

Health & Status of the Saginaw River/Bay Area of Concern and Associated Saginaw Bay Watershed

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Meeting

Saginaw Valley State University

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An Introduction

- What is the Health of Saginaw Bay Watershed?
- Overview of the Area of Concern
- Partnerships in Restoration
- Targeting Remedial Actions





***What is the Health of the
Saginaw Bay Watershed?***

It depends on who you ask!

What is the Health of Saginaw Bay Watershed?

Fish Populations

- '30s –'60s significant, annual fish kills due to contamination & low dissolved oxygen
- Present Day no significant fish kills
- Saginaw Bay is a world-class walleye fishing destination!

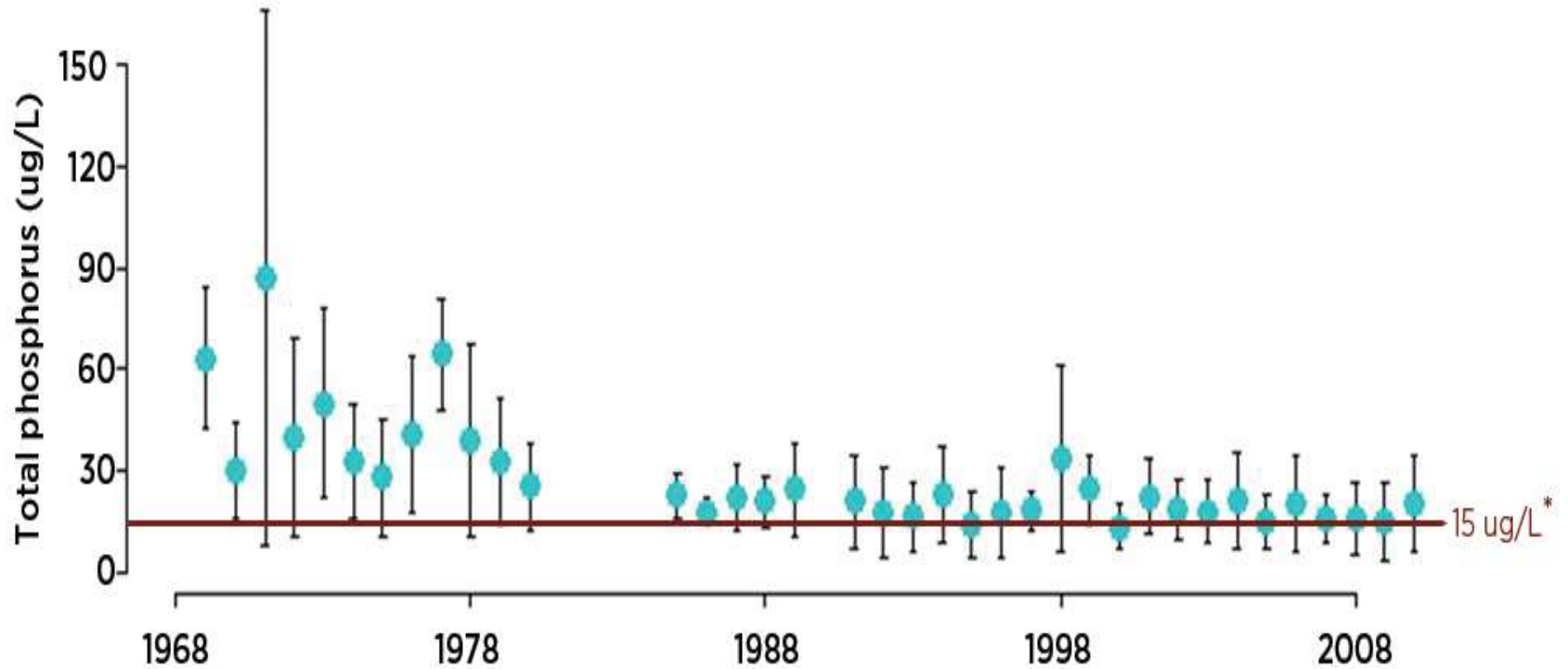
Habitat for Fish & Wildlife

- Significant inland & coastal wetland loss, 300+ dams & barriers
- Wetland protection & restoration, and fish passage are now priorities for numerous organizations

