



6PPD & Water Updates

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PUGET
SOUNDKEEPER®



WASHINGTON STATE
RECREATION AND CONSERVATION OFFICE

Governor's Salmon
Recovery Office



Longfellow Creek *West Seattle*

33% Pre-Spawn
Mortality (2022)
(80 surveyed returning female coho)



Very, Very Toxic

Table 1. Comparison of the Toxicity of 6PPD-Q to Coho Salmon with Those of the Most Toxic Chemicals for Which the U.S. Environmental Protection Agency Has Established Aquatic Life Criteria^a

chemical class	name	most sensitive species	LC ₅₀ (ppb)	95% CI	ref	CMC (ppb)	EPA document
OP	parathion	<i>Orconectes nais</i>	0.04	0.01–0.2	25	0.065	EPA 440/5-86-007
quinone	6PPD-Q	<i>O. kisutch</i>	0.10	0.08–0.11	this study	not available	not available
OC	mirex	<i>Procambaris blandingi</i>	0.10	not reported	26	0.001	EPA 440/5-86-001
OP	guthion	<i>Gammarus fasciatus</i>	0.10	0.073–0.014	25	0.01	EPA 440/5-86-001
OP	chlorpyrifos	<i>Gammarus lacustris</i>	0.11	not reported	27	0.083	EPA 440/5-86-005
OC	endrin	<i>Perca flavescens</i>	0.15	0.12–0.18	28	0.086	EPA 820-B-96-001
OC	4,4'-DDT	<i>O. nais</i>	0.18	0.12–0.30	25	1.1	EPA 440/5-80-038
OP	diazinon	<i>Ceriodaphnia dubia</i>	0.25	not reported	29	0.17	EPA-822-R-05-006
metal	cadmium	<i>Oncorhynchus mykiss</i>	0.35	not reported	30	1.8	EPA-820-R-16-002
OC	methoxychlor	<i>O. nais</i>	0.50	0.25–1.8	25	0.03	EPA 440/5-86-001
OC	dieldrin	<i>Pteronarcella badia</i>	0.50	0.37–0.67	28	0.24	EPA 820-B-96-001
OP	malathion	<i>G. fasciatus</i>	0.76	0.63–0.92	25	0.1	EPA 440/5-86-001
OC	toxaphene	<i>Ictalurus punctatus</i>	0.8	0.5–1.2	31	0.73	EPA 440/5-86-006

^aThe rationale for the toxicity comparison can be found in SI text. Abbreviations: OP, organophosphate; OC, organochlorine; CMC, criterion maximum concentration; CI, confidence interval.

Tires, Tires, Everywhere



...On Vehicles



...In Secondary Markets
(roads, fields, retreads,
wipers, roofs, and more)

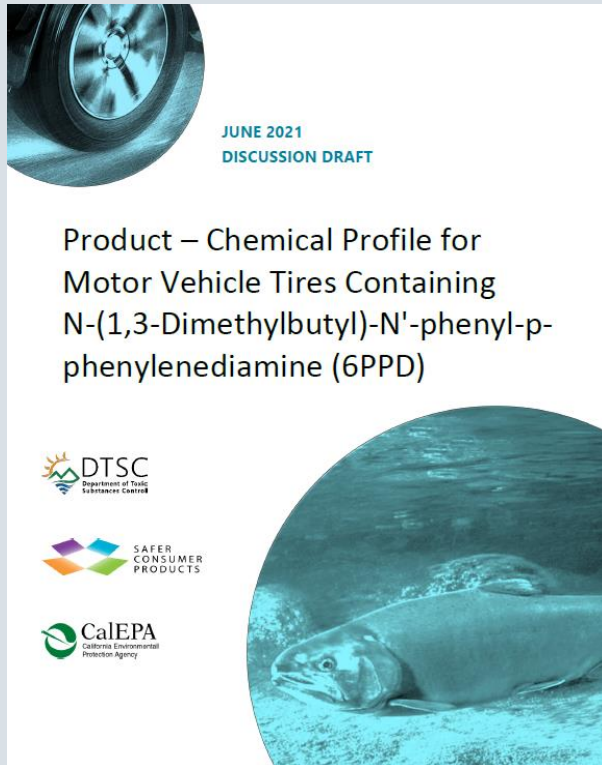


...In Dumpsites, along Docks,
in Playgrounds



...As Artificial Reefs

California Toxics Review



- 363 million tires in the USA
- 41 million new tires sold in California each year
- 470,000 metric tons tire waste in California in 2019
 - 22% exported, 15% for roads, playgrounds or trails, 18% landfilled
- 12,000 – 13,000 turf fields in the US
- 1,200 new per year, 95% use tire rubber
- Euro Football Pitch: 20,000 – 40,000 tires



