

Invasive Species Regulation in Michigan: Stakeholders Workshop

September 21, 2006

Bath, Michigan

Welcome, Workshop Purpose

Tim Eder

Executive Director, Great Lakes Commission

Eder's presentation provided background on the Great Lakes Commission as well as the significance of the aquatic invasive species (AIS) threat. Eder provided information on the Great Lakes Regional Collaboration and its AIS Strategy Team which identified a goal of preventing and stopping the spread of AIS in the Great Lakes region. He spoke specifically about Commission AIS related activities including the project *A Collaborative Approach to Advance State Management Plans for AIS Prevention and Control*. The project is meant to help provide a regional framework for development of state management plans (SMP) for AIS prevention and control. To do this, the Commission is facilitating workshops in each of the Great Lakes states based on the collaborative efforts of the Commission, the state Sea Grant Program and the state Natural Resource agency. He noted that the day's workshop is Michigan's effort at a workshop under this project and that workshops have been completed in Wisconsin, Pennsylvania and Minnesota. He explained that the workshops are state specific, depending on the status of the state's SMP process and that there would be an opportunity to share outcomes at a regional summit planned for spring 2007. He advised that if participants had further questions regarding the project, they should speak to Kathe Glassner-Shwayder, the project manager. He spoke briefly about the efforts of other states such as Minnesota, Wisconsin and Illinois, which all have invasive species listing programs. Finally, Eder again stressed the significance of the invasive species threat to the Great Lakes region and the importance of both federal and state management efforts.

Mary Ellen Cromwell

Assistant Director, Michigan Department of Natural Resources

Cromwell's opening statements included extending a thank you to those in attendance and those responsible for organizing the workshop, as well as expressing regret on behalf of Becky Humphries, Director, Michigan Department of Natural Resources (MDNR), that she was not able to attend. Cromwell also recognized fellow MDNR colleagues Gary Towns, Lake Erie Management Unit Supervisor, and Ray Rustem, Natural Heritage Unit Supervisor. Her introductory remarks framed the invasive species issue as a considerable and continual challenge for MDNR, an agency responsible for managing a majority of the natural resources of the state. She described the issue as a "moving target", one that can be found from small localized niches to larger landscapes. Cromwell pointed out that invasive species do not only occur on public lands, but on private lands as well, adding another dimension to the challenge. She acknowledged that once an invasive species is found in the state, it is likely that it will be there for good. She described another substantial challenge for the MDNR, as well as for private landowners, which is that of efforts to control invasive species that can be very expensive no matter the landscape (wetlands, uplands, forests or otherwise). Cromwell concluded with a request for input, stating that while the new regulation listed a number of species, the agency was struggling with the implementation of the act, including what criteria the agency should be using to list and de-list species and establishing a formalized permitting process.

Introductions, Agenda Review

Mark Breederland

Sea Grant Agent, Michigan State University Sea Grant Extension

Breederland led the participants in a round of introductions, reviewed the agenda, brought attention to the workshop evaluation form and acknowledged the efforts of the team responsible for organizing the workshop. He gave some additional background for the workshop including defining the ISAC, the Invasive Species

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Advisory Council, and making clear that the purpose of the workshop was not to talk about one particular favorite issue or invasive, but instead to discuss scientifically defensible criteria for the state to use in its listing and de-listing process. Breederland also served as the moderator for the first session of presentations responsible for introducing each of the presenters.

Michigan's Invasive Species Laws and Regulations (Long-standing and 2005)

Moderator: Mark Breederland

Sea Grant Agent, Michigan State University Sea Grant Extension

Invasive Species Regulations and Management Activities

Ray Rustem

Natural Heritage Unit Supervisor, Non-game Wildlife, MI Department of Natural Resources

Rustem's opening remarks highlighted the idea that invasive species is a very important issue and he commented that he was glad to see plans for stakeholder involvement come to fruition. The subject of his presentation was Invasive Species Regulations and Management Activities within MDNR. He framed the presentation by stating that the Great Lakes have been a host for numerous detrimental invasive species, including the sea lamprey, which is thought to be the first major invasion resulting in significant negative impacts. Rustem explained that the sea lamprey almost wiped out the Great Lakes trout population and that there have been major efforts to control the lamprey which cost about \$15 million annually. He illustrated how important these control efforts are because without them, the estimated economic impact would exceed \$500 million annually. He also acknowledged that while there are some environmental costs associated with the control agent, it is currently the best tool available.

Rustem outlined the various ways invasive species are regulated in Michigan: laws from the state legislature, Natural Resources Commission orders, and MDNR Director Orders. He covered several state laws including:

- Public Act 466 of 1988 which prohibits the release of live feral swine and prohibits the importation and release of San Juan rabbits as a result of problems in other states. The species can severely damage the forest floor and there are several small established populations of swine in the state's Upper Peninsula.
- Public Act 190 of 2000 which prohibits the release of any Cervidae species from a Cervidae livestock facility as a result of concerns of disease spreading
- Public Act 274 of 2000 (The Large Carnivore Act) which restricts the private ownership, possession, breeding, etc. of several large carnivores, including lions, tigers, and bears. The intent of the Act is to prohibit all private ownership; however current ownership at the time the Act was passed was grandfathered into the legislation.
- Public Act 451 of 1994 (The Wildlife Conservation Order) which restricts importation of live mute swans and eggs into the state

Rustem described FO 227.04a, a MDNR Director order which prohibits the take and sale of rusty crayfish as well as the possession and transport of Eurasian ruffe, tubenose goby, and round goby. Rustem gave background on the new invasive species legislation, the Transgenic and Invasive Species Act (Part 413 of Public Act 451 of 1994), which was the primary subject of the workshop. He explained that the new legislation establishes a list of prohibited and restricted invasive species, creates penalties for possession of such species, and creates an Invasive Species Fund. He described the requirement for posting species information on a MDNR website and the new requirement for the ISAC. The new regulation requires the ISAC to submit an annual report to legislature covering the following areas: changes to list, species status, actions related to prevention, control and eradication, action related to restoration of damaged habitats, education of citizens on invasive species, and recommendations on funding to carry out invasive species related activities.

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Rustem described current efforts by the MDNR to control invasive species including the management of purple loosestrife, phragmites and Eurasian milfoil. In regards to purple loosestrife, the MDNR is supporting a Sea Grant education program, releasing Galerucella beetles, and herbiciding stands of the invasive plant. Efforts to control the spreading of phragmites include researching best management practices and herbiciding stands. MDNR control efforts for Eurasian milfoil include releasing water milfoil weevils and herbiciding milfoil stands. Rustem acknowledged that it is difficult to figure out what it is costing to control these invasive species, as there are many other programs undertaken by cities, natural organizations, and others. He noted that the MDNR also conducts control efforts for buckthorn and the Mitchell Sayder butterfly. He further highlighted cost as a significant issue and one MDNR deals with frequently while attempting to maintain the biodiversity of the state.

