MASON COUNTY
Public Health
Always working for a safer & healthier Mason County

Appendix A
Land Records Press Release

NEWS RELEASE

December 13, 2011
MASON COUNTY COMMISSIONERS
411 NORTH 5TH ST
SHELTON, WA 98584

TO: KMAS, KRXY, SHELTON-MASON COUNTY JOURNAL, THE OLYMPIAN, SHELTON CHAMBER OF COMMERCE, NORTH MASON CHAMBER OF COMMERCE, CITY OF SHELTON, ECONOMIC DEVELOPMENT COUNCIL, THE SUN

RE: Land Records are now available online

Mason County Public Health is pleased to announce land records including applications, as-built drawings, permits and plot plans are available online at the county web site.

Special grants to Public Health from the State Department of Ecology, the Washington State Department of Health and the Mason County Auditor's Office combined with the programs' regular work made this exciting application possible. Dedicated environmental health and clerical staff made it a reality.

Now anyone can go onto the Mason County website, click on "land records" under the online services and follow the instructions to access copies of records for a particular parcel. If you find mistakes, please let us know so we can correct them. If the information for the parcel you are looking for is not there yet, it doesn't mean it won't be. This project is a work in progress; new parcels are being added continually as funding allows. You can still get records that are not online yet by completing a Public Records Request with the appropriate department.

If you have any questions or find errors, please contact Public Health at (360) 427-9670, (360) 275-4467 from Belfair, or (360) 482-5269 from Elma, Ext. 400.

_____	_____	_____
Lynda Ring Erickson	Steve Bloomfield	Tim Sheldon
Chair	Commissioner	Commissioner

Appendix B
MCPH's Request for Delisting of 9 Streams from the 303(d) List for Fecal Coliform that Flow into Hood Canal in Mason County

Ken Koch
Water Quality Program
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Dear Mr. Koch,

Mason County Public Health (MCPH) is pleased to request that the Washington Department of Ecology (ECY) in collaboration with the US Environmental Protection Agency remove nine streams that are currently on the 303(d) list for fecal coliform. MCPH requests that the nine streams are reclassified as Category 1. Meets Tested Standards.

The nine streams that currently meet the extraordinary water quality standard are Lilliwaup, Twanoh Falls, Stimson, Twanoh, Little Mission, Happy Hollow, Holyoke, Shoofly, and Mulberg. The three streams that did not meet the water quality standard are Trails End, Big Bend and Deveraux (See **Appendix A: Table 1. Site Descriptions, Fecal Coliform 303(d) Listing ID, Hydrologic Unit Code and Site Locations** for specific information on each stream and **Appendix B: Monitoring Locations and 303(d) Listed Stream Maps**).

Project History

MCPH, along with WRIA 16/14b Planning Unit have requested the removal of several of these streams during previous assessments. These requests were made for a variety of reasons, but mainly for one of the following:

- ECY could not provide the data that was originally used to place some of those waters on the 303(d) list
- It appeared that some determinations were based off of a single sample collect in 1991, or
- More recent data that ECY had collected demonstrated that some of the streams were meeting the water quality standard.

In response to the requested streams not being removed during the 2008 designation, MCPH applied for and received a grant from ECY. This grant (ECY-G1000278), in part, was designed to perform monitoring and where necessary, corrective actions at 12 streams that flow into Hood Canal and are on the 303(d) list for fecal coliform. MCPH drafted and ECY approved the Quality Assurance Project Plan (QAPP) for the collection of surface water quality data under this grant project.

The first year of monitoring (completed) was designed to determine if the 12 streams that are on the 303(d) list for fecal coliform are not currently meeting the Extraordinary Water Quality Standard. The second year will include segmented monitoring of those streams that did not meet the Water Quality Standard and sanitary surveys to identify and correct fecal coliform pollution sources. MCPH hopes that

during ECY's next freshwater 'call for data' cycle that we will have the needed information to request removal of the remaining streams that are being monitored under this grant.