Nutrients & Bacteria

- Mid-1800s - '70s significant point- and non-point source nutrient & bacterial contamination
- Clean Water Act of 1972 significantly improved point sources
- Non-point sources are more challenging to address, yet significant progress is being made





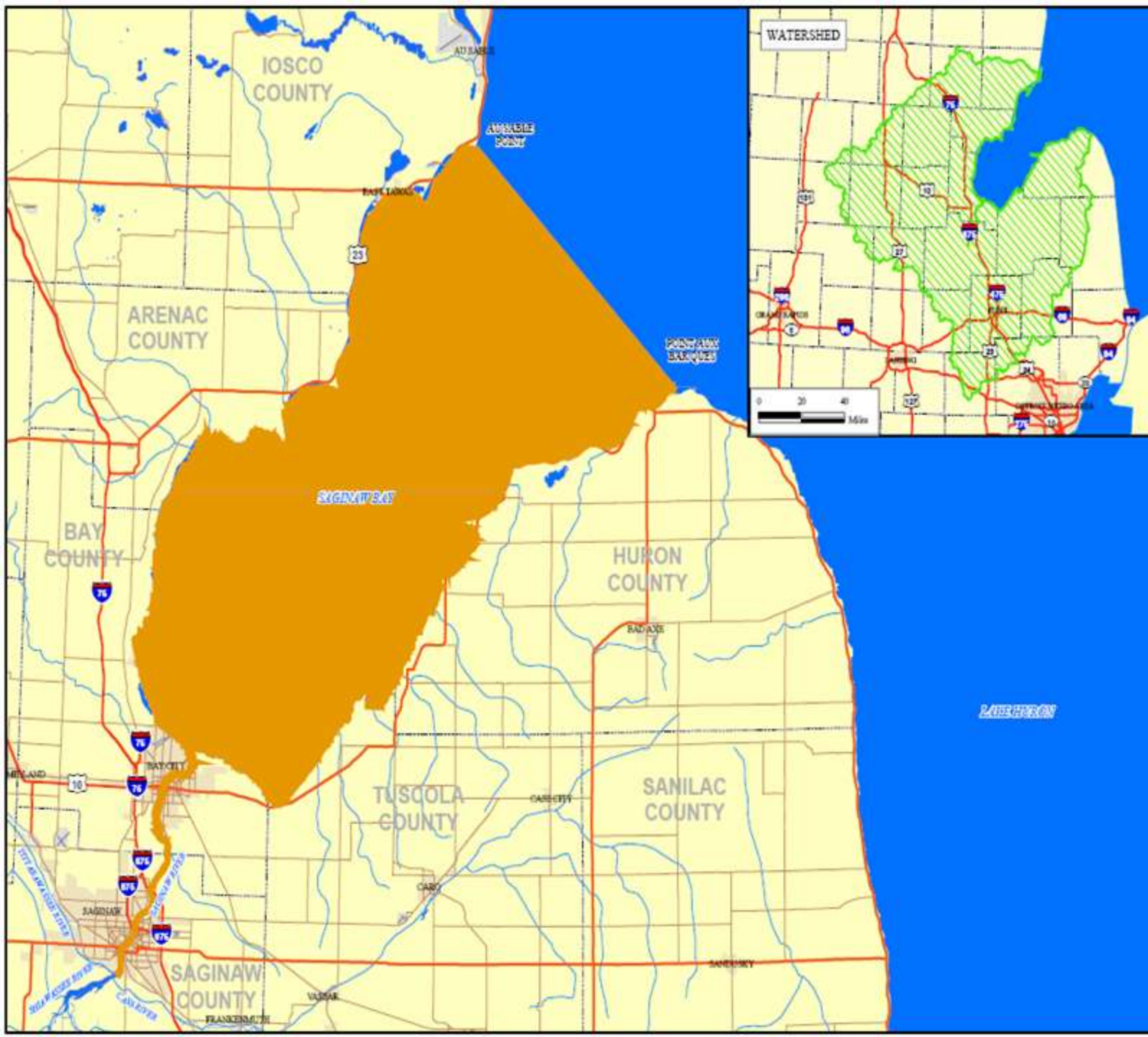
*Represents the phosphorus target concentration level est. by the Great Lakes Water Quality Agreement of 1978, as amended in 1987.

