An Analysis of Microbial Pollution in the Sinclair-Dyes Inlet Watershed

A Summary of Landuse, Landcover, Stream Flow, and Water Quality Data for Watersheds of Streams, Piped Catchments, Open Watersheds, and Nearshore Areas Draining into Sinclair and Dyes Inlets

Section 1. Streams

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Prepared for:
Puget Sound Naval Shipyard & Intermediate Maintenance Facility
Project ENVVEST October 2004

Ecology Publication No. 05-03-042 app A

Section 1. Streams

INDRODUCTION

This document was prepared as supporting information for **An Analysis of Microbial Pollution in the Sinclair-Dyes Inlet Watershed** the fecal coliform Total Maxium Daily Load study conducted for Sinclair and Dyes Inlets by PSNS Project ENVVEST. The data herein are from sampling during storm events of the project, supplied historical data, and monitoring records.

Methodology

Methodology:

1. June 2004 is used as the cutoff date for ENVVEST sampling data.
2. Stream flow data used is from Kitsap Public Utility District (KPUD) stream monitoring program. Gaps in flow data cause a skew in graphing the average flows for months and years. Graphing profiles are done for visual observation of general temporal flow characteristics.
3. Historical sampling data from Kitsap County Health District (KCHD) is presented as summations in graphical format.
4. 1998 Land Use Land Code data is used for presenting parcels in map format and for mathematical analysis of land areas.
5. Topographical map portions used to show basin areas are presented in shaded relief format for better representation and visualization of terrain.
6. Surficial hydrogeological information is from the United States Geological Survey (USGS) Surficial Hydrogeological map of the Kitsap Peninsula and surrounding area.
7. Aerial photographs of the ENVVEST project area are from Space Imaging and Land Voyage satellite imaging.

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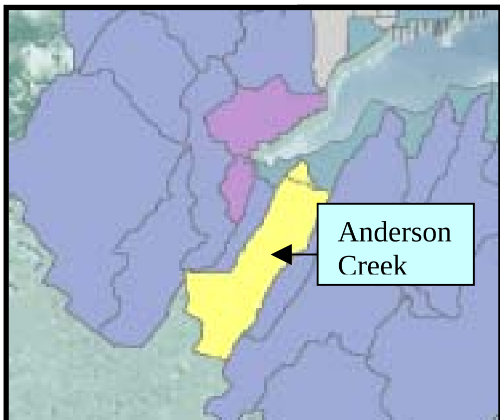
Anderson Creek

Anderson Creek is a class "A" stream within the Sinclair Inlet watershed boundary and lies perpendicular to the southern shoreline (Fig. 1). Its discharge point is east of Gorst at the southwest end of Sinclair Inlet. The watershed is long and narrow with a principle amount lying within the City of Bremerton's Water Utility Forest Land (Fig. 2) (Zimny et al., 2003) ("Maps a la carte, Inc.", 2004). The dominant surficial hydrogeologic unit for the basin is Vashon till. Patches of marsh and bog deposits sprinkle the upper basin, while the lower end is rimmed by Vashon advance outwash followed by nonglacial flood plain deposits (Jones, et al, 1998). The basin is divided into two sub-basins, is predominantly undeveloped with mostly open land and wooded land use (Fig. 3), with approximately 11% total impervious area (%TIA) (Table 1). Kitsap PUD monitors Anderson Creek flow through a gaging station within the watershed boundary close to Sinclair Inlet. An aerial photograph of Anderson Creek Basin is shown in Figure 4 (Space Imaging, 2002). The available flow data is shown in Figure 5 and Figure 6. The drainage area of Anderson Creek supports Coho and Chum Salmon, Cutthroat trout and possibly Steelhead (May, et al, 2003). A water quality sampling site (AC) was established near the stream gage station for sampling during the winter 2002-2003 storm season (Fig. 2). Fecal Coliform and ancillary data collected during winter 2002-2003 are shown in (Table 2) with the wet season summary presented in (Table 3). Figure 7 shows the historical trend of Fecal Coliform for the Anderson Creek site (AC) (May, et al, 2003)

