

Water Resource Division

Introduction to Sediment, Dust, and Water



Overview

- | Where does sediment in water come from?
- | How is sediment from land transported to a waterbody?
- | How do we measure sediment in water?
- | What are the benefits of keeping excess sediment out of the water?
- | What regulations govern discharges of sediment from roads and lots to waterbodies?

What are common sources of sediment?

- | Transportation Corridors
- | Urban Areas
- | Residential Areas
- | Construction Sites
- | Industrial Operations
- | Agricultural Sites
- | Forestry Operations
- | Municipal Operations
- | Habitat alteration / in stream sources
- | Natural cycles of erosion and deposition



Sediment is the greatest pollutant by volume entering our lakes and streams!

Upstream of site



Downstream of site



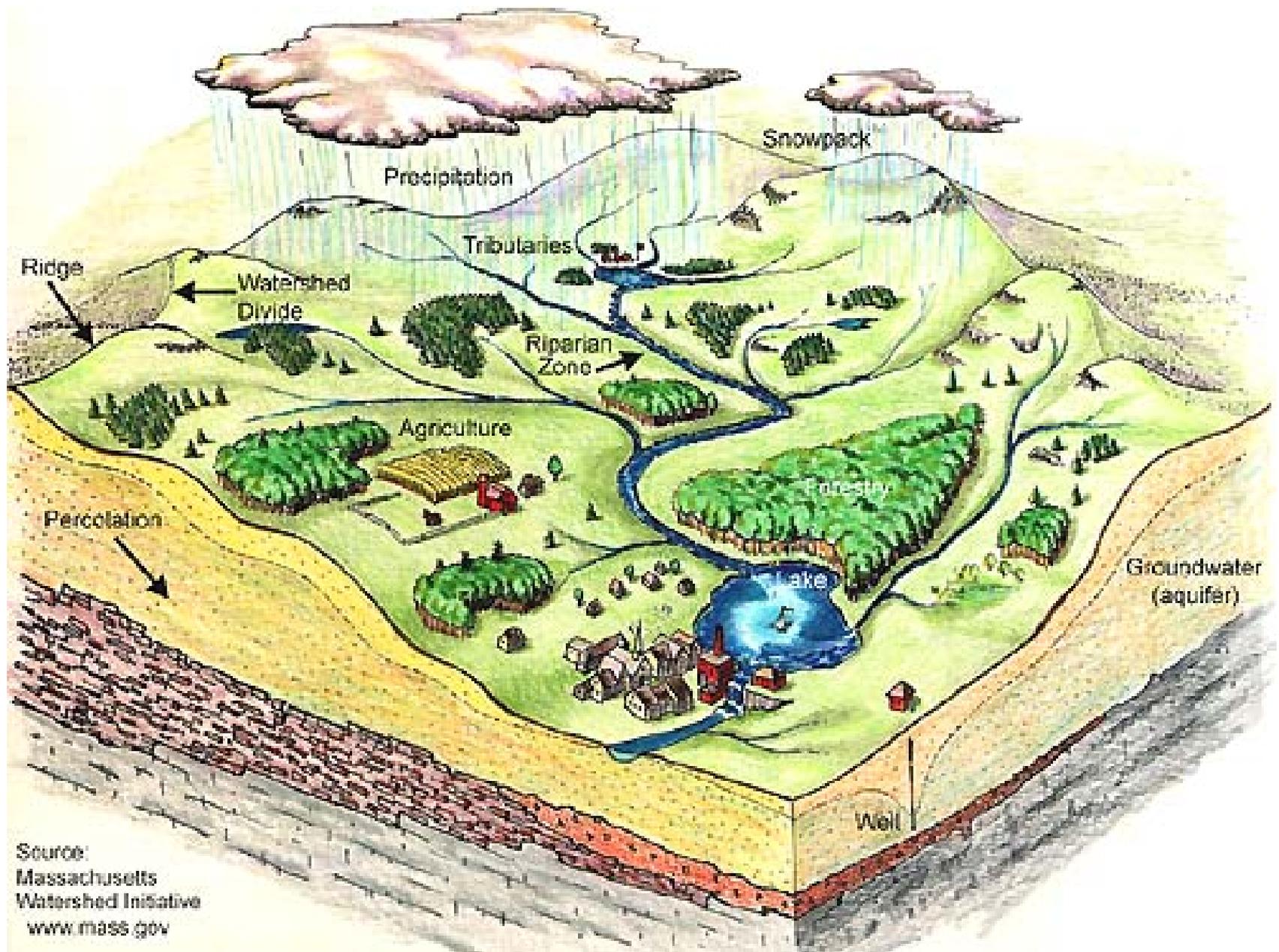
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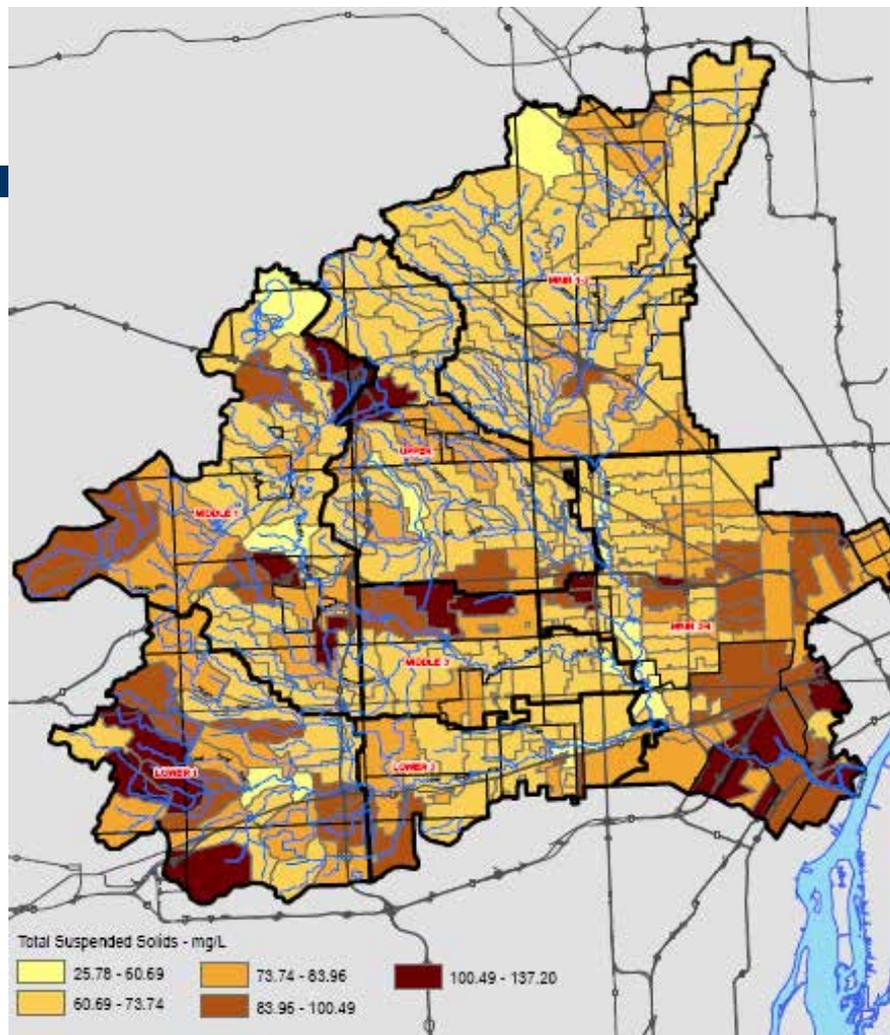
A watershed is

the land area that drains water to a particular stream, river, or lake.