Source: Originating with Craig Stow at National Oceanic and Atmospheric Administration, Great Lakes Environmental Research Lab.

The Saginaw River/Bay Area of Concern

- The Area of Concern Boundary
- Partnership for the Saginaw Bay Watershed
- Remedial Actions Plans & Other AOC-Specific Studies
- Status of the Beneficial Use Impairments





- LEGEND**
- COUNTY BOUNDARY
 - MAJOR ROADS
 - SURFACE WATER
 - URBAN AREAS
 - AREA OF CONCERN
 - WATERSHED



SOURCE: MODIFIED FROM THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES, 1998; THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION, DEPARTMENT OF INFORMATION TECHNOLOGY, 1994, AND ERIEL, 2005.



SAGINAW RIVER AND BAY, MICHIGAN
AREA OF CONCERN



The Partnership for the Saginaw Bay Watershed

- Serves as the Public Advisory Council
- Executive Board Membership
 - Warren Smith, Acting Chair
 - Joe Toth, Treasurer
 - Dennis Zimmerman, Statewide Public Advisory Council Representative
 - Brad Hill
 - Elan Lipschitz
 - Bill Wright
- Charlie Bauer, DEQ District staff support
- Public Sector Consultants, Inc.



Beneficial Use Impairments

1. Restrictions on fish and wildlife consumption
2. Bird or animal deformities or reproductive problems*
3. Degradation of benthos
4. Restrictions on dredging activities*
5. Eutrophication or undesirable algae *
6. Beach closings*
7. Degradation of aesthetics *
8. Degradation of phyto- or zooplankton populations
9. Degradation of fish and wildlife populations*
10. Loss of fish and wildlife habitat *

Removed in '08:

- Tainting of fish and wildlife flavor
- Restrictions on drinking water consumption or taste and odor problems

* Conducting status assessments, but NOT proposed for removal at the present time.

Key Studies and Reports on the Saginaw River/Bay AOC

- 1988: Remedial Action Plan for Saginaw River and Bay Areas of Concern.
- 1994: Saginaw River/Bay Remedial Action Plan: Draft 1995 Biennial Report.
- **2000: Measures of Success: Addressing Environmental Impairments in the Saginaw River and Saginaw Bay.**
- 2002: Targeting Environmental Restoration in the Saginaw River/Bay Area of Concern: 2001 Remedial Action Plan Update.
- **2006 & 2008: Guidance for Delisting Michigan's Great Lakes Areas of Concern.**
- 2008: Saginaw River/Bay Area of Concern Remedial Action Plan Update.
- 2008: Saginaw River/Bay Area of Concern Habitat Restoration Plan.
- 2009: Methodology Report for Prioritizing Saginaw Bay Wetlands.
- 2010: Saginaw River Bay Area of Concern Remedial Action Plan Update.
- 2010: Saginaw River/Bay Area of Concern Habitat Restoration Plan Update and Target Review.
- 2011: An Assessment and Status Report of Beach Closings in the Saginaw River/Bay Area of Concern.
- 2011: An Assessment and Status Report of the Eutrophication or Undesirable Algae in the Saginaw River/Bay Area of Concern.
- **2012: Stage 2 Remedial Action Plan for the Saginaw River/Bay Area of Concern.**





***Status of the Saginaw River/Bay
Area of Concern
Beneficial Use Impairments***

Restrictions on Fish & Wildlife Consumption

Listed: Historical production and/or use of PCBs, dioxins, DDT and heavy metals

Rest. Criteria: Comparison study or trend analysis of fish consumption advisory data

Status: Impaired



Bird or Animal Deformities or Reproductive Problems

Listed: Injured birds due to contaminants and linked to death, malfunctions in reproduction, and physical deformations

Rest. Criteria: The first approach evaluates restoration based on field observation data over 2 successive monitoring cycles. The second approach use levels of contaminated fish tissue

Status: Impaired



Degradation of Benthos

Listed: Benthic community structure in the bay is significantly degraded

Rest. Criteria: All remedial actions completed for known contaminated sediment sites

Status: Impaired



Restrictions on Dredging Activities

Listed: Navigation channel sediments require confined disposal due to elevated dioxin, PCBs, metals, and oil and grease

Rest. Criteria: Sediment data passes beach nourishment and upland unrestricted disposal assessments; or, comparison study (Bay Port, tip of Thumb is the comparison site)

