



Whatcom Clean Water Program Quarterly Progress Report July 1 - September 30, 2014

Quarterly Overview

Program partners continue bacteria pollution identification and correction efforts -

This report summarizes efforts of Whatcom Clean Water Program partners during July 1-September 30, 2014 to monitor fecal coliform bacteria concentrations in local waterways and to work with local residents to find and correct preventable sources of fecal bacteria pollution:

- Pages 2-5 summarize fecal coliform bacteria sampling and results
- Pages 5-9 summarize regulatory property assessments and results
- Pages 10-11 summarize outreach and education related to fecal coliform pollution reduction efforts
- Pages 12-15 include maps and results of fecal coliform sampling

Focus Areas

Fecal coliform bacteria reduction efforts are focused in areas of the Drayton Harbor watershed and in the lower Nooksack River/Portage Bay watershed where polluted fresh water flowing into marine water limits safe shellfish harvest. Agency staff also work to find and correct bacteria pollution sources in other Whatcom County drainages such as Sumas or Birch Bay watersheds, when monitoring shows pollution concerns.

What's so bad about fecal coliform bacteria?

Fecal coliform found in water indicates bacterial contamination from feces of humans and other warm-blooded animals. When measured in water, fecal coliform are a sign that illness-causing viruses and bacteria (pathogens) may be there. People can get sick from contact with the polluted water, or if they eat shellfish contaminated with pathogens.

State water quality standards* establish criteria describing a maximum concentration of fecal coliform bacteria that is allowed to be measured in a sample and not present a health risk to people who casually contact ("primary contact recreation") the water. The criteria is set to protect human health.



Everyone in Whatcom County can help ensure the community enjoys the benefits of clean water.

Partial closure of Portage Bay shellfish harvest

Lummi Nation announced in September the tribe's voluntary closure of all shellfish harvest in the portion of the shellfish beds that currently do not meet the National Shellfish Sanitation Program standards. The Nooksack River flows into Portage Bay and directly affects the bay's water quality. (See page 10 for more detail).

Oysterfest event celebrates clean water, local shellfish resources and Whatcom Water Weeks

Over 300 participants attended the first annual Oysterfest Northwest at Bellewood Acres in early September to enjoy local oysters and clams, displays about local water quality related programs, and activities for kids. (See pictures and more detail on pages 10 and 11).

*Bacteria criteria for surface waters of the state can be found in Washington Administrative Code (WAC-173-201A-200; Table 200 (2)(b) for fresh water and WAC-173-201A-210; Table 210 (3)(b) for marine water).

1. FECAL COLIFORM BACTERIA SAMPLING & RESULTS

Data reporting - Fecal coliform bacteria monitoring results are reported in colony forming units (CFU) per 100 milliliters (mL) of sample for each sample location.

Water quality database - Whatcom County Public Works (Public Works) temporary staff continued to enter historic and current water quality data into a database developed to centralize county-wide water quality data and make it available online to the public. Information entered into the database includes over 15 years (1998-2013) of water quality data gathered by Northwest Indian College and six years of Public Works' data (2009-2014).

LOWER NOOKSACK/PORTAGE BAY WATERSHED

During the quarter, Public Works completed six routine sampling runs in the Lower Nooksack/Portage Bay watershed; each sampling run includes 14 sampling locations. Public Works added a location (F3) in the Fishtrap Creek sub-basin and a location (S2) in the Scott Ditch sub-basin to its routine sampling run.

Monitoring in Bertrand focus area -

The Bertrand Creek watershed is a sub-basin of the Lower Nooksack River/Portage Bay watershed. In the Bertrand sub-basin, Washington Department of Ecology (Ecology), Public Works, and the Nooksack Indian Tribe (NIT) monitor fecal coliform bacteria levels at various locations. See Appendix Map 1 for routine sampling locations.

Quarterly sampling results for mainstem Bertrand Creek are reported in Figure 1.

- Ecology sampled twice monthly at ten fixed-location sites. Ecology's sampling on the mainstem of Bertrand Creek consistently showed higher fecal coliform density in water flowing into Whatcom County from Canada at BE9.1 than in the downstream location at Loomis Trail Road (BE4.3).
- Of monitoring locations included in Public Works routine monitoring program, B1 sample site at Rathbone Road bridge is the furthest downstream Bertrand Creek site before the creek flows into the Nooksack River. The B1 location is before Duffner Ditch flows into the mainstem. Public Works samples twice monthly at B1.
- NIT samples once monthly at SW14 (same location as B1) and at SW13 (H Street bridge).

