



PO Box 3019
Boscawen, NH 03303
603.796.2615 • info@northeastans.org
www.northeastans.org

Meeting Summary • November 9 – 10, 2004
Gideon Putnam Hotel and Spa, Saratoga Springs, New York

Panelists in attendance: Jason Baker, MA Office of Coastal Zone Management; Nancy Balcom, CT Sea Grant Extension Program; Erik Beck, US Environmental Protection Agency; Stephen Crawford, Passamaquoddy Tribe at Pleasant Point; Gretchen Fitzgerald, Ecology Action Centre; Peter Francisco, US Coast Guard First District; Michael Goehle, US Fish and Wildlife Service; Michael Hauser, VT Department of Environmental Conservation; William Hyatt, CT Department of Environmental Protection, Susannah King, NE Interstate Water Pollution Control; Dean Long, NYS Federation of Lakes Associations; Mark Malchoff, Lake Champlain Sea Grant Project; John McPhedran, ME Department of Environmental Protection; Les Mehrhoff, G. Safford Torrey Herbarium, University of CT; Marshall Meyers, Pet Industry Joint Advisory Council; Anne Monnelly, MA Department of Conservation and Recreation; Chris Morry, Department of Fisheries and Oceans; Chuck O'Neill, NY Sea Grant Program; Judith Pederson, MIT Sea Grant College Program; Stephen Perry, NE Association of Fish and Wildlife Agencies; Timothy Preddice, NYS Department of Environmental Conservation; Jan Smith, MA Bays National Estuaries Program; Susan Snow-Cotter, MA Office of Coastal Zone Management; James Straub, MA Department of Recreation and Conservation; Peter Thayer, ME Department of Marine Resources; Donna Turgeon, National Oceans and Atmospheric Administration National Ocean Service; Scott Weber, New England Aquarium; and Lisa Windhausen, Lake Champlain Basin Program.

Others present: Steven Flint, Adirondack Nature Conservancy, Paul Gregory, ME Department of Environmental Protection; Karen Hahnel, ME Department of Environmental Protection; Ellen Marsden, University of VT, Hilary Oles, Adirondack Nature Conservancy; Susan Park, NOAA Fellow at MA Office of Coastal Zone Management; Michelle Robinson, MA Department of Conservation and Recreation; Timothy Sinnott, NYS Department of Environmental Conservation; Michele L. Tremblay, nature resource communications, ANS Program Manager; and Bradley Young, US Fish and Wildlife Service.

November 9, 2004

Full Panel meeting: welcome, introductions, review of meeting agenda, and updates by Co-Chairs – John McPhedran, ME Department of Protection and Susan Snow-Cotter, MA Office of Coastal Zone Management.

ANS updates and Panel business: The work of the founding co-chairs of the NEANS Panel, Tim Sinnott, and Susan Snow-Cotter was recognized with the presentation of plaques of appreciation and a round of applause.

- Election of Panel Co-chairs – *John McPhedran*

John McPhedran called for nominations for a new Panel co-chair. *Donna Turgeon* nominated *Judith Pederson*. *Judith* pointed out that the NEANS Panel is a wonderful asset to region, and

that we have done a great deal in short time, and brought great people to the table. As Panel co-chair, she hopes to carry on good work of Tim and Susan, and to sustain their level of leadership and momentum. *Judith* described some of her qualifications for the position: she is a marine ecologist to the International Commission for the Exploration of the Sea's committee on ballast and intentional introductions, she has co-chaired several international meetings on invasive species, such as the upcoming meetings in New Zealand and Boston, as co-chair, she hopes to bring marine environment question table. No other nominations were made for the co-chair position. *Judith* was unanimously appointed Panel co-chair.

NEANS Panel business and meeting scheduling – Michele L. Tremblay, ANS Program Manager: The idea of having the next meeting in Canada was discussed but because of the possibility of losing potential participants, it was decided to have the May meeting in New Hampshire. The May meeting was tentatively set for early in May.

Ascidian Conference Planning, April 21-22, 2004– Judith Pederson

Abstracts for the 15th Ascidian Conference were due February 1, 2005. There is national and international interest on the invasive sea squirt on Georges Bank. The meeting is geared toward invasion ecology, life history and biology of Ascidians (for instance, most sea squirts have larval stage that last only 24 hours, so how do they get dispersed?), impacts, risk assessments, etc.

Panel membership – John McPhedran

A couple of new members were welcomed, including Mr. Erik Beck of Environmental Protection Agency and Peter Francisco of the US Coast Guard. Gaps in membership that were discussed included industry representatives. *Chuck O'Neill* pointed out that the booming water gardening and plant industry would be a great addition to the Panel.

Judith Pederson suggested that the Panel would benefit from representatives from the live and fresh seafood industries and the marine and fresh water bait industry.

Bill Hyatt pointed out that industry must be convinced that participation is worth investment of time; they must be shown in a concrete way that what Panel is doing is important for their input.

Action Item: *Michele Tremblay* will create a list of current industry contacts and distribute a copy at the next Panel meeting so that participants can update the information.

Invasive Species Advisory Committee (ISAC) – Chuck O'Neill

The ISAC met in West Virginia recently. One third of the members are new. The ISAC recommended that the National Invasive Species Council model be accepted for testing by federal agencies. Control and management plans sent by ISAC to the National Invasive Species Council (NISC) have been adopted. Projects adopted by NISC would work at the state level. The NISC administers \$500 million for early detection and rapid response programs. A large part of this money is for invasive plants (\$200 million). NISC has a revolving fund for any type of invasive species work. The standing committees have new work plans for next two years. Visit invasivespecies.gov to find out more about ISAC and NISC.

Action Items: If participants want details on ISAC recommendations and work plans, contact *Chuck O'Neill*.

ANS Task Force – Lisa Windhausen

Lisa Windhausen attended the last Aquatic Nuisance Species Task Force (ANSTF) meeting in May who will meet again later in the month. The ANSTF has new co-chairs: Mamie Parker from USFWS and Timothy Keeney from NOAA. The ANSTF had a lively two-day meeting

that was action-oriented. They are planning to establish research, detection, and monitoring committees. The "Stop Aquatic Hitchhikers" has changed formats so that there are direct links to articles. A website redesign committee was also formed. The Missouri meeting was held in conjunction with Mississippi Regional Panel meeting. The ANSTF wants input from regional panels and they will continue to try and meet in conjunction with their meetings. At the next meeting of the TF, they will try to identify a new executive secretary, *Marshall Meyers* will talk about the new "Habitattitude" campaign, the national response plan for *Caulerpa* will be presented, and the National Invasive Species Plan will also be discussed. Regional Panels are also attending (*Judith* will represent NEANS).

