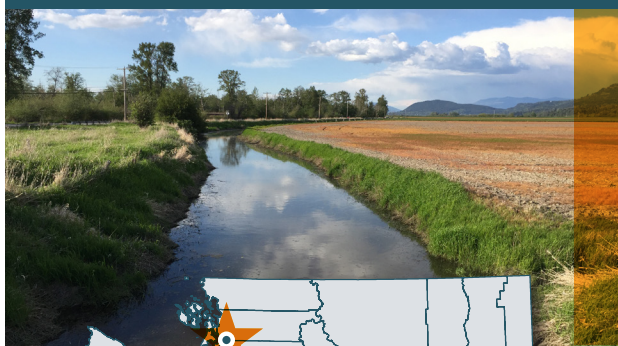


# Lower Big Ditch

APRIL 2021

## Summary of 2019 Surface Water Monitoring Program Results



***Big Ditch drains directly into Puget Sound and is tidally influenced. The Skagit Valley (including the Big Ditch watershed) is a major pit stop for migratory waterfowl, including trumpeter swans, tundra swans, snow geese, and other birds.***

### Results:

- There were 329 detections in Lower Big Ditch. Of these, 17 were above WSDA assessment criteria.
- When multiple pesticides are detected simultaneously, the environmental effects can combine; multiple pesticides were detected every week Lower Big Ditch was tested. Between eight to 33 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 certain detection frequencies.

### Watershed and site information:

In 2019, Washington State Department of Agriculture (WSDA) monitored 16 sites in Washington. Lower Big Ditch was one of three monitoring sites located in Skagit County.

**Years sampled:** 2006 – present

#### Fish habitat:

Chinook, coho, chum, and pink salmon; and steelhead ( SalmonScape: [apps.wdfw.wa.gov/salmonscape](https://apps.wdfw.wa.gov/salmonscape) )

#### Sampling dates:

15 weeks, March 25 – July 2

#### Water testing:

- Samples were analyzed at the Manchester Environmental Lab, Port Orchard, Wash.
- 159 current and legacy chemicals (56 insecticides, 58 herbicides, 21 fungicides, 19 pesticide degradates, 2 synergists, 1 antimicrobial, 1 insect repellent, and 1 wood preservative)
- 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.

### Watershed-specific POCs detected in Lower Big Ditch:

#### ICONS FOR ENVIRONMENTAL HAZARDS LISTED ON PESTICIDE LABELS



#### Fipronil



- *Common trade names:* Termidor
- *Example uses within watershed:* ornamental tree, asphalt/cement, residential
- Three breakdown products of fipronil can be just as toxic to certain organisms in the environment as fipronil. In 2019, two of these were detected at this site below WSDA assessment criteria.
- Detected at seven sites in 2019. A watershed POC at two of them.

#### Imidacloprid



- *Common trade names:* Admire Pro, Gaucho, Merit
- *Example uses within watershed:* cereal grain, corn, nursery/ornamental, residential
- Detected at 11 sites in 2019. A watershed POC at nine of them.

#### Metolachlor



- *Common trade names:* Parallel, Stalwart
- *Example uses within watershed:* beans, legumes, corn, potato, market crops
- Detected at 13 sites in 2019. A watershed POC only at Lower Big Ditch.



NATURAL RESOURCES ASSESSMENT SECTION

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. 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. The measured streamflow is erratic each sampling event due to tidal influence at the site.

[ \* I: Insecticide; H: Herbicide ]  
 exceeds assessment criteria   
 below assessment criteria

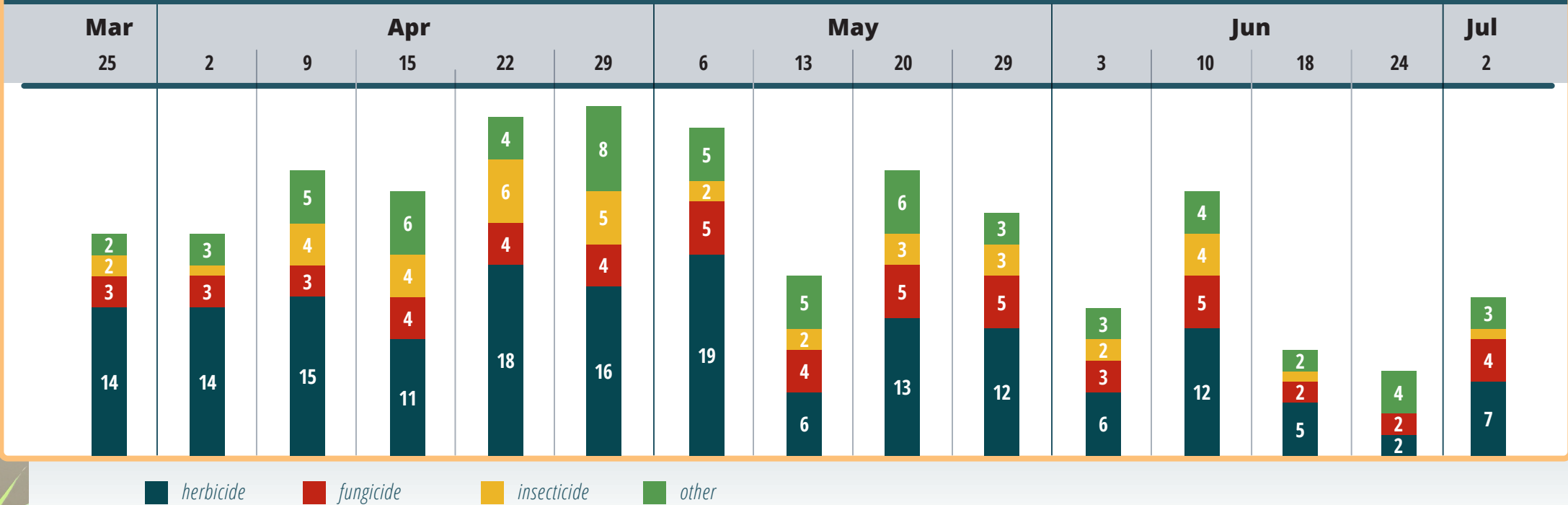
The graph at right shows the total number of detections per sampling visit in each pesticide category. The category 'other' includes degradates and additional pesticide-related chemicals. Note that the number of detections between categories cannot be directly compared due to the different number of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



Watershed Pesticides of Concern Detected and Their Corresponding Sampling Date and Concentration

Month	Day of the Month	Use*	Mar	Apr					May				Jun				Jul
			25	2	9	15	22	29	6	13	20	29	3	10	18	24	2
Fipronil		I						0.004			0.003			0.004			
Imidacloprid		I				0.020	0.003	0.004						0.004			
Metolachlor		H	0.013	0.009	0.014	0.010	0.017	0.025	0.026	0.007	0.035	0.037	0.006	0.015	0.004		
Total suspended solids (mg/L)			50	50	101	73	80	17	11	19	14	9	13	4	3	1	2
Streamflow (cubic ft/sec)			15.8	5.1	35.2	43.6	41.4	4.4	17.5	45.0	28.5	16.4	23.9	9.0	9.8	4.8	5.5
Precipitation (total in/week)			0	0.11	0.14	0.02	0.01	0	0	0	0.24	0.25	0	0.50	0	0.03	0.30

Total Number of Detections per Sampling Event by Pesticide Category



### 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.

#### Care for your equipment and products

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

Please see [agr.wa.gov/AgScience](http://agr.wa.gov/AgScience) for more information.



