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Editorial

History of the Zebra Mussel/ICAIS Conference series

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The International Conference on Aquatic Invasive Species (ICAIS) (http://www.icais.org) has evolved over the last two decades into a broad comprehensive international forum for the dissemination, outreach and review of information on the biology and impacts of all aquatic invasive species in freshwater, marine and estuarine environments.

The first North American conference on aquatic invasive species was prompted by the invasion of zebra mussels [*Dreissena polymorpha* (Pallas, 1771)] to the Great Lakes. The profound impact this species had on both industry and lake ecology resulted in a high demand for information and networking. Initial conferences were held in both Canada and the United States in 1989. The first large Canadian conference on zebra mussels was held in Toronto in 1990. This event was sponsored by Ontario Hydro, the largest Canadian Electrical Utility at that time. It was filled to capacity, with over 500 people in attendance. In December 1990 another conference called the 'First International Zebra Mussel Research Conference' was held in Ohio, USA (First International Zebra Mussel Research Conference 1991).

Interestingly, this conference was followed by two Second International Zebra Mussel Conferences! The first held in November 1991, was entitled 'Second International Zebra Mussel Research Conference' and was held in Rochester, New York. The other 'Second International Zebra Mussel Conference' was held in February 1992 in Toronto, Ontario. These were attended by several European experts on zebra mussels and also by North American scientists presenting developing research. Unfortunately there is no record of published proceedings for either of these 'second' conferences. Subsequently it was decided to merge the Canadian and US efforts as one cohesive conference series alternating between Canada and the United States.

In 1993, the 3rd International Zebra Mussel Conference took place in Toronto, Ontario (no proceedings). After the 1994 4th conference (Madison, Wisconsin) (Fourth International Zebra Mussel Conference 1994) the title of the conference changed to embrace other invaders, and the Fifth International Zebra Mussel and Other Aquatic Nuisance Organisms Conference was held in Toronto, Ontario in 1995 (Fifth International Zebra Mussel and Other Aquatic Nuisance Organisms Conference 1995), with the 6th the following year in Dearborn, Michigan (D'Itri 1997). Thereafter the conference title changed to the International Zebra Mussel and Aquatic Nuisance Species Conference for the 7th (New Orleans, Louisiana 1997) (Claudi 1997), 8th (Sacramento, California 1998) (Eighth International Zebra Mussel and Aquatic Nuisance Species Conference 1998), and 9th (Duluth, Minnesota 1999) (Ninth International Zebra Mussel and Aquatic Nuisance Species Conference 1999). In 2000, the title changed, to the International Aquatic Nuisance Species Conference for the 10th conference in Toronto, Ontario (Tenth International Aquatic Nuisance Species Conference 2000) while the current title of the International Conference on Aquatic Invasive Species was adopted for the 11th conference in Alexandria, Virginia in 2002 (Eleventh International Conference on Aquatic Invasive Species 2002).

In general, this conference series was held on an annual basis until 2004, and since then is held approximately every 16-18 months. For the first decade, the venue alternated between the United States and Canada until the 13th conference,

which was held in Ennis, Ireland in Fall 2004 (no proceedings). The following conference, the 14th, was held in Key Biscayne, Florida in the Spring of 2006 (no proceedings). There was a return to Europe in the Fall of 2007, when the 15th conference was held in Nijmegen, The Netherlands (Lucy and Graczyk 2008; Van der Velde et al. 2009). The 16th conference was held in Montreal, Quebec in Spring 2009, with a selection of papers presented in this issue of *Aquatic Invasions*. The 17th will take place in San Diego, California in August 2010.

Most of these conferences references are proceedings but both the 12th and 15th had selected papers published in special editions of *Biological Invasions* (Muckle-Jeffs 2006; Van der Velde et al. 2009). *Aquatic Invasions* became the official journal for publishing peer-reviewed conference papers for the last two conferences, i.e. the 15th (Lucy and Graczyk 2008) and 16th, and will also publish the 2010 proceedings.