Monitoring Summary

MCPH has performed at least 10 monitoring events from within a consecutive 12 month period at 12 streams that are on the 303(d) list for fecal coliform. Data collected from these monitoring events was entered into ECY's Environmental Information Management database.

The initial monitoring dates were in either July or August of 2010, with the first phase (10 samples) of monitoring completed in May, 2011 (See **Appendix A: Table 3- Actual Data Collected by Month**). Monitoring was performed approximately monthly, timed so that staff could perform monitoring above the influence of marine waters. This included monitoring events in both November and December, 2010 which occurred during/after heavy rainfall. Even with data from those heavy rainfall events included in our data summary (when we would normally expect to see elevated levels of fecal coliform), the data collected still demonstrates 9 of the 12 streams are meeting the water quality standard as defined in ECY's Water Quality Program Policy 1-11 (see **Table 1 – MCPH 303(d) listed streams data summary** below).

All of the streams that were monitored based on current and previously collected data (See **Appendix A: Table 4 - Summary of Hood Canal 303(d) data from 1997-2008)** meet the geometric mean value portion of the extraordinary water quality standard, but some streams did not meet the 10% portion of the water quality standard. MCPH believes that part of this problem is the minimal number of samples that have been taken at these streams (with only 10 monitoring events, no more than 1 sample can be above 100).

Table 1 - Mason County Public Health 303(d) listed streams data summary

Creek	GMV	90th Percen-tile	MIN	MAX	# of samples >100 FC	# of Samples	% of Samples >100FC	Meets WQ Standard
Big Bend	37	162	8	1600	3	13	23%	Exceedance
Deveraux	28	205	2	900	6	14	43%	Exceedance
Trails End	30	274	2	300	4	13	31%	Exceedance
Happy Hollow	4	15	2	30	0	10	0%	NAP
Holyoke	15	62	4	170	1	10	10%	NAP
Lilliwaup	10	28	4	80	0	10	0%	NAP
Little Mission	10	52	2	70	0	10	0%	NAP
Mulberg	11	60	2	500	1	11	9%	NAP
Shoofly	3	4	2	8	0	10	0%	NAP
Stimson	3	12	2	17	0	10	0%	NAP
Twanoh Falls	4	17	2	110	1	11	9%	NAP
Twanoh	7	50	2	110	1	11	9%	NAP

GMV = Geometic Mean Values
NAP = No Apparent Problem

All Fecal Coliform results are MPN FC/100mL of water

Happy Hollow, Lilliwaup, Little Mission, Shoofly and Stimpson did not have a single monitoring that exceeded 100 FC/100mL during the monitoring performed by Mason County. Twanoh, Twanoh Falls, Mulberg, and Holyoke Creeks each had one event where the monitoring results were above 100 FC/100mL.

Twanoh, Twanoh Falls and Mulberg each had a result >100 fc/100mL during the November, 2010 monitoring event. Monitoring was performed on November 1 and 2, 2010. In the 48 hours prior to November 1, 2010, there was 0.36 inches of rain recorded at Union, WA (See **Appendix A: Table 5 - Precipitation Data Summary**). On November 1, 2010, the first day of monitoring that month, there was 2.15 inches of rain recorded at Union, WA. In the 48 hours prior to November 2, 2010, there was 2.25 inches of rain recorded. On November 2, 2010, there was an additional 0.16 inches of rain recorded. Considering this, it was not surprising to see that 5 (42%) of the 12 monitoring locations had results greater than 100 FC/100mL and 7 (58%) of the 12 sites had their highest fecal coliform results during that monitoring event.

In conclusion, MCPH hopes that the data collected under this project will provide the necessary justification(s) to remove t he nine streams that are currently meeting the extraordinary water quality standard. The nine streams and their 303(d) listings are Lilliwaup (9889), Twanoh Falls (6964), Stimson (6959), Twanoh (6961), Little Mission (6962), Happy Hollow (40619), Holyoke (6965), Shoofly (6960), and Mulberg (45581). If the data collected is not sufficient to consider removal, please contact our office to help us determine what additional information would be needed.

