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Keeping Trash Out of Streams

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Fresh water is an essential natural resource that is used every day for drinking, bathing, cooking, cleaning, and recreation. In Kentucky, the water used for these tasks mainly comes from streams and rivers, but it can also come from groundwater. Because our streams, rivers, and aquifers are so vital to our daily lives, it is important that we protect them from trash, debris, and other pollutants found in stormwater. What happens to the land around these water sources affects their condition and health.

How does trash reach streams?

One of the most common ways trash reaches streams is through the storm-sewer system, although some trash is blown in by the wind or illegally dumped along the stream banks. The storm sewer system is a series of gutters, curbs, and pipes that rapidly routes runoff from impervious surfaces such as roads and parking lots to nearby streams, rivers or lakes (Figure 1). When stormwater flows across a parking lot, for example, it picks up trash, debris, and other contaminants as it flows to a storm-sewer inlet, such as a storm drain or a gutter. The stormwater and all of these pollutants then travel through the storm-sewer system and eventually end up in nearby streams, lakes or reservoirs. So unless someone picks it up, an empty soda bottle that is left in a parking lot will eventually make its way to a stream.

Whose trash is it?

Most of the trash found in streams comes from the average citizen. The U.S. Environmental Protection Agency estimates that 80 percent of trash in marine systems is land-based in origin, with cigarettes, plastic beverage bottles, plastic bags, and food wrappers and containers topping the list. The Anacostia Watershed Society found that as much as 85 percent of the trash found in its local streams was associated with eating and drinking. The most common items in the streams were plastic bags, aluminum cans, plastic and glass bottles, Styrofoam, and snack wrappers (Figure 2), although other items such as tires, appliances, and clothing were found as well. This phenomenon is not isolated. A 100-foot stretch of stream in an urban area can have 50 or more pieces of trash along the streambed and banks.

Figure 1. Trash can enter the storm sewer systems through curb inlets, located in parking lots and along roads.

Figure 2. Floatables, such as this plastic bottle, are a common site in urban streams.

How does trash affect stream health?

Trash affects streams by altering the flow and impacting wildlife. Large pieces of trash can block the flow of water in streams, resulting in ponding, or bigger pieces can redirect flow into stream banks, causing them to erode (Figure 3). Small pieces of trash are easily caught in vegetation along the stream banks. If enough smaller trash accumulates on roots, limbs, or rocks in the stream, a portion of the stream flow can be blocked or altered (Figure 4). Trash can also clog stormwater inlets and culverts, which worsens flooding.

Ingestion and entanglement are the two main ways trash negatively impacts wildlife. Wildlife can mistake smaller pieces of floatable trash, such as cigarette butts or plastic bags, for food. If ingested, wildlife can suffer from malnutrition or

Figure 3. Large pieces of trash, such as this shopping cart, can direct flows and cause stream-bank erosion.

Figure 4. Stream-bank vegetation often catches small pieces of trash.

even internal injuries. Sharp objects can cut the mouth and puncture the digestive tract. Wildlife also can become injured when they are entangled in trash while swimming through it, sitting on it, or even playing with it.

How does trash affect human health?

People who come into contact with trash in streams should exercise caution. Trash containing fecal matter, such as diapers or pet waste bags, can expose people to pathogens. Glass and other sharp objects, such as metal or even hypodermic needles, can result in cuts and punctures.

What can you do to help?

- Properly dispose of your trash in a waste bin or a recycling bin.
- If you see litter on the ground, pick it up.
- Keep a small waste bag in your car to collect loose trash that might easily fall out.
- Opt out of plastic bags. Instead, shop with reusable bags.
- Drink from a refillable bottle rather than single-use bottles.
- Volunteer for a stream cleanup.

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Volunteering for a stream cleanup is a great way to protect our waters.

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