

Stage 2 Remedial Action Plan Implementation Annex for the U.S. Waters of the St. Marys River Area of Concern



Office of the Great Lakes
Great Lakes Management Unit
Michigan Department of Environmental Quality

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Acknowledgements

The efforts to restore the St. Marys River Area of Concern are the work of many dedicated and caring individuals over more than two decades. The summary information presented here only touches the surface of the good work carried out by those who live in the St. Marys River Area of Concern and those who staff the federal and state agencies involved. Of special note is the work of the members of the St. Marys River Binational Public Advisory Council, who have worked tirelessly to restore the place they call home.

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Purpose of this Document

A Michigan Department of Environmental Quality (MDEQ) Stage 2 Remedial Action Plan (RAP) for each Area of Concern (AOC) is the primary tool for documenting and communicating restoration progress. The AOC-specific Stage 2 RAPs are meant to be brief, user-friendly documents that identify actions needed to restore Beneficial Use Impairments (BUIs) in each AOC. The Stage 2 RAPs are prepared by the MDEQ in consultation with the respective AOC Public Advisory Council (PAC) and the United States Environmental Protection Agency (USEPA), Great Lakes National Program Office (GLNPO).

Identifying specific actions necessary to remove a BUI is one component of the MDEQ's process for tracking AOC restoration, removing BUIs, and ultimately delisting AOCs. These processes and relevant restoration criteria are described in more detail in the MDEQ's *Guidance for Delisting Michigan's Great Lakes Areas of Concern (Guidance)* (MDEQ, 2008). Comprehensive background information on the AOC is provided in previous RAP documents, which are listed in the reference section of this publication.

Disclaimer

The Great Lakes Water Quality Agreement (GLWQA) is a non-regulatory agreement between the U.S. and Canada, and criteria developed under its auspices are non-regulatory in nature. The actions identified in this document as needed to achieve BUI restoration criteria are not subject to enforcement or regulatory actions by virtue of being listed in this document.

The actions identified in this Stage 2 RAP do not constitute a list of pre-approved projects, nor is it a list of projects simply related to BUIs or generally to improve the environment. Actions identified in this document are directly related to removing a BUI and are needed to delist the AOC. However, in many AOCs, further information is needed to determine all actions required to remove a BUI. Thus, the AOC-specific BUI Tracking Matrix is not necessarily comprehensive and will be updated to reflect additional actions that are needed.

Introduction

In 1987, amendments to the GLWQA were adopted by the federal governments of the United States and Canada. Annex 2 of the amendments listed 14 BUIs which are caused by a detrimental change in the chemical, physical, or biological integrity of the Great Lakes system (International Joint Commission (IJC), 1987). The Annex directed the two countries to identify AOCs that did not meet the objectives of the GLWQA. The RAPs addressing the BUIs were to be prepared for all 43 AOCs identified. The BUIs provided a framework for describing effects of the contamination, and a means for focusing remedial actions.

The 1992 St. Marys River Stage 1 RAP, *Environmental Conditions and Problem Definitions*, was developed for the AOC by the Ontario Ministry of the Environment (OMOE) and the Michigan Department of Natural Resources (MDNR) (OMOE and MDNR, 1992). It identifies nine BUIs, provides a summary of the environmental conditions in the St. Marys River AOC in U.S. and Canadian waters, and identifies many of the sources of contaminants believed to be contributing to the BUIs within the AOC.

