



U. S. Coast Guard
Great Lakes Oil Spill Center of Expertise

Great Lakes Oil in Ice Response Guide

Project Number	FY24_08_FOSC Guide
Key Words/Tags	Job Aid, Oil Spill Response in Ice, Technical Report, Operations Guide
Award Date	01May2024
Research Completion Date	30Apr2025
Servicing Agency	NOAA
Research Principal Investigator	Dr. Lisa DiPinto and Dr. William Whitmore
Collaborators	Research Planning Inc (RPI)
Requesting Agency	USCG GLCOE
Research Award Value	\$130,000
Description	<p>With no existing national guidance for oil spill response in Great Lakes ice conditions, these Great Lakes Oil in Ice Response and Technical Guides fill a critical gap by providing foundational knowledge and tactical considerations for oil spill response in ice environments. With a multitude of tools, tactics, and technology options available, it is critical for responders and oversight agencies to understand when and why to select one tool over the other. The documents are designed to support contractor oversight, tactical decision-making, safety, and logistical planning and are applicable to Federal, Tribal, state, local, and industry responders.</p> <p>Two guides were developed:</p> <p>Operational Guide - Condensed, field-focused guidance on tactics, safety, and logistics.</p> <p>Technical Report - A deeper dive into scientific and historical context that can be used for training and education.</p> <p>While developed with the Great Lakes in mind, much of the content has broad applicability to cold weather oil spill response elsewhere.</p>



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Summary of Findings	<p>While many spill response strategies are consistent across cold climates, the freshwater environment of the Great Lakes introduces unique and complex challenges. Responders and planners must account for the differences between fresh and saltwater ice formations, as well as the region's highly variable ice thickness and dynamic weather.</p> <p>Further research into ice response tactics, specific to the Great Lakes, such as evaluating trade-offs of alternative measures like in-situ burns, is needed. Additional testing and evaluation of oil detection and tracking technologies in Great Lakes ice conditions would benefit the response community. A deeper understanding of these approaches would provide more effective tools and clearer guidance on their best application. Ultimately, responders and planners must be prepared to anticipate and adapt to ice conditions that can change not only from year to year but also from day to day.</p>
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Associated Attachments

The GLCOE project archive contains original project deliverables. For the most current version, please refer to the Servicing Agency's website.

Title	Great Lakes Oil in Ice Response Guide
Intended Audience	Federal, Tribal, state, local, and industry responders and planners
Publication Date	September 2025
Authors	Jacqueline Michel, David Dickins, Chris Hall, Adam Kayser, Mike Popa and Jim Elliott. CWO Joseph Torcivia as technical editor.
Citation	National Oceanic and Atmospheric Administration. 2025. <i>Great Lakes Oil in Ice Response Guide, Version 1.0</i> . Office of Response and Restoration, Emergency Response Division, Seattle, WA.
Description	Practical, field-focused guidance on tactics, safety, and logistics with charts and visuals.

Title	Great Lakes Oil in Ice Response Guide – Technical Report
Intended Audience	Federal, Tribal, state, local, and industry responders and planners
Publication Date	September 2025
Authors	Jacqueline Michel, David Dickins, Chris Hall, Adam Kayser, Mike Popa and Jim Elliott. CWO Joseph Torcivia as technical editor.
Citation	National Oceanic and Atmospheric Administration. 2025. <i>Great Lakes Oil in Ice Response Guide: Technical Report and Operational Guide, Version 1.0</i> . Office of Response and Restoration, Emergency Response Division, Seattle, WA.
Description	Scientific and historical context for training and education, covering ice, oil in ice and general strategies and tactics.