Rustem concluded by identifying another MDNR initiative regarding invasive species which is a recently completed action plan from the Natural Heritage Unit which identified 14 statewide threats to Michigan's biodiversity (<http://www.michigan.gov/dnrwildlifeactionplan>). The top two threats identified in the plan are habitat fragmentation and invasive species. Rustem has testified before state legislature saying the agency is no longer in the mode of eradication, but instead is in the mode of management because eradication is no longer an option. Rustem believes more effort needs to be placed on prevention which will avoid the high costs of management and eradication.

Invasive Species Laws and Michigan Department of Environmental Quality

Roger Eberhardt

Specialist, Michigan Department of Environmental Quality

Eberhardt gave a presentation on invasive species laws affecting the work of the Michigan Department of Environmental Quality (MDEQ). He indicated that Michigan is one of the states with an Aquatic Nuisance Species Task Force (ANSTF)-approved SMP for the Prevention and Control of Aquatic Invasive Species. He noted that a great deal of work is being conducted on invasive species issues as part of the SMP that is not required by Michigan regulations. Eberhardt explained there are two primary sets of aquatic nuisance law the MDEQ works under, as well as a new program for ballast water control: control for inland lakes; and control for coastal areas.

In regards to aquatic nuisance control for inland lakes, he mentioned specifically a permit program administered within the MDEQ Water Bureau. He described how the program is used to regulate chemical treatments of nuisance plants found in Michigan inland lakes and that it is operated under the premise that individuals need a permit for specific chemicals, in specific amounts, and under specific conditions. Eberhardt noted various administrative and environmental considerations taken when reviewing permit applications including fees, timing, licenses, proper and appropriate use, size and location of area, effectiveness of the chemical, and non-target and downstream impacts. He illustrated the common targets for these permits as water milfoil, pondweeds (curly and broad leaf), and algae. He said commercial applicators are the primary source of permits, although about 10% are cases in which private individuals have requested a permit. He indicated that the number of permits is significant and has been steadily increasing since 1970.

In regards to control for coastal areas, Eberhardt described the Great Lakes Shoreland Protection Program. The program is a permit program administered by the MDEQ Land and Water Management Division for the management of vegetation and other actions along Great Lakes shorelines such as shore modification, moving docks and others. He said that phragmites has become a major shoreline concern, especially in the Saginaw Bay area, and currently requires a permit for its control. Eberhardt explained that laws affecting this issue have been somewhat complex as only certain types of activities require a permit. He said that pilot areas were established to determine best management practices for phragmites control, but that program has expired and has not been reauthorized.

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Finally, Eberhardt discussed some of the preventative laws, both old and new, that have been established to help control invasive species. He recognized ship ballast water as the primary vector for aquatic invasive species and mentioned Michigan's 2001 ballast water regulations for management practices and a reporting program. Eberhardt mentioned that while there has not been a lot of activity on the ballast water issue at the federal level, he has been encouraged by the idea that Michigan has taken the lead in the Great Lakes region for ballast water regulations. He pointed out that in 2006, over 200 vessels were identified as complying with the reporting requirements and that as of 2005, the state has new ballast water legislation for a permit requirement for ocean vessels coming into the Great Lakes and calling into Michigan ports. The general permit is needed for all port operations and as of Jan. 1, 2007, any ballast water discharge needs to be treated by a method approved in the permit. Eberhardt said the hope is that the permit will prevent new invasive species from coming into the Great Lakes through ballast water and that it will likely be signed into law within a couple weeks after the workshop. He also described the Great Lakes ANS Coalition that was formed through an agreement with the other Great Lakes states to implement laws on a basin-wide basis. Since then, six other states have introduced legislation similar to Michigan's.

Invasive Species Laws and Regulations for Michigan

Mike Bryan

Nursery Manager, Michigan Department of Agriculture

Bryan began his presentation by describing Public Act 189 of 1931, Insect Pests and Plant Diseases, a nursery law prohibiting the sale of purple loosestrife. The main focus of the law is actually to prevent the spread of pests and diseases in the state by regulating the sale of certain plants and providing for inspection of plants. Bryan explained that the law was enacted in the early 1900s because of significant problems with nurseries spreading plant diseases such as black stem rust. He said the law allows for external quarantines and the authority for plant import inspections. Bryan highlighted one significant threat as the importation of stock from Europe, which is a major importer of plants from the Netherlands, a country that has some problems with conducting proper inspections. The weakness of the law that Bryan pointed out is that even though all known plant importations are inspected, sometimes authorities are not aware of plants that are coming into the state. He said that the law is under revision, and has been under revision for the past 5 years, particularly for substantial changes in the penalties for quarantine violations. He described how the law also regulates plant pests by requiring a USDA permit for Michigan based persons or firms requiring use of a plant pest. Permit applications are reviewed by the Michigan Department of Agriculture and Bryan said the variety of requests for the plant pest permit included school/ educational science projects and butterflies for weddings. The weakness of this section of law is inadequacy of the plant pest definition as it does not include "weeds". He said that this oversight will also be fixed in the revised law. In regards to the quarantine requirements of the law, Bryan listed several Michigan quarantines: Emerald ash borer; Hemlock wooly adelgid (currently not in the state); blueberry viruses; vegetable plants; and the plum pox virus (internal quarantine). Federal quarantines for which the state has some enforcement responsibility include: the gypsy moth; pine shoot beetle; black stem rust; and emerald ash borer. The Federal government has the ability to quarantine the state if a pest is found, but will allow the state quarantine to be sufficient if the invasion is localized.

Bryan next described Public Act 72 of 1947, the Insect Pests and Plant Diseases Act. This law is a nuisance and plant pest law that allows for abatement and destruction orders. It also provides an additional internal quarantine authority and Bryan highlighted the act as having significant "teeth" for dealing with pests and exotics.

Bryan described Public Act 359 of 1941 as the law that gives counties, cities, villages and townships the ability to establish a Commissioner of Noxious Weeds that is responsible for controlling and preventing the spread of noxious weeds. The Commissioners are provided a lien on property which allows them to eradicate

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noxious weeds from a piece of land and then send the bill to the property owner. Bryan said this is the “old” weed list which focuses on suppression and not necessarily eradication.

