



Total Maximum Daily Load (TMDL) Determinations & Responsibilities

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What is a TMDL?



- **Federally required approach to restoring impaired water bodies**
- **A TMDL (Total Maximum Daily Load) is the amount of a pollutant load that a water body can receive and still meet water quality standards**

Where Did TMDLs Come From?

■ Section 303(d) of the 1972 Federal Clean Water Act

- “Each State shall identify waters for which (basic) effluent limitations are not stringent enough to implement water quality standards”

◆ 303(d) list

- “Each State shall establish ... the total maximum daily load ... at a level necessary to implement the applicable water quality standards”

◆ TMDL

- Largely ignored until citizen lawsuits in the 1990s made this a priority for EPA and States

Steps Involved in a TMDL



- **Determine which water bodies are impaired**
- **Determine maximum pollutant loading that will meet water quality standards**
- **Allocate allowable loading among contributing sources**

Determination of Impairment

- **DEQ assesses water quality status every two years**
- **Water quality standards**
 - Designated uses
 - ◆ public water supply
 - ◆ protection of aquatic life
 - ◆ recreational use
 - ◆ irrigation
 - ◆ etc.
 - Criteria to support these uses

WATER QUALITY
AND
POLLUTION CONTROL
IN MICHIGAN
2008 SECTIONS 303(d), 305(b), AND 314
INTEGRATED REPORT



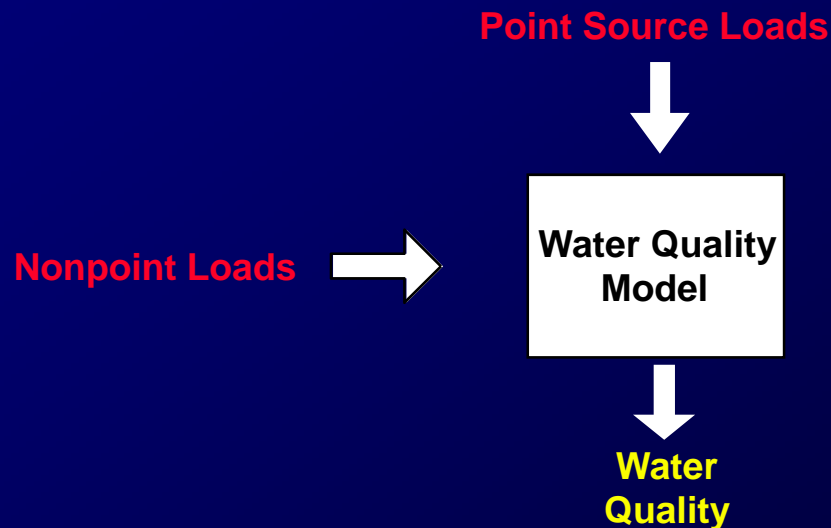
Michigan Department of Environmental Quality
Water Bureau
April 2008

