High levels of bacteria in local streams and inlets

Sinclair and Dyes Inlets have fecal coliform pollution problems. Stormwater runoff carries the bacteria into streams that drain into the inlets. Although some bacteria are usually found in natural waters, large amounts cause risk to human health and reduce the number of locations for it is safe to harvest shellfish.

We have made much progress in reducing bacteria in these watersheds. In 2003, Washington State Department of Health opened a part of Dyes Inlet to shellfish harvesting that had been closed for decades. It then opened shellfish harvest beds in Chico Bay in 2009. Keys to these openings were Kitsap County Health District's work in locating and correcting failing onsite sewage systems and Bremerton's 10-year, $10-million infrastructure project to reduce combined sewer overflows to open waters.

Despite the improvements, many streams and near-shore areas still do not meet state water quality standards. These standards are established under the Washington Department of Ecology's Clean Water Act authorities.

This creek is typical of many that carry bacteria from polluted stormwater runoff into Sinclair and Dyes inlets.

WHY IT MATTERS

Pollution in these two inlets and in freshwater tributaries poses human health risks and limits marine waters where shellfish can be safely harvested. The Department of Ecology has drafted a plan to address these problems welcomes your comments to improve its effectiveness.

Ecology is accepting public comments on the plan from June 24 to August 1, 2011. Copies can be found at local library reference desks, and on the internet:

http://www.ecy.wa.gov/programs/wq/tmdl/sinclair-dyes_inlets/index.html

Public meetings

July 20 - Port Orchard
614 Division St.
County Administration Bldg.

July 21 - E. Bremerton
1195 NW Fairgrounds Rd.
Kitsap Fairground Eagle's Nest

Open house at 6:30 p.m.

Public meeting at 7 p.m.

Contact information

Please send comments by August 1 to:
Sally.Lawrence@ecy.wa.gov
(phone 425-649-7036), or to:
Dept. of Ecology
3190 160th Ave. SE
Bellevue, WA 98008-5452

Special accommodations

If you need this document in a format for the visually impaired, call the Water Quality Program at 425-649-7105.
Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

When polluted waters do not meet standards, Ecology develops a water quality improvement plan (formally called a Total Maximum Daily Load or TMDL). The water quality improvement plan assigns cleanup priorities to organizations with responsibility for the waters.

Joint project with Navy

To address the fecal coliform (FC) pollution in Sinclair and Dyes inlets, the Puget Sound Naval Shipyard & Intermediate Maintenance Facility (the Navy), U.S. Environmental Protection Agency, and Ecology worked with local governments and organizations as part of Project ENVVEST (short for 'Environmental Investment') to develop a TMDL for Sinclair and Dyes Inlets and freshwater tributaries.

The TMDL defines water quality goals and assigns responsibilities for actions and programs that will reduce fecal coliform bacteria and enable the watershed to meet standards by 2016. Work on this project was started in early 2000 after Ecology and EPA approved a Navy-designed technical study that included water quality monitoring, land use characterization, and watershed modeling. The study found important sources of bacteria loading and determined the seasonal conditions associated with high bacteria concentrations in streams, stormwater and marine waters.

To better understand the role of stormwater compared with streams in affecting water quality of the inlets, the Navy developed a watershed model to simulate watershed-wide flows. The model uses data associated with rainfall, land contours, soil permeability, and the flow of streams and stormwater. Another model was used to estimate bacteria concentrations as a function of upstream land use and land cover. Finally, the Navy developed a three-dimensional dynamic model of the inlets to simulate the release, transport, and fate of bacteria from 39 streams, 44 stormwater outfalls, 44 shoreline drainage areas, and three wastewater treatment plants.

Where are the problems?

The model showed which flows bring the most bacteria to the inlets. Although streams generally have higher bacteria levels in the dry season, bacteria levels in marine waters are more likely to exceed standards after major storm events or extended periods of rainfall. Monitoring showed that the pollution is generally higher in the following areas:

- More developed watersheds with greater population densities.
- Areas with a greater percentage of impervious area.
- Areas with older sewer infrastructure or septic systems.