Status: Impaired



Eutrophication or Undesirable Algae & Degradation of Phyto- or Zooplankton Populations

Listed: Biota populations negatively impacted by degraded water quality conditions

Rest. Criteria: No waterbodies within the AOC included on the list of impaired waters due to nutrients or excessive algal growths in the most recent Integrated Report (i.e., the 303(d) Impaired Waterbody list)

Status: Impaired



Beach Closings

Listed: Public advisories posted at beaches because of elevated levels of *E. coli*

Rest. Criteria: Monitoring during the recreation period demonstrate that *E. coli* concentrations below Michigan's Water Quality Standards

Status: Impaired



Degradation of Aesthetics

Listed: Increased biological productivity in Saginaw Bay resulted in an increase in the organic debris or “muck” washing up on the shoreline of Saginaw Bay

Rest. Criteria: Monitoring data collected for 2 successive monitoring cycles to determine whether or not the water bodies in the AOC exhibit persistent, high levels of the “unnatural physical properties” (as defined by Rule 323.1050 of the Michigan WQS) in quantities which interfere with the state’s designated uses for surface waters

- **The State is currently developing AOC-specific restoration criteria as a special consideration to address the muck on public beach(es) along Saginaw Bay**

Status: Impaired



Loss of Fish and Wildlife Habitat & Degradation of Fish and Wildlife Populations

Listed: Significant habitat loss and degradation impaired the reproductive success and growth of numerous aquatic and wildlife species

Rest. Criteria: 60% of the coastal marsh areas below the 585-foot contour protected; and 40% coastal marsh areas have been clearly identified

- **The Partnership has convened a Technical Committee to re-evaluate the Population-related targets**

Status: Impaired





***Partnerships in
Restoration Progress***

The Watershed/Area of Concern Linkage

**Watershed Non-point Source Actions = AOC
Eutrophication BUI & Beach Closings BUI
Restoration**

**Watershed Habitat Restoration Actions =
AOC Loss of Fish & Wildlife Habitat BUI
Restoration**

Partnerships in Restoration Progress Pre-GLRI

Non-Point Source Restoration and Assessments

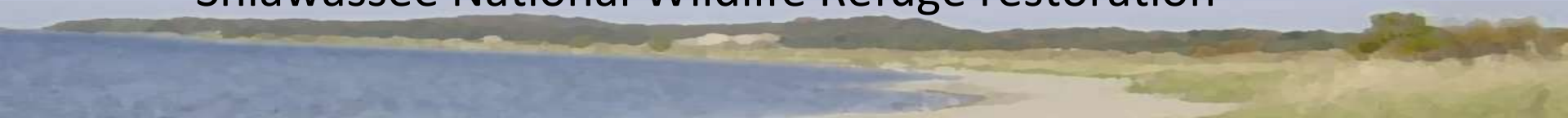
- **Conservation Reserve Enhancement Program 2000-present**
 - Financial program that provides incentives and technical assistance
- **NOAA Multi-Stressors Project – 2007 to present**
 - Managing and understanding the impact of sources contributing to nutrients loading and role of invasive species
- **Saginaw Bay Coastal Initiative – 2006 to present**
 - Workgroups and reports on: Combined Sewer Overflows, *E. coli* in Muck, Phosphorus Policy, among others
- **DEQ's Water Resources Division Programs**
 - Targeted Technical Assistance
 - Beach sanitary surveys and monitoring
- **Bay County Drain Commissioner Office**
 - Army Corps of Engineer's Remedial Action Plan project



Partnerships in Restoration Progress Pre-GLRI

Habitat Restoration

- **GM Natural Resources Damage Assessment Funding**
 - Monitoring indicates PCBs in fish are on a downward trend
- **Lake Huron Binational Partnership Funding**
 - *Phragmites* Demonstration Project & Landowners Guide
- **Dept. of Natural Resources, Ducks Unlimited, & Others**
 - Wildfowl Bay Coastal Wetland Acquisition
- **The Nature Conservancy**
 - Lake Huron Biodiversity Conservation Strategy
- **DEQ's Coastal Management Program**
 - Coastal protection, assessments, and restoration projects
- **Saginaw Bay Coastal Initiative**
 - Methodology Report for Prioritizing Saginaw Bay Wetlands
- **Saginaw Bay Watershed Initiative Network Program Funding**
 - Shiawassee National Wildlife Refuge restoration



