

# Vaughn Bay

## Annual Shellfish Growing Area Review



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Area: Vaughn Bay

Year Ending: December 31, 2021

Classification: Approved, Conditionally Approved, Prohibited

### Activities in the Growing Area in 2021

The growing area was sampled 12 times in accordance with National Shellfish Sanitation Program (NSSP) Systematic Random Sampling criteria. Eleven of the samples were collected during the Open status. The Conditionally Approved area was closed six times for a total of 36 days due to rainfall ( $\geq 1$ -inch in 24-hours).

The Tacoma-Pierce County Health Department, Pierce County Surface Water Management, and Pierce Conservation District continued pollution identification and correction work in the watershed. The Vaughn Bay Shellfish Protection District continues to meet quarterly.

### Analytical Results of Water Samples

Table 1 summarizes the most recent 30 samples collected from each of the sampling stations. All Approved stations meet the NSSP Standard except Station 613. Station 613 fails the NSSP standard for an Approved classification with an estimated 90<sup>th</sup> percentile of 45.6 FC/100mL. Table 2 summarizes the most recent 30 samples collected from the Conditionally Approved station during Open status ( $< 1.0$ -inch rainfall recorded in 24 hours, within five days of the sampling event). Station 650 in the Conditionally Approved area fails the NSSP standard for an Approved classification during Open status with an estimated 90<sup>th</sup> percentile of 43.4 FC/100mL. Station 608 is categorized as Threatened with an estimated 90<sup>th</sup> percentile during Open status of 33.1 FC/100mL. Stations 611 and 745 are categorized as Concerned with estimated 90<sup>th</sup> percentiles during Open status of 22.7 FC/100mL and 21.6 FC/100mL, respectively. Table 3 includes the last 30 individual sample results for Station 613, and the last 30 samples during Open status for stations 608 and 650.

### Change in Actual Pollution Sources that Impact the Growing Area

We currently have no information indicating the area has any new sources of pollution.

### Classification Status

- Well within the classification standards
- Meets standards, but some concerns
- Meets standards, but threatened with downgrade in classification
- Fails to meet current classification standards

### Remarks and Recommendations

Table 1 shows that Station 613 no longer meets the NSSP criteria for an Approved classification. Table 2 shows that Station 650 no longer meets the NSSP criteria for an Approved classification during Open status. The Department should evaluate the classification of these stations. The Department should continue to collaborate with Pierce County to identify and correct sources of pollution in the Vaughn Bay watershed.

## Management Plan Evaluation

1. Have all parties involved complied with the conditions of the management plan .....Yes
2. Has reporting been adequate to manage the conditional area.....Yes
3. Does the area consistently meet approved area criteria when it is open for harvest ..... Yes
4. Has a field inspection of critical pollution sources been conducted ..... Yes

**TABLE 1. Summary of Marine Water Data (SRS) for the Vaughn Bay Growing Area**

Sampling Event Type: Regulatory

Maximum Number of Samples: 30

Tides Included: All

| Station Number | Classification         | Date Range             | Range (FC/100mL) | Geomean (FC/100mL) | Est. 90 <sup>th</sup> Percentile (FC/100mL) | Meets Standard |
|----------------|------------------------|------------------------|------------------|--------------------|---|----------------|
| 35             | Approved               | 7/18/2019 - 12/20/2021 | 1.7 - 13.0       | 2.5                | 6.0   | Yes            |
| 607            | Approved               | 7/18/2019 - 12/20/2021 | 1.7 - 7.8        | 2.4                | 5.0   | Yes            |
| 612            | Approved               | 7/18/2019 - 12/20/2021 | 1.7 - 240.0      | 3.1                | 13.1  | Yes            |
| 613            | Approved               | 7/18/2019 - 12/20/2021 | 1.7 - 540.0      | 5.3                | 45.6  | No             |
| 608            | Conditionally Approved | 7/18/2019 - 12/20/2021 | 1.7 - 350.0      | 5.4                | 37.1  | Yes            |
| 611            | Conditionally Approved | 7/18/2019 - 12/20/2021 | 1.7 - 1600.0     | 4.3                | 29.4  | Yes            |
| 633            | Conditionally Approved | 7/18/2019 - 12/20/2021 | 1.7 - 130.0      | 3.4                | 13.0  | Yes            |
| 650            | Conditionally Approved | 7/18/2019 - 12/20/2021 | 1.7 - 540.0      | 6.0                | 49.5  | No             |
| 745            | Conditionally Approved | 7/18/2019 - 12/20/2021 | 1.7 - 79.0       | 5.7                | 25.0  | Yes            |
| 609            | Prohibited             | 7/18/2019 - 12/20/2021 | 1.7 - 350.0      | 11.3               | 140.9                                       | No             |
| 610            | Prohibited             | 7/18/2019 - 12/20/2021 | 1.7 - 240.0      | 7.0                | 50.2  | No             |

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/ 100 mL with an estimated 90th percentile not greater than 43 organisms/ 100 mL. The above table shows bacteriological results in relation to program standards.