Figure 1 Location of Anderson Creek to Sinclair Inlet



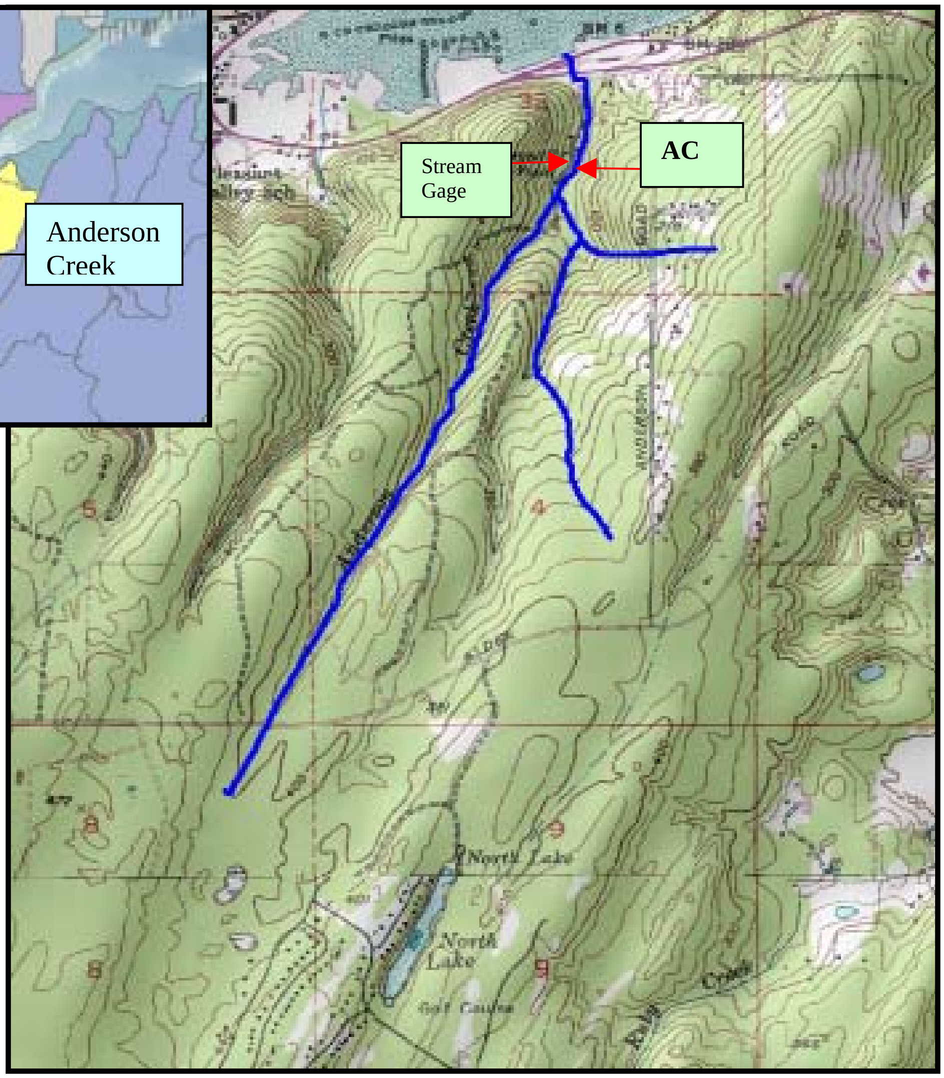


Figure 2 Topography Map of Anderson Creek Basin

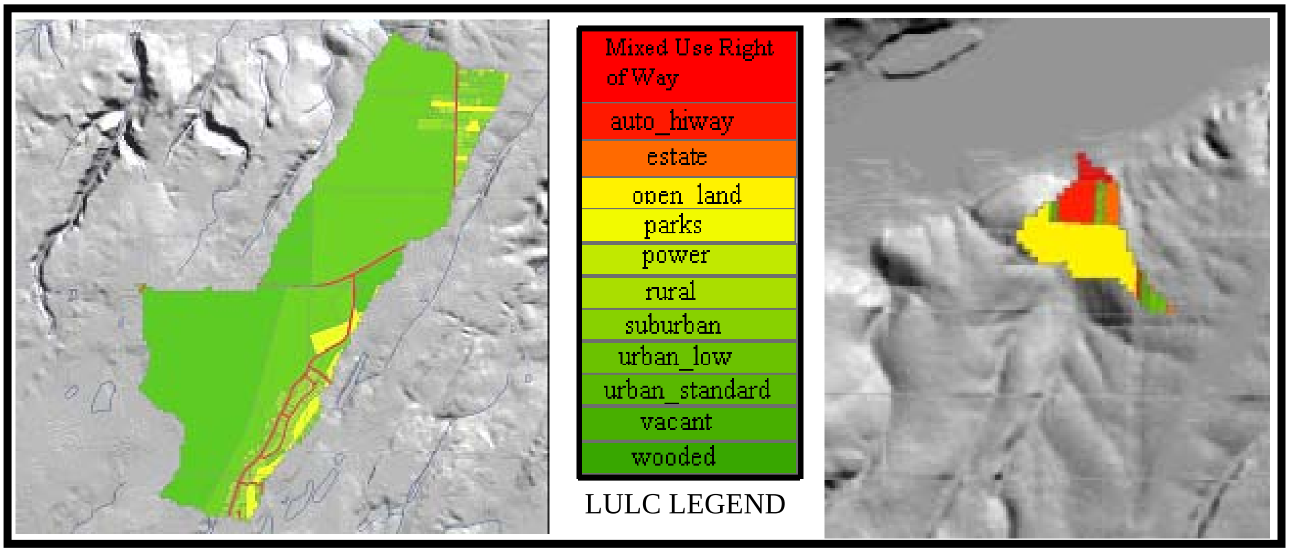


Figure 3 Anderson Creek Basin Land Use Land Code Parcels

Land Code	Percent impervious	Area sq. feet	% of total Area	Impervious Area sq feet	%TIA of Total Area
Mixed Use-Right of Way	44.3%	1408232.85	2.6%	623847.15	1.13%
Auto_Hiway	59.9%	299517.00	0.5%	179410.68	0.33%
Estate	20.8%	600498.37	1.1%	124903.66	0.23%
Open_Land	9.3%	25083004.24	45.5%	2325194.49	4.22%
Parks	18.1%	1703748.52	3.1%	308378.48	0.56%
Power	5.7%	60220.40	0.1%	3432.56	0.01%
Rural	16.1%	536473.00	1.0%	86372.15	0.16%
Suburban	38.9%	828108.50	1.5%	322134.21	0.58%
Urban_Low	38.2%	2454099.33	4.5%	937465.94	1.70%
Urban_Standard	44.0%	26438.73	0.0%	11633.04	0.02%
Vacant	11.4%	3112668.99	5.6%	354844.26	0.64%
Wooded	4.2%	19030344.92	34.5%	799274.49	1.45%
Total		55143354.83		6076891.13	11.02%
Acres		1265.92		139.51	