Canadian National Invasive Species Plan- Chris Morry

The Canadian National Invasive Species Plan includes both terrestrial and aquatic species. It has been in development for over a year. Environment Canada is taking the lead. The Canadian Council of Fisheries and Aquaculture Ministers has approved the plan and asked the authors of the plan to spend a year applying costs to it. The plan, as it stands, is a wish list.

Highlights from New York – Tim Preddice, NYS Department of Environmental Conservation
In August 2003, the New York legislature formed an Invasive Species Task Force. After consultation, six specialized teams have produced a draft of a final invasive species report. The final version of the report will be delivered to the state legislature this time next year, after which NY will allocate funding for the issue and, hopefully, catch up with other NE states. In addition, NY has joined a lawsuit to stop introductions via ballast water. Six of the Great Lakes states feel the EPA is in violation of Clean Water Act because it does not regulate ballast water. The Adirondack Park Invasive Plant Program coordinates protection, early response, and partnership with stakeholders for a 6 million acre park. Sea Grant and the US Fish and Wildlife Service (USFWS) are using Great Lakes protection funds to support a Hazard Analysis Critical Control Point (HACCP) training program, designed with seafood industry representatives, to identify problems. Many managers are going for HACCP training at the National Conservation Training Center. They have taken a "train the trainer" approach that teaches managers skills that they can use to educate others. A \$40,000 grant has been approved to control milfoil in Lake George. NY biologists, technicians, and fishermen are watching for snakeheads. Pennsylvania is not doing any control. Generally, they get one or two calls per week on snakehead. A draft report on minimizing transfer of invasive species has been written for DEC staff to minimize transfers during routine work.

Questions and comments included:

John McPhedran - Lake George had proposed herbicide treatment? Was it approved?

Tim Prentice - The Adirondacks disapproval *Sonar* treatment.

Hilary Oles - This proposal has resurfaced. There are citizens who live on lakes with milfoil that have attempted to revitalize group that will voice lakeshore owner rights.

Tim Sinnott - Adirondacks Park was formed in 1988, with a goal of making sure the park is "forever wild." But what does "forever wild" mean? Don't do anything in state areas? There is a strong anti-pesticide use lobby. People don't want pesticides used in the lake.

Jim Straub pointed out that this stresses the importance of informing other groups, about the invasive species issue.

Gretchen Fitzgerald pointed out that some of the anti-chemical use lobbyists do have a rational basis. The Ontario College of Family Physicians has just produced a report on the effect of pesticides on human health.

(www.ocfp.on.ca/English/OCFP/Communications/CurrentIssues/Pesticides/default.asp?s=1)

New Hampshire Pilot Program – Stephen Perry, NH Fish and Game Department

The goal of the NH Aquatic Nuisance Species communication plan is to increase the level of awareness and action in NH on invasive species. The NH communication pilot effort will be communicated to other states. Expected outcomes include enhancement of ANS policies, measurable change in behavior, and the development of long-term partnerships resulting in unified approach to addressing issues. Recreational boaters and policy makers are the target audiences. Short-term objectives are to determine an awareness level and increase this level by 10% compliance by the end of the 2005 boating season. Eventually, the pilot program hopes to see 98% compliance. NH political leaders should be aware of ANS issues by the end of 2005. They will develop a NH-based page on the protectyourwaters.org website. The “Stop Aquatic Hitchhikers” logo is incorporated into material, and they are attempting to achieve brand recognition. The second objective of the plan is ANS regulation and enforcement in the Northeast. Recommendations and actions to identify policies that will enhance coordinated regulations in the Northeast and increase capacity to address invasives. By hosting two workshops and establishing online contacts, they have identified four issues as having highest priority: instigating ANS management actions, collating ANS lists among member states, developing methods for tracking internet sales, and developing ANS screening tools.

Questions / Comments:

Jan Smith asked if the plan included marine species.

Stephen Perry said the plan does include marine. A draft plan should be ready by March 2005.

John McPhedran asked how they measure awareness and compliance.

Stephen Perry said they are measured via a survey. NH lake associations hand out ANS-related information and perform brief survey. Then, they do a follow-up survey.

Action Items: *Stephen* will ask if the Northeast Association of Fish and Game Departments will have an official representative to the Panel. *Stephen* will also provide *John McPhedran* and *Michele Tremblay* with a copy of their boaters' questionnaire.

Roundtable

Jay Baker - MA Office of Coastal Zone Management

The MACZM is beefing up monitoring materials to supplement what volunteers receive, and have created small identification cards for invasive species. *Jay* circulated a copy of one of these cards.

Jim Straub - MA Department of Recreation and Conservation

MADRC has found a snakehead in Groton, MA. *Corbicula*, the Asiatic clam, was found in a lake in Gold Star Park. The MADRC has had its budget significantly increased to increase education and outreach including providing boat ramp monitors at state parks to prevent weeds from going in and out. Rapid response project protocols are being developed for state properties with a protocol for snakehead as an example.

Lisa Windhausen - Lake Champlain Basin Program

Alewives were found in Lake Champlain July. There is an ongoing debate on how to deal with these fish. The Basin's top priority project is to determine if the population is established. The Basin is actively revising ANS Lake Basin Management Plan.

Steve Crawford - Passamaquoddy Tribe at Pleasant Point

Bait worms are wet-shipped with seaweed and other organisms to other states such as California. He is extremely concerned that this is a source of invasive species for other states. There is resistance to using non-organic packing material for the worms. He would like to see if the NEANS Panel could provide some solutions and ideas to deal with this problem.

