

4b Analysis for Martha John and Gamble Creeks

The Washington Department of Ecology (Ecology) Integrated Report (IR), which was submitted to EPA in May 2008, has excluded four listings for fecal coliform in Martha John (7651, 7652, 7653) and Gamble (7641) Creeks, from the 303(d) list and placed these waterbodies in category 4b of the IR. These water bodies were listed in Category 4b of the 2004 IR. Ecology's basis for excluding these waterbodies from the 303(d) list is outlined in this evaluation.

Identification of Segment and Statement of Problem Causing Impairment

Based on historical on-site sewage system (OSS) information, water quality data, and warnings from the Washington State Department of Health (State Health) that the commercial shellfish classification of the Cedar Cove portion of Port Gamble Bay could be downgraded, the Health District initiated the Port Gamble Bay Sanitary Survey Project in November 1995; the project was completed in 2001.

In August 1996, the Cedar Cove area was downgraded to "Prohibited" by State Health due to the area's failure to meet Part 2 of the National Shellfish Sanitation Program's (NSSP) water quality standard (State Health, 1996). As a result of the commercial shellfish downgrade, Kitsap County was required to implement a closure response effort pursuant to RCW 90.72, "Shellfish Protection Districts".

Given that Port Gamble Bay contains approximately 28% of Kitsap County's approved commercial shellfish harvesting area, the project area and shellfish protection district were expanded from the Cedar Cove area to the entire southern Port Gamble Bay watershed. Five hundred thirty two (532) properties were surveyed in the project area. Only 28 of these properties are located within the Cedar Cove drainage sub-basin. The other 504 properties were surveyed proactively in order to prevent future fecal coliform contamination problems.

In May 1999, State Health upgraded the status of the commercial shellfish beds in Cedar Cove from *Prohibited* to *Approved*. The upgrade was based on the results of water samples collected from the area by the Department of Health Shellfish Office and on improvements in shoreline sanitary conditions. State Health's Sanitary Survey of Port Gamble Bay of March 29, 1999 noted that Bremerton-Kitsap County Health District and Kitsap Conservation District conducted thorough surveys of potential pollution sources in the watershed, which,

resulted in the identification of active pollution sources. Subsequent pollution source corrections of all identified pollution sources within the Cedar Cove area constitute a significant improvement in shoreline and watershed sanitary conditions... Cedar Cove meets the NSSP approved water quality standard in spite of weather information indicating that current water data are weighted toward adverse pollution conditions. This information strongly suggests that the efforts to improve water quality in Cedar Cove have been successful.

Sanitary survey results suggest that failing OSS are not major sources of fecal coliform contamination to Cedar Cove or Port Gamble Bay. Six percent (30 of 532) of the project area's OSS were found to be failing between early 1996 and 2000. Although five of the 30 OSS failures were located adjacent to the marine shoreline, only three were found to be discharging sewage directly to the marine environment; one of these was located in Cedar Cove and the other two were located near Gamblewood Community Park outside of the Cedar Cove closure area. The remaining 25 OSS failures were surfacing-type failures. All of the 30 OSS failures have been repaired.

Since 2005, the focus in this watershed has been on solving livestock and pet waste issues.

Description of Pollution Controls and How They Will Achieve Water Quality Standards

In 1993, the Kitsap County Board of Commissioners adopted Ordinance 156-1993, establishing the Kitsap County Surface and Stormwater Management Program (KCSSWM). The goals of the program are to:

- Protect public health and natural resources.
- Minimize institutional costs.
- Obtain support for the program from other municipalities, tribal governments, and county residents.
- Meet state and federal regulatory requirements.
- Provide a permanent funding source to address nonpoint source pollution.

The county's intent is to meet Washington's numeric criteria for fecal coliform by eliminating anthropogenic sources and to stay in compliance in the future through an on-going monitoring and correction program.

Surface and Stormwater Management Program (SSWM) fees are assessed on properties in the unincorporated area of Kitsap County. Fees appear on annual property tax billings. The 2008 budget for the SSWM is \$5.6 million.