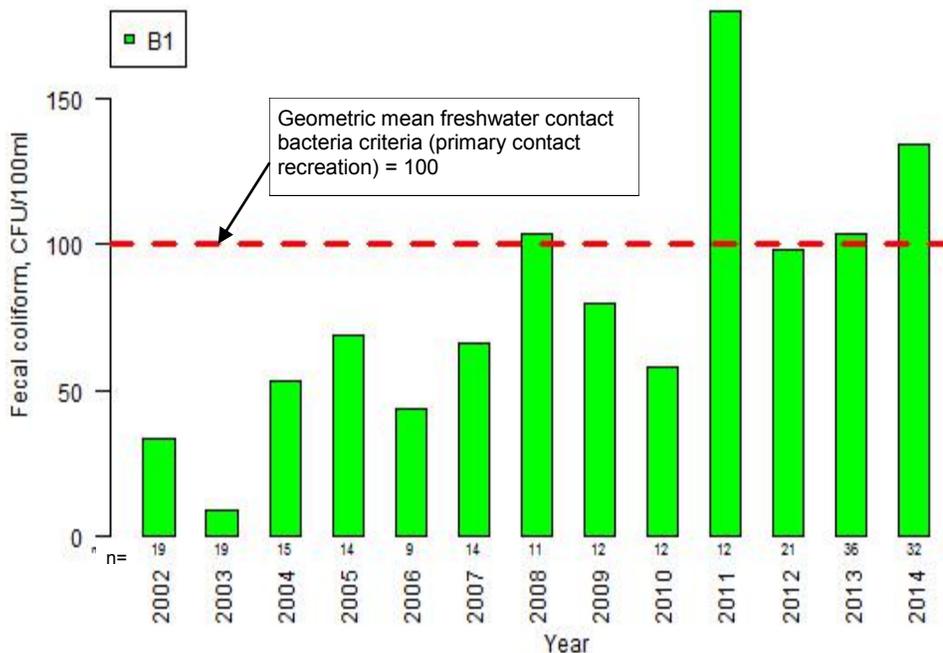
Figures 2 and 3 on the next page compare annual data through the 3rd quarter of each year. In the bar graphs, the data bar for each year includes data from the previous year's October through the following September. Each quarter the beginning and end of the year's worth of data shifts by three months. The 2014 bars in Figures 2 and 3 include data from October 1, 2013 through September 30, 2014.

Figure 1 - Bertrand Creek mainstem fecal coliform monitoring results 3rd quarter

sample date	(upstream) border	(midstream) Loomis Trail	(downstream) Rathbone
	BE9.1	BE4.3	B1/SW14
7/10/2014			250
7/16/2014	520	82	200
7/30/2014	250	98	280
8/6/2014			280
8/11/2014	390	40	
8/19/2014			270
8/27/2014			143
8/28/2014	791	76	
9/3/2014			240
9/8/2014	430	32	
9/16/2014			72
9/24/2014	928	90	

indicates result below 100 colony forming units per 100mL (CFU/100mL)
 indicates result between 100 and 199 CFU/100mL
 indicates result at or above 200 CFU/100mL

Figure 2 - Bertrand Creek fecal coliform monitoring station B1
Comparison of geometric mean using annual data through September 30

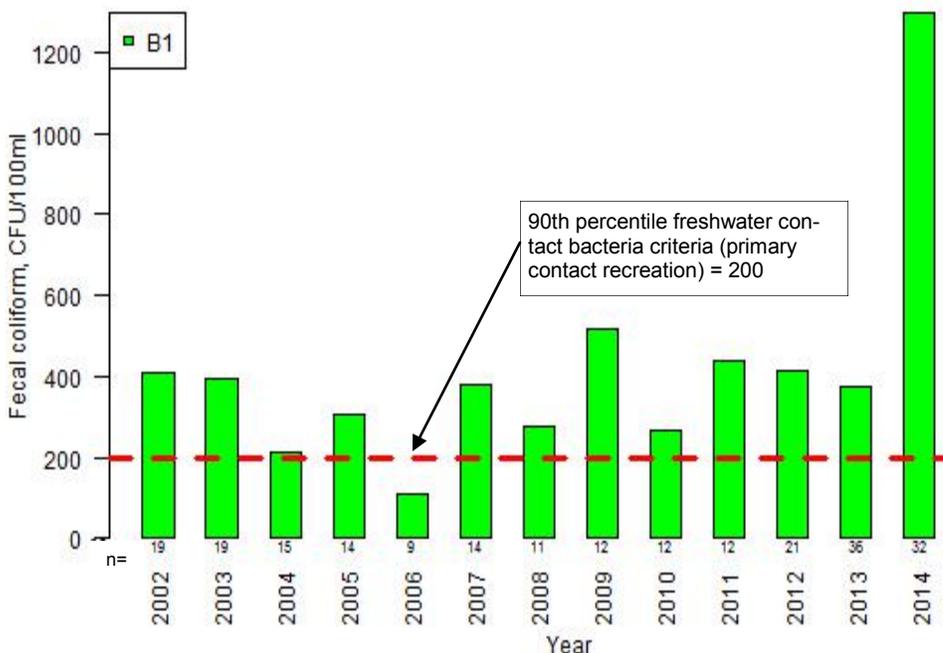


Because the frequency of sampling and the entity collecting the water quality samples have periodically changed over time, Figures 2 and 3 note the number of sampling events (n) that are considered in the calculations.

In addition to routine sampling by other agencies, Washington Department of Agriculture (WSDA) Dairy Nutrient Management Program (DNMP) staff conducted three supplemental fecal coliform sampling events at 19 locations. See Appendix Figure 1 for DNMP sampling results and Appendix Map 2 for sampling locations.

DNMP's sampling results consistently have shown high fecal coliform bacteria concentrations at U.S./Canadian border locations. DNMP staff have identified additional sampling sites north of the border to better characterize water flowing into the U.S. from Canada. DNMP staff are working with BC Ministry of the Environment to sample at the Canadian locations during the fall and winter months and will be communicating results on a quarterly basis.

Figure 3 - Bertrand Creek fecal coliform monitoring station B1
Comparison of estimated 90th percentile - annual data through September 30



High fecal coliform sampling results in the Jackman Ditch drainage (see Figure 4) support the need for ongoing outreach to the dairy operations that dominate the area. DNMP staff will continue to prioritize the area to assist with bacteria pollution source identification and correction.