The 2002 St. Marys River Stage 2 RAP, *Remedial Strategies for Ecosystem Restoration*, was developed by Environment Canada (EC), the U.S. Environmental Protection Agency (USEPA), OMOE and MDNR (EC et al., 2002). It attempts to identify a suite of activities that would lead to the eventual restoration of the nine BUIs identified, and the delisting of the AOC; however, lacking established criteria for BUI restoration and removal on which to base proposed activities, it was considered a work in progress, and it was intended to be augmented with an Implementation Annex that would update needed BUI removal/AOC delisting activities and identify the roles, responsibilities, costs, and timelines for their implementation. This document also gave the status of the Bird and Animal Deformities or Reproductive Problems BUI as requiring further assessment; common tern data from Lime Island, Michigan, would later lead the MDEQ to revise the status of that BUI to impaired in U.S. waters and would use the state's restoration criteria to assess the status of this BUI. With this revision, the St. Marys River AOC became associated with 10 BUIs in U.S. waters. These are identified in Table 1, below, along with their assessment status.

In December 2008, the St. Marys River BPAC voted to adopt the state's restoration criteria set forth in the *Guidance* for all BUIs in U.S. waters of the AOC except the Degradation of Benthos BUI, for which local criteria were developed. The Loss of Fish and Wildlife Habitat BUI and Degradation of Fish and Wildlife Populations BUI are not covered by the *Guidance*, and local criteria were developed for these, as well.

Beneficial Use Impairment	Beneficial Use Remains Impaired	Assessment in Progress in 2012	BUI Removed
Restrictions on fish and wildlife consumption	x	x	
Fish tumors or other deformities	x		
Bird or animal deformities or reproductive problems		x	
Degradation of benthos	x		
Restrictions on dredging activities	x	x	
Eutrophication or undesirable algae	x		
Beach closings	x	x	
Degradation of aesthetics	x	x	
Degradation of fish and wildlife populations	x		
Loss of fish and wildlife habitat	x		

The St. Marys River AOC extends 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 (Figure 1).

1) Restrictions on Fish and Wildlife Consumption

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), the original cause of this BUI in the St. Marys River AOC was fish consumption advisories due to contamination by mercury in U.S. and Canadian waters. In U.S. waters of the AOC, fish consumption advisories are currently in place for various sizes of walleye, northern pike, and carp due to contamination from mercury and polychlorinated biphenyls (Michigan Department of Community Health [MDCH], 2011). In Canadian waters of the AOC, fish consumption advisories are currently in place for walleye, northern pike, and 9 other species (OMOE, 2011).

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. Currently, the fish consumption advisory in effect for U.S. waters of the St. Marys River AOC is more stringent than for Lake Huron (the AOC's associated Great Lake). This means that the AOC does not meet Tier 1 of the state's criteria for restoration of this beneficial use and will need to be assessed under either Tier 2 or Tier 3 (i.e., using either a comparison study of fish tissue contaminant levels or an analysis of trend data for fish consumption advisories, respectively).

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. In 2011, the MDCH received an USEPA grant for a project to assess the status of this BUI in U.S. waters of the AOC, among other AOCs with this BUI. The project will be carried out in partnership with the MDEQ and will result in the collection and contaminant analysis of fish samples from the AOC and from a suitable control site. Once the MDCH assessment has been completed, an AOC-specific technical committee may be convened to formal review the assessment results and provide a decision on whether or not to support a recommendation to formally remove this BUI.

2) Fish Tumors or Other Deformities

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), an investigation conducted in U.S. waters of the AOC in the late 1990s by the U.S. Fish and Wildlife Service (USFWS) indicated that the incidence of liver tumors in brown bullheads from Munuscong Bay was higher than would be expected compared with a control site. An explanation for the cause of those tumors could not be determined at that time. White suckers sampled in Canadian waters of the AOC exhibited liver tumor prevalence in excess of 9%; this was attributed to exposure to chemical contaminants such as polycyclic aromatic hydrocarbons (PAHs) in contaminated sediments.

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. According to the *Guidance*, this beneficial use will be considered restored when there have been no reports of fish tumors or deformities due to chemical contaminants which have been verified through observation and analysis by the MDNR or MDEQ for a period of five years. Or, in cases where tumors have been reported, this beneficial use will be considered restored when a comparison study of resident benthic fish, or of fish species historically associated with this BUI, in the AOC and a non-impacted control site

indicates that there is no statistically significant difference (with a 95% confidence interval) in the incidence of liver tumors or deformities.