Five Assessment Categories

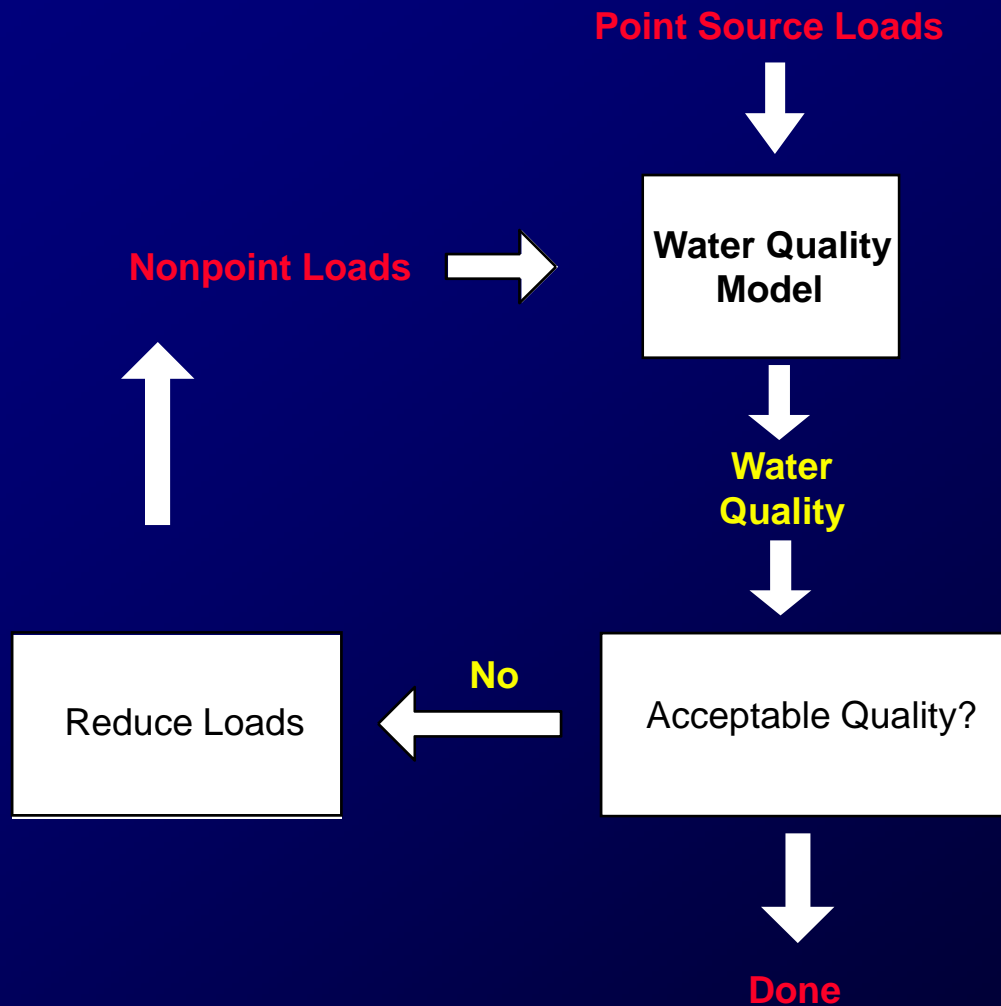
1. **All designated uses are supported**
2. **Some, but not all, designated uses are supported**
3. **There is insufficient data available**
4. **At least one designated use is not being supported, but a TMDL is not needed**
 - a) **A TMDL been approved or established by the USEPA**
 - b) **Other approved pollution control mechanisms are in place and are expected to result in attainment of the designated**
 - c) **Impairment is not caused by a pollutant (e.g., impairment is due to lack of flow or stream channelization)**
5. **At least one designated use is not being supported, and a TMDL is needed**

