

Appendix A.3
Water Quality Complaints

Appendix A.3

Water Quality – Complaint Investigations and Illicit Discharge Detection Elimination

The Surface Water Management (SWM) Water Quality Complaint Investigation and Illicit Discharge Detection (IDDE) programs were developed in 1995 and 1998 respectively to aid in partial fulfillment of Snohomish County's National Pollution Discharge Elimination System (NPDES) permit issued through the Washington State Department of Ecology (Ecology).

The goal of the water quality complaint investigation program is to respond to citizen or agency concerns regarding threats to the quality of surface waters and gain voluntary compliance through providing technical assistance to responsible parties. If technical assistance is ignored, and evidence of repeat violations are found, evidence gathered by staff are turned over to Planning and Development Services Code Enforcement (PDS/CE) for consideration of official enforcement action under Snohomish County's Water Pollution Control Code (SCC 7.53). It is important to note, that 98% of the complaints within the Clean Water District (CWD) boundary have been resolved through providing technical assistance.

To find resolution Surface Water Management coordinates with PDS/CE, Road Maintenance, the Sheriff's Department or others, and with external agencies such as the Snohomish Health District and Snohomish Conservation District, if the regulations of one agency alone are not sufficient to gain compliance.

Complaint Investigation Status and Trends

From 1995 through 2006, SWM received 116 water quality complaints within the CWD (**Figure A.3-1**). In descending order, the four most commonly received complaint types have been potential discharges of manure, turbid water from construction sites, petroleum and sewage (**Figure A.3-2**).

Beginning in 2001, SWM began formally tracking the outcome of each complaint investigation. Since that time, two cases within the CWD boundary have been referred to PDS/CE for issuance of water pollution control citations. One case resulted in the responsible party removing discharge from a meat cutting operation into the County drainage system, plus installing new septic and meat waste handling systems. The second case was related to discharge of turbid water from construction site.

Between 2001 and 2006, five cases were referred to the Snohomish Health District for assistance in repairing failing septic systems, removing illicit discharges of wash water, or determining the extent of soil pollution due to discharge of petroleum products.

Complaint levels and spatial density correspond to human population density. Within the CWD boundary, population estimates for 2000 and 2005 were 34,094 and 38,413 respectively, which represents a 12.7% increase. (Table A.3-1) By comparison, the average number of water quality

complaints received prior to 2000 and from 2001 through 2005, increased by 37%. The highest number of complaints were received in 2005 (**Figure A.3-3**).

Table A.3-1
2000 Census Population, and
2005 Estimated Population

Year	CWD	Cities*	County
2000	34,094	19,333	606,024
2005	38,413	24,055	655,800
5-Year Growth	12.7%	24.4%	8.2%

**Arlington, Stanwood, Granite Falls, and Darrington are surrounded by or adjoin the CWD, but are outside its jurisdictional boundaries.*

Sources: Snohomish County Planning and Development Services 2007, Washington State Office of Financial Management, 2006

Water quality complaints are grouped by subbasin for the purposes of identifying potential areas of concern. Lake Goodwin, Church and Portage Creek subbasins combined have received 30% of the total complaints. (**Figure A.3-4a,b**). The majority of those complaints have been related to potential discharges of manure, turbid water due to construction, and sewage.

Manure and Sewage Complaint Status

The 2004 Department of Ecology 303(d) listings for impaired water bodies for fecal coliform bacteria include Portage, Church and Glade Bekken Creeks. These three subbasins also received the highest number of complaints relative to potential discharges of manure. Mismanagement and potential discharge of chicken manure has been documented on two occasions at the same facility located in the Church Creek subbasin. Coordination with the Snohomish Health District and Washington State Department of Agriculture resulted in issuance of a solid waste handling violation from the Snohomish Health District. All other complaints relative to potential discharge of manure in these subbasins did not result in finding conclusive evidence that manure mismanagement would lead to impaired surface waters.

The Lake Goodwin, Martha Creek and Skagit Flats South subbasins received eight of the eleven complaints related to potential discharges of sewage (**Figure A.3-5**). In 2005, the water quality group implemented a formal investigative procedure for sewage complaint response. The procedure outlines processes for detection of sewage, removal of illicit connections and drainage system clean up which involves coordination with Snohomish Health District, Road Maintenance and SWM's drainage group.

