

Yakima River Watershed Toxics Study: Progress Update

Q: What is the Yakima River Watershed Toxics study?

A: The Washington Department of Ecology (Ecology) is expanding its efforts to clean up the Yakima River by taking a closer look at various toxic chemicals found in fish and waters throughout the river's corridor.

The new effort builds on past work to improve the river's water clarity and address DDT levels in the water column. Significant improvements have occurred in recent years, as the agency has worked in concert with local irrigation districts and water users to reduce runoff to the river.

The project will compare current levels of toxic chemicals to data collected in earlier years. This will help the agency discover how effective pollution control efforts have been.

Additionally, the project will evaluate chemicals not previously studied by Ecology. This study will also help determine what might be sources of other pollutants, like PCBs, in resident fish.

Q: What geographic area does this study cover?

A: The Yakima River Watershed Toxics study examines streams, rivers, reservoirs, and lakes, from the Yakima River's headwaters near Snoqualmie Pass to its confluence with the Columbia River.

The Yakima River flows for over 200 miles through south central Washington, and the Yakima River watershed is about 6,150 square miles or 4 million acres. Tributaries include the Cle Elum River, Teanaway River, and Naches River, as well as many creeks and irrigation return drains.

Q: What are "toxics"?

A: Toxics are chemical compounds that, at certain levels, can cause serious harm to human health. Most of the chemicals in this study are banned pesticides.

WHY IT MATTERS

The Yakima River is much cleaner, but it still needs your help!

In the early 1990s, scientists found that the Yakima River was polluted with suspended sediment, turbidity, and several types of toxic compounds.

Today, while the Yakima River and its tributaries are much cleaner than they were a few decades ago, they are still not meeting state water quality standards for some of these pollutants.

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Special accommodations:

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Q: Why are toxics a problem?

A: Toxics threaten our ability to use waters for our personal benefit. People can be harmed by chemical pollutants in water when they swim or wade in polluted water, or eat fish that have been contaminated by pollutants in the water. Eating such contaminated fish may cause birth defects, liver damage, cancer, and other serious health problems.

Q: What specific compounds are we looking for in this study?

A: Our study includes:

- DDT (and DDE and DDD)
- Dieldrin
- Chlordane
- Polychlorinated biphenyls (PCBs)
- Endosulfan
- Alpha-BHC
- Chlorpyrifos
- Toxaphene
- Dioxin

Q: What types of samples did we collect?

A: Ecology staff collected hundreds of fish from several lakes, rivers, and streams, in order to analyze what compounds the fish may have picked up from the water.

We also collected water samples for analysis, from:

- Permitted discharges from wastewater treatment plants and fruit packers
- Rivers, streams and irrigation return drains
- Municipal stormwater discharges

Q: What uses of the Yakima River are protected by this project?

A: The primary goal of this project is to protect human health. Cleaner water helps protect human health. People can be harmed by chemical pollutants in water when swimming or wading in polluted water, or after eating contaminated fish.

An added benefit: In this case, when we protect human health, we also protect fish and other aquatic species.

Q: How did the toxic compounds get in the water?

A: Chemical pollutants in water can come from many sources. They can come from factories and sewage treatment plants that a person can easily see. They can also come from less visible sources, like chemical spills or runoff from city streets and farm fields. Some chemical pollutants can be carried long distances in the air, and then enter surface waters when rain falls.

In this study, most of the toxic compounds were commonly applied to agricultural land decades ago, for pest control. After application, many of these compounds attached firmly to soil particles. Irrigation runoff, rain, or snowmelt then washed the contaminated soil particles into nearby waterways. Most of these compounds break down quite slowly in the environment, so they can remain toxic for many years.

Other compounds, such as PCBs, may have leaked from electrical equipment or were spilled. Most of the compounds that we are studying have been banned and are no longer sold in the United States.

Q: How did the toxic compounds get in the fish?

A: Chemical pollutants in the water enter a fish’s body tissues through gills and skin. Fish may also eat stream insects or plants that are already contaminated. In either case, fish absorb some of the pollutants into their bodies. Portions of the pollutants stay in the fishes’ skin, fat, internal organs, and sometimes muscle tissue

Q: What parts of the study have been completed?