MCPH will continue to monitor Trails End, Big Bend and Deveraux Creeks and perform pollution identification and correction activities in each drainage. MCPH hopes that during the next freshwater assessment we will be able to request that these streams are also removed from the 303(d) list.

Please feel free to contact me at (360) 427-9670 x544 if you need any additional information or have any questions.

Sincerely,

Amy Georgeson
Environmental Health Specialist III
Water Quality Program
Mason County Public Health
Information on Hood Canal: http://tiny.cc/hoodcanal

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Appendix A

Mason County Public Health 303(d) listed streams data summary

Table 1 - Site Descriptions, Fecal Coliform 303(d) Listing ID, Hydrologic Unit Code, and Site Locations

Creek	Site ID	303(d) Listing ID	HUC	Site Description	Lat	Long	Comments
Big Bend	BG-01	45568	17110018014601	Big Bend at mouth	47.34816000	-123.07386000	Not requesting removal from 303(d) list for fecal coliform
Deveraux	DE-01	45567	17110018014666	Deveraux Creek above SR 106, access granted at 21923 HWY 3, (large property access off of 106) access upland river right	47.42994000	-122.84820000	Not requesting removal from 303(d) list for fecal coliform
Happy Hollow	HA-01	40619	17110018014644	Happy Hollow Creek @ mouth below 106	47.38820000	-122.91590000	
Holyoke	HO-01	6965	17110018014667	Holyoke Creek @ mouth below 106 access at 17051 SR 106	47.40667000	-122.88619000	
Lilliwaup	LI-01	9889	17110018000633*	Lilliwaup Creek below 101, access from northern side, permission to access/park from northern camping property	47.46327351	-123.11434390	*Monitoring Location was under the north side of the HWY 101 Bridge, we monitored ~ 1500' downstream from the end of the listed HUC segment
Little Mission	LM-01	6962	17110018000669	Little Mission Creek upstream at Beck RD right before the creek enters Belfair State Park	47.43025000	-122.88146000	
Mulberg	MU-01	45581	None	Mulberg Creek above SR 106 exiting concrete wall/weir	47.38715000	-122.92506000	
Shoofly	SH-01	6960	17110018000683	Shoofly Creek above Northshore Rd, next to 9381 NSR (not shoofly that is signed by mason county)	47.39019000	-122.98707000	
Stimson	ST-01	6959	17110018000675	Stimpson Creek @ Mouth access granted from 5041 NE Northshore RD, flow taken at plank across creek, sample taken at end of concrete wall	47.41690000	-122.90815000	
Trails End	TE-01	6966	17110018014671	Trails End Creek at mouth, access granted from 17591 SR 106	47.40870772	-122.87812650	Not requesting removal from 303(d) list for fecal coliform
Twanoh	TW-01	6961	17110018014638	Twanoh Creek at mouth/end of trees in State Park	47.37851000	-122.97425000	
Twanoh Falls	TF-01	6964	17110018014643	Twanoh Falls Creek above SR 106, just above small waterfall, access granted at 20 Creekside drive	47.38152000	-122.94907000	

Table 2 - Summary of Hood Canal data collected by MCPH July 2010 to September 2011

Creek	GMV	90th Percen-tile	MIN	MAX	# of samples >100 FC	# of Samples	% of Samples >100FC	Meets WQ Standard
Big Bend	37	162	8	1600	3	13	23%	Exceedance
Deveraux	28	205	2	900	6	14	43%	Exceedance
Trails End	30	274	2	300	4	13	31%	Exceedance
Happy Hollow	4	15	2	30	0	10	0%	NAP
Holyoke	15	62	4	170	1	10	10%	NAP
Lilliwaup	10	28	4	80	0	10	0%	NAP
Little Mission	10	52	2	70	0	10	0%	NAP
Mulberg	11	60	2	500	1	11	9%	NAP
Shoofly	3	4	2	8	0	10	0%	NAP
Stimson	3	12	2	17	0	10	0%	NAP
Twanoh Falls	4	17	2	110	1	11	9%	NAP
Twanoh	7	50	2	110	1	11	9%	NAP