Table 1 Anderson Creek Land Code Data

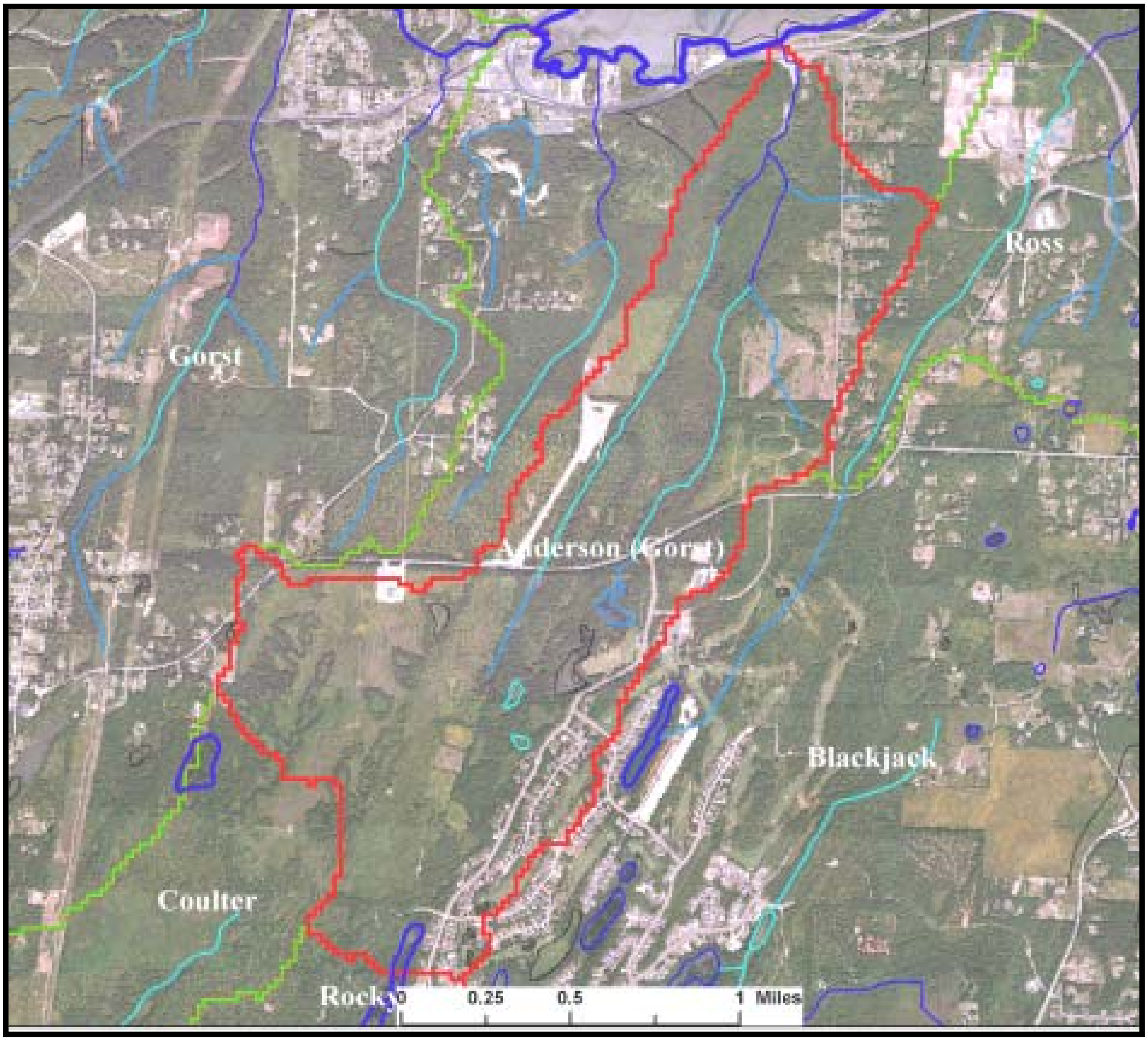


Figure 4 Aerial Photograph of Anderson Creek Basin

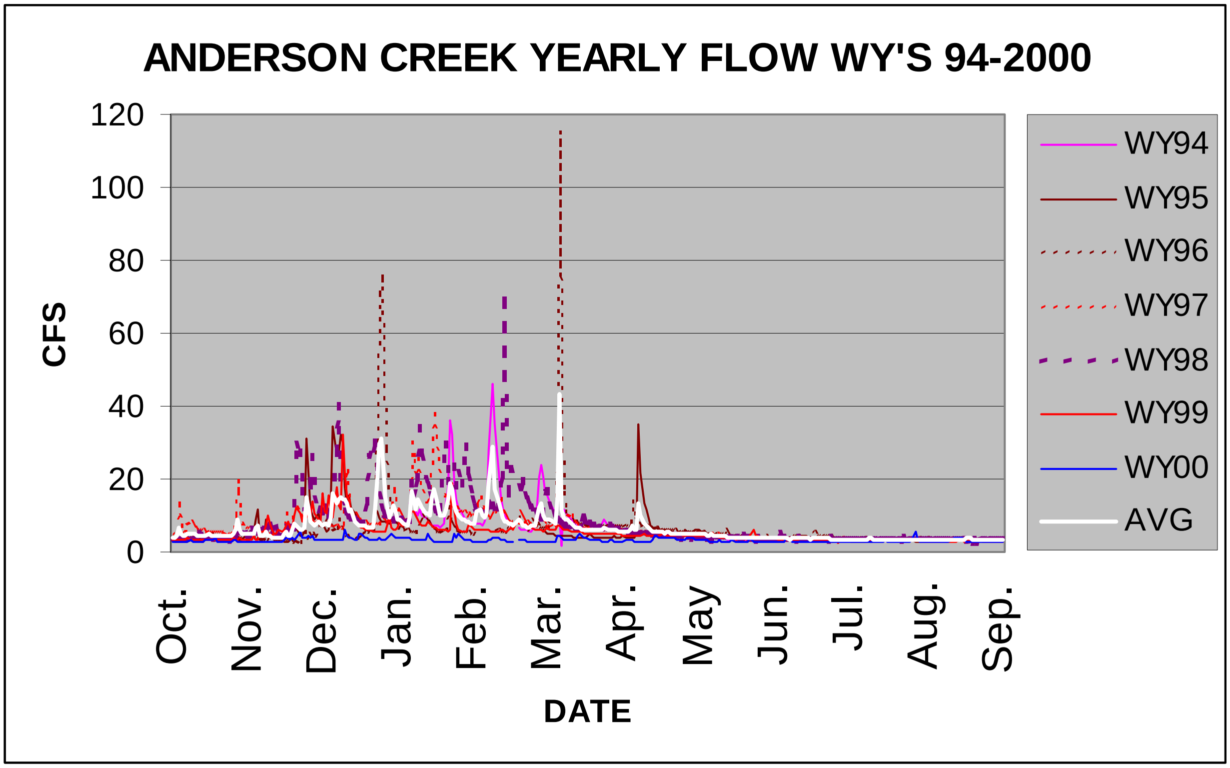


