

Annual Report to Washington State Department of Health Drayton Harbor Shellfish Protection District 2008

Efforts continue in the Drayton Harbor Shellfish Protection District to affect change in the water quality over the shellfish beds and throughout the district as a whole. The following is a summary of 2008 activities organized by the objectives of the shellfish recovery plan. The summary includes both on-going tasks and progress made on specific recommendations identified in the 2007 plan and the 2008 work plan.

Objective 1: Establish Coordinated Program for Drayton Harbor

- Program Support: Whatcom County Public Works has one FTE and an annual budget of \$85,000 to apply to marine resources projects. Staff time and resources are primarily applied to the two shellfish protection districts. Staff time is dedicated to technical and administrative support to the advisory committee, coordination with the advisory committee and agencies, reviewing and analyzing water quality data, coordinating response to high bacteria counts, and developing and managing projects, contracts, and grants. It is estimated that approximately 20-30 hours per week of Public Works Natural Resources staff time was dedicated to Drayton Harbor shellfish projects in 2008.
- Advisory Committee: The Drayton Harbor Shellfish Advisory Committee generally meets every other month.
- Grant Funding Sources: Whatcom County Public Works (on behalf of the Drayton Harbor Shellfish Protection District) partnered with Whatcom County Health and the Whatcom Conservation District to submit grant proposals for Centennial Clean Water Funds for two programs that would target priorities of the Drayton Harbor SPD. These proposals included an outreach and financial assistance program for the on-site sewage system operation and maintenance program and an outreach and cost-share program for land owners with small farm to assist in developing and implementing farm plans.
- *Milestones Reached:*
 - County staff and budget dedicated to shellfish district for 2008.
 - Six advisory committee meetings in 2008 and multiple project meetings.
 - Two grant/loan applications were submitted. One of the projects is currently ranked to receive loan funds (OSS Financial Assistance).

Objective 2: Identify Pollution Sources and Monitor Water Quality

- DOH Ambient Data: Whatcom County shellfish staff reviewed DOH marine water quality data on a monthly basis to evaluate patterns in water quality and provide updates to advisory committee members. This review assists in determining areas of focus for follow up monitoring and actions in the watershed.
- Long-Term Water Quality Monitoring: Whatcom County contracted with the Northwest Indian College to continue monthly water quality monitoring at ten freshwater locations throughout the Drayton Harbor watershed to extend the long-term monitoring that began in 1998. An interlocal agreement to continue this work in 2009 is being established. The 2008 budget for this project was approximately

The following table summarizes results for fecal coliform analysis in 2008. Twelve samples were collected at each site in 2008, with the exception of the Cain Creek outfall which did not have flow in September. Seven samples were collected during the wet months (January-April, October-December) and five samples were collected during the dry months (May-September). The Dakota Creek sites met water quality standards for geometric mean of fecal coliform, however all sites exceeded the standard for the 90th percentile. The California Creek sites also met the standard for fecal coliform

geometric means, however all sites except C1 exceeded the 90th percentile standard. In general, California and Dakota Creek geometric means for the wet season were higher than for dry months, indicating that bacteria concentrations in these subwatersheds may be more impacted by rainfall events and soil saturation. However, stations C3 and D3 had higher geometric means in the dry season. Cain Creek, which discharges to Semiahmoo Bay and is classified as extraordinary for aquatic uses, is at or exceeded both geometric mean and 90th percentile standards in 2008. Cain Creek also appears to have higher bacteria concentration in the wet months, versus the outfall site, which had higher counts during the dry months.

Watershed	Site	Annual Geomean (n=12)	% Samples Exceeding 200fc/100mL	Dry Season GM (n=5)	Wet Season GM (n=7)
Dakota	D1 (mouth)	51.7 ↓*	25%	38.9 ↓	63.2 ↓
Dakota	DG	60.9 ↓	25%	59.7 ↓	61.8 ↓
Dakota	D2	50.4 ↑	25%	46.1 ↓	53.6 ↑
Dakota	D3	75.3 -	25%	84.5 ↑	69.4 -
Dakota	D4	48.9 ↑	17%	31.2 ↓	67.5 ↑
California	C1 (mouth)	60.2 ↑	8%	35.9 ↑	87.1 ↑
California	C2	79.0 ↑	25%	82.0 ↑	77.0 ↑
California	C3	95.3 -	33%	210.4 ↑	54.1 ↓
Cain**	CC (mouth)	49.7*** ↓	33%	25.8 ↓	79.3 ↓
Cain	CCO (outfall)	301.0 ↑	73%	379.4 ↑	263.7 ↑

* Greater than 5% increase (↑) or decrease (↓) in geometric mean from 2007 to 2008.

** Cain Creek is classified as extraordinary for aquatic uses, therefore standards are geometric mean of 50 fc/100mL and 90th% of 100 fc/100mL.

*** N=11, no flow in September.

- TMDL Study Support: The Washington State Department of Ecology (DOE) began implementing the Drayton Harbor TMDL study in December 2007. Whatcom County Public Works staff assisted with water quality sample collection and stream flow measurements at the California Creek watershed sites from December 2007 through February 2008. In February 2008, Hirsch Consulting Services took over this work through a contract with Public Works. Between January and December 2008, routine samples have been collected at twelve sites within the California Creek watershed during twenty-one sampling events. (During the dry season, samples were not collected at some sites due to no flow.) DOE has prepared quarterly reports summarizing sampling results. While the data and analysis are preliminary at this stage and subject to change, some general patterns observed by DOE (Mathieu 2009) are:
 - 32 of 36 sites exceeded water quality standards.
 - A large decrease in FC counts at the tidally-influenced sites on Dakota and California Creeks were observed from the wet to dry season.
 - FC counts increased during the dry season at the majority of mainstem and tributary sites in the California and Dakota Creek systems.
 - High FC counts were observed in the Cain Creek system.
- MST Pilot Project: The first phase of the pilot microbial source tracking project was completed in early 2008. Results received from the Environmental Protection Agency (EPA) and Institute for Environmental Health (IEH) and technical meetings were held to review the results and determine next steps in the pilot project. A final report summarizing the methods and results was written by Hirsch Consulting Services in December 2008. A copy of the report was mailed to DOH and other participating agencies in February 2009. The report abstract is attached as Appendix A. Twelve sites in the Drayton Harbor watershed were selected for the second phase of the pilot which included five additional sampling events (collected between September and December 2008) that will be analyzed by the EPA using the PCR methodology.

