

# 2020 | Water Quality Report



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## Protecting public health, preventing pollution

The Kitsap Public Health District's Water Pollution Identification and Correction (PIC) program protects public health and prevents fecal pollution in Kitsap County surface waters.

Health District staff sample dozens of streams and swimming beaches across the county for fecal bacteria, an indicator of fecal pollution caused by human or animal waste. Fecal pollution can carry viruses and harmful bacteria that make people sick.

We use water sampling results to notify the public of potential health risks, and to find and fix fecal pollution problems. This helps keep our streams, swimming beaches and shellfish beds safe and healthy for the public to enjoy.

Our Water Quality Report summarizes water quality monitoring results and highlights from the 2020 water year (Oct. 1, 2019 to Sept. 30, 2020).



# 2020 Water PIC Program Highlights



**69**  
Streams monitored  
for pollution



**340**  
Health advisory days  
for local lakes



**3,642**  
Water samples collected



**137**  
Acres of shellfish beds  
upgraded



**13,107**  
Staff hours logged



## Protecting water quality while fighting a pandemic

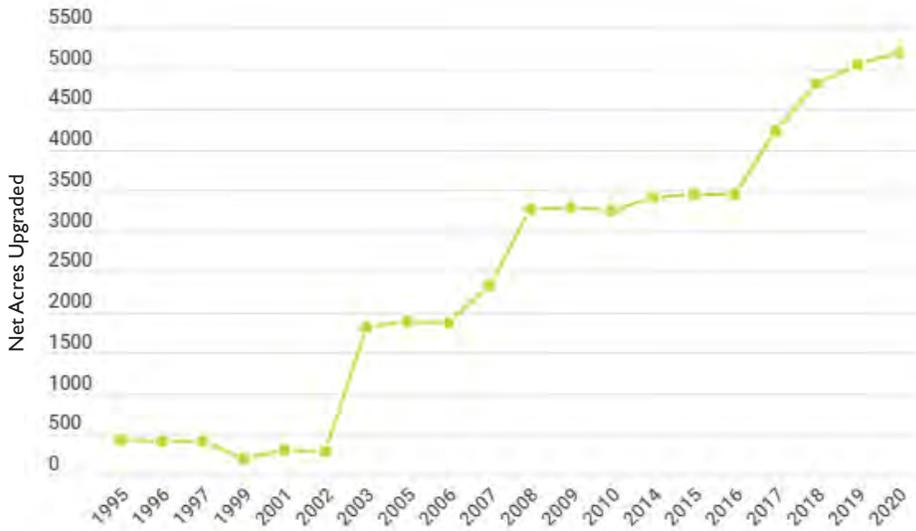
The COVID-19 pandemic transformed the work of public health organizations around the globe in 2020. Kitsap Public Health District and our Water Pollution Identification and Correction Program were no exceptions.

The PIC program rose to the challenge of supporting Health District's COVID-19 pandemic response while ensuring critical water quality monitoring and pollution correction duties continued. Every PIC team member was called on to directly respond to the pandemic in some way. PIC staff devoted more than 1,000 hours to COVID-19 case investigations and contact tracing.

As staff time was redirected to pandemic response, a reduced team of water quality specialists donned masks and shouldered the program's responsibilities in the field and office. PIC staff logged more than 13,000 hours and continued regular monitoring for all 69 monitored streams in the county.

Kitsap Public Health's vision is to make Kitsap County a safe and healthy place to live, learn, work, and play. As 2020 proved, our staff are prepared to adapt and overcome any challenges today, tomorrow and for years to come.

# Shellfish Harvesting Areas Approved



All creek systems in Kitsap County eventually drain into Puget Sound and many streams empty into shellfish growing areas. Because of this, pollution in surface water contributes to contamination of shellfish beds.

By reducing pollution in surface waters, the Health District’s PIC program improves water quality in shellfish growing areas. Since PIC work began a quarter-century ago, there has been a net increase of more than 5,000 acres of shellfish beds approved for harvest around Kitsap County.

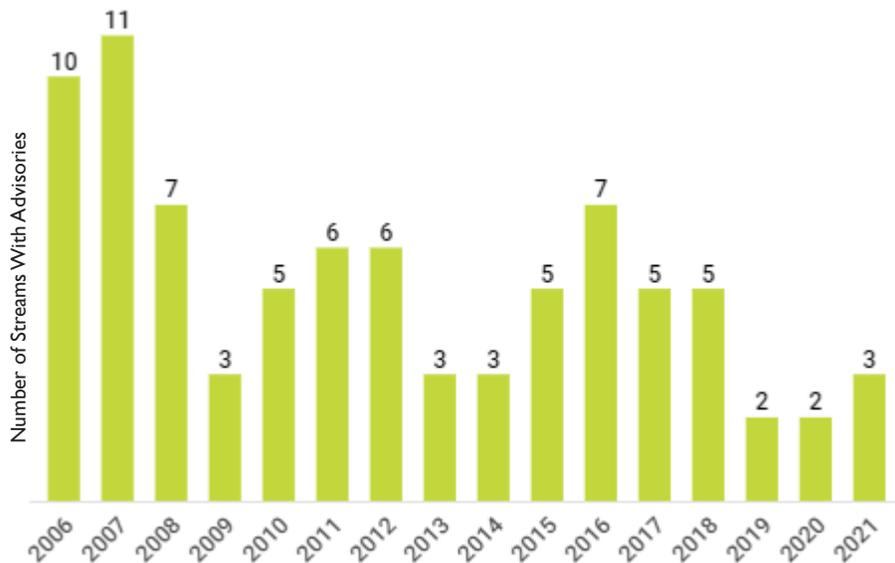
# Public Health Stream Advisories

The Health District issues public health advisories for streams that have ongoing problems with high bacteria levels during the summer. Advisories are posted to protect the health of people who might come into contact with stream water — especially children.