Source:
Massachusetts
Watershed Initiative
www.mass.gov

Sediment contributions can be monitored



Lake Macatawa Sediment Discharge to Lake Michigan



Photo Courtesy of Macatawa Area Coord. Council

Overview

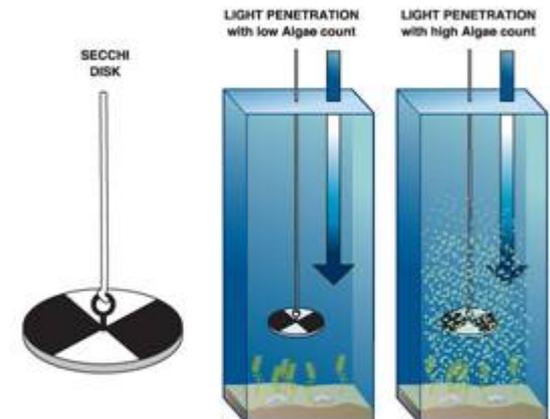
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How do we measure sediment in water?

- | Turbidity
- | Tools to measure turbidity
 - Light meter
 - Filtration of a water sample – total suspended solids
 - Secchi disk



Source: www.svid.org



Source: MI Sea Grant

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Preventing Water Pollution

- | Sediment often transports contaminants:
 - PCBs
 - Fertilizers
 - Pesticides
 - Metals
 - Oils
 - Greases



Photo by J. Bristoff

Clean Drinking Water



Recreation



Photos: K. Kuban, FOTR.

Preventing Clogged Storm Sewers & Flooding



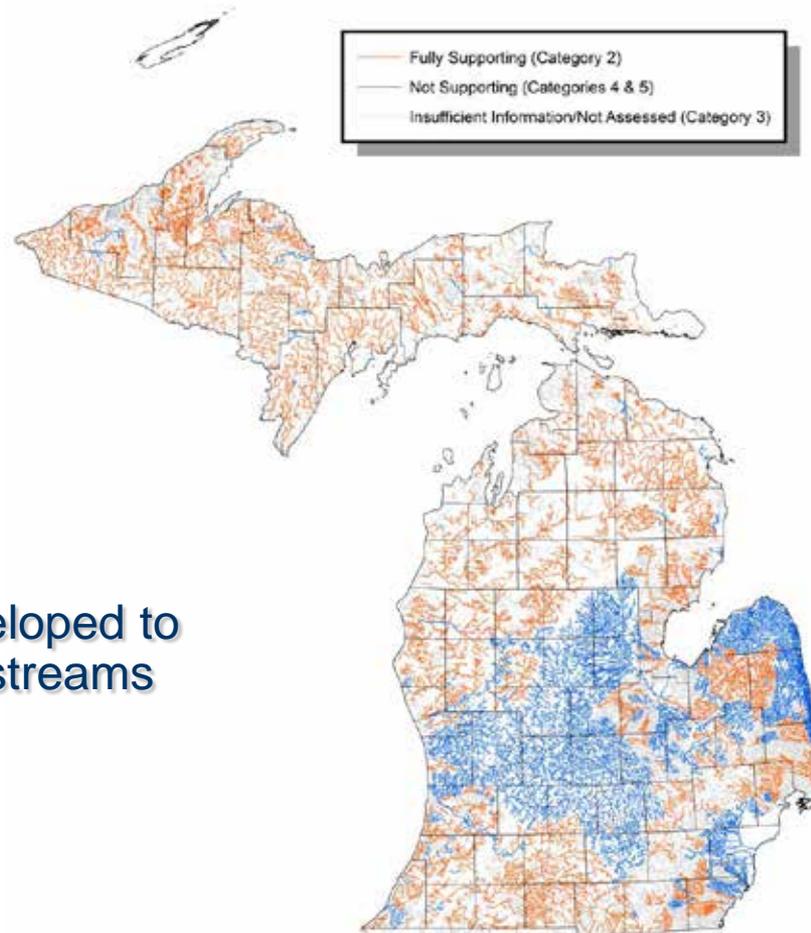
Protecting
Aquatic Life



Is sediment impairing Michigan's water quality?



Aquatic Life Designated Use Support



■ TMDLs are developed to restore impaired streams

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Surface Water Discharge Regulation- delegated to MI in 1973

Purpose/Goals: Prevent the injurious discharge of pollutants (including sediment) to waters of the state.



What are waters of the State?

