Juanita Creek

APRIL 2024

Summary of 2022 Surface Water Monitoring Program Results

The creek's main branch flows roughly 5 miles through Kirkland, Washington's residential areas into Lake Washington. The water quality in Juanita is highly impacted by stormwater and irrigation runoff from impervious surfaces. King County and the City of Kirkland staff also monitor water quality in the Juanita Watershed with parameters such as benthic macroinvertebrates, dissolved oxygen, and temperature. In 2021, nearby residents said they saw salmonids of unknown species within the creek.

In 2022, Washington State Department of Agriculture (WSDA) monitored 17 sites in Washington. Juanita Creek was the only monitoring site located in King 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: 2020 – present

Fish habitat: Fall Chinook, coho, and sockeye salmon; cutthroat and winter steelhead trout
(SalmonScape: apps.wdfw.wa.gov/salmonscape)

Sampling dates:
13 weeks, April 11 – October 11

Water testing:
Samples were tested for 150 current and legacy chemicals (53 herbicides, 48 insecticides, 21 fungicides, 19 pesticide degradates, 5 legacy chemicals, 1 antimicrobial, 1 insect repellent, 1 synergist, and 1 wood preservative).

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

Washington State Department of Agriculture
NATURAL RESOURCES AND AGRICULTURAL SCIENCES

Results:

- There were 36 unique chemicals detected with a total of 138 detections in Juanita Creek. Of these, six detections were above WSDA assessment criteria.
- When multiple pesticides are detected simultaneously, the harmful effects can combine; multiple pesticides were detected every week Juanita Creek was sampled. Between 5 and 24 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 Juanita Creek:

ICONS FOR ENVIRONMENTAL HAZARDS LISTED ON PESTICIDE LABELS

potential for spray drift | potential for runoff | potential to leach into groundwater | highly toxic to bees | toxic to aquatic invertebrates | toxic to fish | toxic to birds | toxic to mammals

Deltamethrin — *Insecticide*

- *Common trade names:* Suspend, Raid Max Perimeter
- *Example uses within watershed:* mosquito control, dogs, around buildings, residential
- This is the only monitored watershed where this chemical was a POC.

Diuron — *Herbicide*

- *Common trade name:* Direx, Karmex
- *Example uses within watershed:* right-of-way, asphalt/cement
- This chemical can transport into the environment via drift or runoff and can contaminate groundwater. Diuron has been found in groundwater in Washington State.
- Also detected in 11 other monitored watersheds and a POC in six of them.

Fipronil — *Insecticide*

- *Common trade name:* Termidor
- *Example uses within watershed:* asphalt/cement, commercial, residential
- Three breakdown products of fipronil can be just as toxic to certain organisms in the environment as fipronil. In 2022, two of these were detected at this site but did not exceed WSDA assessment criteria.
- Also detected in six other monitored watersheds and a POC in two of them.

AGR PUB 102-956 (R/4/24)

The calendar at right shows the concentration in µg/L and date sampled of each watershed POC. This calendar does not include all the pesticides WSDA found during the growing season. Detected concentrations that exceed WSDA's assessment criteria have a higher potential to cause harm to aquatic ecosystems. Deltamethrin was not detected in 2022, however, it was still considered a watershed POC because of its exceeding detections in recent years at this site.

[** H: Herbicide, I: Insecticide*]

exceeds assessment criteria

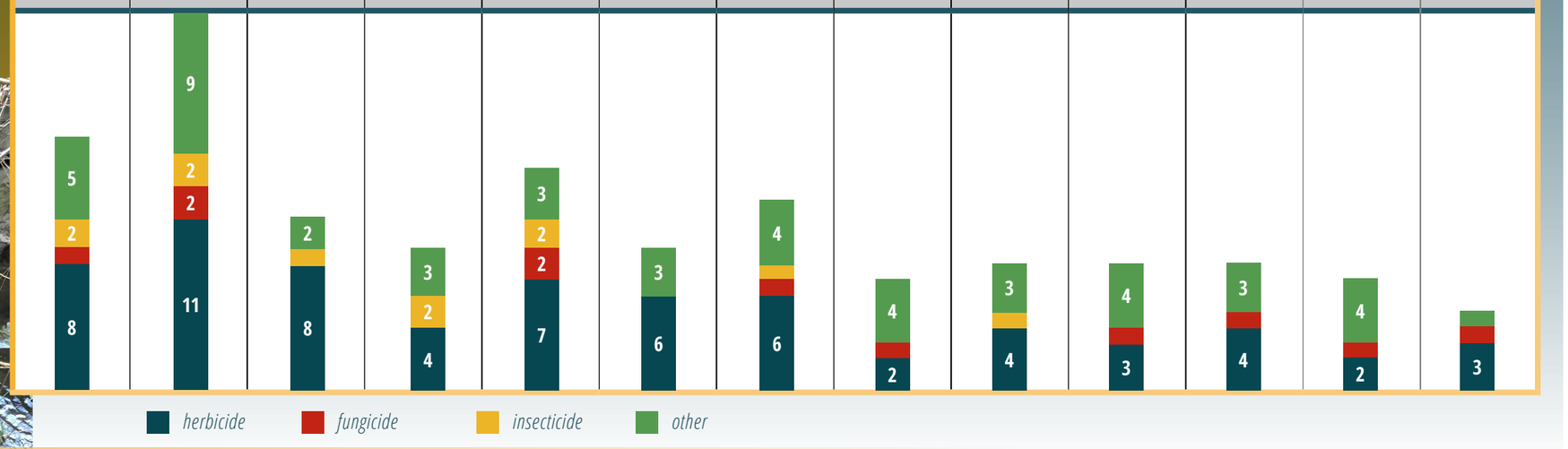
below assessment criteria

Watershed Pesticides of Concern Detected and their Corresponding Sampling Dates and Concentrations

