



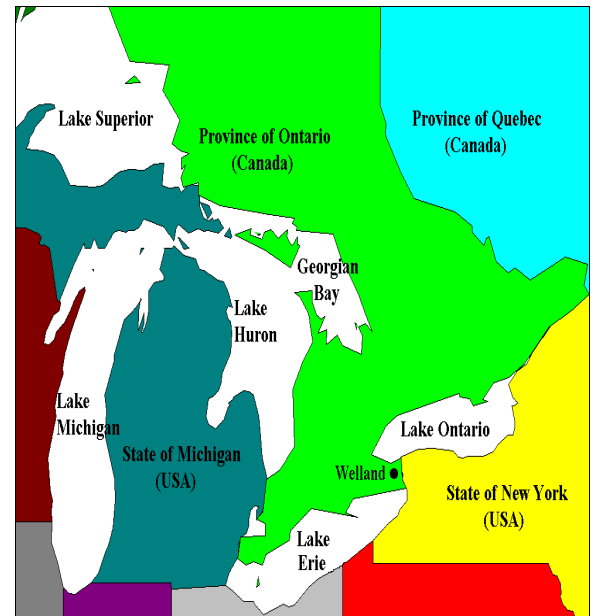
Welland River Reef Cleanup Project (1995)

The Canadian Government, in accordance with the 1987 Canada-USA Water Quality Agreement, launched a \$125-million Great Lakes Action Plan in 1989. As a result, \$55 million was allocated to Environment Canada's Great Lakes 2000 Cleanup Fund which created the Remediation Technologies Program in 1990. This program is designed to demonstrate and assist in the commercialization of innovative technologies for remediation of contaminated sediment.

In the fall of 1995, the Remediation Technologies Program of Environment Canada partnered with Atlas Specialty Steels, the Ontario Ministry of Environment and Energy, the City of Welland and the Regional Municipality of Niagara to perform a contaminated sediment removal and treatment demonstration. This large-scale demonstration was the result of the 1991 Welland River contaminated sediment removal demonstration. For this project, an amphibious dredge, the Amphibex, was selected as the preferred and most cost efficient innovative dredging technology.



Amphibex used during the Welland Reef Cleanup Project



Location of Welland relative to the Great Lakes

Other components of the projects included : 1) material screening/ treatment performed using a Derrick screening system; 2) sheetpiling of a portion of the remediation area in order to maintain integrity of the floodplain; and, 3) backfilling a portion of the removal area with granular in order to recreate a suitable fish and wildlife habitat and to ensure stability of adjacent floodplain and parkland. Excess water treatment was performed at Atlas Specilaty Steels' North Filtration Plant prior to discharge back to the Welland River.

Dredging demonstration results indicated :

- The final volume of contaminated sediment removed during the project was approximately 10,000 m³
- The removal rate was affected by three main factors :
 - 1) the quantity of man-made debris
 - 2) the quality and thickness of the sediment
 - 3) the pumping distance and total head.
- Production rate varied from 13 to 120 m³/hr
- Measured per cent solids in the slurry averaged 18.8 %, with instantaneous peaks greater than 80 %
- Turbidity guidelines were exceeded at some occasions due to :

- 1) increased river currents lifting silt curtain
- 2) external inputs
- 3) more emphasis put on production.

This demonstration project was the first Canadian site remediation project of significance. It is believed that the experience gained from this project on procedures, the use of innovative technologies and new management practices will be used to clean up other Canadian Areas of Concern in the Great Lakes.

This demonstration project confirms that partnerships between government and industry can result in innovative solutions to environmental problems.

For more information :

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View of treatment plant and sheetpiling and backfilling operations