2021 | Water Quality Report

IN THIS REPORT

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 *E. coli* 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 2021 water year (Oct. 1, 2020 to Sept. 30, 2021).

KITSAP PUBLIC HEALTH DISTRICT

Clean Water Kitsap
Partners in Stormwater Solutions

2021 Water PIC Program Highlights

69
Streams monitored for pollution

21
Health advisory days for local lakes

3,366
Water samples collected

8,978
Staff hours logged

Tracking pollution for a healthier Chico Creek watershed

Chico Creek flows through the heart of Kitsap.

Recent restoration projects have revitalized the Central Kitsap stream, which provides rich habitat for salmon and wildlife, and lush scenery for residents to enjoy. However, persistent fecal bacteria in Chico Bay have stymied efforts to open shellfish harvesting in growing areas adjoining the Chico estuary.

The Health District's Water PIC program made reducing bacteria in the watershed a point of emphasis over the past five years, using a variety of strategies to address cumulative pollution from septic systems, wildlife, agriculture, and other sources.

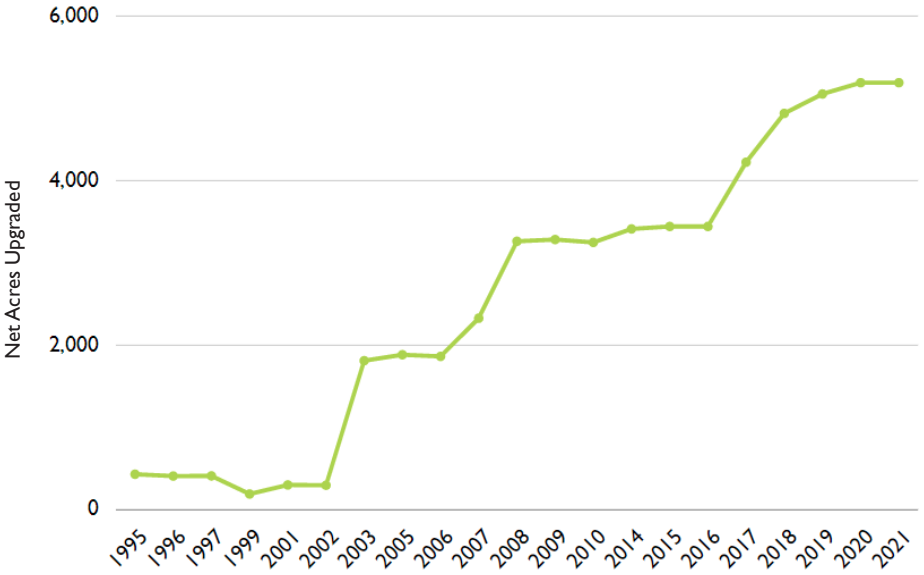
Guided by results from intensive water quality sampling, PIC staff conducted 64 sanitary surveys in the watershed in 2020 and 2021 alone, and have worked with homeowners to fix 14 failing septic systems since 2017. Five sources of agricultural pollution were also identified and fixed. Other activities include responding to complaints of illegal dumping, surveying shoreline pollution points, documenting sources of animal waste, and providing education for boaters.

The added attention on Chico is showing results. Harvesting areas on the east side of Chico Bay are on track to open this year and the Health District will continue to working to reduce bacteria levels conditions on the west side.

"We are determined to get that portion open too," said Tobbi Stewart (pictured above), an environmental health specialist who leads the Health District's efforts in the area.

For more information, email tobbi.stewart@kitsappublichealth.org.

Shellfish Harvesting Areas Approved



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

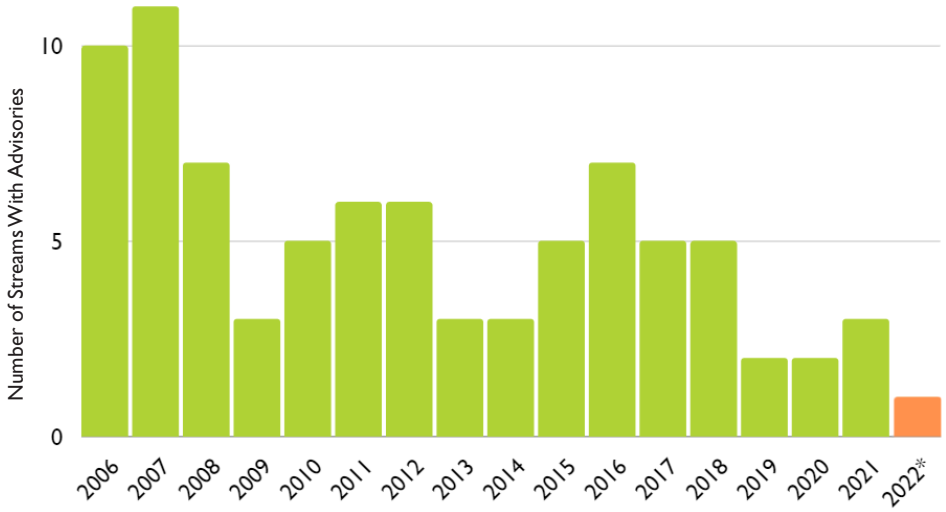
By reducing pollution in surface waters, the Health District's PIC program improves water quality in shellfish growing areas. Since PIC work began a quarter-century ago, there has been a net increase of more than 5,000 acres of shellfish beds approved for harvest around Kitsap County.