John McPhedran - ME Department of Environmental Protection

Variable milfoil has been found in several lakes. The MEDEP will be hand removing the plant next week. Curly leaf pondweed has been found in one lake. Approximately 26,000 boat inspections have been performed, up from 10,000 last year and 6,000 the year before. A good proportion of these inspections are conducted by paid inspectors. They found invasive plants on three separate occasions. The three inspectors who made who found invasive plants received awards from the Governor. Monies have been allocated for hand removal and benthic barriers. The MEDEP is close to completing a rapid response plan for ME. They have developed a map of infestations, a brochure about invasive aquatic plants, and a quick identification key to be used by boat inspectors for ruling out eleven invasive plants. They have also developed a sticker that is mounted on the winch post on boat trailers to remind people to remove plants. *Bill Hyatt* asked if the boat inspections are mandatory. *John* said that they not mandatory except for at two locations where lakes are open for use only when an inspector is present.

Peter Thayer - ME Department of Marine Resources

Peter first addressed the issue of worm packing materials as vectors for invasive species, raised by Stephen Crawford. The Maine Bait Worm Association is unanimously resistant to change. He has tried different ideas to convince them to use other packing materials but he was not successful. One idea was raised to ask or require them to tell recipients to dispose of the packing material (plant) in a prescribed way. MEDMR has compiled a list of facilities that have live organisms and has assessed the risk of introducing species via effluent, etc. Agriculture import regulations are being reviewed. Several groups are preparing outreach material about this issue, such as Bigelow Laboratory. Groups are also monitoring and conducting research on green crabs, and people are being asked to log-to-log sightings, etc.

Mike Hauser - VT Department of Environmental Conservation

The VTDEC has been holding workshops and engaging summer employees to address ANS issues. Identification materials for milfoil and other plants have been developed. The VTDEC has visited pet shops and aquarium stores to familiarize people with plant quarantine rules. Most are receptive to removing the plants in question from stores. Fifty different websites have been located that are willing to sell quarantined plants to VT. In a couple of hours, these sites had flags saying these plants are illegal for sale in VT. Signs are being placed at public access sites where there are ANS present, and VTDEC is to developing another sign. One new infestation of milfoil and one new water chestnut site have been discovered. Intensive hand-pulling of water chestnut is going on, and the harvest of water chestnut on Lake Champlain is in high gear. Beetles have been released for the biological control of purple loosestrife, and at 58% of the sites where the beetles are present, loosestrife is showing decreases or plants are looking less healthy. *Chuck O'Neill* suggested that the US Postal Service could be used to control shipments of invasive species.

Jan Smith - MA Bays National Estuaries Program

Along with its partner, Salem Island Coastal Watch, the MABNEP has initiated a coastal monitoring program for tidepools. Separate invasive species monitoring on docks and piers is also getting off the ground.

Chuck O'Neill - NY Sea Grant Extension Program & National Aquatic

The Invasive Species Task Force is at work; scanning to see what is going on in invasive species work with more in place than they thought. They are preparing the state invasive

species management plan; making NY one of few states with a comprehensive plan. There are efforts underway to control water chestnut. Those who haven't heard about what is going on, please contact *Chuck* or *Mark Malchoff*. There are outreach initiatives underway with cyanobacteria and cyanotoxins and toxic algal blooms. There will be a workshop in the fall of 2005 on this issue. In late winter or early spring, public broadcasting TV stations will be airing a National Geographic / NSF funded documentary which is full of errors. Everyone should be prepared to make an effort to refute the errors in this document.

Chris Morry - Department of Fisheries and Oceans Oceans, Habitat

The national action plan is underway for invasive species. Currently DFO is advising Transport Canada on ballast water regulations. There was a brief mention of invasive species in the speech from the throne. The International Joint Commission has no jurisdiction on marine waters so their coordination with the US in the Great Lakes is not entirely applicable to the Northeast. There is a proposal for \$7-9 million to have network of excellence funded by the National Science and Engineering Research Council. There have been a few sightings of green crab in Magdalene Islands, PQ with DFO scientists traveling to the Moncton facility to learn about green crabs, tunicates, and *Codium*. *Ciona intestinalis* is in the Gulf of St. Lawrence at the same location where *Styela* was discovered. The good news is that MSX has not appeared outside the Bras d'Or Lakes. The Chinese mitten crab has been sighted in Quebec City; probably an aquarium release. Invasive species are being sold in food markets and pet stores (e.g. hermit crabs) in Eastern Canada. *Chris* circulated the Canadian invasive species policy handout to the Panel. The paper on the transfer of ballast water from Chesapeake Bay should be published soon. *Judith Pederson* asked *Chris* to provide documentation of the economic costs of the *Styela* invasion.

Scott Weber - New England Aquarium

The NEA has a proposal under development, in collaboration with University of New England (UNE) to provide a place in the aquarium to receive the fish that pet owners no longer want. A UNE student will test the fish for diseases and create displays with them. They are also undertaking a sustainable fish project in the Rio Negro in Brazil; performing fish health surveys for several diseases before providing approval for shipment. They have documented invasive species as far up the Amazon as Rio Negro.

Nancy Balcom - CT Sea Grant Extension Program

Field cards for invasives are very popular and the Sea Grant Program's posters are being reprinted. They will have a website up very soon on the invasives in Long Island Sound. A new sighting of the red alga, a species of *Grateloupia*, has been confirmed. They are discussing whether or not to only eradicate it or to also study it. A study performed by the University of Maryland on the hull fouling on 60 private boats revealed that while some boats are well-maintained, others are not. Most boaters that have been approached are cooperative. In 2005, Sea Grant will be conducting more of this work. *Judith Pederson* recommended that *Nancy* talk to Lars Anderson about red alga introduction.

Bill Hyatt - CT Department of Environmental Protection

Connecticut's ANS plan is in development. The CTDEP will refine the plan for agency review in February. The IFAFW has a plan for mandatory inspections at public boat launches. The public initially has reacted aggressively to allowing mandatory inspections. In one lake, tench has exploded where it was present for some time and there has been a subsequent dramatic drop off in other minnows. The yellow bullhead is replacing brown bullhead in some lakes. For the first time, *Bill* overheard (in a dive shop) a gentleman explain intentional and

repeated, efforts to introduce zebra mussels to lake in Pennsylvania to improve water clarity for SCUBA diving. *Chuck O'Neill* commented that zebra mussel were introduced in Virginia in this way *Bill* asked if anyone had expertise in hand pulling of milfoil, please let him know. After three years of hand pulling in one lake, they have only been successful in a small area. They are also having a problem flathead catfish and largemouth bass being moved around. Viruses have significant effects on fish after being held in a live well during a tournament where 90% of fish get the Largemouth bass virus. This results in 90% delayed mortality in fish caught in tournaments. *Tim Sinnott* recommended that *Bill talk to* Jim Sutherland, of Lake George, about hand pulling.