Funds are shared by the Kitsap County Public Works Department, which oversees the entire program; the Kitsap County Health District, which performs water quality monitoring, pollution identification and control, and wellhead protection programs; the Kitsap County Department of Community Development, which uses the funds for watershed planning; and the Kitsap Conservation District, which helps with agricultural landowner technical assistance, education, and source control.

The PIC Program uses water quality monitoring data to identify priority water bodies for clean up. The primary focus of the monitoring program is to assess long-term pollution trends associated with human sewage and animal waste from nonpoint sources. Health district staff sample water quality monthly at approximately 95 stations on 54 streams and bimonthly at 67 marine stations. Field equipment measures turbidity, dissolved

oxygen, pH, and temperature. Fecal coliform samples are analyzed by an Ecology accredited laboratory. Data are used to identify areas in need of pollution control and to evaluate the effectiveness of the correction program.

Clean up projects are designed to address the causes and sources of bacterial water pollution in specific geographic areas that the trend monitoring program has identified. SSWM provides funding for PIC projects. The goal of each PIC project is to:

- Protect public health.
- Protect shellfish resources.
- Preserve, protect, and restore surface water quality.

Through its monitoring program, the Health District identified the sources of impairment in Martha John and Gamble Creeks as:

- Livestock and pet waste.

The best management practices (BMPs) being used to improve water quality include a requirement to properly operate and maintain on-site systems in the watershed. Kitsap County Health District (KCHD) is actively engaged in on-site system education, dye testing of suspect systems, and enforcement of the Kitsap County Board of Health Ordinance 2008-11, *On-Site Sewage System and General Sewage Sanitation Regulations*, which requires proper design, installation, repair, operation and maintenance of on-site septic systems. In addition, the Kitsap Conservation District assists small farm owners and owners of livestock to implement BMPs for animal waste management and farm pollution control. The conservation district's role is as a non-regulatory agency. When a regulatory approach is needed, the Health District enforces the *Solid Waste Regulations* (KCBOH 2004-2).

Several enforceable pollution controls will assure that compliance with water quality standards is achieved.

- Kitsap County Ordinance 156-1993, establishing the Surface and Stormwater Management Program, which created an on-going, stable source of funding.
- Kitsap County Board of Health Ordinance 2008-11, *On-Site Sewage System and General Sewage Sanitation Regulations*, which requires proper design, installation, repair, operation and maintenance of on-site septic systems.
- Kitsap County Board of Health Ordinance 2004-2, *Solid Waste Regulations*, which regulate handling and disposal of animal manure and pet waste; animal waste violations are enforced by the Health District under this ordinance.
- RCW 90.72, *Shellfish Protection Districts*.

Kitsap County Health District continues to have regulatory presence in the Martha John and Gamble Creek watershed to:

- Track water quality trends in fecal coliform concentrations through the Health District's on-going, countywide monitoring program;
- Respond to sewage complaints and repair failing on-site sewage systems;
- Work with Kitsap CD to address any farms found to be violating state water quality standards for fecal coliform.

Since 2005, the Kitsap Conservation District has worked actively in the Gamble Creek watershed. One property received 1367 feet of stream habitat improvement; one farm received stream exclusion fencing, heavy use area protection, roof runoff management, and diversion outlets; one farm received a waste storage structure; and two farms have received technical assistance related to restoration of the stream riparian zone. In addition, the farm directly upstream of monitoring station PG03A installed fencing around the stream and planted a buffer to protect water quality. In the Martha John Creek watershed, no new problems were identified since 2005. The Health District is presently requesting access to the property adjacent to water bodies 7653 and 7652 so it can take water samples to determine whether these segments are now meeting standards. The property owners worked with the Kitsap Conservation district to implement various best management practices, including stream exclusion fencing, so the County expects that these segments will be meeting standards.

Estimate or Projection of Time When Water Quality Standards Will be Met

The designated use for Martha John and Gamble Creeks is primary contact recreation. Washington’s standard for fecal coliform for these waters has two parts. Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL.

Martha John Creek mouth monitoring station MJ01 has met part 1 of the fecal coliform standard in all monitoring years since 1995; however, the percent criterion has been violated intermittently. The Health District estimated that Martha John Creek would meet water quality standards by 2006 as ongoing monitoring and investigation would address any additional sources of fecal coliform contamination.

