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People are the main source of many pharmaceuticals and personal care products released to the environment. Compounds from these products enter rivers primarily through the release of treated municipal wastewater (i.e. treated sewage).

Many compounds are not completely removed by existing wastewater treatment technology; however, some decompose naturally in the environment.

The need and ability to study the impacts of these compounds on Alberta's receiving rivers have increased in recent years. Very few of the compounds tested have water quality guidelines at this time. Guidelines will be set as further information on the effects of the compounds at different concentrations is determined.

Rivers are an important aspect of the high overall quality of water Albertans enjoy, and protecting them is an essential component of Alberta's *Water for Life* strategy.

- Receiving river waters show very low levels of pharmaceuticals and related compounds downstream of wastewater treatment plants - many of the substances tested for are below detection levels. Where water quality guidelines do exist for these compounds, they are rarely exceeded in Alberta.
- The province has detection patterns similar to other jurisdictions across Canada, the United States, and Europe. Concern about the environmental implications of these compounds is a relatively recent phenomenon; more information on their behavior is needed.
- To date, Alberta Environment's studies have provided baseline information, which is an essential first step in understanding the impact of pharmaceuticals on the province's rivers.

### NEXT STEPS

Further studies will increase our understanding of these compounds in municipal wastewaters as well as their distribution and levels in receiving rivers.

Future studies will include longer-term monitoring of these compounds in receiving river waters and river sediments, and may include tissue sampling from fish and invertebrates. Sampling of effluents from wastewater treatment plants may reveal best practices among these facilities and technologies that can then be used in plant upgrades and future designs.

### WHAT CAN YOU DO?

Pharmaceuticals flushed down the toilet or thrown in the garbage may enter surface or groundwater systems. Proper disposal of unused medications is essential. Most pharmacies in Alberta will provide free, environmentally responsible disposal of unused drugs. Details can be found at: [www.albertapharmacy.ca](http://www.albertapharmacy.ca).

### FOR MORE INFORMATION

Water quality reports and information sheets are available on the AENV website: [www.gov.ab.ca/env](http://www.gov.ab.ca/env). For more information on other department programs, visit the website, or call the regional office nearest you.

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