



King County

**Protecting Our Waters**

*Doing our part on rainy days*

# Water Quality Assessment and Monitoring Study Update

October 2015

## Chemicals of Emerging Concern

Chemicals of Emerging Concern” (CEC) is a term used to describe a wide range of chemicals that currently are not regulated. Newer laboratory methods can now detect chemicals in extremely small quantities. But scientists are still learning how those small quantities affect the environment. The range of chemicals that can be detected is very broad. Some chemicals affect the endocrine system of animals, including humans. Some degrade quickly in the environment and others remain for a long time. The chemicals come from the products we use in all kinds of daily activities, like taking a shower, brushing our teeth, or taking medicine.

The Water Quality Assessment team decided to find out which of these chemicals could be detected in Lake Union/Ship Canal, Elliott Bay, and the Duwamish to provide a baseline for future studies. We wanted to understand ambient conditions so we did not gather water samples after combined sewer overflows (CSO). Water samples were tested for 139 CECs, including pharmaceuticals and insecticides.

**Study challenges:** These chemicals are ubiquitous in the urban environment. The team struggled to avoid contaminating the samples during collection and analysis. The minute amount of chemicals in the samples could even be affected by the personal care products used by the employees collecting the samples and working in the laboratory.

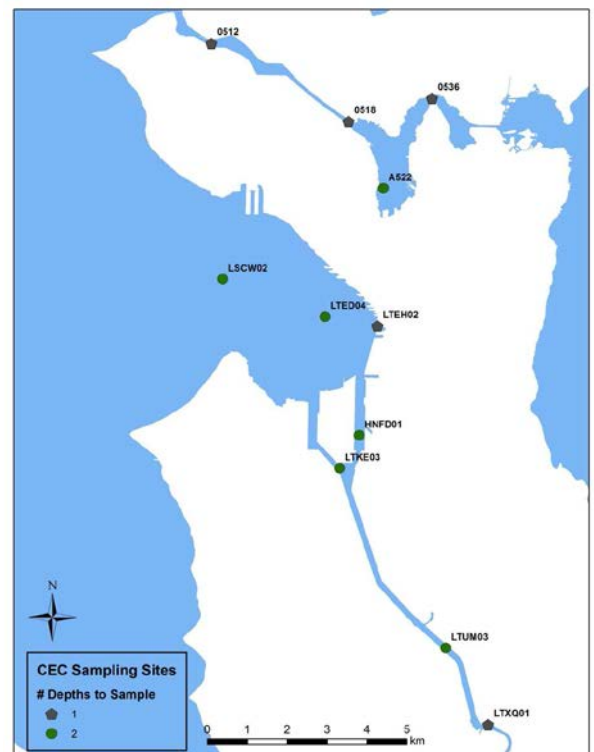
**Study results:** It’s no surprise that caffeine pops up everywhere in the Puget Sound Region. Cocaine and its metabolite, metformin (a diabetes drug) and one or more sulfa antibiotics were also found in every waterbody. The insect repellent DEET was found frequently.

## Conservative Sewage Tracer

Is there a sign that would tell us if dilute sewage is in a water body? The Water Quality Assessment team did a literature search to find out. A conservative sewage tracer is something that would be “conserved” in the water column and provide an indication that treated or untreated sewage is present in the water. It would need to make its way to the water through sewage and no other path. According to the literature, no perfect tracer exists and much research still needs to be done. However, there may be other methods, such as looking for the presence of several chemicals together.

### Why an assessment?

The assessment will inform King County’s [Combined Sewer Overflow \(CSO\) Program](#), now called **Protecting Our Waters**. The assessment will help ensure that investments in CSO control are well planned to optimize water quality improvements in Elliott Bay, Lake Union/Ship Canal, and the Duwamish River.



## Next Steps

These findings will be published in 2016, along with the rest of the Water Quality Assessment and Monitoring Study findings. In the meantime, you can see the slides on the web. Check [the presentation](#) that the [Science and Technical Review Team](#) reviewed on September 10, 2015.

Find out more on [the Web](#) at <http://www.kingcounty.gov/environment/wastewater/CSO/WQstudy.aspx> or by contacting **Erika Peterson**, at 206-477-5525 or [Erika.peterson@kingcounty.gov](mailto:Erika.peterson@kingcounty.gov).