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Pollution and Ecosystem Services

The natural environment can help treat, dilute, and neutralize many types of human-generated waste. Different types of ecosystems (the organisms that exist in a particular environment) provide different services. For example, plants remove harmful pollutants from the air, including particulate matter and ozone, and remove carbon dioxide through photosynthesis. Organisms in the water and on land can help decompose organic material such as human waste, food scraps, and yard waste. Organisms in soil also help filter pollutants that may be present in soil and water, thus helping to protect ground water from surface pollutants.

However, there is a limit to how much waste and pollution forests, rivers, and other ecosystems can absorb before that waste becomes harmful. For example, in surface water, an abundance of organic waste can create algae blooms. When the algae die, they consume oxygen in the water and reduce what is available for fish and other organisms.

When ecosystems are altered, either naturally or due to human causes, their ability to process pollution can diminish. Natural changes can be caused by drought, flood, wildfire, or other events. Human alterations can be due to resource use or various land uses. For example, if a river is being used for irrigation or drinking water, its capacity to absorb pollution may be compromised. Also, when vegetation is removed from the landscape, the land is less able to absorb rainwater, resulting in additional runoff into rivers and streams. Runoff from impervious surfaces (e.g., parking lots) often contains pollutants such as oil, sediment, and heavy metals. In these cases, not only is the land less able to absorb pollutants, but the amount of pollution also increases.

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Nature doesn't process all pollutants equally well. Some substances are not broken down in nature and tend to persist in the state in which they were disposed. For instance, mercury—a known neurotoxin—is a chemical element and will not break down further. PCBs, chemical compounds used as cooling fluid, have been found to cause liver damage in fish and other wildlife and are also not broken down in nature.

Natural landscapes can help manage many of our waste streams, but we must do our part in protecting these ecosystems and preventing the pollution that reaches them. You can help reduce pollution by doing the following:

- When purchasing disposable items, check to see if they are recyclable or compostable.
- Dispose of hazardous materials properly. Don't pour motor oil down storm drains, and contact your local solid waste department to inquire about household hazardous waste collection programs.
- Learn what you can do to prevent pollution today. Contact Ben Jarvis at ben.jarvis@deq.idaho.gov or (208) 373-0146.