GMV = Geometric Mean Values
NAP = No Apparent Problem
All Fecal Coliform results are MPN FC/100mL of water

Table 3 - Actual Data Collected by Month (normally monitoring occurred during 2 consecutive days)

Site/Creek	July, 2010	August, 2010	September, 2010	October, 2010	November, 2010	December, 2010	January, 2011	February, 2011	March, 2011	April, 2011	May, 2011	June, 2011	July, 2011	August, 2011
BG-01 - Big Bend		30	80	17	170	8	8	14	11	13	1600	17	130	80
DE-01 - Deveraux	170	13	110	50	900	130	2	2	8	2	4	220	110	22
TE-01 - Trails End		30	300	23	26	23	13	2	13	2	300	30	130	170
HA-01 - Happy Hollow		13	4	2	30	2	2	2	2	8	2			
HO-01 - Holyoke		170	30	8	30	50	4	4	4	23	6			
LI-01 - Lilliwaup		14	8	4	80	22	4	4	4	13	13			
LM-01 - Little Mission		70	14	50	8	11	2	8	2	2	26			
MU-01 - Mulberg	4	23	60	13	500	2	8	4	11	2	4			
SH-01 - Shoofly		4	4	4	4	2	2	2	2	2	8			
ST-01 - Stimson		11	17	2	4	2	2	2	4	2	2			
TF-01 - Twanoh Falls	4	17	2	8	110	4	2	2	2	2	2			
TW-01 - Twanoh	50	30	11	8	110	4	2	2	2	2	2			

Table 4 - Summary of Hood Canal 303(d) data from 1997-2008

			Range (Fc/100mL)		WA State Standards for Freshwater for Extraordinary Contact: Geometric Mean Value (GMV) of >50 Fc/100mL		<10% of samples shall be >100 Fc/100mL						
	Name	# samples	min	max	GMV	Meets GMV standard?	# samples >100 Fc/100ml	% samples > 100 Fc/100 mL	Meets % standard?	Meets Extraordinary WQ Standard?	Sampling Start Date	Sampling Finish Date	Data Source
1	Lilliwaup Creek	24	1.9	52	12.6	Yes	0	0%		NAP	1/27/2004	11/13/2006	MCPH
2	Lilliwaup Creek	13	1	350	19.6	Yes	3	23%	No	Exceedance	10/16/1997	4/20/2005	DOE
3	Big Bend Creek	14	1	290	15.1	Yes	3	21%	No	Exceedance	1/5/2004	5/17/2005	DOE
4	Twanoh Creek	17	1	216	9.1	Yes	4	24%	No	Exceedance	1/5/2004	8/7/2008	DOE
5	Twanoh Falls Creek	14	1	64	5.5	Yes	0	0%	Yes	NAP	1/5/2004	5/17/2005	DOE
6	Mulburg Creek	14	1	310	11.3	Yes	3	21%	No	Exceedance	1/5/2004	5/17/2005	DOE
7	Happy Hollow Creek	14	1	160	10.0	Yes	1	7%	Yes	NAP	1/5/2004	5/17/2005	DOE
8	Holyoke Creek	14	1	68	6.5	Yes	0	0%	Yes	NAP	1/5/2004	5/17/2005	DOE
9	Trails End Creek	3	3	18	6.0	Yes	0	0%	Yes	NAP	3/22/2005	5/17/2005	DOE
10	Deveraux Creek	12	1	532	9.1	Yes	2	17%	No	Exceedance	1/5/2004	5/17/2005	DOE
11	Little Mission Creek	31	1.9	1600	17.9	Yes	4	13%	No	Exceedance	11/15/2004	6/26/2007	MCPH
12	Little Mission Creek	12	1	510	13.0	Yes	2	17%	No	Exceedance	10/29/2002	9/23/2003	DOE
13	Stimpson Creek	37	1.9	240	12.3	Yes	3	8%	Yes	NAP	1/20/2004	6/26/2007	MCPH
14	Stimpson Creek	20	1	180	12.9	Yes	2	10%	No	NAP	10/29/2002	9/7/2004	DOE
15	Shoofly Creek	28	1.9	300	6.7	Yes	2	7%	Yes	NAP	1/20/2004	9/19/2006	MCPH
16	Shoofly Creek	8	2	76	11.3	Yes	0	0%	Yes	NAP	3/4/2004	9/7/2004	DOE