	(upstream border)	(down stream)
	BEJK2.0	BEJK0.2
7/16/2014	68	350
7/30/2014	260	1564
8/11/2014	56	DRY
8/28/2014	33	DRY
9/8/2014	116	DRY
9/24/2014	946	10500

Monitoring in Kamm Creek focus area -

WSDA DNMP staff sampled in late July at six different locations in the Kamm Creek sub-basin. Fecal coliform concentration levels were very high at all but one monitoring station (see Figure 5).

Figure 5 — Kamm sub-basin fecal coliform sampling results - WSDA DNMP			
Station ID	Site Type	Location Description	Sample results on
24 hr precipitation (inches)			0.75
KA-9	STM	south side Badger Road at Kamm Creek culvert	780
KASI-2	SIS	north side Kamm Road at Kamm Creek east culvert	2,300
KA-8	STM	west side Northwood Road at Kamm Creek bridge	2,100
MD1	SIS	west side Northwood Road at Morman ditch	54
KA-6	STM	north side Timon Road at culvert	38,000
KA-5	STM	north side Hampton Road at culvert	14,000

STM = short-term monitoring location SIS = source identification sampling

Figure 6 - Kamm sub-basin fecal coliform sampling results - Ecology and Public Works	
	K1
7/16/2014	46
7/30/2014	137
8/6/2014	54
8/11/2014	200
8/19/2014	220
8/28/2014	52
9/3/2014	155
9/8/2014	52
9/16/2014	74
9/24/2014	682

See Appendix Map 3 for DNMP monitoring locations in the Kamm sub-basin.

Ecology samples for fecal coliform bacteria at five locations in the Kamm sub-basin, including K1 at Hampton Road. K1 is the farthest downstream monitoring station before Kamm Creek flows into the Nooksack River. Public Works samples twice monthly at K1. See Figure 6 for Ecology and Public Works sampling results. Ecology’s pre-scheduled sampling on 9/24/2014 took place a day after .59” of rain.

DRAYTON HARBOR WATERSHED

Fecal coliform density

Long-term routine sampling -

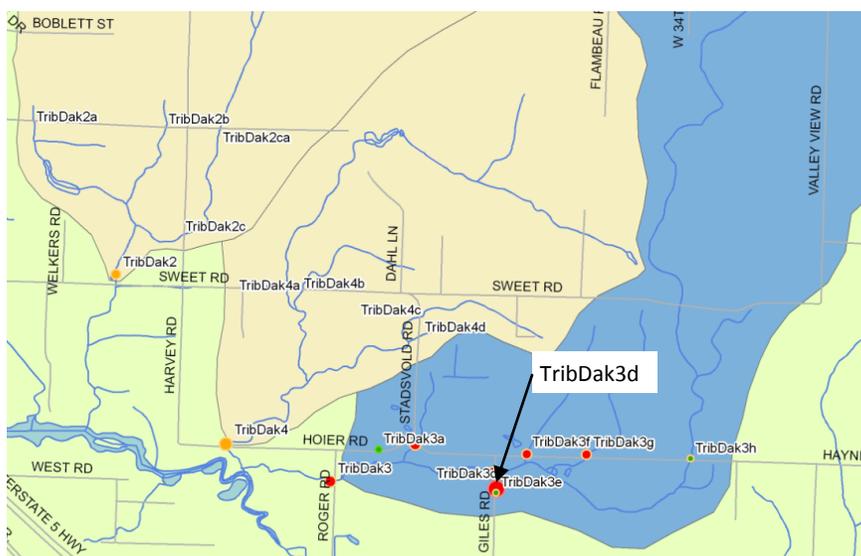
Dakota Creek and California Creek are the two main freshwater sources draining to Drayton Harbor. Within the watershed, Whatcom County Public Works staff collected monthly water quality samples at 30 stations. Nooksack Indian Tribe (NIT) Natural Resources staff collect samples twice monthly from additional short-term monitoring sites.

Focus Area Sampling - Public Works conducted fifteen sampling runs during July through September in the Drayton Harbor watershed focus areas (Lower Dakota, Loomis Trail, and Brown/Malloy):

Lower Dakota

- See Figure 7 for bracket sampling locations. Analysis showed the highest bacteria counts at monitoring site TribDak3d. Using sampling sites at locations where smaller tributaries enter larger ones, Public Works bracketed an area for investigation to identify potential pollution source(s):

Figure 7 - Lower Dakota Creek focus area fecal coliform sampling locations – Whatcom County Public Works



See Figures 8 and 9 for yearly comparison of fecal coliform sampling results in the lower Dakota Creek focus area. Data includes sampling results from Public Works and NIT. Stations Dak0.1 and Dak0.6 are located near the mouth of Dakota Creek where it flows into Drayton Harbor. These two stations are subject to stricter marine surface water quality standards than upstream freshwater monitoring locations.

Public Works' sampling site Dak3.1 is also sampled as station SW38 by the NIT and is located upstream of the lower Dakota Creek area where fecal coliform bacteria reduction efforts are focused.