- **High Bacteria Response Strategy:** In an effort to clearly tie water quality monitoring together with follow up actions in priority drainages, Public Works worked with County Health and Planning and Development Services (PDS) to develop and adapt a response strategy for high bacteria counts. Three thresholds were established that are used to review water quality data and guide the County's follow up actions. The response strategy also outlines the roles that each department will take in follow up actions including delineation and characterization of drainage areas, monitoring, community outreach, OSS surveys, and CPAL outreach and compliance. In addition, Public Works notifies the City of Blaine, DOE and Washington State Department of Agriculture (WSDA) when high bacteria counts are observed. The response strategy is being adapted as successes and challenges are met. Additional details for activities under the response strategy are included in Appendix B.
- **Blaine Harbor Monitoring:** The Port of Bellingham has continued the marine sampling program that was a required element of the permit to expand the marina. The Port's sampling program exceeds the number and frequency of samples outlined in the permit requirements. Water quality in the marina continues to exceed the standards for bacteria.
- **Milestones Reached:**
 - *Long-term monitoring sites were sampled monthly throughout 2008.*
 - *State DOH data was reviewed monthly to guide follow up actions and provide updates to the advisory committee on marine water quality.*
 - *Coordinated with DOE to collect water samples for the Drayton Harbor TMDL study.*
 - *Implemented response strategy for follow up to high bacteria counts. Conducted follow up monitoring at sites that exceeded threshold for response (identified in response strategy).*
 - *The second phase of a pilot MST project was initiated.*
 - *The Port of Bellingham continues to sample water quality in Blaine Harbor marina.*
 - *Data collected through each of these projects is being used to prioritize areas for follow up actions.*

Objective 3: On-Site Sewage Systems (OSS)

- **OSS O&M Program:** In March 2008, the Whatcom County Council adopted the Whatcom County OSS O&M Local Management Plan. As a part of this plan, the Drayton Harbor watershed was identified as a Marine Recovery Area and is the initial area of focus for implementation of the O&M Program. In a Marine Recovery Area, all OSS must be identified and evaluated by 2012, as per DOH. There are approximately 3,000 known OSS in the Drayton Harbor watershed.
 - In June 2008, letters requiring an OSS evaluation completed by a certified inspector were sent to approximately 330 landowners within 200 feet of the marine shoreline and lower portions of Dakota and California Creeks (Shoreline Management Area). A total of 121, Reports of System Status (ROSS's) were submitted to the Health Department in 2008 in response to this mailing. A second letter of notification was sent to 72 landowners.
 - In November 2008, letters requiring a system evaluation were sent to the approximately 3000 remaining landowners in the Drayton Harbor watershed with developed properties that are not served by public sewer.
 - As of January 2009, a total of 750 ROSS had been submitted to the Health Department. These included 66 evaluations completed for property transfers and 684 for routine compliance with the O&M program. Findings included 562 satisfactory systems, 168 with maintenance needed, and 20 failing systems (approximately a 3% failure rate). Maintenance needed status can indicate a full range of maintenance issues, such as septic tank needs pumping, broken baffles, traffic or livestock over drainfield, and outlet filter needs cleaning. Each of these maintenance items, if not addressed, will likely lead to the failure of the OSS. The Health Department

reviews all evaluations and the recorded operational status of the OSS may differ from the ROSS submission.

- Follow Up to Water Quality Monitoring: Public Works coordinates with Environmental Health to identify priority drainage areas for immediate system evaluations when high bacteria counts have been observed. Between March and August 2008, Environmental Health had a part-time staff position dedicated to surveying OSS in priority drainages identified through water quality monitoring efforts and results of the MST pilot project. In this five month period, 78 landowners were contacted and 59 responded. Landowners were given the option of 1) having Health conduct a survey or 2) completing a ROSS with a certified inspector. Health conducted 42 surveys and found one failure and two systems with maintenance needed. Seventeen ROSS's were completed finding four failures and one system needing maintenance. Additionally, some OSS in shoreline drainages were targeted for surveys through high counts observed in shoreline monitoring projects. In 2008, two failing systems were identified in these drainages. Systems evaluated in priority drainages identified through water quality monitoring had approximately a 13% failure rate.
- Milestones Reached:
 - *Approximately 3330 letters initiating ROSS sent to watershed landowners.*
 - *54 previously undocumented OSS verified.*
 - *750 completed ROSS in Drayton watershed.*
 - *61 OSS surveyed or evaluated in priority drainages (17 ROSS included above).*
 - *168 systems identified with maintenance needed and repairs initiated.*
 - *20 failing systems identified and repairs initiated or completed.*

Objective 4: Control Urban Stormwater Sources

- Pilot Stormwater Retrofit Project: The City of Blaine contracted with an engineering firm to complete 90% design plans for the stormwater retrofit project. The city began negotiations with BNSF Railroad for a permit to construct the stormwater treatment cell in BNSF right-of-way.
- Monitor Water Quality in West Blaine: The Whatcom County Marine Resources Committee continued to implement a volunteer water quality monitoring program in 2008. The five sites along the southwestern shoreline of Drayton Harbor were sampled monthly (except during times of no flow) throughout 2008. A summary of the results of this sampling program is included as Appendix C. Additional sampling of outfalls discharging to the harbor was conducted through the shoreline element of the Drayton Harbor TMDL study.
- Milestones Reached:
 - *Completed 90% design for stormwater retrofit project.*
 - *Implemented a volunteer water quality monitoring program at five shoreline sites on the southwestern shoreline of the harbor.*

Objective 5: Blaine Municipal Sewage Sources

- WWTP Improvements- In March 2008 City of Blaine completed installation of a 400,000 gallon detention tank under Marine Drive replacing temporary bladders that were being used to avoid sewage overflows during large rain events. In June 2008 the City began construction on the Lighthouse Point Water Reclamation Facility funded by USDA, Department of Ecology, and Public Works Board grants and loans. The Final phase of major capital improvement will be to construct the pumps and piping to transport flows from the western part of the City (Semiahmoo) so that all the City wastewater flows are being treated at the new plant and the old plant can be decommissioned. That design will begin in March 2009.
- Reduce Inflow and Infiltration (I&I)- The City of Blaine continued to implement their systematic evaluation of the municipal sewer system to reduce inflow and infiltration issues.

