Whatcom Clean Water Program Quarterly Progress Report
April-June 2013

1. Water Quality Monitoring

Data reporting - Concurrent with the pollution identification and correction activities of the Whatcom Clean Water Program, a database is being developed so that the multiple agencies/organizations monitoring water quality in Whatcom County can record data in a central location. Until the database is operational, data collected in support of the program will be communicated through quarterly reporting. Excel spreadsheet data report results in colony forming units (CFU) per 100 milliliters (mL) of sample for each sampling location. The water quality standards that govern Whatcom County are established and regulated by the Washington State Department of Ecology and approved by the U.S. Environmental Protection Agency. They are described more fully in Chapter 173-201A of the Washington Administrative Code (WAC).

Both the Nooksack and the Drayton Harbor watersheds are subject to standards established to protect "primary contact recreation" as a designated water use. Primary contact state-wide bacteria criteria are that fecal coliform organisms must not exceed a geometric mean ("average") of 100 colonies/100mL and not more than 10 percent of samples can exceed 200 colonies/100mL.

Bertrand Creek Watershed short-term monitoring data (CFU/100mL) - first half year 2013

	Cave Creek	McClellan	North Fork	Bertrand Creek		Jackman Ditch		Duffner Ditch		
	(border)	(Weidkamp)	(Loomis Tr)	(border)	downstream	(border)	downstream	upstream	mid	downstream
	BECC0.2	BEMC1.8	BENF2.0	BE9.1	BE4.3	BEJK2.0	BEJK0.2	BEDF6.4	BEDF3.7	BEDF2.2
1/15/13			8		52	36	22	160	22	
1/23/13	110			66						
1/28/13		210	54		310	880	640	14	82	
2/11/13	38	170	18	38	52	120	60	460	27	74
2/25/13	84	660	100	440	190	25	470	390	440	280
3/11/13	5	52	27	160	5	22	54	56	5	54
3/25/13	11	7	2	20	96	24	46	20	11	70
4/5/13		7400	440			1000	9700			
4/9/13	32	230	25	250	720	110	210	28	76	1400
4/11/13					960					
4/22/13	140	30	34	150	48	38	74	110	150	88
5/6/13	290	9	42	120	74	110	120	76	1500	66
5/13/13						1500	4700			
5/20/13	150	44	54	230	120	66	700	130	170	60
6/3/13	170	11	30	170	110	80	230	290	39	92
6/17/13	180	120	140	150	120	100	1000	dry	240	290
6/20/13						3200	4300			

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

Figure 1. Fecal coliform sampling results (Jan-Jun 2013), short-term Bertrand watershed monitoring stations

