

# Brown Water, Green Weeds



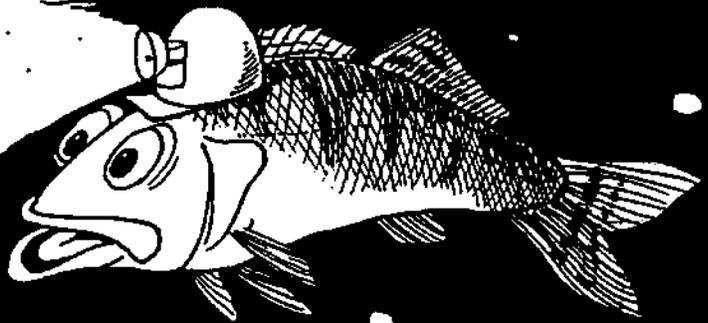
## Familiar Signs of Runoff Pollution

**W**henver rain falls or snow melts, water flows across farm fields and city streets and washes soil particles, pesticides, pet wastes, oil and other pollutants into lakes and streams. This process is called nonpoint source or runoff pollution. The symptoms of runoff pollution are all-too-familiar: weed-choked lakes, muddy rivers that flood frequently, and an over-abundance of carp in our favorite fishing holes. Sediments and nutrients cause many of the problems we see in streams and lakes.

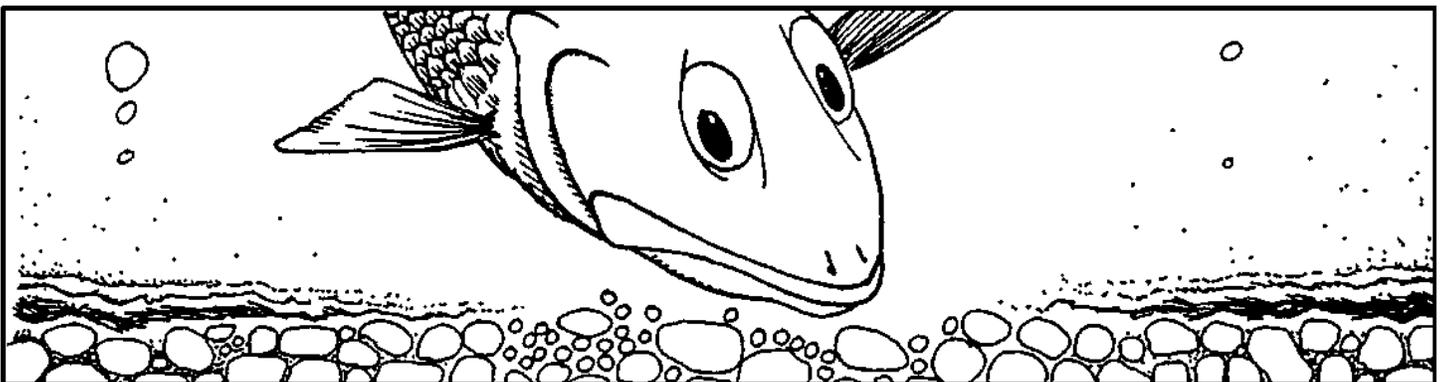
### *Sediments*

Sediments are soil particles eroded from construction sites, streambanks and cropland. Sediments also include dirt, flakes of metal, and small pieces of broken pavement washed off city streets. 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 impair the feeding and breathing processes in aquatic insects that fish eat.

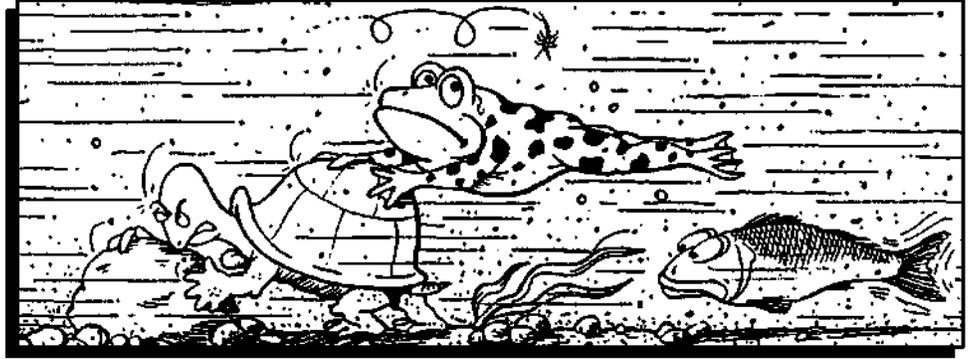


- ▶ Many fish and aquatic insects lay their eggs on gravel beds. When sediments are deposited on the stream bottom they cover this spawning habitat. They also destroy a stream's natural "riffle and pool" pattern, producing a slow-moving, muddy, less attractive stream.