**TABLE 2. Summary of Conditionally Approved Marine Water Data (SRS) in Open Status for the Vaughn Bay Growing Area**

Sampling Event Type: Regulatory

Maximum Number of Samples: 30

Tides Included: All

Includes data for rainfall amounts:00-0.99” on days 0 – 4 previous to the sampling event.

| Station Number | Classification         | Date Range            | Range (FC/100mL) | Geomean (FC/100mL) | Est. 90 <sup>th</sup> Percentile (FC/100mL) | Meets Standard |
|----------------|------------------------|-----------------------|------------------|--------------------|---|----------------|
| 608            | Conditionally Approved | 5/8/2019 - 12/20/2021 | 1.7 - 350.0      | 4.9                | 33.1  | Yes            |
| 611            | Conditionally Approved | 5/8/2019 - 12/20/2021 | 1.7 - 1600.0     | 3.7                | 22.7  | Yes            |
| 633            | Conditionally Approved | 5/8/2019 - 12/20/2021 | 1.7 - 23.0       | 3.1                | 8.4   | Yes            |
| 650            | Conditionally Approved | 5/8/2019 - 12/20/2021 | 1.7 - 540.0      | 5.2                | 43.4  | No             |
| 745            | Conditionally Approved | 5/8/2019 - 12/20/2021 | 1.7 - 79.0       | 5.0                | 21.6  | Yes            |

The above table shows bacteriological results in relation to NSSP criteria. NSSP standards for approved shellfish growing waters are a fecal coliform geometric mean not greater than 14 organisms/100 mL and an estimated 90th percentile not greater than 43 organisms/100mL.

**TABLE 3. Marine Water Quality Summary for Threaten and Failing Stations in Vaughn Bay Growing Area**

Station: 613

Classification: Approved

Method: SRS

| <b>Total Samples: 30</b><br><b>Range (FC/100 mL): 1.7 – 540.0</b><br><b>GeoMean (FC/100 mL): 5.3</b> |            |       |       | <b>Date Range: 07/18/2019 – 12/20/2021</b><br><b>E90th (FC/100 mL): 45.6</b><br><b>Meets Standard: N</b> |          |                |
|--|------------|-------|-------|--|----------|----------------|
| Sample Date  | Event Type | Time  | Tide  | SWT  | Salinity | Fecal Coliform |
| 07/18/2019   | Regulatory | 09:52 | Ebb   | 18   | 28       | 13.0           |
| 08/06/2019   | Regulatory | 11:26 | Ebb   | 20   | 29       | 4.0            |
| 09/30/2019   | Regulatory | 10:30 | Ebb   | 14   | 32       | 1.7            |
| 10/07/2019   | Regulatory | 13:53 | Flood | 15   | 29       | 1.7            |
| 11/05/2019   | Regulatory | 10:36 | Flood | 12   | 30       | 4.5            |
| 12/03/2019   | Regulatory | 11:24 | Flood | 10   | 29       | 7.8            |
| 01/15/2020   | Regulatory | 11:17 | Ebb   | 8  | 27       | 2.0            |
| 02/12/2020   | Regulatory | 10:01 | Ebb   | 9  | 30       | 2.0            |
| 03/02/2020   | Regulatory | 12:42 | Ebb   | 9  | 27       | 1.7            |
| 04/08/2020   | Regulatory | 10:10 | Ebb   | 10   | 30       | 1.7            |
| 05/12/2020   | Regulatory | 12:04 | Ebb   | 13   | 28       | 2.0            |
| 06/09/2020   | Regulatory | 09:24 | Ebb   | 15   | 20       | 350.0          |
| 07/09/2020   | Regulatory | 10:51 | Ebb   | 18   | 29       | 7.8            |
| 08/05/2020   | Regulatory | 09:23 | Ebb   | 20   | 30       | 1.7            |
| 09/09/2020   | Regulatory | 11:31 | Flood | 15   | 29       | 6.8            |
| 10/13/2020   | Regulatory | 14:40 | Flood | 15   | 31       | 11.0           |
| 11/03/2020   | Regulatory | 11:23 | Ebb   | 13   | 29       | 170.0          |
| 12/02/2020   | Regulatory | 10:31 | Ebb   | 10   | 31       | 1.8            |
| 01/04/2021   | Regulatory | 10:38 | Ebb   | 8  | 25       | 17.0           |
| 02/23/2021   | Regulatory | 11:39 | Flood | 9  | 24       | 1.7            |
| 03/02/2021   | Regulatory | 10:56 | Ebb   | 9  | 28       | 1.7            |
| 04/20/2021   | Regulatory | 11:51 | Flood | 15   | 25       | 1.7            |
| 05/19/2021   | Regulatory | 11:49 | Ebb   | 15   | 30       | 1.7            |
| 06/17/2021   | Regulatory | 11:50 | Ebb   | 18   | 29       | 1.7            |
| 07/29/2021   | Regulatory | 10:52 | Ebb   | 20   | 29       | 1.7            |
| 08/31/2021   | Regulatory | 12:23 | Flood | 18   | 29       | 1.7            |
| 09/09/2021   | Regulatory | 10:54 | Ebb   | 18   | 31       | 2.0            |
| 10/25/2021   | Regulatory | 12:15 | Ebb   | 14   | 30       | 540.0          |
| 11/30/2021   | Regulatory | 13:44 | Flood | 12   | 25       | 6.8            |
| 12/20/2021   | Regulatory | 11:22 | Ebb   | 9  | 21       | 79.0           |

