



Whatcom Clean Water Program Quarterly Progress Report July-September 2013

1. WATER QUALITY MONITORING

Data reporting - Lummi Nation Natural Resources Department staff developed a master water quality database to serve as a central location for recording and accessing water quality monitoring data for Water Resources Inventory Area 1 (WRIA 1—Whatcom County). Agencies and organizations collecting water quality samples in WRIA 1 will be entering historic and current data into individual user databases. Whatcom County Public Works (Public Works) will compile data into the master database for public access.

Public Works and Washington Department of Ecology (Ecology) began testing user databases by entering current data. Public Works has drafted a Request for Proposal for database management services to assist with data entry, database testing, and development of a guidance manual. Once operational, agencies, organizations and tribes who collect water quality samples in WRIA 1 will receive user databases for recording results.

Until the system is operational, data collected in support of Whatcom Clean Water Program (WCWP) will be communicated in Excel spreadsheet data format, listing results in colony forming units (CFU) per 100 milliliters (mL) of sample for each sample location.

Water quality standards that govern Whatcom County are established and regulated by Ecology and approved by the U.S. Environmental Protection Agency (EPA). Standards are described more fully in Chapter 173-201A of the Washington Administrative Code.

Both the lower Nooksack River watershed and the Drayton Harbor watershed are subject to water quality standards established to protect “primary contact recreation” as a designated water use. Primary contact state-wide bacteria criteria include that fecal coliform organisms must not exceed a geometric mean (“average”) of 100 colonies per 100mL and not more than 10 percent of samples can exceed 200 colonies per 100mL (referred to as 90th percentile).

BERTRAND WATERSHED

Fecal coliform concentration

Quarterly sampling - Ecology inspectors conducted water quality sampling seven times this quarter at ten established short-term ambient locations according to a systematic random sampling schedule. See Figure 1 for a map of sampling locations and Figure 2 for short-term ambient station monitoring results.

Inspectors sampled on three additional days during the quarter to further identify locations of fecal pollution sources.

Approximately half of the Bertrand watershed is located in Canada. Three of Ecology’s short-term ambient sampling sites are located at the Canadian-U.S. border to measure water quality entering the United States. Border monitoring sites are on Cave Creek, Bertrand Creek and Jackman Ditch (BECC0.2, BE9.1 and BEJK2.0 respectively). Ecology communicates water quality data to the senior environmental protection officer at Ministry of Environment, Canada.

Figure 2. Fecal coliform sampling results (Jan-Sep 2013), short-term Bertrand watershed monitoring stations

Bertrand Creek Watershed short-term ambient monitoring data (CFU/100mL) - Jan-Sep 2013										
	Cave Creek (border)	McClellan Creek (Weidkamp)	North Fork Bertrand (Loomis Tr)	Bertrand Creek (border)		Jackman Ditch (border) down		Duffner Ditch up mid down		
	BECC0.2	BEMC1.8	BENF2.0	BE9.1	BE4.3	BEJK2.0	BEJK0.2	BEDF6.4	BEDF3.7	BEDF2.2
1/15/2013			8		52	36	22	160	22	
1/23/2013	110			66						
1/28/2013		210	54		310	880	640	14	82	
2/11/2013	38	170	18	38	52	120	60	460	27	74
2/25/2013	84	660	100	440	190	25	470	390	440	280
3/11/2013	5	52	27	160	5	22	54	56	5	54
3/25/2013	11	7	2	20	96	24	46	20	11	70
4/5/2013		7400	440			1000	9700			
4/9/2013	32	230	25	250	720	110	210	28	76	1400
4/11/2013					960					
4/22/2013	140	30	34	150	48	38	74	110	150	88
5/6/2013	290	9	42	120	74	110	120	76	1500	66
5/13/2013						1500	4700			
5/20/2013	150	44	54	230	120	66	700	130	170	60
6/3/2013	170	11	30	170	110	80	230	290	39	92
6/17/2013	180	120	140	150	120	100	1000	DRY	240	290
6/20/2013						3200	4300			
7/1/2013	270	400	180	580	180	180	1400	920	440	160
7/16/2013	140	120	310	190	120	96	940	DRY	32	160
7/29/2013	160	DRY	DRY	140	100	88	580	DRY	9	180
8/13/2013	33	DRY	DRY	220	99	52	DRY	DRY	DRY	120
8/26/2013	1300	DRY	DRY	760	120	150	DRY	DRY	DRY	150
9/11/2013	DRY	DRY	DRY	170	80	76	200	DRY	DRY	94
9/23/2013	340	DRY	DRY	2300	140	190	5900	DRY		180

	indicates result below 100 colony forming units per 100mL (CFU/100mL)
	indicates result between 100 and 200 CFU/100mL
	indicates result above 200 CFU/100mL

For much of the quarter, ambient sampling stations were dry at McClellan Creek, North Fork Bertrand and upstream Duffner Ditch locations. Ambient sampling results this quarter show somewhat consistent elevated fecal coliform levels entering the United States from Canada in mainstem Bertrand Creek and Cave Creek. Jackman Ditch border sampling indicates relatively better water quality flowing south across the border. July sampling continued to show substantial increases in bacteria levels in the Jackman drainage between the border (BEJK2.0) and the downstream sampling site (BEJK0.2).