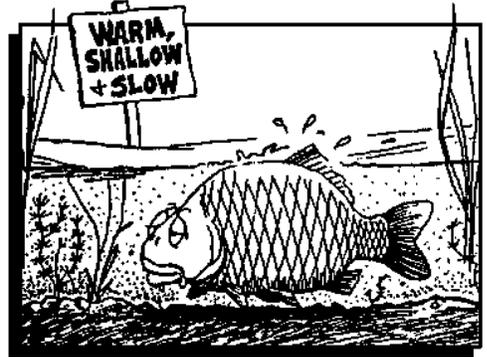
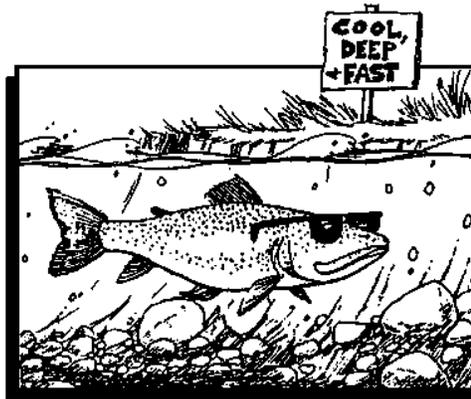


## SEDIMENTS *continued*

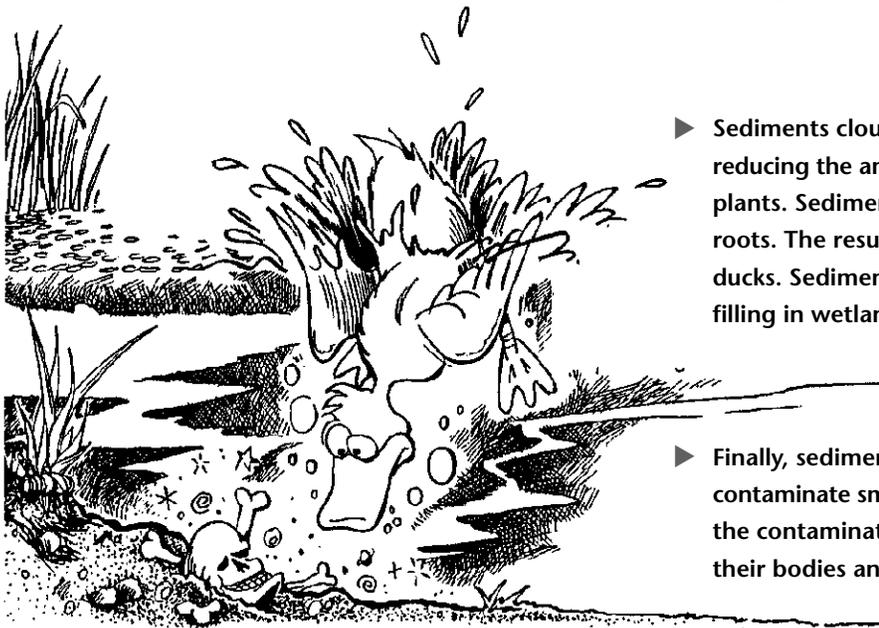
- ▶ Muddy or “murky” water contains millions of abrasive soil particles. In moving water these particles can “scour” aquatic plants and animals, removing them from their habitat.



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



- ▶ Sediments reduce visibility and increase 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.