Part 31 includes both ground and surface waters of the state; surface waters include:

- a) Great Lakes and connecting waters;
- b) All inland lakes, rivers, streams, and impoundments;
- c) Open drains;
- d) Wetlands; and
- e) Other surface bodies of water

Prohibited Discharges

Discharge into the waters of the state that is or may become injurious to any of the following:

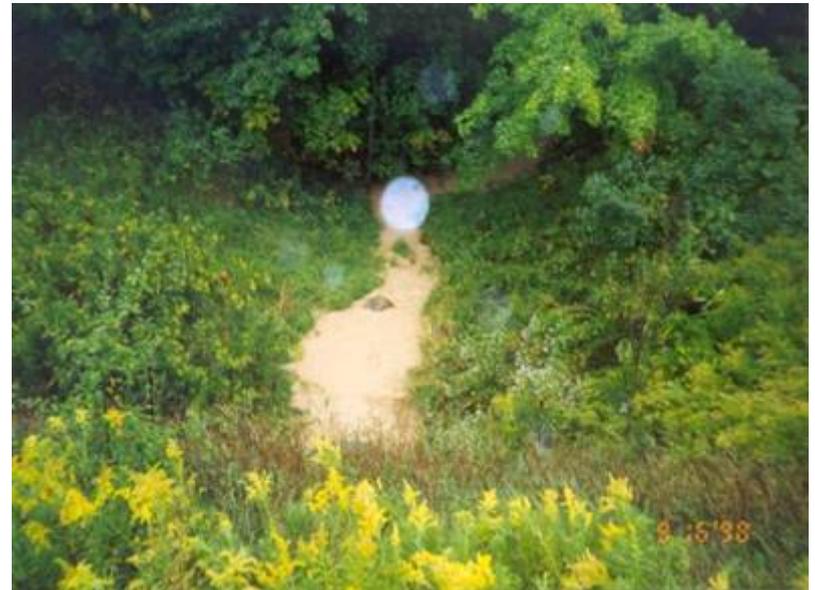
- | To public health, safety, and welfare.
- | To domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters.
- | To the value or utility of riparian lands.
- | To livestock, wild animals, birds, fish, aquatic life, or plants or to the growth, propagation, or the growth or propagation thereof be prevented or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired.



Section 3109 (1) of
Part 31 of the NREPA

Injurious Discharge Prohibition

- I The waters of the state shall not have any of the following unnatural physical properties in quantities which are or may become injurious to any designated use:
- Turbidity.
 - Color.
 - Oil films.
 - Floating solids.
 - Foams.
 - Settleable solids.
 - Suspended solids.
 - Deposits.



Water quality standards shall be met in all waters of the state

Narrative standard for TSS

Waters of the state shall not have any of the following unnatural physical properties in quantities which are or may become injurious to any designated use:

- turbidity, color, etc

Permit writers take the narrative standard into consideration when deciding on appropriate limits.



Part 4
Rules

Water Resources Division Regulatory Programs Related to Sediment and Road & Lot Management

- I Storm Water Permitting
 - Industrial
 - Municipal
 - Construction
 - Soil Erosion and Sedimentation Control



Construction Stormwater Permitting

- | DEQ implements 2 programs related to soil erosion & construction
 - Const SW -for earth disturbances over an acre in size and with a point source discharge to WOS (DEQ permits & inspects)
 - SESC – for earth disturbances over an acre in size or within 500' if a lake or stream (Locals Permit & DEQ oversees & audits)
- | To prevent the discharge of sediment laden water in to WOS (including wetlands) and onto adjoining properties





What are the Requirements?

- | Develop an SESC plan.
- | Properly maintain and operate SESC measures.
- | Have SESC measures under the supervision and control of a certified storm water operator.
- | Inspect the site weekly and within 24 hours of a run-off event that results in a discharge.



Requirements (continued):

- | Document all inspections and retain inspection reports for 3 years after project completion.
- | Make available to the public or provide to the DEQ all inspection reports or logs.
- | Be in compliance with SESC plan and SESC permit or approved SESC procedures (if an APA).

Requirements (continued):

- | Do not directly or indirectly discharge wastes such as construction materials, concrete truck washout, chemicals, lubricants, fuels, litter, or sanitary wastes.
- | Ensure that all spills and wastes are reported and disposed of in accordance with applicable laws and regulations.

Questions?