Long-term trend – Within the lower Nooksack basin during this reporting period, Whatcom County Public Works staff and Northwest Indian College (NWIC) staff collected routine water quality samples two times per month at 13 long-term monitoring stations and at two stations once per month.

On the mainstem of Bertrand Creek, Public Works and NWIC collected routine water quality samples twice per month at station B1 and one time per month at station B3. Figure 3 and Figure 4 compare current year with past years' geometric mean and estimated 90th percentile status at downstream Bertrand Creek monitoring stations B1 and B3; fecal coliform bacteria levels at these stations fail to meet established standards.

Figure 3. Lower Bertrand Creek fecal coliform geometric mean historical comparison January -September, Station B1 and B3

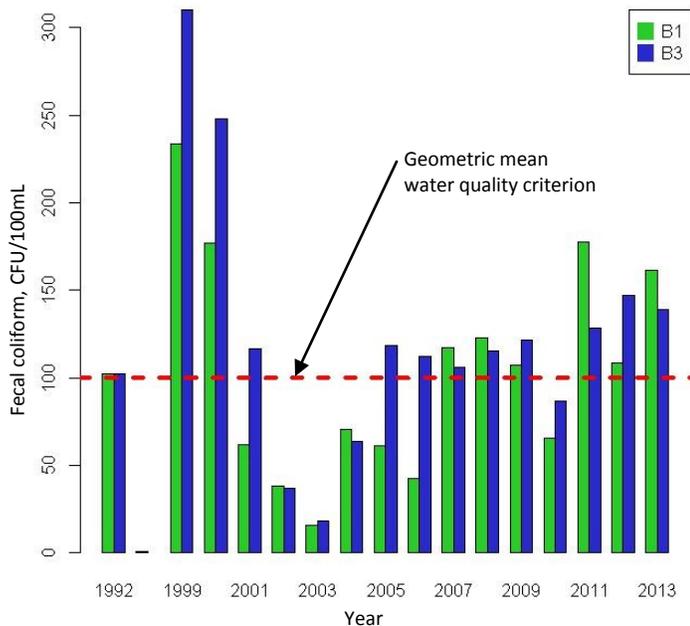
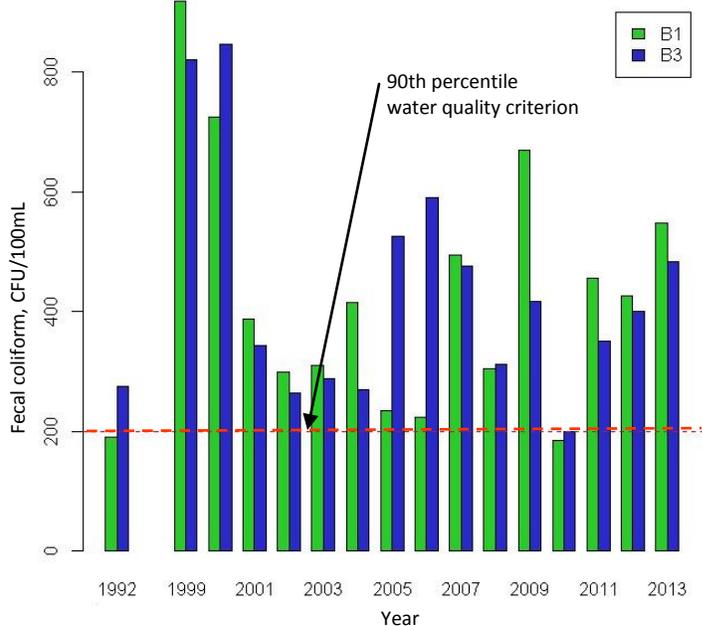


Figure 4. Lower Bertrand Creek fecal coliform estimated 90th percentile historical comparison Jan -Sep, Station B1 and B3



DRAYTON HARBOR FOCUS AREA (Lower Dakota Creek)

Fecal coliform concentration

Quarterly sampling - Whatcom County Public Works pollution identification and correction efforts are focused in Lower Dakota Creek. Dakota Creek flows into Drayton Harbor and is part of the larger Drayton Harbor watershed.

