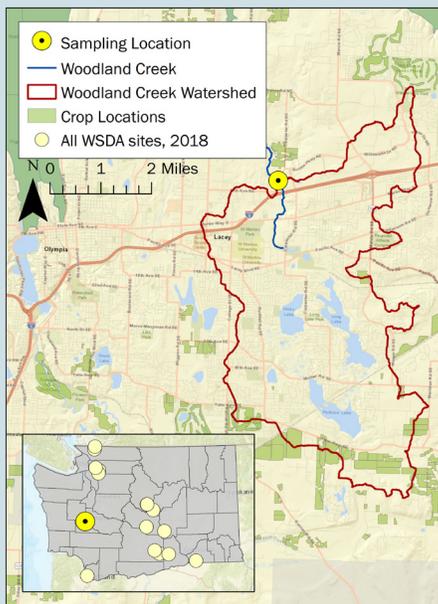


# Woodland Creek

## Summary of 2018 Surface Water Monitoring Program Results | November 2019



The Washington State Department of Agriculture (WSDA) routinely monitors surface water throughout the state for the presence of pesticides. The monitoring is done between March and September, the typical season for pesticide use, and includes checking general water quality conditions and streamflow. State and federal agencies use this data to evaluate water quality and make exposure assessments for pesticides registered for use in Washington State. In 2018, WSDA monitored 16 sites in Washington, one of them in Thurston County.



Natural Resources Assessment Section

### Watershed and site information

**Sampling history:** 2017 - present

**Watershed area:** 12,500 acres (~20 square miles)

**Area in agricultural use:** 500 acres (~4% of total watershed acreage)

**Main crops:** Ornamental nurseries, sod farms, golf courses, and pasture

**Fish habitat:** Fall Chinook, fall chum, and coho salmon; and winter steelhead (SalmonScape: [apps.wdfw.wa.gov/salmonscape/](https://apps.wdfw.wa.gov/salmonscape/))

**Sampling dates:** 15 sampling visits, March 14 – Sept. 18, once every 2 weeks

#### Water testing:

- WSDA tested for 144 current and legacy chemicals (50 insecticides, 54 herbicides, 20 fungicides, 15 pesticide degradates, 2 synergists, 1 antimicrobial, 1 insect repellent, and 1 wood preservative).
- Samples were analyzed at 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.
- WSDA identifies Pesticides of Concern (POCs) as current-use pesticides that have been found somewhere in the state above WSDA's assessment criteria in recent years.

#### Notes:

- The creek flows through almost 5 miles of residential, commercial, and agricultural areas in Lacey, Washington.
- Adult salmon have been observed by WSDA staff at this site during spawning season.

### Results and Conclusions

- There were 93 total pesticide detections in Woodland Creek from 5 different use categories: 11 types of herbicides, 6 fungicides, 4 insecticides, 3 degradates, and 2 other pesticide-related chemicals. This substantial increase from 2017 is largely due to new equipment at the lab and does not necessarily reflect an increase in pesticide use.
- Of the total pesticide detections, 5 were above WSDA's assessment criteria. All of these exceedances were of 4,4'-DDD, a DDT degradate.
- The POCs fipronil, metolachlor, pyridaben, and pyriproxyfen were detected.
- No POCs tested for were detected at concentrations that exceeded WSDA's assessment criteria.
- When multiple pesticides are detected simultaneously, the environmental effects can combine; multiple pesticides were detected every week Woodland Creek was tested. Between 2 and 12 pesticides were detected at each sampling visit.

### Recommendations

- **Make use of natural protections**
  - Use buffers, filter strips, sediment basins, ground cover, and setbacks.
- **Be informed**
  - Read and follow pesticide label directions, and be familiar with active ingredients.
  - Plan applications using the weather forecast to reduce the chances of drift or runoff.
  - Review WSDA's POCs and choose less-toxic pesticides when possible.
- **Care for your equipment and products**
  - Calibrate, maintain, and inspect application equipment regularly.
  - Properly dispose of all unneeded pesticides. Visit [agr.wa.gov/wastepesticide](https://agr.wa.gov/wastepesticide) to learn about waste pesticide collection events.

The calendar below shows the concentration in µg/L and date sampled of each WSDA 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.

Washington State's Pesticides of Concern Detected and their Corresponding Sampling Dates and Concentrations																
Month	March		April		May		June		July		Aug.		Sept.			
Day of the Month	Use*	14	20	3	17	1	15	30	12	26	10	24	7	21	5	18
Fipronil	I			0.002			0.002									
Metolachlor	H								0.001							
Pyridaben	I													0.004		
Pyriproxyfen	I									0.003	0.003	0.003		0.004		
Total suspended solids (mg/L)		4.0	4.0	3.0	7.0	6.0	5.0	5.0	4.0	4.0	5.0	3.0	3.0	3.0	3.0	2.0
Streamflow (cubic ft/sec)		33.17	29.46	23.72	41.21	33.03	25.00	19.03	17.07	14.91	13.56	10.14	8.81	8.62	8.00	8.27
Precipitation (total in./week)		0.63	0.08	0.37	3.75	0.35	0.10	0	0.93	0.13	0.05	0	0	0	0	1.52

■ Exceeds Assessment Criteria    ■ Below Assessment Criteria  
 (\* H: Herbicide, I: Insecticide)

The graph below shows the total number of detections per sampling visit in each pesticide category. The category 'other' includes 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.

