

# Water Pollution

## How Does It Get There?

Improper land and water use in urban and rural areas has led to a decline in the health of our watersheds and water quality.

Industrial impacts on water can be severe when toxic chemicals are dumped or accidentally spilled into waterways. This type of pollution, called **point source pollution**, has not been a major contributor to water pollution since the Clean Water Act of 1972. Industries must have special permits to discharge waste materials into waterways, usually having to first treat the wastewater. Severe fines and penalties may result from noncompliance.

Small businesses can be contributors, too. Garages that dump waste oil or antifreeze rather than recycling, drycleaners that improperly dispose of solvents, and photo labs' metal waste can all be sources of water contaminants.

**Nonpoint Source Pollution** is a much bigger problem. It occurs when rainfall, snowfall, or irrigation runs over land or through the ground and picks up pollutants and deposits them in bodies of water. Poor planning at construction sites can lead to excessive losses of sediment. Toxic construction materials like paint, solvents, acids, and glues, can also pollute water.

In other parts of the country, improper mining has been a large contributor to pollution in the past. Rainwater washed sediment that had become acidic from discarded mine materials into waterways. Today mining is heavily regulated and mining companies must have specific plans for keeping sediment and toxic substances in place and reclaiming the land when mining is completed.

In urban areas, rainwater that lands on non-permeable streets, sidewalks, and parking lots creates runoff, carrying pollutants into streams. Lawn and garden chemicals like herbicides, insecticides, and fertilizers can seep into groundwater or end up in waterways. Toxic solvents, paints, oils, and cleaners often get poured down the drain rather than being disposed of properly. Salt used on icy streets is also a serious pollutant.

Agriculture often has great effects on water quality. Farming practices like fence row-to-fence row tillage and plowing steep hillsides can increase the chances for large amounts of sediment runoff. Sediment runoff is the major pollution problem stemming from

agriculture. Chemicals like herbicides, insecticides, and fertilizers, particularly when more is applied than is needed, can run off into waterways or seep into groundwater.

Livestock manure can also be washed into waterways, particularly when animals have direct access to the water. Improperly managed manure, especially on large livestock farms, can lead to increased amounts of bacteria in the water.

## **Prevention is the Key**

**Pollution can be prevented.** It is up to us to put effective prevention strategies like the following into practice:

- Plant trees, shrubs, and grass to hold soil in place.
- Use fertilizer, herbicides and insecticides sparingly. Perform soil tests to determine the correct amounts needed.
- Dispose of hazardous chemicals correctly. Do not pour them down the drain. Find out where collection sites are in the Des Moines area.
- Limit impermeable surfaces in your landscape. Use more permeable surfaces like wood decks and bricks.
- Do not hose down driveways or sidewalks. Sweep them to avoid runoff of pollutants.
- Farmers can use effective conservation practices like building terraces on steep slopes, planting buffer strips and grass waterways, and creating wetlands to slow down runoff and soak up pollutants, particularly in areas close to waterways.
- Construction workers can spread mulch, like straw, on bare ground and put up temporary fences to stop sediment runoff.
- Keep leaves, litter, pet waste, and other debris out of street gutters and storm drains.
- Farmers can keep livestock out of waterways and manage manure.
- Regularly check septic tanks for leaks.
- Use nonchemical de-icers like sand and ash on pavement.

## **Pollution Projects for Your Class**

1. Organize a local creek cleanup. Be sure to gain permission from landowners or local officials.
2. Have students write songs, poems, or stories about ways to prevent and/or clean up pollution. Have them share their creations with other classes.
3. Have students create original skits about ways to prevent or clean up pollution. Invite parents to attend the presentations. Make a video of the skits to share with others.
4. Have students create a mural, posters, flyers, or brochures to educate the community about the importance of protecting our water from pollution. Get permission to hang them in public places or distribute in students' neighborhoods.

5. Have students develop visual displays of things that threaten the health of creeks and rivers, like erosion, garbage, construction, and lack of vegetation.
6. Have students do a community creek walk and submit their findings to local officials.
7. Gain permission from landowners or local officials to have your students conduct a streambank revegetation project to prevent soil erosion. Or have your class assist with a creek habitat restoration project being conducted by a local environmental group like the Sierra Club, County Conservation Board, or the Natural Resources Conservation Service.
8. Have students write letters to state legislators to inform them of specific water pollution concerns in their community.
9. Teach your students how to plant and take care of trees and bushes.
10. Have students prepare a fact sheet about how to dispose of hazardous chemicals to duplicate and distribute to people in their school and neighborhoods.