

Navigation Dredging in the Champlain Canal



Photo courtesy Don Sutherland



Canal System Overview

- The Canal System is comprised of four waterways:
 - The Erie Canal – 338 miles long
 - The Champlain Canal – 60 miles long
 - The Oswego Canal – 24 miles long
 - The Cayuga & Seneca Canal – 12 miles long
- The System includes approximately 1,800 structures including 57 locks, 20 moveable bridges, dams, and walls.

What is the Navigation Channel?

- An area of the waterway that is maintained to allow the safe passage of vessels.
- Champlain Canal has design depth of 12 feet within the navigation channel boundaries.
- Channel width in the river section is 200 feet.
- Champlain Canal is “canalized river” from Fort Edward to Waterford.

History of the Champlain Canal

The background image is a faded photograph of a canal. In the foreground, a small tugboat with a white cabin is moving towards the viewer. In the middle ground, a large dredger with a yellow CAT logo is visible. The canal is surrounded by trees and buildings on the banks.

- Modern Champlain Canal was fully opened to traffic in 1916.
- By 1920s, the need for routine maintenance dredging became apparent.
- NYS built or commissioned a number of dredges and support vessels to conduct regular maintenance.

History of the Champlain Canal

The background image shows a wide view of the Champlain Canal. In the center, a large concrete dam with a yellow CAT excavator on top is visible. A white boat with a cabin is moving through the water in the foreground, leaving a wake. The far bank is lined with trees and some buildings under a bright sky.

- 1973: Removal of the Fort Edward Dam
- 1974-79: Multiple rounds of emergency dredging necessary to restore navigation
- 1980-Present: No maintenance dredging (with the exception of Hoosic River)