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. A multi-year public outreach effort was launched in 2008 to solicit input from users of the resource who may observe water quality issues including fish tumors or other deformities. Called the St. Marys River Water Quality Network, the project was developed by the St. Marys River BPAC and Lake Superior State University. The effort is intended to continue for a period of five years to allow sufficient time to accumulate information which can then be used in an assessment of this BUI. In addition, the project to be undertaken by the MDCH to assess the Restrictions on Fish and Wildlife Consumption BUI will also evaluate the incidence of liver tumors or other deformities in fish collected from the St. Marys River AOC and an appropriate control site. Once the MDCH assessment has been completed, an AOC-specific technical committee may be convened to formal review the assessment results and provide a decision on whether or not to support a recommendation to formally remove this BUI.

3) *Bird or Animal Deformities or Other Reproductive Problems*

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), there was limited data on contaminant concentrations in birds or mammals of the St. Marys River AOC. Prior to 1992, concentrations of contaminants (e.g., PCBs) in herring gull eggs from Lake George, while elevated, were typical of other areas of the Great Lakes, including Lake Superior. However, the highest PCB concentration measured in common tern eggs from the lower river was in the range that could produce harmful effects in eggs. In 1998, Michigan State University (MSU) researchers found three cross-bill common tern chicks out of 120 birds sampled on Lime Island.

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. According to the *Guidance*, restoration of this beneficial use will be demonstrated using one of two approaches. The approach taken will depend on the availability of data. The first approach evaluates restoration based on field assessment of birds and/or other wildlife where MDEQ or other state-approved bird and wildlife data are available. The second approach will be applied where bird or other wildlife data are not available. This approach will use levels of contaminated fish tissue known to cause reproductive or developmental problems as an indicator of the likelihood deformities or reproductive problems may exist in the AOC.

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. The MDEQ began a statewide assessment of this BUI in 2011 using the second approach, and the St. Marys River AOC is being assessed as part of this effort. This assessment will cover the U.S. waters of the St. Marys River AOC. However, EC is conducting its own assessment of this BUI in Canadian waters of the AOC, and results obtained from that study will be used in conjunction with those obtained from the MDEQ's study to fully inform conclusions concerning the status of the BUI in U.S. waters of the AOC. Once the MDEQ assessment has been completed, an AOC-specific technical committee may be convened to formal review the assessment results and provide a decision on whether or not to support a recommendation to formally remove this BUI.

4) Degradation of Benthos

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), benthic community health in U.S. waters of the AOC appears to be relatively good; however, there were slight to moderate benthic impairments along the north side of Sugar Island in the Lake George Channel – likely due to organic enrichment from upstream sources, and at the Cannelton Industries site due to chromium and mercury from the historic tannery operation. In Canadian waters, benthic communities were severely to moderately impaired along the Sault Ste. Marie, Ontario shoreline, specifically downstream from Algoma Steel, Bellevue Marine Park, St. Marys Paper, and the East End Waste Water Treatment Plant (WWTP). These impairments were mainly due to sediments contaminated with metals, organic matter (e.g., pulp fiber), and PAHs.

Restoration Criteria

The St. Marys River BPAC chose to augment the state's criteria with local criteria for restoring this beneficial use in U.S. waters of the AOC. The state's criteria for restoring this beneficial use require that all remedial actions for known contaminated sediment sites with degraded benthos are completed (except for minor repairs required during operation and maintenance) and monitored according to the approved plan for the site. The local criteria additionally require that remedial actions for known contaminated sediment sites in Canadian waters of the AOC are also completed before this BUI can be removed from U.S. waters of the AOC.