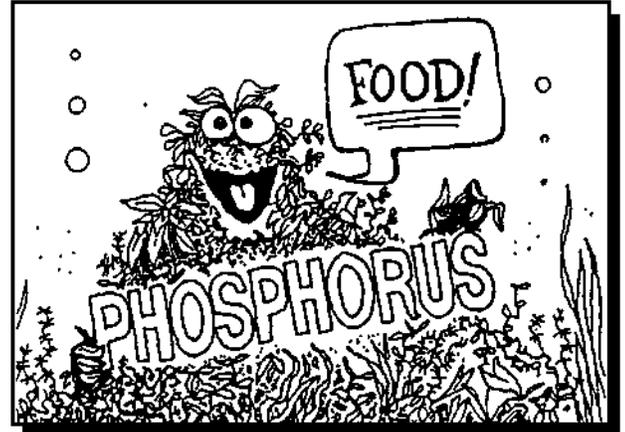


- ▶ Sediments cloud the water and cover plant leaves, reducing the amount of sunlight reaching desirable aquatic plants. Sediments also create soft, unstable beds for plant roots. The result is a decrease in food plants available to ducks. Sediment deposits also harm duck populations by filling in wetlands used for breeding.
- ▶ Finally, sediments carry and store toxic materials that can contaminate small organisms. When fish and waterfowl eat the contaminated organisms, the toxins can accumulate in their bodies and cause illnesses, birth defects and death.

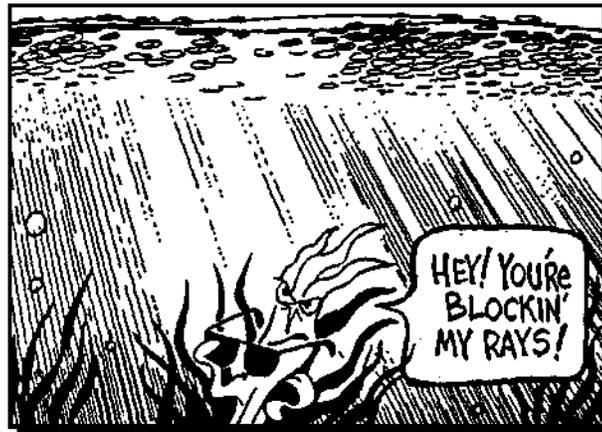
## NUTRIENTS

Nutrients such as phosphorus and nitrogen come from sediments, manure, pet wastes, improperly maintained septic systems and misapplications of fertilizers on lawns or farm fields. When these nutrients reach our lakes and streams they do more than just turn the water green.

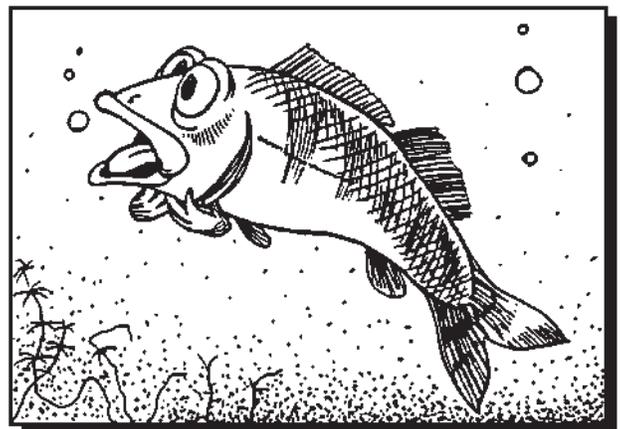
- ▶ Phosphorus contributes to the eutrophication or over-fertilization of lakes. This leads to an increase in undesirable weed and algae growth. Excess weeds and algae are harmful to fish and make a lake less attractive for swimming, boating, and other activities.



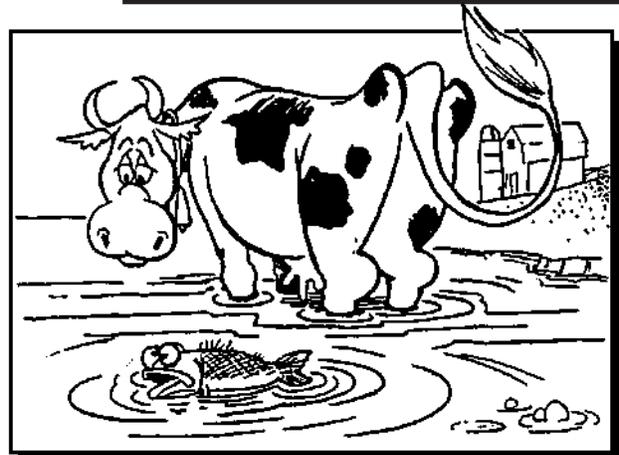
- ▶ Excess algae can reduce populations of bottom-rooted plants by blocking sunlight. Bottom-rooted plants provide food and habitat for fish and waterfowl.