Marshall Meyers - Pet Industry Joint Advisory Council

The industry and the public are confused by inconsistent terminology used to designate invasive species. This lack of clarity with regard to invasive species must be addressed. The industry wants an accessible database that includes all of the laws and regulations involving wildlife. Canadian websites have warnings regarding invasive species resulting in less likely trade of invasives in Canada.

Donna Turgeon - National Oceans and Atmospheric Administration/ NOS

For fiscal year (FY) 2005, no new money was allocated for invasive species within the NOAA budget. In FY 06, \$2 million will be available: \$1 million for intervention and monitoring and \$1 million for control. There is also some funding for ballast water and Sea Grant work. The Hawaiian pilot project, conducted in collaboration with the Bishop Museum was ambitious and the effort that was put into developing a list of all Hawaiian invasive species has paid off. The crustaceans report is in draft for and includes 9,000 species, both terrestrial and aquatic. The list of tunicates for the entire US and Canada is in draft from There is a new focus in the Gulf of Mexico. The Hart Institute brought together approximately 75 taxonomists to identify all species in the Gulf. In Alaska, Senator Stevens has assured \$1 million dollars for invasive species. In Texas, a reporting system for invasive species has been initiated involving Sea Grant, National Parks Service, and US Fish and Wildlife Service.

Judith Pederson - MIT Sea Grant College Program

The proceedings of the ballast water workshop held in Halifax are almost ready for release. The team is pleased with the effort.

Mark Malchoff - Lake Champlain Sea Grant Project

The Project has identified six alternatives to the current operation of the Lake Champlain Canal. There has been a good response to Sea Grant's educational computer kiosk on Lake Michigan. When the ferry isn't operating, the kiosk goes to museums and libraries: The invasive zooplankton present in the Great Lakes is not present in Lake Champlain.

Mike Goehle - US Fish and Wildlife Service

Next week in Buffalo, there will be a workshop for bait fish and natural resource work and how to conduct HACCP training for aquatic and terrestrial work. Two more workshops are planned for the Northeast in FY 2005. A new Asian carp poster has been designed. They have produced a snakehead fact sheet that illustrates the difference between the snakehead, the bowfin, and the burbot. In 2004, gobies were confirmed in the Canal as far as east Lockport, NY (caught by an angler, not part of the annual Round-up). There was an attempt to catch the goby at the Round Goby Roundup but none were captured. During the 2004 Round-up, 116 were collected. In 2005, they will hold another Round-up and try to monitor the "leading

edge” of the goby population that is presumed to be heading eastward through the Canal. They are waiting to see what the draw down of the water in winter will do to gobies.

Erik Beck - US Environmental Protection Agency

Snakeheads have been seen in Michigan in isolated cases. The EPA released an educational piece to newscasters in VT, CT, and MA, and has plans for other states. The EPA is performing revisions to its invasive species website. They have produced a baitfish guide in VT that is targeted for Lake Champlain.

Peter Francisco - US Coast Guard (USCG) First District

The USCG has undertaken the task of regulating ballast water. The current program was voluntary but the USCG has begun requiring reporting with misreporting subject to a civil penalty. Willful violations are a Class C felony. Exchange or treatment is mandatory for ships outside 200 nautical miles (300% exchange). Otherwise, carriers need to hold their ballast on board. The STEP program is also underway to research the possibility of BW treatment. They have had successful prosecutions for oily water separators and incinerators with a similar process, so they are partially piggybacking on these methods with that. Flyers detailing the USCG’s regulations on ballast were circulated to the Panel.

The meeting convened so that NEANS Panel meetings could convene.

November 10, 2004

Science and Technology (S&T) Committee - Jim Straub

The S&T Committee has identified four action items:

The Committee will continue to develop and maintain a priority invasive species list. There is currently a sample web page, which is not available to the public yet. They have found discrepancies between states’ lists. Contact information and links to relevant ANS sites are compiled and they want to have these links available on the NEANS Panel website. Once webpage is completed, they will notify the Panel. The S&T will continue to maintain the MarineID database. Identification cards will be created to train groups to properly enter data into the system. Three datasets are entered, but they need more. Environment Canada is continuing to support this initiative. *Scott Weber* suggested that it might be possible to put a kiosk in the New England Aquarium where the database can be accessed. The S&T will compile rapid response plans for invasive species. *Donna Turgeon* is identifying taxonomists in various taxa: invertebrates, vascular plants, marine species, and fresh water plants and amphibians. The S&T will act as the filter between the taxonomists and the general public with specimens to be identified. If you know of any taxonomists that can be added to this list, contact *Donna Turgeon*.

Ballast Water (BW) Committee - Judith Pederson

The BW Committee is trying to encourage a regional approach to BW management. Discussion of the BW Committee focused on the workshop from last year. The Committee discussed using the US national ballast water system and other information that exists within the region to create a GIS map showing where ships pick up and discharge ballast. The Committee discussed providing information to legislators and shipping agents with the intent of trying to alter behavior and to encourage states and provinces in the region to work together. *Mark Malchoff* pointed out that fisheries management councils need to be taking action to prevent the spread of invasive species. In the case of *Didemnum*, there is denial that the tunicate may have been transferred to Georges Bank by fishing vessels or gear, and if they

dredged the area, there would not be *Didemnum*. Later in the meeting, *Erik Beck*, USEPA, volunteered to co-chair of the BW Committee.

Policy and Legislation (P&L) Committee - Anne Monnelly

The P&L Committee's contract intern looked at legislation for controlling ANS in the NE states (there was little time to summarize Canadian legislation). They will be ground truthing with people in each state to make sure the information is accurate. Key people in each state who would review the policy summaries were identified as follows: NY - *Tim Sinnott*, CT - *Bill Hyatt*, Maine - *John McPhedran*, NH - *Steve Perry*, and RI - *Kevin Cute*. For the coming fiscal year, the P&L Committee is planning a workshop on legal and political issues surrounding implementing rapid response (RR) in each state and province, with the objective of creating model RR legislation. The Committee is reviewing RR efforts from the last couple of years and is compiling a list of key questions that the NOAA Fellow, Susan Park, can ask of lawyers. The Committee is aware that International Association of Fisheries and Wildlife Agencies received a three-year grant to draft action plans to enhance coordinated responses to invasive species, and the P&L Committee would like to become involved in the effort. *Tim Sinnott* volunteered to talk to the current president of IAFW, who works in his office. The possibility of holding a joint meeting with IAFW was suggested. *Michele Tremblay* indicated that *Steve Perry* is the formal contact. *Anne Monnelly* said that the committee still needs a co-chair and solicited volunteers. *Mike Hauser* stated that the compilation of regulations was very useful and that it was used for the draft for the Lake Champlain management plan.