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. Utilizing funding available through the Great Lakes Legacy Act program, all necessary remedial actions have been taken at all known degraded sites within U.S. waters of the AOC, including the Cannelton Industries site and the Consumers Energy Manufactured Gas Plant site. EC is currently working to develop a remediation plan for Canadian sites of known sediment contamination (e.g., Bellevue Marine Park and the Little Lake George Channel). A binational technical committee will be convened when the MDEQ and the BPAC determine that this BUI is ready for a formal review and assessment. The technical committee will review the results of all remedial actions completed and other supporting documentation to provide a decision on whether or not to support a recommendation to formally remove this BUI.

5) Restrictions on Dredging Activities

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), uncontaminated dredge spoils from the navigation channel have always been approved for open water disposal. However, sediments from several navigational portions of the St. Marys River have been documented as exceeding USEPA's Guidelines for Pollution Classification of Great Lakes Harbor Sediments and/or OMOE's Provincial Sediment Quality Guidelines for Open Water Disposal of Dredged Spoils disposal guidelines. Areas documented as exceeding these guidelines included: Algoma Slip, Algoma Slag Dump, Lake George Channel, Little Lake George, the northern half of Lake George, Tannery Bay, the head of the St. Joseph and West Neebish Channels, and Lake Munuscong.

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. According to the *Guidance*, this beneficial use will be considered restored when either there have been no restrictions on routine commercial or recreational

navigational channel dredging by the USACE, based on the most recent dredging cycle; or, in cases where dredging restrictions exist, a comparison of sediment contaminant data from the commercial or recreational navigation channel (at the time of proposed dredging) in the AOC indicates that contaminant levels are not statistically different from other comparable, non-AOC commercial or recreational navigation channels.

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. The MDEQ began a statewide assessment of this BUI in 2011. This assessment will evaluate the status of each AOC with respect to both parts of the state's criteria, and the U.S. waters of the St. Marys River AOC will be assessed as part of this effort. Once the MDEQ assessment has been completed, an AOC-specific technical committee may be convened to formally review the assessment results and provide a decision on whether or not to support a recommendation to formally remove this BUI.

6) *Eutrophication or Undesirable Algae*

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), the open waters of the St. Marys River are typical of the oligotrophic status of Lake Superior. However, it was noted that some embayments and other slow moving portions of the river have been impaired by the presence of floating algal mats. Historically, provincial guidelines for phosphorus have been exceeded in the Lake George Channel downstream from the East End WWTP, and this was believed to be the major cause of the rapid algal growth in the channel, resulting in a number of citizens' complaints on both sides of the channel.

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. These criteria state that this beneficial use will be considered restored when there are no waterbodies within the AOC included on the list of impaired waters due to nutrients or excessive algal growths in the most recent Clean Water Act Water Quality and Pollution Control in Michigan: Section 303(d) and 305(b) Integrated Report (Integrated Report).

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. The MDEQ will likely undertake an assessment of this in 2012. A technical committee will be convened to determine that this BUI is ready for a formal review and assessment. The technical committee will review the results of all remedial actions completed and other supporting documentation to provide a decision on whether or not to support a recommendation to formally remove this BUI.

7) *Beach Closings*

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), high bacterial densities downstream of CSOs, storm sewers, industrial outfalls, and the East End WWTP occur within the AOC at concentrations in excess of state and provincial water quality standards. Consequently, periodic advisories against swimming and bathing have been issued for U.S. waters of the AOC.

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. The state's criteria outline a three-tiered approach. Tier 1 states that

no waterbodies within the AOC are included on the 303(d) list of impaired waters due to contamination with pathogens in the most recent Integrated Report. If the waterbody is listed due to the presence of CSOs, or is impacted by upstream CSOs, Tier 2 states that this beneficial use will be considered restored when updated information reveals that the CSOs have been eliminated or are being treated. Or, In cases where CSOs still exist and significant progress has been made towards their elimination or treatment, Tier 3 allows monitoring data to be used to document that water quality standards for *E. coli* are generally met, thereby enabling removal of the BUI.