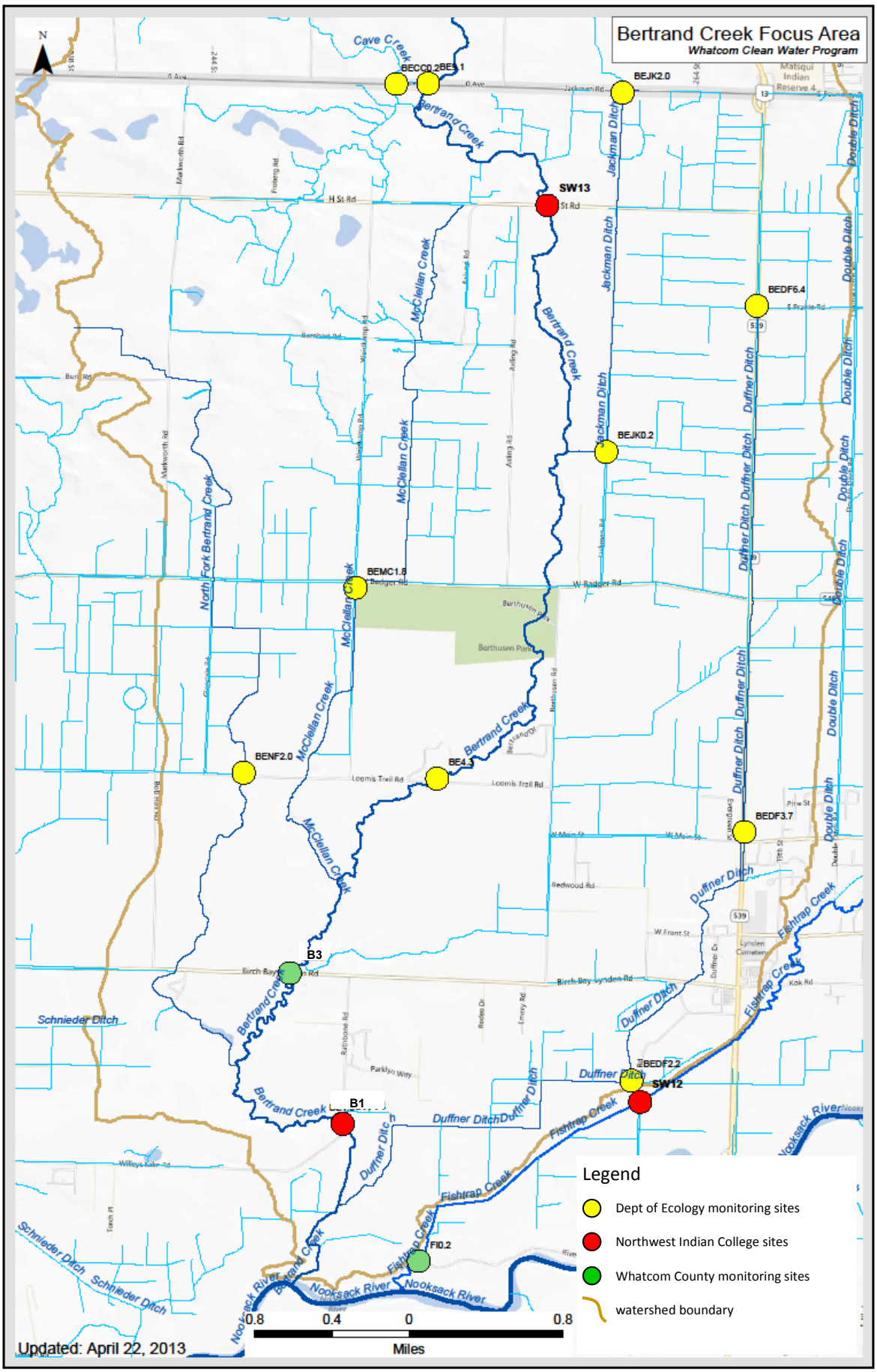

Figure 2. Bertrand watershed water quality monitoring locations

BERTRAND WATERSHED

Fecal coliform concentration

Quarterly sampling - Washington Department of Ecology (Ecology) inspectors conducted ambient water quality sampling six times at 10 established short-term locations (see Figure 1 for monitoring results). Inspectors sampled twice monthly according to a systematic random sampling schedule. See Figure 2 for a map of sampling locations.

Approximately half of the Bertrand watershed is located in Canada. Three of Ecology's short-term 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). Some sampling results from the three Canadian border sites indicate elevated fecal coliform levels in waters entering the United States. Ecology regularly communicates water quality data to the senior environmental protection officer at Ministry of Environment, Canada, for follow-up.

In addition to twice-monthly random sampling results, Figure 1 data report bracket sampling results at some short-term ambient sites during rain events or investigation follow-up (for dates 4/5/2013, 4/11/2013, 5/13/2013, 6/20/2013). The results range from 440 to 9,700 CFU/100mL, notably higher than the systematic random sampling done every two weeks.

Ecology inspectors collected additional samples from multiple publicly accessible sites eight times during the quarter to bracket areas in the McClellan Creek and Jackman Ditch drainages for further pollution source investigation. Sampling results at those locations during rain events produced results ranging from 100CFU/100mL to 180,000 CFU/100mL. Only data collected from established short-term sampling sites are reflected in the Figure 1 data.

