

# PUGET SOUND

## National Estuary Program

### DEVELOPMENT OF CHEMICAL INDICATORS TO DETECT, TRACK AND ASSESS TREATMENT OF NOVEL AND EMERGING TOXIC STORMWATER POLLUTANTS

Many regional watersheds in the Puget Sound are highly impacted by urban stormwater runoff. Chemical toxicants in stormwater both impair water quality and adversely affect salmonid health. Identifying and quantifying such toxicants in receiving waters and stormwater treatment systems informs best management practices.



### PROJECT OUTCOMES

1. Using advanced mass spectrometry, we developed and validated an analytical method to detect and quantify a suite of chemicals with high ecotoxicological relevance, including the coho salmon super-toxicant 6PPD-quinone.
2. We conducted time-resolved sampling in a representative, regional watershed (Miller Creek) to evaluate contaminant dynamics during storm events. Peak 6PPD-quinone concentrations occurred concurrent with peak flows, indicating large mass mobilization, and peak concentrations were similar across seasons, indicating the need for year-round toxicity impacts and year-round management.
3. We sampled several regional stormwater treatment systems to evaluate relative performance for removing key toxicants, finding compost-based systems were most effective.



### FUTURE OPPORTUNITIES

Stormwater managers in the Puget Sound region need to know how to monitor contaminants in roadway runoff and receiving waters and where to install stormwater treatment systems. Knowledge from this project will inform which key toxicants to analyze, how and when to sample, what compounds are driving coho mortality, and which treatment systems are most effective to protect ecosystem health.

### WHAT YOU CAN DO

Residential areas are large sources of pollutants to our watersheds. Limit or stop chemical use around your home and yard, prevent chemical discharge to storm drains, and keep your car well maintained to prevent fluid leaks. Keep tires properly inflated!! Also, get involved with community restoration and protection efforts in your local watershed!

### ABOUT CENTER FOR URBAN WATERS

The Center for Urban Waters (CUW) is a community of environmental scientists, engineers, and policy makers developing sustainable solutions to restore and protect the Puget Sound. The University of Washington Tacoma houses an organized research unit at the CUW, enabling collaboration of UW with CUW partner organizations.

### FOR MORE INFORMATION

<https://www.tacoma.uw.edu/center-urban-waters>  
Edward Kolodziej, University of Washington  
koloj@uw.edu, 253-692-5659