- Evaluate Effluent Dispersion and Dilution Rates- The Department of Health worked with the Nooksack Tribe and city of Blaine to complete an evaluation of effluent dispersion and dilution rates with consideration of changes that would occur with the upgrade of Blaine's wastewater treatment plant.
- Milestones Reached:
 - *The City of Blaine has completed construction of a 400,000 gallon permanent equalization tank in advance of the mail Lift Station on Marine Drive. This will protect the system from overflow in a location where overflows historically occurred.*
 - *The City has begun construction of the Lighthouse Point Water Reclamation Facility which will ultimately replace the existing treatment plan on Semiahmoo Spit. Construction is scheduled to be completed in the spring of 2010.*

Objective 6: Agriculture

- Critical Areas Ordinance- Conservation Program on Agricultural Lands (CAO-CPAL): Whatcom County and the WCD entered an interlocal agreement in December 2007 providing the framework for the roles each agency filled in 2008 to provide technical assistance to landowners with small farms in order to gain compliance with the CAO. The County has dedicated \$110,000 in funding to the WCD through 2008 for technical assistance to landowners. Staff from the two agencies worked collaboratively to develop outreach and education materials; develop farm planning templates; and develop a database, tracking system, and violation referral protocols.
 - County Contacts: Countywide, County staff made contact with 206 landowners regarding small farm BMPs. Of these, 96 contacts (45.5%) were made within the Drayton Harbor watershed.
 - Conservation District Workshops: The WCD organized and hosted six small farm workshops in 2008 with 245 landowners participating.
 - Conservation District Technical Assistance: Countywide, the WCD provided technical assistance to 188 landowners with small farms in 2008. There were 96 contacts generated through the County's CPAL efforts and 92 contacts generated through WCD outreach efforts. Thirty-three landowners in the Drayton watershed have been working with the WCD on farm plans.
- Technical Assistance to Commercial Farms- WCD staff provides technical assistance to commercial dairies in the Drayton Harbor watershed, including engineering design, cost-share related assistance, nutrient management plan updates, and other technical assistance based upon:
 - A producer's willingness to work with the CD;
 - Enrollment in cost share program to fix existing problems;
 - Availability of funds to staff technical assistance program. The Washington Conservation Commission provides limited funding to WCD to work with commercial agriculture producers. There is a long list of referrals, however, with limited funding the district is unable to help all in a timely manner. There are 125 commercial dairies in Whatcom County, with about 8% of dairy land in the Drayton Harbor watershed.
- Nutrient Management Plan Inspections- The Washington Department of Agriculture is the lead agency in inspecting dairies and permitted livestock facilities. In 2008, a total of eight routine inspections, three follow up inspections, six investigations, one technical assistance inspection, and seven other inspections were conducted in the Drayton Harbor watershed. All dairies with land or facilities in the Drayton Harbor watershed were inspected at least once in 2008. Two of the eleven dairies went out of business in 2008. Enforcement actions in the district included four warning letters and two notices of violation. In response to identified high bacteria counts observed through the Drayton TMDL study, the MST pilot project, and other County water quality monitoring efforts, WSDA also conducted drainage tours and sometimes did follow up water quality sampling. Additionally, WSDA sent an informational letter to all dairies in the South Fork Dakota Creek

subwatershed in August about water quality trends, the TMDL study, and WSDA follow up activities occurring in their drainage. Greater detail is provided in Appendix D.

- Milestones Reached:
 - *Interlocal agreement between Whatcom County and Whatcom Conservation District implemented to provide a proactive program to reach landowners with small farms and provide technical assistance to gain CAO compliance.*
 - *Nutrient Management Plan inspections were conducted at all dairy facilities and land in the watershed.*
 - *Informational letter sent to all dairies in the South Fork Dakota drainage about water quality and follow up actions by WSDA.*
 - *Workshops for landowners with small farms had 245 participants and are leading to additional workshops.*
 - *Contacts were made with 96 landowners with small farms in the Drayton Harbor watershed. There are 33 landowners in the watershed working with the WCD on small farm plans.*

Objective 7: Boats and Marinas

- **Street Sweeping and Dock Cleaning:** The Port periodically conducts street sweeping and dock cleaning around the Blaine Harbor facilities.
- **Stormwater:** Stormwater management language was included in the 2008 Wharf District Master Plan.
- **Routine Reporting of Marine Sanitation Devices (MSD):** Port staff inspects the MSDs of new liveaboards. Eight new liveaboards were inspected in 2008. All inspected liveaboards had type III MSDs and the holding tanks y-valves were zip tied shut. In one case, there was no y-valve, so a blocking plate was installed on the switches to avoid accidental discharge.
- Milestones Reached:
 - *All new liveaboards were inspected to ensure no discharge from holding tanks.*

Objective 8: Other Recommendations

- **Community Involvement and Education:** Completed and distributed an eight-page “State of the Watershed” newsletter to all watershed residents. The newsletter includes a watershed description; water quality, water quantity, and habitat issues; solutions that address these issues and opportunities for community members to become involved.
- **Community Involvement and Education:** Developed a distributed drainage-specific fact sheets for priority drainages identified through water quality monitoring. These fact sheets were distributed to landowners in these drainages contacted about OSS and small farm BMPs. An example is included as Appendix E.
- Milestones Reached:
 - *Printed 6,000 watershed newsletters. Approximately 3,000 were sent to watershed residents. The remaining newsletters will be distributed at various locations and events around the community.*
 - *Printed and distributed drainage fact sheets to landowners in seven priority drainages.*

Summary of County's Estimated Expenditures in 2008

Project	Budget	Mechanism
DH Long-term monitoring	\$5,700	Interlocal agreement with NWIC
DH TMDL study support	\$21,800	Contract with HCS, PW staff
MST Pilot- Phase 2	\$6,300	Contract with HCS
Follow up monitoring	\$1,000	Avocet- lab analysis, PW staff
Response strategy- OSS	\$18,500	Interdepartmental agreement PW/Health
Pilot stormwater retrofit	\$16,200	Grant/ interlocal agreement with City of Blaine
MRC volunteer monitoring	\$2,200	Grant/ Edge- lab analysis, PW staff
Watershed newsletter	\$4,700/ \$1,000	Contracts with Cascadia and Lynden Tribune for design, printing and mailing/ PW staff content development through MRC grant
2008 Totals	\$77,400	* This does not include a budget estimate for county staff wages and benefits.
----- CPAL Program and Technical Assistance	\$110,000 (countywide)	----- Interlocal agreement with WCD (approximately 50 % of contacts were made in DH watershed), PDS staff

Appendix A

California Creek and Drayton Harbor Microbial Source Tracking Pilot Study

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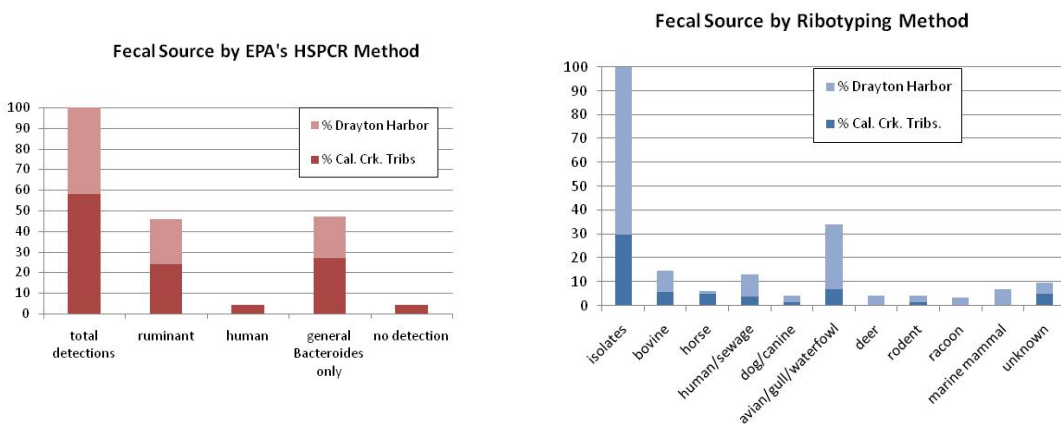
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Abstract