Public Health Stream Advisories

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

The Health District has adopted a new advisory threshold to incorporate changes to the state water standard (see page 4). Our advisory threshold is now based on sampling for *E. coli* bacteria (EC) instead of fecal coliform bacteria (FC). Starting with 2022 advisories, the Health District will issue an advisory when *E. coli* bacteria in water samples collected over a one-year period exceeds a geometric mean value (GMV) of 320 EC per 100 milliliters.

Public health stream advisories issued by year



*based on new advisory threshold (see explanation above).

2022 Public Health Stream Advisories

Based on sampling results from 2021 a public health advisory is in effect for one stream in 2022:

- **Lofall Creek** *(390 gmv)*

2021 Water Quality Monitoring Results

Explaining the state water quality standard

The 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 or ingest water through recreational activites such as wading and swimming.

The state standard for freshwater is based on the geometric mean value (GMV) of *E. coli* (EC) 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

As of 2021, Washington state is using E. coli bacteria instead of fecal coliform bacteria as the basis for its water quality standard. This change aligns the state standard with the federal standard and will more accurately represent health risk for waterborne illnesses. However, the change also means current and future water quality data should not be compared directly to past data.

The Freshwater Standard

Part 1: Annual GMV <100 EC per 100 ml

Part 2: Not more than 10% of all samples collected for calculating geomean > 320 EC/100 ml

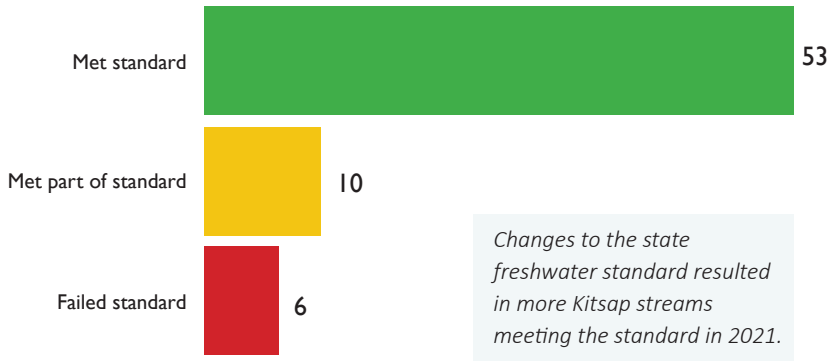
This report notes how each stream performed under the state standard based on bacteria levels:

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.