Martha John Creek (MJ01) 1996 – 2007 Fresh Water Stream Fecal Coliform Results

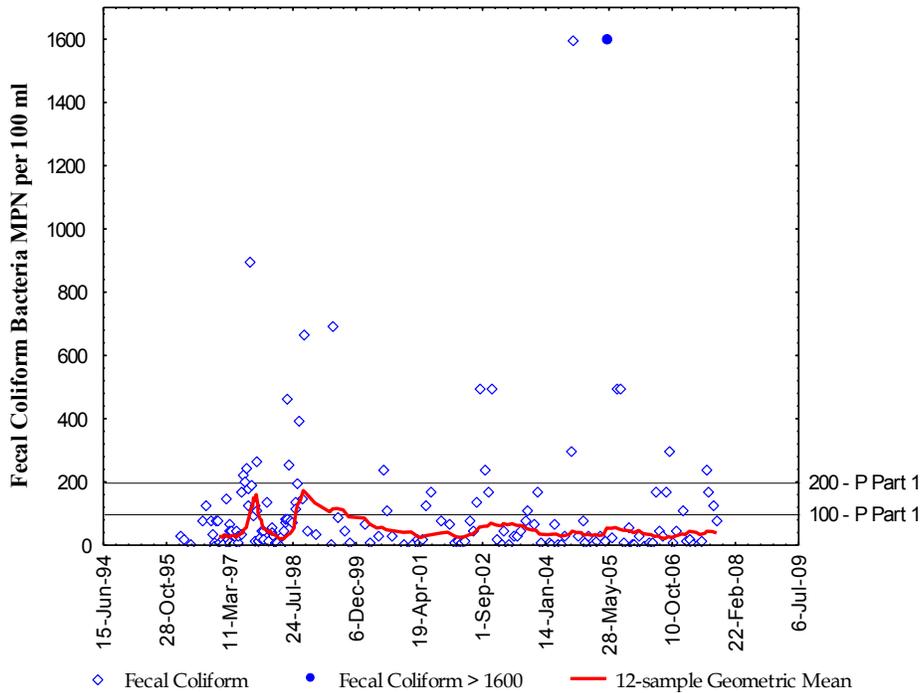
Water year	Number of Samples	Range (FC/100ml)	GMV ¹ (FC/100ml)	# Samples > 200 FC/100ml	% Samples > 200 FC/100ml	Meets WQ Standard ²
96	4	4 - 130	33	0	0%	Yes
97	10	2 - 202	38	1	10%	Yes
98	10	9 - 268	52	1	10%	Yes
99	7	5 - 693	79	2	29%	No
00	7	10 - 240	41	1	14%	No
01	7	7 - 170	24	0	0%	Yes
02	11	11 - 500	55	2	18%	No
03	12	7 - 500	48	1	8%	Yes
04	11	4 - 1600	38	2	18%	No
05	12	4 - 1600	47	3	25%	No
06	12	<2 - 300	28	1	8%	Yes
07	12	8 - 240	39	1	8%	Yes

Bold and shaded entries indicate an exceedance of the applicable water quality standard (Chapt.173 – 201A WAC).

¹ Geometric mean value

² Class A - FC levels shall not exceed a GMV of 100 FC/100ml and not have more than 10% of all samples exceed 200 FC/100 ml.

**Fecal Coliform Bacteria Trend Analysis
Martha-John Creek (Station MJ01), 1996 - 2007
Stationary Trend**



As shown by the most recent monitoring information, the county's estimate of when the mouth of Martha John Creek would meet standards was correct. Both parts of the fecal coliform standard were met at this station in 2006 and 2007.

In 2005, county data showed that Gamble Creek was meeting water quality standards at its mouth and the county predicted that this location would remain in compliance, which has indeed been the case.

