

# **TRIP REPORT**

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## **12<sup>th</sup> International Conference on Aquatic Invasive Species**

Windsor, Ontario, June 8<sup>th</sup> – 14<sup>th</sup>, 2003

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The Ontario Ministry of Natural Resources was the host sponsor of the 12th International Conference on Aquatic Invasive Species, held June 9 to 12, 2003 in Windsor, Ontario. This annual four-day conference is widely considered the most comprehensive international forum for the review of accumulated scientific knowledge of the impacts of aquatic invasive species, presentation of the most recent field research, technologies for control and mitigation, discussion of policy to prevent new introductions, and approaches to effective public education and outreach initiatives. Even so, the main focus of the conference was Zebra Mussels and other aquatic invasive species (AIS) in the Great Lakes area.

There was a broad range of participants from government, industry, non-profit organizations, and universities. The majority of the participants were from Canada and the United States, with some international participation from: England, France, Brazil, India, China, New Zealand, the Netherlands and Iran.

Session topics included: the 100<sup>th</sup> Meridian initiative, ballast water as a vector for AIS, control options in industrial and non-industrial settings, and economic impacts of AIS. The presentations covered a wide range of topics including those listed above. Many of the presentations stressed the introduction of exotic aquatic species as an ongoing problem that is causing significant damage to freshwater and coastal ecosystems, and to the economies that depend on them. Common themes included the importance of keeping stakeholders informed and involved, the need to educate the public on the severity of AIS, and the importance of focusing on prevention, not just control and regulation. A discussion forum that took place on the 9<sup>th</sup> of June echoed many of these themes and pointed out that we are not well organized as a society to deal with invasive species. It was also emphasized that invasive species are not a popular issue. Therefore, economics must be used to get peoples' attention and make the public realize that invasive species will affect and are currently affecting their livelihoods.

Various speakers discussed the economic impacts of invasive species. It was concluded by Hugh MacIlsac, of the University of Windsor, that we really don't know how much invasive species are costing us and that the current estimates we have are much lower than the actual value. This is because the costs included in the estimates are only those that can be certified and these estimates do not contain contingent valuations. Renata Claudi, of RNT Consulting Inc., stated that, in regards to the economic impacts of invasive species, Canada has three options:

We can use the pro-rate available from the US as an estimate for the economic impacts that invasive species are having in Canada.

We can create an inventory for Canada and document the direct and indirect effects of the 100 species with the most impact.

Use resources on prevention and control (instead of quantifying impacts).

My primary objective for this conference was to act as a translator and interpreter for Marcia Divina Oliveira, of Embrapa Brazil, and to help her present her research entitled: Invasion of Golden Mussel, *Limnoperna fortunei*, in Pantanal Wetland, Brazil. The similarities between the

Golden Mussel and the Zebra Mussel made this conference the perfect venue to explore control options for industry and methods of controlling the spread of zebra mussels that may be transferable to the golden mussel in Brazil. Consequently, researching options of control options for industry and the control of spread in general became my secondary objective.

Options currently being used by industry to control Zebra Mussel settlement were discussed by Renata Claudi of RNT Consulting and include:

- Mechanical cleaning, when chemicals are not an option.

- De-water/desiccate mussels (how long depends on the temperature and humidity).

- Thermal wash-32°C for 48h or 40°C for 1h

- Freezing (locks in Canals)-3°C for 10h or -10°C for 2h

- Oxygen deprivation-2 weeks

- Antifouling coatings are available for steel and concrete, however, not easy to apply.

- Electrolytic protection- mixed success on steel/concrete

- Oxidizing Chemical Treatments such as chlorine and bromine (common with a cost of about 29,500/year for chlorine)

- Mechanical sand filtration system

Many presentations, in the control options for industry session, were on novel control methods that are currently being tested or that will be tested in the near future including: electron beam radiation, the use of ozone and the effects of a pulse-power electric field on zebra mussel settlement. At the moment, there is little data available on these options. However, it is clear that many more control options will be available in the near future.

Options for limiting the spread of zebra mussels were also discussed. One method, currently being researched by S. Braithwaite, of the Darrin Fresh Water Institute and Rensselaer Polytechnic Institute, USA, is the use of a benthic barrier mat for localized infestations. The benthic barrier mat may be a useful option for stopping the spread of zebra mussels, as it has a high rate of mortality (due to dissolved oxygen content under mat) and causes only localized environmental damage. The use of education, advertising, and inspection stations for boats, as a means of informing/involving the public and thereby stopping the spread of zebra mussels were discussed during in the 100<sup>th</sup> meridian session and reflect current methods of controlling the spread of aquatic invasive species.

Several contacts were made during the conference that may be of value in the future. I was able to speak a great deal with Renata Claudi of RNT consulting. Renata is a good general contact, as she has an extensive background working with AIS and knows a lot about control options for industries such as hydroelectric companies. Renata introduced me to Dan Butts, Al Holmes, Kelly Peterson and Darlene Suddard of the ASI group, a consulting agency that is recognized as the industry leader in the research and design of programs for zebra mussel control. Dan, Al, Kelly and Darlene work with various industries in the great lakes region implementing and operating zebra mussel treatment systems. I received a folder of information on public awareness projects sponsored by the Ontario Federation of Anglers and Hunters from Francine

MacDonald. The folder contains a variety of brochures, leaflets and stickers that the OFAH uses to educate the public and increase awareness of invasive species. Additionally, I spoke with Lavon Jeffers of the US Army Corps of Engineers about the technical tour we are planning and expressed an interest in touring their facility. Lavon provided me with the name of the Public Relations Director of the Engineer Research and Development Center, but added that the Center rarely does tours due to new security measures implemented after 9/11. I also discussed the technical tour with Elizabeth Muckle-Jeffs, who invited us to contact her regarding workshops on topics covered by the conference, which could be incorporated into the tour.

Marcia was most interested in sessions that described the tolerance and physiology of zebra mussels. Marcia was also interested in the 100<sup>th</sup> Meridian Initiative session, as many of the presentations included methods of controlling the spread of the zebra mussel. She found this research very useful, and spoke to a number of experts about the research she is doing in Brazil. Everyone was eager to aid her by providing advice and suggesting pertinent literature. The similarities between the zebra mussel and the golden mussel may allow for the transfer of a wealth of research and knowledge in the area of aquatic invasive bivalves on a variety of topics. This conference provided Marcia with a foundation of literature and knowledge that she can build on while studying the invasion of the golden mussel in the Pantanal. The international atmosphere of the conference and the range of topics on AIS also allowed Marcia to gain an understanding on a variety of other topics that are not directly related to the research she is performing. This knowledge will allow Marcia to be a useful resource on AIS in Brazil and allow her to share her experience with others who study or are interested in AIS.