Figure 8 - Drayton Harbor/lower Dakota Creek fecal coliform sampling results - Comparison of geometric mean using annual data through September 30

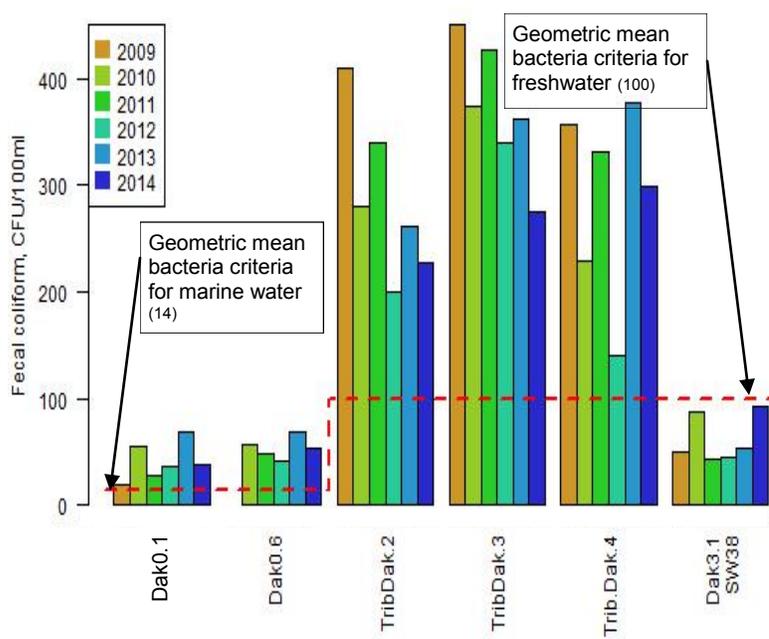
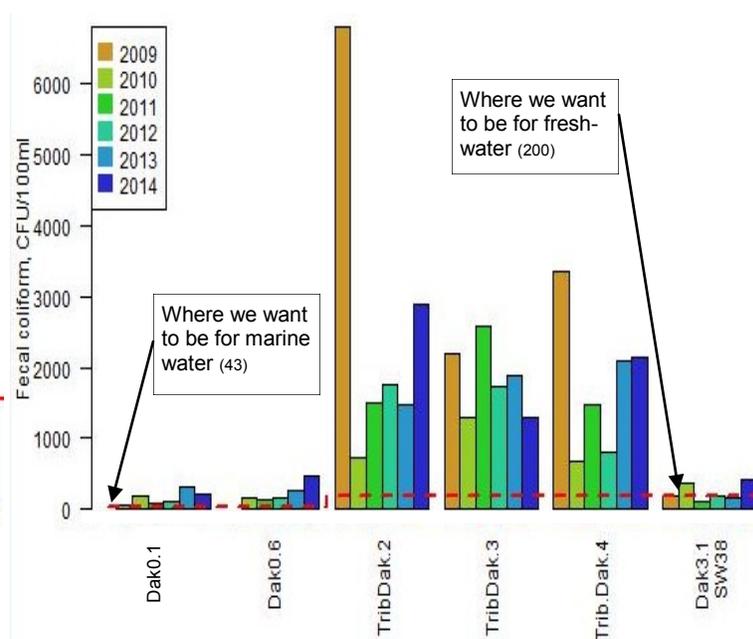


Figure 9 - Drayton Harbor/lower Dakota Creek fecal coliform sampling results - Comparison of estimated 90th percentile using annual data through September 30



2. REGULATORY PROPERTY ASSESSMENTS & RESULTS

Ecology (non-dairy livestock properties)

In the Portage Bay/Nooksack River watershed, Ecology water quality inspectors continued to monitor properties in Bertrand and Kamm sub-basins for changes in land use and management of livestock and manure. Inspector activities this quarter included:

Bertrand sub-basin

- Issued a Notice of Violation (NOV) to a McClellan Creek area property. As the property owner has not responded to the NOV or to Ecology contact attempts to ensure that polluting conditions have been corrected, Ecology is preparing to issue an Order.
- Completed a follow up visit with a landowner to verify that the landowner had improved management of a pasture with a seasonal stream running through it. To prevent fecal bacteria pollution to water flowing from the property, the owner confirmed that he does not allow livestock onto the pasture until the stream dries up and then removes livestock from the pasture by the end of August to allow vegetation re-growth before the rainy season.

Kamm sub-basin -

- Met with two landowners, each with similar fecal bacteria pollution sources relating to livestock access to saturated fields sloping to surface water, unrestricted livestock access to surface water and lack of adequate pasture and manure management. One property also had applied manure solids to saturated fields during the wet season. The landowners agreed to improve infrastructure and management to prevent fecal pollution from leaving their properties. Improvements include storing manure and soiled bedding in a covered area, installing fencing to exclude horses from surface water, establishing a winter confinement area and not applying manure to saturated fields or during the rainy season.
- Conducted a follow-up inspection at a horse-keeping property where polluted discharge was identified during a spring overflight. The landowner worked with Whatcom Conservation District to plan improvements, which include establishing a winter confinement area, covering stored manure and renovating pastures. The landowner is pursuing cost-share from National Estuary Program funds. These funds are available to Whatcom County landowners to help install best management practices to fix bacteria pollution sources.
- Inspectors confirmed that the owner of a large heifer replacement operation repaired a berm around a confinement area to prevent manure-contaminated water from discharging to a roadside ditch.

Work in other watersheds -

Birch Bay/Terrell Creek -

- Inspectors continued to follow up with a small acreage farm identified as contributing fecal pollution to surface water draining to Terrell Creek. The farm worked with Whatcom Conservation District and is making management and infrastructure changes to prevent future pollution discharges.

Sumas River -

- Ecology issued last quarter a Notice of Violation (NOV) to a landowner allowing fecal bacteria to pollute surface water and leave his property. Identified bacteria sources include overgrazed, muddy, manure-contaminated pastures and confinement area draining to surface water. Because corrections to the identified sources have not been made and the landowner has not responded to the NOV, Ecology is pursuing further enforcement.
- During a site visit to a property on the northern edge of the Kamm Creek watershed, inspectors found a large manure storage and livestock confinement area discharging fecal bacteria pollution directly to surface water flowing to the Sumas watershed. The landowners are interested in making improvements and inspectors are helping them find cost-share to make corrections.

