

Stemilt Creek

APRIL 2023

Summary of 2021 Surface Water Monitoring Program Results



Stemilt Creek drains into the Columbia River just south of Wenatchee, Washington. It has been documented by the Washington State Department of Fish and Wildlife that the inlet of Stemilt Creek contains rearing salmon. Staff frequently observed juvenile Chinook salmon as well as very small fish of an unknown species at the site.

Results:

- There were 13 unique chemicals detected with a total of 70 detections in Stemilt Creek.
 - Of these, 22 detections were above WSDA assessment criteria. Roughly 50% (12 detections) of exceeding detections were from DDT and its degradates.
- When multiple pesticides are detected simultaneously, the harmful effects can combine; multiple pesticides were detected every week Stemilt Creek was sampled. Between 5 and 10 pesticides were detected at each sampling visit.
- WSDA identifies some pesticides as Pesticides of Concern (POC) when they have been detected above WSDA's assessment criteria and above established detection frequencies.

Watershed-specific POCs in Stemilt Creek:

ICONS FOR ENVIRONMENTAL HAZARDS LISTED ON PESTICIDE LABELS



Chlorpyrifos - Insecticide



- *Common trade names:* Lorsban, Pilot, Vesper
- *Example use within watershed:* orchard
- As of early 2022, chlorpyrifos has been banned for use on food and feed commodities. It can still be applied to registered non-food commodities.
- A streamside no-spray buffer zone is required in Washington for chlorpyrifos to protect threatened and endangered Pacific salmon and steelhead.
- Also detected in 11 other monitored watersheds and a POC in all but one of them.

Diazinon - Insecticide



- *Common trade name:* Diazinon
- *Example use within watershed:* orchard
- Also detected in 15 other monitored watersheds and a POC in one of them.

In 2021, Washington State Department of Agriculture (WSDA) monitored 18 sites in Washington. Stemilt was one of three monitoring sites located in Chelan County.

Samples were analyzed at the Manchester Environmental Lab, Port Orchard, Washington.

WSDA compares detected pesticide concentrations to WSDA assessment criteria, which are half of state and federal water quality criteria. Each pesticide has its own assessment criteria, based on its toxicity to aquatic animals, insects, and plants.

Site information:

Years sampled: 2013 – present

Fish habitat: Spring Chinook salmon and summer steelhead trout (SalmonScape: apps.wdfw.wa.gov/salmonscape)

Sampling dates:

9 weeks, March 30 – May 25

Water testing:

Samples were tested for 89 current and legacy chemicals (33 insecticides, 34 herbicides, 8 fungicides, 5 pesticide degradates, 5 legacy chemicals, 2 synergists, 1 antimicrobial, and 1 insect repellent).



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Products listed are for descriptive purposes only and do not imply endorsement by the author or the Department of Agriculture.

The calendar at right shows the concentration in µg/L and date sampled of each watershed POC detected. This calendar does not include all the pesticides WSDA found during the growing season. The “-” identifies data that could not be collected or analyzed. Detected concentrations that exceed WSDA’s assessment criteria have a higher potential to cause harm to aquatic ecosystems.

[* I: Insecticide]

below assessment criteria
 above assessment criteria

The graph at right shows the total number of detections per sampling visit in each pesticide category. The category ‘other’ includes legacy, degradates, and additional pesticide-related chemicals. Note that the number of detections between categories cannot be directly compared due to the different number of chemicals in each category and variability in analysis methods used.



Recommendations:

Make use of natural protections

- Use buffers, filter strips, sediment basins, ground cover, and setbacks.
- Maintain vegetation along creeks and take care during spring time applications before vegetation along streams leaves out.

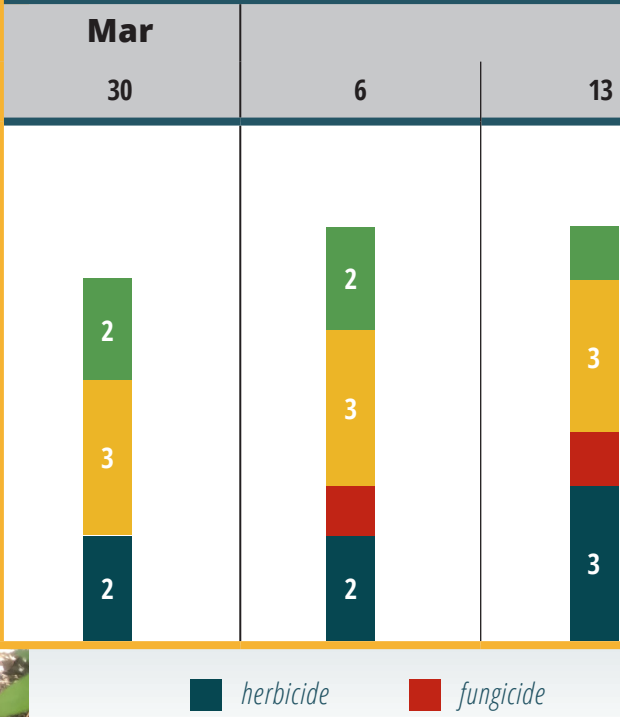
Be informed

- Read and follow pesticide label directions.
- Check the weather forecast to reduce the chances of drift or runoff.
- Review WSDA’s Pesticides of Concern and choose less-toxic pesticides when possible.