Figure 5 Stream Flow Data for Anderson Creek WY's 1994-200

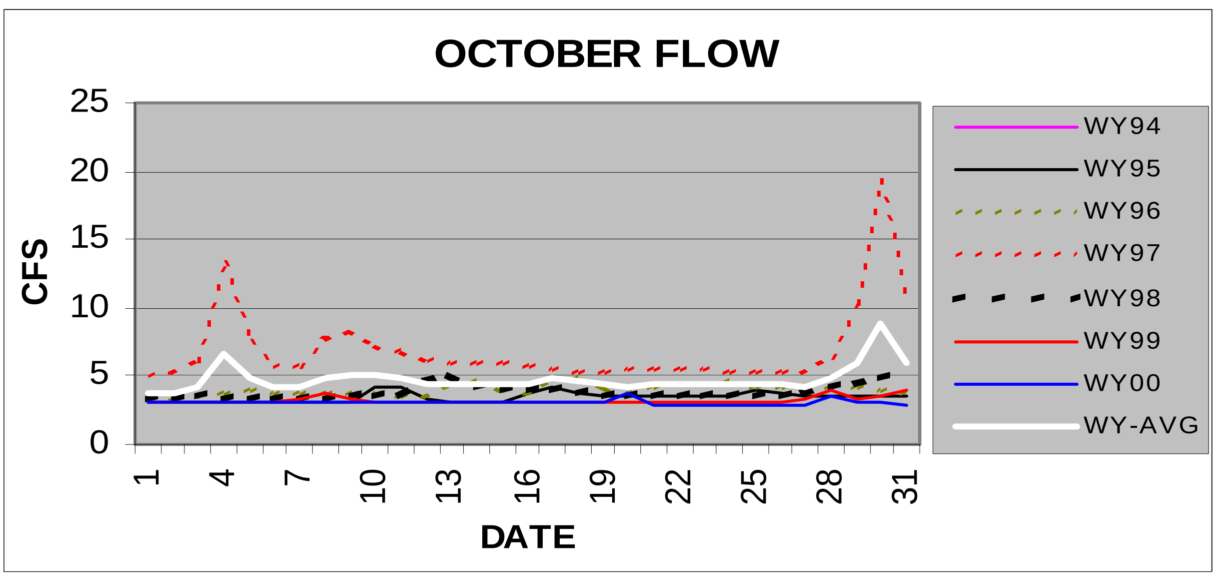
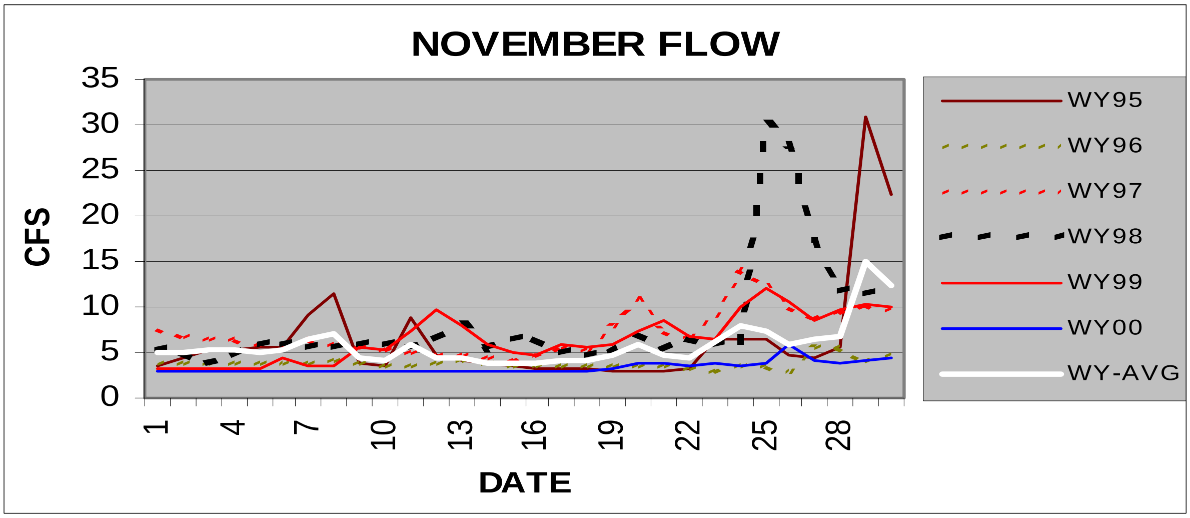
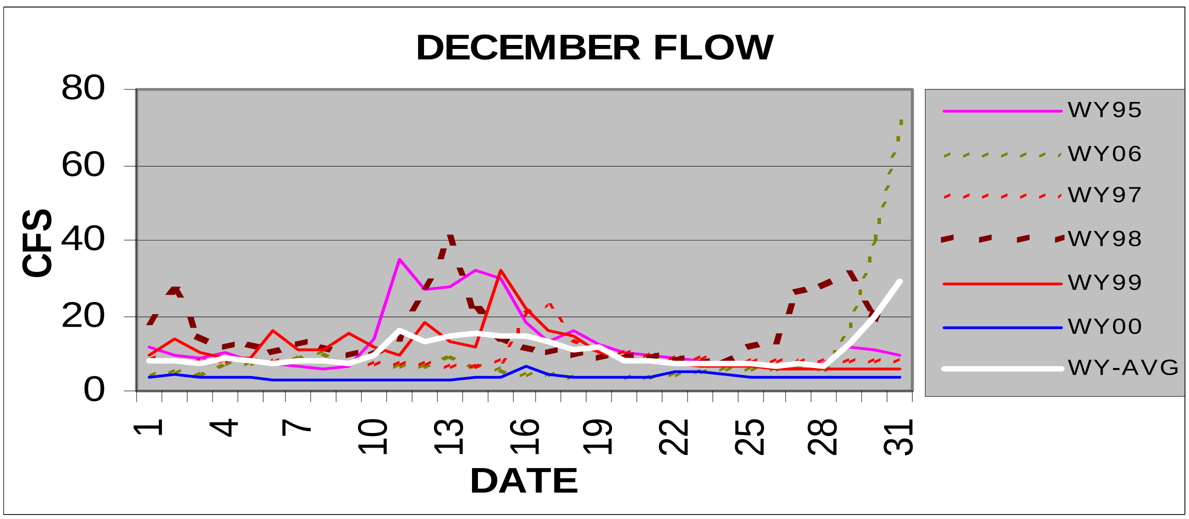