Wikimedia



WA Scuba Alliance



Wikimedia



Hall's Sports Center

Puget Sound: Upcoming Permits

- WA Stormwater General Permits (MS4)
- Industrial General Permits (ISGP)
- EPA-Issued Permits (e.g., JBLM)

"Consistent with BMPs prioritized in Ecology's BMP effectiveness report, the EPA has determined that JBLM's implementation of these retrofit BMP projects would likely remove 6PPD-quinone"

~EPA Factsheet, JBLM Draft MS4 Permit

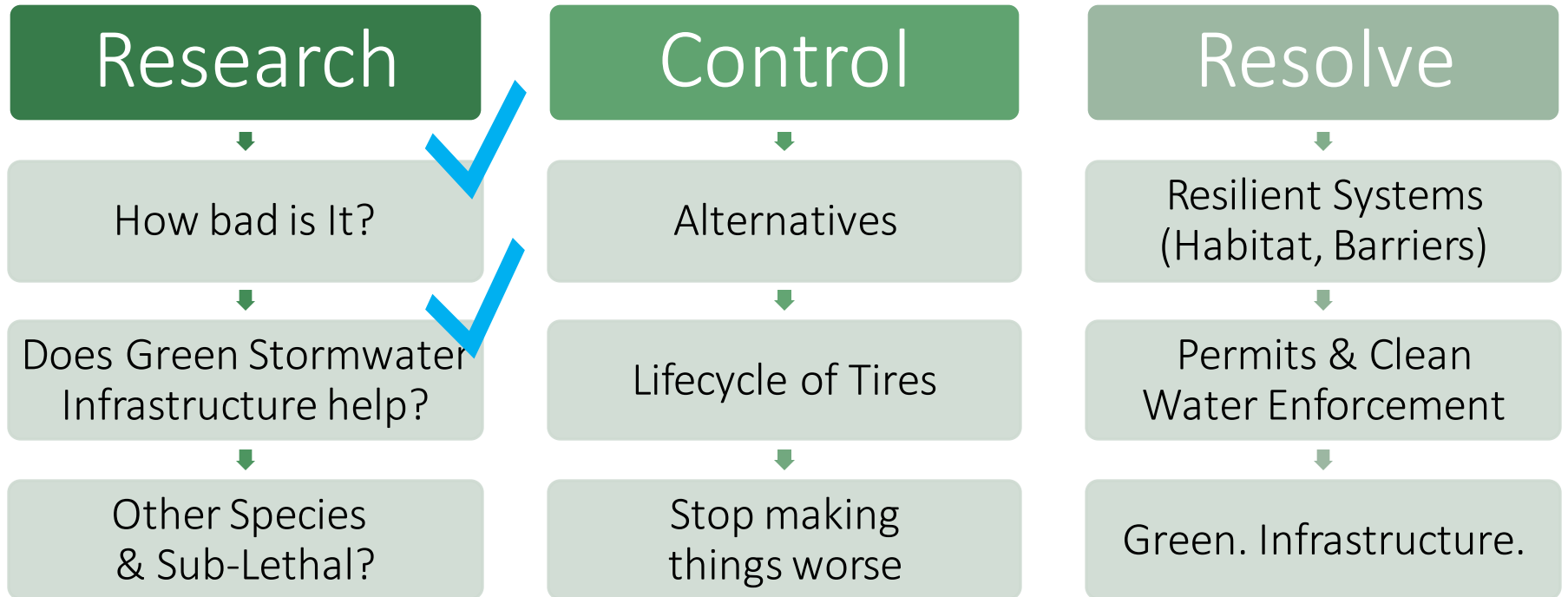


Lurking Liabilities

- Regulatory gaps in Clean Water Act programs?
- Trade Implications
- Human Health & Air Pollution
- Waste Lifecycle and Dumping?



2020 - 2023 - 2026



Water Updates: 2023

Permits

ISGP

MS4

Sackett

Wetlands

Connection

Federal
Waters?

Complexities

Culverts

Jurisdictions

Timelines

Thank You!

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