Drayton Harbor/California Creek -

- Based on a complaint, Ecology visited a property and confirmed that livestock exclusion fencing needed to be fixed in order to prevent livestock from freely accessing surface water. The owner agreed to repair the fence and inspectors will follow up to ensure the correction is made.
- Ecology issued a NOV to a property owner who did not respond to a previous warning letter. Ecology has documented manure-contaminated water flowing from the property and identified conditions contributing to the pollution. The landowner has refused attempts to work cooperatively with Ecology to correct the pollution sources. Ecology will continue to pursue enforcement of water quality protection law.
- In follow up to previously received complaints submitted through the Environmental Report Tracking System (ERTS), Ecology inspectors met with two other landowners. To prevent fecal pollution from leaving their properties, one owner agreed to fence cows out of a wetland draining to a stream and the other agreed to make improvements to pasture and manure management and to improve a confinement area.

Drayton Harbor/Dakota Creek -

- In response to an ERTS report submitted by the NIT based on high fecal coliform sampling results, inspectors visited a large dairy heifer operation. Inspectors found that a pipe draining a confinement area was conveying bacteria pollution to a tributary of Dakota Creek. When the problem was discovered, the landowner re-routed the pipe to manure lagoon storage.

Washington Department of Agriculture (WSDA) Dairy Nutrient Management Program (DNMP) activity: (dairy operations)

DNMP Activity				
	Lower Nooksack/Portage Bay watershed		Drayton Harbor watershed	Countywide
	Bertrand sub-basin	Kamm sub-basin		
Number of dairy facilities (end of quarter)	14	7	9	111
Number of dairies with fields in watershed	21	11	11	
Number of inspections Quarter 3, 2014				
Initial	0	0	0	3
Routine	0	0	0	5
Lagoon/gutter assessments	11	7	3	55
Referrals to Ecology or County Health	0	0	0	1
Technical assistance	0	1	0	0
Investigation	1	0	0	4
Follow-up	0	0	0	2
EPA	1	0	0	3

In August, WSDA mailed a letter to dairy producers operating in priority areas to inform them of elevated fecal coliform concentrations measured in area waters and the apparent relation of the high bacteria levels to land application of manure.

Bertrand sub-basin -

- DNMP inspectors emphasized preparedness for the fall and winter rainy season. In September inspectors visited almost every dairy facility and waste storage pond (lagoon) in the Bertrand and Kamm sub-basins to assess status of roofwater diversion and storage capacity. Staff visually inspected 105 waste storage facilities (lagoons and storage tanks) and planned follow-up with producers when concerns were noted.
- Inspectors confirmed that two dairy producers made improvements to their facilities to protect water quality. One dairy enclosed a ditch immediately adjacent to a production area to ensure polluted runoff does not reach the surface water. The other dairy installed gutters to re-direct clean roof water away from an area that collects runoff and conveys it to the waste storage lagoon. Diverting clean water away improves storage capacity for manure-contaminated runoff. Efforts continue to try to identify the source of ongoing high fecal coliform results downstream of this dairy.

- An inspector walked fields with dairy producers in the Jackman Ditch drainage to discuss manure application risk management such as adequate setbacks, proper timing of applications, use of weather forecasts prior to and after manure applications and attention to proper pasture management protective of water quality.



Dairy Nutrient Management Program inspector with a producer during a field walk

Kamm sub-basin -

- DNMP staff referred two dairies to Whatcom Conservation District for technical assistance. Assistance resulted in one dairy correcting a self-reported pollution discharge. The other dairy made field tile/drainage improvements after DNMP staff investigated in follow up to observations made during an aerial overflight. Both referrals led to pollution source correction without enforcement.

Enforcement summary -

Negotiated penalty settlements -

- In mid-August, WSDA issued a \$6,000 penalty to a dairy in the Terrell Creek/Birch Bay watershed for an April 2014 pollution discharge due to manure improperly stored in a silage bunker. This penalty was in addition to a \$24,000 penalty issued to the same dairy for separate pollution discharges earlier in the year. A settlement negotiation this quarter reduced each penalty to \$2,000. The settlement requires the dairy to take specific actions to prevent future pollution discharge and to notify WSDA and Whatcom County if a discharge occurs. Failure to abide by terms of the settlement will result in the dairy being required to pay the \$26,000 (\$22,000 from penalty #1, and \$4,000 from penalty #2) remaining in the original penalty amounts. In the case of another pollution discharge, WSDA could assess a new penalty.
- WSDA reached a settlement agreement with another dairy for a March 2014 pollution discharge in the Fishtrap sub-basin (lower Nooksack/Portage Bay watershed). The settlement reduced the dairy's penalty from \$4,000 to \$2,000. The settlement requires the dairy to document weather and weather forecasts at the time of each land application of manure and to repair and maintain gutters and operate the dairy to prevent future pollution discharges. Failure to abide by terms of the settlement will result in the dairy being required to pay the \$2,000 remaining in the original penalty amount. In the case of another pollution discharge, WSDA could assess a new penalty. DNMP staff worked with agencies having jurisdiction for ditch maintenance (City of Lynden, Whatcom County and Washington Department of Fish & Wildlife) to try to have sediment build-up in the Benson Road ditch excavated to improve flow conditions.