Bryan went on to explain Regulation 623, Field Seed Certification, which sets standards for field crop seeds, tolerances for contaminants and requires labeling for seed content. The purpose of the labeling, he said, was to be able to look for any weed seeds which may be of concern. Bryan also covered the Michigan Seed Law (Public Act 329 of 1965) and Regulation 715 which implements the Seed Law and lists prohibited and restricted noxious weeds.

Bryan spoke about Public Act 451 of 1994, Michigan’s Natural Resources and Environmental Protection Act (NREPA) which lists prohibited and restricted species and provides MDNR most of the regulatory authority. Bryan described how the Federal Noxious Weed List is used in partnership with U.S. Department of Agriculture to prohibit importation and regulate the interstate movement of certain plant species. He said that some authority is left to the state to decide whether or not to allow the movement of some of the species.

Finally, Bryan highlighted some species of plants that are without status under any of the described laws, but are of concern. *Inula Britannica* and *Rorippa sylvestris* are imported from Europe mostly as perennials and are not covered under state or federal regulations, but should be considered invasive. Bryan said changes in legislation will be needed to handle these kinds of situations and that the MDA should work in coordination with the MDEQ and MDNR.

Questions and Discussion

A participant pointed out that there was a need for greater public education regarding invasive species by giving two examples of public access to invasive species: (1) the invasive plant purple loosestrife is still often listed in plant catalogs as a good pollinator for use by individuals such as bee keepers; and (2) an anecdote about a classroom aquarium housing a rusty crayfish obtained from a dealer that was, thankfully, identified as an invasive species and destroyed before it could be released into the wild. In response to those comments, a participant acknowledged that part of the effort is to work on education, not only with consumers but with suppliers; however, state agencies cannot do all of the work themselves and will be looking for help from other stakeholders. The participant hoped that a partnership could be formed to increase education awareness. Another participant mentioned that the agencies have staff responsible for contacting suppliers and checking things like catalogs, but this activity is low on their priority lists. A suggestion was made that some voluntary guidelines be established under HACCP that suppliers could adopt to increase education and awareness.

Another question was raised regarding ballast water regulation: the participant wanted to know if there had been any thought about tailoring treatment processes to where the ship might have been. The answer was given that no, the new Michigan permit is a blanket permit for every ocean-going ship wanting to conduct port operations in Michigan.

A final question was raised about the ash borer quarantine applying to or lacking enforcement for haulers. The answer given was that it depends on the time of year; the quarantine does apply but there exists a significant challenge in monitoring everyone who has a truck within Michigan. There has been a problem with tracking down every hauler, but those responsible are trying their best.

Processes for Modifications to Prohibited and Restricted Species Lists

*Moderator: Carol Swinehart
Communications Manager, Michigan Sea Grant Extension*

Exotic Species Risk Analysis

Paul Zajicek

Biological Administrator, Division of Aquaculture

Zajicek presented on the risk analysis process Florida uses to look at exotic species and make tough decisions regarding their regulation. He provided some background information on the Florida Division of Aquaculture agency. The Division is a regulatory agency, created in 1999, that is intended to be a one-stop-shop for commercial aquaculture. The agency is charged with protecting natural resources, and also helping to develop the industry. The agency requires an annual certification and the use of best management practices (BMPs) considered to be the minimum standards to protect and maintain off-farm water quality and wildlife habitat.

Zajicek next discussed the many criticisms of risk analysis. He provided a critic's quote and noted that while this was one person's opinion, it does provide a red flag that there are some issues associated with the technique. Part of the quote stated "quantification of risk is largely illusory" and Zajicek acknowledged that a significant challenge in risk analysis is the quantification. This, he said, is a result of insufficient knowledge and that sometimes assigning a number is a guess. Zajicek said there needs to be an evaluation of where those numbers came from and if they are really valid. He thinks the best predictor of invasiveness is past history of that species in a similar environment. As a result, he described how a qualitative process can bring together good information and can still work fairly well. He said that, if you elect to use a quantified process, costs associated with this will be unmanageable for the agencies.

Zajicek explained the risk analysis process as having three main steps: (1) risk assessment; (2) risk mitigation or management; and (3) an operation (implementation) plan. The first step in the process, risk assessment, is used to get information, conduct a literature review and then to quantify or qualify the risks. Zajicek said that a statement of confidence should accompany the quantification or qualification of the risks. He said the last step needs to be completed from an adaptive management perspective and that there should be a lead agency(s) to take responsibility for this. He explained that the framework for this process was the Generic Nonindigenous Aquatic Organisms Risk Analysis Process Review published by the ANS Task Force in 1996. Zajicek noted that the generic analysis provides for a comprehensive, logically sound process which is commensurate with available resources and open to evaluation. Lastly, he advised that stakeholders be involved throughout the process and to involve even those that are critical of risk analysis.

As an example of a risk analysis, Zajicek gave a detailed explanation of the Sturgeon Risk Analysis conducted by his agency. He said the objective of the analysis was to determine the risk involved in cultivating a species non-native to the state of Florida (sturgeon). Their first step was to send an announcement letter to 49 federal, state, academic, fish farm and eNGO entities, asking a short series of questions which helped the agency to identify the four primary risk issues. A second letter was sent to 117 entities with a 23 question survey, copies of the Generic Analysis document (mentioned previously), and an invitation to a workshop in which people from around the country were invited to give presentations on the major issues. The agency also asked the University of Florida to conduct a literature review on the issue.

Zajicek next described the stakeholder workshop in which a third party facilitator led the group through an explanation of the risk analysis process, presentations on the major issues, and a break-out session. He explained that participants were provided a worksheet on which they could qualify and/or quantify the risks using the risk rankings in the Generic Analysis: low (acceptable); medium (unacceptable); and high (unacceptable). Medium and high risk rankings indicate some type of management planning is needed.

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Zajicek noted that the worksheet did not provide a timeframe for noticeable ecological effects and they had to resolve this issue at the workshop by deciding to look at the issue over a 20 year timeframe. The participants of the risk analysis workshop then moved on to risk mitigation and identifying ways to off-set risk. Zajicek pointed out that the strongest critics of the risk analysis process were often excellent problem solvers, providing options for risk mitigation. He also strongly recommended using a follow-up survey for any workshop as a way to learn and adapt future efforts. He said they gave one which yielded mostly positive feedback about the workshop, process and outcome.

Zajicek then spoke to risk analysis at the federal level. He said that risk assessments had been completed for many invasive species, including the black carp which has been looked at in 1996, 2001 and 2005. He showed that only a couple of assessments have progressed to the risk mitigation phase, however, one species undergoing mitigation is the snakehead. Zajicek said that at the federal level, the risk analysis process needs to be improved as they could be doing "a lot better". Zajicek's take-home message was that while risk analysis is an imperfect process conducted with imperfect information, it can still be valuable and beneficial. He again stressed the value of stakeholder involvement as source of information and a way to provide buy-in. Zajicek said that it is important to recognize that it is a learning process, and that after failure, lessons learned can be incorporated to adapt the process.