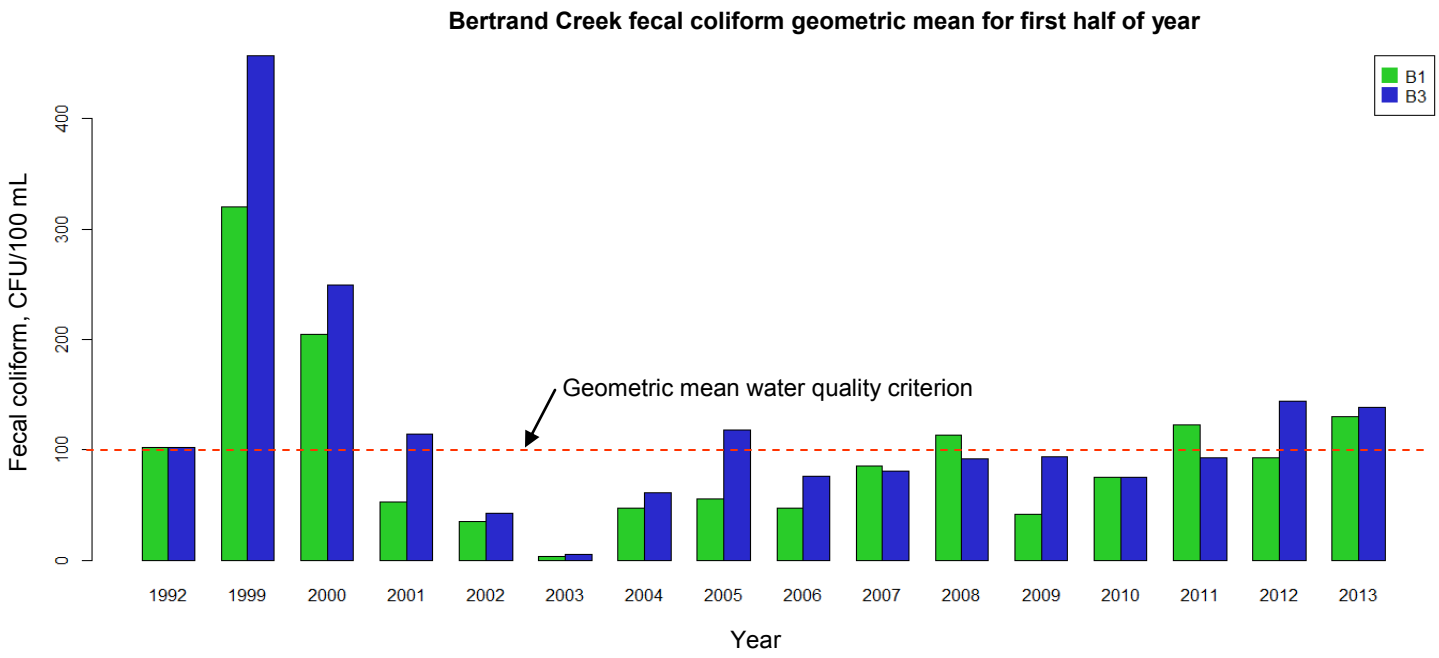

Figure 3. Comparison of geometric mean fecal colifom counts for January through June, station B1 and B3

Long-term trend – Within the lower Nooksack basin during this reporting period, Whatcom County Public Works (WCPW) 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, WCPW and NWIC collected routine water quality samples twice per month at station B1 and one time per month at station B3. When compared with historic data (January through June) for stations B1 and B3, water quality sampling results for the first half of 2013 continue an increasing trend in the geometric mean ("average") fecal coliform bacteria levels (Figure 3).