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. The MDEQ began a statewide assessment of this BUI in 2011. This assessment is evaluating the status of each AOC with respect to Tier 1 of the state's criteria, and U.S. waters of the St. Marys River AOC is being assessed as part of this effort. Other relevant work within the AOC includes a 2010 GLRI project entitled *Michigan Beaches - Chippewa/NW Michigan/Superior*, information from which will be used to investigate bacterial contamination sources and identify future corrective actions needed within the AOC; the 2010 *E. coli* Total Maximum Daily Load monitoring effort by the USEPA and MDEQ; and the findings summarized in the report entitled, *2009 St. Marys River – Sugar Island Monitoring: A Final Report of the Sugar Island Monitoring Work Group* (Sugar Island Monitoring Work Group, 2010). Data obtained from all of these efforts/sources will be considered during the assessment of the status of this BUI in U.S. waters of the AOC.

8) Degradation of Aesthetics

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), oil and grease were identified as the major cause of the Degradation of Aesthetics BUI. Together, the East End WWTP and Algoma Steel were identified as contributing over 88 percent of this contaminant to the river, and St. Marys Paper was identified as the third largest contributor of oil and grease. Additionally, floating scum was periodically reported along the north shore of Sugar Island in Michigan. In Ontario, mats of oily fibrous material mixed with wood chips/fiber occasionally occurred between Sault Ste. Marie and the Lake George Channel.

Restoration Criteria

The St. Marys River BPAC has accepted the state's criteria for restoring this beneficial use in U.S. waters of the AOC. The state's criteria require that monitoring data be collected for two successive monitoring cycles to determine whether or not the water bodies in the AOC exhibit persistent, high levels of the following "unnatural physical properties" (as defined by Rule 323.1050 of the Michigan Water Quality Standards) in quantities which interfere with the state's designated uses for surface waters:

turbidity	foams
color	settleable solids
oil films	suspended solids
floating solids	deposits

Current Status and Actions to be Undertaken

This beneficial use is currently impaired. The MDEQ does not routinely monitor the St. Marys River specifically for degraded aesthetic conditions. However, the MDEQ began a statewide assessment of this BUI in 2011, and U.S. waters of the the St. Marys River AOC were assessed as part of that effort. Monitoring conducted as part of this effort took place at three locations: the mouth of Ashmun Creek, Sugar Island Township Park Beach, and the Elks Club property. A technical committee will be convened to determine that this BUI is ready for a formal review and

assessment. The technical committee will review the results of all remedial actions completed and other supporting documentation to provide a decision on whether or not to support a recommendation to formally remove this BUI.

9) Loss of Fish and Wildlife Habitat

10) Degradation of Fish and Wildlife Populations

Significance in the St. Marys River Area of Concern

According to historical RAP documents (OMOE and MDNR, 1992; EC et al., 2002), fish and wildlife habitat on both sides of the river has been substantially altered and/or eliminated by the construction of the U.S. and Canadian navigation locks, vessel traffic, compensating works at the head of the St. Marys River rapids, hydro facilities, shoreline filling and dredging activities. Pollutant loadings from industrial sources, municipal discharges, and urban runoff into inner-city tributaries (e.g., Ashman, East Davignon and Fort Creeks) have also impacted sediment quality and benthic habitat on both sides of the river.

Although the sport fishery is considered to be generally healthy, populations of lake herring and lake whitefish in the lower river have historically decreased. In addition, the St. Marys River has been recognized as the main source of sea lamprey in Lake Huron, accounting for approximately 50 percent of the annual mortality of adult lake trout. The USFWS, Sea Lamprey Control Program, with funding from the Great Lakes Fishery Commission, conducts treatments of the river and is continuing to work with other agencies and partners to develop proposals for actions that will address the sea lamprey problem in Lake Huron and its tributaries, including the St. Marys River. Because sea lamprey is a long-term, Great Lakes region-wide concern that is currently being addressed by other programs, it may not be addressed under the AOC program.