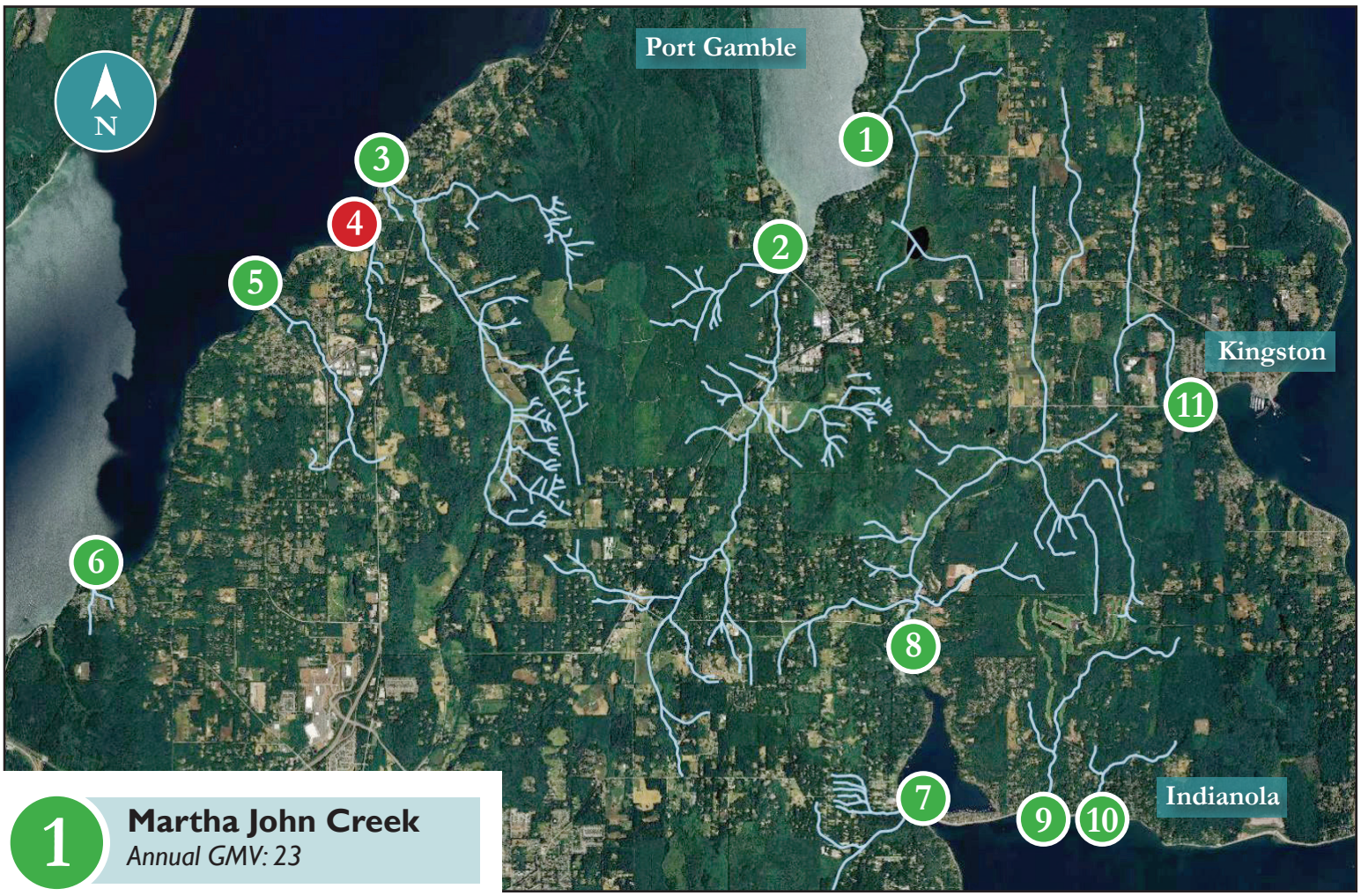
Water quality status for Kitsap streams in 2021



Changes to the state freshwater standard resulted in more Kitsap streams meeting the standard in 2021.