In 2006, the Puget Sound Restoration Fund’s Drayton Harbor Community Oyster Farm convened multiple partners to undertake a pilot microbial source tracking study. The project sampled Drayton Harbor and California Creek tributaries for analysis by *Bacteroides* host specific polymerase chain reaction (HSPCR) and ribotyping over a six month wet season. The study found widespread occurrence of human biomarkers at the four Drayton Harbor marine shellfish growing area stations tested with repeated occurrence at three sites. Cow/ruminant biomarkers were widespread at six of ten marine sites with multiple occurrences at five locations and horse biomarkers were found at two of four marine stations tested. Avian fecal sources were the most frequently detected biomarker in marine waters. Livestock and human fecal sources were identified in freshwater samples. Cow/ruminant biomarkers were found at all 8 sites tested with multiple occurrences at four. Human sources were found at 2 of 6 sites tested with multiple occurrences, and horse biomarkers were found at both sites tested with multiple occurrences. In a split-sample comparison the EPA HSPCR technique returned host specific identifications for humans and ruminants in 51% of samples tested where the IEH method returned only 14%. A cooperative effort convened among laboratories possessing primers is needed to standardize the method, make primers readily available, and make the method more accessible and useful for managers. Study results are being used by local agencies to target priority sub-drainages for corrective actions, however additional resources are needed to coordinate and follow through with measures to eliminate ruminant and human fecal sources threatening shellfish harvest. Strengthening of current legislation may be needed to facilitate remediation of fecal pollution sources.



Acknowledgements

This project would not have been possible without the cooperation, coordination and in kind donations of multiple partners. Many thanks to; Whatcom County Public Works – Natural Resources for payment of laboratory costs, to the Trillium Corporation for financial project support, to the EPA Region 10 Laboratory for in kind donation of laboratory analysis, to Whatcom County Health, the Port of Bellingham, and the Whatcom Conservation District for field assistance. We extend special thanks to Drayton Harbor Community Oyster Farm volunteers whose tireless work raised project funds and kept commercial shellfish harvest alive in Drayton Harbor.

Appendix B

High Bacteria Response Strategy

This summary of drainage specific activities is not all-inclusive, rather it is intended to broadly illustrate follow up activities and their findings. The coordination of activities between County departments and other groups and agencies is continually adapting as new challenges are identified. A general summary of activities is provided in the annual report, while this section is intended to illustrate the targeted actions in priority areas.

High Bacteria Response Thresholds for Drayton Harbor SPD

- Tier 1- Greater than 1000 FC/100mL leads to notification, field visit, and follow up monitoring.
- Tier 2- Greater than 500 FC/100mL leads to notification and review of historical data to determine if follow up monitoring is needed.
- Tier 3- Greater than 200 FC/100mL leads to notification and flagging of data to assist with reviews of data and prioritization of follow up actions.

Drainage Specific Activities

- Coastal Drainages
 - During the January 2008 TMDL storm event sampling at sites discharging to the marine shoreline, elevated bacteria levels (above 3,000 FC/100mL) were found at an outfall along Drayton Harbor Road. As follow up to these results, four parcels in the immediate drainage area were visited. The four adjacent parcels were comprised of: 2 unimproved, vacant lots; 1 brand new OSS; and 1 failure that has since been repaired. Additionally, another failing OSS was identified on a shoreline parcel to the west of this outfall. This property has been vacated until it is connected to the municipal sewer system. This drainage is adjacent to the marine station DOH 315.
 - During a November 2008 TMDL sampling run, elevated bacteria levels were observed at a small tributary in the coastal drainage between Dakota and California Creeks. All other sites during this sampling run, with the exception of Cain Creek, had bacteria levels below 200FC. An adjacent parcel is in the process of repairing an OSS. A ROSS was not submitted for this system.
 - OSS O&M Program- There have been an additional thirty-eight ROSS submitted for the coastal drainages through the routine O&M Program. Findings of these evaluations include one failure, four maintenance needed, and thirty-three satisfactory systems. The failing system is located in the drainage adjacent to marine station 315.

- California Creek Subwatershed
 - Brown/Malloy Drainage (CA14)
 - Response Thresholds: Six routine samples were collected from this site in 2008. One sample exceeded the Tier 1 threshold. All other samples were less than 200FC.
 - Monitoring and Community Outreach: While this was not one of the routine TMDL monitoring sites, Whatcom County continued to monitor this site on a monthly basis for fecal coliform when there was adequate flow. Follow up samples were collected on 5/14/08 and 5/19/08 at upstream and downstream sites of CA14 in response to fecal coliform counts exceeding 1000fc/100mL. Additionally, microbial source tracking (MST) results for this drainage indicated bacteria contributions from both human and ruminant sources. Drainage tours were conducted to characterize the drainage area, stream flow patterns, and land uses. An educational fact sheet was created for land owners in this drainage.
 - Drainage Specific OSS Follow Up: A total of 31 letters were sent to landowners in this drainage to initiate an evaluation of their OSS. By the end of August, 31 landowners responded directly to the letters. Health surveyed 30 systems and one ROSS was

submitted. There was approximately a 10.5% failure rate in systems evaluated in this drainage.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S ¹	M ²	F ³	P ⁴	S	M	F	P	
32	31	1				23 ⁵	1	4	2	10.5%

¹ S=satisfactory, ² M=maintenance needed, ³ F=failure, ⁴ P=pending, ⁵ Three systems had minor maintenance recommended.

- OSS O&M Program- There have been an additional 8 ROSS submitted for systems in this drainage through the routine O&M program. Findings included one failure, three maintenance needed, and four satisfactory systems.
 - CAO-CPAL Outreach and Compliance: Three landowners with small farms in this drainage were contacted to initiate the development of farm plans. One case is in compliance.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.

- Upper California Creek Drainage (CA15)
 - Response Thresholds: Four routine samples were collected from this site in 2008. All samples were less than 50 FC.
 - Monitoring and Outreach: This drainage was monitored at one of the routine sampling sites for the 2006-2007 California Creek Tributary Monitoring Project. While the geometric mean and 90th percentile for this site were lower than several other sites in the monitoring project, the MST pilot project ribotyping results indicated presence of a human source at this site. An educational fact sheet was created for land owners in this drainage.
 - Drainage Specific OSS Follow Up: As follow up to the MST findings, the OSS immediately upstream of this sampling site were surveyed. Additional OSS will not be surveyed until the other priority drainages have been addressed.

# OSS Contacted (May 16)	# Responses	Satisfactory System Surveys (Health)	% Failure in Systems Surveyed
3*	3	3	0%

* 3 mobile home spaces served by each system.

