

## this is my time.



28.05.2003

in top stories

## Water fleas - a new sign of summer?



Above: Bythotrephes

Many people turn their thoughts to fishing and swimming in Ontario lakes at this time of year, particularly the Great Lakes and Muskoka water system. But what happens to these lakes and our enjoyment of them when they are invaded by nonindigenous species (NIS) such as the invertebrate water fleas *Bythotrephes* and *Cercopagis*? How do the fleas affect the economy of the area? And what can be done to prevent a flood of these creatures?

That's what Professor Hugh MacIsaac (right) of the Great Lakes Institute for Environmental Research, University of Windsor, will be discussing at York as he delivers the 2003 Morris Katz Memorial Lecture in Environmental Research. His talk will focus on predicting biological invasions in the Great Lakes and inland lakes in Ontario. The lecture will be on Friday, May 30, at 2pm in the Senate Chamber, N940 Ross Building.

"Invasions by NIS are the second leading threat to global biodiversity and the leading threat to lakes," says MacIsaac in an abstract of his talk. One area of particular interest to MacIsaac and researchers in his lab is "how dispersal of invertebrate species can be effected by 'resting' eggs...which evolved to tolerate adverse



environmental conditions, but which now serve to allow human-mediated transfer of species to new lakes."

"Many NIS are native to the Black Sea region, invade major port areas in the North and Baltic Seas, and arrive to the Great Lakes in a wave of secondary invasions from these locations. These species alter food webs and impart economic damage," says MacIsaac.

"Ballast water discharge patterns indicate that Lake Superior should be the most vulnerable Great Lake to invasions, yet the most invaded 'hotspot' is the southern Lake Huron – western Lake Erie corridor."

MacIsaac says invasion of the Great Lakes often portends invasion of inland lakes. For example, the invertebrate water flea *Bythotrephes* has spread to about 55 inland lakes throughout the province, particularly in the Muskoka region.



Left: Cercopagis

"We developed a model to assess spread of this species via human dispersal mechanisms (e.g. contaminated fishing line) that transport it from invaded source to non-invaded destination lakes," says MacIsaac.

One of MacIsaac's concerns is that the network of "outflow connections" from invaded lakes to other invaded lakes, as well as to non-invaded lakes, has increased exponentially over the past decade.

There must be a comprehensive, collaborative effort to curtail the spread of NIS globally through identifying and eliminating invasion pathways, says MacIsaac. "Managerial efforts on the Great Lakes must focus on primary (e.g. shipping) and secondary (e.g. bait fish, aquaculture, live fish sales) dispersal vectors, while those on inland lakes will require concerted public education campaigns. Efforts to prevent invasion of lakes

that could function as 'hubs' for future invasions is an imperative," says MacIsaac.

The Morris Katz Lectureship was made possible by the establishment of an endowment fund created through contributions from his family, friends and colleagues, and private companies, universities and government. Major contributions in support of this year's lecture have been made by York's Centre for Atmospheric Chemistry and the Ontario Ministry of the Environment.



For more University news, photos and videos, visit the YFile homepage.