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Kickapoo Environmental Office

The Green Clan

Working Together for a Better Community!
ktik-nsn.gov/kickapooenvironmentalprotection.htm
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Water Pollution on Health

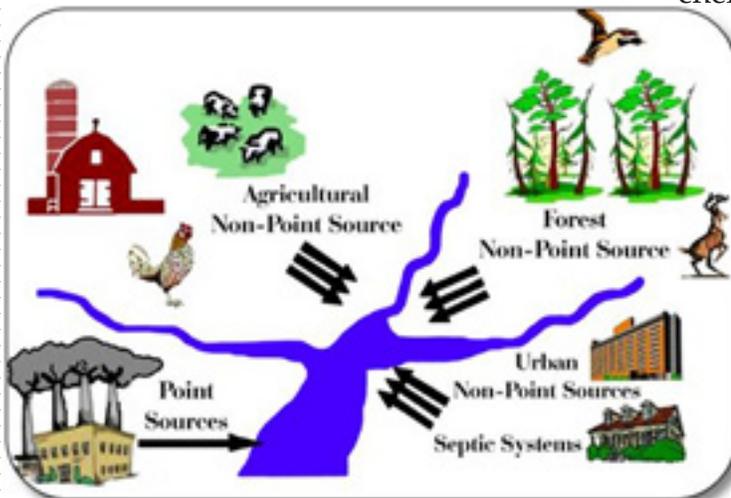
Water quality in streams, ponds, lakes and rivers influences drinking water, as well as fish population, vegetation, and it even affects whether the water is safe to use for ceremonial purposes (Sanders, 2011). Water pollution can also cause numerous problems for people living on reservations, affecting human health, causing liver damage, nervous system deteriorations and immune system destruction.

Point Source and Non-Point Source Pollution

There are many specific causes of water pollution, but before we list the major water pollutants, it's important to understand two broad categories of water pollution, point source and nonpoint source. Point source occurs when harmful substances are emitted directly into a body of water such as an industry plant releas-

Nonpoint source delivers pollutants indirectly through transport or environmental change such as excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas. Point source and nonpoint source pollution illustrate the sources of pollution and contamination in the environment.

According to the United States Environmental Protection Agency (USEPA), the biggest water pollutants are dirt, to which heavy metals and chemical emissions attach; bacteria from septic systems and agricultural operations; and nutrients from fertilizers and animal waste. The World Health Organization (WHO) estimates that there are over 250 million worldwide cases of illness annually related to polluted groundwater, most in developing nations, including diagnoses such as typhoid, dysentery and cholera. Heavy metals leached (percolation) from industrial dump sites, chemical factories, mining operations and poisonous emissions have been known to lead to birth defects or reproductive health problems and even increase the risks of some forms of cancer (LaMeaux, 2014).



Common Water Pollutants

It is known that developed areas suffer from problems of chemical discharge into the water sources, while developing areas face problems of agricultural runoff in water sources. Freshwater resources all over the world are threatened not only by over utilization and poor management but also by

environmental degradation. The main sources of freshwater pollution can be credited to the release of untreated waste, runoff from agricultural fields and dumping of industrial sewage. Urbanization (when populations grow, the population of a place may spill over from city to nearby areas), industrial growth (a sector of the economy experiencing a higher-than-average growth rate), and the increasing use of synthetic organic substances have serious and adverse impacts on freshwater bodies.



To expand on the three major water quality pollutants, dirt, which is typically generated from activities that remove trees and shrubs such as fields that have just been plowed, construction sites that have been bulldozed, and areas that have been logged increase the amount of dirt which increases the amount of pollutants. When rain washes dirt into streams and rivers, it overpowers the critters in the stream and kills any fish eggs clinging to rocks. Dirt can also clog the gills of fish, suffocating them.

The second major water pollutant is bacteria, which comes from combined sewers (which can overflow in a rainstorm and dump untreated sewage directly into our waters) and runoff of animal waste (including wild animal droppings) from farmland and city streets is a big water quality problem contaminating the water with germs and

viruses that can make you sick.

The third major water pollutants are nutrients, which was listed as the number one cause of water pollution in our lakes, ponds, and reservoirs. The two most common harmful nutrients are nitrogen and phosphorus, which cause algae to grow and can turn the water green. The major sources of nutrients are runoff of fertilizers and animal waste from farms and cities (lawn fertilizers can wash away in heavy rain), and runoff from failing septic systems and sewage treatment plants.

Preventive Measures

The key solutions to water pollution come down to individual responsibility because we all have a direct impact on the environment. From the toilet we flush to the trash we throw away, we stamp our footprints into our environment on a daily basis. While millions of people take advantage of common conveniences such as buying plastics and driving cars, our environment is slowly being degraded.

Water pollution is the contamination of water bodies, which is any chemical, physical or biological in the quality of water that has a harmful effect on any living thing that drinks, lives or uses it. Water-borne epidemics (widespread occurrence of an infectious disease) and health hazards in the aquatic environment are generally



due to improper management of water resources. In order to control these major water quality pollutants and to prevent the spread of water-borne infectious diseases, people need to take adequate precautions. Farmers are using different methods to grow their crops so they leave less earth exposed (planting grasses in fields that aren't being used), cities and towns are improving their sewage systems to keep untreated sewage from overflowing, and cultivators are learning new ways to apply fertilizers and manage livestock (EPA, 2012). Additional solutions include enforcing existing laws, stop nutrient and pesticide pollution, drive less, use green household and personal care products and use less plastic.

