

AOC Name	Primary Contaminants	Geographic Area	Stressors	Beneficial Use Impairments	Funding Programs and Partners	Clean-Up Actions Completed	Key Activity Needed	Barriers	Next Steps
St Marys River Michigan/Ontario	<ul style="list-style-type: none"> ▪ PAHs ▪ Arsenic ▪ Cyanide ▪ Phosphorus ▪ Benzene ▪ Toluene ▪ Oil and grease ▪ Phenols ▪ Ammonia ▪ Pathogens/Bacteria 	From the head of the river at Whitefish Bay (Point Iroquois - Gros Cap), downstream through the St. Joseph Channel to Humburg Point on the Ontario side, and to the straits of Detour on the Michigan side.	<ul style="list-style-type: none"> ▪ Combined sewer overflows ▪ Loss of wetlands ▪ Point and nonpoint source pollution ▪ Wastewater discharges ▪ Urban/industrial development ▪ Navigational structures 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Fish and wildlife degradation ▪ Fish tumors or other deformities ▪ Degradation of benthos ▪ Dredging activities restrictions ▪ Eutrophication or undesirable algae ▪ Beach closings ▪ Aesthetics degradation ▪ Loss of fish and wildlife habitat 	<ul style="list-style-type: none"> ▪ Superfund ▪ Clean Water Act ▪ Navigational dredging ▪ Canada Ontario infrastructure program ▪ Great Lakes Sustainability Fund ▪ Canada-Ontario Agreement funds (provincial) 	<ul style="list-style-type: none"> ▪ Superfund site restored ▪ Combined sewer separation for Sault Ste. Marie, MI. ▪ Steel and paper mills in Sault Ste. Marie, ON improved quality of effluent ▪ Environmental Management Agreement among Algoma Steel, Canada and Ontario ▪ Infrastructure upgrades by Sault Ste. Marie, Ontario 	<ul style="list-style-type: none"> ▪ Complete contaminated sediment assessment ▪ Upgrade East End STP to secondary treatment (underway) 	<ul style="list-style-type: none"> ▪ Superfund monitoring at cleaned site. ▪ Development and implementation of sediment management program 	
Deer Lake Michigan	<ul style="list-style-type: none"> • Mercury • Historic Nutrient Loadings 	A 906-acre impoundment in central Marquette County, Michigan that includes the Carp River watershed, comprised of Carp Creek, Deer Lake, and the Carp River downstream 20 miles to Lake Superior at Marquette.	<ul style="list-style-type: none"> ▪ Contaminated sediments from waste materials associated with historic iron, gold and silver mining practices 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Dredging activities restrictions 	<ul style="list-style-type: none"> ▪ Contaminated sediments 	<ul style="list-style-type: none"> ▪ Sewer separation and primary treatment plants secondary wastewater treatment ▪ Deer Lake was drawn down and refilled to allow methylation of mercury from exposed sediments 	<ul style="list-style-type: none"> ▪ Dredging ▪ Identify and restore beneficial uses of the Carp River watershed 	<ul style="list-style-type: none"> ▪ Lack of dedicated resources ▪ PRP and state negotiations have not been completed 	<ul style="list-style-type: none"> ▪ Sediment remediation ▪ Complete analysis of beneficial use impairments
Torch Lake Michigan	<ul style="list-style-type: none"> • Copper • Mercury • Arsenic • Lead • Chromium • Heavy metals 	The lower portion of the Keweenaw Peninsula, (368 sq. miles), encompassing the Keweenaw Waterway, (North Entry Harbor of Refuge, Portage Lake, and Torch Lake), its watershed, portions of 2 other adjacent watersheds (Trout R. and the Eagle R. Complex), and several miles of its western Lake Superior shoreline	<ul style="list-style-type: none"> ▪ Contaminated sediments from mine tailings associated with historic copper mining and milling practices ▪ Upland mine tailings deposits from historic copper mining activities which have been deposited into area lakes and streams 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Degradation of benthos ▪ Dredging activities restrictions ▪ Drinking water consump. restrictions, or taste or odor ▪ Aesthetics degradation ▪ Loss of fish and wildlife habitat 	<ul style="list-style-type: none"> ▪ Superfund ▪ MDEQ Superfund, AOC and District 	<ul style="list-style-type: none"> ▪ 97% of the Superfund - recommended remedial actions have completed – coverage of exposed mine tailings and stamp sands ▪ Completion of ▪ Final Suprfund remedial actions expected 2005 	<ul style="list-style-type: none"> ▪ Completion of Superfund-recommended remedy 	<ul style="list-style-type: none"> ▪ Requires \$15.2M dedicated to Superfund remedial activities from Federal and State funds 	<ul style="list-style-type: none"> ▪ Completion of Superfund site remediation ▪ Completion of Superfundsite delisting discussions and delisting ▪ Begin BUI/AOC delisting discussions and recommendations

