

# Vaughn Bay

## Annual Shellfish Growing Area Review



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Area: Vaughn Bay

Year Ending: December 31, 2022

Classification: Approved, Conditionally Approved, Prohibited

### Activities in the Growing Area in 2022

The growing area was sampled 12 times in accordance with National Shellfish Sanitation Program (NSSP) Systematic Random Sampling criteria. Ten of the samples were collected during the Open status. The Conditionally Approved area was closed nine times for a total of 53 days due to rainfall ( $\geq 1$  inch in 24-hours). The whole growing area was closed once for seven days due to excessive rainfall ( $\geq 3$  inches in 24-hours). In August, 40 acres were reclassified from Conditionally Approved to Prohibited due to Station 650 failing the NSSP standard during the Open period.

A routine three-year shoreline evaluation was completed. Tacoma-Pierce County Health Department sampled 68 drainages and 3 drainages had elevated bacteria levels but are in the Prohibited area. No new or changes in pollution sources were identified.

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. Five of these samples were collected during Closed status. All Approved and Conditionally Approved stations meet the NSSP standard for an Approved classification. 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 608 in the Conditionally Approved area is categorized as Threatened with an estimated 90<sup>th</sup> percentile of 34.0 FC/100mL during Open status. However, this station has an estimated 90<sup>th</sup> percentile of 25.1 FC/100mL when calculating unsorted data. Station 613 in the Approved area and Station 745 in the Conditionally Approved area are categorized as Threatened with respective estimated 90<sup>th</sup> percentiles of 28.2 FC/100mL and 26.9 FC/100mL (Open status). Table 3 includes the last 30 individual sample results from the Threatened stations.

### 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 all Conditionally Approved stations meet the NSSP water quality standard. The Department should evaluate if the Conditionally Approved Area Management Plan is still appropriate for the growing area. Because limited rainfall-related sampling data was collected from 2020 through 2022, a special study that include rainfall event sampling (exceeding 1-inch in 24 hours) should be completed prior to a classification change. 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	7/9/2020 - 12/1/2022	1.7 - 13.0	2.4	5.7	Y
607	Approved	7/9/2020 - 12/1/2022	1.7 - 17.0	2.6	5.9	Y
612	Approved	7/9/2020 - 12/1/2022	1.7 - 33.0	2.7	7.4	Y
613	Approved	7/9/2020 - 12/1/2022	1.7 - 540.0	4.1	28.2	Y
608	Conditionally Approved	7/9/2020 - 12/1/2022	1.7 - 170.0	4.9	25.1	Y
633	Conditionally Approved	7/9/2020 - 12/1/2022	1.7 - 130.0	3.9	15.1	Y
745	Conditionally Approved	7/9/2020 - 12/1/2022	1.7 - 130.0	5.9	30.4	Y
609	Prohibited	7/9/2020 - 12/1/2022	1.7 - 350.0	8.8	79.5	N
610	Prohibited	7/9/2020 - 12/1/2022	1.7 - 130.0	5.7	29.8	Y
611	Prohibited	7/9/2020 - 12/1/2022	1.7 - 49.0	4.2	16.5	Y
650	Prohibited	7/9/2020 - 12/1/2022	1.7 - 540.0	6.6	44.2	N

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	2/12/2020 - 10/4/2022	1.7 - 350.0	5.4	34.0	Y
633	Conditionally Approved	2/12/2020 - 10/4/2022	1.7 - 13.0	2.9	7.4	Y
745	Conditionally Approved	2/12/2020 - 10/4/2022	1.7 - 130.0	5.5	26.9	Y

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 the Threatened Stations in Vaughn Bay Growing Area**

Station: 608

Classification: Conditionally Approved

Method: SRS

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

<b>Total Samples: 30</b> <b>Range (FC/100 mL): 1.7 – 350.0</b> <b>GeoMean (FC/100 mL): 5.4</b>				<b>Date Range: 02/12/2020 – 10/04/2022</b> <b>E90th (FC/100 mL): 34.0</b> <b>Meets Standard: Y</b>		
Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
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
02/07/2022	Regulatory	11:22	Ebb	9	27	1.7
03/22/2022	Regulatory	11:06	Ebb	10	25	1.7
04/19/2022	Regulatory	10:51	Ebb	9	28	4.5
05/02/2022	Regulatory	09:33	Ebb	13	26	33.0
06/02/2022	Regulatory	08:51	Ebb	15	29	1.7
07/27/2022	Regulatory	17:53	Flood	24	28	2.0
08/22/2022	Regulatory	17:30	Flood	23	28	1.7
09/19/2022	Regulatory	14:01	Flood	17	29	11.0
10/04/2022	Regulatory	16:02	Ebb	18	29	13.0