Notice of Correction issued for -

- March manure solids application to a saturated field in Dakota Creek drainage (Drayton Harbor)
- April manure application to saturated fields in the Kamm Creek drainage (Sumas)
- May manure application to saturated fields in the Tenmile Creek drainage (Lower Nooksack/Portage Bay)

Warning letters issued for -

- May manure application to saturated field and not maintaining adequate setbacks from surface water in California Creek drainage (Drayton Harbor)
- May manure application without adequate setback from surface water in Scott Ditch drainage (Lower Nooksack/Portage Bay)
- Inadequate roofwater diversion noted during August routine inspection (Sumas)

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

Follow-up on high fecal coliform bacteria results

WCHD investigated four properties to determine whether the on-site sewage systems (OSS) could be contributing to consistently elevated bacteria levels measured at site TribDak3d and increasing bacteria levels between two other locations:

- Flow tests indicated proper functioning of the OSS on three properties. One property did not have a structure or OSS.
- Public Works staff determined livestock were fenced away from surface water upstream of TribDak3d. Staff walked the creek and found three raccoon latrines and other evidence of raccoon activity. The landowner reported presence of 10-12 raccoons on the property; the raccoons regularly feed on pet food the landowner makes available outdoors. Public Works staff plans to work with the landowner to discourage supplemental feeding of raccoons, as artificial feeding tends to concentrate raccoons in a small area. The unnatural concentration and overcrowding has resulted in pollution of the small waterway and can spread disease and parasites.

WCHD activity summary					
Watershed	# of ROSS* - 3rd Qtr	ROSS— maintenance needed	ROSS - Failures	Failures Repaired	Total # OSS
Bertrand/Fishtrap	7	3	0	n/a	1007
Kamm	5	1	1	0	224
Drayton Harbor	216	45	2	0	3094

* ROSS = Report of System Status

WCHD received referrals during 2nd quarter from WSDA Dairy Nutrient Management Program and from Ecology inspectors regarding potentially polluting OSS. Follow up during 3rd quarter for these systems included:

- Barnhart Road property 1 (Bertrand Creek drainage) - After multiple request by WCHD for landowner to allow survey of OSS, the landowner has not responded. Functional status of the OSS is unknown.
- Barnhart Road property 2 (Bertrand Creek drainage) - After WCHD staff found sewage surfacing in a localized area at the end of a OSS mound, the owner had a licensed professional repair the drainfield in July. WCHD performed a satisfactory flow test to confirm the repair.
- Jackman Road (Bertrand Creek drainage) - WCHD continued work with a property owner to ensure proper function and permitting of an inadequate OSS for an accessory structure. The owner installed a new tank and submitted a satisfactory Report of System Status (ROSS) in late September.
- Van Buren Road (Sumas River drainage) - WCHD confirmed that livestock access to the pressure mound drainfield had damaged the system. A contractor is working with the landowner to re-establish the system's cover material and install fencing to prohibit future livestock access.
- Grandview Road (Terrell Creek drainage) - WCHD confirmed that the property's washing machine was plumbed into the sewage transport line and directed to the septic tank instead of the yard.

Based on high fecal coliform bacteria sampling results, WCHD received five referrals for potentially polluting OSS in the lower Dakota Creek focus area during 3rd quarter. WCHD contacted the properties in August to request an OSS survey to ensure proper system function. As of the end of 3rd quarter, only one property had responded to the request. A flow test for that property's OSS showed no signs of surfacing sewage. WCHD will deliver a second request letter to the other properties of interest. If WCHD receives no response to the second request, Administrative Hearings will be scheduled.

OSS Operation & Maintenance (O&M) homeowner trainings & financial assistance

A total of 52 homeowners completed the County's Homeowner Online Septic Training and submitted certification to WCHD. WCHD conducted two homeowner training workshops, with 33 homeowners attending. One workshop was held in the Drayton Harbor watershed and one workshop was hosted by the Whatcom County marine Resources Committee in the Northern Chuckanut Bay watershed. Landowners who attended the O&M workshops were eligible to receive a rebate to help with costs of subsequent OSS evaluation and maintenance activities.

Public Works processed twenty-four rebates for OSS maintenance, including 13 evaluations by certified OSS

inspectors, 9 septic tank pumpings, and installation of O&M equipment (e.g. risers and lids, baffles) on 3 septic systems. Five rebates were approved for landowners in the Drayton Harbor focus areas.

3. EDUCATION & OUTREACH

[Whatcom Clean Water Program website](http://www.ecy.wa.gov/water/whatcomcleanwater/) - (<http://www.ecy.wa.gov/water/whatcomcleanwater/>)

Partial closure of Portage Bay shellfish harvest: As reported last quarter, spring fecal coliform sampling results in Portage Bay were very high. With those results added to the dataset, some of the marine monitoring stations are failing to meet the federal standard to allow commercial harvest. The federal water quality standard is established to protect the health of the people who harvest and eat the shellfish.

As a result of poor marine water quality, Lummi Nation announced in September the tribe's voluntary closure of 335 acres of Portage Bay tribal shellfish harvest area. The Washington Department of Health (DOH) and Lummi Nation continue to gather monthly fecal coliform bacteria data from Portage Bay. During DOH's annual growing area review process in early 2015 and in consultation with Lummi Nation, DOH will analyze data through 2014 and determine the official extent and degree of the Portage Bay shellfish harvest downgrade.

Drayton Harbor Shellfish Protection District Advisory Committee: The Drayton Harbor Shellfish Advisory Committee submitted a letter to the County Council in July 2014 regarding the Whatcom County Water Action Plan. The committee's letter recommended:

- Securing a dedicated local funding source for pollution identification and correction work;
- Continuing fecal coliform monitoring to identify pollution sources;
- Increasing capacity to follow up on high fecal counts;
- Continuing the on-site sewage systems (OSS) operation & maintenance (O&M) program in the Drayton Harbor watershed; and,
- Emphasizing landowner participation in the Critical Areas Ordinance - Conservation Planning on Agricultural Lands program.