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. Whatcom County Public Works (WCPW) 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 (Figure 4). Throughout the larger Drayton Harbor watershed, WCPW staff collected routine water quality samples on a monthly basis at approximately 30 stations. Northwest Indian College collects samples at eight of the stations a second time each month. Nooksack Indian Tribe (NIT) Natural Resources staff collected samples twice per month from an additional 26 short-term ambient sites.

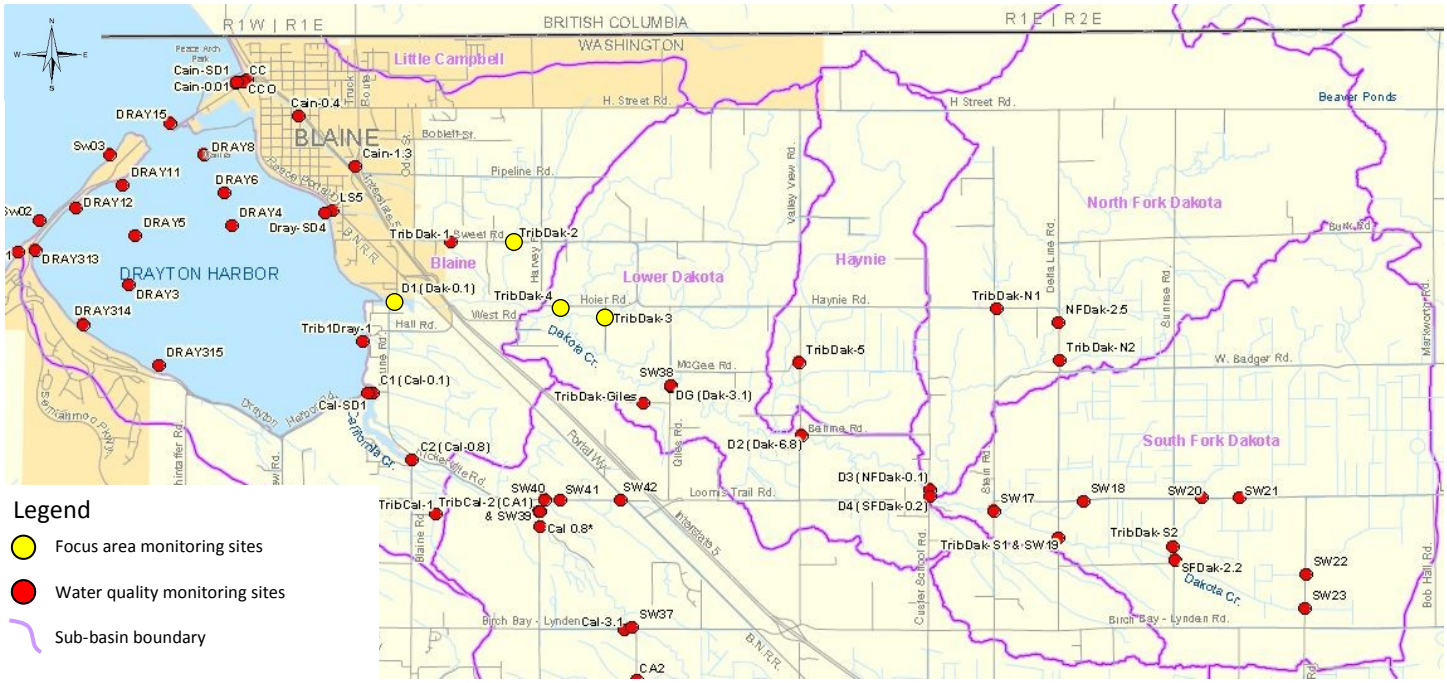

Figure 4. Water quality monitoring stations - Dakota Creek sub-basin (part of Drayton Harbor watershed)

Long-term trend – When compared with historic data (January through June) for station D1 and for stations TribDak-2, TribDak-3 and TribDak-4 on tributaries flowing into Lower Dakota Creek, water quality sampling for the first half of 2013 indicates increased geometric mean fecal coliform bacteria levels well above the established water quality criterion (Figure 5).

