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Still on the hook

Full lake ecosystems look at water's poisons

By VIVIAN SONG, Sun Media

LAKE OF THE WOODS, Ont. -- Fish biologist Sandy Chalanchuk manhandles the pike flopping clumsily on the measuring table.

She has anesthetized the floundering fish with a little "white powder" so she can take its vitals -- age, size, gender -- and tag the specimen before releasing it back into the lake.

Chalanchuk is one of about 50 scientists who work out of the Experimental Lakes Area, a unique, government-run facility that allows biologists to conduct experiments on whole-lake ecosystems. It's a little known project among Canadians, with the exception of Kenora, where staff worked hard to reassure the residents they weren't kamikaze scientists rearing purple-headed sea creatures.

This year marks the facility's 40th anniversary of scientists working quietly in northern Ontario, four hours east of Winnipeg, manipulating lakes to mimic the impacts of human activity. They have government permission to add phosphates, mercury and acid into the 58 lakes in the area -- as long as it doesn't pose a threat to human health -- in an effort to solve some of the country's greatest aquatic ailments, like algae blooms, fish kills and the effects of acid rain.

"What we do here that no one else does is work with whole-lake ecosystems. That's the only way to address the issues," says site director Mike Paterson. "At the end of the day, we need an intact ecosystem to understand problems."

Some lakes are left alone and monitored as "reference lakes," or baseline lakes, resulting in the most complete data sets on small lake ecosystems in the world.

One of the most famous experiments to bring the ELA fame was the eutrophication project, or excessive algal growth. Scientists at the ELA helped prove that phosphorous -- found in detergents -- were the culprits for algal growth that leads to fish kills. That helped lead the way to phosphate bans all over the world.

The latest project to garner international headlines involved studying the impacts of methylmercury accumulation in fish -- a growing threat to human health. Dubbed Metaalicus, the multi-million dollar project was a joint venture with scientists from the U.S. and was the largest single experiment conducted at the ELA.

"The most frequent way people are exposed to mercury is through human consumption, and so the real worry is how much mercury is there in fish?"

And the higher up the food chain, the more concentrated it becomes, he said.

"And of course, humans are at the top."

The ELA had illustrious beginnings. In the 1960s, Canada's fisheries board fanned out into the world and brought back the best scientists to Winnipeg to set up a Freshwater Institute. The search led headhunters to Norway, Poland, Japan and the U.S.

But not long after, priorities shifted, jobs were slashed and freshwater fell to the bottom of the paper pile.

"Everything (in Canada) was going fine and then management at Environment Canada decided water's not so important and let the provinces do the job," said Frank Quinn, the former chief of water policy at Environment Canada in a phone interview. "Then things fell apart."

Experts have since been calling for a national water strategy that would protect Canada's resource and streamline patchwork standards.

But when our resources are handcuffed by international trade obligations like NAFTA and the WTO, how can we protect our water?

Remove inflammatory words which invoke trade agreements like "export," and instead of geopolitical boundaries, take a whole ecosystem approach, say some of Canada's foremost water experts while pitching a "Model Act" in Ottawa in May. The proposal, a joint project between University of Toronto's Program on Water Issues, and the Canadian Water Issues Council, would automatically prohibit bulk water removals because it's based on environmental protection. Liberal MP and water critic Francis Scarpaleggia tabled a private member's bill using the same principle in April.

"The objective of the act is not to protect water exports, but to protect the ecological integrity of Canada's major river basins," says Ralph Pentland, acting chairman of the water council.

The proposed act would ban removal from the five major water basins: The Arctic Ocean, Hudson Bay, Atlantic Ocean, Pacific Ocean and the Gulf of Mexico.

The federal role should be that of a facilitator, a repository of basic data for provinces like groundwater pumping permits, which today is piecemeal or nonexistent within provinces, says Tony Maas, senior water policy advisor with WWF-Canada.

According to Rob de Loe, a professor and Canada Research Chair in water management at the University of Guelph, what's needed is consistency.

For example, Canada has a national plumbing code that makes sure flushing a toilet in Alberta will be the same as in Ontario. But the same standards can't be said of Canadian drinking water.

"The standards for drinking water is so different. Why do we need radically different standards?" asks de Loe.

Currently, Environment Canada has national guidelines for drinking water, but they're not enforceable.

More often than not, policies don't consider the needs of species other than humans, experts say.

"There are many energy substitutes," Pentland says. "But there's no substitute for life-sustaining water."