

Non-Point Source Pollution

To envision non-point source (NPS) pollution, just think about what happens each time it rains. Water flows over lawns, agricultural fields, parking lots, buildings, and all other natural and human-made structures. As the water flows, it picks up dirt, trash, nutrients, small organisms, and toxic wastes. All of this runoff eventually pours into lakes, streams, rivers, and oceans or seeps into the groundwater. Thus all of our water sources are affected by this pollution (Figure 2.40).

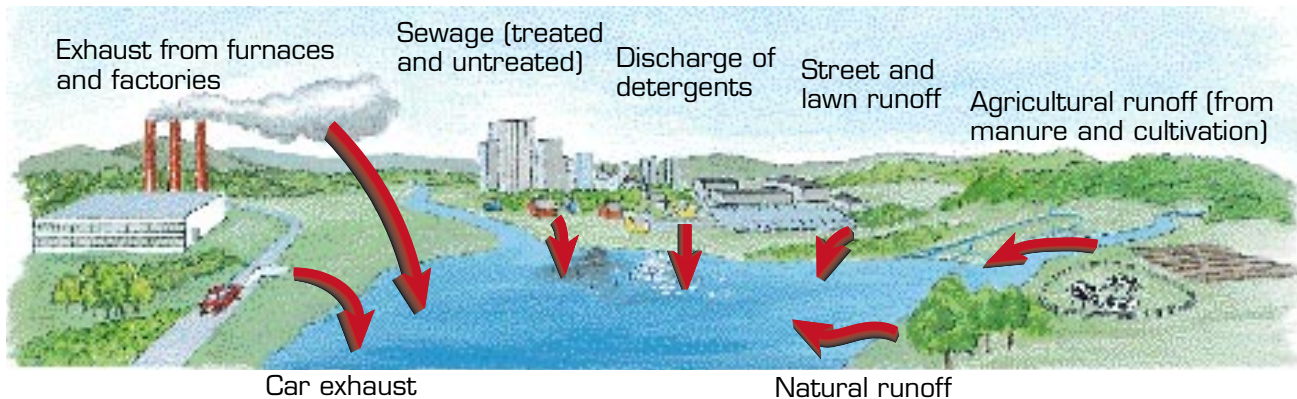
Why should we worry about this? NPS pollution accounts for more than half of the water pollution in the United States. Environmental protection regulations that have been enacted since the 1970s have effectively reduced point source contamination from industrial plants and sewage treatment facilities. Non-point source pollution is far more difficult to control because the sources are so diffuse.

What is the ultimate source of NPS pollution? *You* are! Every time you wash your car or fertilize your lawn, you contribute to the problem. This doesn't mean that you need to completely change your lifestyle. Responsible and educated personal decisions can drastically reduce NPS pollution and improve the quality of the water that we all use.


Phosphorus is an important component of NPS pollution. Humans and human activities are responsible for most of the phosphorus in runoff. The per capita amount of phosphorus that is generated in the biome depends on the amount and type of food that the population consumes and the amount of household waste flushed through the system. For example,

Figure 2.40

Non-point sources of pollution



soaps and detergents that contain phosphorus increase the total amount of phosphorus in household wastewater. Most states have banned the use of phosphate detergents to reduce phosphorus NPS pollution.

You can estimate the amount of phosphorus contributed by each person in your biomap area. Multiply the number of people by the amount of phosphorus that one person produces. Several studies in North America and Europe found that the domestic sewage (excrement plus household wastes) produced by one person each year contains approximately 0.80 kilogram of phosphorus. 

Extended Inquiry 2.6

Studies on Non-Point Source Water Pollution

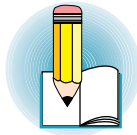
Where does non-point source water pollution occur in your community? For this inquiry, explore the types and sources of NPS pollution in your community.

Procedure

1. Look for potential problems of runoff into local lakes and streams.
2. When there is a rainstorm, observe and note in your *Log* the actual sites where most of the runoff occurs.
3. Prepare a report that describes existing and potential NPS problems.
4. As a class and/or with representatives of your community, brainstorm methods for reducing non-point source pollution.

Interpretations: Respond to the following in your *Log*:

1. Define the watershed drainage area, and identify the rivers and streams that receive the runoff.
2. Identify the types of water pollutants that are associated with the land uses and activities on the watershed. Which of these materials drain into the river through a pipe, and which travel through the soil and materials of the watershed?



Applications: Arrange one of the following expeditions:

1. Take a field trip to observe point and non-point source pollution problems in your community. If a field trip is not possible, seek a representative of an appropriate local or state agency to discuss this issue in person or by phone.
2. Take a trip to a sewage treatment facility to learn about how your municipal wastes are handled. Determine how the wastes are treated (primary, secondary, or tertiary treatment) and where the treated wastes are discharged.