Staff from DOH and Washington Department of Fish & Wildlife discussed with the committee the opportunity to seasonally reopen recreational shellfish harvest at Drayton West beach. Committee members and local organizations/volunteers will need to assist with signage and monitoring harvest.



Three generations of the Drayton Harbor Oyster Co. shuck oysters during the September Oysterfest event at Bellewood Acres.

Portage Bay Shellfish Protection District (PBSPD) Advisory Committee: The PBSPD Advisory Committee agreed to recommend to Whatcom County Council that the Council designate the area within the PBSPD as a marine recovery area (MRA). Designation as a MRA would allow the County to require residents within the district who own on-site sewage systems (OSS) to follow operation and maintenance evaluation requirements called for by state law and county code. There are an estimated 13,000 OSS in the District, with 7,000 systems in the lower Nooksack River watershed.

Pollution Identification and Correction (PIC) Resolution: Public Works staff presented a resolution to Whatcom County Council to adopt the local PIC program. The County Council approved Resolution 2014-305 on September 30, 2014.

Local funding request to DOH:

Public Works coordinated with County Health, County Planning & Development Services, and with Whatcom Conservation District to develop and submit a funding proposal to DOH. The proposal seeks additional National Estuary Program funding to enhance County PIC program coordination, contact with individual land-owners and local regulatory resources related to bacteria PIC work. Public Works and DOH continued to negotiate a scope of work aligned with fecal pollution reduction goals and responsive to tribal comments.

Pollution Identification & Correction (PIC) database and property follow up in focus areas:

Public Works created a database to track the progress and status of individual land-owner contacts and outreach activities related to PIC work. Whatcom County is developing a local, consistent process for how PIC program related follow-up will occur with properties in PIC focus areas.

Oysterfest Northwest: Local and regional organizations partnered on September 6th with Bellewood Acres to coordinate and host an Oysterfest Northwest event to kick-off Whatcom Water Weeks. The event included local oysters and clams, displays about local water quality related programs, and activities for kids.



Attendees at the September Oysterfest at Bellewood Acres line up for oysters, steamed clams, mussels and chowder.

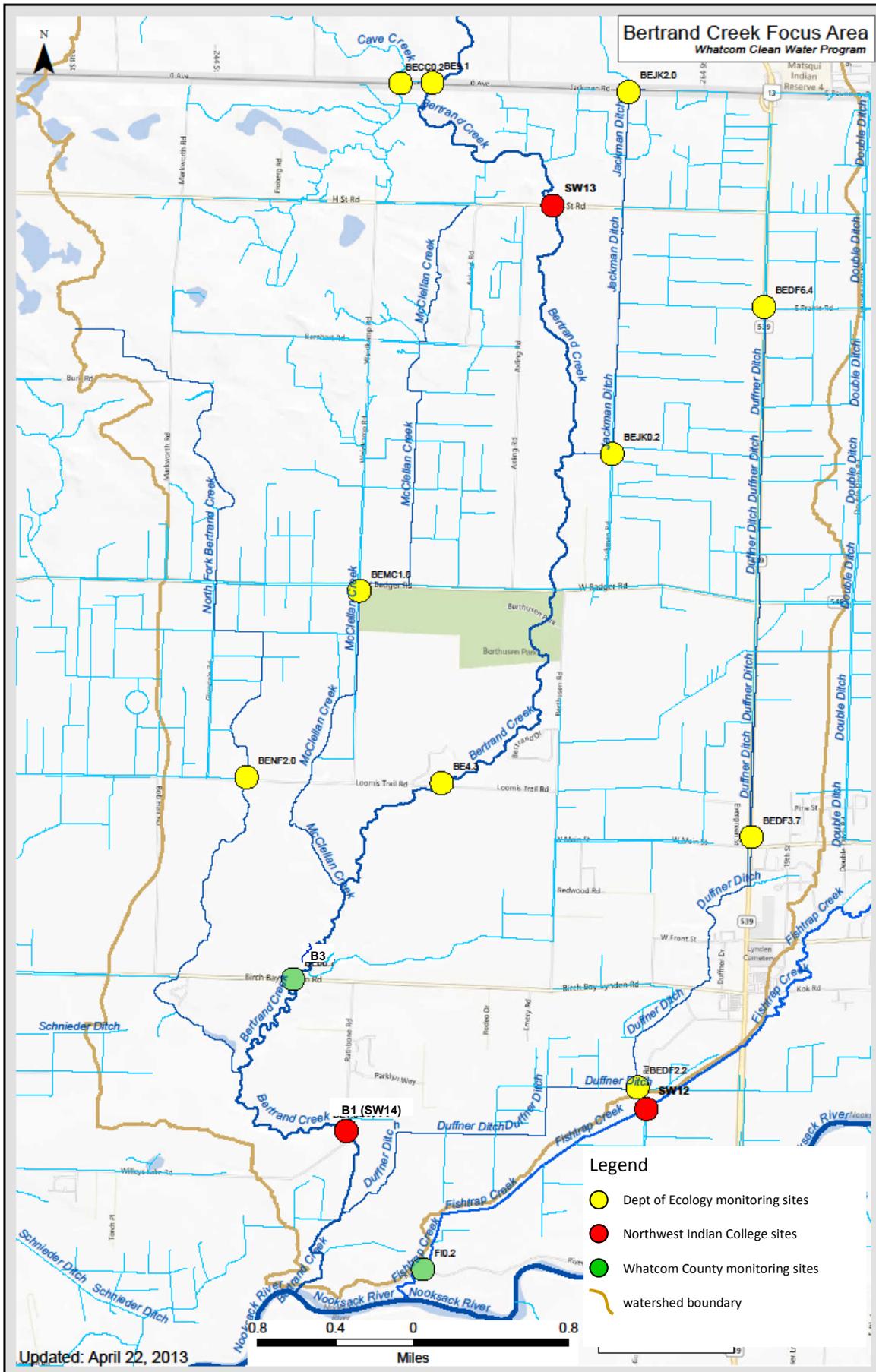
Over 300 participants attended the Oysterfest to enjoy the food gifts from local bays. Members of both the Drayton Harbor and the Portage Bay shellfish protection district advisory committees attended and assisted with the event.