The Health District issues an advisory when fecal coliform (FC) bacteria in water samples collected over a three-year period exceeds a geometric mean value (GMV) of 270 FC per 100 milliliters. (See page 4 for an explanation of how FC bacteria are quantified.)

The number of public health advisories issued for streams in Kitsap has decreased dramatically since 2007.

## Public health stream advisories issued by year



**2021 Public Health Stream Advisories**

Based on sampling results from 2018-2020 public health advisories are in effect for three streams:

- Lofall Creek (651 gmV)
- Ostrich Bay Creek (552 gmV)
- Daniels Creek (406 gmV)

# 2020 Water Quality Monitoring Results



## Explaining the state water quality standard

The Washington State Department of Ecology establishes standards for surface water quality. The freshwater standard is applied to “primary contact” water bodies, where people are likely to become submerged in water or ingest water through recreational activities such as wading and swimming.

The state standard for freshwater is based on the geometric mean value (GMV) of fecal coliform (FC) bacteria identified in 100 milliliter (100 ML) water samples. The geometric mean represents the central tendency of a dataset. Bacterial concentrations can be highly variable, so the geometric mean is useful for assessing trends.

## Changes to the state standard

In prior years, some streams were assessed using a more stringent standard for “extraordinary primary contact.” In 2019, that requirement was removed. As a result, more streams now meet the state standard.

## The Freshwater Standard

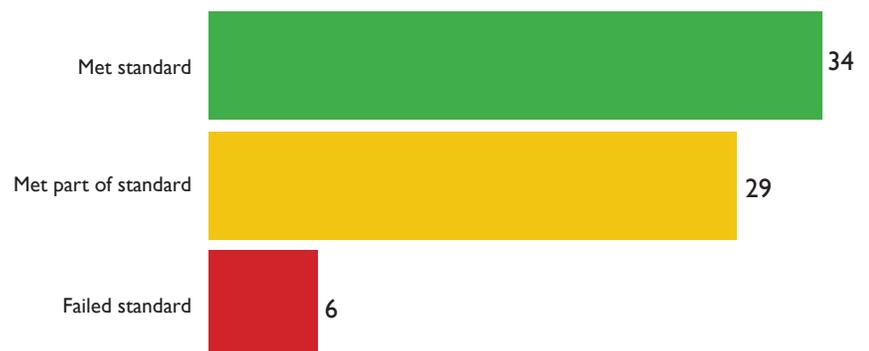
**Part 1:** Annual GMV <100 FC per 100ML

**Part 2:** Not more than 10% of all samples collected for calculating geometric mean > 200 FC/100 ML

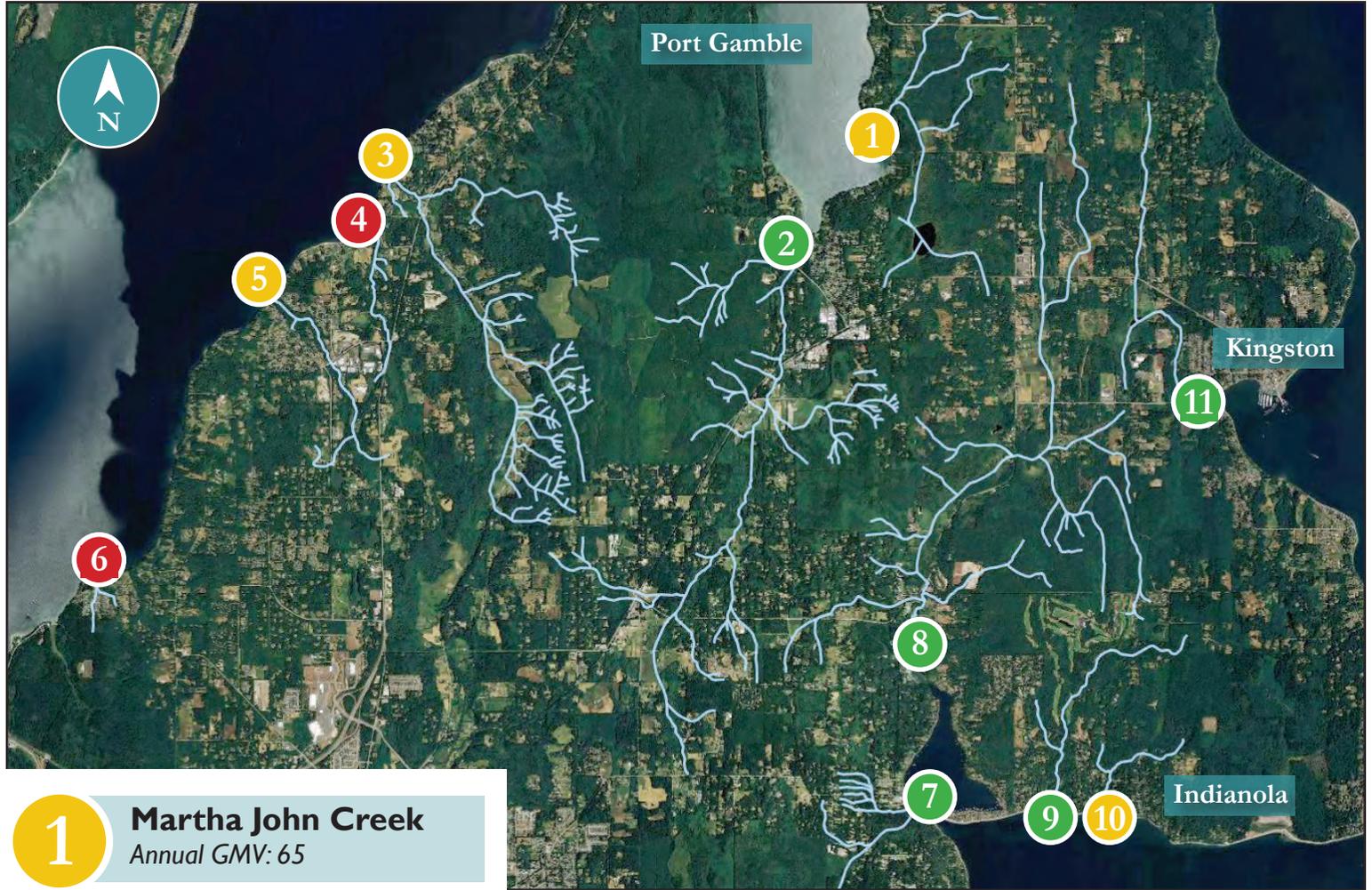
This report notes how each stream performed under the state standard based on bacteria levels:

-  **Met standard:** The stream had **low bacteria** levels and met both parts of the standard.
-  **Met part 1 of standard:** The stream had **periodic high bacteria** levels and failed part 2 of the standard.
-  **Failed standard:** The stream had **high bacteria** levels and failed both parts of the standard.

## Water quality status for Kitsap streams in 2020



# KINGSTON / UPPER HOOD CANAL



**1 Martha John Creek**  
Annual GMV: 65

**2 Gamble Creek**  
Annual GMV: 34

**3 Kinman Creek**  
Annual GMV: 57

**4 Lofall Creek**  
Annual GMV: 333  
*Health Advisory*

**5 Jump Off Joe Creek**  
Annual GMV: 34

**6 Vinland Creek**  
Annual GMV: 108

**7 Cowling Creek**  
Annual GMV: 39

● Low bacteria   ● Periodic high bacteria   ● High bacteria

**8 Grovers Creek**  
Annual GMV: 41

**9 Kitsap Creek**  
Annual GMV: 14

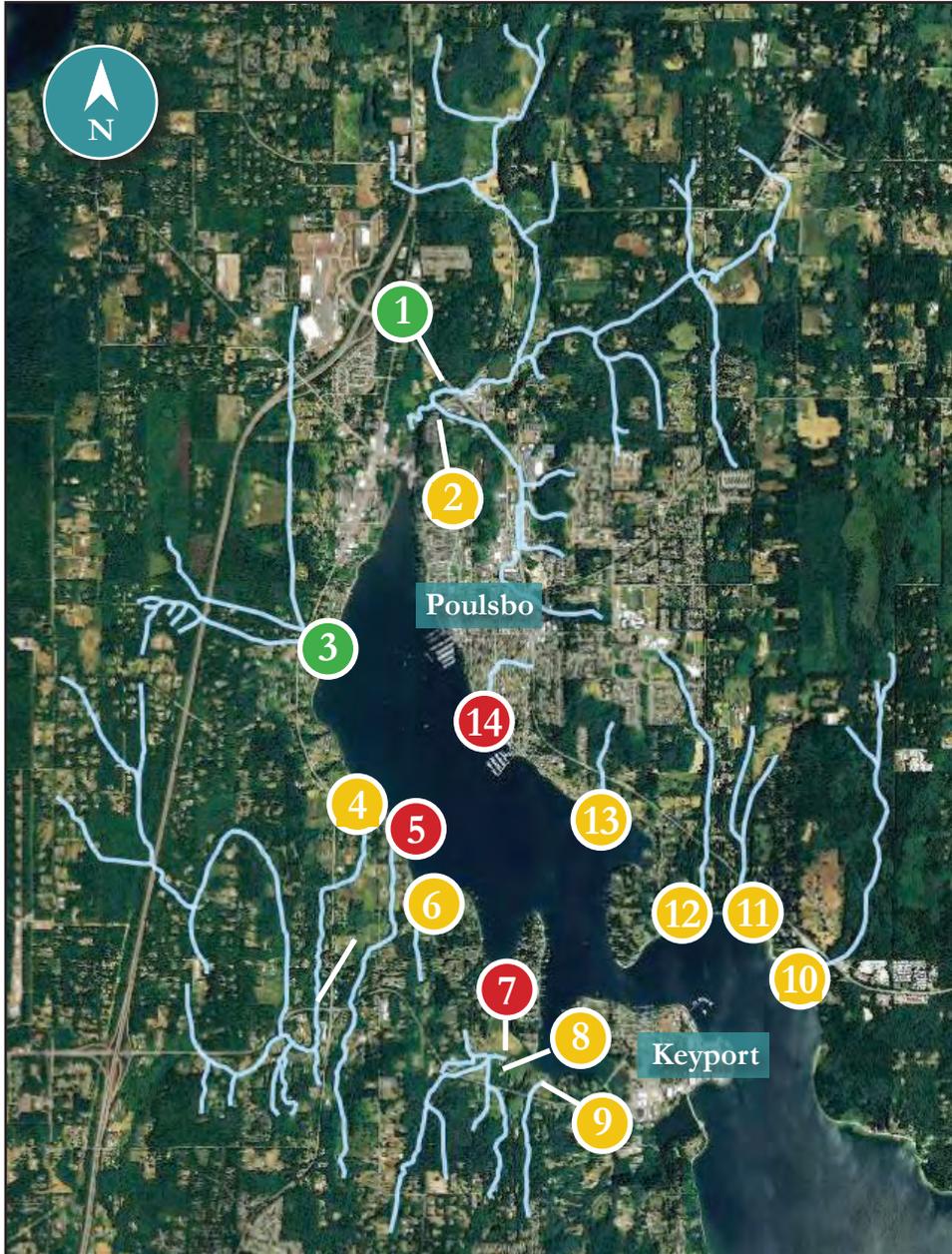
**10 Indianola Creek**  
Annual GMV: 56

**11 Carpenter Creek**  
Annual GMV: 16

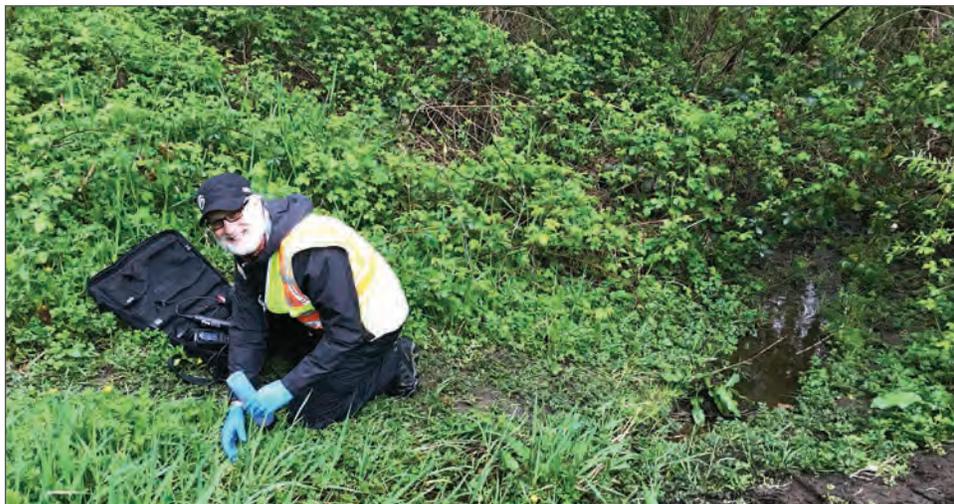


*Martha John Creek meanders through a wooded ravine on the edge of Port Gamble Bay.*

# POULSBO / LIBERTY BAY



● Low bacteria    
 ● Periodic high bacteria    
 ● High bacteria



- 1
**Dogfish Creek**  
*Annual GMV: 23*
- 2
**South Dogfish Creek**  
*Annual GMV: 65*
- 3
**Johnson Creek**  
*Annual GMV: 12*
- 4
**Big Scandia Creek**  
*Annual GMV: 39*
- 5
**Little Scandia Creek**  
*Annual GMV: 137*
- 6
**Perry Creek**  
*Annual GMV: 62*
- 7
**Daniels Creek**  
*Annual GMV: 201*  
*Health advisory*
- 8
**Unnamed Creek 00**  
*Annual GMV: 27*
- 9
**Unnamed Creek 01**  
*Annual GMV: 70*
- 10
**Sam Snyder Creek**  
*Annual GMV: 24*
- 11
**Lemolo Creek**  
*Annual GMV: 21*
- 12
**Bjorgen Creek**  
*Annual GMV: 59*
- 13
**Barrantes Creek**  
*Annual GMV: 51*
- 14
**Poulsbo Creek**  
*Annual GMV: 149*