2021 Monitoring Results by Stream

KINGSTON / UPPER HOOD CANAL



1 Martha John Creek
Annual GMV: 23

2 Gamble Creek
Annual GMV: 39

3 Kinman Creek
Annual GMV: 29

4 Lofall Creek
Annual GMV: 390
Health Advisory

5 Jump Off Joe Creek
Annual GMV: 30

6 Vinland Creek
Annual GMV: 59

7 Cowling Creek
Annual GMV: 11

Low bacteria Periodic high bacteria High bacteria

8 Grovers Creek
Annual GMV: 22

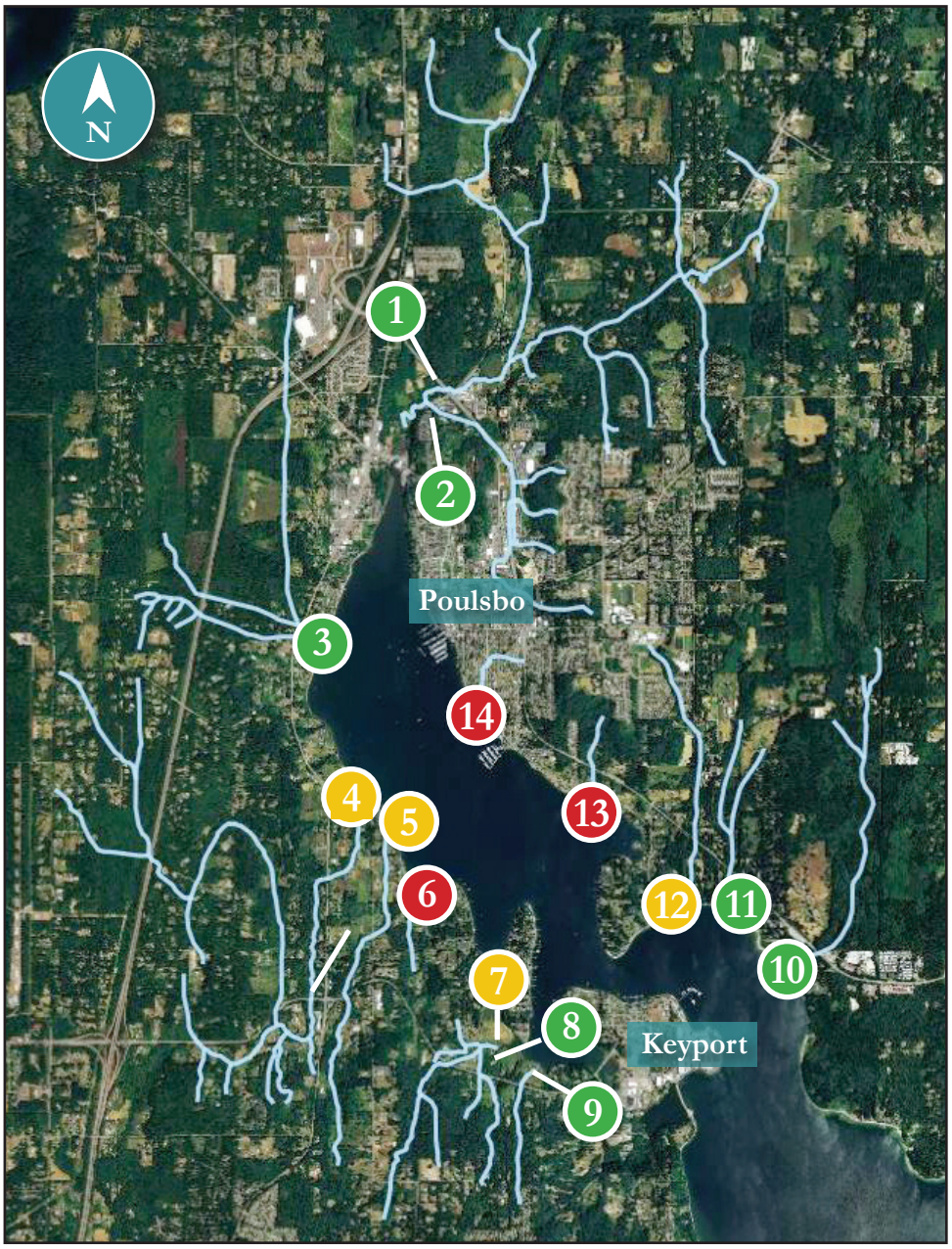
9 Kitsap Creek
Annual GMV: 11

10 Indianola Creek
Annual GMV: 83

11 Carpenter Creek
Annual GMV: 16

Sampling along Martha John Creek near Port Gamble Bay.

POULSBO / LIBERTY BAY



Low bacteria Periodic high bacteria High bacteria

Big Scandia Creek meanders north into Liberty Bay.

