DEPARTMENT OF ECOLOGY
State of Washington

NONPOINT SOURCE SUCCESS STORY

Washington

Kitsap County Pollution Identification and Correction (PIC) Program Improves Water Quality

Waterbody Improved

The Kitsap County Public Health District developed a Pollution Identification and Correction (PIC) program to protect their citizens who use and recreate in their county's many lakes, streams, and marine waters. The Health District focuses on fecal coliform (FC) bacteria as the primary indicator of surface water quality. Due to on-the-ground cleanup implementation activities, most impaired waters listings are now being addressed through a pollution control program (the County's PIC program) or are meeting tested criteria and water quality standards. The program has also successfully re-opened shellfish beds.

Problem

Kitsap County in Washington State encompasses almost 400 square miles and occupies a peninsula and several islands in Puget Sound. The primary cause of pollution in Kitsap County's streams, lakes and marine waters is nonpoint source pollution. The fecal pollution sources are from both urban and rural areas.

The county is located west of the greater Seattle area and has more coastal miles than any other county in the U.S. It is bounded on the east and north by Puget Sound and Admiralty Inlet, and on the west by Hood Canal (Figure 1). While there are no large river systems in the County, there are a multitude of streams, lakes, marine waters and shoreline areas.

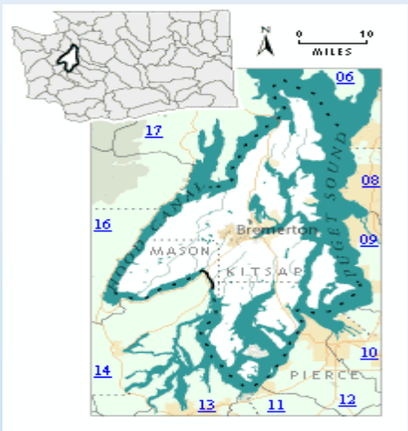

Figure 1. Kitsap watershed Water Resources Inventory Area (WRIA) 15
http://www.ecy.wa.gov/water/wria/15.html

Kitsap County's waters have been regularly monitored by the Health District for FC bacteria since 1996. This extensive monitoring program has resulted in the listing of many Kitsap County marine and freshwater bodies for FC pollution on the Clean Water Act (CWA) section 303(d) list of impaired or threatened waters. Elevated levels of fecal pollution are responsible for posting of selected streams with warning signs that guard against contact with the water. Additionally, FC pollution or the threat of pollution has caused the closure and restricted use of commercial shellfish beds in many marine waters.

In Kitsap County there were 42 listings for FC pollution on the CWA section 303(d) list of impaired waters approved by EPA in 2012. The 42 listings account for almost 14-miles of impaired freshwater and 1,246 acres of impaired marine waters.

Figure 2. Kitsap Public Health District beach closure sign posted due to fecal contaminated waters
http://ecologywa.blogspot.com/2017/02/fecal-matters-dyes-inlet-closed-to.html

The applicable water quality standard for FC bacteria varies depending on the body of water in Kitsap County. For freshwater, FC organism levels must not exceed a geometric mean value (GMV) of 50 colonies/100mL or a GMV of 100 colonies/100mL depending on the stream. For marine waters, FC organism levels cannot exceed a GMV of 14 colonies/100mL.

Program Highlights

The Kitsap Health District has been working on improving water quality through their PIC program since 1995. It has become a model for other counties in Washington, and remains the best program in the state. Keys to the programs success include:

- **Proactive** - The Heath District investigates streams and marine shorelines to find sources of the pollution and when a source is located, they work with the property owners to eliminate it.
- **Stable Funding** - A county assessment provides stable funding for the program.
- **Enforcement Authority** - The Health District utilizes existing local regulations and authority to address pollution sources and enforce corrective actions when necessary.
- **County Wide Program** - The PIC program creates a work plan for each impaired stream in each County watershed based on investigatory sampling data. A prioritization system is used to track down bacterial pollution sources near stream segments with elevated bacteria levels.
- **Effectiveness Monitoring** - The county-wide water quality trend monitoring program includes 106 stations in 65 streams and 71 stations in 10 marine embayments annually.

Each year, the Health District PIC team uses their monitoring data to prioritize a list of the waterbodies that are the most polluted. The Health District thoroughly assesses land uses for

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Program Highlights Cont.

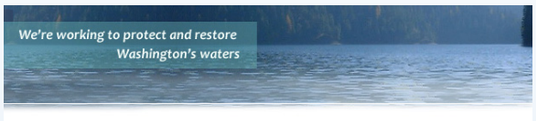
pollution sources in prioritized watersheds. Door-to-door PIC inspections are conducted to identify and correct pollution sources. PIC inspectors provide free technical assistance to guide property owners through the process of correcting identified pollution sources, such as failing onsite septic systems, pet waste, livestock and agricultural animal manure, failing sewer infrastructure and correcting illicit discharges to storm water and storm water conveyances.