- OSS O&M Program: There have been an additional thirty-seven ROSS submitted for systems in this drainage through the routine O&M program. Findings included five maintenance needed and thirty-two satisfactory systems.
 - CAO-CPAL Outreach and Compliance: Follow up in this drainage was driven by the MST ribotyping results indicating a human source, thus actions focused on potentially failing OSS.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a low priority for follow up in 2009.

- Custer Drainage (CA16, TribCal5)
 - Response Thresholds: Twenty-one routine samples were collected from this site in 2008. Four samples exceeded the Tier 1 threshold, one exceeded the Tier 2 threshold, and two exceeded the Tier 3 threshold. All other samples were less than 200FC.
 - Monitoring and Community Outreach: This drainage was monitored as one of the routine sampling sites for the TMDL study as well as through the previous California Creek monitoring project. Follow up sampling to high bacteria counts observed through TMDL sampling was conducted on 7/14/08, 7/31/08, 8/7/08, and 11/17/08. On 8/7/08, additional E. coli analysis was conducted to eliminate *klebsiella* as a contributor to the

high fecal coliform results. Results indicated that *E. coli* and fecal coliform levels were very similar, eliminating *klebsiella*. Water samples were also collected upstream of the routine site during two of the follow up sampling runs and fecal coliform levels were an order of magnitude lower at the upstream site. High bacteria counts observed during the dry season in 2008 follow a similar pattern to bacteria counts seen at this site the previous two summers. An educational fact sheet was created for land owners in this drainage.

- Drainage Specific OSS Follow Up: As follow up to water quality results, 12 parcels with OSS have been contacted since November 2007 to initiate an evaluation of the system. These are parcels adjacent to the stretch of the tributary where elevated bacteria levels have been observed during summer months. Six of the landowners had a certified inspector evaluate their system and submit a ROSS to County Health. The remaining six systems were surveyed by Health staff. There were no OSS failures found in this drainage.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S	M	F	P	S	M	F	P	
12 ¹	12	5	1		1	6 ²				0%

¹Initial contact in November 2007. ² One system had minor maintenance recommended.

- OSS O&M Program: There have been an additional fourteen ROSS submitted for systems in this drainage through the routine O&M program. Findings included four maintenance needed and ten satisfactory systems.
 - CAO-CPAL Outreach and Compliance: As of December, there had not been any observation of animals adjacent to the priority segment of the tributary, thus follow up actions have focused on potentially failing OSS. One small farm landowner that may contribute to this portion of the drainage was contacted to initiate the development of a farm plan.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.
- Loomis Trail Drainage (TribCal2)
 - Response Thresholds: Twenty-one routine samples were collected from this site in 2008. Three samples exceeded the Tier 2 threshold and five exceeded the Tier 3 threshold. All other samples were less than 200FC.
 - Monitoring and Community Outreach: This drainage was monitored as one of the routine sampling sites for the TMDL study. Follow up sampling to elevated bacteria counts observed through TMDL sampling was conducted on 5/19/08. While fecal coliform levels at this site generally have not exceeded 500fc/100mL, the geometric mean and 90th percentile have been higher than other California Creek sites. An educational fact sheet was created for land owners in this drainage.
 - Drainage Specific OSS Follow Up: As a follow up to water quality results, 2 parcels with OSS were contacted by Health in this drainage. Both systems had satisfactory evaluations.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S	M	F	P	S	M	F	P	
2	2	1				1				0%

- OSS O&M Program: There have been an additional fourteen ROSS submitted for systems in this drainage through the routine O&M program. Findings included three maintenance needed and eleven satisfactory systems.
- CAO-CPAL Outreach and Compliance: As a follow up to water quality results, PDS staff conducted a field tour of this drainage and sent letters to three land owners with small farms notifying them of CAO-CPAL regulations and the required farm plan. The

WCD was also contacted by a landowner in this drainage, independent of the CPAL program, to assist with the development of a farm plan.

- Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.
- Elk Road Drainage (CA8, TribCal4)
 - Response Thresholds: Nineteen routine samples were collected from this site in 2008. Two samples exceeded the Tier 1 threshold and four exceeded the Tier 3 threshold. All other samples were less than 200FC.
 - Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study as well as through the previous California Creek monitoring project. Follow up sampling to elevated bacteria counts was not conducted due to no flow conditions upstream of the routine sampling site. Upstream sites will be sampled during the wet season when there is flow in the upper portion of this drainage if high counts are observed at the routine sampling site. An educational fact sheet was created for land owners in this drainage.
 - Drainage Specific OSS Follow Up: As a follow up to the TMDL water quality results, Health contacted all landowners with OSS in this drainage to initiate system evaluations. A total of 22 landowners were contacted with 14 having responded as of September. One failing system was identified.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S	M	F	P	S	M	F	P	
22	14	3	2	1	2	4			2	10%

- OSS O&M Program: There were three ROSS submitted for systems in this drainage through the routine O&M program. Findings included one maintenance needed and two satisfactory systems.
- CAO-CPAL Outreach and Compliance: As a follow up to TMDL water quality results, PDS staff conducted a field tour of this drainage. Four small farm landowners were contacted notifying them of CAO-CPAL regulations and the required farm plan.
- Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a low-medium priority for follow up in 2009.
- Arnie/Ham (CA3, TribCal3)
 - Response Thresholds: Fourteen routine samples were collected from this site in 2008. One sample exceeded the Tier 1 threshold. All other samples were less than 200FC.
 - Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study as well as through the previous California Creek monitoring project. Follow up sampling to elevated bacteria counts was not conducted.
 - OSS O&M Program: There have been twelve ROSS submitted for systems in this drainage through the routine O&M program. Findings included two maintenance needed and ten satisfactory systems.
 - CAO-CPAL Outreach and Compliance: Three small farm landowners were contacted in the upper watershed notifying them of CAO-CPAL regulations and the required farm plan. One case is in compliance.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a low priority for follow up in 2009.

- Arnie/Bruce (CA6)
 - Response Thresholds: Eight routine samples were collected from this site in 2008. Two samples exceeded the Tier 2 threshold and one exceeded the Tier 3 threshold. All other samples were less than 200FC.
 - Monitoring: While this is not one of the routine TMDL monitoring sites, Whatcom County continued to monitor this site for fecal coliform. Follow up sampling to elevated bacteria counts was not in 2008. However, due to the larger stream flows at this site a drainage characterization and follow up monitoring will be conducted in 2009.
 - OSS O&M Program: There have been twelve ROSS submitted for systems in this drainage through the routine O&M program. Findings included three maintenance needed and nine satisfactory systems.
 - CAO-CPAL Outreach and Compliance: Three small farm landowners were contacted in this drainage notifying them of CAO-CPAL regulations and the required farm plan.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a low-medium priority for follow up in 2009.