1. All data is for Fecal Coliform colonies/100mL of water. MCPH uses MPN method, MCPH did not research what method was utilized for the data that was obtained from EIM, although it is likely to be membrane filtration.
2. GMV = Geometric Mean Value, NAP = No Apparent Problem, DOE = Department of Ecology, and MCPH = Mason County Public Health
3. Cells colored blue represent sites that have had at least 10 monitoring events either as listed in EIM or from MCPH's existing data.
4. Cells colored pink do not meet either the geometric mean value or percentile standard of the Extraordinary Water Contact Standard.

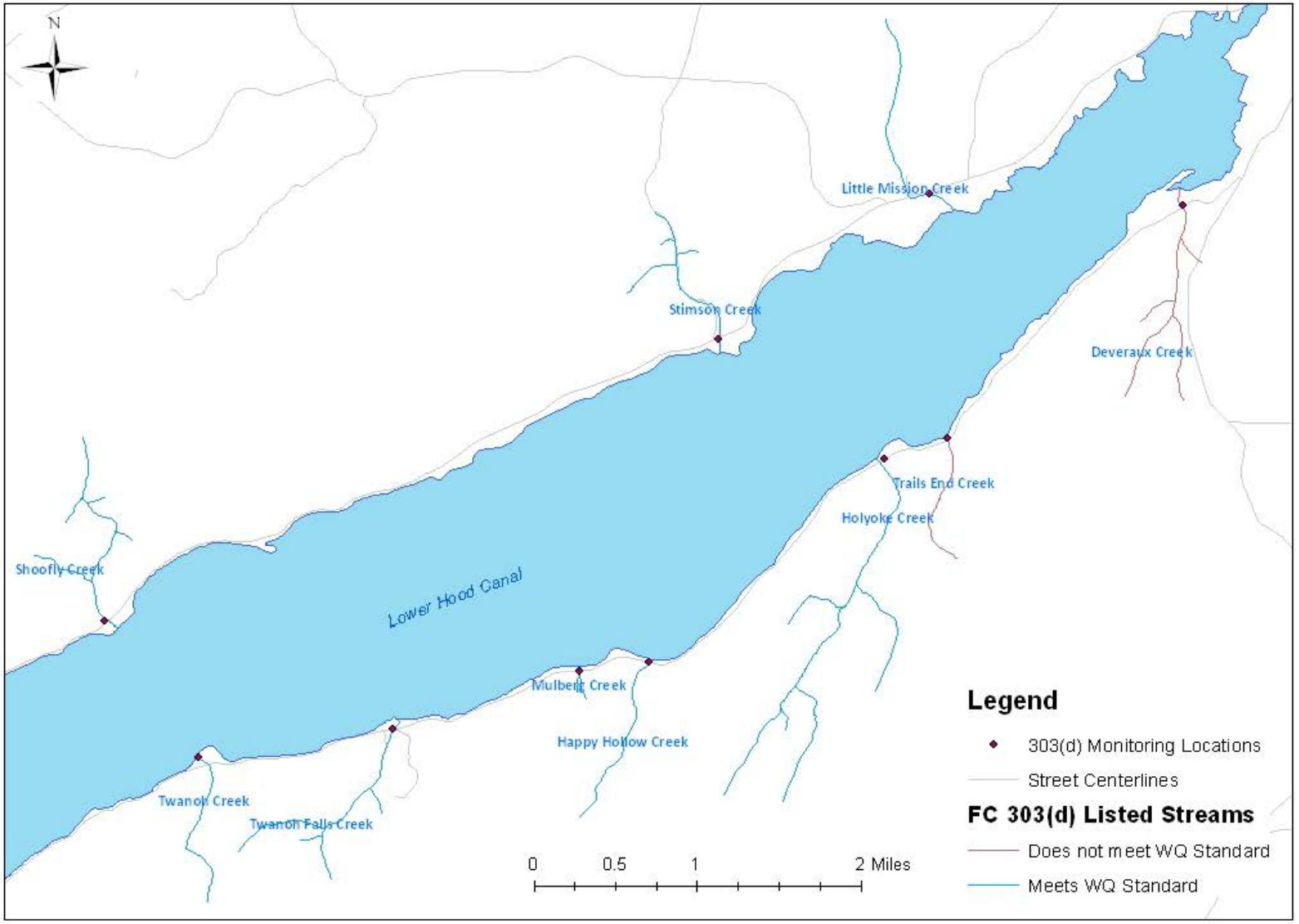
Table 5 - Precipitation Data Summary in Inches

