

Reports reconfirm surface runoff as leading source of toxics in Puget Sound

Mercury, PCBs, flame retardants, and other persistent chemicals are found throughout Puget Sound where they concentrate and enter the food chain. Surface runoff carries oil and petroleum products and other contaminants such as metals into Puget Sound. These toxic substances threaten the health of people who eat fish and shellfish harvested from Puget Sound. These poisons also harm the health of fish, marine birds and mammals.

In 2005, the state launched the Puget Sound Initiative to protect and preserve the Sound. The initiative is a comprehensive effort that involves local, state, federal and tribal governments, business, agriculture and environmental communities, scientists, and the public. The Puget Sound Partnership leads the initiative.

The Washington Department of Ecology (Ecology), in collaboration with the Puget Sound Partnership and other state and federal agencies, is conducting a series of investigations about toxic chemical loadings into Puget Sound. A phased approach ensures that the state compiles and releases the best available information as quickly as possible.

Reports continuously updated

Over the last two years, Ecology has released several reports that will help the state and its partners improve efforts to better control toxic chemicals that are harming Puget Sound. The reports reflect our evolving understanding of the amount of toxic chemicals released to Puget Sound from both surface runoff and from treated municipal and industrial wastewater. The most recent recalculation of surface runoff loads, *Addendum 2, Phase 1 and Phase 2 Toxics Loading Reports, Technical Memorandum*, (www.ecy.wa.gov/biblio/0810084addendum2.html) improves the flow and load estimates for 17 toxic chemicals compared with previous Phase 1 and Phase 2 efforts.

Key findings

The most recent calculations confirm the state's previous findings that surface runoff is the main pathway for toxic chemicals getting into Puget Sound. Surface runoff is made up of stormwater, rain and melting snow, and groundwater discharges into the surface waters that flow into Puget Sound.

WHY IT MATTERS

The more we learn about toxic chemicals, the more we realize they are everywhere.

Thousands of chemicals go into the making of products we use every day to improve the quality of our lives. They are in the products we buy and use at home and at work. We know that some of these chemicals can harm our environment and our health.

Toxic chemicals are found in many fish and aquatic species that live in Puget Sound.

They are in our air, water, soil and food chain.



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The primary sources of toxic chemicals to Puget Sound are the everyday activities of people. This is contrary to the conventional belief that most pollution comes from industrial and municipal wastewater discharge pipes. Toxic chemicals are getting into the Sound mostly from developed land, such as residential, commercial and industrial areas. As we develop more land in the 12-county Puget Sound region, we release more toxic chemicals into Puget Sound. The findings indicate that as the region develops into the future, we will need a combination of pollution prevention and better stormwater controls to protect Puget Sound's health.

Permitted municipal and industrial wastewater discharges are a smaller part of the pollution problem – they discharge less than 10 percent of the total amount of toxic chemicals that currently enter Puget Sound. However, the contribution of these discharges to the overall loadings of toxic chemicals may be larger than 10 percent for some contaminants, such as pharmaceuticals and personal care products. Furthermore, discharges from wastewater pipes may cause greater localized effects in specific areas.

How much toxic pollution is getting into Puget Sound?

In January 2010, Ecology revised the methods used for estimating the flow of water that carries contaminants into the rivers, streams and marine environment of Puget Sound. Ecology currently estimates that Puget Sound receives between 14 and 94 million pounds of toxic pollutants annually, which include oil and grease, PCBs, phthalates (a plasticizer), PBDEs (flame retardants), as well as toxic heavy metals such as copper, lead, and zinc. This improved method of estimating surface runoff reduces the earlier loading estimates developed in Ecology's Phase 2 toxic loading study that indicated an annual range of 52 to 278 million pounds of pollutants. While Ecology no longer uses the single "52 million pounds per year," this new range still shows a considerable problem for Puget Sound. Ongoing efforts under Phase 3 of the project will provide more data to refine our estimates of toxics loading, but will likely still cover a wide range.

Oil and grease make up most of the estimated toxics loading with petroleum products accounting for a significant portion of the oil and grease. Some oil and grease comes from natural sources. The harm caused by these chemicals is not just about the amount we release to the environment but their toxicity. Some metals released in much smaller amounts than petroleum, such as copper and zinc, are a threat because salmon are sensitive to low concentrations.

Next steps

Several ongoing Phase 3 efforts by Ecology and its partners will continue to improve our understanding of the impacts of toxic chemicals released to Puget Sound. These include monitoring stormwater and treated wastewater effluent, identifying sources, sampling marine mammals, and assessing impacts on salmon. An upcoming synthesis report will use the best available information from all phases of the project to assist the Puget Sound Partnership in developing a comprehensive strategy to reduce toxics in Puget Sound.

To see full copies of the reports and to track progress, visit Ecology's **Control of Toxic Chemicals in Puget Sound** website at www.ecy.wa.gov/programs/wq/pstoxics/index.html.