Communication, Education, and Outreach (CEO) Committee - Mike Hauser

The CEO Committee will be focusing on the following three actions:

1. Working group will look at re-designing the NEANS Panel's website. Other committees should send their ideas and needs about and for the website to *Michele Tremblay*.
2. Funding proposal for revising Panel fact sheet to a three-fold brochure. There was some discussion as to the usefulness of this brochure as opposed to the Panel key ring. The brochure was widely circulated. An email survey was proposed asking people which forms of outreach are the most effective.
3. The draft policy for outreach items from the Panel is still under development and should be completed soon. Jim Straub asked who should be contacted regarding accreditation on outreach items in the interim period. *Michele Tremblay* should be contacted. Chuck O'Neill said that the CEO's plans to create outreach item targeting the live seafood industry was temporarily on hold because the NY Sea Grant was putting in a proposal to do live seafood outreach, targeting distributors, marketers, and consumers.

The Nature Conservancy's Invasive Management in the Adirondacks Park - Hilary Oles and Steven Flint

The APIP program is a strong partnership among five organizations to carry out invasive plant monitoring and management. APIP documents invasions, facilitates management, and builds consensus through information exchange. The program has grown from volunteer roadside surveys in 1998 to achieving Memoranda of Understanding with partners. They have gained national recognition for their integrated management for roadside invasives. The park is broken into two management areas: the core and border areas. They will select target species that pose greatest threat, such as Eurasian water milfoil, etc.

The goals of the APIP Program are to:

1. Coordinates regional voluntary monitoring programs
2. Facilitates invasive plant management and control (RR where possible); and
3. Increases public awareness and involvement.

APIPP activities include:

- A training program for visitors and residents, project partner staff, Department of Transpiration, etc.
- Surveys and mapping – information is placed in a database for aquatic and terrestrial plants
- Monitoring - 120 lakes are surveyed by volunteers.
- Management of invasives is an important piece of the project
- Education – 3,500 people reached by 5 partner agencies through education sessions.
- Information exchange.

Forty-seven lakes are infested with four target invasive species. Milfoil is the most widespread. European frog bit is present, as is yellow floating heart in Lake Champlain.

Terrestrial Invasive Plant Distribution

To date, 126 invasive terrestrial sites are present in the Adirondack Park. The park applies adaptive, site specific management. Monitoring efforts focus on various pathways (roads, etc.). Recently, *Iris pseudacorus* has been appearing. Purple loosestrife is present at more and more individual sites. They attempt to control it using grubbing and pulling removing seed head and spikes. Herbicides are also applied, to stems of loosestrife or phragmites. If mowing is being performed on roadside areas, they have found that it is important to get the Department of Transportation to mow before seed set and get volunteers to pull and cut, etc, to prevent propagules from getting from right of way into aquatic settings. Conservationists need to educate landowners, get permit for herbicide applications, etc. Adaptive management of phragmites—the timing of cutting of phragmites is critical, because if the plants are not cut at the right stage, the plants will just come back. Also it is important to prevent the grass from growing back to tassel stage. For Japanese knotweed, the geographical setting of the plant, coupled with its jurisdictional setting, leads to appropriate management action. They are approved to cut swab stem injection using “Garlan” (a hormone treatment) followed by cutting. Post control monitoring is critical. Some sites will need erosion control measures before removing the plants. Plant material is dried and rendered benign and then taken to landfill or burned. The control program requires:

- Adopt-A-Natural Resource permit to work on invasive plant sites that have extended into the wilderness reserve
- The need for supplemental label for prescribing stem injections
- Perpetual early detection and RR
- Restoration assessment and implementation
- Dedicated and sustained funding
- Restoration and implementation

Questions and Comments

Bill Hyatt asked if there was any thought given to allowing chemical treatment in border areas. *Hilary Oles* - Every management practice requires a permit that is issued on a case-by-case basis, regardless of being in the core or border areas.

Chuck O’Neill asked if, in light of the labor-intensive nature of the herbicide treatment, had any thought been given to bio-control.

Hilary said there have been three releases of beetles to control loosestrife in that border areas already.

Project plan for Rapid Response - *Susan Park, NOAA Fellow to the NEANS Panel housed at MACZM*

1. Establish a reporting and verification network

Massachusetts is a model for this, as they have established a RR advisory council that is responsible for leadership, decision-making, and coordination.

2. Produce a priority invasive species list, to provide guidance for managers
3. Develop a set of RR plans

A draft decision tree might look something like:

a suspicious organism is found -> web used to get an id -> referred to science advisor council
-> contact taxonomists -> decision on whether or not the species is invasive -> state aquatic
resource managers -> Panel and government -> risk assessment -> rapid response ->
implement-> post-response monitoring -> if not, report back to manager.

Questions and Comments

Donna Turgeon asked *Susan Park* to keep her team of taxonomists in mind in all of her efforts.
Marshall Meyers suggested that the federal government be connected to this effort via Richard
Orr at NISC.

Jim Straub suggested that Susan's presentation be placed on the web.