**TABLE 3. Continued**

Station: 613

Classification: Approved

Method: SRS

<b>Total Samples: 30</b> <b>Range (FC/100 mL): 1.7 - 540.0</b> <b>GeoMean (FC/100 mL): 4.1</b>				<b>Date Range: 07/09/2020 - 12/01/2022</b> <b>E90th (FC/100 mL): 28.2</b> <b>Meets Standard: Y</b>		
Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
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
01/04/2022	Regulatory	13:04	Ebb	7	28	1.7
02/07/2022	Regulatory	11:42	Ebb	9	27	1.7
03/22/2022	Regulatory	11:25	Ebb	10	25	1.7
04/19/2022	Regulatory	11:09	Ebb	10	29	1.8
05/02/2022	Regulatory	09:55	Ebb	13	27	4.5
06/02/2022	Regulatory	09:06	Ebb	14	28	4.5
07/27/2022	Regulatory	18:14	Flood	23	28	1.7
08/22/2022	Regulatory	17:40	Flood	23	28	1.7
09/19/2022	Regulatory	14:22	Flood	17	29	2.0
10/04/2022	Regulatory	16:13	Ebb	18	29	1.7
11/01/2022	Regulatory	12:29	Flood	13	29	1.7
12/01/2022	Regulatory	12:43	Flood	10	25	9.3

**TABLE 3. Continued**

Station: 745

Classification: Conditionally Approved

Method: SRS

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

<b>Total Samples: 30</b> <b>Range (FC/100 mL): 1.7 - 130.0</b> <b>GeoMean (FC/100 mL): 5.5</b>				<b>Date Range: 02/12/2020 - 10/04/2022</b> <b>E90th (FC/100 mL): 26.9</b> <b>Meets Standard: Y</b>		
Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
02/12/2020	Regulatory	09:49	Ebb	9	30	1.7
03/02/2020	Regulatory	12:26	Ebb	8	26	1.7
04/08/2020	Regulatory	09:59	Ebb	10	29	33.0
05/12/2020	Regulatory	11:50	Ebb	13	28	4.5
06/09/2020	Regulatory	09:11	Ebb	15	29	33.0
07/09/2020	Regulatory	10:38	Ebb	18	28	7.8
08/05/2020	Regulatory	09:13	Ebb	20	30	2.0
09/09/2020	Regulatory	11:19	Flood	16	29	2.0
11/03/2020	Regulatory	11:07	Ebb	13	28	79.0
12/02/2020	Regulatory	10:21	Ebb	10	30	1.7
02/23/2021	Regulatory	11:25	Flood	8	18	17.0
03/02/2021	Regulatory	10:43	Ebb	9	26	4.5
04/20/2021	Regulatory	11:35	Flood	15	25	1.7
05/19/2021	Regulatory	11:33	Flood	15	30	1.7
06/17/2021	Regulatory	11:40	Ebb	18	28	11.0
07/29/2021	Regulatory	10:36	Flood	20	29	2.0
08/31/2021	Regulatory	12:07	Flood	18	29	2.0
09/09/2021	Regulatory	10:39	Ebb	18	31	4.5
10/25/2021	Regulatory	11:55	Ebb	14	30	11.0
11/30/2021	Regulatory	13:30	Flood	12	15	7.8
12/20/2021	Regulatory	11:12	Ebb	9	27	7.8
02/07/2022	Regulatory	11:26	Ebb	9	26	2.0
03/22/2022	Regulatory	11:10	Ebb	10	12	23.0
04/19/2022	Regulatory	10:54	Ebb	9	27	13.0
05/02/2022	Regulatory	09:40	Ebb	13	24	4.0
06/02/2022	Regulatory	08:55	Ebb	14	29	1.7
07/27/2022	Regulatory	17:59	Flood	25	26	4.0
08/22/2022	Regulatory	17:32	Flood	23	28	1.7
09/19/2022	Regulatory	14:06	Flood	17	29	2.0
10/04/2022	Regulatory	16:05	Ebb	18	28	130.0

MAP 1. Vaughn Bay Growing Area

