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| **What is nonpoint source pollution?** |
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| Nonpoint source pollution is also known as "runoff pollution." Nonpoint source pollution is a major contributor to water pollution in the United States and in other countries. Unlike point source pollution, which enters the water from specific locations (such as a discharge pipe from a factory or wastewater facility, an oil or chemical spill) nonpoint source pollution comes from a broader area. Nonpoint source pollutants are picked up and transported during rain and snowmelt events. The rain and/or snowmelts pick up human-made and/or natural pollutants and transport them into lakes, rivers, wetlands, and groundwater. \*NPS pollutants include: * Fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
* Oil, grease, and toxic chemicals from urban runoff;
* Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks;
* Bacteria and nutrients from livestock, pet wastes, and faulty septic systems

**Nonpoint Source Pollutants and Their Effects**Nonpoint source pollution is the leading cause of water quality problems. The effects of nonpoint source pollutants on specific waters vary. Nonpoint source pollutants have harmful effects on drinking water supplies, recreation, fisheries, and wildlife. The examples of nonpoint source pollutants include: * **Nutrients**, which are compounds that stimulate plant growth. The two most common nutrients reaching our waters are nitrogen and phosphorous. Nitrogen contamination of drinking water can cause health problems. Excess nutrients running off the land and reaching surface waters can cause massive algae blooms, the decay of which can create odors and use up most of the dissolved oxygen, which can result in fish kills. Nutrients in polluted runoff can come from a variety of sources such as agricultural fertilizers, septic systems, home lawn care products, and yard and animal waste.
* **Sediment**, which is the silt, sand, dirt, and gravel eroded by runoff usually ends up in streams and lakes. Sedimentation can alter stream flow and decrease the availability of healthy aquatic habitat. Poorly protected construction sites, agricultural fields, and roadways can be major sources of sediment.
* **Pathogens**, which are organisms as bacteria, viruses, and protozoan, coming from untreated sewage, storm drains, septic tanks, and runoff from farms. Pathogens cause illnesses such as typhoid and dysentery.

**What can we do to prevent nonpoint source pollution?**(*Source of information: EPA Journal article, EPA-22K-1005*)**Urban Storm Water Runoff** * Keep litter, pet wastes, leaves, and debris out of street gutters and storm drains--these outlets drain directly to lake, streams, rivers, and wetlands.
* Apply lawn and garden chemicals sparingly and according to directions.
* Dispose of used oil, antifreeze, paints, and other household chemicals properly, not in storm sewers or drains. If your community does not already have a program for collecting household hazardous wastes, ask your local government to establish one.
* Clean up spilled brake fluid, oil, grease, and antifreeze. Do not hose them into the street where they can eventually reach local streams and lakes.
* Control soil erosion on your property by planting ground cover and stabilizing erosion-prone areas.
* Encourage local government officials to develop construction erosion/sediment control ordinances in your community.
* Have your septic system inspected and pumped, at a minimum, every 3-5 years so that it operates properly.
* Purchase household detergents and cleaners that are low in phosphorous to reduce the amount of nutrients discharged into our lakes, streams and coastal waters.

**Agriculture** * Manage animal waste to minimize contamination of surface water and ground water.
* Protect drinking water by using less pesticides and fertilizers.
* Reduce soil erosion by using conservation practices and other applicable best management practices.
* Use planned grazing systems on pasture and rangeland.
* Dispose of pesticides and containers in an approved manner.

**Household Chemicals** * Be aware that many chemicals commonly used around the home are toxic. Select less toxic alternatives. Use non-toxic substitutes wherever possible.
* Buy chemicals only in the amount you expect to use, and apply them only as directed. More is not better.
* Take unwanted household chemicals to hazardous waste collection centers; do not pour them down the drain. Pouring chemicals down the drain may disrupt your septic system or else contaminate treatment plant sludge.
* Never pour unwanted chemicals on the ground. Soil cannot purify most chemicals, and they may eventually contaminate runoff or soak into the groundwater.
* Use low-phosphate or phosphate-free detergents.
* Use water-based products whenever possible.
* Leftover household pesticide? Do not indiscriminately spray pesticides, either indoors or outdoors, where a pest problem has not been identified. Dispose of excess pesticides at hazardous waste collection centers.

**Landscaping and Gardening:** * When landscaping your yard, select plants that have low requirements for water, fertilizers, and pesticides.
* Cultivate plants that discourage pests. Minimize grassed areas, which require high maintenance.
* Preserve existing trees, and plant trees and shrubs to help prevent erosion and promote infiltration of water into the soil.
* Use landscaping techniques such as grass swales (low areas in the lawn) or porous walkways to increase infiltration and decrease runoff.
* Install wood decking or bricks or interlocking stones instead of impervious cement walkways.
* Install gravel trenches along driveways or patios to collect water and allow it to filter into the ground.
* Restore bare patches in your lawn as soon as possible to avoid erosion.
* Grade all areas away from your house at a slope of one percent or more.
* Leave lawn clippings on your lawn so that nutrients in the clippings are recycled and less yard waste goes to landfills.
* If you elect to use a professional lawn care service, select a company that employs trained technicians and follows practices designed to minimize the use of fertilizers and pesticides.
* Compost your yard trimmings. Compost is a valuable soil conditioner, which gradually releases nutrients to your lawn and garden. (Using compost will also decrease the amount of fertilizer you need to apply.) In addition, compost retains moisture in the soil and thus helps you conserve water.
* Spread mulch on bare ground to help prevent erosion and runoff.
* Test your soil before applying fertilizers. Over- fertilization is a common problem, and the excess can leach into ground water or contaminate rivers or lakes. Also, avoid using fertilizers near surface waters. Use slow- release fertilizers on areas where the potential for water contamination is high, such as sandy soils, steep slopes, compacted soils, and verges of water bodies. Select the proper season to apply fertilizers: Incorrect timing may encourage weeds or stress grasses. Do not apply pesticides or fertilizers before or during rain due to the strong likelihood of runoff.
* Calibrate your applicator before applying pesticides or fertilizers. As equipment ages, annual adjustments may be needed.
* Keep storm gutters and drains clean of leaves and yard trimmings. (Decomposing vegetative matter leaches nutrients and can clog storm systems and result in flooding.)