Monitoring Date	Day of Monitoring	Previous Day	Cumulative day and previous	2 Days Previous	Cumulative day and 2 days previous
7/20/2010	0.00	0.00	0.00	0.00	0.00
8/10/2010	0.00	0.01	0.01	0.01	0.02
8/11/2010	0.00	0.00	0.00	0.01	0.01
9/20/2010	0.14	0.24	0.38	0.81	1.19
9/21/2010	0.00	0.14	0.14	0.24	0.38
10/18/2010	0.00	0.00	0.00	0.00	0.00
10/19/2010	0.00	0.00	0.00	0.00	0.00
11/1/2010	2.15	0.10	2.25	0.26	2.51
11/2/2010	0.16	2.15	2.31	0.10	2.41
12/13/2010	0.32	3.14	3.46	2.41	5.87
12/14/2010	0.57	0.32	0.89	3.14	4.03
1/24/2011	0.14	0.22	0.36	0.00	0.36
1/25/2011	0.00	0.14	0.14	0.22	0.36
2/22/2011	0.02	0.02	0.04	0.00	0.04
2/23/2011	0.28	0.02	0.30	0.02	0.32
3/7/2011	0.00	0.00	0.00	0.02	0.02
3/8/2011	0.35	0.00	0.35	0.00	0.35
4/5/2011	0.52	0.76	1.28	0.06	1.34
5/2/2011	0.30	0.00	0.30	0.00	0.30
6/13/2011	0.02	0.05	0.07	0.04	0.11
7/13/2011	0.06	0.15	0.21	0.00	0.21
8/3/2011	0.00	0.00	0.00	0.00	0.00

- Data was obtained from www.weatherunderground.com for Union, Washington (98592) because of its central location to all monitoring locations.
- Day of Monitoring represents the 24 hour precipitation data for the date of monitoring (from 12:00 am to 11:59 pm)
- Previous Day represents the day prior to the day of monitoring (from 12:00 am to 11:59 pm)
- Cumulative day and previous represents the sum of the day of monitoring and the previous day columns
- 2 Days Previous represents 2 days prior to the day of monitoring (from 12:00am to 11:59 pm)
- Cumulative day and 2 days previous represents the sum of the day of monitoring, the previous day and the 2 previous days.

Appendix B – Monitoring Locations and 303(d) Listed Stream Maps

Lower Hood Canal 303(d) listed streams and MCPH Monitoring Locations



Hood Canal 303(d) listed streams and MCPH Monitoring Locations

Appendix C - Specific Watercourse Listings, Development Summaries and Sites of Concern

Happy Hollow Creek

- Category 5 – fecal coliform (listing ID 40619).
- Happy Hollow Creek sub-basin is mostly timber or cleared land with a small amount of development near the mouth. The creek is ~1.1 miles long. There are less than 20 known developed parcels adjacent to the creek. There is a store located adjacent to the creek on the south side of SR 106, which was identified as having a failing septic system in 2007. The system was repaired in 2007.
- There are no known fecal coliform concerns in the marine water.
- Fecal coliform results collected from Happy Hollow Creek from August, 2010 to May 2011, did not exceed 100 FC/100mL. Happy Hollow Creek meets the Extraordinary Water Quality Standard.

