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Local News

Proof is in the poisoned fish

Tests highlight need for pollution controls

By: Bartley Kives

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RAWSON LAKE, ONT. -- Airborne mercury from industrial sources quickly winds up in the bodies of freshwater fish, say scientists who spent eight years adding tiny amounts of the toxic metal to a pristine lake in northwestern Ontario.

Researchers at the Experimental Lakes Area have come up with a compelling argument in favour of reducing mercury emissions from coal-fired power plants, smelters and incinerators, the presumed source of North America's most widespread fish-contamination problem.

From 2000 to 2007, ELA scientists added small amounts of traceable mercury to Lake 658, a granite-lined lake about 50 kilometres east of Kenora.

They also used a crop-dusting plane and fire hoses to spray different forms of mercury on rocky bluffs above the lake, as well as into a marsh that flows into it.

Within the first two months of the experiment, the mercury added straight to the lake showed up in several fish species.

Within six years, those mercury concentrations rose nearly 50 per cent -- but the form of the metal sprayed on the nearby cliffs and marsh barely showed up in the lake or its fish at all.

The whole-lake manipulation -- the first of its kind on Earth -- strongly suggests atmospheric mercury pollution leads directly to fish contamination, while upstream sources of the contaminant could take years to flow through a watershed.

"The results show us, if you increase mercury in the atmosphere, you increase it in fish. A lot of people would guess that, but you still have to prove it," said Mike Paterson, the scientist in charge of the Experimental Lakes Area, a federal facility run mostly by researchers at Winnipeg's Freshwater Institute.

The decade-long mercury experiment -- dubbed METAALICUS by the scientists in charge -- suggests there could be immediate benefits from reducing mercury emissions by installing scrubbers inside industrial smokestacks.

Officials in both Canada and the U.S. are thinking about making mercury scrubbers mandatory, but the cost of the upgrades could be in the billions.

"Not surprisingly, there's a lot of resistance from industry," said Paterson, noting METAALICUS was funded by U.S. coal power as well as Canadian and U.S. environmental agencies.

The experiment, whose results were published academically in late 2007, required the work of approximately 50 scientists and research assistants, at a cost of more than \$3 million.

The inorganic mercury isotopes alone cost in excess of \$1 million, despite the fact the actual amount of the metal -- which lake bacteria convert into a toxic, methylated form -- is so small as to be untraceable to anyone but scientists.

"The amount we're talking about is equivalent to a teaspoon every year," said Paterson. "If you broke a thermometer on the lake, it would probably screw up the entire experiment."

That said, Mother Nature did her best to mess with the scientific work. A black bear tried to bite through a METAALICUS water sampler, while busy beavers blocked up a device used to measure water flows, said Mike Tate, a U.S. Geological Survey investigator.

No more mercury will be added to Lake 658, one of five dozen lakes ELA researchers are allowed to modify in the name of scientific research.

Instead, the lake will be left alone in 2008 and future years, so scientists can observe how the fish and other organisms in the lake recover from the mercury contamination.

bartley.kives@freepress.mb.ca

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