Of all eleven cases, discharge of sewage and a failed drain field were confirmed for three. These cases, found within Martha Creek (South Warm Beach Community), Skagit Flats South and Douglas Creek subbasins, were referred to the Snohomish Health District, which issued correction notices to the responsible parties.

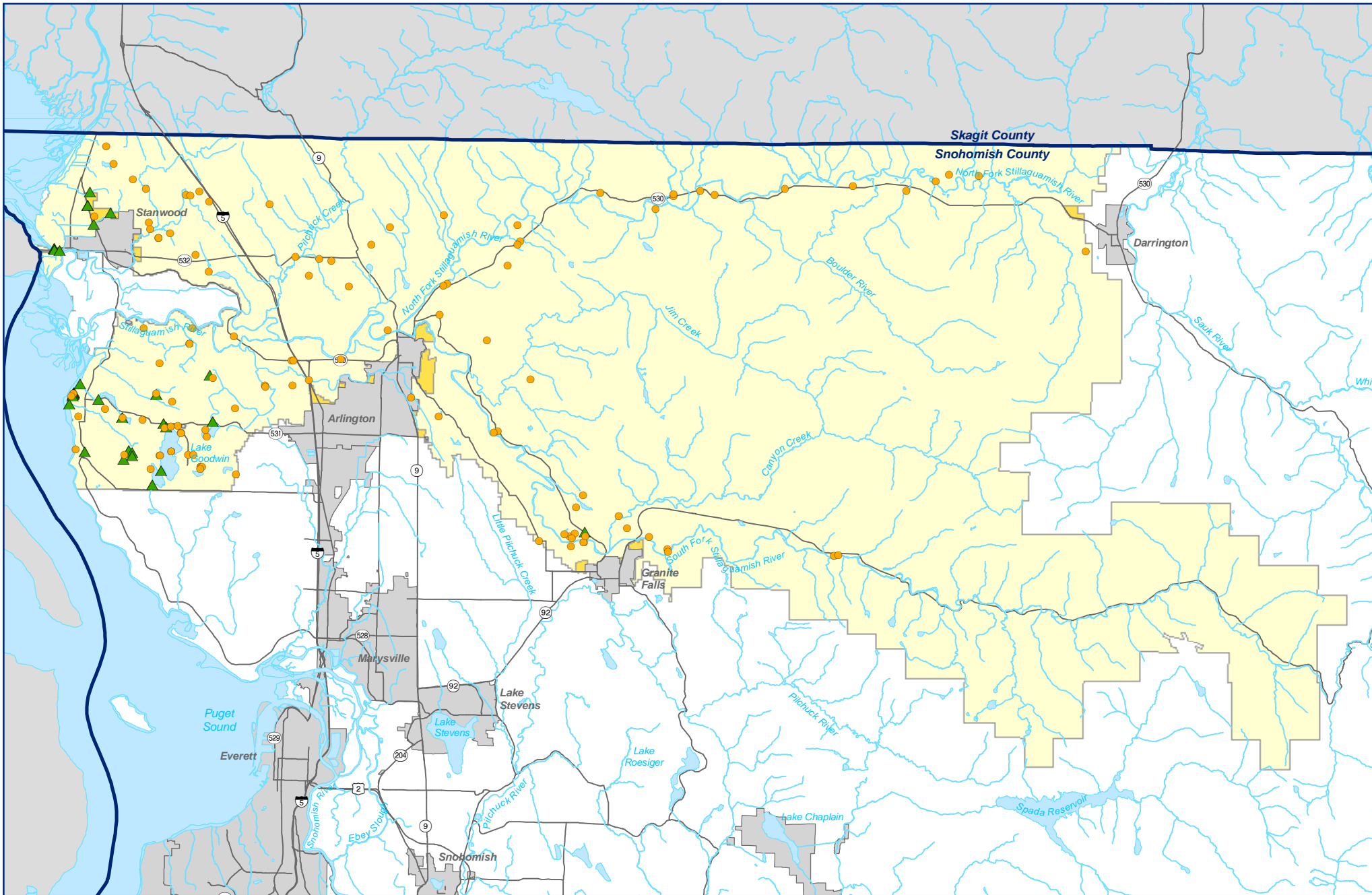
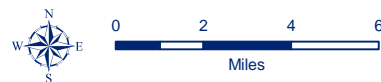