**Gamble Creek (PG01)
1996 - 2007 Fresh Water Stream Fecal Coliform Results**

Water year	Number of Samples	Range (FC/100ml)	GMV ¹ (FC/100ml)	# Samples > 200 FC/100ml	% Samples > 200 FC/100ml	Meets WQ Standard ²
96	4	8 - 30	19	0	0%	Yes
97	10	7 - 130	23	0	0%	Yes
98	5	2 - 220	15	1	20%	No
99	4	4 - 110	32	0	0%	Yes
00	6	8 - 300	55	1	17%	No
01	8	2 - 80	18	0	0%	Yes
02	12	2 - 500	32	1	8%	Yes
03	10	2 - 900	36	1	10%	Yes
04	10	4 - 110	23	0	0%	Yes
05	11	2 - 30	23	1	9%	Yes
06	12	2 - 130	20	0	0%	Yes
07	12	2 - 140	17	0	0	Yes

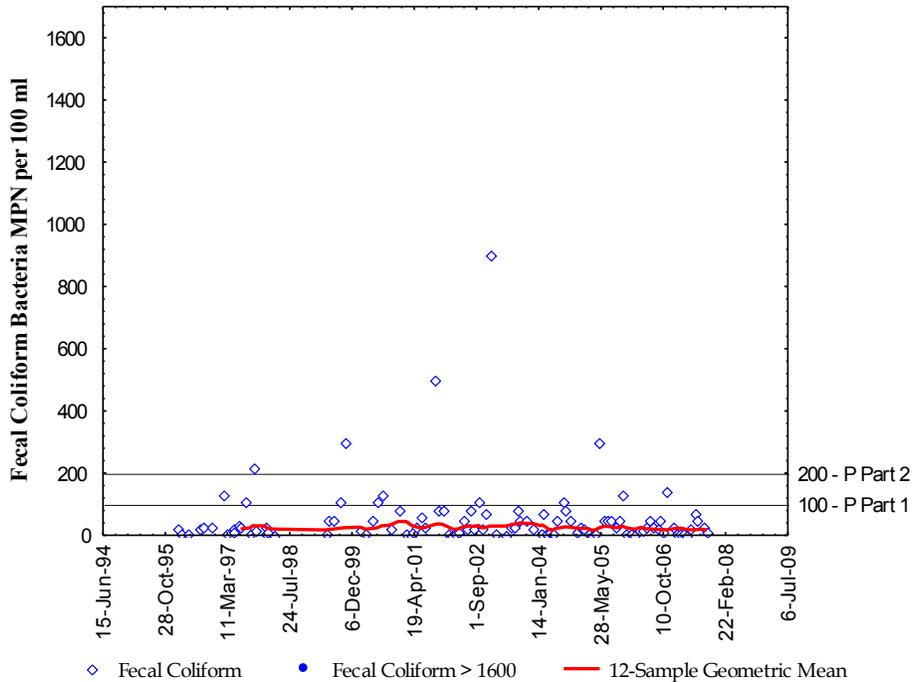
Bold and shaded entries indicate an exceedance of the applicable water quality standard (Chapt.173 - 201A WAC).

¹ Geometric mean value

² Class A - FC levels shall not exceed a GMV of 100 FC/100ml and not have more than 10% of all samples exceed 200 FC/100 ml.

The most recent data show that the mouth of Gamble Creek is meeting both parts of the fecal coliform standard. However, the impaired segment and a segment listed in Category 2 are both located upstream. The county expects these two segments to meet standards by 2008, and has added two monitoring stations to assess their water quality.

Fecal Coliform Bacteria Trend Analysis Gamble Creek (Station PG01), 1996 - 2007 Stationary Trend



Schedule for Implementing Pollution Controls

As described earlier in this report, Kitsap County has already implemented the PIC program and is continuing periodic monitoring, identifying problems, and fixing them. This is an on-going program, exactly what’s needed to solve nonpoint pollution problems and to keep them from happening again.

Monitoring Plan to Track Effectiveness of Pollution Controls

Kitsap County has a countywide monitoring program, and monitors Gamble and Martha John Creeks as part of that on-going program. Samples are taken monthly and compared to the two parts of the fecal coliform standard. Assessment results are reported to the public and EPA through Ecology’s IR report development process.

Commitment to Revise Pollution Controls as Necessary

Ecology will continue to work with Kitsap County to ensure that the PIC program continues and that water quality in Martha John and Gamble Creeks continues to improve. We fully expect the program to achieve compliance with water quality standards. However, if it does not, Ecology will work with Kitsap County to determine other controls that could be used to achieve compliance.