Figure 5. Water quality monitoring stations - Dakota Creek sub-basin (part of Drayton Harbor watershed)



Public Works staff conducted routine sampling three times (once per month) at three tributaries of Lower Dakota Creek and at the mouth of Dakota Creek where it flows into Drayton Harbor (see Figure 5 for focus area monitoring sites). Throughout the larger Drayton Harbor watershed, Public Works staff collected routine water quality samples on a monthly basis at approximately 30 stations. At eight of those stations, NWIC collects samples a second time each month. NWIC also collects one sample per month at two stormwater outfalls—one in Blaine and one at the mouth of Cain Creek. Nooksack Indian Tribe (NIT) Natural Resources staff collected samples twice per month from an additional 26 short-term ambient sites.

Station D1 is subject to marine water quality standards established to protect shellfish harvesting and recreational uses. Marine water shellfish harvesting and primary contact recreation criteria include that fecal coliform organisms must not exceed a geometric mean (“average”) of 14 colonies/100mL and not more than 10 percent of samples can exceed 43 colonies/100mL (referred to as 90th percentile).

Results from two routine sampling sites in the Drayton Harbor watershed have shown increased bacteria levels during 2013. Public Works sample location TribDak-N2 on Delta Line just north of Badger Road has shown recent increases in fecal counts, with 7 of 8 sample events above 200FCU/100mL this year. Public Works sample location CA1, on Kickerville Road just south of Loomis Trail Road, has also shown increased fecal counts during 2013, with 6 of 8 samples exceeding 200FCU/100mL. Three of the six high fecal count samples have been above 2000FCU/100mL. Public Works and NIT are coordinating sampling in this drainage area in response to the elevated counts to try to identify potential fecal pollution sources.

Long-term trend – Figure 6 and Figure 7 compare current year with past years’ geometric mean and estimated 90th percentile status at Lower Dakota Creek monitoring sites. For stations D1, TribDak-2, TribDak-3 and TribDak-4, water quality sampling for the first three quarters of 2013 indicates fecal coliform bacteria levels well above established water quality criteria.

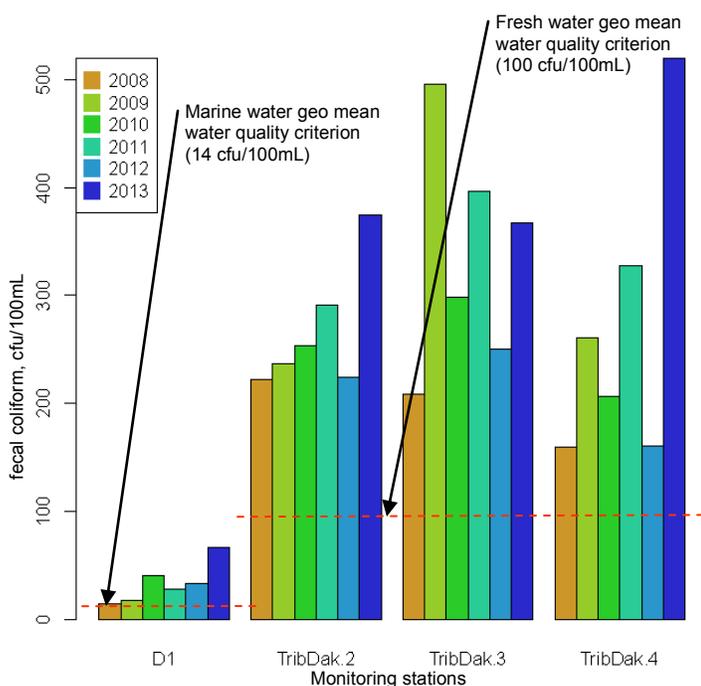


Figure 6. Lower Dakota Creek fecal coliform geometric mean historical comparison January - September

