

**Great Lakes Panel on Aquatic Nuisance Species  
Information and Education Committee  
*AIS Information and Education Priorities for the Great Lakes***

**Draft: April 12, 2005**

**Background:**

One of the most significant threats to biodiversity in the Great Lakes-St. Lawrence region is the introduction of nonindigenous aquatic invasive species (AIS) into the ecosystem. Upon introduction, AIS can establish reproducing populations, thus posing risks to the economic and ecological health of the region and negative impacts to society. The introduction of more than 169 aquatic invasive species have been documented in the Great Lakes ecosystem, including known harmful species such as zebra mussel, sea lamprey, purple loosestrife, Eurasian water milfoil, round goby, ruffe, water fleas (*Bythotrephes* and *Cercopagis*), quagga mussel and rusty crayfish. Pathways for introduction include maritime commerce (ballast water discharge and hull fouling), aquaculture (private and public operations, recreational fisheries enhancement), organisms in trade (live food fish, aquaculture, horticulture, bait), recreational activities (boating and fishing), and biological control. While some of the introductions associated with these activities have been accidental, others have been intentional<sup>1</sup>.

**Statement of Purpose**

There is an ongoing need to prevent new AIS introductions and control the spread of established AIS populations in the Great Lakes-St. Lawrence region. Stakeholders must have an understanding and acceptance of the necessary actions to protect the biological integrity and beneficial uses of the resource. These stakeholders include the general public, commercial and recreational water users, governmental agencies, research scientists, resource managers and policy makers, among others. To empower stakeholders and encourage stewardship, credible and sound information needs to be compiled for effective dissemination and application.

The Information and Education (I/E) Committee of the Great Lakes Panel on Aquatic Nuisance Species offers this document as a resource to guide funding entities and to assist stakeholders in the development of projects that address AIS information and education priority needs. Priorities are presented in topical areas of prevention, collaboration/partnerships, information management, marketing, education and evaluation. Sources of information for this priorities document include the Great Lakes Panel's *Information and Education Strategy for Aquatic Nuisance Prevention and Control*, the National Invasive Species Council Management Plan, as well as I/E committee recommendations, among others. It is expected that the document, as presented, will evolve as new information is available. Although work is underway for some of the priorities as listed; it is understood that further progress is needed under these priorities.

**Prevention of AIS Introduction and Spread**

It is commonly accepted that prevention of new AIS introductions is more cost effective and environmentally beneficial than control and management of established AIS populations. Preventing introductions depends on actions taken by well informed stakeholders to address pathways of AIS introduction and spread.

**Recommended Priorities**

- Establish a communication network between scientists, resource managers and policy makers, to facilitate effective information exchange in AIS-related areas such as research,

---

<sup>1</sup> Great Lakes Panel on Aquatic Nuisance Species Research Committee: Aquatic Invasive Species Research Priorities for the Great Lakes Draft December 2004

prevention and control technology, resource management needs, detection/sightings of AIS and policy and legislative developments.

- Develop educational tools (fact sheets, websites, locally-based forums) to disseminate information concerning priority pathways of AIS introduction and spread. For example, educate commercial and recreational user groups, identified as high risk vectors, on effective measures that can be implemented to prevent AIS introduction and spread. Outreach efforts should include incentive based information in an attempt to encourage the widespread practice of these measures on a long-term basis.
- Distribute state or province-specific and regional listings of prohibited and regulated AIS, targeting those groups with the potential to unintentionally introduce and/or spread the listed species into the Great Lakes and inland state or provincial waters.
- Provide natural resource personnel (affiliated with federal, state, provincial, local and Sea Grant agencies) with informational materials needed to inform and engage the community on AIS prevention and control.
- Provide commercial resource users (e.g. aquaculture, horticulture, aquarium, bait, chemical applicators) with information about programs and training concerning interrupting pathways of introduction and spread (e.g. Hazard Analysis and Critical Control Point HACCP training).
- Provide natural resource managers, researchers and field personnel with information about programs and training concerning interrupting pathways of introduction and spread (e.g. Hazard Analysis and Critical Control Point HACCP training).
- Disseminate fact sheets, identification cards and other educational materials to inform and mobilize established citizen groups (e.g. lake associations, volunteer water quality monitoring groups, conservation and other water use groups) to advance early detection, monitoring and rapid response.
- Develop outreach programs that target users in high risk areas of potential aquatic invasions.
- Develop informational materials on the economic and ecological risks regarding AIS invasions, including benefit-cost assessment to raise awareness among policy makers on the value of preventing new introductions.
- Publicize state/provincial legislation and regulations on AIS prevention and control through a variety of outreach activities and materials, targeting relevant user groups and resource managers.