Great Lakes Restoration Initiative (GLRI)

Authorized at \$475 M/year (2010-15), this federally funded program focuses on:

- **Toxics & AOCs** - Cleaning up toxics and Areas of Concern
- **Invasive Species** - Combating invasive species
- **Nearshore Health** - Promoting nearshore health by protecting watersheds from polluted run-off
- **Habitat Restoration & Protection** - Restoring wetlands and other habitats
- **Lakewide Management Planning** - Conducting education & outreach

For more information: <http://greatlakesrestoration.us/>

Partnerships in Restoration Progress 2010 GLRI

Non-Point Source Restoration and Assessments

- **Michigan Beach Program & Local Health Depts.**
 - Sanitary surveys and enhanced testing at Saginaw Bay beaches
- **DEQ's Office of the Great Lakes**
 - Review & Statewide Assessment of Three BUIs in Michigan AOCs
- **Michigan Dept. of Agriculture & Rural Development & Natural Resources Conservation Service (USDA-NRCS)**
 - Technical assistance and Best Management Practices
- **Michigan State University - Land Policy Institute**
 - Saginaw Bay/Lake Huron Land Policy Program
- **Huron Pines**
 - Rifle River Watershed Nonpoint Implementation Project
- **Pigeon River Intercounty Drain Drainage Board**
 - Best management practices for streambank stabilization and soil erosion control project
- **Shiawassee Conservation District**
 - Great Lakes Soil Erosion and Sedimentation Program project

Partnerships in Restoration Progress 2010 GLRI

Habitat Restoration

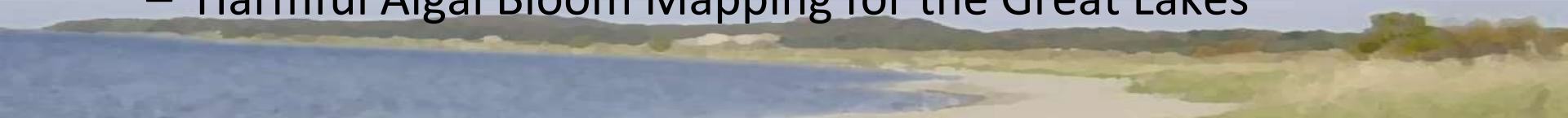
- **Ducks Unlimited & Partners**
 - Shiawassee National Wildlife Refuge – 1st GLRI project completed
 - Nayanquing Point State Wildlife Area Coastal Wetland Project
 - Van Hove Coastal Wetland Restoration, Michigan
- **The Conservation Fund**
 - "Fish Wish"- Fish Passage at the Frankenmuth Dam
- **University of Michigan**
 - Lake Huron invasions, food webs, and fisheries



Partnerships in Restoration Progress 2011 GLRI

Non-Point Source Restoration and Assessments

- **Genesee County Conservation District**
 - Restoration of Flint's Urban Forests and Street Trees
 - Chevy in the Hole (sounds like a cool poker hand)
- **DEQ's Water Resources Division**
 - Targeted Phosphorus Reduction in the Pigeon River Watershed
- **Michigan Dept of Agriculture and Rural Development**
 - Sediment Reduction in the Swartz Creek and the Sebewaing River Watersheds
- **U.S. Corps of Engineer**
 - Western Lake Huron Basin Study
- **Michigan Technical University**
 - Harmful Algal Bloom Mapping for the Great Lakes



Partnerships in Restoration Progress 2011 GLRI

Habitat Restoration

- **U.S. Fish & Wildlife Service & U.S. Forest Service**
 - Cooperative Weed Management Area designation for Saginaw Bay
- **Ducks Unlimited**
 - Conservation and Recreation Lands Database Program
 - Restoring Wetlands and Fish Passage in the Shiawassee Flats
- **Michigan State University**
 - Breeding Birds in Great Lakes Region as influenced by climate and land cover change
- **U.S. Fish & Wildlife Service & Partners**
 - Evaluating fish as vectors of contaminants in the Saginaw River/Bay Area of Concern
- **Huron Pines**
 - Restoration of a Blue Ribbon Trout stream
- **Bay County**
 - 54-Acre Pinconning Park coastal wetland land acquisition





