

# BROWN WATER, GREEN WEEDS

## Familiar Signs of Nonpoint Source Pollution

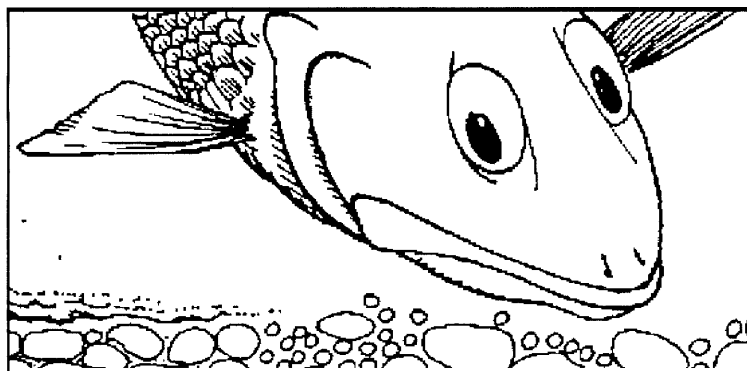
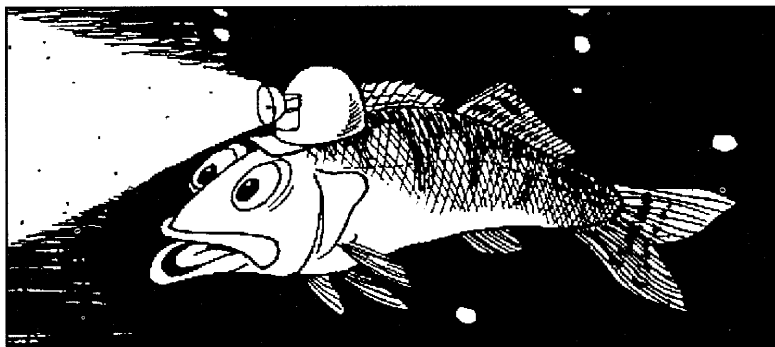


When water from melting snow or rainfall flows across farm fields and city streets it washes soil particles, pesticides, pet wastes, oil and other toxic materials into lakes and streams and becomes “Nonpoint Source Pollution.” Nonpoint source pollution is not a familiar term to most of us. The symptoms, however, are familiar: weed-choked lakes, muddy rivers that flood frequently, and fewer good days fishing. Most nonpoint source pollution is caused by sediments and nutrients. As you will see, these pollutants can cause serious problems.

## SEDIMENTS

Sediments are soil particles eroded from construction sites, streambanks and cropland. When these particles reach lakes and streams they do more than turn the water brown.

- Sediments cause the water to become cloudy, or “turbid,” making it difficult for fish to see and feed properly. Sediments can also damage fish gills and make it harder for fish and aquatic insects to feed and breathe.

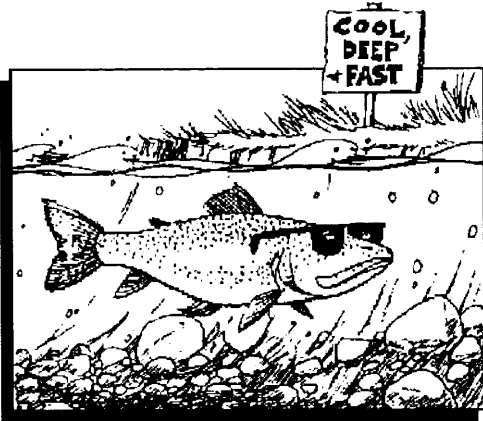


- Many fish and aquatic insects lay their eggs on gravel beds. When sediments are deposited on the stream bottom they cover this spawning habitat. They also destroy a stream’s natural “riffle and pool” pattern.

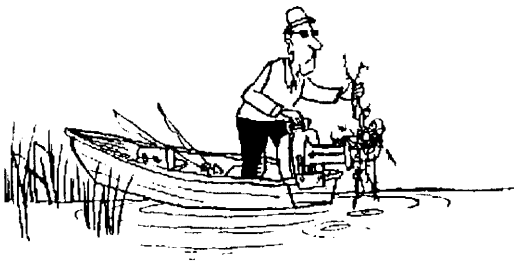
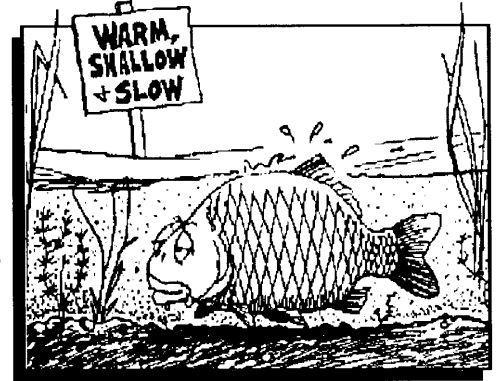


# SEDIMENTS

Sediments cloud the water and cover plant leaves, reducing sunlight penetration and inhibiting photosynthesis (plant food production). Without photosynthesis, desirable plant populations are reduced, leaving no place for fish and small organisms (fish food) to live.