Ultimately, improvements to water quality are made when effective Best Management Practices (BMPs) are implemented. The BMPs being used to improve water quality include a requirement to properly operate and maintain on-site septic systems. The Health District is actively engaged in on-site system education, dye testing of suspect systems, and enforcement of the Kitsap County Board of Health Ordinance 2008A-01, *On-Site Sewage System and General Sewage Sanitation Regulations*, which requires proper design, installation, repair, operation and maintenance of on-site septic systems.

The Kitsap Conservation District assists farmers and owners of livestock to implement BMPs for animal waste management and farm pollution control, including fencing of heavy use areas and riparian buffers. The county has also used storm drain markers and dog waste dispenser stations.

Almost 30 restoration and cleanup projects have been conducted since the inception of the PIC program in 1995. For detailed reports of each specific project, you can visit Kitsap's website at: http://www.cleanwaterkitsap.org/Pages/Water-Cleanup-Projects.aspx

The PIC program addresses every waterbody in the County. Stable funding, prodigious staff, and the willingness to enforce are key elements to the success of the Kitsap PIC program.



Results

Annual monitoring data from the Kitsap Public Health District shows that stream water quality trends have increased over the last decade (Figure 3).

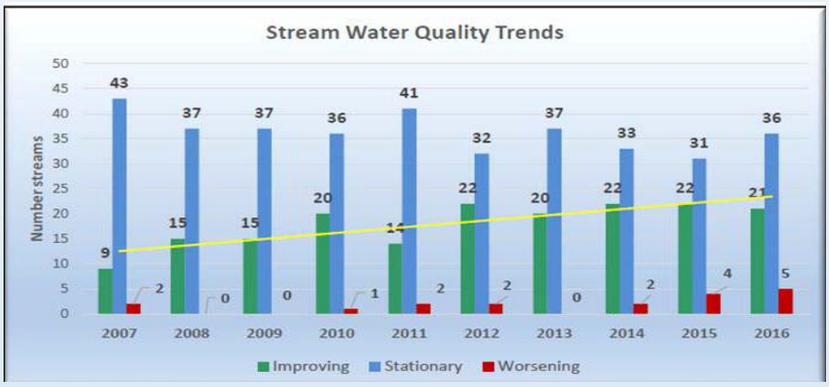


Figure 3. Kitsap County Stream Water Quality Trends; https://www.kitsappublichealth.org/environment/files/reports/2016/Introduction_Website%202016%20completed.pdf

Since Pollution Identification and Correction efforts began approximately twenty years ago, there has been a net increase of shellfish growing areas approved for harvest of 3,546 acres in Kitsap County (Figure 4).

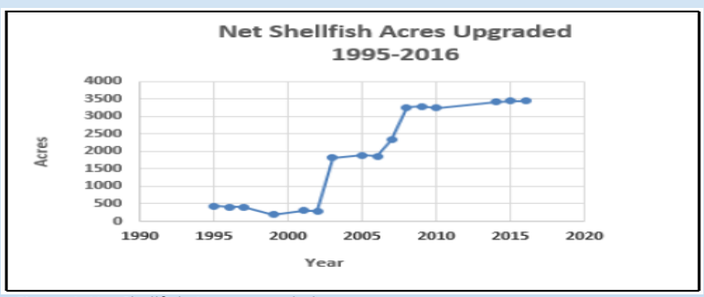


Figure 4. Net Shellfish Acres upgraded; https://www.kitsappublichealth.org/environment/files/reports/2016/Introduction_Website%202016%20completed.pdf

Only four Category 5 bacteria listings remain on the current CWA section 303(d) list of impaired waters for Washington. 42 listings were moved to Category 4b while seven additional listings were moved to Category 1, the most in the state per watershed area. This demonstrates the program is working.

Funding and Partners

The Kitsap PIC program was made possible through stable funding provided by the Kitsap County's Clean Water Kitsap Program. Additionally, the Washington State Department of Ecology has provided funding for a variety of projects through the Centennial Clean Water Fund and Special On-Site/Shellfish grants. Grant funding and program support has also been provided from the Washington State Department of Health and Region 10 of U.S. Environmental Protection Agency.

Major partners include Kitsap County Public Works, Kitsap Conservation District, Washington State Cooperative Extension, Puget Sound Partnership, Washington State Department of Ecology, Washington State Department of Health, and EPA.

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