Burnt Bridge 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 Clark 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: 16,800 acres (~26 square miles)

Area in agricultural use: 500 acres (~3% of total watershed acreage)

Main crops: Golf course, grass hay, pasture, and filbert

Fish habitat: Winter steelhead and coho salmon (Washington State Department of Fish and Wildlife SalmonScape: apps.wdfw.wa.gov/salmonscape/)

Sampling dates: 14 sampling events, April 5th - October 2nd, 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 10 miles of Vancouver, Washington's residential and commercial areas.
- Historical data suggests Burnt Bridge is the least healthy stream in Clark County.
- Stream habitat has improved because of efforts by non-profits, volunteers, and government agencies. Their work included riparian vegetation plantings and stormwater drainage control.

Results and Conclusions

- There were 68 pesticide detections in Burnt Bridge Creek. Of these, 4 were above WSDA's assessment criteria.
- Out of all the chemicals tested for, there were 4 types of insecticides, 5 fungicides, 13 herbicides, 1 degradate, and 3 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. Carbaryl, carbendazim, difenoconazole, diuron, fipronil, imidacloprid, metolachlor, pyriproxyfen, and simazine are POCs that were detected in Burnt Bridge Creek.
- The detections of fipronil, imidacloprid, and pyriproxyfen at this site were higher than WSDA's assessment criteria.
- When multiple pesticides are detected simultaneously the environmental effects can combine; multiple pesticides were detected almost every week Burnt Bridge Creek was tested. Between 1 and 13 pesticides were detected at the same time.

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 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.

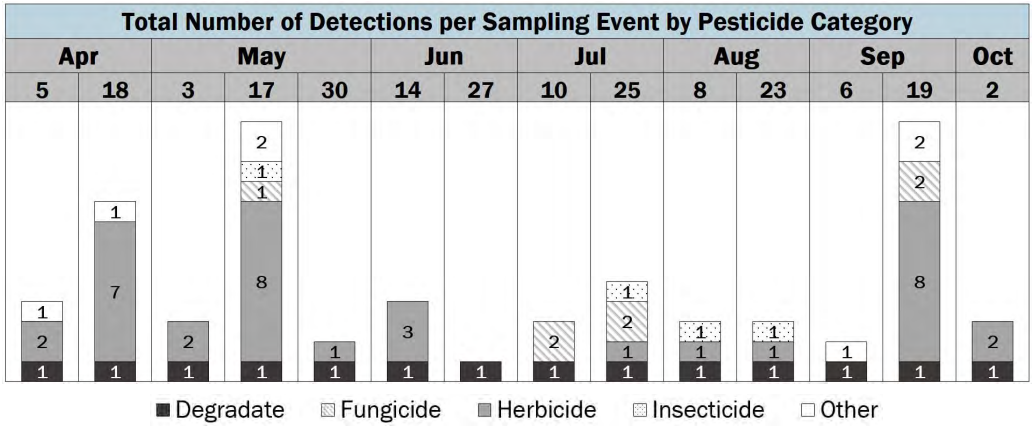
Washington State's Pesticides of Concern Detected and their Corresponding Sampling Dates and Concentrations

Month		Apr		May			Jun		Jul		Aug		Sep		Oct
Day of the Month	**Use***	**5**	**18**	**3**	**17**	**30**	**14**	**27**	**10**	**25**	**8**	**23**	**6**	**19**	**2**
Carbaryl	I-C											0.011			
Carbendazim	F									0.002				0.009	
Difenoconazole	F								0.008						
Diuron	H		0.009		4.390									0.037	
Fipronil	I-PY										0.023				
Imidacloprid	I-N				0.116										
Metolachlor	H													0.037	
Pyriproxyfen	I									0.010					
Simazine	H													0.052	
Total Suspended Solids (mg/L)		13	19	11	19	9	7	8	8	6	5	4	9	7	3
Streamflow (cubic ft./sec.)		29.8	34.4	28.4	40.7	16.2	16.6	12.6	9.4	7.9	7.0	7.2	6.4	10.7	8.4
Precipitation (total in./week)		0.48	0.41	0.05	1.32	0	0.87	0.01	0	0	0	0	0	0.57	0.39

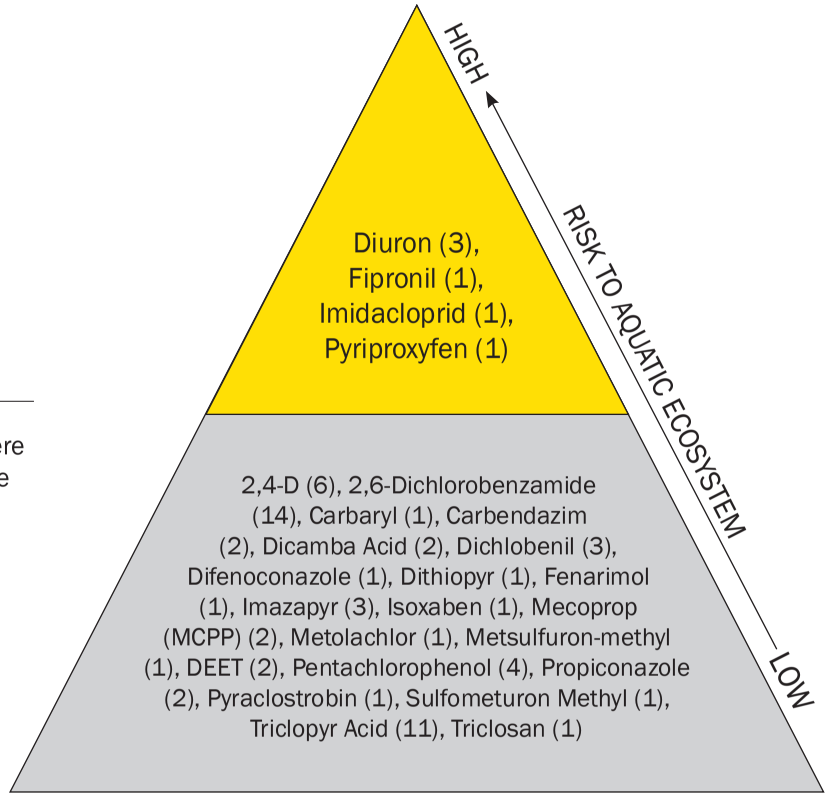
Exceeds Assessment Criteria Below Assessment Criteria

(F: Fungicide, H: Herbicide, I: Insecticide, C: Carbamate, N: Neonicotinoid, PY: Pyrethroid)*

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 Burnt Bridge 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 for more information.



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