- Upper California Watershed (Cal 6.2)
 - Response Thresholds: Twenty-one routine samples were collected from this mainstem California Creek site in 2008. Three samples exceeded the Tier 1 threshold and five exceeded the Tier 3 threshold. All other samples were less than 200FC.
 - Monitoring: This site was monitored as one of the routine sampling sites for the TMDL study. This site was the uppermost sampling site on the mainstem of California Creek. There are several smaller drainages that discharge upstream of this site (including CA14 and CA15). In response to the Tier 1 results in October and November, the County established an upstream mainstem site and conducted follow up monitoring at several drainages. This will be continued into 2009 as a part of the routine sampling.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.

- Dakota Creek Subwatershed
 - Odell/Sweet Road Drainage (TribDak1)
 - Response Thresholds: Fifteen routine samples were collected from this site in 2008. Seven samples exceeded the Tier 3 threshold. The remaining eight samples were less than 200FC.
 - Monitoring: This drainage is currently monitored at one of the routine sampling sites for the TMDL study. Field tours of this drainage have been conducted by Public Works staff to characterize land uses within the drainage. This is a small drainage discharging directly to Dakota Creek. It has no road access upstream or downstream of the routine sampling site, thus follow up monitoring was not conducted in this drainage.
 - OSS O&M Program: There have been four failures identified in this drainage (2 upstream and 2 downstream of the sampling site).
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.

 - Harvey/Sweet Road Drainage (TribDak2)
 - Response Thresholds: Twenty-one routine samples were collected from this site in 2008. Three samples exceeded the Tier 1 threshold, two exceeded the Tier 2 threshold, and six exceeded the Tier 3 threshold. The remaining nine samples were less than 200FC.

- Monitoring and Outreach: This drainage is currently monitored at one of the routine sampling sites for the TMDL study. Field tours of this drainage have been conducted by Public Works staff to verify the TMDL sampling site, identify potential follow up sampling sites, and characterize land uses within the drainage. An educational fact sheet was created for landowners in this drainage.
- OSS Follow Up: As a follow up to elevated bacteria levels observed through TMDL monitoring, letters were sent to four landowners with OSS to initiate system evaluations. As of September, one system had been evaluated.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S	M	F	P	S	M	F	P	
4	1	1								0%

- OSS O&M Program: There have been thirty-four ROSS submitted in this drainage through the routine O&M program. Findings included two failures, six maintenance needed and twenty-six satisfactory systems.
 - CAO-CPAL Outreach and Compliance: As follow up to TMDL water quality results, PDS staff contacted five landowners with small farms (4 upstream and 1 downstream of sample site) to notify them of CAO-CPAL regulations and to initiate development of small farm plans.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a high priority for follow up in 2009.
- o Roger Rd Drainage (TribDak3)
- Response Thresholds: Twenty-one routine samples were collected from this site in 2008. One sample exceeded the Tier 1 threshold, three exceeded the Tier 2 threshold, and six exceeded the Tier 3 threshold. The remaining eleven samples were less than 200FC.
 - Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study. Field tours of this drainage have been conducted by Public Works staff to delineate the drainage and characterize land uses. Follow up monitoring was not conducted in this drainage.
 - OSS O&M Program: There have been seventeen ROSS submitted in this drainage through the routine O&M program. Findings included three maintenance needed and eleven satisfactory systems.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a high-medium priority for follow up in 2009.
- o Hoier Rd Drainage (TribDak4)
- Response Thresholds: Twenty-one routine samples were collected from this site in 2008. One sample exceeded the Tier 1 threshold, three exceeded the Tier 2 threshold, and two exceeded the Tier 3 threshold. The remaining fifteen samples were less than 200FC.
 - Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study. Field tours of this drainage have been conducted by Public Works staff to delineate the drainage and characterize land uses. Follow up monitoring was not conducted in this drainage.
 - OSS O&M Program: There have been eighteen ROSS submitted in this drainage through the routine O&M program. Findings included one failure, four maintenance needed and fifteen satisfactory systems.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.

- Valley View/McGee Drainage (TribDak 5)
 - Response Thresholds: This drainage was monitored as one of the routine sampling sites for the TMDL study. Twenty-one routine samples were collected from this site in 2008. One sample exceeded the Tier 2 threshold and three exceeded the Tier 3 threshold. The remaining seventeen samples were less than 200FC.
 - OSS O&M Program: There have been ten ROSS submitted in this drainage through the routine O&M program. Findings of these evaluations included one maintenance needed and nine satisfactory systems.
 - CAO-CPAL Outreach and Compliance: As follow up to TMDL water quality results, PDS staff contacted two landowners with small farms to notify them of CAO-CPAL regulations and to initiate development of small farm plans.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a low priority for follow up in 2009.

- North Fork West Drainage (TribDakN1)
 - Response Thresholds: Sixteen routine samples were collected from this site in 2008. Three samples exceeded the Tier 2 threshold and three exceeded the Tier 3 threshold. The remaining ten samples were less than 200FC.
 - Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study. Follow up monitoring was conducted on 3/06/08 in response to high bacteria counts. Field tours of this drainage were conducted by Public Works staff to delineate the drainage and characterize land uses.
 - OSS O&M Program: There have been six ROSS submitted in this drainage through the routine O&M program. All systems had satisfactory status.
 - CAO-CPAL Outreach and Compliance: As follow up to TMDL water quality results, PDS staff contacted three landowners with small farms to notify them of CAO-CPAL regulations and to initiate development of small farm plans.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.

- North Fork Central Drainage (NF Dak 2.5)
 - Response Thresholds: This drainage was monitored as one of the routine sampling sites for the TMDL study. Twenty-three routine samples were collected from this site in 2008. Two samples exceeded the Tier 1 threshold and six exceeded the Tier 3 threshold. The remaining fifteen samples were less than 200FC.
 - OSS O&M Program: There have been seven ROSS submitted in this drainage through the routine O&M program. Findings of these evaluations included one maintenance needed and six satisfactory systems.
 - CAO-CPAL Outreach and Compliance: As follow up to TMDL water quality results, PDS staff contacted nine landowners with small farms to notify them of CAO-CPAL regulations and to initiate development of small farm plans.
 - Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a medium priority for follow up in 2009.

- North Fork East Drainage (TribDakN2)
 - Response Thresholds: Twenty-one routine samples were collected from this site in 2008. Three samples exceeded the Tier 1 threshold, three exceeded the Tier 2 threshold, and seven exceeded the Tier 3 threshold. The remaining eight samples were less than 200FC.
 - Monitoring and Outreach: This drainage was monitored as one of the routine sampling sites for the TMDL study. Field tours of this drainage have been conducted by Public

Works staff to verify the TMDL sampling site, identify potential follow up sampling sites, and characterize land uses within the drainage. A follow up water sample was collected at the routine sampling site on 8/21/08. All upstream sites were unable to be sampled due to no flow conditions. WSDA also conducted follow up water quality monitoring in this drainage. An educational fact sheet was developed for this drainage.