Watershed Pesticides of Concern Detected and their Corresponding Sample Date

Month ▶		Mar		
Day of the Month ▶	Use*	30	6	
Chlorpyrifos	I	0.003	0.025	
Diazinon	I	0.004	0.008	
Suspended sediment concentration (mg/L)		-	-	
Streamflow (cubic ft/sec)		4.6	3.7	
Precipitation (total in/week)		0.02	0	

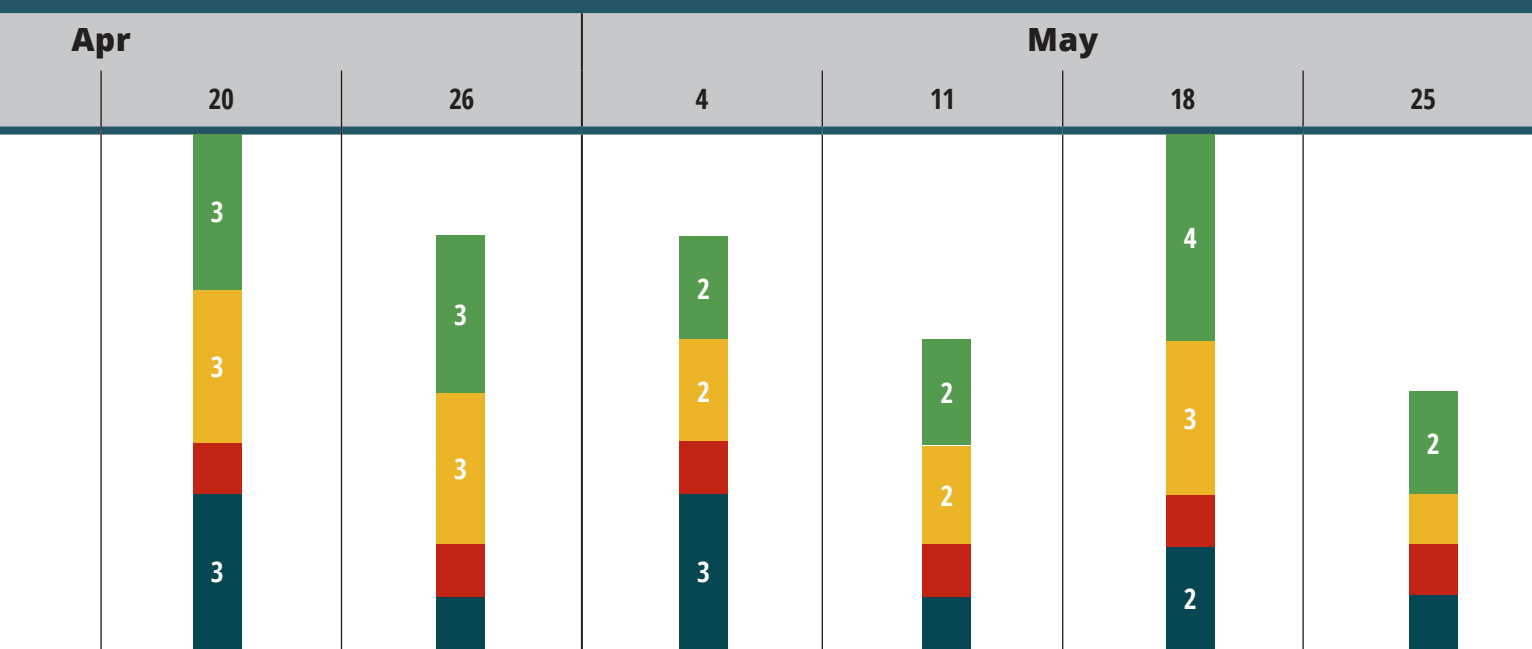
Total Number of Detections per Sampling Event



Sampling Dates and Concentrations

Apr			May			
13	20	26	4	11	18	25
0.012	0.017	0.006	0.005	0.005	0.005	0.004
0.042	0.250	0.015	0.003	0.003	0.004	
-	26	11	18	24	69	14
3.3	8.3	3.8	2.4	3.0	7.2	2.4
0	0	0.10	0	0.05	0	0.09

Event by Pesticide Category



insecticide other

Please see agr.wa.gov/AgScience for more information.