History of the Champlain Canal



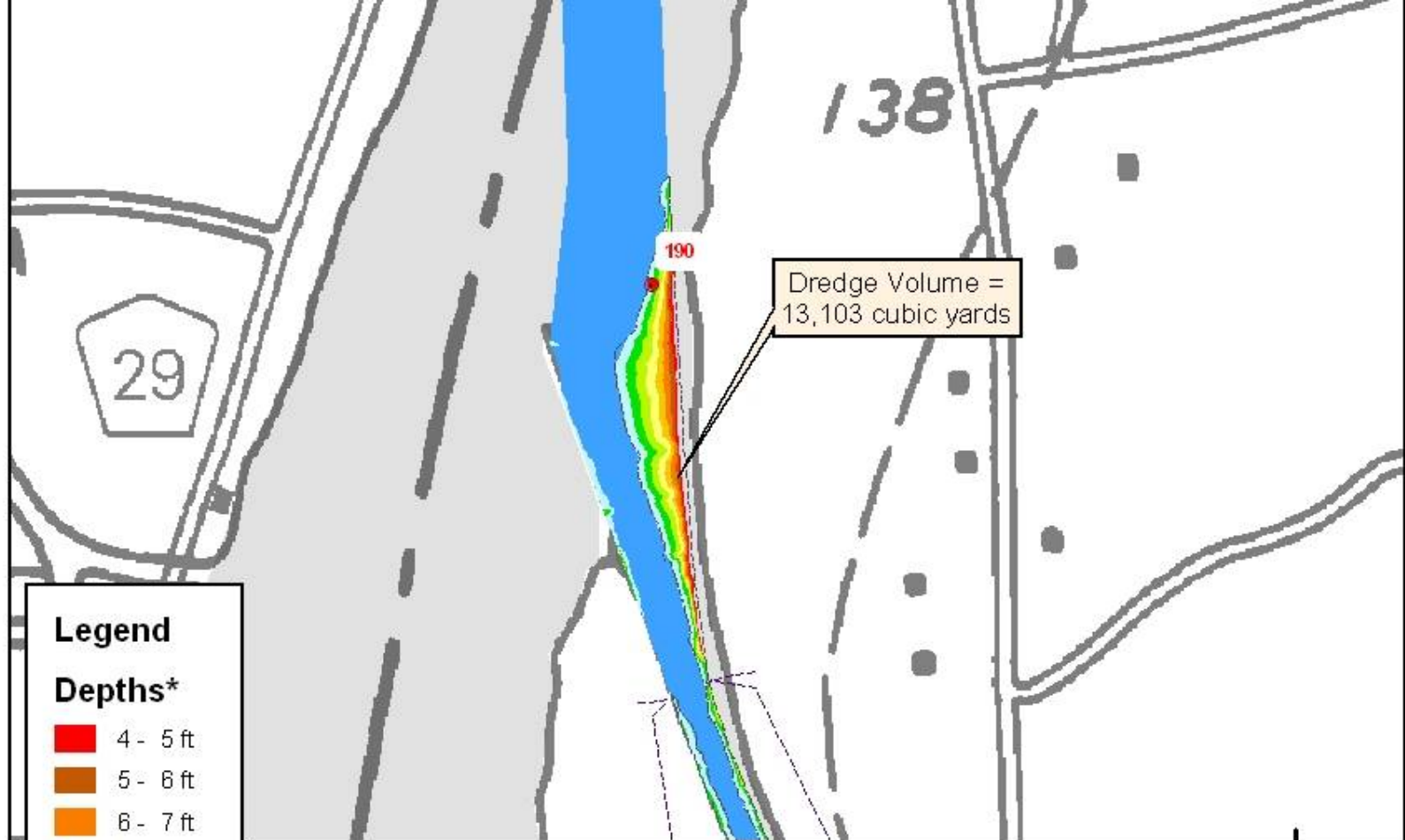
History of the Champlain Canal

The background image shows a wide river or canal with a boat in the distance. The water is calm, and the banks are lined with trees and some buildings. The overall scene is somewhat hazy, suggesting a misty or overcast day.

- Since the early 1980s, New York State DOT and Canal Corporation have not been able to maintain the navigation channel in the Hudson River/Champlain Canal due to the presence of sediments contaminated with PCBs.
- Navigability of the Hudson River/Champlain Canal has gradually declined over the years. Large vessels now routinely have difficulty navigating some sections of the canalized river.





Navigational Impacts of PCB Contamination

- Available depths and channel widths are reduced (see NYSCC maps)
- Reduced depths and widths particularly impact the size of tug boats and barges that can safely navigate the river
- Commercial traffic must use smaller, lighter loads which has a direct impact on the cost-effectiveness of water transport
- Even some large recreational vessels are impacted

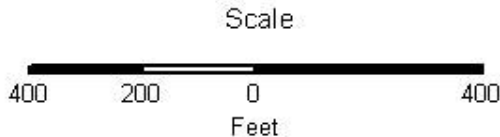


Legend

Depths*

	4 - 5 ft
	5 - 6 ft
	6 - 7 ft
	7 - 8 ft
	8 - 9 ft
	9 - 10 ft
	10 - 11 ft
	11 - 12 ft
	over 12 ft

Grid: Meters, UTM, NAD83, Zone 18N
 Location: Fort Miller 7.5 min. Quadrangle



Field: May 12-15, 2009



2009 Dredge Chart
 New York State Canal Corporation
 Albany Division, Section 1
 Lock C6 to Lock C7, Sheet 5

*Depths are from the published pool elevation of 119.0 ft BCD.
 Total Dredge Volume this sheet = 13,103 cubic yards.