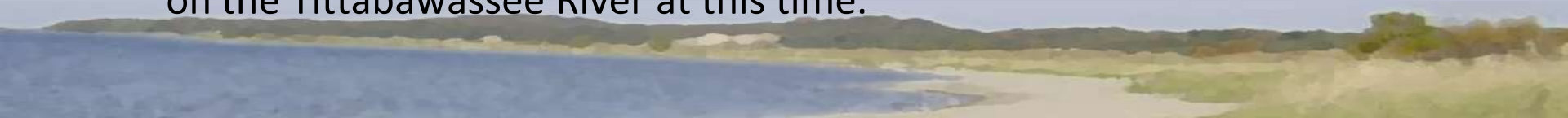
***Moving Forward: Targeting Three
Priority Beneficial Use Impairments***

What Actions Can We Take Now?

Eutrophication Beneficial Use Impairment

- **Continue to implement restoration activities in the key subwatersheds to Saginaw Bay Watershed**
 - Pinnebog/Pigeon
 - Kawkawlin River
 - Rifle River
 - Cass River
 - Sebewaing River
 - Au Gres River (Whitney Drain)
- **Continue to implement restoration activities in the key subwatersheds to Saginaw River Watershed**
 - Shiawassee River
 - Cass River
 - Flint River

NOTE: The AOC Program is not currently recommending restoration activities on the Tittabawassee River at this time.



What Actions Can We Take Now?

Beach Closings Beneficial Use Impairment

- Assessment found 2 beaches, 2 public access areas, and 1 beach needing additional monitoring* within the AOC as not meeting restoration targets.
 - Veterans Park North (Saginaw River, Bay County)
 - Kawkawlin River Boat Launch (Kawkawlin River, Bay County)
 - Twining Road (Au Gres River, Arenac County)
 - Singing Bridge (Whitney Drain, East Branch of Au Gres River, Arenac County)
 - Whites Beach (Saganing River, Arenac County)*

What Actions Can We Take Now?

Fish & Wildlife Habitat and Populations Beneficial Use Impairments

- Acquire coastal wetlands utilizing the Wetland Prioritization Tool and local knowledge

Restoration actions that would improve habitat and populations in the Saginaw River/Bay Area of Concern

- Restore coastal wetlands, river mouths, and tributaries to the Saginaw River and Saginaw Bay
- Support key fish passage and dam removals throughout the Saginaw Bay Watershed
 - Frankenmuth Fish Passage
 - Dow Removal/Fish Passage
 - Priority dams/barriers identified by The Nature Conservancy Fish Barrier Project

See the 2008 Saginaw River/Bay Area of Concern Habitat Restoration Plan for more details.

What Actions Can We Take Now?

Saginaw Bay Watershed Synthesis Team

DRAFT CHARGE:

The Team is to maintain coordination among the Dept. of Agriculture & Rural Development, DEQ-Water Resources Division, DNR-Fisheries, and DEQ-Office of the Great Lakes with a view to increasing our understanding of ecosystem dynamics, which include nutrient sources and cycling, contributing to the current state of Saginaw Bay; and, digesting additional information as it emerges in order to identify goals and management activities to address environmental quality and resource management issues, and increase public understanding of those issues.

What Actions Can We Take Now?

Everything we do in the Saginaw Bay Watershed drains to Saginaw Bay, both literally and figuratively

- Become a member of the Partnership for the Saginaw Bay Watershed and serve as a Public Advisory Council Member
- Join or volunteer time to restoration projects in your watershed and/or community
- Become civically engaged as it relates to local policy protecting water quality for the Bay's sake



Key Contacts for the Saginaw River/Bay Area of Concern

Partnership for the Saginaw Bay Watershed, the Public Advisory Council for the Saginaw River/Bay Area of Concern

- Warren Smith: wfesmith@sbcglobal.net
- Dennis Zimmerman: denniszimm@charter.net

Office of the Great Lakes Area of Concern Program

- Michelle Selzer, Lake Coordinator & Interim Area of Concern Coordinator: selzerm@michigan.gov
- Richard Hobrla, Chief of the Great Lakes Management Unit: hobrla@michigan.gov



Questions and Comments

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