Restoration Criteria

The St. Marys River Fish and Wildlife Technical Committee was established to develop criteria for restoration of these two beneficial uses in U.S. waters of the AOC. The committee was comprised of representatives from the BPAC, the St. Marys River Fishery Task Group, and other stakeholders. The results of the committee's efforts are presented in the *St. Marys River Fish and Wildlife Restoration Plan* (St. Marys River BPAC, 2008).

The criteria developed by the committee are based on the presumption that completion of specified habitat restoration projects will result in increased populations of desirable fish and wildlife species and thus bring about restoration of both the Loss of Fish and Wildlife Habitat BUI and the Degradation of Fish and Wildlife Populations BUI in U.S. waters of the AOC. Specifically, the criteria require the restoration of two sites. The first site is Little Rapids at Sugar Island, a project that would restore approximately 70 acres of rapids habitat within the Little Rapids portion of the AOC, and substantially enhance the fishery as well as provide significant economic, recreational, and subsistence benefits to the local community. The second site was to be the historic rapids located at the Neebish Island Rock Cut.

Current Status and Actions to be Undertaken

These beneficial uses are currently impaired. The engineering and design phase of the Little Rapids habitat restoration project received funding in 2011 from the National Oceanic and Atmospheric Administration and is now underway. The Neebish Island Rock Cut site underwent a technical investigation authorized by the USACE in February 2011 (AECOM, 2011). This investigation found that excavation by blasting would be required in order to implement the desired restoration project. Consequently, the site was deemed unfeasible, and the St. Marys BPAC is currently reassessing the habitat target and considering alternatives.

Actions to Delist: St. Marys River AOC BUI Tracking Matrix

The following BUI Tracking Matrix is intended as a simple way to track ongoing progress with the remedial activities identified as being necessary to remove each BUI, and subsequently to delist the AOC entirely. As progress is made, the matrix will be updated to reflect current conditions. Completed activities will remain in the matrix as it is updated, but updates will reflect completed status and completed BUI removals.

The matrix lists each BUI, indicates whether each BUI is scheduled for assessment in the current year, and lists the actions/tasks necessary to advance toward BUI removal. If a funding source has been identified, it is listed along with the targeted start and end dates for each action. Project leads are identified as appropriate, along with the targeted BUI removal date.

The matrix represents the AOC program's current best effort to assess activity in an AOC at the time the document was updated. The matrix does not necessarily commit the listed entities/individuals to any particular activity. Contracts, grant agreements, etc. are the documents governing commitments that have been or will be made.

The dates listed reflect the MDEQ's best estimate of project completion given currently available information. Work does not always proceed as planned, and the MDEQ recognizes that unforeseen circumstances can arise. The MDEQ is dedicated to facilitating the completion of each of the projects listed in the timeliest manner possible.

Acronyms used in the St. Marys River AOC BUI Tracking Matrix:

AOC – Area of Concern
BMPs – Best Management Practices
BUI – Beneficial Use Impairment
BPAC – Binational Public Advisory Council
EUP – Eastern Upper Peninsula
MDEQ – Michigan Department of Environmental Quality
GLLA – Great Lakes Legacy Act
GLRI – Great Lakes Restoration Initiative
MDCH – Michigan Department of Community Health
NOAA – National Oceanic and Atmospheric Administration
N/A – Not applicable
PAC – Public Advisory Council
TBD – To be determined
USEPA – U.S. Environmental Protection Agency
USFWS – U.S. Fish and Wildlife Service