1 **Dogfish Creek**
Annual GMV: 40

2 **South Dogfish Creek**
Annual GMV: 49

3 **Johnson Creek**
Annual GMV: 28

4 **Big Scandia Creek**
Annual GMV: 75

5 **Little Scandia Creek**
Annual GMV: 69

6 **Perry Creek**
Annual GMV: 240

7 **Daniels Creek**
Annual GMV: 99

8 **Unnamed Creek 00**
Annual GMV: 59

9 **Unnamed Creek 01**
Annual GMV: 25

10 **Sam Snyder Creek**
Annual GMV: 15

11 **Lemolo Creek**
Annual GMV: 31

12 **Bjorgen Creek**
Annual GMV: 48

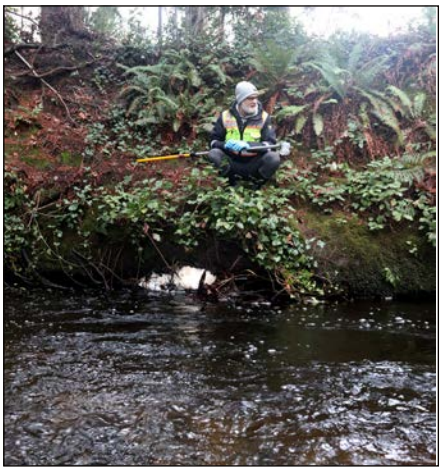
13 **Barrantes Creek**
Annual GMV: 145

14 **Poulsbo Creek**
Annual GMV: 132

2021 Monitoring Results by Stream

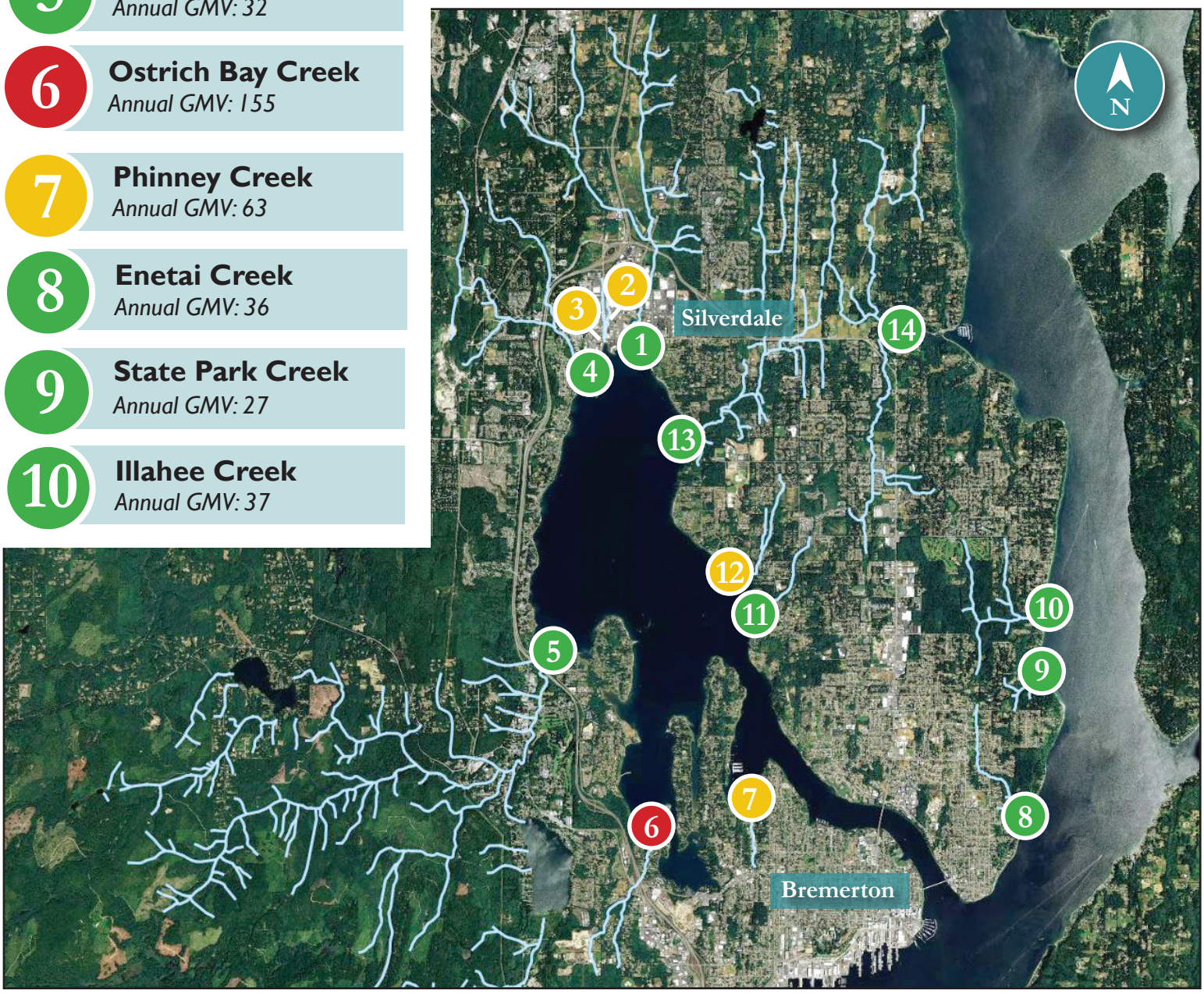
SILVERDALE / BREMERTON

1. **Clear Creek** — *Annual GMV: 45*
2. **Kitsap Mall Creek** — *Annual GMV: 14*
3. **Kitsap Mall Creek W.** — *Annual GMV: 36*
4. **Strawberry Creek** — *Annual GMV: 25*
5. **Chico Creek** — *Annual GMV: 32*
6. **Ostrich Bay Creek** — *Annual GMV: 155*
7. **Phinney Creek** — *Annual GMV: 63*
8. **Enetai Creek** — *Annual GMV: 36*
9. **State Park Creek** — *Annual GMV: 27*
10. **Illahee Creek** — *Annual GMV: 37*
11. **Mosher Creek** — *Annual GMV: 39*
12. **Pahrmann Creek** — *Annual GMV: 61*
13. **Barker Creek** — *Annual GMV: 39*
14. **Steele Creek** — *Annual GMV: 52*