### **Collaboration/Partnerships**

As the threat of new aquatic invasions continues in the Great Lakes region, local, state, provincial and regional entities should collaborate in the development and implementation of I/E programs on AIS prevention and control. Strengthening regional communication, long-term partnerships and institutional capacity will increase program effectiveness and avoid duplication of efforts.

### **Recommended Priorities**

- Utilize the Great Lakes Panel as a forum to ensure regional coordination of outreach programs on AIS prevention and control.
- Promote collaboration and communication between the regional ANS Panels on a national level through forums such as: annual meetings, a shared e-mail list-serve, and linkages to each Panel's website.
- Evaluate regional coordination of I/E programming to improve development and dissemination of materials on a regional basis.
- Align educational initiatives, such as the Great Lakes Panel documents: *Information and Education Strategy for Aquatic Nuisance Prevention and Control* and the *AIS*

*Information and Education Priorities for the Great Lakes* with established state/provincial AIS management plans, to ensure program coordination and efficient use of funds.

- Maintain and circulate contact information among the Great Lakes AIS network involved with AIS prevention and control initiatives.
- Establish active partnerships between resource management agencies and the commercial sector (e.g. organisms in trade businesses, commercial pesticide applicators and lake management companies) to raise awareness and advance regional policies, state/provincial management plans, and information dissemination.
- Build all-inclusive communication networks between researchers, Sea Grant and extension agents, resource managers and policy makers to implement early detection, monitoring, and rapid response activities.
- Create an efficient communication mechanism (e.g., MOU) identifying leadership that is authorized to facilitate a collaborative rapid response effort to new invasions.

### **Information Management**

As I/E programs continue to produce information addressing AIS issues, there is an increasing need to manage this information to ensure compatibility and accessibility, and to minimize redundancy.

#### **Recommended Priorities**

- Develop and implement, as feasible, information management tools, such as the Great Lakes-St. Lawrence Research Inventory (searchable database developed by the Council of Great Lakes Researchers serving under the International Joint Commission) to maximize effective use of existing information on AIS prevention and control.
- Provide a variety of forums to disseminate information on AIS issues, progress, problems and their associated funding needs to keep Great Lakes organizations, abreast of the current news and events.
- Develop an information network that informs the Great Lakes community about AIS issues and organizational responsibilities. Highlight the Great Lakes Panel membership and committee priority documents on information and education, research coordination, and policy and legislation.
- Establish linkages between existing web sites of organizations with AIS responsibilities or interests, to offer comprehensive information on AIS prevention and control efforts including case studies.
- Identify and utilize programs that serve in a regional clearinghouse capacity to advance information management in the following areas: 1) comprehensive inventory of I/E materials on AIS prevention and control in the Great Lakes region; 2) a reference service to respond to general inquires and requests for materials; 3) agency contact information, 4) internet services that provide extensive linkages to relevant web sites within and beyond the Great Lakes region and; 5) updated GIS maps/data describing current species-specific distribution trends in North America.
- Encourage scientist, researchers, public, and private entities, to report all AIS sightings to established regional or national AIS clearinghouses, as agreed upon on a regional basis.
- Ensure wider distribution of AIS information through cost-effective mechanisms (existing forms of media: press releases, news articles, internet).
- Ensure accessibility of information on invasive species from other countries, including the translation of foreign research.

### **Marketing: Raising the Profile of AIS Issues as an Environmental Priority**

Significant progress has been achieved in the past decade to raise the profile of AIS issues as an environmental priority, however these efforts must continue. Marketing is critical to securing the long-term political will and dedicated public resources needed to address Great Lakes aquatic invasions. Marketing strategies, integrated as part of I/E programming, are needed to promote the development and implementation of solutions to AIS problems.