Figure 6 Anderson Creek Flow Data in Monthly increments





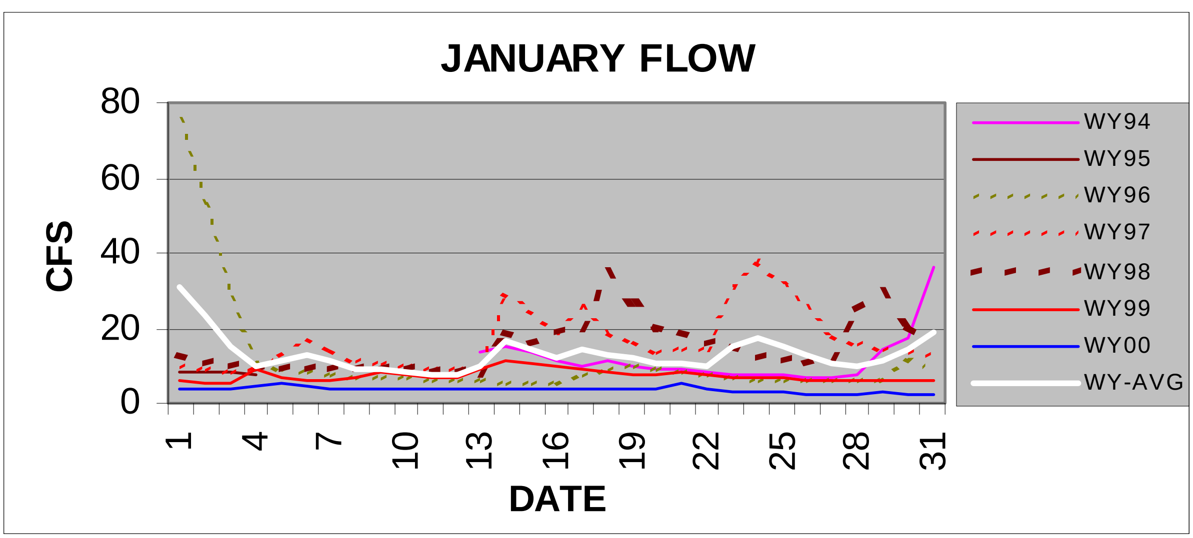
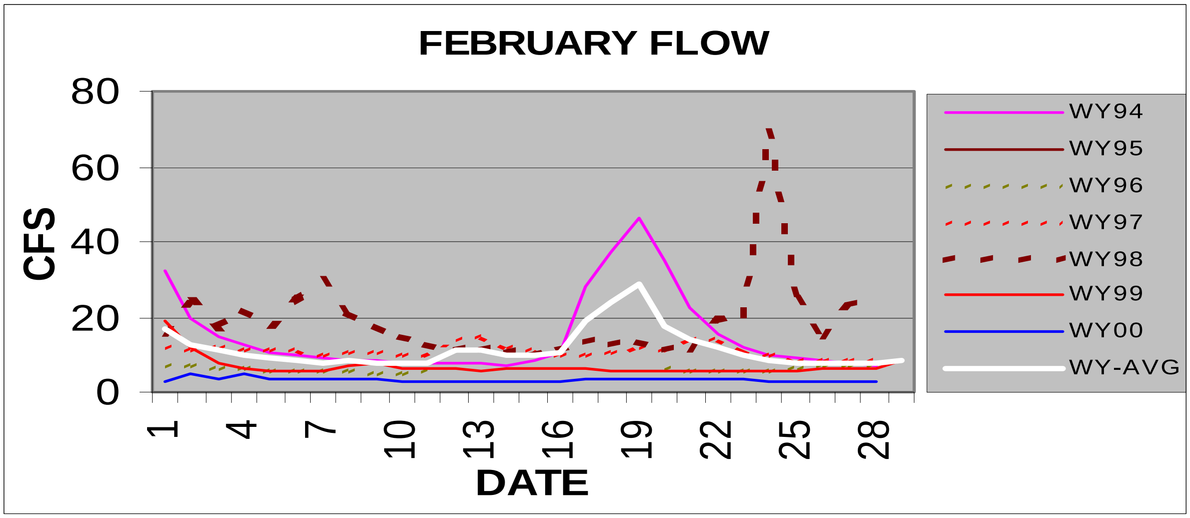
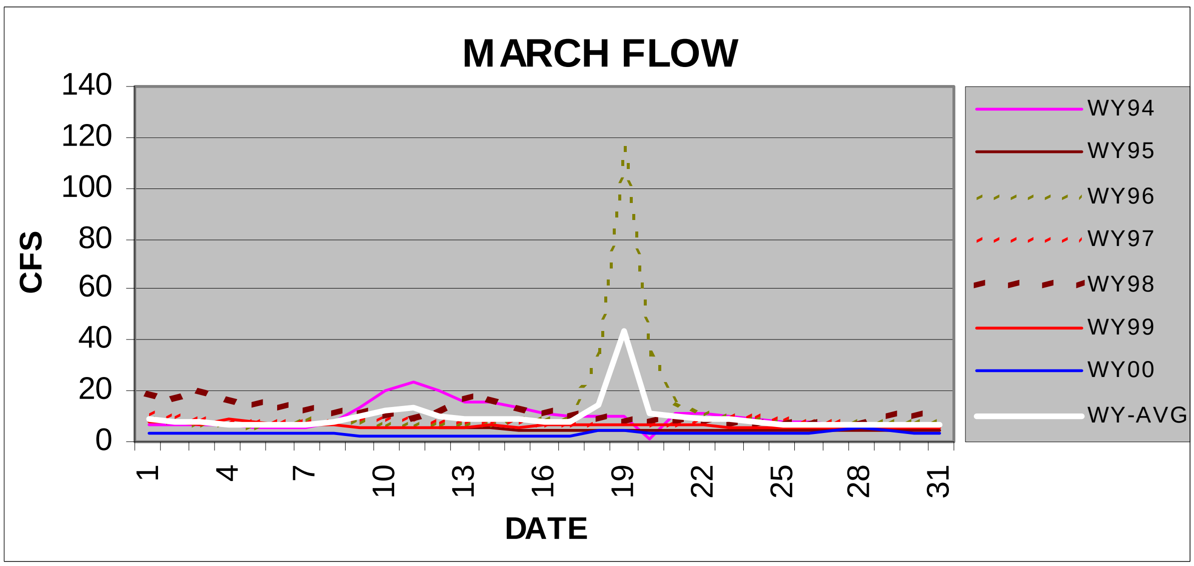