Figure A.3-1 Water Quality Complaints and Outfalls Visited in the CWD

- WQ Complaints (1995-2006)
- ▲ Outfalls Visited (1998-2006)
- Major Roads
- Rivers & Streams
- Lakes & Bays
- Cities
- Stillaguamish CWD
- Stillaguamish CWD UGA



Snohomish County
PUBLIC WORKS
SURFACE WATER MANAGEMENT
(425) 388-3464

Snohomish County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either express or implied. No representation or warranty is made concerning the accuracy, currency, completeness or quality of data depicted on this map. Any user of this map assumes all responsibility for use thereof, and further agrees to hold Snohomish County harmless from and against any damage, loss, or liability arising from any use of this map.

l:\pw\swm\proj\admin\CWDReauthorization\mxdAppWQComplaints.mxd DAH 3/22/07

(page intentionally left blank)

Figure A.3-2 – Water Quality Complaint Types

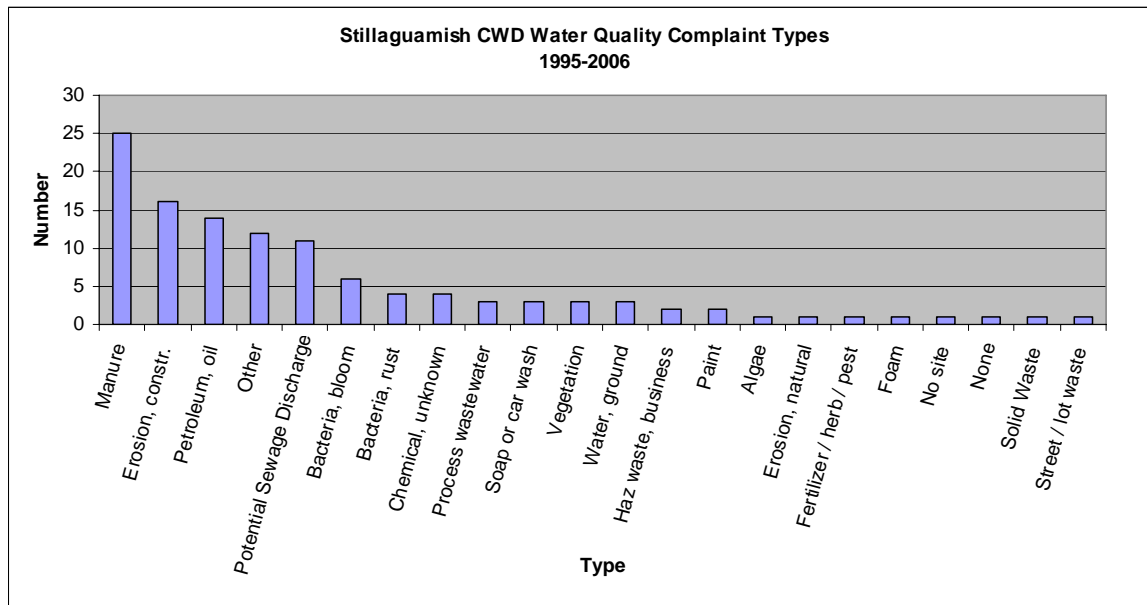
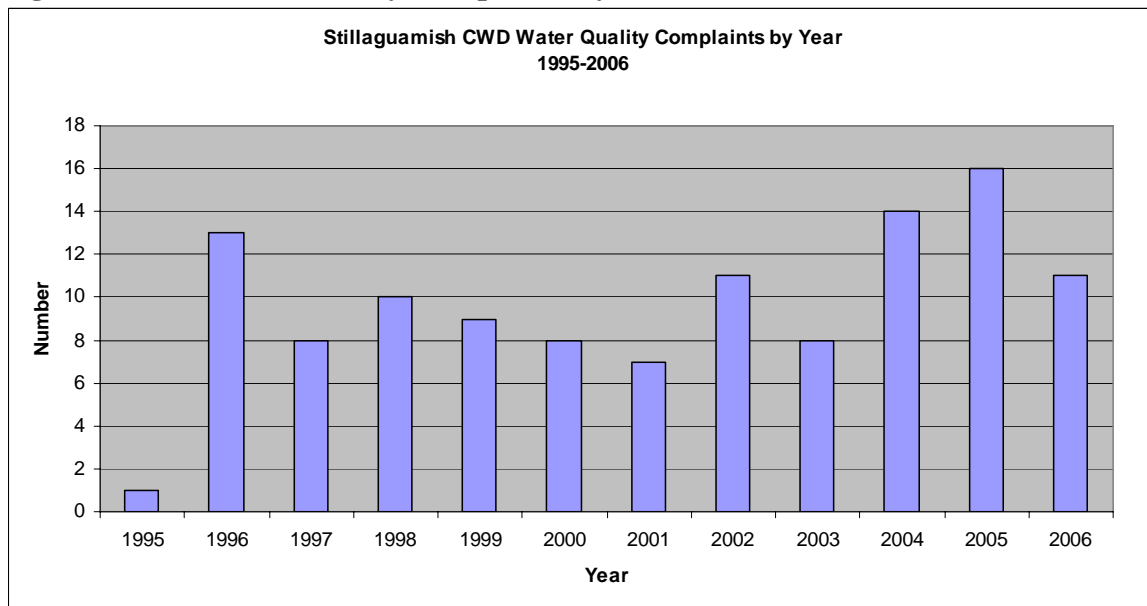