Following Zajicek's presentation, a question was asked regarding the results of the risk analysis: are sturgeon allowed in Florida. Zajicek said that there exist a couple farms growing non-native sturgeon in bio-safe, indoor tanks, but that it is extremely risky, and the greatest control has been that there is both high investment and high risk involved in farming sturgeon.

New England Invasive Species Programs

Barre Hellquist

Professor Emeritus, Massachusetts College of Liberal Arts

Hellquist's presentation addressed various species of concern in the New England states as well as Michigan. For each species discussed, he displayed an identifying picture. He gave an example of a strategy to list just a genus name as prohibited or restricted, thus covering all potentially invasive species within that genus. An example of this in New England is the genus *Cabomba*.

Hellquist spoke about Eurasian watermilfoil which was the subject of an invasive species summit in Maine, involving lake associations, state agencies and others developing regulations for the milfoil before it arrived. Despite this effort, the milfoil arrived in the state four years later. He explained there are some difficulties associated with "keying out" milfoil species as the lower leaves are not always whorled. Hellquist also mentioned the Brazilian milfoil which is sold widely in the water garden industry and is an especially hardy species.

Hellquist talked about *Egeria densa*, or Brazilian elodea, a plant native to southeast Brazil, but established as far north as Manchester, New Hampshire. This is another species he said that was sold often in the pet trade and water garden industry because it works as an oxygenator. He explained how a related species *Egeria najas* is available widely for sale on the internet. This species, he said, looks extremely similar to hydrilla, except that it produces a flower. Hydrilla, Hellquist described, is an invasive plant that grows up to the surface of a water body and then expands out across the surface. He explained how hydrilla is very hard to eradicate because the tubers will imbed themselves in soil. Hellquist also attempted to abolish the myth that hydrilla is purely a tropical plant as he has seen it established in Siberia, Maine, Massachusetts and Connecticut.

Hellquist moved on to discussing the European frogbit, a species which is listed in Michigan and is one to keep an eye on. He described how it floats on the surface, loves marshy areas, and is currently only found in

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New England in the state of Vermont. He talked about flowering rush which can be found in Michigan, most New England states and is actively for sale in the trade industry. Another species he mentioned was Curly-leaf pondweed of which the earliest reports of the plant date back to the 1870s in Cambridge, Mass.

Hellquist next touched on the Asian naiad (*Najas minor*), an annual species originally introduced in the Hudson River and one that is not listed in Michigan but should be. He spoke about another annual plant, the water chestnut, which is believed to have been introduced at Harvard for their botanical gardens in the 1800s. He said there is a significant debate concerning how the species spreads. The chestnut produces large barbed nuts that can attach to various fauna that spend time in lakes, such as geese, ducks and even moose.

Hellquist discussed other Michigan listed species, including the purple loosestrife which is a problem in New England as well; yellow floating heart which is also a problem in the Hudson River; phragmites; and yellow flag iris. He pointed out that the Hudson River has ballast water problems similar to those of Michigan and the Great Lakes region.

Hellquist then briefly explained some New England invasive species regulations. He said that in Maine, the focus is mainly on aquatics and their process is generally to have a summit to decide regulations. They also have established monitoring programs and instituted a fee for all boats registered in Maine from which all money goes to the state invasive species program. Hellquist described that in New Hampshire and Vermont they take some money gathered from boater registrations to fund their invasive species program. He said they will be requiring a boating test for all boaters by 2008 with an invasive species component. Massachusetts and Connecticut have a large invasive species committee, although they also have a problem with hydrilla in that it doesn't meet their listing criteria for definitively invasive. Due to a lack of time, Hellquist directed participants to the handout he provided with summaries of all the New England states' invasive species regulations.

At the conclusion of Hellquist's presentation, there was a concern raised about the current listing of species that may not be as colonizing as others, for example, the yellow flag iris. Hellquist responded that the species is invasive and merits being on a list.

Stakeholder Presentations on Issues, Needs and Concerns Related to Regulation

*Moderator: Carol Swinehart
Communications Manager, Michigan Sea Grant Extension*

Invasive Species Regulation in Michigan: Perspective of Michigan's Green Industries

Amy Frankman

Executive Director, Michigan Nursery and Landscape Association

Frankman gave a presentation describing the Michigan Nursery and Landscape Association and explaining its concerns regarding Michigan's new invasive species regulation. She first gave background including its establishment in 1922 and its role as a statewide trade association that represents over 8,000 licensed Green Industry firms in Michigan and has over 1,100 members, eight regional chapter members, and sixteen Plant Michigan Allied Members. She said they represent the "true environmentalists" whose goods and services enhance the quality of life and have positive benefits on Michigan's natural and built environments.

Frankman pointed out the significance of the nursery and landscape industry which contributes \$3.7 billion to Michigan's economy, is the second largest agriculture commodity group in Michigan, the fifth largest nursery industry in the nation, and in terms of gross value of sales, the fourth largest in the nation. Following that description, Frankman listed the issues, needs, and concerns related to the regulation, as follows:

- inability to determine what scientific criteria were used to establish the prohibited and restricted lists
- lack of consideration for plant hybrids and cultivars

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- no clear definition between prohibited and restricted plants, other than fines
- no clear definition of the responsible enforcement agency
- lack of provisions for uses in different bodies of water
- critical deadlines not met by the ISAC which caused significant impacts for the industry
- no provision for removals on public lands
- lack of funding

Frankman provided several recommendations to begin addressing these concerns. She recommended a phase-in period for compliance; an examination of the scientific facts; and an examination of the entire impact of actions. Frankmann acknowledged that the law was an attempt to benefit the environment, but that she does not understand how it will really help. She concluded with further suggestions on how to fix the existing new legislation through open communication, transparent processes, and consultation of a scientific foundation to establish whether a plant is truly invasive.

A question at the conclusion of Frankman's presentation addressed a concern that the focus of the presentation seemed aimed at controlling the spread of species that are here, but the questioner advocated that the focus should be prevention because there are not enough resources for effective eradication and control. Frankman responded by saying that most nurserymen would be amenable to some sort of risk analysis for species of concern and would like to participate and be involved in prevention methods. She said many favor screening plants, to a degree, because the industry does not want to end up selling the "next purple loosestrife". She further explained that the industry is concerned about the environment and wants to do well by it, but has also made mistakes along with everyone else. Other points made were that the industry generally looks for ornamental plants, not aggressive plants that will become like a weed and which they have enough of; and that there should not be blanket statements for a species, that plants should be assessed as individuals.