Figure 6 cont. Anderson Creek Flow Data in Monthly increments





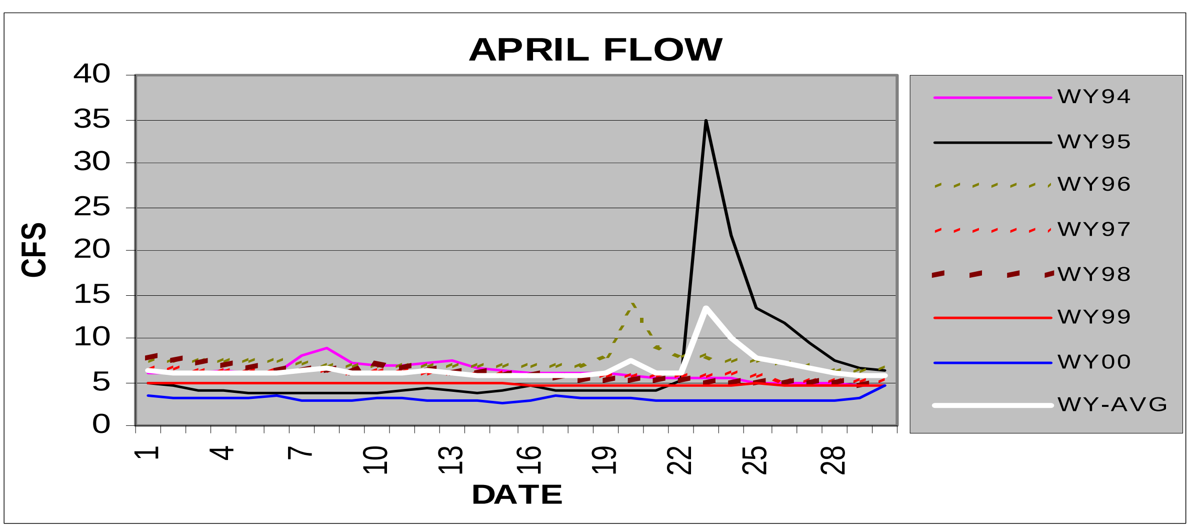
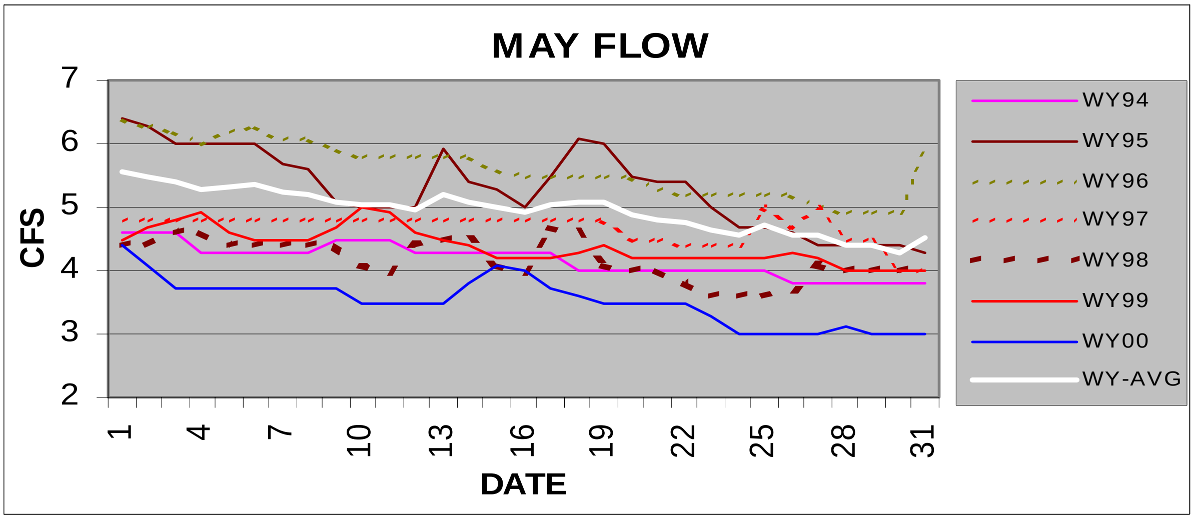
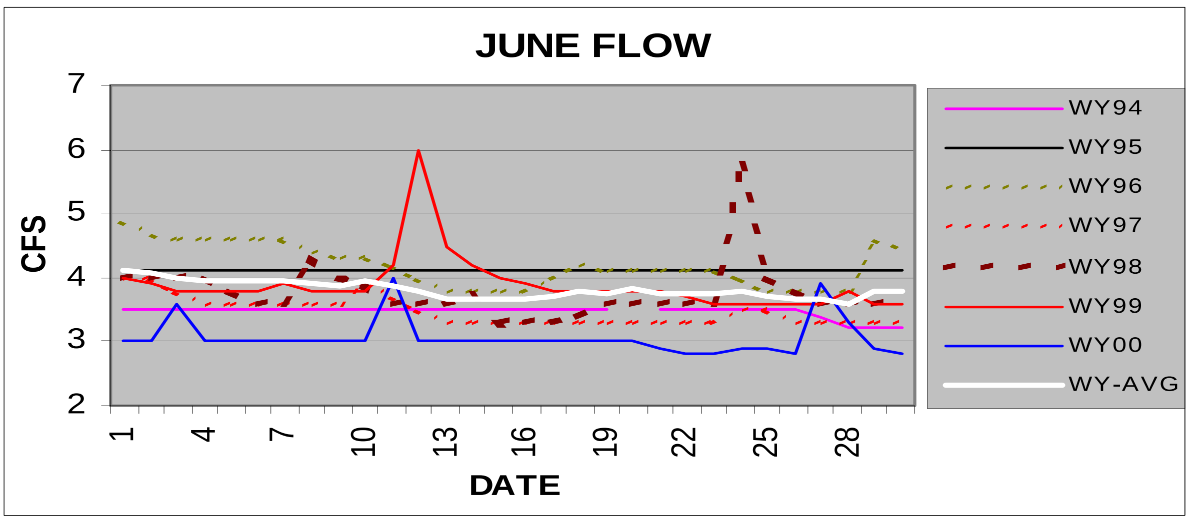