Lilliwaup Creek

- Category 5 – fecal coliform (listing 9889)
- The Lilliwaup Creek sub-basin consists of forested timberland. Lilliwaup Creek is ~7 miles long. There are less than 25 known developed parcels located near the mouth of this creek. No developed sites of concern have been identified.
- Fecal coliform results collected from Lilliwaup Creek from August, 2010 to May 2011, did not exceed 100 FC/100mL. Lilliwaup Creek meets the Extraordinary Water Quality Standard.

Little Mission Creek

- Category 5 – fecal coliform (listing ID 6962).
- The Little Mission Creek sub-basin is has a mixture of development within the lower ~0.6 miles of the creek and forested land in the upper reaches of the creek. There are ~10 developed parcels directly adjacent to the creek. Little Mission Creek's headwaters originate in a forested wetland area and flow ~3.6 miles down to Hood Canal. Little Mission Creek flows through Belfair State Park before entering Hood Canal.
- Fecal coliform results collected from Little Mission Creek from August, 2010 to May 2011, did not exceed 100 FC/100mL. Little

Mission Creek meets the Extraordinary Water Quality Standard.

Stimson Creek

- Category 5 – fecal coliform (listing ID 6959)
- The Stimpson Creek sub-basin is almost completely undeveloped, forested land. The creek is ~3 miles in length and originates in a forested wetland area. There are ~4 developed parcels within ~0.2 miles of the mouth of the creek, while the rest of the creek is undeveloped. Elfendahl Pass Rd parallels the creek, however the ~1.85 miles of the road is currently closed due to flooding from 2007. This limits the access to the creek. In the past, Mason County did have some problems with illegal garbage dumping from Elfendahl Pass RD. Wildlife waste may play a critical role in the fecal coliform loading in this stream.
- Marine water at the mouth of Stimpson Creek is listed as category 5 for fecal coliform (listing ID 6941). WA-DOH classifies the shellfish beds as approved at the mouth of Stimson Creek.
- Fecal coliform results collected from Stimson Creek from August, 2010 to May 2011, did not exceed 100 FC/100mL. Stimson Creek meets the Extraordinary Water Quality Standard.

Shoofly Creek

- Category 5 – fecal coliform (listing ID 6960)
- The Shoofly Creek sub-basin is mostly undeveloped, although there is a small amount of development at the mouth of the creek. The creek is ~1.8 miles in length. There are less than ten developed parcels directly adjacent to Shoofly Creek, mostly located near the mouth. The rest of the area is forested.
- There are no known fecal coliform pollution concerns in the adjacent marine water.
- Fecal coliform results collected from Shoofly Creek from August, 2010 to May 2011, did not exceed 100 FC/100mL. Shoofly Creek meets the Extraordinary Water Quality Standard.

Twanoh Creek

- Category 5 – fecal coliform (listing ID 6961).
- Twanoh Creek sub-basin consists of completely undeveloped forested land owned either by the State of Washington or Green Diamond Resources. Twanoh State Park is located at the mouth of the creek. Twanoh Creek is ~ 1.5 miles long. The drainfield for Twanoh State Park is located at the top of a hill and at its closest, is over 800’ away from Twanoh Creek. However, the transport lines for the system run along and under the creek. Twanoh State Park was found to have a failing large onsite septic system in 2005, which was repaired the following year. Currently, there are no sites of concern along this creek.
- The marine water ~1000’ east of the mouth of Twanoh creek is listed as category 2 for fecal coliform (listing ID 39826).
- There was one fecal coliform result that exceeded 100 FC/100mL that was collected from Twanoh Creek between August, 2010 and May 2011. Twanoh Creek meets the Extraordinary Water Quality Standard.

Twanoh Falls Creek

- Category 5 – fecal coliform (listing ID 6964).
- The Twanoh Falls Creek sub-basin consists of some development in the lower reaches and forested land in the upper reaches. The creek is ~1.7 miles long, with all of the development located within the lower ~0.6 miles. There are less than 30 known developed parcels directly adjacent to the creek.
- The nearest marine water concern is located at the mouth of the next little unnamed drainage ~800' to the east of Twanoh Falls Creek.
- There was one fecal coliform result that exceeded 100 FC/100mL that was collected from Twanoh Falls Creek between August, 2010 and May 2011. Twanoh Falls Creek meets the Extraordinary Water Quality Standard.