Station D1 is subject to marine water standards established to protect shellfish harvesting and recreational uses. Marine water shellfish harvesting and primary contact recreation criteria are 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.

Notable Conditions - On 4/12/13 the Whatcom County Health Department with Washington Department of Health (DOH) issued a no-contact advisory, including shellfish harvest restriction, for all of Drayton Harbor due to high fecal bacteria in California and Dakota creeks. DOH reopened Drayton Harbor to commercial harvesting on 4/17/13 after Whatcom County Public Works follow-up sampling on 4/15/13 showed the harbor was safe for shellfish harvesting.

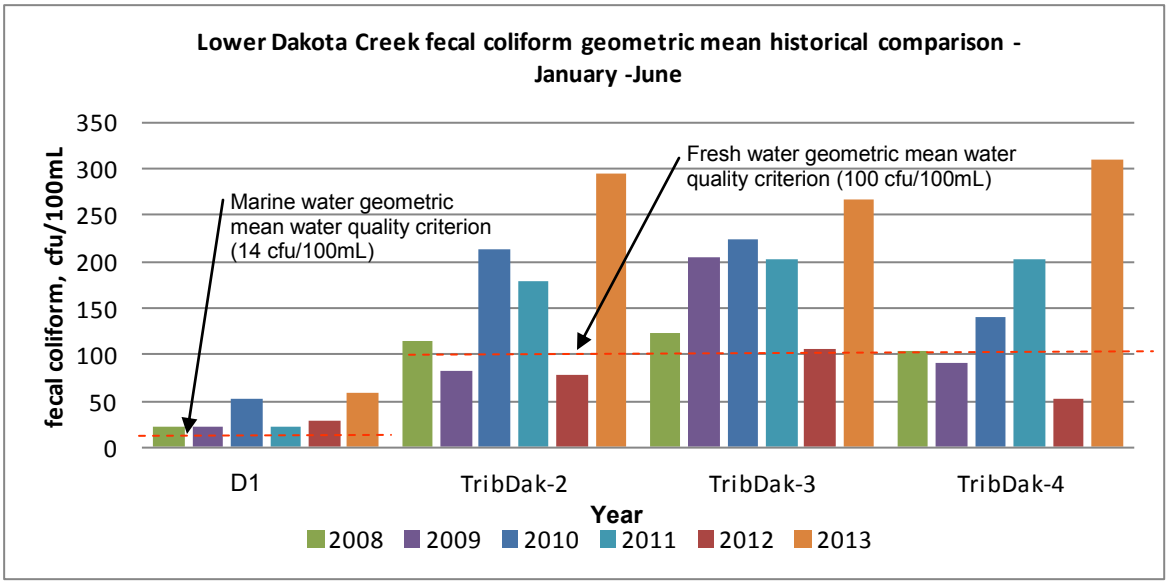

Figure 5. Comparison of geometric mean fecal colifom counts for Jan-June, Lower Dakota Creek tributaries

2. Site assessments

2.1 Regulatory property assessments and results this quarter

BERTRAND WATERSHED

Ecology *(non-dairy livestock property inspections)*

	Bertrand watershed	Other watersheds	Notes
Initial visits	15		Initial visits scheduled by phone with landowner
Follow-up visits completed	1	1	Follow-up visits to ensure problems corrected
Complaint/referral-based visits		3	Inspectors responded to other agency referrals and complaint from an individual
Sites requiring future follow up	9	1	
Property access limited	3		

Scheduled assessments:
Ecology inspectors began field inspections of non-dairy livestock properties in late April. Based on high water quality sampling results and drive-by evaluation of land use, Ecology inspectors focused in the McClellan Creek and Cave Creek sub basins. Ecology inspectors called landowners to verify presence of non-dairy livestock and to schedule site visits. During this quarter, Ecology inspectors made 16 scheduled visits to 15 properties to assess livestock-keeping practices and impacts to water quality.