Figure 6 cont. Anderson Creek Flow Data in Monthly increments





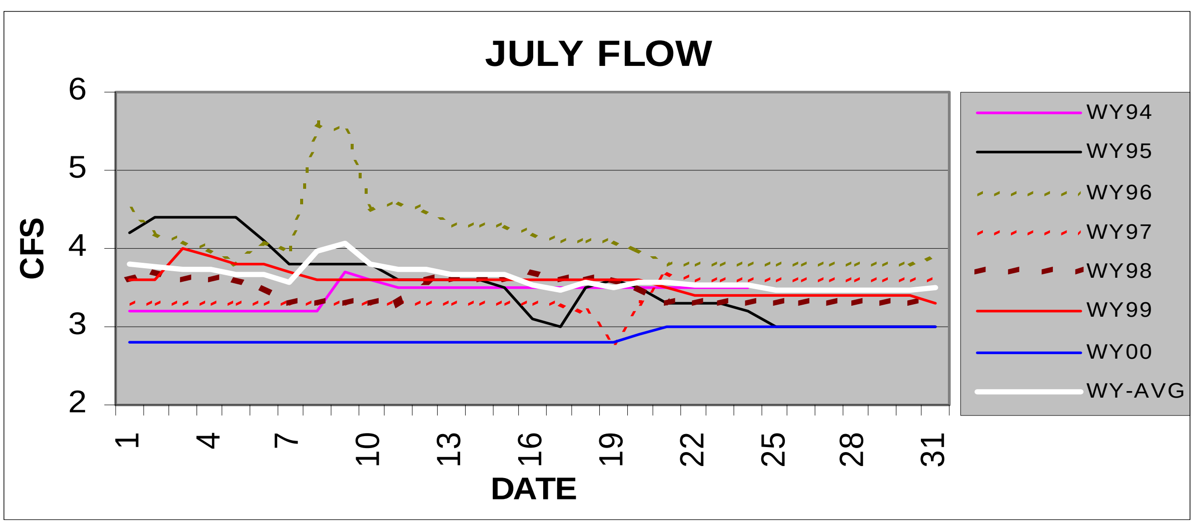
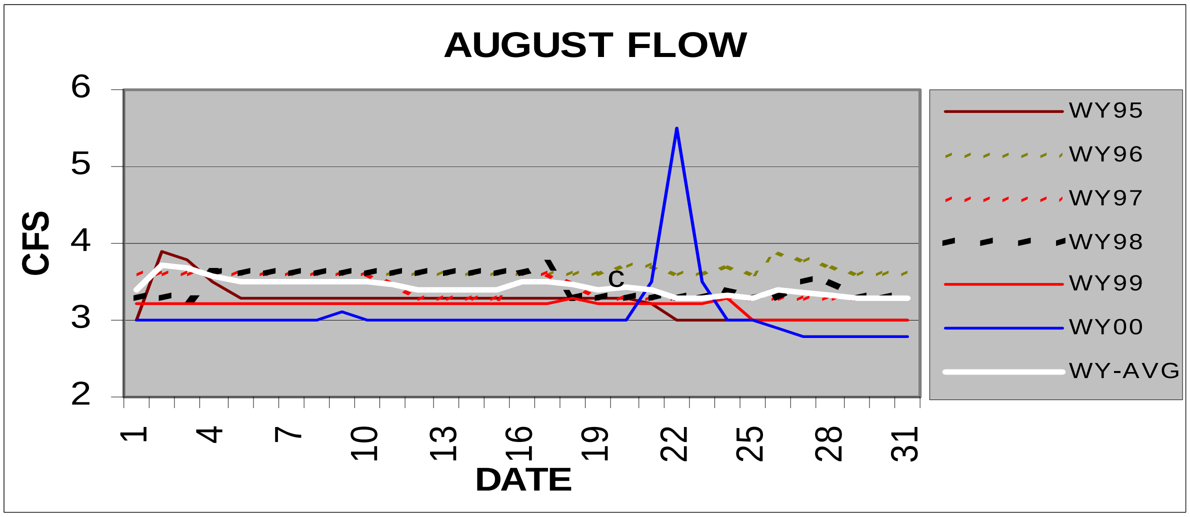