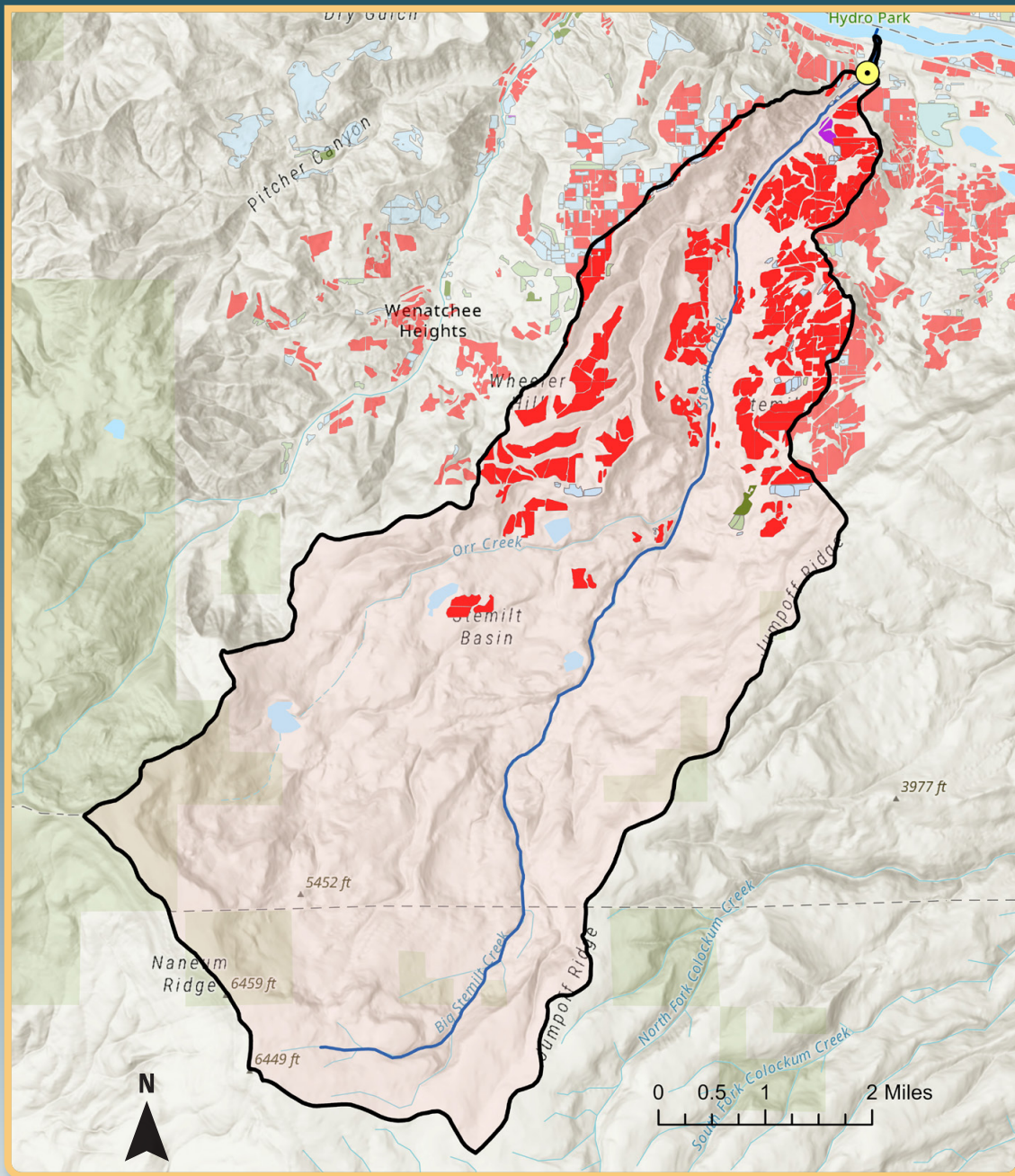
Care for your equipment and products

- Calibrate, maintain, and inspect application equipment.
- Properly dispose of all unneeded pesticides. Visit agr.wa.gov/wastepesticide to learn about waste pesticide collection events.



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Stemilt Creek crop groupings | acres

■	Other	73
■	Hay/Silage	15
■	Orchard	1,828
■	Pasture	15
■	Vineyard	14

● Sampling Location

— Stemilt Creek

Stemilt Watershed

Total Agriculture 1,945 acres

Watershed Total 21,193 acres

To view mapped crop groups at the field scale, download the WSDA Agricultural Land Use data or view the interactive web map here:
<https://agr.wa.gov/departments/land-and-water/natural-resources/agricultural-land-use>