The conference series has been organized by a committee of international representatives of stakeholder partner agencies, with Elizabeth Muckle-Jeffs as Conference Administrator since 1995. The conference now attracts delegates from over 32 countries with an average of 400 participants. Sessions typically cover commercial shipping, industrial biofouling control, zebra mussels and other dreissenids, aquatic invasive plants, education and outreach, policy and programs, risk assessment, invasion history, ecological and ecosystem impacts, invasive crustaceans and fishes. Each conference has a theme; this year's will address the spread of dreissenids to the Western United States.

This conference series is important because it provides an international platform for the presentation of aquatic invasive species research, control methods, outreach and policy. Moreover, it facilitates networking and has resulted in the development of many new international groups in different research areas and collaboration on research projects. Many postgraduate students have particularly benefitted from exposure to the conference series as a forum for developing their research, obtaining new information and developing important contacts. Over the course of time the format of presentations has changed from the use of 35 mm slides and overhead transparencies to PowerPoint™ presentations and DVDs with embedded video. But the overall context of an aquatic invasive species forum remains the same!

The value and relevance of this conference series has been demonstrated over the years by the number and caliber of partnering organizations from Canada, the United States and Europe. These include Canadian Aquatic Invasive Species Network, Canfornav Inc., Department of Fisheries and Oceans Canada, FEDNAV, Ontario Federation of Anglers and Hunters, Ontario Ministry of the Environment, Ontario Ministry of Natural Resources, Ontario Power Generation (formerly Ontario Hydro), Port of Montreal, The St. Lawrence Seaway Management Corporation, Transport Canada, Commission for Environmental Cooperation, Darrin Freshwater Institute, Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission, Great Lakes Fishery Commission, International Joint Commission, National Park Service, National Sea Grant College Program, NOAA, Pacific States Marine Fisheries Commission, South Florida Water Management District, United States Army Corps of Engineers, United States Coast Guard, United States Environmental Protection Agency, United States Fish and Wildlife Service, United States Geological Survey, United States Office of Naval Research, University of Florida, Walt Disney World Company, Department of the Environment, Heritage and Local Government, English Environment Agency, Environment and Heritage Service, Institute for Inland Water Management and Wastewater Treatment (RIZA), Institute of Technology, Sligo, Irish EPA, KEMA Nederland B.V., Marine Institute, Marine Organism Investigations, National Energy Plan, ProMinent Dosiertechnick GmbH, Radboud University Nijmegen, Scottish Natural Heritage, Syngenta Crop Protection AG, and The Heritage Council.

This editorial paper introduces thirteen papers, which are a representative sample of topics from the 2009 Montreal ICAIS conference. These include three papers on invasive tunicates, on the diverse topics of habitat (Carman and Grunden 2010), genetic studies (Callahan et al. 2010) and visual search methods (Kanary et al. 2010). Another paper forecasts the expansion of the invasive golden mussel *Limnoperna fortunei* (Dunker, 1857) in Brazilian and North American rivers based on its occurrence in South America (Oliveira et al. 2010). Sandodden and Johnsen (2010) present their research on eradication of introduced signal crayfish [*Pasifastacus leniusculus* (Dana, 1852)] using a pharmaceutical. There are three invasive fish papers;

one is on the present state of the eastern mudminnow [*Umbra pygmaea* (DeKay, 1842)] in Europe (Verreycken et al. 2010); the second is on evaluation of the impacts of the invasive catfish [*Hoplosternum littorale* (Hancock, 1828)] on aquatic macroinvertebrates (Duxbury et al. 2010) while the third looks at the non-native fishes of Belarus, including a risk classification (Mastitsky et al. 2010). The shipping session of the ICAIS conference is represented by two ballast water papers, one on redistribution of heterotrophic prokaryotes (Sun et al. 2010), and the second on microbial hitchhikers (Seiden et al. 2010). A combination of ecological and biomolecular research is presented in the paper on the use of different sized *Dreissena polymorpha* as sentinels of human pathogens in lake water (Lucy et al. 2010). Finally, there are two education and outreach papers which demonstrate how information on aquatic invasive species can be presented to the non-scientific community (Mosher Patterson et al. 2010a and Mosher Patterson 2010b).

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