Ecology inspectors determined six properties were maintaining livestock management practices protective of water quality. On eight properties, inspectors recommended implementation of BMPs to ensure water quality protection. Recommended BMPs included fencing animals a minimum of 35 feet from waterways and establishing confinement areas to enable adequate pasture and manure management. Recommended BMPs also included covered manure storage and/or heavy use area protection to prevent contaminated runoff from polluting surface water. Inspectors informed landowners that cost-share funds are available to help implement recommended BMPs.

One landowner limited inspector property access and two others refused access. Inspectors will continue to monitor these properties and will follow up as needed based on data and field observation.

Inspectors completed two follow-up site visits to ensure fencing was in place to exclude horse access to surface water and to correct a documented pollution discharge.

Referrals to other agencies:
Fecal coliform (FC) sampling results in early April showed high levels of FC bacteria in water entering Jackman Ditch. Ecology inspectors referred results to Washington State Department of Agriculture (WSDA) for follow up with dairy properties. As high FC counts at the lower Jackman Ditch sampling location continued into June, Ecology inspectors requested follow up from Whatcom County Health Department to determine septic system operational status on properties that discharge to Jackman Ditch. Between the upstream monitoring site at the US/Canada border and the lower Jackman Ditch location, monitoring results this quarter showed consistent increases in the FC concentration at the downstream sample location.

Complaint-related assessments outside the Bertrand watershed:
On three properties outside of the Bertrand watershed, Ecology inspectors completed four inspections in response to agricultural activities causing polluted discharge. Inspectors coordinated with Whatcom County on a sediment discharge issue in the Sumas watershed, with Washington Department of Fish & Wildlife for a property discharging sediment in the Fishtrap Creek watershed, and with the city of Ferndale for a farm property polluting a waterway within Ferndale city limits.

Washington State Department of Agriculture (WSDA) *(dairy property inspections)*

	Bertrand watershed	Dakota (Drayton)	Countywide
Routine	5	1	26
Close-out	1	1	4
Referral	3	0	5
Investigation	1	0	11
Follow-up	1	0	4

Of the 112 dairies operating in Whatcom County, 14 are located in the Bertrand watershed along with one methane digester facility. Within the Bertrand watershed during this quarter, the WSDA dairy inspector completed routine inspections of five dairies. Additionally in the Bertrand watershed, the inspector conducted three inspections of dairy facilities based on referrals from Ecology, one investigation based on a complaint, one close-out inspection of a dairy no longer operating, and one follow-up inspection. The inspector determined four dairies to be in compliance. Three dairies need additional follow-up.

Whatcom County Health Department *(on-site sewage system (OSS) operation & maintenance compliance)*

Watershed	# of ROSS - 2nd Qtr	ROSS - Maintenance Needed	ROSS - Failures	Other Failures	Failures Repaired
Bertrand/Fishtrap	12	4	1	4	0

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 the two watersheds, so reporting includes numbers for both.). The ROSS document contains information about the current status of the OSS including whether it is functioning satisfactorily, needs maintenance, or is failing.

Due to persistent high fecal coliform levels in the Jackman Ditch drainage, Ecology inspectors in mid-June referred 26 parcels to WCHD for OSS status follow up. WCHD split the referral into Jackman Road properties and Guide Meridian properties. WCHD mailed OSS survey request letters to 17 Jackman property owners in late June. WCHD will request OSS surveys from the Guide Meridian properties after the majority of the Jackman site visits are made.

DRAYTON HARBOR WATERSHED FOCUS AREA (Lower Dakota Creek)

Washington State Department of Agriculture (WSDA)
Seven dairies operate in the upper portion of South Fork Dakota Creek, which upstream of the Lower Dakota Creek area targeted for fecal pollution identification and correction efforts. Fecal coliform counts in the upper portion of the South Fork Dakota Creek were lower than fecal coliform levels measured in the downstream tributary focus area. The WSDA inspector completed one close-out inspection and one routine inspection in the Dakota Creek sub-basin, with follow up required.