Marine areas currently needing improvement (see map) include:

- Nearshore areas below Clear, Barker, Strawberry, Blackjack, Karcher, Annapolis and Sacco creek.
- Several sites in Port Washington Narrows and adjacent to Point Herron in southeast Bremerton).
- A site in Chico Bay.
- A site off the Port Orchard waterfront.

In addition, the model indicated a need for monitoring of marine waters below Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS &IMF) and below Lynwood Center, Bainbridge Island.

Anderson, Ross, Chico, Mosher and Wright creeks already meet freshwater water quality standards. In Dyes Inlet, Pahrmann, Barker, Clear, Strawberry, and Ostrich Bay creeks do not meet bacteria standards as do Blackjack, Annapolis, Karcher and Sacco creeks in Sinclair Inlet, and Beaver Creek which discharges to Clam Bay off Rich Passage. Phinney Creek, not monitored in the original study, has serious bacteria pollution problems.

What can we do to protect our common waters?

The TMDL requires local governments (Kitsap County, Bremerton, Port Orchard and Bainbridge Island) and state Department of Transportation to use tools currently in place under their NPDES (National Pollutant Load Elimination System) stormwater permits to find and eliminate pollution where they discharge to locations that need reductions in bacteria. The wastewater treatment facilities in the watershed already have permit limits for bacteria that protect the inlets.

Meeting water quality standards by 2016 is expected through programs now underway, including:

- Low-impact development projects that infiltrate stormwater.
- Continuing Kitsap Health's Pollution Identification and Correction (PIC) projects. Besides correcting failing septic systems, these projects partner with Kitsap Conservation District to educate and provide incentives to landowners to manage animal manures to protect surface waters.
- Bremerton's project to extend sanitary sewers to the Gorst neighborhood– an area with many failing septic systems.

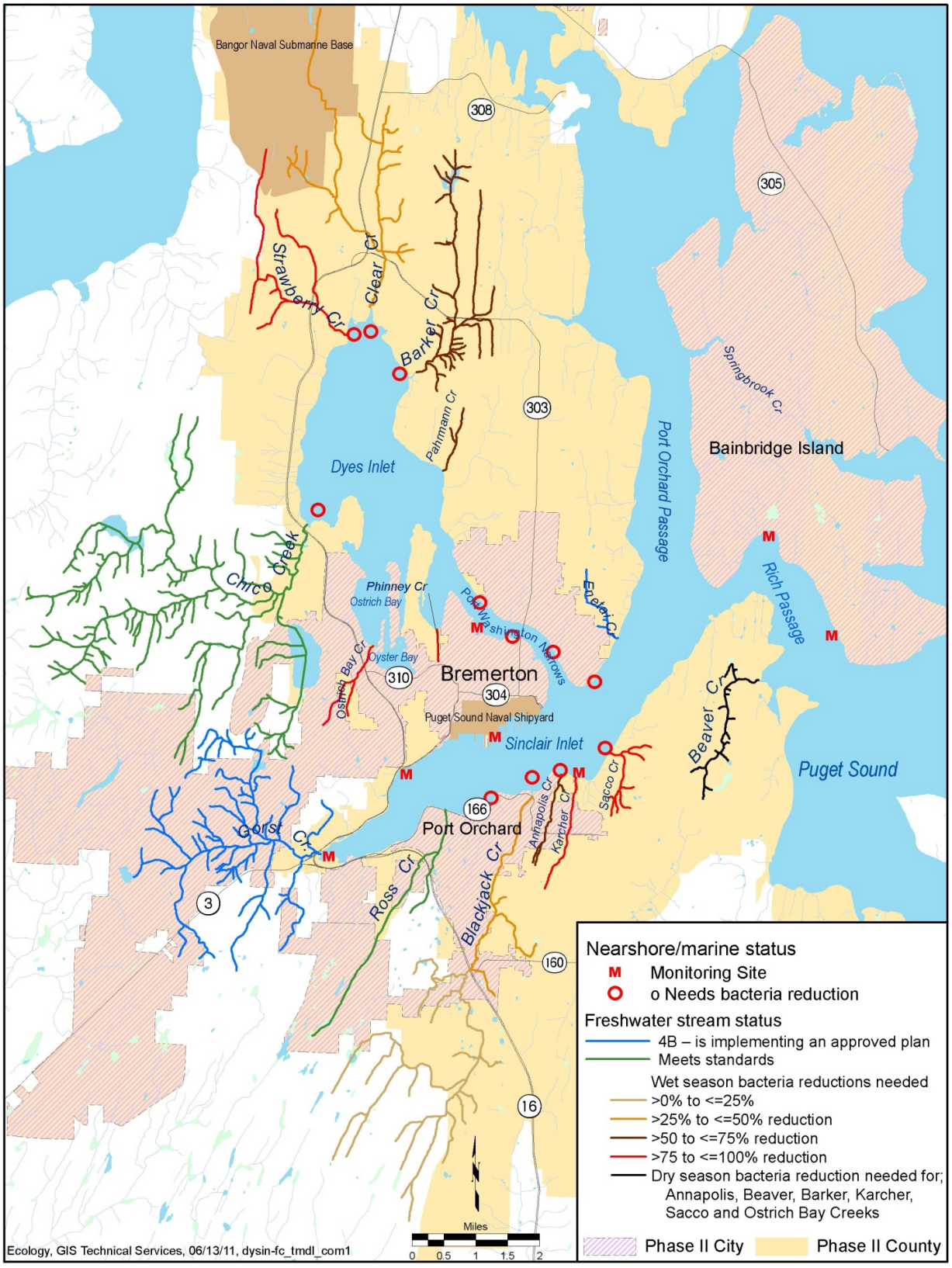
Additional actions are needed to ensure meeting water quality standards by 2016, including:

- Future developments need to infiltrate stormwater instead of adding it to municipal systems.
- More low-interest loans for homeowners to repair or replace failing septic systems.
- More boat owners need to use marina pumpouts.
- Everyone picking up their pet waste and helping to make sure it's "only rain down the drain."

The combined efforts of Kitsap County and City of Bremerton to determine whether properties draining to Ostrich Bay and Phinney Bay should be served by city sewer rather than septic systems.

All watershed residents and businesses making sure their land and property management practices protect nearby streams, ditches, and shorelines.

The Department of Ecology applauds the work local partners have done—and will continue to do—to improve the health of Sinclair and Dyes inlets.


Bangor Naval Submarine Base
308
305
Strawberry Cr
Clear Cr
Barker Cr
Pahmann Cr
303
Springbrook Cr
Bainbridge Island
Port Orchard Passage
Dyes Inlet
Chico Creek
Phinney Cr
Ostrich Bay
Port Washington Narrows
Eaglers Cr
Rich Passage
Ostrich Bay Cr
Oyster Bay
310
Bremerton
304
Puget Sound Naval Shipyard
Sinclair Inlet
Beaver Cr
Puget Sound
Sacco Cr
Annapolis Cr
Karcher Cr
166
Port Orchard
Gorst Cr
Ross Cr
Blackjack Cr
3
160
16
Miles
0 0.5 1 1.5 2
Ecology, GIS Technical Services, 06/13/11, dysin-fc_tmdl_com1
Nearshore/marine status
M Monitoring Site
o Needs bacteria reduction
Freshwater stream status
4B – is implementing an approved plan
Meets standards
Wet season bacteria reductions needed
>0% to <=25%
>25% to <=50% reduction
>50 to <=75% reduction
>75 to <=100% reduction
Dry season bacteria reduction needed for; Annapolis, Beaver, Barker, Karcher, Sacco and Ostrich Bay Creeks
Phase II City
Phase II County