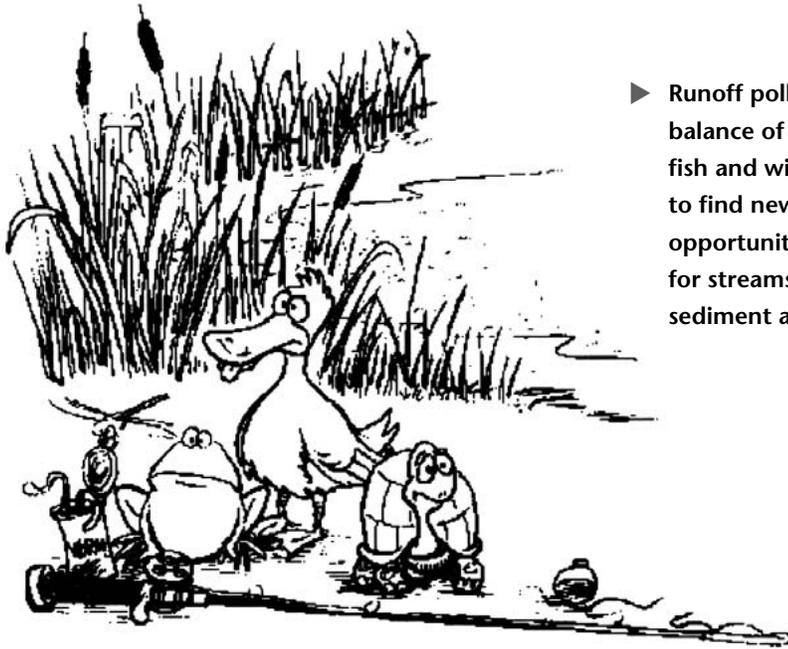


- ▶ When algae and aquatic weeds die they are broken down by bacteria. Bacteria consume oxygen during the decomposition process and make it difficult for fish and other aquatic life to survive. Excess weeds and reduced oxygen levels also contribute to winter fish kills in shallow lakes.



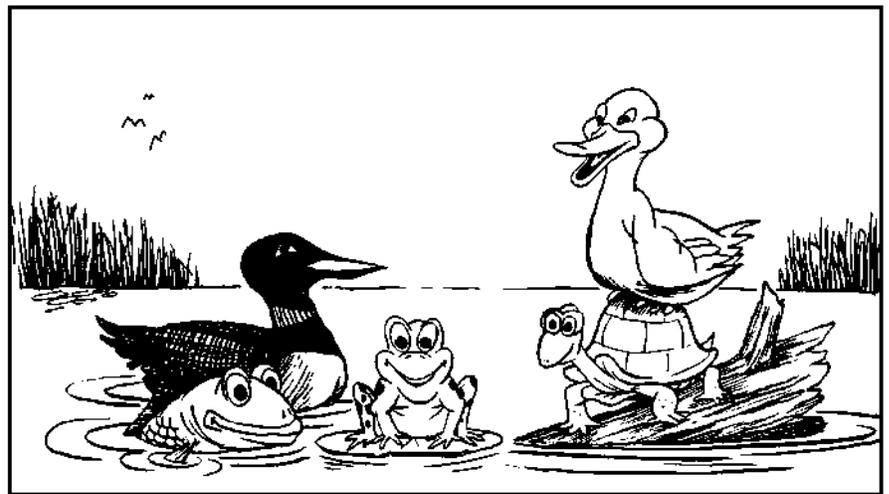
- ▶ When organic materials such as manure, pet wastes, leaves and grass clippings enter a lake or stream they are broken down by bacteria. The decomposition process reduces oxygen levels in the water and may release ammonia. Low oxygen levels and ammonia combined with warm temperatures can kill fish.





- ▶ Runoff pollution upsets the delicate balance of aquatic communities, forces fish and wildlife that require clean water to find new homes, and ruins recreational opportunities. But we don't have to settle for streams and lakes that are brown with sediment and green with algae...

- ▶ Individuals and communities can take steps to improve water quality. If your favorite lake or stream is not as productive or beautiful as it once was, maybe it is suffering from runoff pollution. For more information about runoff pollution and what you can do to prevent it, contact your county University of Wisconsin–Extension office, Land Conservation Department, or the Department of Natural Resources.



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