

# Woodland Creek

## Summary of 2017 Surface Water Monitoring Program Results | November 2018



The Washington State Department of Agriculture (WSDA) has monitored pesticide concentrations in surface water throughout the state since 2003. WSDA staff take surface water samples during the typical pesticide use season (March - September). In 2017, WSDA monitored 16 sites in Washington, 1 of which was in Thurston County. State and federal agencies use this data to evaluate water quality and make exposure assessments for pesticides registered for use in Washington State.



Washington  
State Department of  
Agriculture

Natural Resources Assessment Section

### Watershed and site information

**Sampling history:** New site as of 2017

**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 (Washington State Department of Fish and Wildlife SalmonScape: [apps.wdfw.wa.gov/salmonscape/](https://apps.wdfw.wa.gov/salmonscape/))

**Sampling dates:** 14 sampling events, March 28th - September 25th, once every 2 weeks

#### Water testing:

- 144 chemicals (current and legacy insecticides, herbicides, fungicides, rodenticides, pesticide degradates, and other pesticide products)
- Streamflow and total suspended solids
- Air and water temperature measured every 30 minutes
- Sample analysis at Manchester Environmental Lab, Port Orchard, Washington

#### Notes:

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

### Results and Conclusions

- There were 31 pesticide detections in Woodland Creek. Of these, 1 was above WSDA's assessment criteria.
- Out of all the chemicals tested for, there was 1 type of insecticide, 4 fungicides, 4 herbicides, 2 degradates, and 2 other pesticide-related chemicals detected.
- WSDA identifies a pesticide as a Pesticide of Concern (POC) when it has been found somewhere in the state above WSDA's assessment criteria in recent years. Carbendazim, difenoconazole, and pyridaben are POCs that were detected in Woodland Creek.
- The detection of pyridaben at this site was higher than WSDA's assessment criteria.
- Pyridaben was only detected at the beginning of July. This insecticide is used in greenhouses and on fruit trees.

### Recommendations

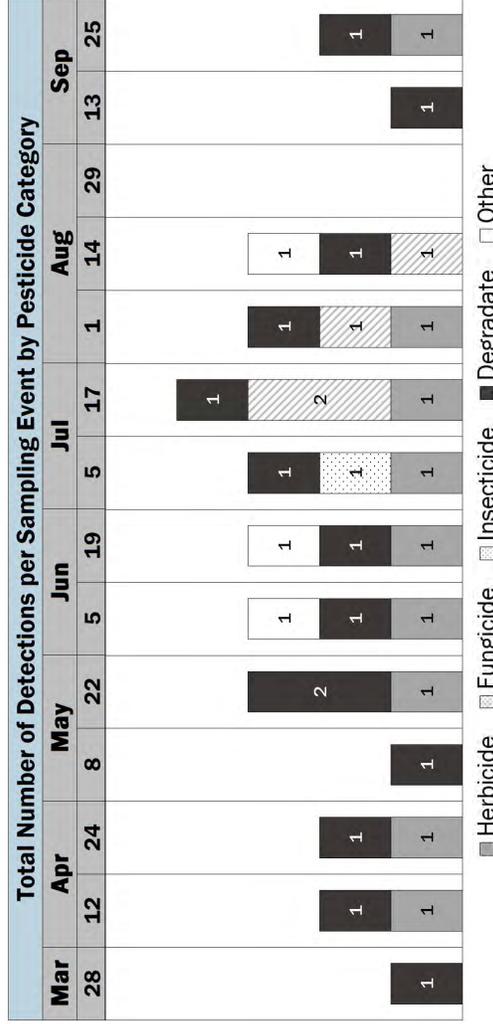
- **Make use of natural protections**
  - Use buffers, filter strips, sediment basins, ground cover, and setbacks.
- **Be informed**
  - Read and follow pesticide label directions, and be familiar with active ingredients.
  - Plan applications using the weather forecast to reduce the chances of drift 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 to the right shows the concentration in µg/L and date sampled of each WSDA Pesticide of Concern detected. This calendar does not include all the pesticides WSDA found during the growing season. The colors correspond to the risk each pesticide's detected concentration represents to an aquatic ecosystem. Detected concentrations that exceed WSDA's assessment criteria have a higher potential to cause harm to aquatic ecosystems. These assessment criteria are specific to each individual pesticide and are determined by applying a safety factor to state and federal water quality standards and criteria. The "-.-" signifies a sample or measurement that was not collected.

Washington State's Pesticides of Concern Detected and their Corresponding Sampling Dates and Concentrations												
Month	Mar	Apr	May	Jun	Jul	Aug	Sep	Month	Mar	Apr	May	Jun
Day of the Month	28	12	24	8	22	5	19	5	17	1	14	29
Carbendazim	Use*								0.023			
Difenoconazole	F											
Pyridaben	I							0.027				
Total Suspended Solids (mg/L)	6.0	6.0	6.0	5.0	7.0	4.0	5.0	5.5	4.0	3.0	2.0	1.0
Streamflow (cubic ft./sec.)	-	55.3	47.2	41.7	38.3	32.1	29.8	20.3	16.5	11.2	9.6	9.4
Precipitation (total in./week)	1.75	1.54	1.06	1.77	0.95	1.07	1.07	0	0	0	0.13	0

Exceeds Assessment Criteria   
  Below Assessment Criteria  
 (\* F: Fungicide, I: Insecticide)

The graph below shows the total number of detections per sampling event in each pesticide category. The category 'other' includes wood preservatives, an insect repellent, synergists, and antimicrobials.



The triangle to the right shows what pesticides were detected in Woodland Creek in 2017. Pesticides were categorized based on the highest detected concentration. The total number of detections for each pesticide is in parentheses next to the pesticide name. Detections have been color sorted according to WSDA risk assessment criteria that were surpassed. The risk each pesticide represents to an aquatic ecosystem is based on assessment criteria specific to each individual pesticide, not only on the concentration detected. WSDA's assessment criteria are derived by applying a safety factor to state and federal water quality standards and criteria in order to be proactively protective of aquatic life. Please see [agr.wa.gov/PestFert/natresources/SWM](http://agr.wa.gov/PestFert/natresources/SWM) for more information.

