WHAT IS PSF DOING TO PROTECT SALMON FROM 6PPD-Q?

> PSF's Community Salmon Program supports stormwater management in communities throughout BC with community grants to fund the installation of rain gardens.

> Throughout 2022 to 2024, PSF supported monitoring for 6PPD-Q by funding BC Conservation Foundation (BCCF) to coordinate a community monitoring network on eastern Vancouver Island.

> PSF contributed to the purchase of a mass spectrometer to help expand 6PPD-Q monitoring efforts at Vancouver Island University's (VIU) Applied Environmental Research Lab.

> PSF helped convene experts for knowledge sharing as a co-host of workshops on 6PPD-Q and salmon with BCCF and VIU.

> PSF submitted a formal request to Environment and Climate Change to prioritize 6PPD-Q, which led to 6PPD-Q being placed on priority list for assessment as of October 2024.

RESOURCES:

> Watch talks by experts from the 2024 6PPD-Q Workshop.

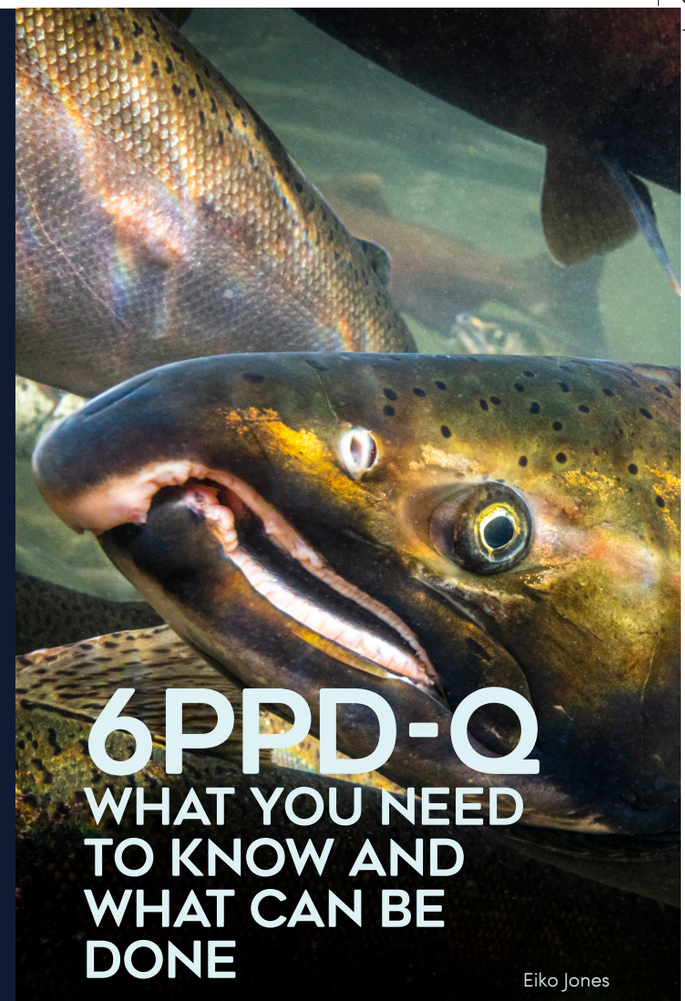
> Learn more about stormwater management from the Resilient Coasts for Salmon Project.

> Visit the BCCF and VIU website tirewaretoxins.com and find more information and an interactive map of their monitoring.

REFERENCES:

1. French, BF, et al. (2022). Urban roadway runoff is lethal to juvenile coho, steelhead, and chinook salmonids, but not congeneric sockeye. Env Sci & Tech Letters, 9: 733-738.
2. Rodgers, TF, et al. (2023). Bioretention cells provide a 10-fold reduction in 6PPD-quinone mass loadings to receiving waters: Evidence from a field experiment and modeling.Env Sci & Tech Letters, 10: 582-588.
3. Tian, Z., et al. (2022). 6PPD-quinone: Revised toxicity assessment and quantification with a commercial standard. Env Sci & Tech Letters, 9: 140-146.
4. Interstate Technology and Regulatory Council. (2023, July). What we know: 6PPD and 6PPD-quinone.

PACIFIC SALMON FOUNDATION



6PPD-Q

WHAT YOU NEED TO KNOW AND WHAT CAN BE DONE

Eiko Jones

Coho salmon exposed to road runoff can experience mortality of 40-90% prior to spawning[1,2]. It is now understood that these stormwater-driven die-offs are caused by 6PPD-quinone, a chemical from tires.

PACIFIC SALMON FOUNDATION

WHAT IS 6PPD-Q?

6PPD is an antioxidant chemical found in car tires that reduces tire wear. When 6PPD is exposed to the air, a chemical reaction occurs, which forms the highly toxic compound 6PPD-quinone, or 6PPD-Q[3,4].

In recent years, scientists have discovered that this chemical was the cause of mass moralities of coho salmon.

As tires hit the road, small particles of 6PPD-Q are left behind. During rain events, the water rushes over paved surfaces collecting debris, oil, and any chemical residues on the surface, including 6PPD-Q. When we don't divert stormwater runoff, it ends up flowing into stormwater drains that are often directly connected to streams where Pacific salmon live and spawn.

Eiko Jones

WHAT CAN BE DONE?

> GREEN STORMWATER MANAGEMENT

In nature, trees and soil help absorb water and break down pollutants, including 6PPD-Q, keeping waterways healthy.

We can embrace nature-based, or 'green infrastructure' solutions to help manage stormwater around our homes and in our communities.

Applied at different scales, the benefits of stormwater management can be significant. Cities like Metro Vancouver, Victoria, and Seattle have taken on numerous projects to capture and slow the flow of water, reduce pollutants, and flooding.

INCREASE PERMEABLE SURFACES by installing permeable pavers, gravel, or grass that allow water to be absorbed on-site rather than concrete paving.

INSTALL A RAIN GARDEN or bioswale to retain and absorb water runoff. These solutions are specially designed to treat stormwater runoff. They work by collecting water in a sunken garden space planted with native species, which allows the water to infiltrate through a constructed soil layer to the native soils below. In fact, studies are showing that strategically placed raingardens can reduce 6PPD-Q levels by over 90%[2]!