Figure A.3-3 – Water Quality Complaints by Year



(page intentionally left blank)

Figure A.3-4a – Water Quality Complaints by Subbasin

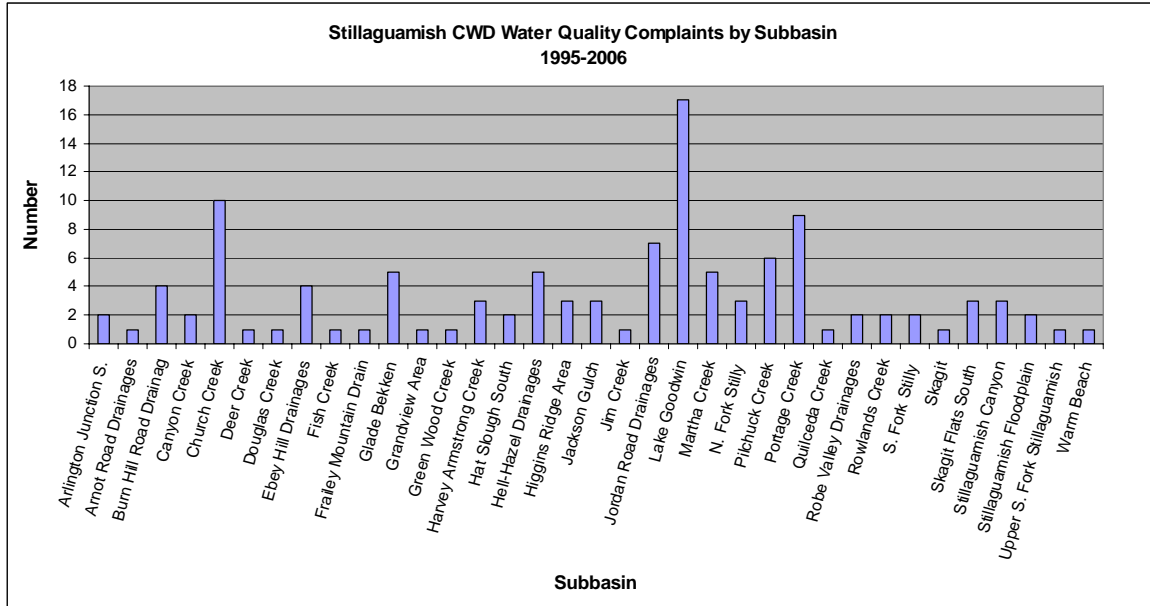
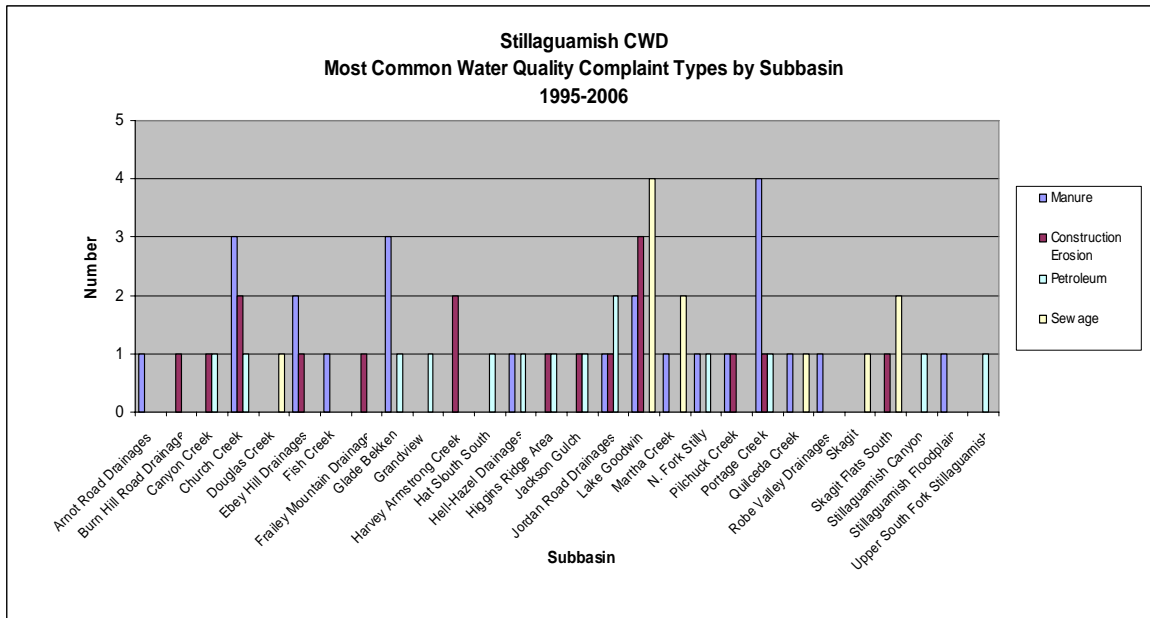