*Sampling a low-flowing stream in North Kitsap.*

# SILVERDALE / BREMERTON

**1** **Clear Creek**  
Annual GMV: 25

**2** **Kitsap Mall Creek**  
Annual GMV: 56

**3** **Kitsap Mall Creek W.**  
Annual GMV: 56

**4** **Strawberry Creek**  
Annual GMV: 25

**5** **Chico Creek**  
Annual GMV: 51

**6** **Ostrich Bay Creek**  
Annual GMV: 562  
*Health Advisory*

**7** **Phinney Creek**  
Annual GMV: 44

**8** **Enetai Creek**  
Annual GMV: 88

**9** **State Park Creek**  
Annual GMV: 24

**10** **Illahee Creek**  
Annual GMV: 31

**11** **Mosher Creek**  
Annual GMV: 56

**12** **Pahrmann Creek**  
Annual GMV: 69

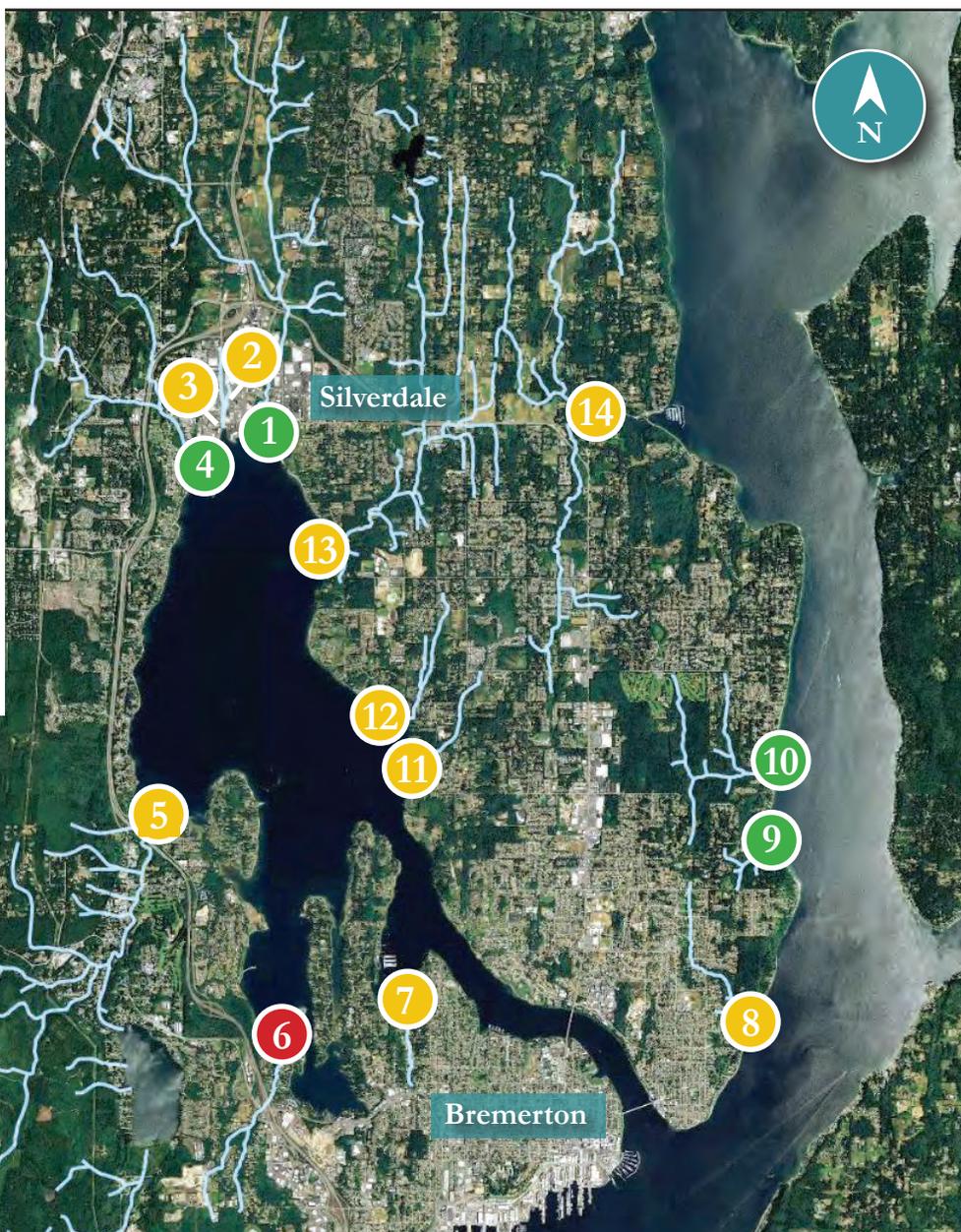
**13** **Barker Creek**  
Annual GMV: 89

