BROWN WATER, GREEN WEEDS

Familiar Signs of Nonpoint Source Pollution

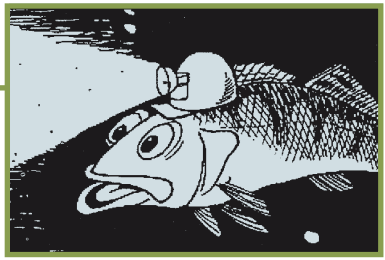
EGLE
MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

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: plant-choked lakes, shallow, slow, muddy rivers that flood frequently and fewer good days boating, fishing or swimming. Sediments and nutrients are the most common nonpoint source pollutants. As you will see, these pollutants can cause serious problems.

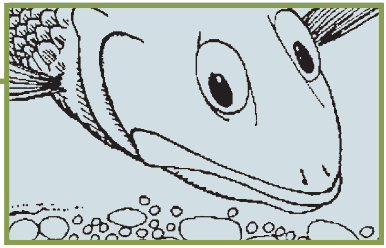
SEDIMENTS

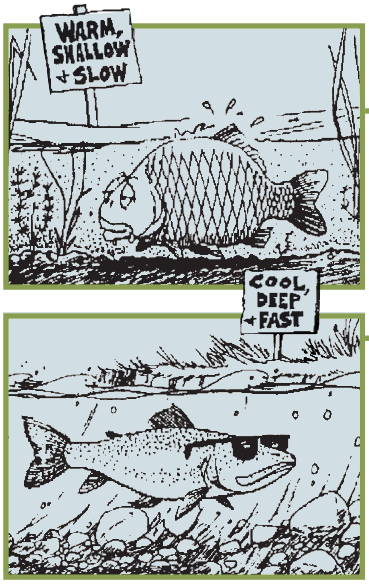
Sediments are loose soil particles washed from bare soil areas such as construction sites and cropland, or off dirty roads, sidewalks, and other hard surfaces. When these particles reach lakes and streams, they do more than turn the water brown.

Sediments cause the water to become cloudy, or "turbid," making it difficult for fish to see and feed properly. The reduced light penetration inhibits photosynthesis (plant food production) impacting desirable aquatic plants which serve as habitat and food for aquatic insects and fish. Sediments can also damage fragile gill tissues and make it harder for fish and aquatic insects to breathe.



Most fish and all aquatic insects lay eggs. When sediments are deposited, they can cover spawning habitats and suffocate eggs.





Excessive sediment deposits can destroy a stream's natural "riffle and pool" pattern causing it to become shallower and wider-increasing flooding problems. The shallow water is also heated more by the sun and warmer water holds less oxygen. In time cold water fish such as trout are replaced by warm water fish such as carp.

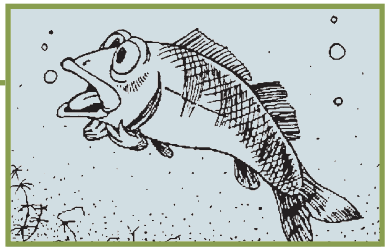
Sediments affect boating by increasing the chances of propellers, rudders and keels running aground or hitting underwater hazards. Swimmers are also affected. Silted swimming areas are undesirable and can be dangerous if deep holes are filled with loose sediment.

Muddy or "turbid" water can contain millions of suspended soil particles. In moving water, these particles can "scour" aquatic plants and animals, removing them from their habitat.

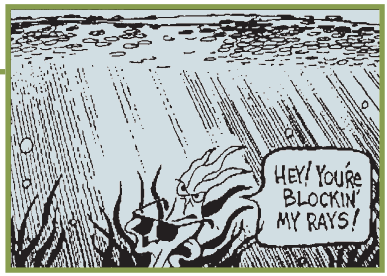
NUTRIENTS

Plants use nutrients such as phosphorus and nitrogen to build proteins and support the photosynthesis process. Nonpoint sources of nutrients include manure, pet wastes, improperly maintained septic systems and misapplication of fertilizers on lawns or farm fields. Nutrients can also be washed off the land with soil particles. When excess nutrients reach our lakes and streams, they do more than turn the water green with weeds and algae.

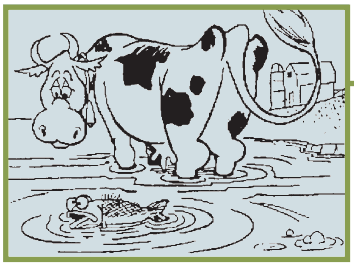
Excessive plant and algae growth can cause summer and winter fish kills because when they die, they are broken down by bacteria. During this process, bacteria use oxygen which reduces the oxygen levels available for fish and other aquatic organisms.



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



Excess nutrients lead to an increase in undesirable plant and algae growth which make a lake or stream less attractive for swimming, boating and other activities.



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

Erosion is a natural process, there wouldn't be a Grand Canyon or the Pictured Rocks without it; and our lakes and streams need some level of nutrients to support aquatic life. However, when people change the landscape, excess sediment and nutrients can be the result. This nonpoint source pollution can upset the delicate balance of lakes and streams leading to unwanted changes to our water resources.

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, visit our website *Michigan.gov/NPS.*

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