Burnt Bridge Creek flows through 10 miles of Vancouver, Washington’s residential and agricultural areas. New Zealand mud snails, an invasive aquatic species, were observed by staff upstream from the site. Stream habitat has improved because of efforts by non-profits, volunteers, and government agencies. Their work included riparian vegetation plantings and stormwater drainage control.

Site information:
In 2020, Washington State Department of Agriculture (WSDA) monitored 16 sites in Washington. Burnt Bridge was the only monitoring site located in Clark County.

Years sampled: 2017 – present
Fish habitat: Winter steelhead and coho salmon (SalmonScape: apps.wdfw.wa.gov/salmonscape)

Sampling dates:
16 weeks, June 17 – September 30, once every two weeks

Although staff typically collect samples during the spring and summer seasons when higher pesticide usage is expected, the sampling schedule was shifted three months later due to COVID-19 restrictions.

Water testing:

- Samples were analyzed at the Manchester Environmental Lab, Port Orchard, Wash.
- Samples were tested for 166 current and legacy chemicals (61 insecticides, 58 herbicides, 23 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.

Results:
- There were 42 unique chemicals detected with a total of 221 detections in Burnt Bridge Creek. Of these, seven detections were above WSDA assessment criteria.
- When multiple pesticides are detected simultaneously, the harmful effects can combine; multiple pesticides were detected every week Burnt Bridge Creek was sampled. Between 8 and 25 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 Burnt Bridge Creek:

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Common trade names</th>
<th>Example uses within watershed</th>
<th>Detected in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidacloprid</td>
<td>Admire Pro, Gaucho, Merit</td>
<td>nursery/ornamental, residential</td>
<td>13 sites</td>
</tr>
<tr>
<td>Diuron</td>
<td>Direx, Karmex</td>
<td>pasture, right-of-way, asphalt/cement</td>
<td>12 sites</td>
</tr>
</tbody>
</table>

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

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 the watershed POCs. The “–” identifies data that could not be collected or analyzed. 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.

<table>
<thead>
<tr>
<th>Month</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day of the Month</td>
<td>Use*</td>
<td>17</td>
<td>24</td>
<td>29</td>
</tr>
<tr>
<td>Diuron</td>
<td>H</td>
<td>0.016</td>
<td>0.004</td>
<td>0.004</td>
</tr>
<tr>
<td>Imidacloprid</td>
<td>I</td>
<td>0.092</td>
<td>0.010</td>
<td>0.006</td>
</tr>
<tr>
<td>Total suspended solids (mg/L)</td>
<td>15</td>
<td>7</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Streamflow (cubic ft/sec)</td>
<td>18.8</td>
<td>5.9</td>
<td>5.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Precipitation (total in/week)</td>
<td>1.91</td>
<td>0.18</td>
<td>0.01</td>
<td>0.12</td>
</tr>
</tbody>
</table>

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. The increase in detections in the late fall may be due to contaminant transport from surface water runoff or soil erosion caused by precipitation events.

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 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/wastepericide to learn about waste pesticide collection events.

Please see agr.wa.gov/AgScience for more information.
### Burnt Bridge Creek Crop Groupings

<table>
<thead>
<tr>
<th>Crop Grouping</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>173</td>
</tr>
<tr>
<td>Hay / Silage</td>
<td>13</td>
</tr>
<tr>
<td>Orchard</td>
<td>17</td>
</tr>
<tr>
<td>Pasture</td>
<td>13</td>
</tr>
<tr>
<td>Turfgrass</td>
<td>128</td>
</tr>
</tbody>
</table>

**Total Agriculture:** 344 acres  
**Total Non-Agriculture:** 16,493 acres  
**Watershed Total:** 16,837 acres

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