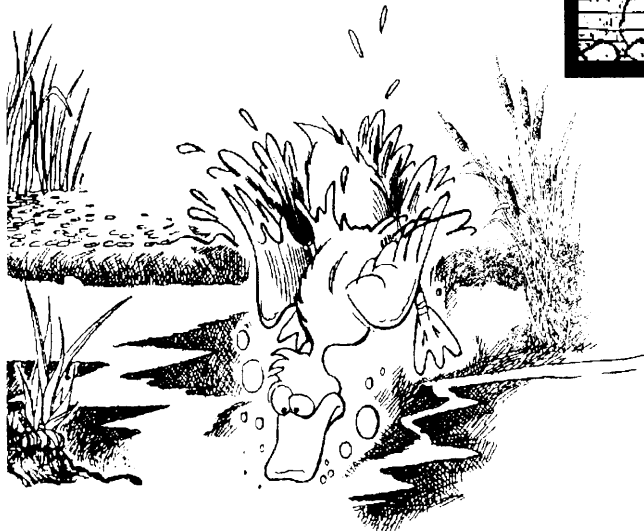
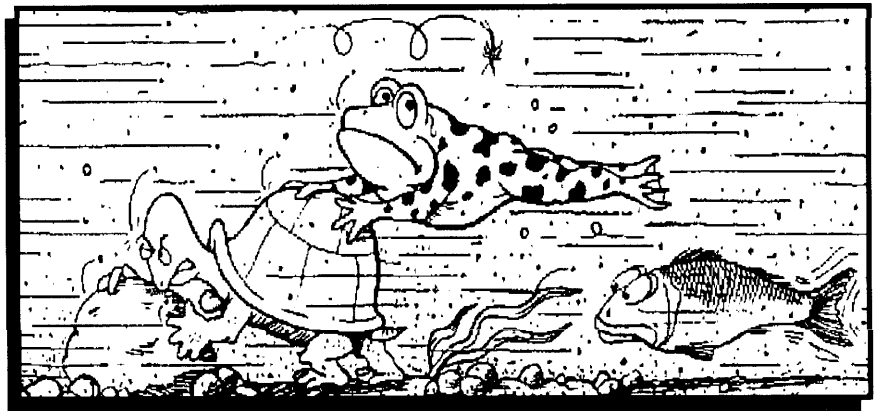


- Sediment deposits cause streams to become shallower and wider — increasing flooding problems. The shallow water is also heated more by the sun. This causes water temperatures to rise. In time cold water fish such as trout are replaced by warm water fish such as carp.



- Sediments affect boating by increasing the chances of propellers, rudders and keels running aground or hitting underwater hazards. Swimmers are also affected. Silted swimming areas are undesirable and can be dangerous if deep holes are filled with loose sediment.

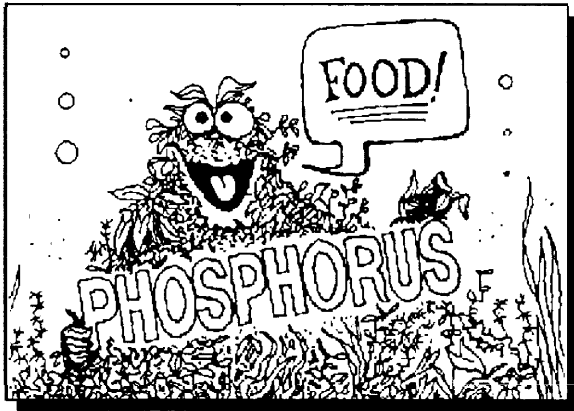
- Muddy or "murky" water contains millions of abrasive soil particles. In moving water, these particles can "scour" aquatic plants and animals, removing them from their habitat.



- Sediments reduce populations of food plants for ducks by blocking sunlight and creating soft, unstable beds for plant roots. Sediment deposits also harm duck populations by filling in wetlands used for breeding.

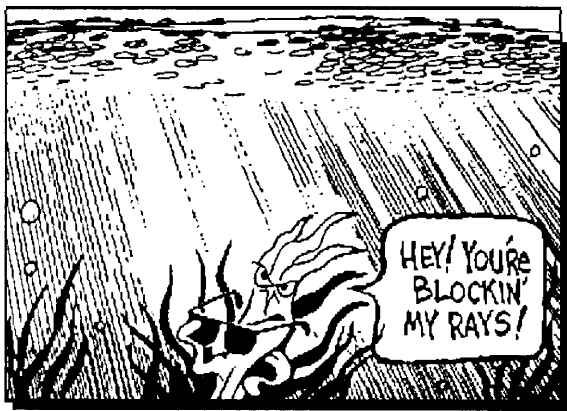
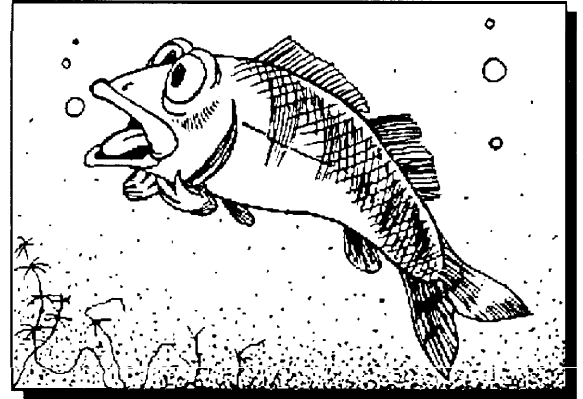
# NUTRIENTS

Nutrients such as phosphorus and nitrogen come from manure, pet wastes, improperly maintained septic systems and misapplication of fertilizers on lawns or farm fields. Nutrients can also be carried off the land with eroding soil. When these nutrients reach our lakes and streams they do more than turn the water green with weeds and algae.