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**"Water is the driver of Nature."
-Leonardo da Vinci**

Citations

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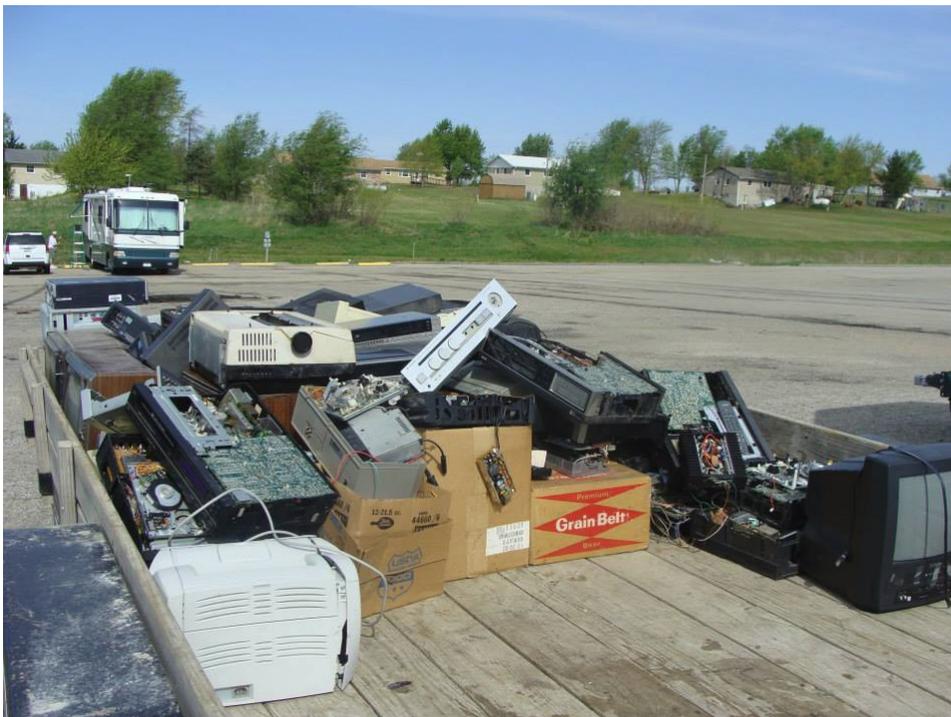
Updates from the Recycling Program

The Kickapoo Tribal Environmental Office just got done holding the yearly Tire Roundup. We took in about seventy-five tires this round. This will be the last Tire Roundup the Environmental Office will be holding, due to our Solid Waste Program no longer being funded by US EPA.

I recently packed up all the e-waste in the storage shed and filled in eight gaylord boxes to be dropped off at Topeka Asset Life Cycle. We recently installed surveillance cameras at our drop off storage area for e-waste, metal, and tires.

We have had people dropping off a lot of trash that we do not take. Please keep in mind that the bins are only for: e-waste, tires, and metal/appliances.

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Mercury Affects Songbirds

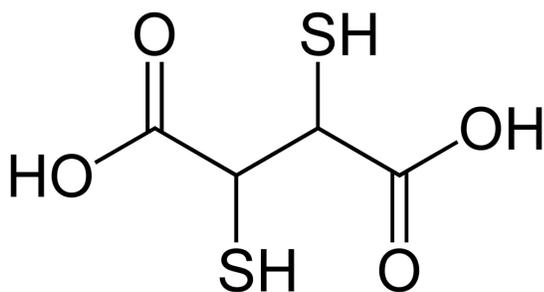
Mercury, a highly toxic environmental pollutant, is a topic which we, at the Kickapoo Environmental Office, write about on a regular basis. With the global increase of coal burned for electricity, there is more mercury than ever contaminating our world. A study published in the Journal of Ecotoxicology shows the effects of mercury toxicity are a problem for more than just humans.

The study took place on the banks of the Shenandoah River, Virginia, where due to previous industrial usage pre-1950, left the one of the tributaries contaminated with mercury. The mercury levels of population of birds native to the area were taken. Mercury levels from the birds in the contaminated area were compared to those who lived in non-contaminated areas. While it was unsurprising to find that the birds living in the contaminated areas have elevated levels of mercury, how it affected the birds was surprising.

The first effect was that while birds who showed an elevated level of mercury laid about as many eggs as birds that weren't contaminated did, many of the young birds died in the first few days after hatching. A second notable effect was that birds who had a high level of mercury could not sing as high, or as loud as their healthier counterparts. This is bad news for birds that are using their songs to find mating partners or protect their territory. Many of the smaller birds can also serve as bio-monitors for mercury levels of larger birds, such as eagles.

It is a well-known phenomenon that children exposed to methylmercury can develop problems with speech, language development, learning, and memory. So gaining a better understanding of why mercury-contaminated birds can't sing their songs could help scientists learn more about how it affects the human brain. This is just another indicator of the the long lasting effects that irresponsible human activity can have on the environment.

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Green Clan Word Search

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