Figure A.3-4b – Common Complaints by Subbasin



Appendix A.3

(page intentionally left blank)

Construction Erosion Complaint Status

A total of 17 complaints relative to construction erosion were received within the CWD between 1995 and 2006 (**Figure A.3-2**). It is important to note that these complaint types include discharges from gravel mining, inappropriate stockpiling, equipment in streams, forest practices and others. The Lake Goodwin, Church Creek and Harvey Armstrong Creek subbasins shared 41% of the total number of complaints. The remaining complaints were spread out among other basins (**Figure A.3-4a,b**)

When investigating erosion from permitted or non-permitted single family or commercial construction sites, SWM supports PDS construction site inspectors and Ecology by implementing an investigation protocol which includes gathering analytical data to determine exceedence of water quality standards. Site inspectors, drainage plan reviewers, County engineers, developers and their consultants may all work cooperatively to find solutions to erosion control problems.

A 2004 investigation of a construction site in the Harvey Armstrong Creek basin resulted in finding discharge in violation of SCC 7.53 on repeated occasions. The case was sent to PDS/CE for further action. A citation was issued, but then rescinded upon PDS/CE determining that the responsible party came into compliance with the code.

The remaining construction erosion cases were handled through providing technical assistance and referring deficiencies in erosion control to PDS site inspectors for follow up.

Petroleum Discharge Complaint Status

Fourteen complaints related to potential discharges of petroleum were received within the CWD between 1995 and 2006 (**Figure A.3-2**). These complaint types primarily involve small spills from autos, but may also include chronic problems associated with junkyard conditions. SWM may coordinate with PDS/CE, Road Maintenance, Solid Waste, Sheriffs, the Snohomish Health District, and Ecology. As a result of participation in the Northwest Counties Interagency Enforcement Team, new contacts were made in 2005 with the Washington State Patrol and State Department of Licensing whom assist in determining ownership and follow up with auto wrecking/recycling facilities.

If the hulked cars have been left on County property, the Snohomish County Environmental Clean up Team in Solid Waste will respond and remove them. If on public or private property the water quality investigation team will respond to determine if water quality violations can be documented pursuant to Snohomish County Water Pollution Control Code 7.53. If the water quality investigation team is unable to document a problem, SWM provides the responsible party with literature on responsible car maintenance, storage and disposal of waste fluids.

If waste petroleum products are being improperly handled and disposed of, SWM may involve the Snohomish Health District, which has legal authority under Sanitary Code 3.1.