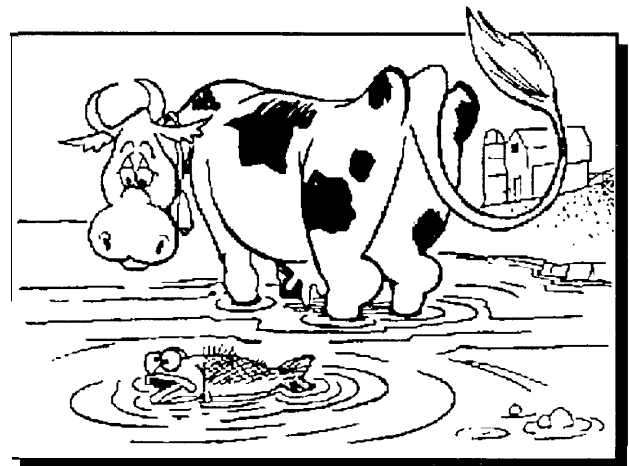
- Phosphorus contributes to the eutrophication (over-fertilization) of lakes and streams. This leads to an increase in undesirable weed and algae growth. Excess weeds and algae are harmful to fish, and make a lake or stream less attractive for swimming, boating and other activities.

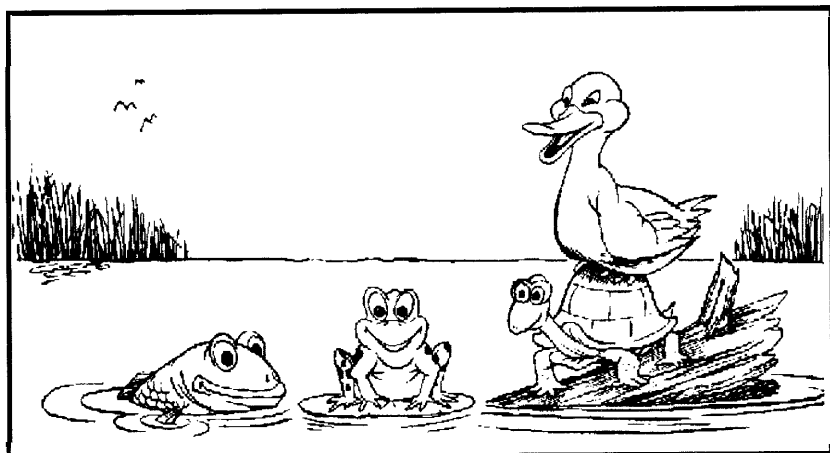
- When algae and aquatic weeds die, they are broken down by bacteria. During this process, bacteria consume oxygen. Lower oxygen levels can make it difficult for fish and other aquatic organisms to survive. Excess weeds also contribute to winter fish kills in shallow lakes.



- Excess algae can reduce populations of bottom-rooted plants by blocking sunlight. Bottom-rooted plants provide food and habitat for fish and waterfowl.

- When organic materials such as manure, pet wastes, leaves and grass clippings enter a lake or stream they are broken down by bacteria. The decomposition process reduces oxygen levels in the water and may increase ammonia levels. Low oxygen levels and high ammonia levels, combined with warm temperatures, can kill fish.





● Nonpoint source pollution upsets the delicate balance of aquatic communities and forces fish and wildlife that require cool, clean water to find new homes.

## HELPING OUT

We don't have to settle for streams and lakes that are brown with sediment or green with algae. The Michigan Nonpoint Source Program helps local communities improve water quality. If your favorite lake or stream is not as productive or beautiful as it once was, maybe it is suffering from nonpoint source pollution.

To learn more about nonpoint source pollution and what can be done to protect our water resources, contact a Nonpoint Source staff member at one of the following locations.

**Cadillac District Office**  
231-775-3960

**Grand Rapids  
District Office**  
616-356-0500

**Jackson District Office**  
517-780-7690

**Kalamazoo District Office**  
269-567-3500

**Lansing District Office**  
517-335-6010

**Lansing Nonpoint  
Source Unit**  
517-335-1180

**Saginaw Bay  
District Office**  
989-686-8025

**S.E. Michigan  
District Office**  
586-753-3700

**Upper Peninsula  
District Office**  
906-346-8300

Adapted with permission from the University of Wisconsin-Extension (UWEX) and the Wisconsin Department of Natural Resources

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Water Division

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[www.michigan.gov/deq](http://www.michigan.gov/deq)  
**1-800-662-9278**



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