**14** **Steele Creek**  
Annual GMV: 50

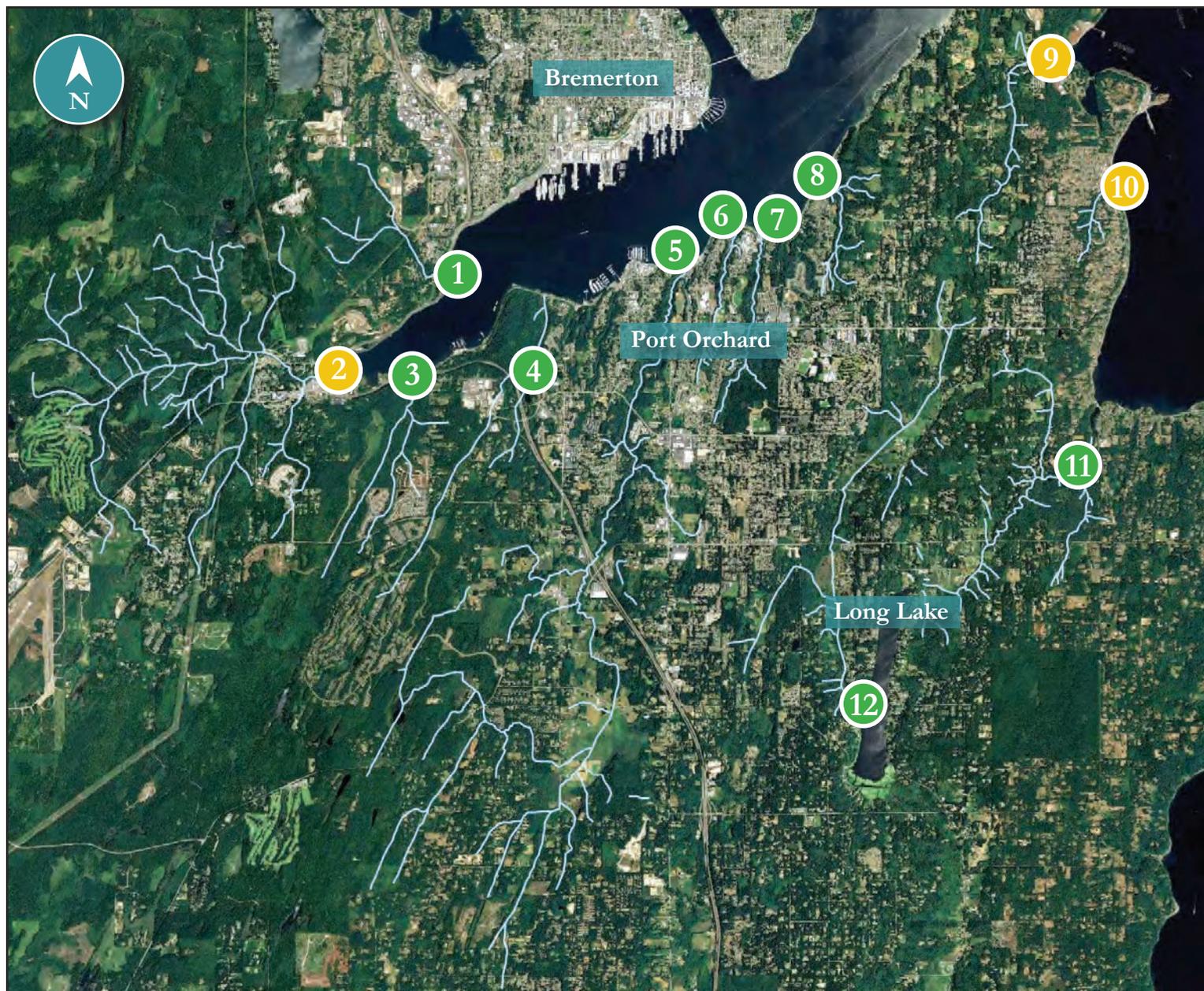


The Chico Creek estuary provides rich habitat.