Mulburg Creek

- Category 5 – fecal coliform (listing ID 45581).
- Mulburg Creek sub-basin consists of a mixture of development and forested or cleared lands. The creek is ~0.3 miles in length. There ~4 developed parcels located near the mouth of the stream. Moving upstream, the creek then passes through some forested land. There is a closed woodwaste landfill located to the west of this creek. There is also cement wall impounded pond area with a v-notch weir located just upstream from SR 106. MCPH did note waterfowl in this pond on several occasions. Also, there is a duplex located adjacent to the creek that had a failing on-site septic system that was repaired several years ago.
- There are no known fecal coliform concerns in the marine water.
- There was one fecal coliform result that exceeded 100 FC/100mL that was collected from Mulburg Creek between August, 2010 and May 2011. Mulburg Creek meets the Extraordinary Water Quality Standard.

Holyoke Creek

- Category 5 – fecal coliform (listing ID 6965).
- The Holyoke sub-basin consists of forest land and development. The creek is ~2.5 miles in length, of which, ~1.5 miles flows through forested land. There is development located at the mouth (~6 parcels) and in the upper reaches (~10 parcels) of Holyoke Creek.
- There was one fecal coliform result that exceeded 100 FC/100mL that was collected from Holyoke Creek between August, 2010 and May 2011. Holyoke Creek meets the Extraordinary Water Quality Standard.

Big Bend Creek

- Category 5 –fecal coliform (listing ID 45568).
- The Big Bend Creek sub-basin is mostly undeveloped. Big Bend Creek is approximately a mile in length. The development that exists is near to the mouth of the creek. In the upper reach it passes through mostly forested land. Almost of all of the development adjacent to the creek is within the 1000' of the mouth of the creek. There are less than 30 known developed parcels along this creek. There is a mobile home/trailer park near the mouth of this creek this is of interest.
- The WA DOH Shellfish Program lists the area that Big Ben Creek flows into as conditionally approved. This is due to the Alderbrook sewer outfall located to the East of the mouth of this creek.
- There were three fecal coliform results that exceeded 100 FC/100mL, which were collected from Big Bend Creek between August, 2010 and August 2011. Big Bend Creek DOES NOT currently meet the Extraordinary Water Quality Standard.

Trails End Creek

- Category 5 – fecal coliform (listing ID 6966)
- The Trails End Creek Sub-basin consists of forestland and development. There are a lot of created parcels within the drainage area that are not currently developed. There are ~3 developed parcels at the mouth and ~10 developed parcels in the upper reaches of Trails End Creek. The creek is ~1.7 miles long. From the aerial photos the creek does not appear to actually originate from Trails End Lake, further field investigation is needed to verify if this is correct.
- There are no known fecal coliform concerns in the marine water.

- There were four fecal coliform results that exceeded 100 FC/100mL, which were collected from Trails End Creek between August, 2010 and August 2011. Trails End Creek DOES NOT currently meet the Extraordinary Water Quality Standard.

Deveraux Creek

- Category 5 – fecal coliform (listing ID 45567).
- The Deveraux Creek sub-basin consists of mixed forest and development. There are less than 20 developed parcels adjacent to the creek. The creek originates in Lake Deveraux. The creek is ~1.45 miles long. Lake Deveraux is mostly undeveloped-forested land. There are eleven developed parcels adjacent to the shoreline and a girl-scout camp.
- Marine water at the mouth of Deveraux Creek is listed as category 5 - fecal coliform (listing ID - 6939). In addition, DOH classifies the shellfish harvesting area at the mouth of Deveraux Creek as prohibited.
- There were six fecal coliform results that exceeded 100 FC/100mL, which were collected from Deveraux Creek between August, 2010 and August 2011. Deveraux Creek DOES NOT currently meet the Extraordinary Water Quality Standard.