A: In 2006, Ecology collected and analyzed hundreds of Yakima River fish for toxic chemicals. Then, in 2007 and 2008, Ecology collected and analyzed water samples from tributary streams, irrigation returns, and permitted discharges from wastewater treatment plants and fruit packing houses. Staff also collected many stormwater samples.

Q: Where can I find a copy of important project plans and reports (to date)?

A: Download the plans and reports at links in table below:

Document Description	Title of Document	Link	Date of Publication
Project sampling plan	Quality Assurance Project Plan: Yakima River Chlorinated Pesticides, PCBs, Suspended Sediment, and Turbidity Total Maximum Daily Load Study	http://www.ecy.wa.gov/biblio/0703107.html	July 2007
Data summary of fish tissue findings	Chlorinated Pesticides, PCBs, and Dioxins in Yakima River Fish in 2006: Data Summary and Comparison to Human Health Criteria	http://www.ecy.wa.gov/biblio/0703036.html	July 2007
Water quality study (DRAFT)	DRAFT: Yakima River Pesticides and PCBs Total Maximum Daily Load: Volume 1: Water Quality Study Findings	http://www.ecy.wa.gov/biblio/0903036.html	September 2009

Q: What did the fish tissue study show?

A: Results from the recent fish tissue study indicate:

- Upper Yakima River (above Selah Gap) fish are currently meeting or close to meeting human health criteria for DDT, DDE, DDD, dieldrin, total chlordane, alpha-BHC, and toxaphene.
- Lower Yakima River (below Selah Gap) fish are currently meeting, or are close to meeting, human health criteria for selected chemicals including DDT, DDD, total chlordane, and alpha-BHC.
- Levels of DDE and dieldrin are above human health criteria in fish samples from the Lower Yakima River. Carp are more contaminated than other lower river species, at least partly due to their greater fat content and feeding habits.

- Levels of PCBs above human health criteria were found in fish throughout the river, with higher levels in fish downstream.

Q: What parts of the study still need to be completed?

A: All the water samples have been collected and analyzed. Ecology has modeled the water quality data and developed a draft report on the water quality study findings. This report helps explain what the data means.

Ecology will continue to work with the local community to find sources of the toxic pollution and determine ways that the pollution can be reduced.

Q: What did earlier studies of the Yakima River toxics show?

A: Earlier studies found some of these chemicals in fish living in the Yakima River and some of its tributaries. Since 1993, the state Department of Health has advised people to limit the amount of bottom fish they eat from the Lower Yakima River. This advisory resulted from findings of high levels of DDT in the tissue of Lower Yakima River bottom fish.

Ecology has also completed several studies of the water quality of the Yakima River and its tributaries. Ecology completed a water quality improvement plan for DDT in the lower portion of the river in 1997 and a similar plan for DDT and dieldrin in the upper portion of the river in 2001. These studies showed that these compounds are present in water and fish tissue in the Yakima River and some of its tributaries.

Improving water quality will benefit farming, fishing, recreation and other activities.

Q: When will the public be involved with this study?

A: The public is already involved. Ecology has a mailing list of over 80 key stakeholders, who reviewed and commented on the project study plan and draft reports. In addition, when Ecology staff collected samples from permitted dischargers, they regularly explained the plan to the dischargers. Ecology staff has also talked with many local organizations about this project.

Ecology has also created brochures and focus sheets, has contributed articles to newsletters for other organizations, and has put out news releases about the project.

Q: How can you help?

A: Citizens can help in many ways, including: preventing soil erosion from farm fields, keeping pollutants out of storm drains, treating stormwater runoff, and ensuring that permitted discharges meet permit requirements.

For more information about how to help, contact Ryan Anderson (rand461@ecy.wa.gov, 509-575-2642), Mark Peterschmidt (mape461@ecy.wa.gov, 509-454-7843), or Jane Creech (jton461@ecy.wa.gov, 509-925-2557).