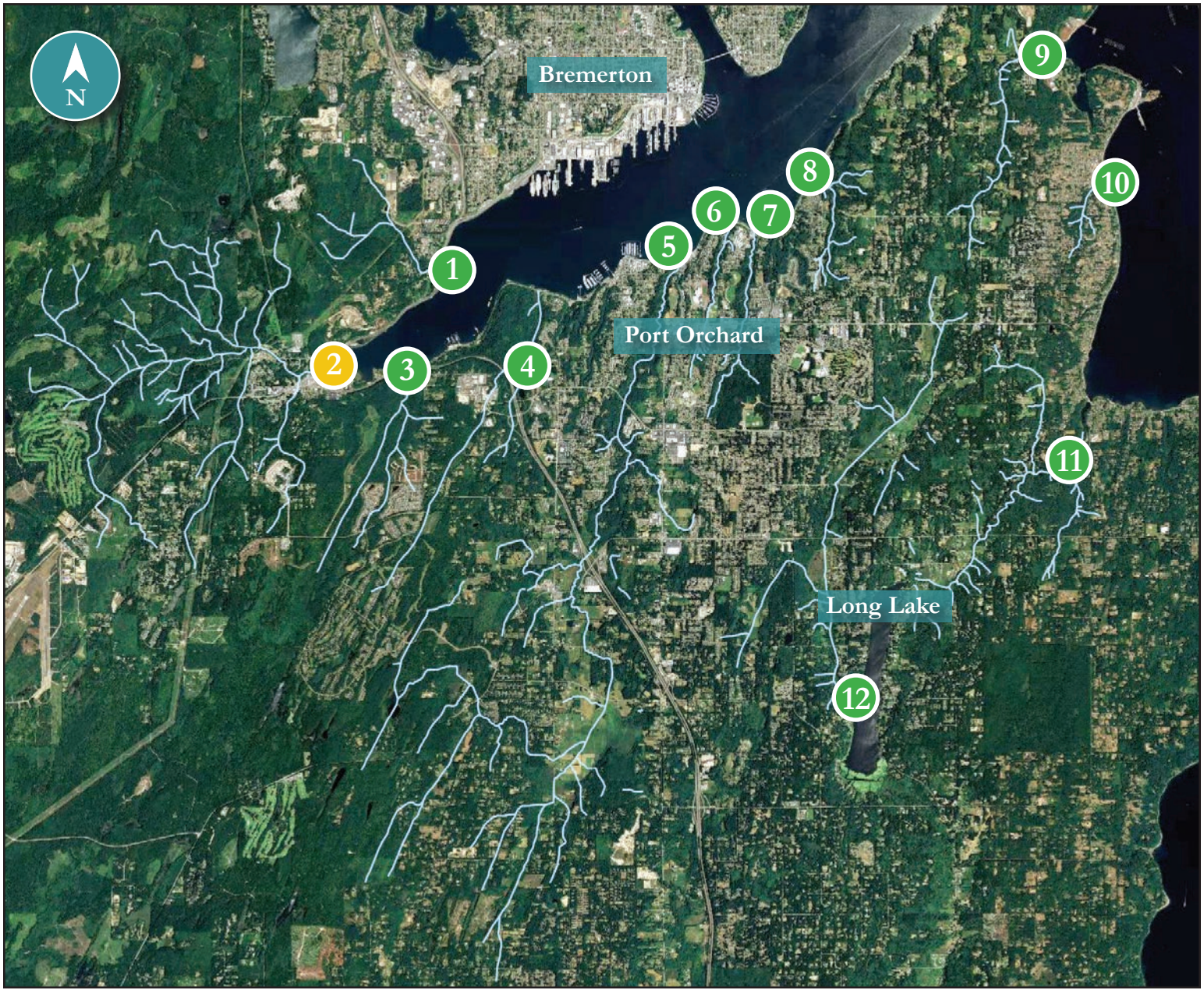
Sampling Clear Creek in Silverdale.

