**Addressing NPS:**

*Federal*

*1987 - Clean Water Act Section 319*

*Directed states to:*

1. Assess extent of NPS
2. Prepare management plan to correct it

*Provides for funding*

*Federal Register:*

*Guidelines to states*

---

**Assessment of Water Quality**

Clean Water Act requires:

*Water Quality Assessment:305(b)*

*List of waters not meeting designated uses/attaining standards: 303(d)*

*Status and trends assessment of publicly owned lakes: 314*

---

**What are Water Quality Standards?**

State’s yardstick to measure health of waters

The goals are in three areas:

1) Designated Uses of the lake or stream
2) Safe levels to protect the uses
3) Protection of high quality waters.

---

**Water Quality Standards**

Part 31: Part 4 Rules PA 451, as amended:

sets the standards for chemical and physical components

Two types of criteria

1) Numeric – concentration-based (130 E coli/100 ml)

2) Narrative - aesthetic conditions - absence of odor, color, turbidity, oil films, floating solids, toxic substances
**Designated Uses**

All surface waters of the state are designated for and shall be protected for all the following uses:

1. Agriculture
2. Industrial water supply
3. Public water supply at the point of intake
4. Navigation
5. Warmwater fishery
6. Other indigenous aquatic life and wildlife
7. Partial body contact recreation
8. Total body contact recreation-May 1-Oct 31
9. Cold water fishery – where applicable

****Part 4 Rules, Part 31, PA 451, as amended****

---

**What Is A TMDL?**

**Total Maximum Daily Load**

**WHAT**

6 Process to determine pollutant load a lake or stream can handle and still meet water quality standards

**WHY**

6 Required by EPA when water body not attaining designated uses - 303 (d) list

**Includes**

6 Available information to determine potential sources of pollutants
6 Identifies location, use impairments, pollutant, length of impairment, possible sources and causes

---

**Impaired Waterbody?**

Doesn’t meet criteria to support its designated use/s

---

**Addressing NPS: State**

1988: Non-Point Source Program created pursuant to Federal Guidelines

*MI Natural Resources and Environmental Protection Act 451 (NREPA) Part 88: Clean Michigan Initiative (CMI) NPS Control Grants

*Sets guidelines for watershed plans, best management practices and grant funding.

---

**NPS Program**

Two Goals

1) Restore impaired waterbodies - *Priority*

2) Protect high quality waters

---

**Watershed Management Process**
NPS Program Funding: Grants

State: Clean Michigan Initiative
- No planning
- FY 2015 $500,000

Federal: Section 319(h) and 205(j)
- FY 2015 2.1 million
- Planning – very limited

Watershed plans:
Needed to restore impaired waters & protect high quality waters

Watershed:
Area of land that catches all the flow of water

Approved Watershed Plan Requirements
State: CMI
Federal: EPA's 9 Key Elements
**Watershed Approach:**
*A collaborative ongoing process*

**Define Area for Planning**
- **Subwatershed** (14-digit HUC or small urban drainage)
- **Watershed** (11-digit HUC; may vary)
- **River Basin**

**BUILD PARTNERSHIPS**
Coordinate watershed planning effort with other federal, state, and local activities

**Build Partnerships:**
Coordinating watershed planning effort with other federal, state, and local activities.

**Characterize/Understand Your Watershed:**
*Gathering data*
*Inventory: Identify sources and causes*

**Characterize/Understand Your Watershed:**
- Gathering data
- Inventory: Identify sources and causes

**Michigan Surface Water Information Management System (MiSWIM)**

**NPS Awareness Survey**
Inventory: Identify sources and causes

Existing sources/causes come from lots of places...

Inventory: What to do?

What is your watershed?
Urban/Rural?
River/Stream/Lake?

Problems?
Erosion
Sediment or nutrient
E. Coli
Lots of wetland loss?
Flashiness/flooding?

High quality areas?

Inventory/Assessment Tools

Aerial Photo review
Soil surveys
Land Use Analysis
Master Plan/Ordinance Reviews
Landscape Level Wetland Functional Analysis

Step 1: Conduct desktop analysis

Macatawa River Watershed

Wetland Resources Status and Trends

Pre-settlement Wetland conditions
- 38,390 Acres of Wetlands
- 864 Polygons
- Average Size = 44 Acres

2005 Wetland Condition
- 5,657 Acres of Wetlands
- 1,264 Polygons
- Average Size = 4.5 Acres

14% OF ORIGINAL WETLAND ACREAGE REMAINS
86% LOSS OF TOTAL WETLAND RESOURCE

FLOOD WATER STORAGE
Inventory/Assessment Tools
Field Inventory: Stream walks, monitoring

* Unified Subwatershed and Site Reconnaissance Survey

An example of a rill (a) compared to the size of a gully (b).

* Road Crossing Information
(Culvert Problems)

- Poor Alignment: Is the culvert aligned properly with the stream channel.
- Inadequate Armoring: Rip-Rap not installed or installed improperly.
- Impounding Water: Is the culvert ponding water upstream.
- Obstructed: Is the flow of water blocked from passing through the culvert.
- Structural Integrity: Is the culvert falling apart and need repair.

* Road Crossing Information
(Perched Culverts)

Plunge Pool
Poor erosion control methods along roadways result in stream sedimentation.

Next Steps for Putting a WMP Together

- Calculate pollutant loads
- Prioritize pollutants, sources, causes
- Determine objectives
- Define critical areas
Next Steps for Putting a WMP Together:
BMPs, Costs, Resources, Timeline, Milestones, Evaluation

- Prairieville = 60% total stream inflow into Gull Lake = about 21% of the lake’s annual water.
- Over 50% of the PCA now permanently protected

* Higgins Lake Boat Wash
* Lake Shoreline
* Road Stream Crossing
* Wetlands

Field Sites Today
### Pollutant Source Identification Data Sheet

**NOTE:** Only document potential pollutant sources - use one data sheet per SPS location.  

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<td>3. Slurry storage</td>
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<td>4. Inadequate riparian buffer</td>
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<td>5. Streambank erosion</td>
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<td>6. Livestock excess</td>
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<td>Type of crossing</td>
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<td>Bridge span length</td>
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<td>Coastline source of SPS pollutant ( if others apply)</td>
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**Michigan Department of Environmental Quality**

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