**TABLE 3 continued**

Station: 650

Classification: Approved

Method: SRS

Includes data for rainfall amounts 0.00-0.99 on days 0-4 previous to the sampling event.

| <b>Total Samples: 30</b><br><b>Range (FC/100 mL): 1.7 – 540.0</b><br><b>GeoMean (FC/100 mL): 5.2</b> |            |       |       | <b>Date Range: 05/08/2019 – 12/20/2021</b><br><b>E90th (FC/100 mL): 43.4</b><br><b>Meets Standard: N</b> |          |                |
|--|------------|-------|-------|--|----------|----------------|
| Sample Date  | Event Type | Time  | Tide  | SWT  | Salinity | Fecal Coliform |
| 05/08/2019   | Regulatory | 10:48 | Ebb   | 15   | 26       | 1.7            |
| 06/24/2019   | Regulatory | 11:05 | Flood | 17   | 28       | 1.7            |
| 07/18/2019   | Regulatory | 09:47 | Ebb   | 18   | 28       | 2.0            |
| 08/06/2019   | Regulatory | 11:21 | Ebb   | 20   | 27       | 79.0           |
| 09/30/2019   | Regulatory | 10:25 | Ebb   | 14   | 32       | 1.7            |
| 10/07/2019   | Regulatory | 13:48 | Flood | 15   | 29       | 4.0            |
| 11/05/2019   | Regulatory | 10:32 | Flood | 12   | 30       | 1.7            |
| 12/03/2019   | Regulatory | 11:20 | Flood | 10   | 28       | 2.0            |
| 01/15/2020   | Regulatory | 11:12 | Ebb   | 8  | 26       | 1.7            |
| 02/12/2020   | Regulatory | 09:57 | Ebb   | 9  | 30       | 1.7            |
| 03/02/2020   | Regulatory | 12:35 | Ebb   | 9  | 25       | 1.7            |
| 04/08/2020   | Regulatory | 10:06 | Ebb   | 10   | 29       | 2.0            |
| 05/12/2020   | Regulatory | 11:59 | Ebb   | 13   | 25       | 6.8            |
| 06/09/2020   | Regulatory | 09:19 | Ebb   | 15   | 27       | 240.0          |
| 07/09/2020   | Regulatory | 10:46 | Ebb   | 18   | 28       | 2.0            |
| 08/05/2020   | Regulatory | 09:19 | Ebb   | 20   | 30       | 4.0            |
| 09/09/2020   | Regulatory | 11:26 | Flood | 15   | 29       | 1.7            |
| 11/03/2020   | Regulatory | 11:19 | Ebb   | 13   | 28       | 540.0          |
| 12/02/2020   | Regulatory | 10:27 | Ebb   | 10   | 31       | 6.8            |
| 02/23/2021   | Regulatory | 11:33 | Flood | 8  | 20       | 170.0          |
| 03/02/2021   | Regulatory | 10:51 | Ebb   | 9  | 27       | 1.7            |
| 04/20/2021   | Regulatory | 11:44 | Flood | 15   | 23       | 1.7            |
| 05/19/2021   | Regulatory | 11:43 | Ebb   | 15   | 29       | 1.7            |
| 06/17/2021   | Regulatory | 11:46 | Ebb   | 18   | 28       | 6.8            |
| 07/29/2021   | Regulatory | 10:46 | Ebb   | 20   | 29       | 6.8            |
| 08/31/2021   | Regulatory | 12:16 | Flood | 18   | 29       | 1.7            |
| 09/09/2021   | Regulatory | 10:47 | Ebb   | 18   | 31       | 2.0            |
| 10/25/2021   | Regulatory | 12:06 | Ebb   | 14   | 30       | 17.0           |
| 11/30/2021   | Regulatory | 13:38 | Flood | 12   | 20       | 22.0           |
| 12/20/2021   | Regulatory | 11:19 | Ebb   | 10   | 25       | 7.8            |

