, the highest point in the canal. The feeder is an isolated system and is not a managed waterway. The critical point to control spiny waterflea is at the reservoir entrance to prevent it from flowing into the canal. The source of a spiny waterflea infestation to Lake Champlain is the Glens Falls Feeder Canal itself. If the species is not in the Champlain Canal yet, the Glens Falls Feeder Canal and the Champlain Canal are closed for the winter season and the time to act would be now.

The stakeholders and scientists discussed the possibility of using a screening system or heating the water at the Great Sacandaga Lake diversion entrance to the Glens Falls Feeder

Canal to prevent the spread of spiny waterflea. It would not be feasible to treat the canal with chemicals. Ultraviolet light may be a solution because it does not pollute, add heat or chemicals, is practical, and does not have non target species impacts. The feeder canal is seven miles long. Mark Malchoff offered research documents and fact sheets on spiny waterflea to interested parties.

A Vermont resident had a question about Eurasian watermilfoil management in Lake Champlain. Leslie Matthews responded that VT state and other partners do conduct management activities, but management options in Lake Champlain are limited. Unlike water chestnut which is an annual plant, Eurasian watermilfoil can spread by plant fragmentation. Suction harvesting and herbicide treatments are not allowed in Lake Champlain at this time. Some lake associations do find support to mechanically harvest Eurasian watermilfoil, but this management technique will never eradicate the species from Lake Champlain.

Steve posed a question to the group about how to communicate with or regulate recreational boaters on Lake Champlain to prevent the spread of aquatic invasive species. In New York angling organizations and clubs have to acquire a Temporary Revocable Permit (TRP) from NYSDEC in order to launch a tournament from a NYSDEC boat launch on Lake Champlain. A stipulation of the TRP is that permit holder (tournament organizer) contact the Lake Champlain Basin Program for aquatic invasive species materials to include in registration packets. Lake Champlain Sea Grant and the Adirondack Park Invasive Plant Program are also great resources for educational materials. While it is important to target different recreational user groups in the region, the spread prevention message is the same for all of the species. It is essential to spread the universal message to check, clean, and dry all equipment and boats.

The stakeholders also discussed the many education and outreach initiatives that exist in the region to address aquatic invasive species. There are a range of materials available from recreational fishing guides and signs at boat launches to aquatic invasive species curriculum for youth education. There are youth fishing programs, teacher training workshops, classroom visits and outdoor field exercises. There are also strong lake steward programs in the Adirondacks, Lake George, and Lake Champlain. The NYSCC has a traveling model lock and they could incorporate invasive species education into that presentation.

Summit Summary and Next Steps:

Bill Howland reinforced the importance of the NYSCC and LCBP Partnership to address aquatic invasive species in the Champlain Canal. He applauded the NYSCC for recognizing their responsibility in addressing this issue and their engaged involvement motivates the Partnership. The LCBP also has real responsibilities to help prevent the spread of aquatic invasive species and will work through the leadership of the Steering Committee to handle these management challenges. LCBP's concern about invasive species led to the Rapid Response and Spread Prevention Workgroups. LCBP and its partners are already out in the field working to prevent the introduction and spread of invasive species. LCBP recognizes the need for both long and short term management strategies. One step is to keep this collaboration and discussion going – holding this meeting is example of this. Bill hoped that LCBP can bring the necessary expertise to the table, in order to keep the dialog going and keep the momentum. Bill thanked all of the speakers for their time and hard work. Bill thinks that the Partnership and the public stakeholders are moving in a good direction, we are so pleased with the cooperation and partnership all around the room. It will take everyone working together to address this important issue.

Carmella Mantello also thanked the entire group for their attendance and participation. She noted that the LCBP and its partners are the experts, not the NYSCC. She noted that the NYSCC is learning more and more from LCBP and the NYSDEC-OISC and that is why this partnership is critical. Carmella said that the NYSCC cannot close the door. The canal is a connection to our past and our future and the question is where we go from here. She supported more education and the exploration of any and all alternatives. She also stressed the need to be realistic in these hard economic times. Many folks are trying to get by and make ends meet. That said, the Partnership needs to keep moving forward. NYSCC needs to learn and discuss all the possible alternatives. NYSCC is in the process of educating themselves about aquatic invasive species issues. Carmella affirmed NYSCC's strong commitment to the Champlain Canal Partnership with LCBP. She pledged to move forward and work with all stakeholders. She closed by stating that NYSCC is at the table, understands this is a serious issue, and values the Partnership greatly.

Thank you and Adjourn!

Bill Howland and Carmella Mantello thanked everyone for coming and participating in a successful meeting.