● Low bacteria    ● Periodic high bacteria    ● High bacteria



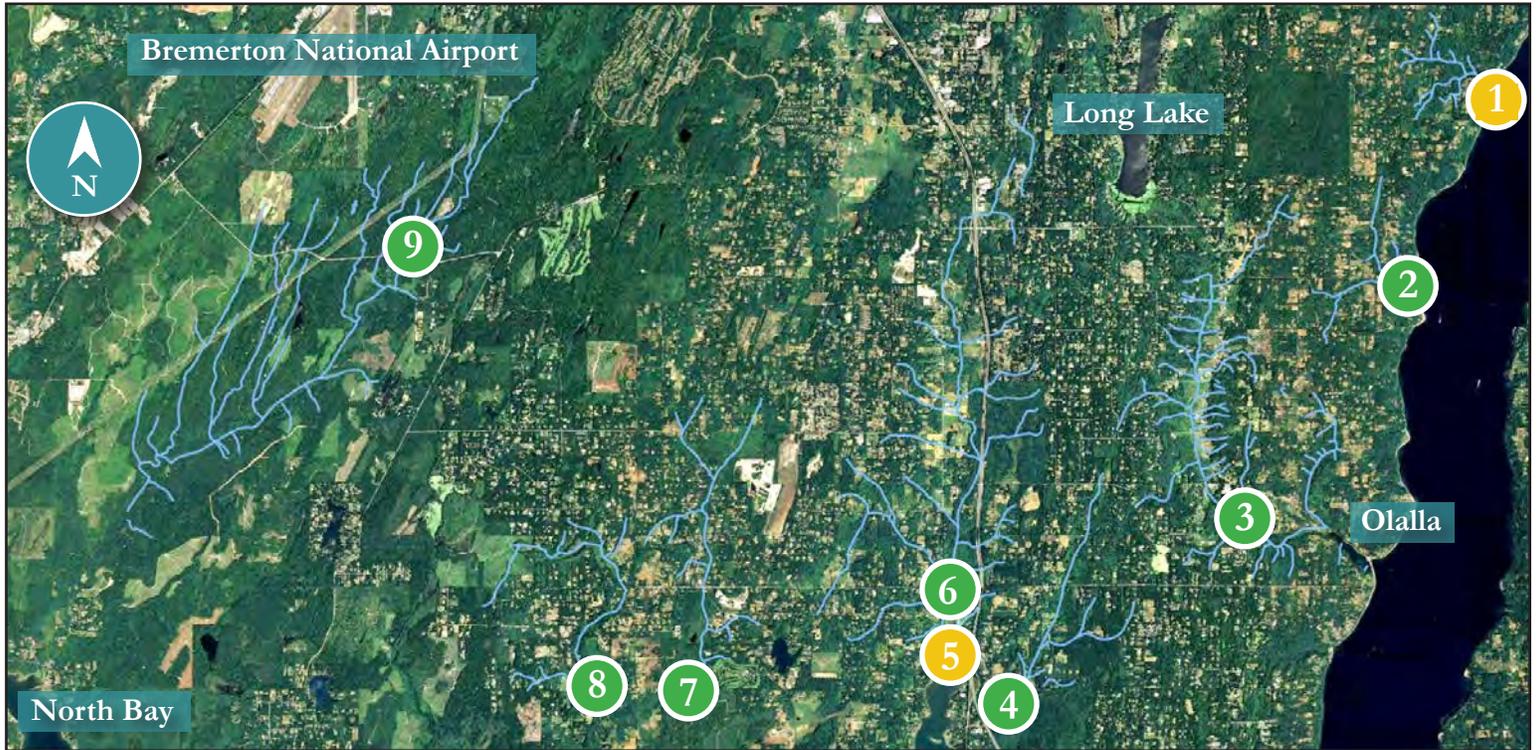
# PORT ORCHARD / SINCLAIR INLET



● Low bacteria    
 ● Periodic high bacteria    
 ● High bacteria

<p><b>1</b> <b>Wright Creek</b> Annual GMV: 11</p>	<p><b>5</b> <b>Blackjack Creek</b> Annual GMV: 30</p>	<p><b>9</b> <b>Beaver Creek</b> Annual GMV: 30</p>
<p><b>2</b> <b>Gorst Creek</b> Annual GMV: 58</p>	<p><b>6</b> <b>Annapolis Creek</b> Annual GMV: 63</p>	<p><b>10</b> <b>Duncan Creek</b> Annual GMV: 57</p>
<p><b>3</b> <b>Anderson Creek</b> Annual GMV: 21</p>	<p><b>7</b> <b>Karcher Creek</b> Annual GMV: 36</p>	<p><b>11</b> <b>Curley Creek</b> Annual GMV: 32</p>
<p><b>4</b> <b>Ross Creek</b> Annual GMV: 17</p>	<p><b>8</b> <b>Sacco Creek</b> Annual GMV: 55</p>	<p><b>12</b> <b>Salmonberry Creek</b> Annual GMV: 11</p>

2020 Monitoring Results by Stream  
**BURLEY / OLALLA**



● Low bacteria    
 ● Periodic high bacteria    
 ● High bacteria

<b>1</b>	<b>Wilson Creek</b> Annual GMV: 37	<b>4</b>	<b>Purdy Creek</b> Annual GMV: 23	<b>7</b>	<b>Minter Creek</b> Annual GMV: 28
<b>2</b>	<b>Fragaria Creek</b> Annual GMV: 8	<b>5</b>	<b>Burley Creek</b> Annual GMV: 56	<b>8</b>	<b>Huge Creek</b> Annual GMV: 35
<b>3</b>	<b>Olalla Creek</b> Annual GMV: 33	<b>6</b>	<b>Bear Creek</b> Annual GMV: 61	<b>9</b>	<b>Coulter Creek</b> Annual GMV: 9



# SEABECK / HOOD CANAL



● Low bacteria    ● Periodic high bacteria    ● High bacteria

<b>1</b> <b>Little Anderson Creek</b> Annual GMV: 9	<b>4</b> <b>Stavis Creek</b> Annual GMV: 13	<b>7</b> <b>Dewatto River</b> Annual GMV: 32
<b>2</b> <b>Big Beef Creek</b> Annual GMV: 15	<b>5</b> <b>Boyce Creek</b> Annual GMV: 12	<b>8</b> <b>Tahuya River</b> Annual GMV: 7