**TABLE 3 continued**

Station: 608

Classification: Approved

Method: SRS

Includes data for rainfall amounts 0.00-0.99 on days 0-4 previous to the sampling event.

| <b>Total Samples: 30</b><br><b>Range (FC/100 mL): 1.7 – 350.0</b><br><b>GeoMean (FC/100 mL): 4.9</b> |            |       |       | <b>Date Range: 05/08/2019 – 12/20/2021</b><br><b>E90th (FC/100 mL): 33.1</b><br><b>Meets Standard: Y</b> |          |                |
|--|------------|-------|-------|--|----------|----------------|
| Sample Date  | Event Type | Time  | Tide  | SWT  | Salinity | Fecal Coliform |
| 05/08/2019   | Regulatory | 10:40 | Ebb   | 15   | 27       | 1.7            |
| 06/24/2019   | Regulatory | 10:56 | Flood | 17   | 28       | 1.7            |
| 07/18/2019   | Regulatory | 09:36 | Ebb   | 18   | 27       | 79.0           |
| 08/06/2019   | Regulatory | 11:08 | Ebb   | 19   | 29       | 2.0            |
| 09/30/2019   | Regulatory | 10:13 | Ebb   | 15   | 32       | 4.0            |
| 10/07/2019   | Regulatory | 13:34 | Flood | 15   | 29       | 1.8            |
| 11/05/2019   | Regulatory | 10:21 | Flood | 12   | 30       | 1.7            |
| 12/03/2019   | Regulatory | 11:10 | Flood | 10   | 29       | 1.7            |
| 01/15/2020   | Regulatory | 10:56 | Ebb   | 8  | 27       | 1.7            |
| 02/12/2020   | Regulatory | 09:46 | Ebb   | 9  | 26       | 1.7            |
| 03/02/2020   | Regulatory | 12:21 | Ebb   | 8  | 26       | 8.2            |
| 04/08/2020   | Regulatory | 09:55 | Ebb   | 10   | 30       | 1.7            |
| 05/12/2020   | Regulatory | 11:46 | Ebb   | 13   | 28       | 9.2            |
| 06/09/2020   | Regulatory | 09:07 | Ebb   | 15   | 28       | 350.0          |
| 07/09/2020   | Regulatory | 10:34 | Ebb   | 18   | 28       | 2.0            |
| 08/05/2020   | Regulatory | 09:10 | Ebb   | 20   | 30       | 13.0           |
| 09/09/2020   | Regulatory | 11:14 | Flood | 16   | 29       | 49.0           |
| 11/03/2020   | Regulatory | 11:01 | Ebb   | 13   | 25       | 170.0          |
| 12/02/2020   | Regulatory | 10:17 | Ebb   | 10   | 31       | 4.0            |
| 02/23/2021   | Regulatory | 11:20 | Flood | 9  | 24       | 2.0            |
| 03/02/2021   | Regulatory | 10:40 | Ebb   | 9  | 27       | 2.0            |
| 04/20/2021   | Regulatory | 11:31 | Flood | 15   | 25       | 2.0            |
| 05/19/2021   | Regulatory | 11:30 | Flood | 15   | 30       | 2.0            |
| 06/17/2021   | Regulatory | 11:36 | Ebb   | 17   | 28       | 6.8            |
| 07/29/2021   | Regulatory | 10:31 | Flood | 20   | 29       | 1.7            |
| 08/31/2021   | Regulatory | 12:02 | Flood | 18   | 29       | 1.7            |
| 09/09/2021   | Regulatory | 10:35 | Ebb   | 18   | 31       | 1.8            |
| 10/25/2021   | Regulatory | 11:49 | Ebb   | 14   | 30       | 7.8            |
| 11/30/2021   | Regulatory | 13:23 | Flood | 12   | 15       | 17.0           |
| 12/20/2021   | Regulatory | 11:09 | Ebb   | 10   | 28       | 6.8            |



MAP 1. Vaughn Bay Growing Area