Introduction to the Pet Industry's *Habitattitude*™ Program - Marshall Meyers, US Pet Industry Joint Advisory Council

The pet industry depends on non-native species, and they market very diverse group animals. 64% of US households have pets, and there are more pets than people in the US. In 2002, the pet industry was worth 28.5 billion, in 2004, it was a 34 billion industry. Interestingly, the pet industry does better in poor economic times. Pet ownership is spread across all income levels. PIJAC represents a wide variety of pet stores, including retail independent pet stores, farm and feed stores, garden centers, mail order catalog, internet sales, and mass merchandisers. Wal-Mart sells more fish than anyone else in the US. Fish keeping was occurring up to 3000 years ago. Today, 800+ species of fish are exported from in FL alone and 2500 + FW and marine fish species are in trade. This is a truly global industry. Where are fish acquired? - fish/aquarium stores - 35%, Pet stores - 35%, discount stores - 22%, pet superstores - 22%, friend or relative - 11%. On average, fish owners maintain their aquaria for 6.7 years. Marine aquaria and outdoor water gardens are currently booming. There are an estimated 70000 outdoor water landscape gardens out there today. Fish can be acquired through a complicated mix of pathways: South American fish may be bred in FL or Asia, and then exported back to South America; African cichlids may be imported back into Africa. In addition, there is trade via the Internet, newspapers, swap meets, and flea markets. A new issue on the scene is that of genetically modified organisms such as the transgenic "Glowfish." No risk assessment on such organism has been done yet, and they are currently in the process of developing risk assessment models for transgenics. The pet industry is a highly regulated. The 1970 Lacey Act proposed a "Clean List" of fish that are safe for trade. However, there was little further movement in this area for the next 20-30 years. Unfortunately, state and federal laws are not consistent, and there is a plethora of "clean" lists and "dirty" lists, codes of conduct and best management practices out there. The pet industry has been involved in screening / risk assessments, creating science-based "dirty" lists, increasing industry / public awareness, forming emergency response network (due to monkey pox outbreak). There are within e-mail reach of each and every of the 70000 stores they service. PIJAC is involved with ISAC, ANSTF, the Convention on Biological Diversity (CBD) / Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora, the European Union, the International Conservation Union (IUCN) and the Global Invasive Species Network. When it comes to invasive species, industry concerns include poorly crafted laws and regulations, regional differences amongst regulations, need to educate lawyers on how to craft regulations, inconsistent screening / risk assessment methods, data gaps, junk science, and ill-trained enforcement officers

Moreover, the industry is deeply concerned about the multitude of acronyms and jargon used to describe invasive. This lack of standard terminology creates confusion, misinformation,

and disinformation, to the point where one can only describe the situation as one of “invasives hysteria.” For instance, is the lionfish a fish out of place, or is it invasive?

PIJAC Activities include:

- Creating surrender centers where people can bring in illegal items, for re-sale, entry into breeding programs, or humane euthanization.
- Increasing public awareness through education and outreach (to pet stores and public), clearly articulating issue, explaining the risks and how to minimize them, provide user-friendly and pro-active guidance on what to do to avoid causing invasions.
- Create a code of conduct and best management practices (BMP). They are current drafting BMP for the aquarium trade.

Les Mehrhoff – pointed out that most aquarium plants are not sold by pet stores, but by garden centers and the landscape industry. For instance, Brazilian waterweed is in every plant store. However, the garden stores don’t want them removed even though they are on the banned list. The stores tend to be unaware of the issue.

Marshall stated that it is important that this kind of input reached the stores.

Habitattitude™ Program

Independent retail sales from water gardeners are valued at 1.4 billion dollars. However, there is no good info about constructing the pond to minimize the spread of invasives. A handbook is being made, and a handout is needed for pet stores for outdoor garden ponds.

Gardeners also need to know what to do with unwanted plants or fish. They also need to know what to do if they inadequately contain fish or plants and an escape occurs.

The increased frequency of environmental and economic impacts translates into increased scrutiny and negative public perceptions about hobbyists, and the potential for increased regulation. Challenges they need to overcome include: disconnected players, adversarial relations, no unifying agenda, confusing, and competing messages. *Habitattitude* is an innovative, pro-active solution to this issue, and attempted to get academia, government, and industries to address this issue in a systematic way. We will also be raising public awareness, engaging people and providing a unified message. All segments of industry must be part of the solution. This is a national branding campaign that seeks to link environmental messages with beneficial actions, designed to reach targeted audiences. *Habitattitude* is being carried out by PIJAC, USFW, and Great Lakes Sea Grant. It is hoped that this will be a continuing project, and they are looking for partners to promote, and evaluate their techniques.

The terminology they use is “Unwanted” to designate an organism that is not safe for release. Alternatives to release include taking it to a retailer, give or trade with another aquarist, donate to a local aquarium society or school, seal in plastic bags and dispose in trash, or contact vet and pet retailer for guidance on humane disposal of animals. PIJAC launch *Habitattitude* at the Las Vegas pet trade show. A CD-ROM is available, manual, floor tabletop displays, etc. Twenty million labeled fish bags have been sent to Wal-Mart for distribution. PIJAC partners will receive information explaining the program, door decals, stickers, magazine ads, *Habitattitude* coverage in trade magazines, and participation in trade and pet consumer shows. In 2004-2005, more than 2000 stores will be contacted by direct mail, to 20+ million US homes will receive information (~30% of US pet-owning households), the brand will be on 20 million fish bags and fish boxes, and starter kits are being designed for small independent retailers and nurseries. The American Nursery & Landscape Association (ANLA) is also being brought into this project. They wish to unify everyone to protect the environment, bring credibility, and adopt brand usage agreements.

Questions / Comments

Mike Hauser asked if the water garden industry was more prevalent in warm water states.

Marshall stated that there are regional differences, but no reliable data quantifying them. The water garden industry is a fragmented group; they are where the pet industry was 20-30 years ago.

Chuck O'Neill described a backyard water garden with shallow pond and asked where the water should drain out of the pond (not into a creek that drains into bigger water bodies...)

Marshall said equipment is being developed to deal with such issues.

Marshall also added that *Habitattitude* has identified a group of vets that will give guidance on humanely killing unwanted invasive fish.

Scott Weber pointed out that there is a lack of understanding of disease outbreaks. Garden centers are probably the seed for a lot of diseases, such as Spring Viremia of **Carp** (SVC) and koi diseases.

Judith Pederson suggested that native fish and plants should be promoted for use in home water gardens.

Marshall pointed out that they need help at the state level to explain *Habitattitude*[™].

Bill Hyatt suggested that a video display in stores would be effective.

John McPhedran asked for more information on freshwater plants sold in retail outlets.

Marshall - Sea Grant in Minnesota looked at the number of invasive plants that can be shipped into that state. The Internet is a big problem as a way of shipping invasives.

NEANS Research Priorities - *Judith Pederson*

At the next meeting of the Panel permanent appointment should be made for someone from the NEANS Panel to liaise with the ANS Task Force. *Judith* is currently acting as the interim representative for the NEANS Panel on their ANS group that is working toward setting research priorities.