Low bacteria Periodic high bacteria High bacteria



2021 Monitoring Results by Stream

PORT ORCHARD / SINCLAIR INLET



Low bacteria Periodic high bacteria High bacteria

1 Wright Creek
Annual GMV: 26

2 Gorst Creek
Annual GMV: 36

3 Anderson Creek
Annual GMV: 9

4 Ross Creek
Annual GMV: 18

5 Blackjack Creek
Annual GMV: 44

6 Annapolis Creek
Annual GMV: 94

7 Karcher Creek
Annual GMV: 32

8 Sacco Creek
Annual GMV: 70

9 Beaver Creek
Annual GMV: 39

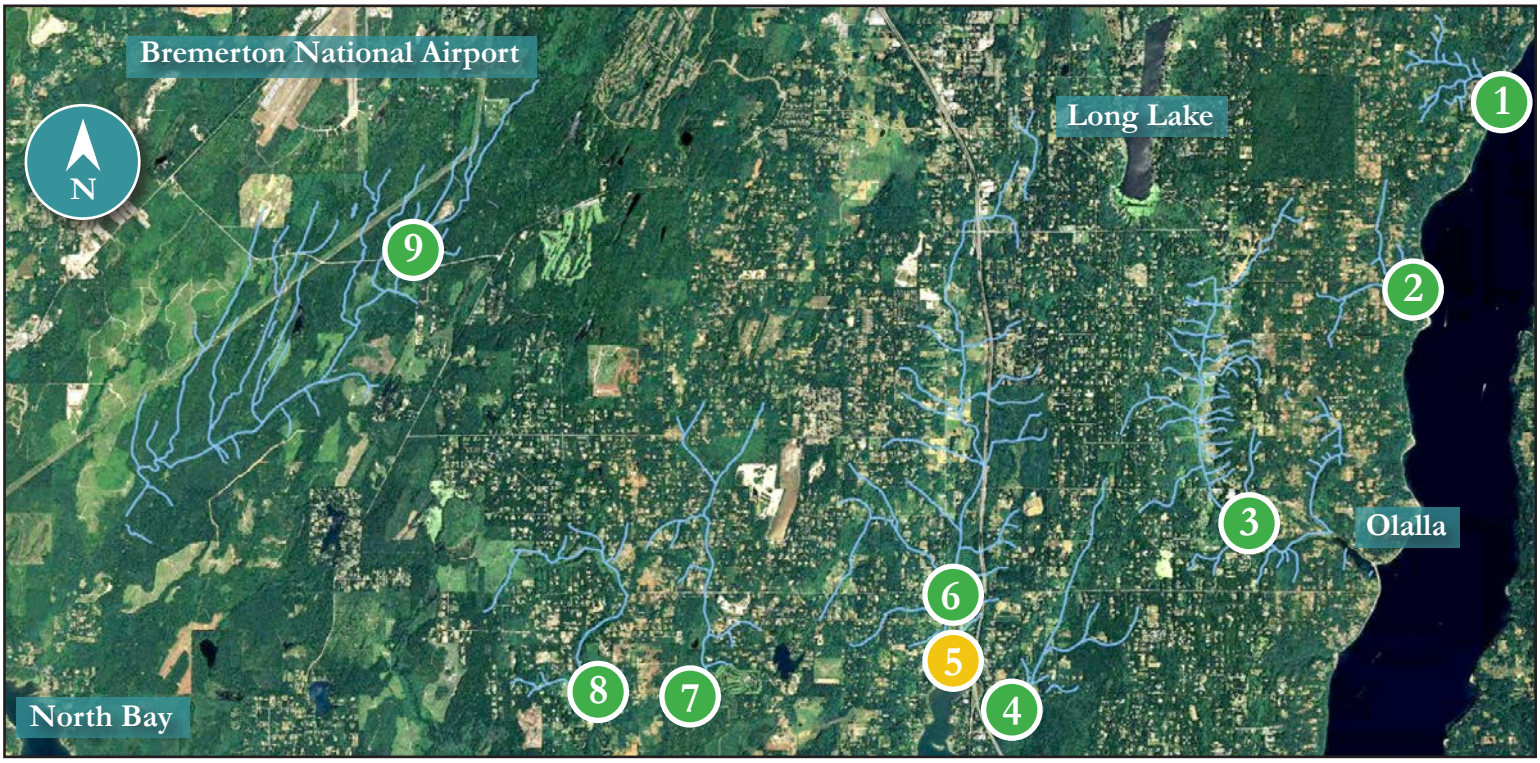
10 Duncan Creek
Annual GMV: 49

11 Curley Creek
Annual GMV: 28

12 Salmonberry Creek
Annual GMV: 12

2021 Monitoring Results by Stream

BURLEY / OLALLA



Low bacteria Periodic high bacteria High bacteria

1 Wilson Creek
Annual GMV: 49

2 Fragaria Creek
Annual GMV: 5

3 Olalla Creek
Annual GMV: 44

4 Purdy Creek
Annual GMV: 26

5 Burley Creek
Annual GMV: 62

6 Bear Creek
Annual GMV: 66

7 Minter Creek
Annual GMV: 30

8 Huge Creek
Annual GMV: 17

9 Coulter Creek
Annual GMV: 9

Below: Ferns overhang Burley Creek in South Kitsap.

2021 Monitoring Results by Stream

SEABECK / HOOD CANAL

Low bacteria Periodic high bacteria High bacteria

1 Little Anderson Creek
Annual GMV: 14

2 Big Beef Creek
Annual GMV: 19

3 Seabeck Creek
Annual GMV: 6

4 Stavis Creek
Annual GMV: 12

5 Boyce Creek
Annual GMV: 23

6 Big Anderson Creek
Annual GMV: 18

7 Dewatto River
Annual GMV: 9

8 Tahuya River
Annual GMV: 10

9 Union River
Annual GMV: 162

Download our 2021 Water Quality Report and view reports from previous years.
Go to 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, these toxins can make people sick and kill animals.

Public Health Advisories for Lakes

The table below shows advisories issued during calendar year 2021.

Lake	Advisory	Dates
Wildcat Lake County Park	*E. coli* bacteria	6/3/21 - 6/4/21
Island Lake County Park	*E. coli* bacteria	7/9/21 - 7/14/21
Mission Lake	Toxic cyanobacteria	6/24/21 - 7/7/21

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**.