Whatcom County Health Department (WCHD)

Watershed	# of ROSS - 2nd Qtr	ROSS - Maintenance Needed	ROSS - Failures	Other Failures	Failures Repaired
Drayton Harbor	50	21	0	5	5

During this reporting quarter, Whatcom County Health Department received 50 Report(s) of System Status (ROSS) from residents living in the Drayton Harbor watershed.

2.2 Technical assistance summary/non-regulatory

BERTRAND WATERSHED & DRAYTON HARBOR WATERSHED FOCUS AREA (Lower Dakota Creek)

Whatcom Conservation District (WCD)
(Note: WCD data is not reported to this program on a quarterly basis.) During fiscal year 2011-2013 biennium ending on June 30, 2013, WCD provided technical assistance to plan 127 agricultural best management practices (BMPs) on 19 non-dairy farm properties throughout Whatcom County. Of the 127 BMPs, WCD planned 25 BMPs on properties in the Bertrand watershed and eight BMPs on properties in the Lower Dakota Creek focus area. An unknown number of the planned BMPs were implemented.

Through the Environmental Quality Incentive Program, WCD provided financial and technical assistance to 62 dairy producers throughout Whatcom County to install 143 BMPs.

2.3 Enforcement summary

BERTRAND WATERSHED
Ecology *(non-dairy livestock properties)*
Ecology inspectors took no formal enforcement action during the quarter. Inspectors followed up with two properties that had active fecal pollution discharge to ensure landowners took immediate action to correct the problems (fencing to prevent direct livestock access to surface water and re-locating animals to other property areas).

Washington State Department of Agriculture (WSDA) *(dairy properties)*
WSDA announced in early April a fine of $17,000 issued to a dairy for two November 2012 violations of the state's Water Pollution Control Act. Violations included improperly applying liquid manure onto a field and allowing polluted water to enter creek tributaries; fields where pollution discharges occurred were in the Bertrand watershed.

WSDA issued a Notice of Correction in late April relating to a complaint about animal access/pasture management during the first quarter. The producer corrected the issue. WSDA sent two warning letters in June; one letter for lacking adequate records during routine inspection and one regarding improper pasture management and runoff. Both issues were addressed through later submittal of records and partial solution regarding pasture management.

DRAYTON HARBOR WATERSHED FOCUS AREA (Lower Dakota Creek)
Regulatory agencies did not report any formal enforcement activity in the Lower Dakota Creek focus area.

3. AGRICULTURAL BMP COST SHARE PROGRAM

Through National Estuary Program grant funding, $141,000 is available to landowners in targeted Whatcom County areas for BMP implementation. Department of Ecology and A Rocha USA signed an agreement in May, establishing A Rocha as the "store front" to work with landowners to install eligible BMPs.

During inspections where Ecology inspectors recommend BMP implementation to protect water quality, Ecology inspectors encouraged property owners to take advantage of available cost-share funds. Ecology inspectors noted nine properties where they recommended BMP implementation to ensure water quality protection; these properties will receive Ecology inspector follow up.

4. EDUCATION & OUTREACH

- April 8, 2013 *Partners working to reduce bacteria pollution in Whatcom County creeks*
  Whatcom Clean Water Program issued a news release announcing program goals, partners, targeted pollution sources and geographic focus area.

- April 14, 2013 *Bellingham Herald*, p A1 Shellfish effort aims to reduce pollution in Whatcom County waterways The front-page story expanded on information provided in the news release, including water quality monitoring, local shellfish harvest status and quotes from Jay Gordon of the WA State Dairy Federation and the Leroy Deardorff of the Lummi Natural Resources Department.

- Washington State Department of Agriculture (WSDA) outreach during the first quarter of 2013 included completion and distribution of a new "Nutrient Management Recordkeeping Requirements" fact sheet highlighting the new recordkeeping rule adopted in 2012.