The Panel should identify regional research issues and then communicate these issues to the ANS TF body that is attempting to formalize a national research agenda. The goal of the ANS TF is to reduce threats, science-based management, promote public awareness, and prioritize and promote research. The TF also has as an objective the goal of minimizing the threat of species present, education, and outreach, evaluate the effects of threats of species present. At previous meeting of the NEANS Panel, we have discussed these matters, and have agreed to use 10 things *Jim Carlton's* top ten research areas as a starting point for developing NEANS research priorities.

This topic was discussed at the Maine meeting on marine bioinvasions. In addition, states are formulating their own research priorities. How should she present that?

Judith Pederson will pass on the NEANS recommendations for research priorities to the ANS TF group.

Scott Weber asked if being on the advisory panel would make people ineligible for funding later.

Judith did not think this would be the case.

Action item: If you are interested in acting as the liaison between the NEANS Panel and the NAs Task Force, please contact *John McPhedran* or *Judith Pederson*.

Action item: There could be a discussion on the web of the list of 10 research priorities.

Unfinished Business

Susan Park will be taking over as the NEANS Panel Digest writer and meeting record keeper for the Panel from *Gretchen Fitzgerald*.

Revised work plans and budgets should be forwarded to *Michele Tremblay*.

Michele Tremblay was thanked for organizing another great meeting in a great setting.

Species Spotlight on Sea Lamprey

Sea lamprey Control in the Great Lakes and Lake Champlain - Dr. Ellen Marsden, University of Vermont

Sea lamprey is an anadromous fish species. Their mouthparts consist of a suction apparatus. This parasite attaches itself to fish and rasps a hole to suck out body juices. In freshwaters where the lamprey have a 10-90% chance of causing mortality of the fish they parasitize.

Lampreys may be attached to fish for 1-70 days, (usual for a couple weeks normally).

Approximately 40 pounds of fish per lamprey lifetime is consumed.

The sea lamprey life cycle is as follows: the fish spawn in pairs, eggs are laid in a primitive nest, larvae hatch in 2 weeks, larvae live in the sediments as deriviers, After 4-5 years, the fish transform to parasites, and migrate downstream, entering lakes and parasitize fish. The parasitic phase lasts 1-1.5 years. The spawning point is the choke point; streams can act as barriers to the completion of the lamprey life cycle. Plus they are present for a minimum of four years in streams or rivers.

History of the Sea Lamprey in the Great Lakes and Lake Champlain:

1921 - First recorded in Lake Erie via the Well and canal

1934 – Present in Lake St. Clair

1937 - Present in Lake Huron

1938 – Present in Lake Superior

There is some evidence that the lamprey could have been in Lake Champlain all along. However, why would they become a problem if they are native?

In general, large bodied fish are attacked (e.g. salmonids and lake trout).

Lake trout were extinct in Lake Michigan and other lakes by the 1960's. Humans were competing with lamprey to cause demise of lake trout.

Great Lakes

1954: the Great Lakes Fisheries Commission initiated a program to research and minimizes impacts of the lampreys. The two methods they adopted were:

1. Prevention using barriers. There are 61 barriers are on the Great Lakes
2. Removal using traps for adults or lampricides to kill larvae. Lampricides are not 100% effective.

Work was done in the 60's that testing over 6000 chemicals to find the “perfect” chemical specific to Pertromizontidae, and that would not cause deaths of amphibians, fish, and native lamprey. About as good as you can get is TFM (3-trifluoromethyl-4-nitrophenol), which causes the larvae's respiratory system to shut down. Granular bayluscide may be used on river deltas. TFM is applied on four-year cycle in 250 streams running into the Great Lakes, where they have adequate knowledge of the out-migrating populations.

Has this control worked? In some cases the lamprey population was reduced by 90% or more. In general, the treatments have been very effective, the population is reduced, and wounding rates are reduced. There has also been an increased growth and survival of salmonids (except in Lake Huron). An exception may be St. Mary's River, a huge river, which is too large for TFM to treat.

Lake Champlain

In the 1970's there was lots of stocking. An experimental lamprey eradication program was initiated in 1990's. TFM was applied to 13 of 22 streams, 5 deltas were treated with bayluscide. A long-term program was initiated in 2002.

They saw a reduction in lamprey population. Their target was 5% wounding lake trout, which they didn't see. They did see an indication of increase in the populations and growth of salmonids. The program costs fifteen million dollars per annum, but it is worthwhile? The fishery brings \$20 million in benefits to Lake Champlain.

Disadvantages associated with control using TFM include killing of native lamprey and other fish and amphibians, need for EPA registration, and, someday, resistance to chemicals; plus

there are sociological concern regarding poisons. At some point, we will need an alternative to chemical use.

Right now, they try to prioritize streams so that they get the most fish killed per unit cost. They are also seeking non-chemical alternatives to control. For instance, males can be injected with a chemical that makes them sterile. Pheromones may also be used to trap lamprey and reduce their reproductive success. The Commission's Mission is a 50% reduction in lampreys by 2000.

Questions and Comments

Eric Beck asked if resistance to TFM is being observed.

Ellen Marsden said that there is no evidence of this yet.

Lisa Windhausen asked if a reduction in food source, cutting back on stocking, has been attempted.

Ellen Marsden agreed that we have a lamprey problem because we are feeding them with stocking.

Steve Flint commented that he had noticed significant, non-selective hosting by lampreys, on pelagic fish, smallmouth bass, and pike.

Ellen Marsden responded that while that may be the case, she -thinks salmonids are needed for lampreys to thrive. The Seneca Lake strain of lake trout may be resistant to lampreys because they may have evolved with them.

Chuck O'Neill asked if this was because the Seneca Lake strain had developed avoidance behavior, they are able to shake the lampreys off for some reason, or perhaps they are do not frequent waters at the times or temperatures when lamprey are there.

Mark Malchoff posited that truly anadromous salmon would only be exposed to lamprey for much of the year, whereas landlocked salmon would not escape parasitism. Thus land-locked salmon might evolve to have resistance whilst sea run salmon might not.

Overview of Sea Lamprey Control Activities – *Tim Sinnott, NYS Department of Environmental Conservation*

Technical Aspects of TFM and Bayluscide Delta Treatments

Tim Sinnott is trained in chemical control, which is not an easy task. There is a lot of time and money and variables involved in chemical treatments. TFM and **bayluscide** are expensive chemicals and you need a lot of them to be effective.