Michigan Aquaculture Association: Michigan's Invasive Species Regulations

Chris Weeks

President, Michigan Aquaculture Association

Weeks presented on Michigan's new invasive species regulations from the point of view of the aquaculture association. He first described the aquaculture industry in the basin, which consists mostly of private aquaculture farms where the sense of over-regulation is felt. He said the industry demand is dominated by fingerling stocking of private and public sport fisheries. Weeks described how not all exotic species are considered bad, such as the fish that was one of the greatest boons to the Great Lakes fishery. He showed how introductions of non-native species have increased and there has reached a total of 166 exotic species in the Great Lakes. Weeks highlighted the top three vectors for invasive species as ballast water, release by fishing/aquarists, and through canals, emphasizing that this list did not include the aquaculture industry.

He next laid out the Michigan aquaculture industry concerns involving aquatic invasive species and related legislation. The concerns included a recent incident in which 84 live Asian carp were seized from grocery stores in southeast Michigan; the potential introduction of snakehead; and a report that hydrilla had been found in inland lakes in Michigan. Concerns with the legislation included the potential for the list to be confusing to the public as it is difficult to provide education on what the species are and what they look like; and that it would take an act of legislation to add a species to the list which could be very difficult. Weeks next described how aquaculture harvesters, water gardeners and those with boat trailers are all subject to the inadvertent spreading of aquatic invasive species. He expressed concern that if any of them are caught they are considered "guilty until proven innocent", even if the "possession" was unintentional. He said that definitions of "in possession" are not favorable to these types of circumstances in which the person does not realize that they are in possession of a species.

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Weeks emphasized that the biggest concern in the aquaculture industry for the legislation was if it effectively addressed items such as funding and education. He said that the Invasive Species Fund established by the legislation requires that some of the money collected be directed towards education, but the only requirement for education is that information be posted to a website. Weeks concluded that the legislation, without adequate public education and reliable enforcement, will ultimately fail. As a result, the Michigan Aquaculture Association developed two recommendations: (1) to police all live fish imports including fish markets; and (2) to require monitored boat wash stations at all public access points. Finally, Weeks emphasized that the industry's biggest concern is not the species, but the lack of enforcement, especially on out-of-state imports.

Michigan Bait Dealers Association

Rick Wiedenhamer

President, Michigan Bait Dealers Association

Wiedenhamer began his presentation by describing the Bait Dealers Association's historical involvement in the invasive species issue. He said that the association first became interested in the issue while working with the Aquaculture Association to avoid "being blamed" for the introduction and spread of invasive species. Wiedenhamer explained that in the bait industry, 25% of the people sell 75% of the bait and that it is \$2 billion industry overall. Further, he explained, fishermen only like to use species that are native to the basin such as minnows. He said that while the industry does import from other states, they follow MDNR regulations and ensure that imports come in from registered hatcheries. Wiedenhamer expressed a feeling that while a great deal of name calling regarding the issue has occurred over the last 15 years, not much else has happened. He described how he has spoken with scientists and boaters, but no scientists would agree or tell the boaters what treatments to use. He said there was too much discrepancy in the scientific field. Wiedenhamer said that the bait industry is primarily aquaculture with only some wild catch; but that the approximately 150 catchers, most small-time, are an important niche for the bait industry. He described an effort with Sea Grant and others to demonstrate what bait catching was like and then get together to figure out how to prevent the bait dealers from spreading or introducing invasive species. Wiedenhamer said they went through every step in the process and came up with stickers, tapes, etc. to educate bait catchers and dealers through the HACCP (Hazard Analysis and Critical Control Point) program. He said the industry is proud of the efforts made and so far have found no problems. In his conclusion he noted, however, that there have been a couple problems with the MDNR, which is where their industry has concerns, over the issue of "bycatch" (or non-targeted species). Wiedenhamer specifically highlighted a problem with catchers wanting to collect and destroy the prohibited species they accidentally catch, but they are unable to do that for fear of being found "in possession" and being penalized.

Pet and Aquarium Trade

Rick Preuss

President, Preuss Pets, and Habitattitude™ Business Partner

Preuss began by cautioning the participants about giving thought to what we can do collectively to change the attitudes and behaviors of the public and consumers. He said the stakeholders present must be willing to put in the energy and effort to educate consumers and the broader public. Preuss said that many retailers and consumers are and have historically not received the information necessary to understand why certain steps are taken which regulate species trade. He gave a specific past example of turtles being prohibited for sale to limit the spread of salmonella. Preuss next introduced and gave background information regarding the Habitattitude™ campaign which seeks to educate consumers from a pet store or other platform. One specific effort is to teach people purchasing aquarium plants the proper way of eradicating the plants if they are no longer needed. He said that many retailers don't know that this effort exists. Preuss suggested that when a pet store receives its annual license, it should also receive information on Habitattitude™. He explained that the pet marketplace has no way of identifying, at a lay level, illegal or inappropriate species. Preuss advocated that the more those at the workshop can communicate with constituents, the more effective

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they will be with their prevention and control efforts. He said that the best thing to be done today is to educate the general marketplace. Preuss expressed the need for a greater effort to push awareness to the public because there is currently no avenue for them to get the necessary information. Preuss concluded by explaining that retailers will cater to consumer whims, not to governmental whims, and as a result, there should be a greater effort towards getting the relevant information to those consumers.

Break-out sessions (*see Appendix*)

Review of Break-out sessions

Wrap-up and Next Steps

Mark Breederland, *Sea Grant Agent, Michigan State University Sea Grant Extension*

Carol Swinehart, *Communications Manager, Michigan Sea Grant Extension*

The wrap-up session included a reminder to fill out the workshop evaluation forms and a thank you to all the participants. It was also explained that the product of the day's discussion would be reviewed carefully and areas of commonality would be identified. A draft document of the review would be made available within the next 2-3 months and a public meeting would be scheduled to allow for comment on the draft. It was clarified that the public meeting would have more publicity and would attempt to involve a broader stakeholder audience than the workshop. Mary Ellen Cromwell was also invited to give some closing comments which included a thank you to the participants for their comments and contributions on behalf of the three state agencies represented at the workshop. Cromwell recognized the considerable experience and diversity present among the participants from which she stated she learned a great deal. She concluded by saying that she was optimistic about creating a formalized process for the new regulations and acknowledged all the good ideas shared at the workshop that will be of help in its development.

Update Submitted by Carol Swinehart, July 27, 2007:

In April 2007, Michigan Sea Grant sponsored a public meeting at which all the September workshop participants and others were invited to provide comments on the draft process. Six persons presented or providing subsequent comments on the draft process.