- OSS Follow Up: As a follow up to elevated bacteria levels observed through the TMDL sampling, letters were sent to twelve landowners with OSS in the lower portion of this drainage. As of September, two surveys had been completed.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S	M	F	P	S	M	F	P	
12	2					2				0%

- OSS O&M Program: There have been six additional ROSS submitted for systems in this drainage through the routine O&M program. Findings included one failure, one maintenance needed and three satisfactory systems.
- CAO-CPAL Outreach and Compliance: Four small farm landowners were contacted in this drainage notifying them of CAO-CPAL regulations and the required farm plan.
- Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a high priority for follow up in 2009.

○ South Fork/Delta Line Drainage (TribDakS1)

- Response Thresholds: Fifteen routine samples were collected from this site in 2008. One sample exceeded the Tier 1 threshold, three exceeded the Tier 2 threshold, and three exceeded the Tier 3 threshold. The remaining eight samples were less than 200FC.
- Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study. Follow up sampling to elevated bacteria counts was conducted by Washington State Department of Agriculture (WSDA). Field tours of this drainage were conducted by Public Works staff to verify the TMDL sampling site, identify potential follow up sampling sites, and characterize land uses within the drainage.
- OSS Follow Up: As follow up to TMDL water quality results, Health contacted nine landowners with OSS in this drainage to initiate a system evaluation. As of September, three landowners had responded and no failures had been identified.

# OSS Contacted	# Responses	ROSS				Health Surveys				% Failure in Systems Evaluated
		S	M	F	P	S	M	F	P	
9	3					2			1	0%

- OSS O&M Program: There has been one ROSS submitted in this drainage through the routine O&M program. The system had satisfactory status.
- CAO-CPAL Outreach and Compliance: As follow up to TMDL water quality results and referrals from WSDA, PDS staff contacted nine landowners with small farms to notify them of CAO-CPAL regulations and to initiate development of small farm plans.
- Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a high-medium priority for follow up in 2009.

○ South Fork/Sunrise Drainage (TribDakS2)

- Response Thresholds: Fourteen routine samples were collected from this site in 2008. One sample exceeded the Tier 1 threshold, two exceeded the Tier 2 threshold, and five exceeded the Tier 3 threshold. The remaining six samples were less than 200FC.
- Monitoring: This drainage was monitored as one of the routine sampling sites for the TMDL study. Field tours of this drainage were conducted by Public Works staff to delineate the drainage and characterize land uses.
- OSS O&M Program: There has been one ROSS submitted in this drainage through the routine O&M program. The system had satisfactory status.

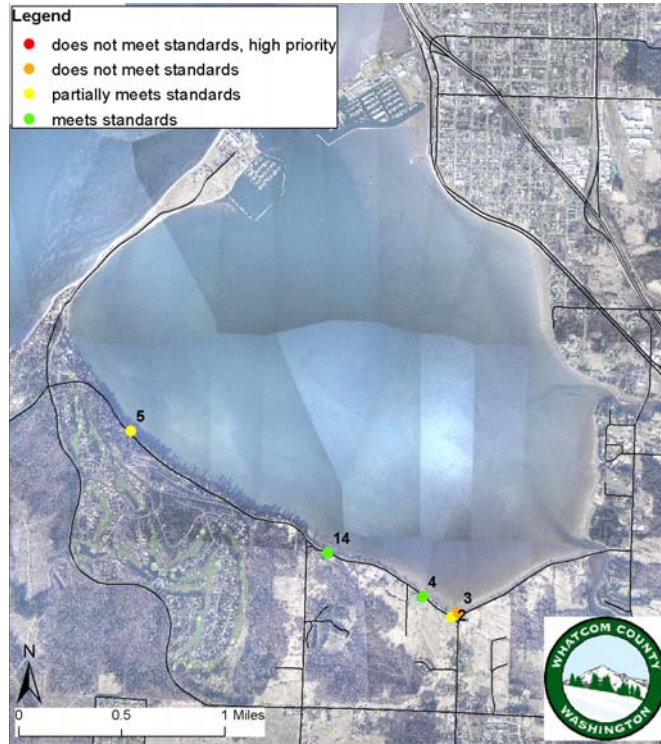
- CAO-CPAL Outreach and Compliance: As follow up to TMDL water quality results, PDS staff contacted four landowners with small farms to notify them of CAO-CPAL regulations and to initiate development of small farm plans.
- Based upon review of 2008 data for this station in comparison to water quality standards and the response thresholds, this drainage will be a high-medium priority for follow up in 2009.

Appendix C

MRC Volunteer Water Quality Monitoring Project

Drayton Harbor Water Quality Monitoring Summary

Water Quality Status 6/22/06-11/20/08



Note: Sites DH2 and DH3 locations do not show up well on this map. DH2 is approximately 20 feet east of DH3. These sites are outfalls located at the intersection of Harborview Road and Drayton Harbor Road.

Site	Number of samples	GeoMean	Minimum	Maximum	% > 200	Status
DH14	13	51	7	TNTC/250	8	●
DH2	18	9	1	740	11	●
DH3	18	109	15	4700	22	●
DH5	17	54	7	1010	24	●
DH4	9	8	1	201	11	●

Washington State Freshwater Fecal Coliform Standards for Drayton Harbor Watershed:

- Geometric mean < 100 colonies/100mL
- No more than 10% of the samples > 200 colonies/100mL

Appendix D

2008 Annual Report on WSDA Livestock Nutrient Management Program Activities in Drayton Harbor Watershed

Contact: Jason Pentzer, Inspector 360-961-7412 JPentzer@agr.wa.gov

Dairies

- 9 active dairies have their milking facilities in the watershed
- 2 additional dairies have no cows or manure storage in the watershed, but do use some land in the watershed for applications
- There are about 7,000 mature dairy animals in the watershed
- Dairies use about 4600 ac in the watershed for growing crops and making manure applications

Inspection Activity

- All dairies with land or facilities in the watershed were visited at least once by their WSDA Inspector in 2008.

Inspection activity for 2008 Calendar Year

Inspections	All Whatcom County	Drayton Harbor	Drayton Harbor % of total
Routine Inspections	64	8	13
Follow up Inspections	26	3	12
Investigations	24	6	25
Other Inspections	48	8	17
Total Inspections	162	25	15

Nutrient Management Plans

- All dairies in the watershed have had their Nutrient Management Plans certified by the Whatcom Conservation District.
- 8 of the 11 dairies with land or facilities in the watershed had been referred by WSDA to Whatcom Conservation District for plan updates at some time between 2005 and 2008. One additional facility was required to get an update in order to get its CAFO permit.
- Of these 9 dairies that were asked to get updates, all plans are now believed to be up to date:
 - 6 had updates completed to the inspector's satisfaction as of their last inspection
 - 1 still needed to update the field map at the last inspection and this has since been completed.
 - 1 had an update completed but lost the new sheets. The dairy reports they have now found the sheets and these will be reviewed at the next inspection.
 - 1 was identified as needing an update at a Sept 2008 inspection. A phone call on 2/25/08 confirmed that this dairy has already had new planning sheets and a new field map created. These will be reviewed at the next inspection.