Pollution Identification & Correction (PIC) program brochure, display, and website: For the Oysterfest, Public Works staff developed a brochure and an educational display about bacteria PIC efforts. Public Works will use these materials, along with a new Whatcom County [Pollution Identification and Correction program webpage](#) as County PIC work begins direct contact with livestock owners in the focus areas.

Dairy tour: Washington Department of Agriculture (WSDA) Dairy Nutrient Management Program (DNMP) staff coordinated a mid-September tour of Twin Brook Creamery for public information officers from WSDA and Washington Department of Ecology.

Livestock related fecal coliform bacteria pollution presentations: WSDA DNMP and Ecology staff developed a presentation about livestock related fecal bacteria pollution in Whatcom County. The presentation was based on field observations and work during the year in focus areas of high fecal counts prioritized for bacteria pollution reduction efforts.

Staff delivered the presentation at a Whatcom County Council Surface Water Work Session in late September. DNMP and Ecology staff delivered a similar presentation in late August to the Portage Bay Shellfish Protection District Advisory Committee in response to the committee's invitation to report on what the two agencies were finding related to correctable sources of livestock-related pollution.



**Appendix Figure 1. Washington Department of Agriculture
Dairy Nutrient Management Program (WSDA DNMP)
supplemental fecal coliform sampling results - Bertrand watershed
(Jackman Ditch, McClellan Creek and Duffner Creek)**

Bertrand Water Quality Sampling -- WSDA (FC/100ml)							
Station ID	Site Type	Lat (WGS84)	Long (WGS84)	Location Description	7/24/2014	7/30/2014	9/26/2014
24 hr precipitation (Inches)					0.76	0.00	0.30
Jackman							
JD-2.0*	STM	49.002136	-122.501128	Jackman ditch at border, south side of Zero Avenue. Accessed from private property US side.	1,400	210	2,800
JDSI-7	SIS	48.998973	-122.501241	Between dairy and residential on Jackman Ditch		200	
JDSI-4 (DH-LAT)	SIS	48.997129	-122.501329	Above lateral ditch coming from lagoon area	2,200	280	
JD-1.73	SIS	48.996874	-122.501341	30 feet South of lateral ditch coming from between lagoons East of Jackman road	1,700	210	
JD-1.5*	STM	48.993533	-122.501447	30 feet north of H street on the east side of Jackman road.	1,100/1,000	200	520
JD-1.45	SIS	48.993288	-122.501454	South side of H Street Road, Jackman ditch at culvert opening		460	
FB-LAT	SIS	48.986421	-122.501591	30 feet north of lateral, at Jackman ditch	1,100		
JD-1.0	SIS	48.986158	-122.501599	Below lateral, east side of Jackman Rd.	1,100		160/120
JDSI-5	SIS	48.983666	-122.501678	Between dairy facilities on Jackman Rd.		460	
JDSI-3	SIS	48.982762	-122.501689	0.73 mi upstream of mainstem. Upstream of lateral ditch, below driveway.		2,100	
JD-0.6	SIS	48.981067	-122.501716	0.6 mi upstream of mainstem. Upstream of lateral ditch		700	
JD-0.38*	STM	48.977625	-122.501844	0.38 mi north of Jackman Road bridge, east side of Jackman road across from power line pole.	1,600	560/1,100	98
JD-0.2*	STM	48.974964	-122.502042	Jackman Road bridge, sampled from bank with pole on west side of Jackman Road.	2,000	2,100	18,000
JD-F1.1	STM	49002181	-122.490069	ditch flowing south from mushroom fam at border, 25 feet south of Zero ave, accessed from US side			7,300
JD-F0.5*	STM	48.993478	-122.490650	30 feet north of H Street at lateral ditch south of BC mushroom farm. Sampled from west bank of ditch.	2,100	3,600	220
JD-F0.0*	STM	48.993422	-122.501286	30 feet east of Jackman Road on the north side of H Street	2,700/2,700	4,400	16
Duffner							
DF-1	SIS	48.934513	-122.491927	East side Duffner bridge on BayLyn Dr.	2,900		
DF-3	SIS	48.927937	-122.497262	Duffner ditch before confluence and turn at city stormwater	2,100		
McClellan							
MC0.0*	STM	48.983195	-122.538471	downstream of pond drains, at culvert opening on north side of Barnhart Road.			1,100

STM = Short Term Monitoring Stations

SIS = Source Identification Sampling

Green = WQ sampling results below 100 colony forming units per 100 ml (CFU/100ml)

Yellow = WQ sampling results between 100-200 CFU/100ml

Red = WQ sampling results above regulatory limit, 200 CFU/100ml