On May 2, Governor Jennifer Granholm issued an Executive Order abolishing the Invasive Species Advisory Council and transferring all of its responsibilities to the Department of Natural Resources as of July 15, 2007. The ISAC met jointly with Michigan's Aquatic Nuisance Species Council on July 9, 2007, and agreed on the final details of a process for DNR to use in developing recommendations to the legislature for listing additional species as prohibited or restricted or for removing species from the existing lists. Members of the councils expressed a commitment to continue collaborating on this important issue and expressed appreciation for the work done by Michigan Sea Grant and the Great Lakes Commission to help them develop the process.

Appendix: Break-out Session Notes

Break-Out Session: Group I

Facilitator: Chuck Pistis, Michigan Sea Grant
Reporter: Marc Gaden, Great Lakes Fishery Commission
Recorder: Erika Jensen, Great Lakes Commission
Participants: Ray Rustem Jeremy Emmi Emily Finnell
Rick Hobrla Don Garling Chris Weeks
Doug Pearsall Mike Bryan Marc Gaden
Dennis Schroeder Sarah Rasch Doug Landis
Alex Cleveland Susana Ditter Amy Frankman

(1) What elements should the Invasive Species Advisory Council (ISAC) use in its process to make sure that its process is scientifically sound?

Elements:

1. Existing risk assessments
2. Stakeholder involvement
3. Compile and refer to available existing research and techniques
4. Compile and refer to available stakeholder and agency experience
5. Peer-reviewed definition of “scientifically sound” and/or “reliable science”, which is agreed upon by all stakeholders
6. Definition of “invasive”
7. Assessments should be specific to taxonomic group (mammal, reptiles, amphibians, etc.)
8. A mechanism (structure) for involving stakeholders, agencies, and the scientific community in the evaluation of the soundness of the science – in other words, a mechanism, with stakeholder involvement, for review of proposals to list/de-list species
9. Develop a consistent evaluation protocol for taxonomic groups

Discussion:

Concern was voiced over bringing scientists into the ISAC if an effort was made to involve stakeholders to advise the council (possibly in the form of advisory sub-committees). The concern was that the scientist(s) may have a conflict of interest if they are agency, government or industry affiliated, however, it was suggested that an independent scientist be appointed to the council. There was further discussion regarding a mechanism for bringing potential species up in front of the ISAC, many of the participants had difficulty with the idea of “clean” and “dirty” lists, which seem to assume that everything that is listed is not allowed and everything that is not listed is OK. The point was made that the Great Lakes Regional Collaboration Aquatic Invasive Species Strategy Team also struggled with this concept as part of their organisms in trade discussion. The group agreed that the ISAC has to have the ability to harness resources and should be required to involve stakeholders; it was later pointed out that the new regulations do in fact require consultation with stakeholder groups. It was suggested that the first step to ensure a scientifically sound process would be to set up assessment sub-committees to advise the council (for example: a plant assessment committee, a fish assessment committee, etc.).

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(2) What elements should the ISAC use in its process to make sure that it is 'risk-based' and species are not listed arbitrarily?

Elements:

1. Require an explanation of why a species is being listed or de-listed through a formalized process
2. Create a time-sensitive process that can respond in emergency situations
3. Define what "risk" is (ecosystem, economy, etc.) – related to defining "invasive"

Discussion:

Suggestions of a formalized process for justifying a list or de-list of a species included an example of the USDA which creates and publishes a proposed rule that describes what they would like to do and why, which is followed by a period for public comment. The concern with this process was that while stakeholders can comment, the agency decides which comments to consider and which not to consider. The idea of mandatory public meetings was also brought up with the thought that it might help to create fairness and consistency in the process. There was concern over how much value the meetings would add if the decision has already been agreed upon, especially since this process can be costly. It was then clarified that the suggestion was to have *public meetings*, which are open to and invite the public to attend regularly scheduled meetings (for example: meetings of the ISAC) and are significantly less costly than *public hearings*. It was further pointed out that the listing and de-listing process needs to be carried out in a timely manner and that the group should recognize that the council only makes recommendations, as species can only be listed or de-listed through legislative action which is a one and a half to two year process. There was then an indication that there has been discussion about allowing the council to make the decision, but no action has been taken on this idea to date.

Concern was also voiced about the difference between identifying a species as injurious and then listing versus listing a species and then deciding whether it is actually injurious or not. The worry was the latter process becomes arbitrary, however the hope is to have a meaningful process which requires assuming a species is "guilty until proven innocent". The main point was the problem of reconciling these two ideas: not wanting an arbitrary process that will negatively impact some stakeholders, but being forced to take that path as a result of the significant damage that could occur otherwise. A final concern raised under this question was that of what could be seen as a major flaw in the legislation. The current legislation does nothing about the problem species already in the state and gives "a go-ahead light" on everything that is not listed. There was an additional point made that if there was an attempt made to list everything that was OK, it would be an extremely difficult and lengthy process to try to determine everything that is sold in the plant industry, especially as there can be 100's of cultivars for any one species.

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(3) What elements should the ISAC use in its process to make sure that it is consistent? **and** (4) What elements should the ISAC use in its process to make sure that it is fair?

Elements:

1. Create process (see Question 1)
2. Involve stakeholders upfront and get their input on potential impacts based on their experience
3. Be proactive instead of reactive by including discussion of species that are of concern, not just species that have already been listed
4. Create an appeal process (current process is with the legislature)
5. Gain buy-in from stakeholders upfront by involving them in building consensus on the process and then rely on the subcommittees to make the decision
6. Allow process to be time sensitive: to be fair it has to be timely (example, a protocol that can be adapted for an emergency/rapid response situation)

Discussion:

The first point made was that figuring out the answer to the first discussion question would go a long way with helping to answer question three, that is, if you create a process, you inherently have consistency. While there was consensus from the group on the need to involve stakeholder upfront, there was concern about notifying them about public meetings and the best way to gather their valuable input. There was a suggestion made to be proactive instead of reactive by discussing and assessing species that are of concern so that they may be put on the list before they arrive in the state and begin causing damage. An additional suggestion to create fairness in the process was to develop a more direct appeal process, as it currently appears the only way to have a species removed is through a legislative action which may not be the best way to handle an appeal. Another suggestion was made to involve stakeholders in building consensus from them on the process for listing and de-listing and let the process take care of the rest so that stakeholders do not have to be significantly involved every time a species is up for discussion. It was then pointed out that stakeholders will have to remember that the end recommendation will likely always be qualitative as there isn't enough scientific information available to create a quantitative answer. There was a final point that when developing and carrying out the process, timeframe should be kept in perspective as many invasive species issues can be time sensitive.