<b>3</b> <b>Seabeck Creek</b> Annual GMV: 22	<b>6</b> <b>Big Anderson Creek</b> Annual GMV: 46	<b>9</b> <b>Union River</b> Annual GMV: 90

Explore water quality online using our interactive stream map portal.

Go to [kcowa.us/waterquality](https://kcowa.us/waterquality)

# Water Quality in Kitsap Lakes

The Health District monitors for health risks at 17 lakes across Kitsap County during summer months to help prevent swimmers from getting sick. The Health District issues health advisories when water samples show high levels of *E. coli* bacteria at swimming areas, and when toxic cyanobacteria (blue-green algae) blooms are present.

*E. coli* indicate the presence of fecal pollution. Fecal pollution can carry viruses, harmful bacteria and other pathogens that make people sick. Some cyanobacteria blooms produce toxins. At high levels the toxins can make people sick and kill animals.

## Public Health Advisories for Lakes

The table below shows advisories issued during calendar 2020.

Lake	Advisory	Dates
Island Lake	<i>E. coli</i> bacteria	9/3/20 - 9/23/20
Kitsap Lake	<i>E. coli</i> bacteria	7/30/20 - 8/6/20 9/10/20 - 9/23/20
Kitsap Lake	Toxic cyanobacteria	8/27/19 - 1/8/20 6/19/20 - 11/30/20
Long Lake	Toxic cyanobacteria	12/14/20 - 11/13/20



## Sign up for alerts

If your family frequents swimming beaches during the summer, sign up to receive health advisories by email or text. Go to [KitsapPublicHealth.org/subscribe](https://www.kitsappublichealth.org/subscribe).

Current water quality advisories are posted at [KitsapPublicHealth.org/beaches](https://www.kitsappublichealth.org/beaches). You can also follow the Health District on Facebook, Twitter and Instagram to stay up to date.

