

## NON-POINT SOURCE POLLUTION & STORMWATER

Most of the pollution that enters Grand Traverse Bay comes from countless small sources throughout the watershed. When it rains, stormwater picks up a variety of pollutants along the way and transports them to the nearest stream, river or lake. According to the USEPA, this non-point pollution accounts for 70-80% of water pollution problems in the United States.

*Non-point pollution* sources include:

- Stormwater runoff carrying sediment, motor oil, road salt, antifreeze, gasoline, animal wastes, fertilizers, pesticides, and other substances. These products are washed away from our streets, driveways, parking lots and lawns on a daily basis.
- Poorly maintained septic systems. These can be a hidden source of excess nutrients to groundwater, along with pathogens and improperly disposed toxic substances.
- Household cleaning products and solvents. These products get rinsed down household drains or end up in landfills, contaminating our water.
- Precipitation containing mercury and other pollutants carried in by the wind from incinerators, power generating plants, and industries hundreds of miles away.

Excess nutrients and sediment have been identified as two of the biggest threats to the health of our watershed. Stormwater is the primary, although not the only, source of these pollutants.

### STORMWATER

One of the major pathways by which many types of pollutants get to lakes and streams is through *stormwater runoff*. Stormwater runoff results when drops of rain fall to the ground, or snow melts, and the resulting water that does not infiltrate into the ground flows over the surface of the land. This stormwater flow



often dislodges and carries soil or sediment particles (causing streambank erosion in some places) to which many pollutants are attached. The stormwater flow may also directly move the pollutant itself

*Road and roof runoff are two sources of stormwater.  
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(i.e., garbage, oils, grease, gas, pesticides, etc.). The amount of stormwater runoff that occurs is dependent upon a variety of conditions including storm intensity and duration, topography, time of year, soil moisture levels, soil permeability, vegetative cover types, the extent of vegetated cover, and the amount of *impervious surfaces*.

Urban locations, like Traverse City, Elk Rapids, and Suttons Bay, often produce greater amounts of stormwater flow due to the increased amount of impervious surfaces in these urban areas relative to more rural settings within the watershed. *Impervious surfaces* are those areas on land that cannot effectively absorb or infiltrate rainfall. Areas such as these may include: roads, streets, sidewalks, parking lots, and rooftops. Research suggests that there is a threshold to the amount of impervious cover that can occur within a watershed at which the degradation of aquatic systems occurs. Findings from the Maryland based Center for Watershed Protection reveal that stream degradation consistently occurs when impervious surface levels in a watershed reach between 10-20%.

**Websites for More Information:**

- Department of Environmental Quality: [www.michigan.gov/deq](http://www.michigan.gov/deq)
- Stormwater Manager's Resource Center: [www.stormwatercenter.net](http://www.stormwatercenter.net)