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(5) What elements should the ISAC use in its process to make sure that it protects Michigan's environment and economy?

Elements:

1. Focus on economically important species that may have environmental impacts
2. Consider environment and economy together
3. Develop appropriate tools for differing situations.
4. Give industry/others direction (an action plan) for what to do about what is here
5. Recommend to legislature to provide funding for eradication and management of what is here (through management plans and enforcement)
6. Set up a performance measure, a method of evaluation, so the process can be adapted
7. Make sure every industry/stakeholder group to be involved in the effort to prevent and control invasive species
8. Michigan should support/insist that the national comprehensive and preventative legislation be passed (legislation has languished in legislature in recent years)

Discussion:

The first suggestion for making sure the process protects Michigan's environment and economy was to focus on economically important species that are going to have environmental impacts first, before assessing species that will only have environmental impacts. The point was that if the species is not economically important to trade or industry, but is or could be potentially damaging to the environment, it could be listed fairly easily with little or no discussion. Thus, the ISAC should look at species that are of concern as a result of past experience and then focus first on the ones that are of economic importance, not just the cost to industry, but the cost of control and treatment as well. It was thought that this tactic may provide for more buy-in from stakeholders. The importance of developing different tools for different situations was also stressed. For example, there are two main categories of invasive species of concern; species that are already established and species that can be listed/de-listed for preventative measures (introduction and spread).

Another suggestion was that the ISAC needs to provide stakeholders with an action plan to deal with established species because some are being prosecuted for unwittingly possessing or transporting species. That is, the regulation prohibits transport/movement of the listed species, but doesn't provide any mechanism for eradicating listed species that are established (the regulation punishes inadvertent transfer without providing a means to prevent it). Concern was voiced that other tools need to be used, such as education and suppression, instead of just the list. It was then pointed out that the list is only a starting point and there are efforts to expand other programs, however, there is a funding limitation. Another point was that of responsibility and that the government efforts could only go so far, and that individuals would have to be responsible for some amount of knowledge and preventative action. The example given was that the government is not responsible for providing life jackets; however, individuals are required to have them.

Other suggestions included developing a mechanism for review (a performance measure) so the process can be evaluated and adapted; involving stakeholders in the effort so the government is not carrying the entire burden; and having the State of Michigan push the issue on a regional and national level. The point was made that the state will not have as great an effect with out other states making similar efforts. It was pointed out that this is also a fairness issue as further regulations may put the state at a competitive disadvantage if other states are not taking the same measures. For example, if the state has ballast water regulations, ships can easily dock at ports across the lake without those regulations.

Some final summarizing thoughts were shared as well. One was that invasive species is a generational issue that will not be solved in one, two or even five years. It will take a long time, however, hope was given in that attitudes do seem to be changing and educational efforts are working, albeit slowly. It was thought that people don't want to be doing bad things, but it is a matter of getting information out there in a way that people can understand it and work on the issue. A final point was that invasive species is now one of the most important issues in the region and it is quickly becoming globally important. The questions

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had focused on Michigan's economy and Michigan's environment, however, it is an issue bigger than that and it needs to be addressed on a regional/national level. Michigan has the ability and an opportunity to lead the way to get other states on board and put pressure nationally to pass comprehensive invasive species legislation.

Break-Out Session: Group II

Facilitator: Ron Kinnunen, Michigan Sea Grant
Reporter: Stephen MacDonald
Recorder: Tom Crane, Great Lakes Commission

(1) What elements should the Invasive Species Advisory Council (ISAC) use in its process to make sure that its process is scientifically sound?

Consensus Elements:

- Scientific literature review of existing research and studies
- Use of existing risk assessments
- Develop (or agree upon) a scientific method for quantification of impacts
- Use or create “expert panels” and include a mechanism for receiving public input
- Stakeholder involvement
- Need a definition of invasiveness
- A clean list of species should be developed and agreed upon
- Process needs to be timely (e.g., executed within an agreed to timeframe)
- Process should be logical and include recommendations that the public can follow
- Agreed upon criteria with which to evaluate species
- Develop a consistent evaluation protocol for taxonomic groups

Discussion:

Discussion early on centered on the charge to the group. There was much debate over whether the group should be developing general guidelines or principles for the IASC to consider or whether it should address the specific elements of a scientific process. In the end, there was general consensus that the focus should be on general principles. Another area of lively discussion centered on whether this process should be driven by law or by rule making. A few people suggested that having requirements codified in law is helpful and adds authoritative weight to the process, but most seemed to think that a rule making-driven process is more nimble and flexible and that this is more important.

One participant laid out a series of requirements for a more detailed set of questions which include:

- Does the species of concern alter or degrade the trophic status of the water body?
- Does it alter water quality?
- Does it alter habitat?
- Does it aggressively compete with native species?
- What is the known history of the species in a similar environment?
- Does the species impact beneficial uses of the resource?
- Does the species propagate beyond a reasonable eradication point?
- What are the reproductive methods of the specie?
- How is the species transported or dispersed?

Finally, the group seemed to think that much could be learned from the recently completed “Plant Invasiveness Assessment System” prepared for the Michigan Invasive Plant Council.

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(2) What elements should the ISAC use in its process to make sure that it 'risk based' and species that are listed are not listed or de-listed arbitrarily?

Consensus Elements:

- Develop a clean list first
- Use 'expert panels' identified in question 1 to ensure an objective 'risk-based' approach
- The IASC should consider adding the State Dept. of Health and DOT as members of its team
- Use existing information from other countries and other states to inform the risk-based process
- Utilize 'lessons learned' from other states when developing the process

Discussion:

Everyone agreed that it is important to use a risk-based approach. Much discussion centered on the development of communication networks between other states and countries to allow the IASC to take advantage of what may already have been learned elsewhere. Caution should be exercised when attempting to extrapolate species-specific information from one part of the country to the Great Lakes. It was suggested that species range and behavior issues will vary widely between states much less between large geographic regions.

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(3) What elements should the ISAC use in its process to make sure that it is consistent?

Consensus Elements:

- The process should be reliable
- The process should be accurate (e.g., dependent on scientific knowledge)
- The process should be thorough (e.g., rely on literature searches and published research)
- The process should be designed to take into account the biology of the organism
- The process should use the 'panel of experts' approach identified in Question 1
- The process should be peer-reviewed for accuracy and impartiality

Discussion:

Most of the discussion centered on the need for sound science and the need to develop a process that takes advantage of the scientific information available.

(4) What elements should the IASC use in its process to make sure that it is fair?