Determine Maximum Allowable Load

- Typically based upon application of a mathematical water quality model

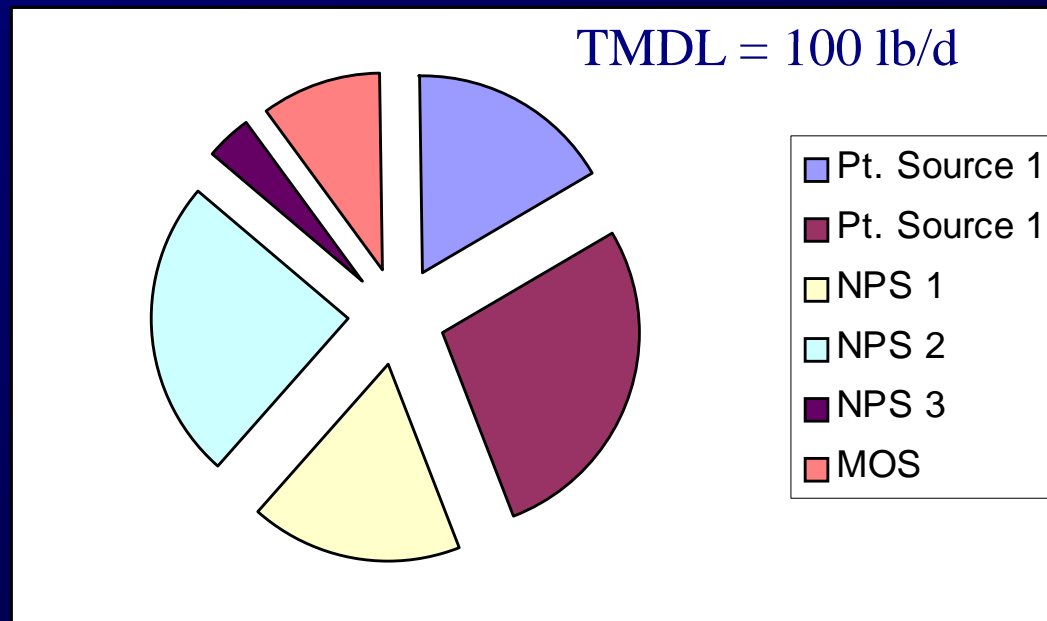


Determine Maximum Allowable Load



TMDL Allocation

- **Allocate total allowable load to all contributing sources**
 - Maximum allowable load defines overall size of the “pie”
 - Allocation process defines how large each “slice” is
 - Must include a Margin of Safety



Who Is Involved?

- **TMDLs are typically developed by State or EPA**
 - Final approval always rests with EPA
- **TMDL rules require opportunity for public input**
- **“Third party” TMDLs are a recent phenomenon**
 - Developed by someone other than State/EPA, but with their oversight
 - ◆ **Affected municipality, watershed group**
 - TMDLs can get completed faster than waiting for the State

TMDLs in Michigan

■ Developed by Michigan DEQ

- Clean Water Act is Federal legislation, final approval comes from EPA

■ ~90 TMDLs approved to date

http://www.michigan.gov/documents/deq/wb-swas-tmdl-approvedlist_212987_7.pdf

- 43 pathogens
- 19 biota
- 13 nutrients
- 10 dissolved oxygen
- 4 toxics

Upcoming Michigan TMDL Development

- **Schedule for TMDL development runs through 2021**
- **Schedule includes prioritization in terms of importance, difficulty**

Year	No. of TMDLs	Year	No. of TMDLs
2008	129	2015	8
2009	50	2016	18
2010	2279	2017	22
2011	940	2018	17
2012	228	2019	3
2013	76	2020	0
2014	543	2021	23

Who Is Affected by TMDLs?



- **Depends on the nature of the impairment**
 - Nutrients/dissolved oxygen
 - ◆ Wastewater treatment plants
 - Pathogens/biota
 - ◆ Industries or municipalities with stormwater permits
 - Toxics
 - ◆ Fish consumption advisories
 - ◆ Primarily caused by historical and atmospheric contamination

Why Is This Important?



- **NPDES permit-holders in TMDL watersheds could face required load reductions**
 - Wastewater treatment plants
 - Permitted stormwater
- **Moratorium on new permits or increased loads until a TMDL is conducted**

Potential for Differing Opinions



- **Three prime areas for disputes to occur**
 - Calculation of the total allowable load
 - Allocation of allowable load
 - Unattainable standards

Calculation of the Allowable Load



- **Calculation of allowable load based on mathematical models**
 - sometimes with limited data
 - can often contain numerous safety factors
 - can result in stringent NPDES permit reductions
- **Nutrient/dissolved oxygen TMDLs are typically more complex than for other parameters**
 - Complex cause-effect relationships

Allocation of Total Load



- **TMDL guidance suggests “equitable” distribution of load reductions among contributing sources**
- **Yes, but....**
 - Clean Water Act only provides direct regulation of point sources
 - Non-point sources primarily face voluntary (or incentive-based) approaches
 - NPDES permittees often left with the burden of reductions

Unattainable Standards



■ Regulation

- TMDLs are required by law to define pollutant loads that *will result in attainment of water quality standards*

■ Reality

- Some water quality standards are unattainable
 - ◆ Natural or uncontrollable sources
- This is primarily a stormwater issue right now
 - ◆ Bacteria and wet weather

Important Facts for the Public

- **TMDL is a federally required approach to restore impaired waters**
 - Only impaired waters
- **Consideration of public input is required**
- **Potentially long time frames involved**
- **Presence of a TMDL does not necessarily mean the public should not use the water body**
 - Depends upon which designated use is not supported