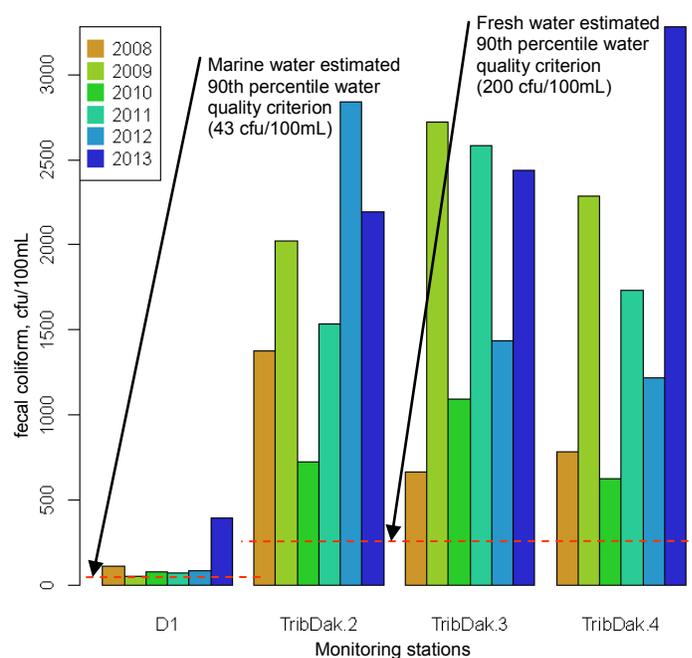


Figure 7. Lower Dakota Creek fecal coliform estimated 90th percentile historical comparison January - September

2. SITE ASSESSMENTS

2.1 Regulatory property assessments and results this quarter

Ecology (non-dairy livestock property inspections) **BERTRAND WATERSHED**

Scheduled assessments:

This quarter Ecology inspectors visited 17 properties in the Bertrand watershed to discuss with landowners how livestock-keeping practices may be impacting water quality. Inspectors determined 11 of 17 properties are maintaining livestock management practices protective of water quality and present a low risk for contributing fecal pollution to waterways.

On six properties, inspectors recommended implementation of agricultural best management practices (BMPs) to ensure water quality protection. Inspectors informed landowners that cost-share funds are available to help implement recommended BMPs.

Ecology inspectors also visit sites outside of the Portage Bay watershed in response to referrals from other agencies or based on complaints from individuals.

Ecology non-dairy livestock property site visits - Lower Nooksack River watershed		
	Total since January 2013 (incl. current quarter)	Bertrand watershed this quarter
Initial visits	38	17
Sites requiring future follow-up	20	6
Follow-up visits completed	2	
Sites determined to be low-risk without follow up needed	18	11
Landowner limited/denied property access	8	3

Referrals to other agencies:

Whatcom Conservation District (WCD) offered its non-regulatory technical assistance to eight property owners of interest who either chose not to work with Ecology inspectors or whose properties had multiple issues and presented a higher risk of polluting. During this quarter, none of the eight property owners chose to take advantage of WCD's free technical assistance.

Where access to property is limited or denied, Ecology inspectors continue to monitor conditions and follow up as needed based on water quality data and field observation.

Washington State Department of Agriculture (WSDA) (dairy property inspections) **BERTRAND WATERSHED & DRAYTON HARBOR WATERSHED**

	Bertrand watershed	Dakota (Drayton Harbor watershed)	Countywide
Routine	2	2	22
Close-out	1	0	9
Referral	0	0	0
Initial	0	0	1
Investigation	0	0	1
Follow-up	2	1	11

As of the end of the quarter, 113 licensed dairies operate in Whatcom County.

Fifteen dairies have building facilities located in the Bertrand watershed along with one methane digester operation. A total of 19 dairies have fields located within the Bertrand watershed. This quarter in the Bertrand watershed, the WSDA dairy inspector completed two routine dairy facility inspections and two follow up inspections; the dairies were

found to be in compliance. Follow-up inspections showed producers who received 2nd quarter warning letters had substantially addressed their respective issues.

In September, WSDA staff contacted and met individually with the eight dairy producers who operate in Bertrand watershed's Jackman drainage to review July sampling results that continued to show substantial increases in bacteria levels between the border (BEJK2.0) and the downstream sampling site (BEJK0.2). WSDA's Dairy Nutrient Management Program plans to conduct intensive ongoing surface water quality sampling throughout the Jackman drainage during the remainder of 2013 and first half of 2014 to identify and correct sources of fecal bacteria contamination that may be originating from dairy facilities and/or dairy fields.

In the Drayton Harbor watershed, seven dairy facilities are located in the Whatcom Clean Water Program Dakota Creek focus area. One additional dairy has fields located in the Dakota Creek drainage. This quarter in the Dakota Creek watershed, the WSDA dairy inspector completed two routine dairy facility inspections and one follow up inspection. The dairies met compliance standards.