They have applied 36-gallon pales for one brook.

Major aspects of TFM treatment include: pre-application planning, etc., informing landowners, press releases, water use advisories, water deliveries, toxicity tests, water chemistry, and estimating stream flows.

Planning activities includes quantitative assessment sampling (QAS), performing dye studies (to simulate treatment), obtaining permits, water delivery, establishing an 800 hotline, etc.

During TFM applications, they must monitor the amount of chemical, and assess the amount of target and non-target mortalities, submit reports, etc.

Quantitative assessment sampling (QAS) is conducted a year prior to treatment. It is habitat-based (for sea lamprey); they assess what is population of sea lamprey.

Permits are a huge issue: planned treatments are reviewed by public, etc, endangered species, silver lamprey, and America brook lamprey, mortalities should be minimized, etc.

A new mobile lab is used to do toxicity and TFM analysis

They do stream flow determination to determine how much chemical will be delivered, and permit requirement. They need to block flow of the chemical into wetlands. Beaver dams need to be blown. For one brook they had 20 beaver damns.

During the TFM Application, they monitor the pH levels.

For the post-treatment assessment, they used to walk and count target and non-target animals, now they do representative stretch of the streams.

They also continue to monitor to see that TFM levels have reached 20 ppb.

Bayluscide is not as selective as TFM. It was applied aurally. Now, they do by boat.

Questions and Comments

Bill Hyatt asked who funds these projects.

Tim S. said the Lake Champlain treatment comes from NY, VT, and US FWS.

Michele asked if next level predators are being affected by the treatments

Tim S. said that part of the prerequisites for the registration for the use of TFM is that it won't accumulate to point of gull toxicity. Also, they only do the treatment every 4 years, and this reduces the amount of accumulation. TFM is persistent; it doesn't biodegrade, but it will be absorbed into sediments.

Ellen Marsden - why couldn't the dye carrier be used to determine concentration rather than having to perform High Performance Liquid Chromatography (HPLC) to determine TFM concentrations?

Tim S. replied that the permits require that they do not use a proxy; they must determine the concentration of the toxin directly.

Pheromones as Part of Sea Lamprey Control Program - *Bradley Young - US FW Service, Essex Junction VT.*

Lampreys are controlled without using pheromones by trapping and sterilizing males, as well as putting TFM in lakes and rivers. However, you can't put TFM in every stream in because of endangered species and socio economic issues.

Sea lamprey may, in fact, be native to Lake Champlain, not exotic. They are parasites, not typical of fish populations. The degree of parasitization can reach epidemic levels: 92 wounds per 100 hosts, latching on to salmon, bass, smelts, even SCUBA divers. Unfortunately, the lampreys are exploiting an already stressed fishery. Since the 1970's the lake has been stocked due to the fact that Atlantic salmon that once supported a fishery were extirpated in The lake contains stocked fish that are "dumber" than wild fish. Although there is nothing natural about the fishery, we need to develop ways to help the fish to escape being parasitized by the lampreys.

Socioeconomic and ecological problem- decrease fishing, VT University identified sea lamprey exceeding ecological problem. Bass pike catfish, sturgeon, smelt with lamprey. Even swimmers and SCUBA divers report sea lampreys attempting to latch on to them.

An integrated pest management approach has been used by the partners in the lamprey control project (which includes NY, VT, PQ, and USFWS). Lamprey Control methods include trapping barriers chemical pesticides, sterilization of males. In small streams, trapping is the most effective technique followed (in decreasing order of efficacy), barriers, and chemicals. In midsize streams, barriers and chemicals are effective but trapping is not effective and sterilization is not used. For large streams: sterilization, chemicals, and barriers, trapping totally ineffective. The cost of sterilization is huge, whereas trapping is the least expensive methods.

In terms of ecological impact, barriers create a permanent structure, trapping can be high impact, and chemicals can have non-target impacts. Relatively speaking chemicals and trapping are mid-impact. Sterilization of males has no impact on the ecological community. So, in Lake Champlain, what can be done, particularly if barriers and chemical treatment is opposed? One alternative is the use of pheromones. In the sea lamprey, pheromones are actually bile acids, they come from the liver. These pheromones are sex and migratory pheromone. We don't know exactly how they are released, perhaps along with urine, or perhaps they are extruded from the blood and excreted by club cells found in the gills.

Females and males make migratory pheromones and sea lamprey larvae produce the migratory pheromone. Silver lamprey also make migratory and well as the northern, American, and brook lampreys. However the sex pheromone is only produced by the fully mature male lampreys, and only when they are “fully spermiated” (ready to release sperm). The sex pheromone is produced by sea, silver, chestnut, and maybe other species of lamprey. The America brook doesn't make the sex pheromone. Intriguingly, the western brook lamprey larvae produce adult sex pheromones.

If they release a plume of migratory pheromone in the water, lampreys will swim toward the chemical. Fully mature ovulating females are attracted to the male sex pheromone. Also, the male sex pheromone does prime other males, stimulating them to start to emit the pheromone themselves. Male pheromone may also prime females to ovulate.

How would this work for control?

Pheromones could be used for diversion and trapping methods. Emitting pheromone from a tributary stream in a larger river will divert lamprey to smaller channels where they can be trapped more easily.

The sex pheromones will work in larger systems. Right now, there are limitations to this method: necessary concentration isn't known, nor is the percent efficiency of the method. In the Great lakes, they are doing extensive research and field trials on this method, and in Lake Champlain, UVM and USFWS are doing smaller projects.

A short video of a female sea lamprey being attracted to the male pheromone was shown.

Questions / Comments

Brad - The chemicals are effective, but the barrier is even more so. The pheromones will never replace other methods; they are another part of an integrated pest management scheme.

Pheromones supplement other methods and are especially useful in difficult to trap areas.

Eric Beck - Can you synthesis the pheromones?

Brad - You can synthesis, but it is extremely expensive; the pheromones cost \$20,000 for 5 grams to make.

Jan Smith - Are the pheromones species specific?

Brad - The chestnut lamprey can smell sea lamprey pheromone.

Tim Preddice - Are lampreys migratory?

Brad replied that just the young ones fish are migratory.

Meeting summary prepared by Gretchen Fitzgerald.