# Common Sources of Fecal Pollution

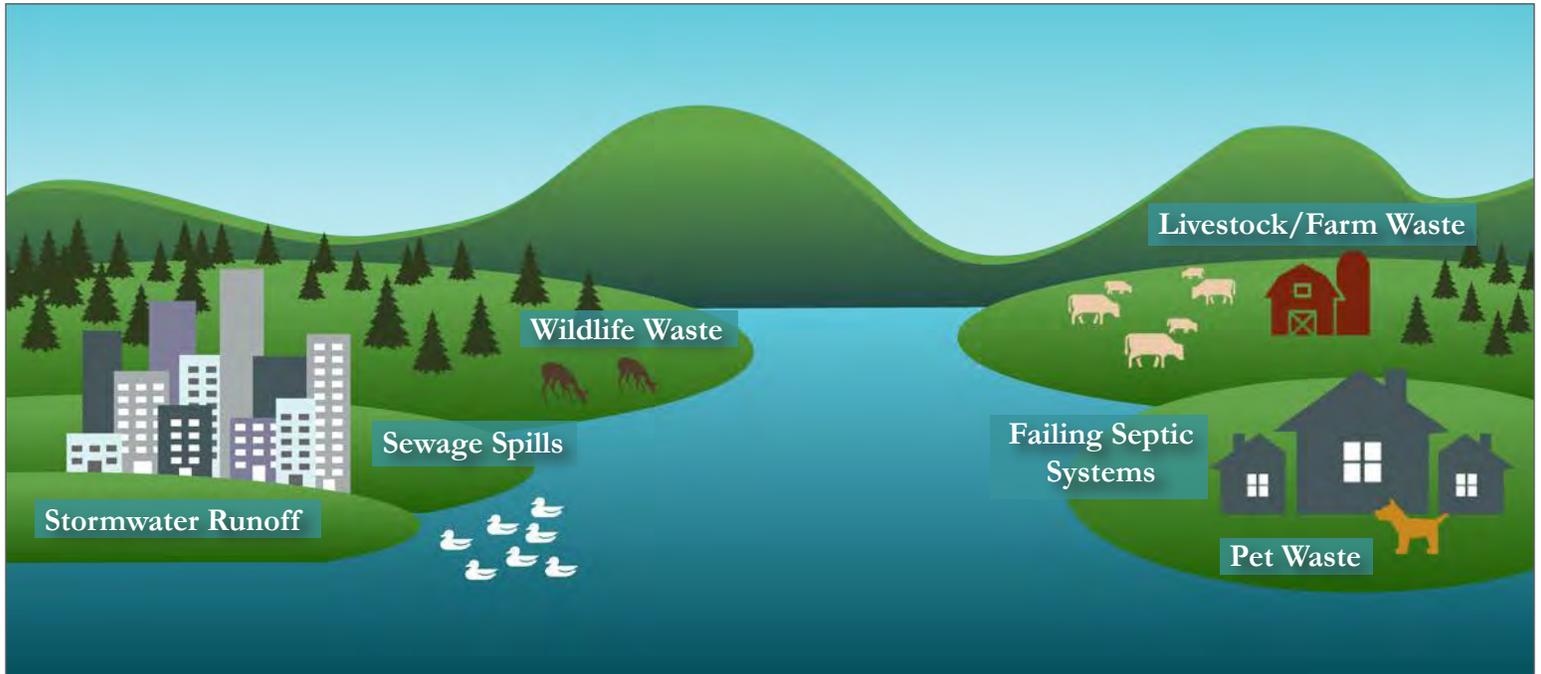


Illustration by Angie Berger

There are many sources of fecal pollution in surface water. Some sources, such as waste from wildlife, are difficult to prevent. Other sources, including sewage leaks and pet waste, can be prevented by people and organizations.

## Simple steps to prevent water pollution



If your home has a septic system, be sure it's properly maintained.



Properly dispose of medications. Go to [MED-Project.org](http://MED-Project.org) to find free disposal sites.



Manage waste from your farm, garden or livestock.



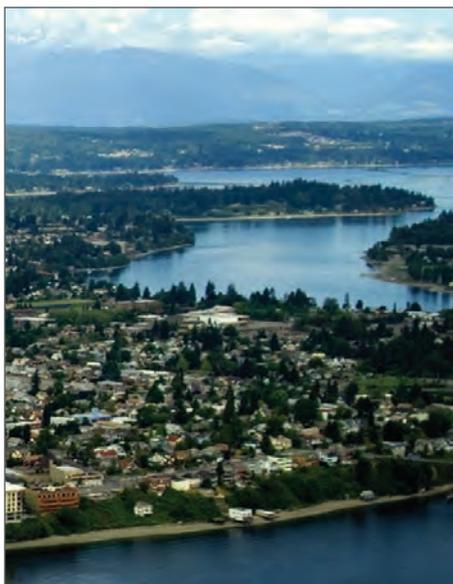
Pick up after your pets at home and in public.



Use natural lawn care products.



Find more great ideas at [CleanWaterKitsap.org](http://CleanWaterKitsap.org).



**Clean Water Kitsap**  
*Partners in Stormwater Solutions*

The Kitsap Public Health District's water quality work is made possible by Clean Water Kitsap, a multi-agency partnership that receives funding from county stormwater fees.

Clean Water Kitsap protects people, property and natural resources by reducing flooding and stormwater runoff, and preventing stormwater pollution. Learn more at [CleanWaterKitsap.org](http://CleanWaterKitsap.org).



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