Consensus Elements:

- There must be stakeholder involvement
- Stakeholders must be involved throughout the process including process development and process review

Discussion:

As with other groups, comments were made regarding the similarity of questions 3 and 4 and the difficulty of separating the two issues. Stakeholder involvement throughout the process was stressed.

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(5) What elements should the ISAC use in its process to ensure that it protects Michigan's environment and economy?

Consensus Elements:

- Acknowledgement that decisions will have both an environmental and economic impact
- Even decisions to “do nothing” have an impact
- Rapid Response Planning should be developed and employed (the Hydrilla case study was given as an example)
- Education, especially of the public, is very important
- Education should be an important part of the process, focusing on several elements such as communications, information sharing and outreach
- Funding of programs is important
- Prevention should be stressed - and tied in with educational programs (e.g., education on illegal/banned species lists)
- The directors of the three participating agencies should have the authority to ban a species until it can be thoroughly evaluated

Discussion:

Education and funding dominated the discussion for this question. Multiple approaches to education were emphasized, and the role of Sea Grant was highlighted. Funding was another area of discussion. Most in the group agreed that little will be accomplished without adequate funding. Innovative approaches such as taxing fishing licenses, boat registrations and bait sales were raised. A specific program the “Missouri Design for Conservation Program” was mentioned as a success story whereby the sales tax was raised by a small amount with the proceeds going to conservation programs. A ballot measure was mentioned in order to gain voter approval for such a program. Finally, the use of stakeholder surveys was mentioned as a vehicle for ground-truthing the program. A recent DEQ sponsored survey was mentioned that highlighted broad support of the public for conservation and environmental protection programs.

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Break-Out Session: Group III

Facilitator: Mark Breederland, Michigan Sea Grant
Reporter: Bob Schutzzi, Michigan State University, Michigan Invasive Plant Council
Recorder: Kathe Glassner-Shwayder, Great Lakes Commission
Participants: Ted Batterson Doug Pullman Bob Heyd
Bob Schutzzi Larry Lienuzewski Ken Merekel
Susan Campbell Leo S. Long Gary Towns
John Gannon Ron Oldfield Barrie Hellquist
Mary Ellen Cromwell

(1) What elements should the Invasive Species Advisory Council (ISAC) use in its process to make sure that its process is scientifically sound?

- Definition of AIS is pivotal, needs to reflect how serious the level environmental and economic harm is based on documentation; Consideration also needed in defining AIS in terms of native versus non-native and invasive versus non-invasive. Need to determine level of invasiveness (e.g., genetic consideration)
- The driving force in determining invasive species should be if the species causes harm. Need research-based criteria to determine level of invasiveness, for example:
 - High reproductive capacity
 - Capacity to be dispersed and out-compete native populations
 - Loss/reduction in biodiversity
 - Intact versus disturbed system
 - Quality of population in terms of ecosystem/habitat complexity or community quality (measured by coefficient of conservatism)
- Use Executive Order to define aquatic invasive species
- Process should apply sound science in developing risk assessment
- Findings used in process should be peer review (e.g., risk assessment data)
- Process needs to be applicable to all taxonomic groups
- Transparency (openness) of process is critical
- Annual report should be conducted to review data and process
- Need for mediation if agreement cannot be reached on sound science
- Look outside of Michigan for information and not be introspective: In the process of developing risk assessment, need to look where a protocol system has been established (e.g., TNC: Nature Serve, Michigan Invasive PC, Massachusetts, Indiana, California)

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(2) What elements should the ISAC use in its process to make sure that it is 'risk-based' and species are not listed or de-listed arbitrarily?

- Funding source for the conduct of risk assessment needs to be determined:
 - Suggestion that fees should be assessed for those using resources: fishers, anglers, recreational boaters
- AIS listing process and associated risk assessment needs to be supported by educational efforts (e.g., Smokey the Bear)
 - Need to be in preventive mode
 - Awareness of listed species critical to success
- Risk assessment needs to include:
 - Cultivars: Need risk analysis for cultivated species
 - Do not overlook small organisms such as viruses carried on fish
 - Consider all pathways beyond ballast water such as live food fish industry
- Engage private industry and other stakeholders such as the nursery industry....lots to lose such as Norway Maple
- How do we agree on what is good science in terms of risk assessment in determining high risk species?
 - Mediation needed when not in agreement
 - Example: Norway Maple (cultivar): Need to evaluate benefits to urban areas in terms of canopy and mediate if benefits are more valuable than invasive impacts
- Mechanisms needed to report and monitor efforts on invasive plants to address that there is no established program of geographic reporting of invasive species in problem areas
- Need for taxonomic expert data base to report for confirmation of sightings
- Rapid Response must be mobilized once AIS confirmed
- We need to be anticipatory and not reactionary
- Legislation requires risk based approach of assessment, which is anticipatory
- Given that this legislation was passed by the DNR committee without involvement of staff....challenge to figure out how to implement the listing process and those species listed!!!
- Need to define process for species that are commonly accepted as harmful? Do we need to document the impacts of these species?
- Cultivars: Special consideration needed to be given in providing evidence to support exemption from the listing process.
 - Evidence (e.g., burden of proof) should fall upon the applicant to demonstrate that species will not become invasive when placed on the market for widespread use
 - Position of industry: Species is innocent until proven otherwise. Industry needs to provide assistance in this process

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(3) **and** (4) What elements should the ISAC use in its process to make sure that it is consistent and fair?

- Is it fair to ban the entire family? Example: The entire family of snakeheads is banned since it is difficult to identify the invasives from non harmful species...
- Risk based assessment: How to assess if species allowable to import. Industry responsible for documenting that species in non-harmful.
 - Cultivar issue: clause for exemption of cultivars that don't have same biological characteristics and are not invasive
- Should Michigan consider using a clean list versus a prohibited list and restricted list? It was decided that since a clean list in the state of Michigan would be very long, so dirty list was recommended for Michigan
- To maintain consistency, the following considerations were recommended for the listing process:
 - Speak the same language using scientific namesspecies names are changing based on genetic findings;
 - Peer review with scientists chosen by DNR, DEQ and MDA
 - Stakeholder input critical
 - Legislators need to be educated on process
- Annual report submitted to legislature (Jan 2006) with recommendations of adding new species to prohibited list (gobies and ruffe).
- Recommended by industry (aquaculture) that there is a peer review panel that is involved in recommendations of new listings. Following that vetting process, the public should be allowed to review recommended listings.
- Legislative amendments needed to list or de-list species. No amendments have been added in terms of new listing of species. Process rushed.

NOTE: Question (5) "What elements should the ISAC use in its process to ensure that it protects Michigan's environment and economy?" was not addressed in Group III due to lack of time.