  During second quarter 2013, the WSDA dairy inspector communicated by email to dairies operating within the McClellan Creek drainage and the Jackman Ditch drainage within the Bertrand watershed about high fecal coliform sampling results. E-mail outreach included maintenance reminders, direction to consult Whatcom Conservation District's website information, and weather information relevant to the sampling schedule.

- June 15, 2013 *Whatcom Ag Monthly* Volume 2, Issue 6. WSU Whatcom County Extension published in its monthly online newsletter information about cost-share opportunities available through the Whatcom Clean Water Program to help landowners implement agricultural BMPs to protect water quality. The newsletter has a distribution list of approximately 400 Whatcom County residents.

- The Whatcom Clean Water Program Coordinator notified various groups in Whatcom County (e.g. Northwest Horse Source, Whatcom County Equestrians, Whatcom Cattlemen's Association, WSU Whatcom County Extension) of a free pasture improvement workshop hosted by Skagit Conservation District and the Horses for Clean Water program (June 17, 2013). Of the 21 participants who attended the workshop; four were from Whatcom County.

- Whatcom County Public Works staff developed community outreach materials including *Guidelines for Landowners Collecting Water Samples for Fecal Coliform Analysis*, a drainage fact sheet for Lower Dakota Creek, and website updates.

DRAYTON HARBOR FOCUS AREA (Lower Dakota Creek)

- April 10, 2013 *The Northern Light.com* *Blaine fifth graders to get first-hand look at water quality*
  The article noted "The Garden of the Salish Sea" curriculum program kickoff for Blaine Elementary School and summarized the program's environmental science and community outreach focus.

- April 25, 2013 Puget Sound Restoration Fund – Sponsored public tours of the Drayton Harbor Community Oyster Farm aboard the Plover as part of "The Garden of the Salish Sea" curriculum.

- May 2-8, 2013 edition *The Northern Light* p. 1 *Shellfish farm offers opportunities for education* The article summarized the community supported aquaculture aspects of the Drayton Harbor Community Oyster Farm, noting involvement of Bellingham Technical College's fisheries and aquaculture sciences program interns and educational opportunities through the "The Garden of the Salish Sea" curriculum.

- June 26, 2013 – Pasture Walk at Drayton Harbor watershed cattle farm
  Whatcom Conservation District sent postcards to 245 livestock properties in the Drayton Harbor, Lake Terrell and Semiahmoo watersheds inviting landowners to attend an evening "pasture walk." Led by Whatcom Conservation District staff and the farmer, eight participants toured the cattle farm to learn about agricultural BMPs the farmer maintains to increase pasture productivity that results in economic benefits and improved animal and environmental health.

- June 28, 2013 – Lower Dakota Creek Open House 5-8pm at Blaine Senior Center
  Whatcom County Public Works sent 280 postcard invitations to residents within the Lower Dakota Creek focus area. Attendees included 3 residents from the focus area, 5 residents from the larger Drayton Harbor watershed, and 4 other community members. Participating organizations included:
  - Whatcom County (Public Works Dept. and Health Dept.) – water quality monitoring information, watershed maps encouraging resident input, and on-site sewage system (OSS) operation & maintenance program information
  - Drayton Harbor Shellfish Protection District Advisory Committee – planning and event support; refreshments
  - Puget Sound Restoration Fund/Drayton Harbor Community Oyster Farm – grilled oysters and information about aquaculture; Garden of the Salish Sea curriculum; oyster shell painting as children's activity
  - Nooksack Salmon Enhancement Association – information about riparian restoration opportunities
  - Washington Department of Health – shellfish harvest classification and water quality information; coastal watershed model to demonstrate nonpoint pollution sources; landowner grant funding to implement Agricultural Best Management Practices (BMP)
  - Whatcom Conservation District – information about technical and financial assistance and agricultural BMPs, county-wide monitoring map, and offered information about Natural Resources Conservation Service programs
  - Whatcom Dairy Federation, Whatcom Cattlemen's Association, and Whatcom Agricultural Advisory Committee representatives attended