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St. Louis River Minnesota/Wisconsin	<ul style="list-style-type: none"> ▪ PAHs ▪ Mercury ▪ Suspended sediment ▪ PCBs ▪ Other metals ▪ Oil and grease ▪ Pathogens ▪ Nutrients 	St. Louis Bay, the Nemadji River basin and the St. Louis River basin to Cloquet, Minnesota	<ul style="list-style-type: none"> ▪ Contaminated sediments ▪ Abandoned hazardous waste sites ▪ Poorly designed or leaky landfills ▪ Industrial discharges and chemical spills ▪ Infiltration and inflow ▪ Point and nonpoint sources ▪ Sewage overflows and leaking septic systems ▪ Municipal and industrial runoff ▪ Turbidity ▪ Sedimentation 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Fish and wildlife degradation ▪ Fish tumors or other deformities ▪ Degradation of benthos ▪ Dredging activities restrictions ▪ Excess loadings of nutrients and sediment to Lake Superior ▪ Beach closings ▪ Aesthetics degradation ▪ Loss of fish and wildlife habitat 	<ul style="list-style-type: none"> ▪ Superfund ▪ Navigational dredging ▪ GLNPO ▪ States 	<ul style="list-style-type: none"> ▪ Wastewater treatment ▪ Sediment contamination studies to identify hotspots ▪ Evaluation of cleanup options at two Superfund sites ▪ Prioritization of remaining hotspots per the Stage 2 Sediment Assessment Strategy ▪ Habitat Management Plan ▪ Key habitat area acquisition ▪ Newton Creek Cleanup 	<ul style="list-style-type: none"> ▪ Assessment of fish and wildlife health (body burden and health implications) ▪ Assessment of nonpoint sources of pollution to AOC ▪ AOC specific wetlands protection and restoration program ▪ Selective clean up of contaminated sediments ▪ Cost-benefit analyses of clean up and habitat restoration alternatives ▪ Control of vessel discharges (ballast and bilge water) ▪ Updating of RAP documents 	<ul style="list-style-type: none"> ▪ Lack of dedicated resources ▪ Lack of funding source to manage sediment contamination on an AOC-wide, bi-state basis ▪ Lack of financial support from the federal government ▪ Lack of cost estimates for protection, restoration, or clean up activities ▪ Lack of long term horizon - policies and funding ▪ Organizations and budgets focused on short term ▪ Difficulty in maintaining public long term support 	<ul style="list-style-type: none"> ▪ Contaminated site remediation ▪ Mercury reduction ▪ Habitat restoration and protection ▪ Stormwater and infiltration and inflow control ▪ Update AOC-wide contaminated sediment strategy
Thunder Bay Ontario	<ul style="list-style-type: none"> ▪ Pathogens ▪ Mercury ▪ PAHs 	About 28 km along the shoreline and up to 9 km offshore, including the watershed	<ul style="list-style-type: none"> ▪ Contaminated sediments ▪ Agricultural runoff ▪ Industrial and municipal effluent ▪ Industrial development 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Fish and wildlife degradation ▪ Degradation of benthos ▪ Dredging activities restrictions ▪ Beach closings ▪ Aesthetics degradation ▪ Phytoplankton and zooplankton pops. Degradation ▪ Loss of fish and wildlife 	<ul style="list-style-type: none"> ▪ Great Lakes Sustainability Fund ▪ Canada Ontario Infrastructure Programs ▪ Canada-Ontario Agreement funds (provincial) ▪ Abitibi Consolidated ▪ Northern Wood Preservers ▪ Canadian National 	<ul style="list-style-type: none"> ▪ Secondary treatment installed for a number of pulp and paper mills ▪ Clean up and rehabilitation of contaminated Northern Wood site ▪ Various habitat creation and enhancement projects ▪ Chippewa Beach 	<ul style="list-style-type: none"> ▪ Upgrade STP to secondary treatment (underway) ▪ Nonpoint pollution 	<ul style="list-style-type: none"> Complete sediment assessment at north end of harbour 	