**Septic Systems:**Improperly maintained septic systems can contaminate ground water and surface water with nutrients and pathogens. For more information about Nebraska's specific rules regarding septic certification, go to

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| [**Onsite Wastewater Program (Septic Systems and Individual Lagoons)**](http://deq.ne.gov/NDEQProg.nsf/OnWeb/Onsite) |

By following the recommendations below, you can help ensure that your system continues to function properly. * Inspect your septic system annually.
* Pump out your septic system regularly. (Pumping out every three to five years is recommended for a three-bedroom house with a 1,000-gallon tank; smaller tanks should be pumped more often.)
* Do not use septic system additives. There is no scientific evidence that biological and chemical additives aid or accelerate decomposition in septic tanks; some additives may in fact be detrimental to the septic system or contaminate ground water.
* Do not divert storm drains or basement pumps into septic systems.
* Avoid or reduce the use of your garbage disposal. (Garbage disposals contribute unnecessary solids to your septic system and can also increase the frequency your tank needs to be pumped.)
* Don't use toilets as trashcans! Excess solids may clog your drain field and necessitate more frequent pumping.

**Water Conservation:** * Homeowners can significantly reduce the volume of wastewater discharged to home septic systems and sewage treatment plants by conserving water. If you have a septic system, by decreasing your water usage, you can help prevent your system from overloading and contaminating ground water and surface water. (Seventy-five percent of drain field failures are due to hydraulic overloading.)
* Use low-flow faucets, showerheads, reduced-flow toilet flushing equipment, and water saving appliances such as dish and clothes washers.
* Repair leaking faucets, toilets, and pumps.
* Use dishwashers and clothes washers only when fully loaded.
* Take short showers instead of baths and avoid letting faucets run unnecessarily.
* Wash your car only when necessary; use a bucket to save water. Alternatively, go to a commercial carwash that uses water efficiently and disposes of runoff properly.
* Do not over-water your lawn or garden. Over-watering may increase leaching of fertilizers to ground water.
* When your lawn or garden needs watering, use slow-watering techniques such as trickle irrigation or soaker hoses. (Such devices reduce runoff and are 20-percent more effective than sprinklers.)

**Other Areas Where You Can Make a Difference:** * Clean up after your pets. Pet waste contains nutrients and pathogens that can contaminate surface water.
* Drive only when necessary. Driving less reduces the amount of pollution your automobile generates. Automobiles emit tremendous amounts of airborne pollutants, which increase acid rain; they also deposit toxic metals and petroleum byproducts into the environment. Regular tune-ups and inspections can help keep automotive waste and byproducts from contaminating runoff. Clean up any spilled automobile fluids.
* Recycle used oil and antifreeze by taking them to service stations and other recycling centers. Never put used oil or other chemicals down storm drains or in drainage ditches. (One quart of oil can contaminate up to two million gallons of drinking water!)

**Community Action:** * Participate in clean-up activities in your neighborhood.
* Write or call your elected representatives to inform them about your concerns and encourage legislation to protect water resources.
* Get involved in local planning and zoning decisions and encourage your local officials to develop erosion and sediment control ordinances.
* Promote environmental education. Help educate people in your community about ways in which they can help protect water quality. Get your community groups involved.

**Related areas on this web site:**[NDEQ Nonpoint Source Pollution Program](http://deq.ne.gov/NDEQProg.nsf/OnWeb/NSMP)[Nonpoint Source Water Quality Grants](http://deq.ne.gov/NDEQProg.nsf/OnWeb/NSWQG)[Nonpoint Source Priorities](http://deq.ne.gov/NDEQProg.nsf/OnWeb/NSP)[Community-based Watershed Planning Manual](http://deq.ne.gov/Publica.nsf/Pages/WAT120)[Strategic Plan and Guidance for Implementing the Nebraska Nonpoint Source Management Program – 2000-2015](http://deq.ne.gov/Publica.nsf/Pages/WAT119)**Other links of interest:***Kids link*:<http://www.epa.gov/owow/nps/kids>\*<http://library.thinkquest.org/06aug/00442/wuwater.htm>\*<http://www.swfwmd.state.fl.us/education/kids/index.php>\*<http://library.thinkquest.org/06aug/00051/index.html>\**Nonpoint Source (Fact sheets)*:<http://www.epa.gov/owow/nps/facts>\*<http://www.enviroliteracy.org/article.php/413.html>\*<http://protectingwater.com/index.html>\*<http://www.watersheds.org/earth/nps2.htm>\**Education*:<http://www.brownsville-pub.com/kids/4-7/nonpoint.pdf>\*<http://www.enviroscapes.com/>\*<http://www.cleanoceanaction.org/index.php?id=321>\*<http://www.oceanservice.noaa.gov/education/kits/pollution/welcome.html>\*

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| \* **This Page contains links to Non-NDEQ websites, these links will open in a New Tab or Window** |

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