St. Marys River AOC BUI Tracking Matrix									Updated: January 23,2012
Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments
St. Marys River	Beach Closings	Yes	Implement St. Marys River <i>E. coli</i> per-TMDL monitoring	USEPA	May-10	Sep-10	Rippke (MDEQ)	TBD	Identifying and assessing tributaries not meeting <i>E. coli</i> Water Quality Standards
St. Marys River	Beach Closings	Yes	Implement Michigan Beaches - Chippewa/NW Michigan/Superior sanitary survey project	2010 USEPA GLRI Grant	Oct-11	Sep-12	Briggs (MDEQ)	TBD	Sanitary Survey
St. Marys River	Beach Closings	Yes	Implement St. Marys River Water Quality Network	2009 PAC Support Grant	Jun-09	Dec-13	BPAC	TBD	Year 4 of 5
St. Marys River	Beach Closings	Yes	Identify sources, if necessary, contributing to the Beach Closing BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Beach Closings	Yes	Remediate sources, if necessary, contributing to the Beach Closing BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Beach Closings	Yes	Monitor sources, if necessary, contributing to the Beach Closing BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Beach Closings	Yes	Assess Beach Closing BUI	TBD	Oct-11	Sep-12	Swart (MDEQ)	TBD	Statewide assessment

Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments
St. Marys River	Beach Closings	Yes	Remove Beach Closing BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Bird or Animal Deformities or Reproductive Problems	Yes	Identify sources, if necessary, contributing to the Bird or Animal Deformities or Reproductive BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Bird or Animal Deformities or Reproductive Problems	Yes	Remediate sources, if necessary, contributing to the Bird or Animal Deformities or Reproductive BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Bird or Animal Deformities or Reproductive Problems	Yes	Monitor sites, if necessary, related to the Bird or Animal Deformities or Reproductive BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Bird or Animal Deformities or Reproductive Problems	Yes	Assess Bird or Animal Deformities or Reproductive BUI	2010 USFWS GLRI Grant	Jun-11	Dec-12	Baker (MDEQ)	TBD	Statewide Assessment
St. Marys River	Bird or Animal Deformities or Reproductive Problems	Yes	Remove Bird or Animal Deformities or Reproductive BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Degradation of Aesthetics	Yes	Implement St. Marys River Water Quality Network	2009 PAC Support Grant	Jun-09	Dec-13	BPAC	TBD	Year 4 of 5
St. Marys River	Degradation of Aesthetics	Yes	Monitor aesthetically impaired sites, 2 rounds	N/A	Jun-11	Dec-12	Riley (MDEQ)	TBD	Statewide assessment
St. Marys River	Degradation of Aesthetics	Yes	Identify sources, if necessary, contributing to the Degradation of Aesthetics BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment

Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments
St. Marys River	Degradation of Aesthetics	Yes	Remediate sources, if necessary, contributing to the Degradation of Aesthetics BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Degradation of Aesthetics	Yes	Assess Degradation of Aesthetics BUI	N/A	TBD	TBD	Riley (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Degradation of Aesthetics	Yes	Remove Degradation of Aesthetics BUI	N/A	TBD	TBD	Riley (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Degradation of Benthos	No	Complete Consumers Energy GLLA Project: Phase 1	GLLA	May-10	Jun-10	EPA	TBD	Completed
St. Marys River	Degradation of Benthos	No	Complete Consumers Energy GLLA Project: Phase 2	GLLA	Aug-11	Nov-11	EPA	TBD	Completed
St. Marys River	Degradation of Benthos	No	Monitor GLLA site	GLLA	TBD	TBD	EPA	TBD	
St. Marys River	Degradation of Benthos	No	Identify known contaminated sediment sites on the Canadian side of AOC related to the Degradation of Benthos BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	U.S. Benthos restoration criteria tied to remediation of U.S. and Canadian sites; See 2010 RAP Update for known sites

Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments
St. Marys River	Degradation of Benthos	No	Remediate known contaminated sediment sites on the Canadian side of AOC related to the Degradation of Benthos BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Degradation of Benthos	No	Assess Degradation of Benthos BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Degradation of Benthos	No	Remove Degradation of Benthos BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Joint U.S. and Canadian BUI removal
St. Marys River	Eutrophication or Undesirable Algae	No	Implement St. Marys River Water Quality Network	2009 PAC Support Grant	Jun-09	Dec-13	BPAC	NA	Year 4 of 5
St. Marys River	Eutrophication or Undesirable Algae	No	Assess Eutrophication or Undesirable Algae BUI	N/A	Jun-12	Sep-12	Selzer (MDEQ)	TBD	
St. Marys River	Eutrophication or Undesirable Algae	No	Remove Eutrophication or Undesirable Algae BUI	N/A	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Fish tumors and other deformities	Yes	Identify sources, if necessary, contributing to the Fish Tumors and Other Deformities BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Fish tumors and other deformities	Yes	Remediate sources, if necessary, contributing to the Fish Tumors and Other Deformities BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Fish tumors and other deformities	Yes	Assess Fish Tumors and Other Deformities BUI	2011 EPA GLRI Grant	Aug-11	Jul-14	Bohr (MDEQ) / Bruneau (MDCH)	TBD	Statewide assessment

Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments
St. Marys River	Fish tumors and other deformities	Yes	Remove Fish Tumors and Other Deformities BUI	TBD	TBD		Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Loss of Fish and Wildlife Habitat	No	Explore alternatives to Neebish Rock Cut Project	2011 PAC Support Grant	May-11	Mar-12	BPAC	TBD	The Neebish Rock Cut was determined to unfeasible (an alternative may not be necessary given the federal investment at Little Rapids)
St. Marys River	Loss of Fish and Wildlife Habitat	No	Implement Little Rapids Habitat Restoration Project: Engineering & Design	2011 NOAA Grant	Aug-11	Feb-13	EUP Regional Planning & Development Commission	TBD	
St. Marys River	Loss of Fish and Wildlife Habitat	No	Implement Little Rapids Habitat Restoration Project: Construction	TBD	TBD	TBD	TBD	TBD	Construction proposed in 2013-2014 timeframe
St. Marys River	Loss of Fish and Wildlife Habitat	No	Assess Loss of Fish and Wildlife Habitat BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Loss of Fish and Wildlife Habitat	No	Remove Loss of Fish and Wildlife Habitat BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Degradation of fish and wildlife population	No	Assess Degradation of Fish and Wildlife Population BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	
St. Marys River	Degradation of fish and wildlife population	No	Remove Degradation Fish and Wildlife Population BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Populations BUI removal tied to Loss of Habitat BUI

Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments
St. Marys River	Restrictions on Dredging Activities	Yes	Assess Restrictions on Dredging Activities BUI	N/A	Jun-11	Dec-12	Swart (MDEQ)	TBD	Statewide assessment
St. Marys River	Restrictions on Dredging Activities	Yes	Identify sources, if necessary, related to the Restrictions on Dredging Activities BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Restrictions on Dredging Activities	Yes	Remediate sources, if necessary, related to the Restrictions on Dredging Activities BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Restrictions on Dredging Activities	Yes	Remove Restrictions on Dredging Activities BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Restrictions on Fish and Wildlife Consumption	Yes	Assess Restrictions on Fish and Wildlife Consumption BUI	2011 USEPA GLRI Grant	Aug-11	May-14	Bohr (MDEQ) / Bruneau (MDCH)	TBD	Statewide assessment
St. Marys River	Restrictions on Fish and Wildlife Consumption	Yes	Identify sources, if necessary, related to the Restrictions on Fish and Wildlife Consumption BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Restrictions on Fish and Wildlife Consumption	Yes	Remediate sources, if necessary, related to the Restrictions on Fish and Wildlife Consumption BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment
St. Marys River	Restrictions on Fish and Wildlife Consumption	Yes	Remove Restrictions on Fish and Wildlife Consumption BUI	TBD	TBD	TBD	Selzer (MDEQ)	TBD	Dependent on the results of the statewide assessment

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