Illicit Discharge Detection and Elimination Program Status and Trends

The IDDE program began in 1998 to partially fulfill the County's Phase 1 NPDES permit requirements. The objective is to identify sources of illicit discharges to the County drainage system and have them removed. Each summer SWM visits 100 outfalls County wide, and if found flowing, samples them for a suite of parameters to determine the presence of an illicit discharge. Outfalls exhibiting characteristics of polluted are flagged and systematic investigations take place upstream to identify and remove the source. The County is required by the NPDES permit to focus efforts in urban, commercial and industrial areas with an emphasis on outfalls meeting definitions found in the Code of Federal Regulations Title 40 section 122.26.

Since 1998, 31 outfalls within the CWD have been visited, some on numerous occasions (**Figure A.3-1**). Of primary concern are locating discharges of sewage and industrial waste water. Typical signatures of these discharge types have been developed by Brown et. al. (2004). SWM developed a geodatabase with automated queries using benchmarks established by Brown et. al. (2004). This database is used to plan annual sampling events and identify locations of outfalls which may exhibit signatures of sewage or industrial effluent. No outfalls in the CWD boundaries have exhibited true signatures of industrial effluent.

Several outfalls, all found within rural residentially zoned areas in the Port Susan Drainages, have exhibited characteristics of sewage. Outfalls of concern are centered in the South Warm Beach Community. As a result of these findings, to address CWD goals, and implement actions under the Stillaguamish TMDL, SWM and the Stillaguamish Tribe conducted water quality sampling in the winter of 2005 to identify the presence of sewage in natural and built drainage systems in the Warm Beach area. Thirteen sampling stations were established from which 23 sets of samples were obtained for analysis.

Five sampling stations (MC_1 – MC_5) were established in the natural drainages of Lake Martha and Greenwood Creeks for identification of sewage signatures discharging to Port Susan (**Figure A.3-5**). Samples were obtained on three occasions during November and December of 2005. Fecal coliform results from this study indicated a geometric mean of 148 colonies/100ml in Lake Martha Creek, which exceeds the states geometric mean standard of 100 colonies/100ml. Greenwood Creek exhibited a fecal coliform geometric mean of 92 colonies/100ml which does not exceed the state standard.

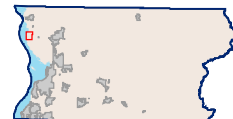
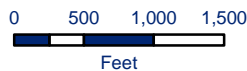
Eight strategically located sampling stations (WB_1 – WB_8) were established in the built drainage systems in the Warm Beach Community (**Figure A.3-5**). A one time sampling event was conducted at all stations in December of 2005. The fecal coliform geometric mean for combined sampling stations was 15 colonies/100ml, which does not exceed the state standard. In addition to these results, no single station in the built environment exhibited a conclusive signature of sewage.

Although the geometric mean for fecal coliform in Lake Martha Creek exhibited exceedences of the state standard, when compared to sewage signature trigger values established by Brown et. al. (2004), no suite of parameter results for any station exhibited conclusive evidence to suggest a signature of sewage existed. Other potential sources of bacteria, such as wildlife or



Figure A.3-5 Warm Beach Sewage Signature Pilot Study Locations

- Sample Site (Nov - Dec 2005)
- Roads
- Lake Martha Creek
- Greenwood Creek
- Lakes & Bays



Snohomish County, Washington



Snohomish County

**PUBLIC WORKS
SURFACE WATER MANAGEMENT
(425) 388-3464**

Snohomish County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either express or implied. No representation or warranty is made concerning the accuracy, currency, completeness or quality of data depicted on this map. Any user of this map assumes all responsibility for use thereof, and further agrees to hold Snohomish County harmless from and against any damage, loss, or liability arising from any use of this map.

I:\pw\swm\pro\admin\CWDR\authorization\mxd
App\WQWarmBeach.mxd 3/21/07 DAH

(page intentionally left blank)

domesticated animals may have contributed to finding fecal coliform bacteria in exceedence of state standards.

Follow up sampling at four locations in the Warm Beach Community during the summer of 2006 indicated that the most likely source, contributing to previously documented characteristics of sewage, is runoff from neighborhood gardens. Annual IDDE sampling in the Warm Beach area and outreach to a small number of citizens is planned for the summer of 2007.

Reference

Brown, E., D. Curaco. and R. Pitt. 2004. *Illicit Discharge Detection and Elimination. A Guidance Manual for Program Development and Technical Assessments*. Center for Watershed Protection. Elliot City. MD.

Appendix A.3

(Page intentionally left blank)