Month ▸		Apr		May		June		Jul		Aug		Sep		Oct
Day of the Month ▸	Use*	11	25	9	23	6	21	5	19	2	16	13	26	11
Diuron	H	0.009	0.015	0.006	0.004	0.012	0.005	0.012			0.179	0.006		
Fipronil	I	0.011	0.005	0.003	0.002	0.004				0.002				
Suspended sediment concentration *(mg/L)*		2	4	3	2	8	4	2	3	4	3	1	2	1
Streamflow *(cubic ft/sec)*		10.5	6.8	6.1	4.2	10.5	4.2	3.4	2.5	2.4	2.4	2.1	1.9	1.8
Precipitation *(total in/week)*		1.09	0.46	1.77	0.19	1.30	0.45	0.19	0.08	0.01	0.01	0.01	0.01	0.03

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.

Total Number of Detections per Sampling Event by Pesticide Category



Recommendations:

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

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 leafs out.

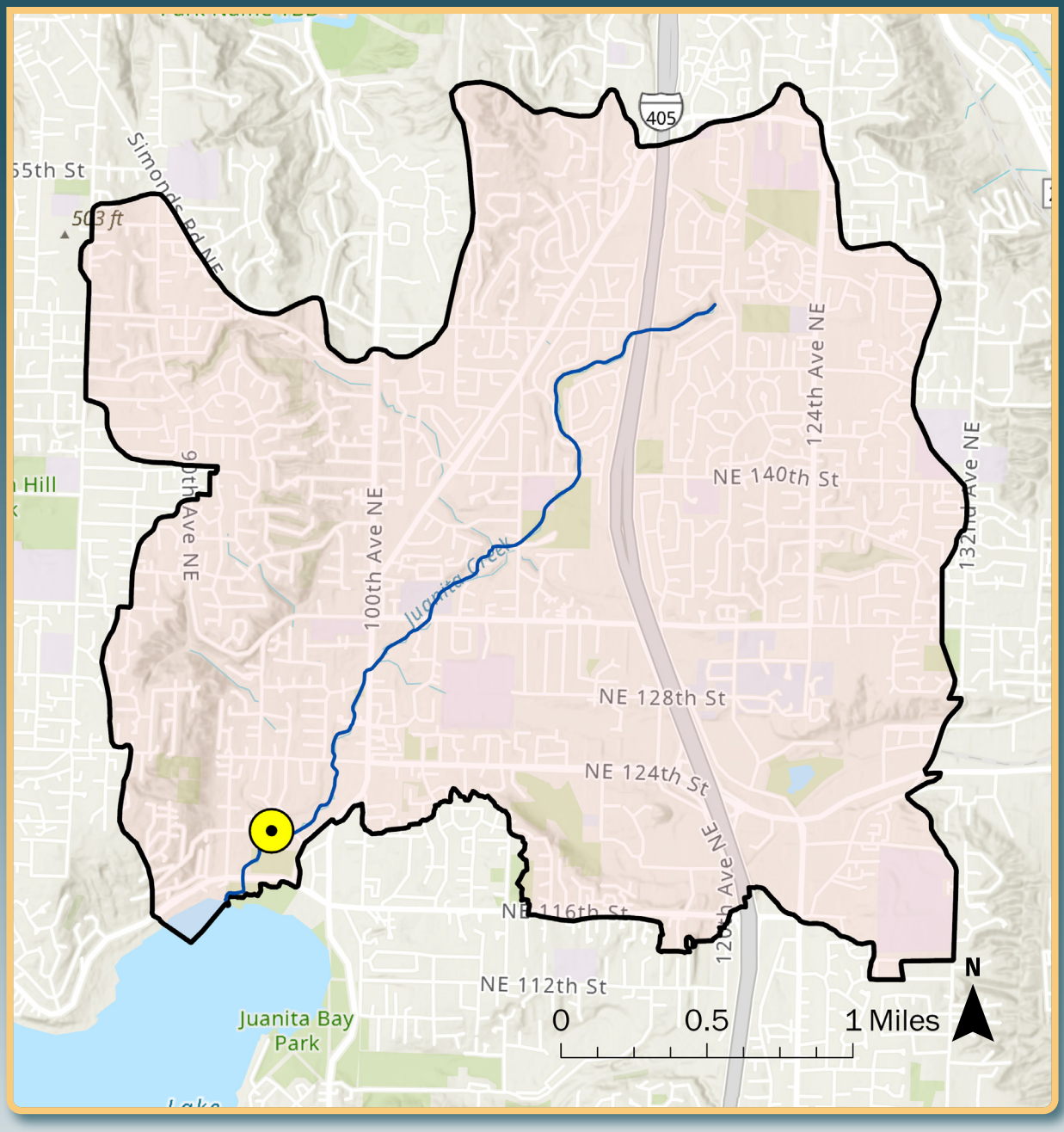
Be informed

- 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.

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.

Washington State Department of Agriculture
WSDA
NATURAL RESOURCES AND AGRICULTURAL SCIENCES



Watershed Size: 4,253 acres

— no agricultural crops in the watershed —

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