#### **Recommended Priorities**

- Utilize consistent and understandable language/messages in efforts to market solutions to AIS problems on a regional basis.
- Implement the national AIS public awareness campaign of the national ANS Task Force for the Great Lakes region.
- Develop a public relations (PR) program (i.e. awareness weeks, public meetings, video, and brochures) to capture the attention of the public and policy makers to generate support for AIS prevention and control. Of particular importance is the development of comprehensive PR initiatives addressing high risk invasive species such as the Asian carp, hydrilla, round goby, ruffe, zebra mussel, and water fleas (*Bythotrephes* and *Cercopagis*).
- Develop a PR strategy targeting policy makers on the economic, ecological, health, and social impacts caused by Great Lakes aquatic invasions. A strong case should be made for the establishment of legislative mandates and funding authorizations to implement AIS prevention and control programs.
- Design marketing strategies that identify and utilize information on economic, environmental, human health and societal impacts to effectively influence the public's values and perceptions concerning AIS issues. As part of these strategies, AIS prevention and control messages should target groups associated with high-risk vectors.
- Motivate public and political action by profiling prevention and control success stories such as rapid response, containment, and eradication efforts and incorporate these messages into a PR campaign.

### **Education**

The educational process including public outreach, technical training and formal education should be acknowledged and fully utilized to influence and modify human behavior to achieve AIS prevention and control. It is important that educational programs focus on the biology of aquatic invasive species, ecological and economic impacts, pathways of introduction, prevention and control strategies, and the importance of protecting the Great Lakes as a regional resource. These programs should convey the need to maintain beneficial recreational and commercial uses of the Great Lakes while addressing the need for AIS prevention and control. Educational initiatives should also emphasize the need to reduce the risk of AIS invasions in efforts to protect the ecological and economic health of the region and advance Great Lakes restoration. It is critical that educational programs are targeted to specific audiences, including recreational and commercial user groups, resource managers, environmental groups, policy makers, among others. Of particular importance is the youth of the Great Lakes region in efforts that encourage future generations to recognize the environmental threat posed by aquatic invasive species.

#### **Recommended Priorities**

- Build upon existing outreach programs at a local, state, provincial and regional level to ensure that all pathways of AIS introduction and spread are addressed, targeting appropriate user groups.
- Incorporate as part of K-12 curriculum and youth group programs (e.g., boy scouts, girl scouts, 4-H, etc.), the biology of aquatic invasive species, ecological and economic

impacts, prevention and control strategies, and the importance of protecting the Great Lakes as a regional resource.

- Conduct workshops on a local, state, provincial and regional level, targeting educators on current AIS issues to raise awareness, increase partnerships, and share resources to address AIS and associated impacts. Curriculum development on AIS topics should be coordinated with existing public school curriculum to meet state or provincial standards.
- Develop a web-based clearinghouse for AIS public outreach, training and formal education opportunities in the Great Lakes Region.
- Implement training programs to address specific aspects of AIS prevention and control, such as watercraft inspection, use of native species for horticulture, Hazardous Analysis and Critical Control Point (HACCP) training, and the Clean Marinas Program.

### **Evaluation**

Information/education programs promoting AIS prevention and control have been operating on a state/provincial/regional level for over a decade. These programs, however, are being conducted in the absence of systematic evaluation to measure the extent to which associated goals and objectives are being met (i.e. the extent to which modified human behavior actually mitigates impacts resulting from AIS invasions). Program evaluation is needed to assess effectiveness in achieving AIS prevention and control to ensure efficient allocation of limited resources to support effective I/E programming.

#### **Recommended Priorities**

- Assess I/E projects and programs on AIS prevention and control, targeting recreational and commercial user groups to identify successful elements, as well as gaps and unmet needs.
- To facilitate evaluation, incorporate measurable objectives into I/E projects and programs.
- Establish guidelines for publicly funded I/E programs that require the integration of evaluation components to assess programmatic effectiveness.
- Conduct a survey of recreational and commercial user groups to determine the types of I/E activities and materials that are considered most effective in promoting practices that advance AIS prevention and control.
- As part of the evaluation process, assess how this document, *Information and Education Priorities for the Great Lakes* is being utilized and its effectiveness in advancing AIS I/E priorities.