Current water quality advisories are posted at **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

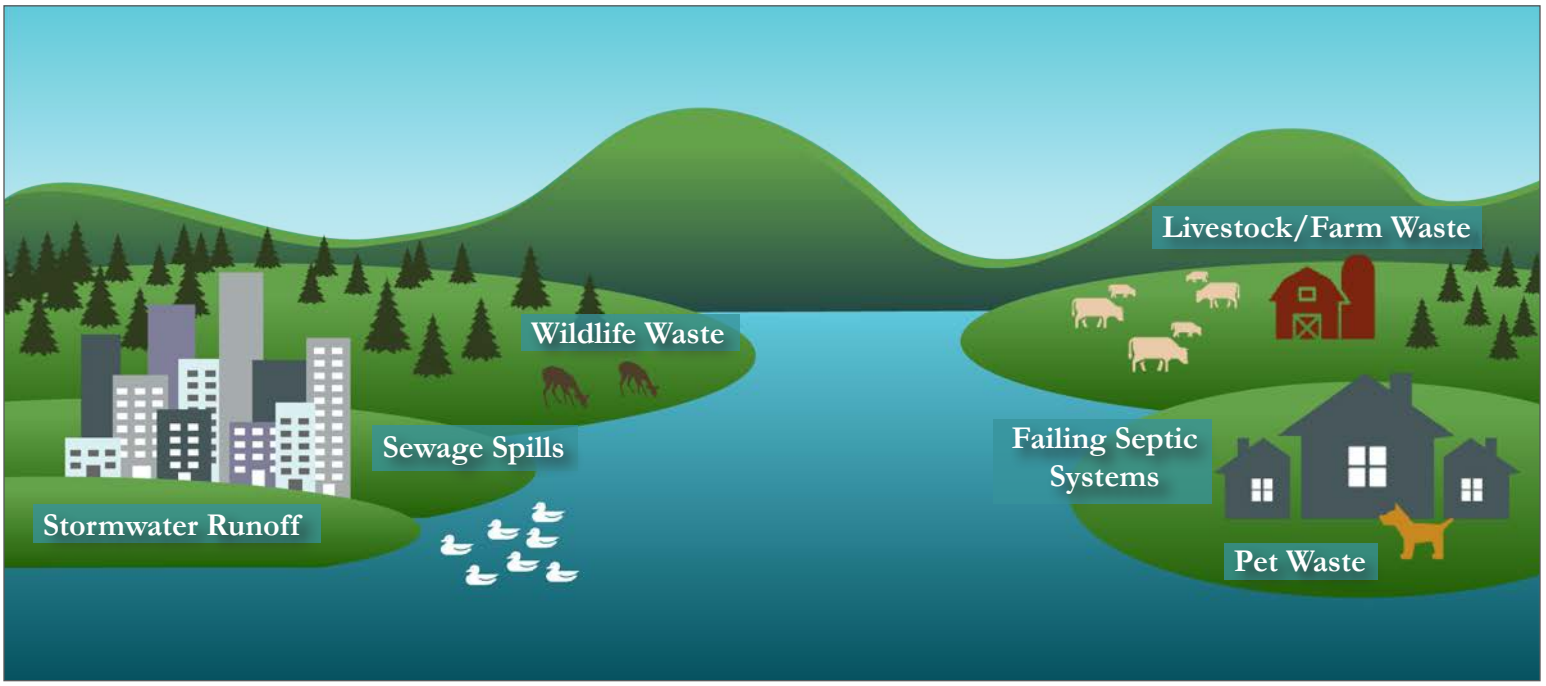


Illustration by Angie Berger

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.

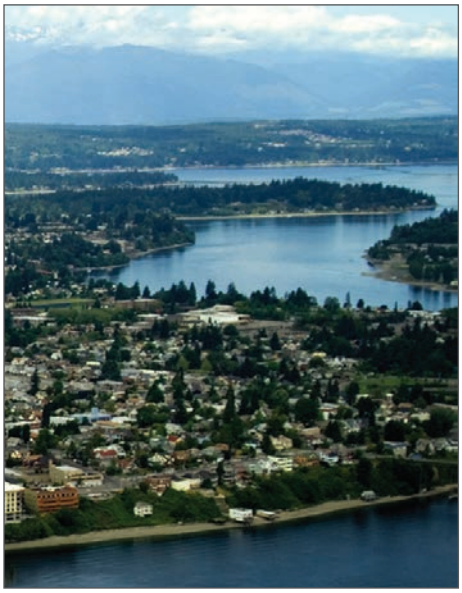
Properly dispose of medications. Go to MED-Project.org to find free disposal sites.

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.



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**.

KITSAP PUBLIC HEALTH DISTRICT

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