Complaints

WSDA received 4 complaints in the watershed in 2008.

- In January, 2 complaints about land applications in California Cr drainage (see item #1 under Discharge investigations in 2008).
- In February, a complaint about cloudy water in a SF Dakota Cr tributary. WSDA collected water samples and walked drainage above complaint. No discharge found. Resulted in 3 referrals to County Planning. (Feb)
- In April, a complaint about a land application in SF Dakota Cr drainage. WSDA walked the perimeter of the field and did not verify the information in the complaint. No discharge found.

Discharge investigations

- In January and February, WSDA investigations documented potential to pollute surface water and elevated fecal coliform counts in runoff from an application of separated manure solids. The area drained to a California Creek tributary. Part of the application area had been flooded when a spring-fed field drain uphill of the application area became plugged. WSDA sent a Notice of Violation to the dairy involved. Follow-up drainage tours of the dairy's application areas have not seen similar problems repeated to date.
- In May, WSDA investigations documented elevated fecal coliform counts in runoff from a heavy use area used by young dairy animals to a ditch tributary to South Fork Dakota Cr. WSDA sent a Warning Letter to the dairy involved. The operator has since addressed this issue by moving animals to a different location and reseeded the pasture.

Follow-up to water quality monitoring

- WSDA drove SF Dakota Cr drainage in March in response to high fecal coliform results in routine monitoring.
- WSDA drove drainages and collected water samples in May in response to high fecal coliform results in routine monitoring in SF Dakota Cr, NF Dakota Cr upstream of station TribDak-N2, and upstream of CA14 in California Cr drainage. WSDA did not establish source of high counts in the specific tributaries being monitored. However, by being out in the watershed in May WSDA did find two issues for follow-up. These included:
 - heavy use area runoff in SF Dakota Cr (see item #2 under Discharge investigations in 2008)
 - potential to pollute by applying separated manure solids too close to a ditch. WSDA gave informal warnings about this practice to all the dairies making applications in the general area and better researched which farms are using which fields to aid follow-up on this issue in 2009.
- WSDA investigated in SF Dakota Cr drainage upstream of station TribDak-S2 in July and August in response to high fecal coliform counts in the TMDL monitoring results. This investigation also included walking ditches and follow-up sampling in the agricultural area upstream of the station. The investigation found that high counts continued in the tributary up to where it dried up north of Loomis Trail Rd. Upstream of that, the ditches in the agricultural area were either dried up or sample results where there was water to sample were much lower than those observed down at station TribDak-S2. A list of mailboxes in the area was sent to Whatcom County's OSS program to make sure all residents with on-site septic systems had received recent mailings.
- WSDA sent an informational letter in August to all dairies in the South Fork Dakota Creek watershed about water quality trends, the TMDL study, and recent WSDA activities in their area.
- WSDA drove the drainage and collected follow-up water samples in November in the SF Dakota Cr drainage above station SFDak-2.2.

Referrals to other agencies

In February, WSDA referred two horse paddocks and one beef pasture to Whatcom County Planning.

Enforcement

WSDA sent 4 Warning Letters and 2 Notices of Correction to dairies in the watershed in 2008.

- 1 WL issued for animal access issue in DH drainage
- 1 WL issued for high soil tests/not managing applications well in DH drainage
- 1 WL issued for heavy use area runoff discharge in DH drainage
- 1 WL in DH drainage for lagoon dike condition issues
- 1 NOC issued for potential to pollute and evidence of past discharge in DH drainage
- 1 NOC in DH drainage for lagoon dike issues

Appendix E Drainage Area Fact Sheet



WHATCOM COUNTY

California Creek Water Quality: The Malloy/Brown Drainage

What is fecal coliform bacteria?

Fecal coliform bacteria is found in human and animal feces. Although fecal coliform may be harmless, when it's detected in a stream or bay, it's a sign that human and/or animal wastes—and the harmful microorganisms that they may carry—are polluting the water.

Fecal coliform indicates that there is a public health risk because of the potential of direct contact with sewage. In addition, human and animal waste can contaminate shellfish and make them unsafe to eat.

How much bacteria is in your neighborhood creek?

To guard against public health risks, the state Department of Ecology has established water quality standards for bacteria in both fresh and marine waters. In your neighborhood creek, there are two standards that must be met: water samples must have less than an average of 100 fecal coliform colonies per 100 milliliters of water (100 FC/100 mL), and less than 10% of the samples can have more than 200 FC per 100 mL.

Between April 2006 and December 2007, Whatcom County collected 14 samples from your neighborhood creek. Lab analysis showed an average of 474 FC/100 mL—almost five times the allowed amount. About 64% of the samples exceeded 200 FC/100 mL—more than six times the allowed number.

Where does bacteria come from?

Possible sources in your neighborhood creek are:

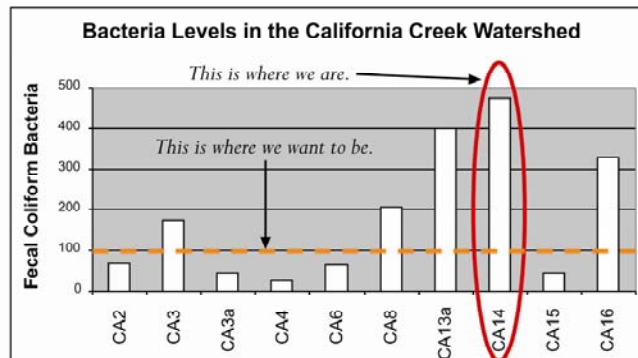
- Failing septic systems
- Leaks in municipal sewer system
- Hobby or small farms
- Large agricultural operations
- Pets and wildlife

In the creek that drains the Malloy/Brown area, there are about 45 known on-site sewage systems, about 75 parcels that may have animals (small farms), and less than three large agricultural operations.

How is the County working on bacteria problems?

There are three county departments working on different aspects of bacterial pollution. You may receive mailings or visits from one or more of them, with information on what you can do to protect public health and water quality. Ultimately, your neighborhood's combined efforts will help preserve quality of life in this county.

- ◆ **Health Department**, 676-6724 - On-site sewage system operations & maintenance.
- ◆ **Planning and Development Services**, 676-6907 - Critical Areas Ordinance compliance.
- ◆ **Public Works**, 676-6876 - Water quality monitoring, community outreach, shellfish protection districts.



Facts about the Malloy/Brown drainage

Size 509 acres

Parcels About 90

Land uses Agriculture, rural residential

May 2008