Whatcom County Health Department (on-site sewage system (OSS) operation & maintenance compliance)
BERTRAND WATERSHED & DRAYTON HARBOR WATERSHED

Watershed	# of ROSS - 3rd Qtr	ROSS— maintenance needed	ROSS - Failures	Other Failures	Failures Repaired
Bertrand/Fishtrap	12	6	0	1	4
Drayton Harbor	34	7	0	1	1

Whatcom County Health Department (WCHD) received 12 Report(s) of System Status (ROSS) from residents living in the Bertrand/Fishtrap Creek watersheds. (Note: WCHD's database combines Bertrand

and Fishtrap watersheds.) A ROSS documents whether an on-site sewage system (OSS) is functioning satisfactorily, needs maintenance, or is failing.

Due to ongoing elevated fecal coliform levels in the Jackman Ditch drainage, in June 2013 Ecology referred 26 parcels to WCHD to help determine whether improperly functioning OSS may be contributing fecal contamination to surface water. WCHD added four properties in the area to the survey list and contacted property owners to request OSS surveys.

During an OSS survey, a WCHD staff member determines whether a system is failing and is contributing fecal pollution to surface water. A WCHD OSS survey is not a complete evaluation of a system's tank, sludge and scum levels, components, and drainfield(s) and therefore is not reflected in ROSS reporting numbers.

Of the 16 referred parcels/residences along Jackman Road, WCHD completed surveys of nine systems this quarter and determined those systems appear to be functioning properly. One property owner chose to hire a licensed Operation & Maintenance Specialist to evaluate the property's OSS. The evaluation determined that the septic tank needed to be pumped. Of the remaining six properties, five are owned by two property owners. In addition to sending letters requesting OSS surveys, WCHD staff left a business card and phone message with these property owners.

WCHD discovers OSS failures not reflected in ROSS submittal numbers through follow-up on complaints, investigations based on water quality data, or through WCHD's work to verify homeowner self-reporting.

Of the remaining 14 referral parcels along the Guide Meridian and H Street this quarter, WCHD surveyed five OSS. None of the five OSS were found to be failing. In addition to letters requesting OSS surveys, WCHD left business cards and phone messages for the remaining eight property owners.

2.3 Enforcement summary

BERTRAND WATERSHED

Ecology (*non-dairy livestock properties*)

Ecology inspectors took no formal enforcement action in Whatcom County during the quarter.

Washington State Department of Agriculture (WSDA) (*dairy properties*)

WSDA took no formal enforcement actions in Whatcom County this quarter. Both dairy producers who received warning letters last quarter substantially addressed their respective issue this quarter.

WSDA and a dairy producer are continuing settlement negotiations related to November 2012 and March 2013 manure discharge events.

3. AGRICULTURAL BMP COST SHARE PROGRAM

Funding through the National Estuary Program is available to help landowners in Whatcom County pay for projects that reduce pollution from horses and livestock. Landowners may receive up to 75 percent of costs for qualifying projects.

4. EDUCATION & OUTREACH

- The [WCWP program website](#) was updated with links to the *Whatcom Clean Water Program Quarterly Progress Report, April-June 2013* and the *Whatcom County 2012 Water Quality Report*.
- September 10, 2013 - Community meeting
Whatcom Clean Water Program partners hosted a second community meeting in Lynden to report on six months of progress and data and to answer questions. Advertisement for the event included over 500 personal invitations sent to Lynden-area residents, e-mail invitations distributed to various organizations and online and printed materials available as part of the county-wide annual Whatcom Water Weeks.

Program partners represented at the meeting included Washington Department of Health, Washington Department of Ecology, Washington Department of Agriculture, Whatcom Conservation District, Whatcom County Health Department, Whatcom County Public Works Department and Lummi Nation. Few local residents attended the meeting. Agency staff and attendees affiliated with Washington Dairy Federation, Portage Bay Shellfish Protection District Advisory Committee, Drayton Harbor Shellfish Protection District Advisory Committee, Farm Friends, Re-Sources for Sustainable Communities, Puget Sound Restoration Fund and a state Representative for the 42nd District discussed water quality monitoring, potential human health risks associated with bacteria pollution, DNA testing, and correlation between freshwater quality and marine water quality.

- Following low community attendance at the Lower Dakota Creek openhouse event in June, Whatcom County Public Works staff worked with Drayton Harbor Shellfish Advisory Committee members to develop a landowner survey. Public Works staff sent the two-page survey to 275 landowners in the Lower Dakota drainage in late September. Responses to survey questions will assist in developing messages about water quality and creek health and in developing tools to help landowners improve and protect the creeks.
- WCPW staff created an updated fact sheet for the Loomis Trail drainage (monitoring station CA1) to assist in communicating with landowners. Whatcom County Health Department reviewed OSS Operation & Maintenance records for parcels in the priority portions of this drainage. Whatcom County Planning & Development Services is contacting small farm owners in this area to inquire about farm plan status.