Appendix A: Areas of Concern Summary Matrix

Lake Superior LaMP 2004

For more information, see <http://www.epa.gov/glnpo/aoc/index.html>

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Nipigon Bay Ontario	<ul style="list-style-type: none"> ▪ Solids ▪ Pathogens ▪ Biological Oxygen Demand (BOD) 	A large portion of Nipigon Bay and the Nipigon River downstream of Alexander Dam. Two communities are located in the vicinity of the Bay: Red Rock (population: 1,300) and Nipigon (population: 1,900).	<ul style="list-style-type: none"> ▪ Water level and flow fluctuations ▪ Wastewater discharges ▪ Nonpoint source pollution 	<ul style="list-style-type: none"> ▪ Fish and wildlife degradation ▪ Degradation of benthos ▪ Eutrophication or undesirable algae ▪ Aesthetics degradation ▪ Loss of fish and wildlife habitat 	<ul style="list-style-type: none"> ▪ Great Lakes Sustainability Fund ▪ Canada Ontario Infrastructure Programs ▪ Canada-Ontario Agreement funds (provincial) 	<ul style="list-style-type: none"> ▪ Created water management plan for Nipigon River to regulate hydroelectric facilities' water use to help restore brook trout ▪ Various habitat restoration projects ▪ Secondary treatment installed at Norampac 	<ul style="list-style-type: none"> ▪ Upgrade primary STPs in Redrock and Nipigon 	<ul style="list-style-type: none"> ▪ Lack of dedicated resources 	<ul style="list-style-type: none"> ▪ Work toward STP upgrades
Jackfish Bay Ontario	<ul style="list-style-type: none"> ▪ Solids (i.e. wood fiber) ▪ AOX ▪ dioxin 	The 14 km reach of Blackbird Creek between Kimberly-Clark Canada Inc. pulp mill and Jackfish Bay, including Lake A, Moberly Lake and Jackfish Bay itself.	<ul style="list-style-type: none"> ▪ Industrial discharge ▪ Spills ▪ Contaminated sediments 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Fish and wildlife degradation ▪ Fish tumors or other deformities ▪ Bird or animal deformities or reproductive problems ▪ Aesthetics degradation ▪ Loss of fish and wildlife habitat 	<ul style="list-style-type: none"> ▪ Great Lakes Sustainability Fund ▪ Canada-Ontario Agreement funds (provincial) ▪ National Sciences and Engineering Research Council of Canada (NSERC) 	<ul style="list-style-type: none"> ▪ Effluent quality from paper mill improved ▪ Chlorine dioxide bleaching plant upgraded resulting in lower AOX levels (not 100% of time) 	<ul style="list-style-type: none"> ▪ Eliminate mill discharge from ecosystem cycling ▪ Update sediment monitoring data 	<ul style="list-style-type: none"> ▪ Natural recovery takes time ▪ Available technology needs to be utilized at all times 	<ul style="list-style-type: none"> ▪ Continued natural recovery and monitoring ▪ establish cause of effluent impact on fish
Peninsula Harbour Ontario	<ul style="list-style-type: none"> ▪ Mercury 	Peninsula Harbour proper, and a portion of open Lake Superior immediately south of the peninsula.	<ul style="list-style-type: none"> ▪ Contaminated sediments 	<ul style="list-style-type: none"> ▪ Fish and wildlife consumption restrictions ▪ Fish and wildlife degradation ▪ Degradation of benthos ▪ Dredging activities restrictions ▪ Loss of fish and wildlife habitat 	<ul style="list-style-type: none"> ▪ Great Lakes Sustainability Fund ▪ Canada-Ontario Agreement funds (provincial) ▪ Town of Marathon ▪ Federal Economic Development Initiative for northern Ontario (FEDNOR) ▪ Great Lakes Renewal Foundation 	<ul style="list-style-type: none"> ▪ Pulp kraft mill installed secondary treatment for effluent, discharge moved out of harbour 	<ul style="list-style-type: none"> ▪ Complete contaminated sediment assessment 		<ul style="list-style-type: none"> ▪ Complete feasibility study