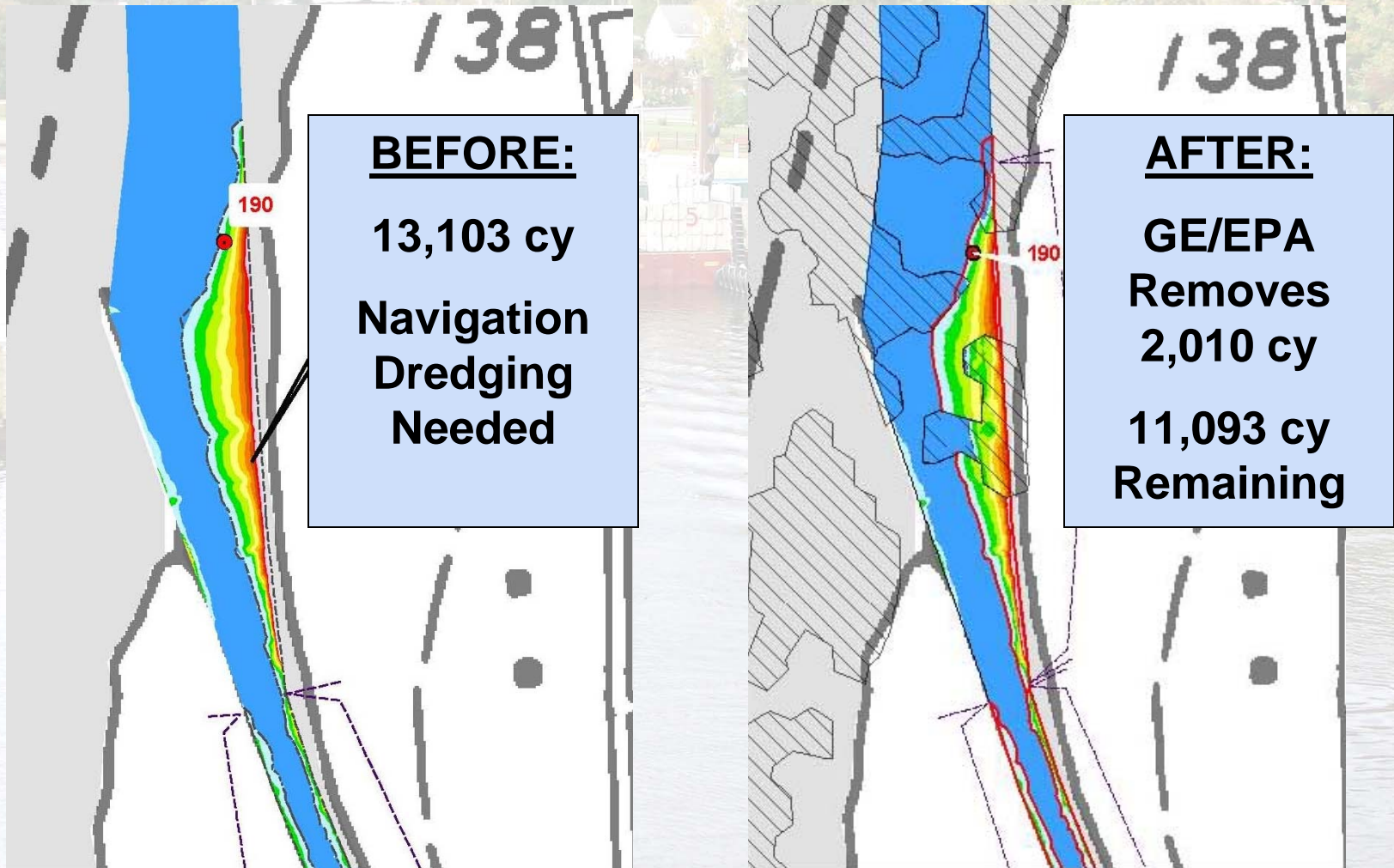
Navigational Dredging vs. Remedial Dredging

- EPA Remedy is based on “hot spot” removal
- “3/10/Select” hot spot standard
- All “hot spots” will be dredged to achieve goal of 1 ppm Tri+ PCB residuals
- Majority of the river below Lock C6 will remain unremediated.

Navigational Dredging vs. Remedial Dredging

- Out of 2.4 million cubic yards in GE's dredging program, only 92,000 cubic yards will improve navigation.
- The remedial dredging program will remove less than 15% of the total navigation dredging needs in the river.
- More than 628,000 cy of contaminated sediment will remain in the navigation channel

Navigational Dredging vs. Remedial Dredging



Requirements for Navigational Dredging

- Navigational Dredging is governed by state and federal requirements:
 - Army Corps Section 404 Permit
 - DEC Section 401 Water Quality Certification
 - DEC Part 360 Solid Waste Regulations
 - EPA TSCA Requirements
 - DEC Part 370 Hazardous Waste Regulations

Navigational Dredging vs. Remedial Dredging

- EPA Remedial Residual Standard
= 1ppm Tri+ PCBs
(Approximately equal to 2-3 ppm Total PCBs)
- DEC Standard for PCBs is 1 ppm Total PCBs
 - Greater than this and special handling and disposal requirements apply (case-by-case)

Requirements for Navigational Dredging

- Complications from PCBs:
 - Cannot use existing NYSCC equipment
 - Cannot use traditional Upland Disposal Sites
 - New dewatering facility would require Solid Waste Facility Permit
 - High PCB concentrations may require Hazardous Waste Facility Permit
 - Siting requirements

Solutions

The background image shows a canal with a large dredging barge in the center. The barge is equipped with a yellow CAT excavator and other machinery. A tugboat is positioned in front of the barge, pushing it. The canal is surrounded by trees and buildings in the distance. The water is calm, and the overall scene is a typical view of a canal during a dredging operation.

- Current remedial project is exempt from obtaining permits (substantive requirements must be met).
- It is administratively and economically more feasible to conduct navigational dredging during Phase 2.
- 32 Champlain Canal municipalities have passed resolutions advocating that navigational dredging be conducted during Phase 2.

Contact Information

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