Figure 6 cont. Anderson Creek Flow Data in Monthly increments



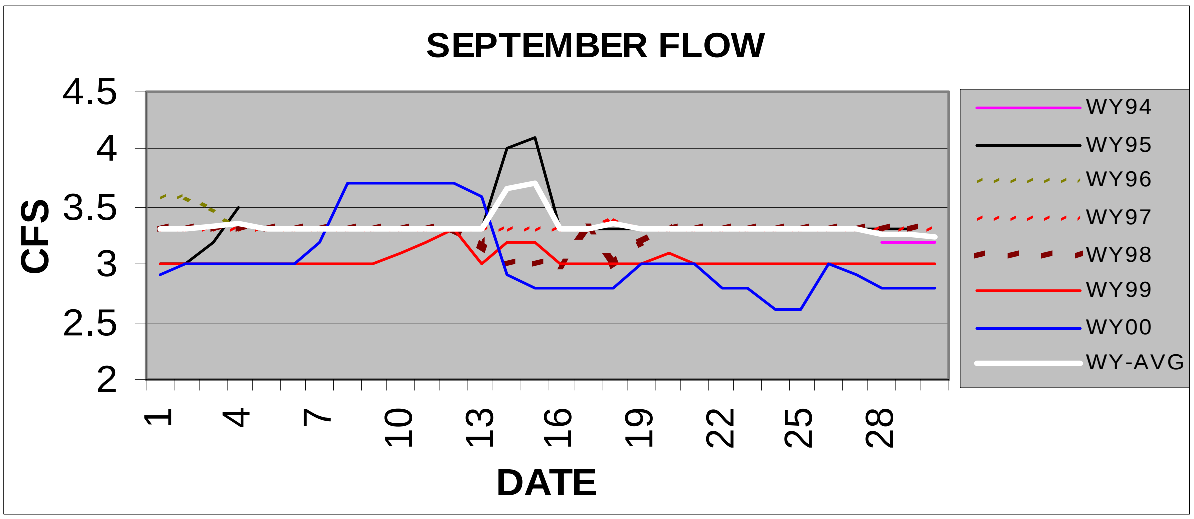


Figure 6 cont. Anderson Creek Flow Data in Monthly increments

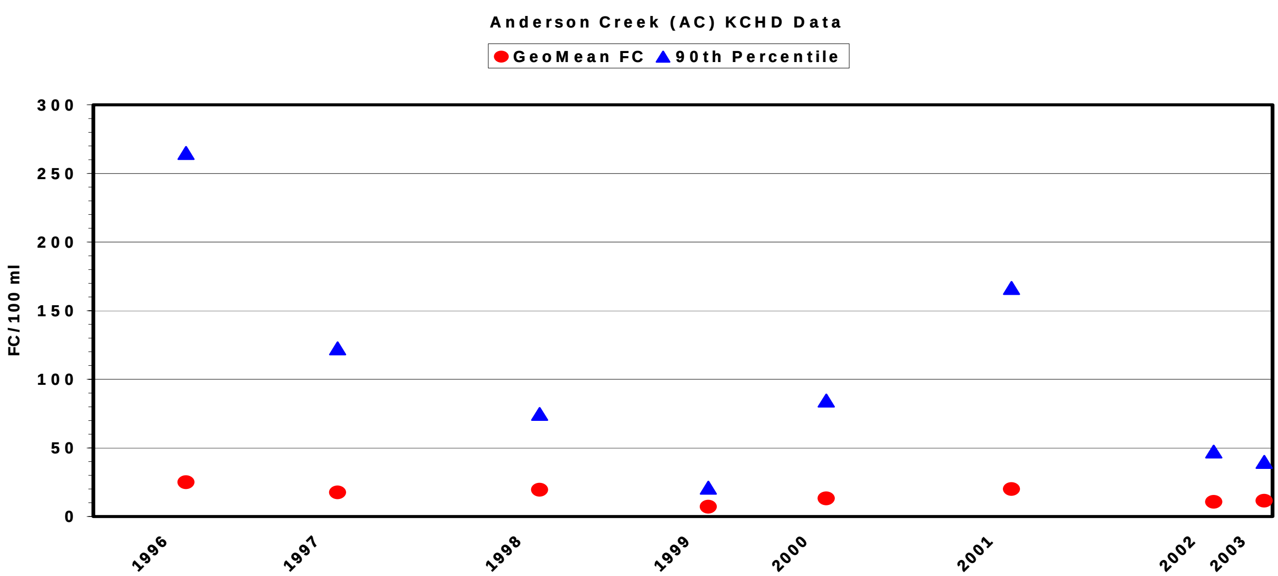
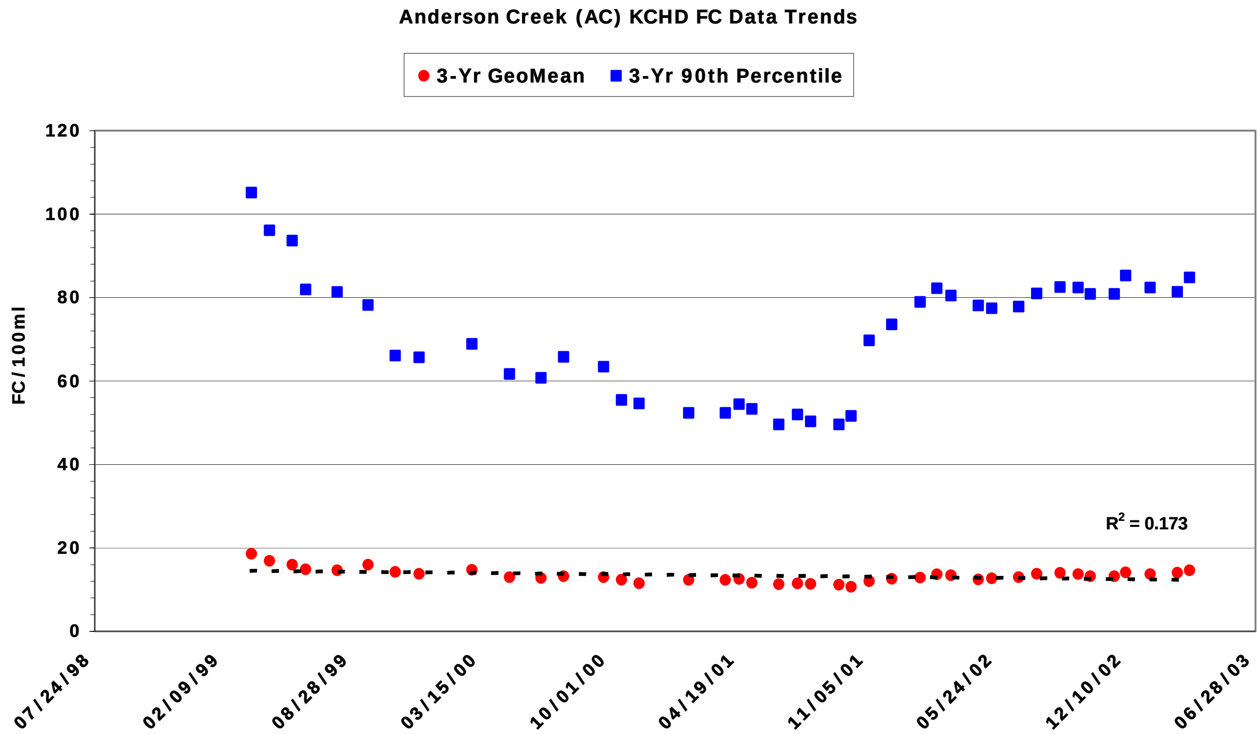


Figure 7 Anderson Creek site (AC) historical FC trend



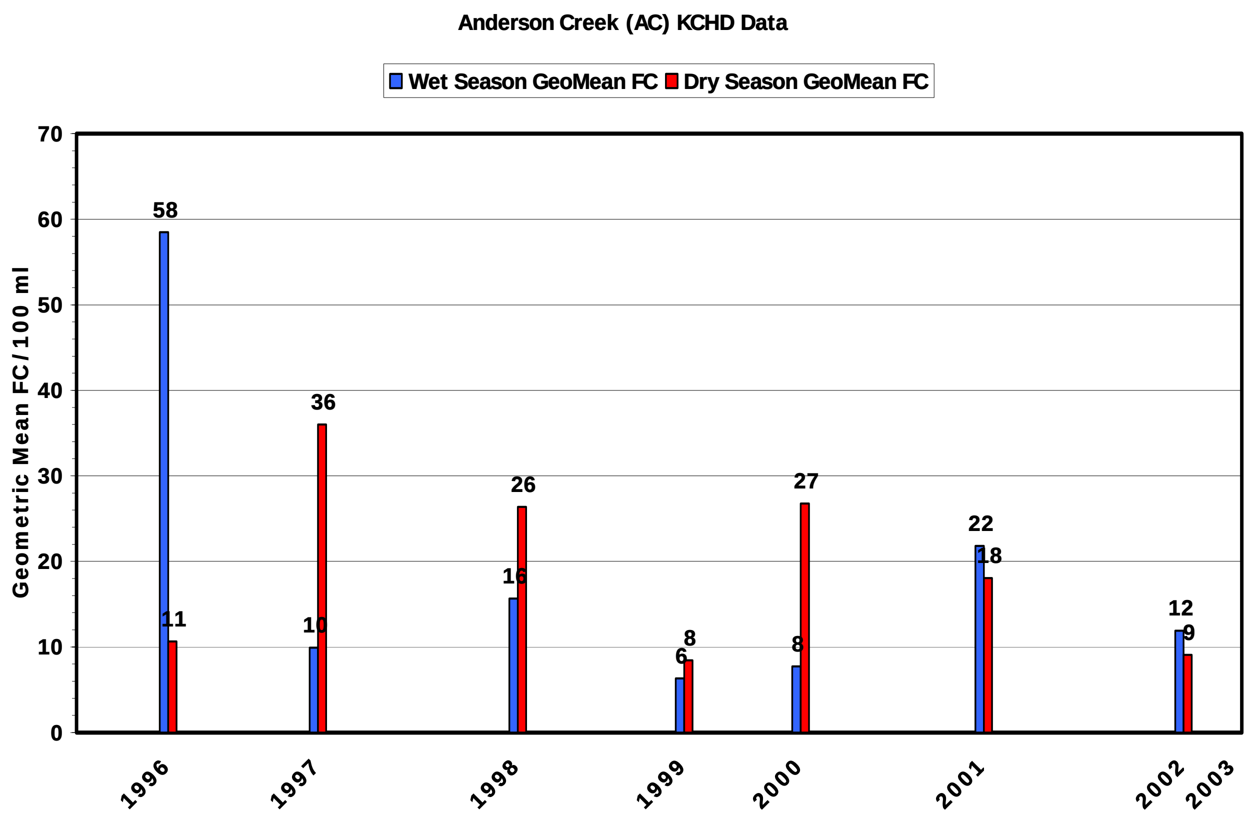
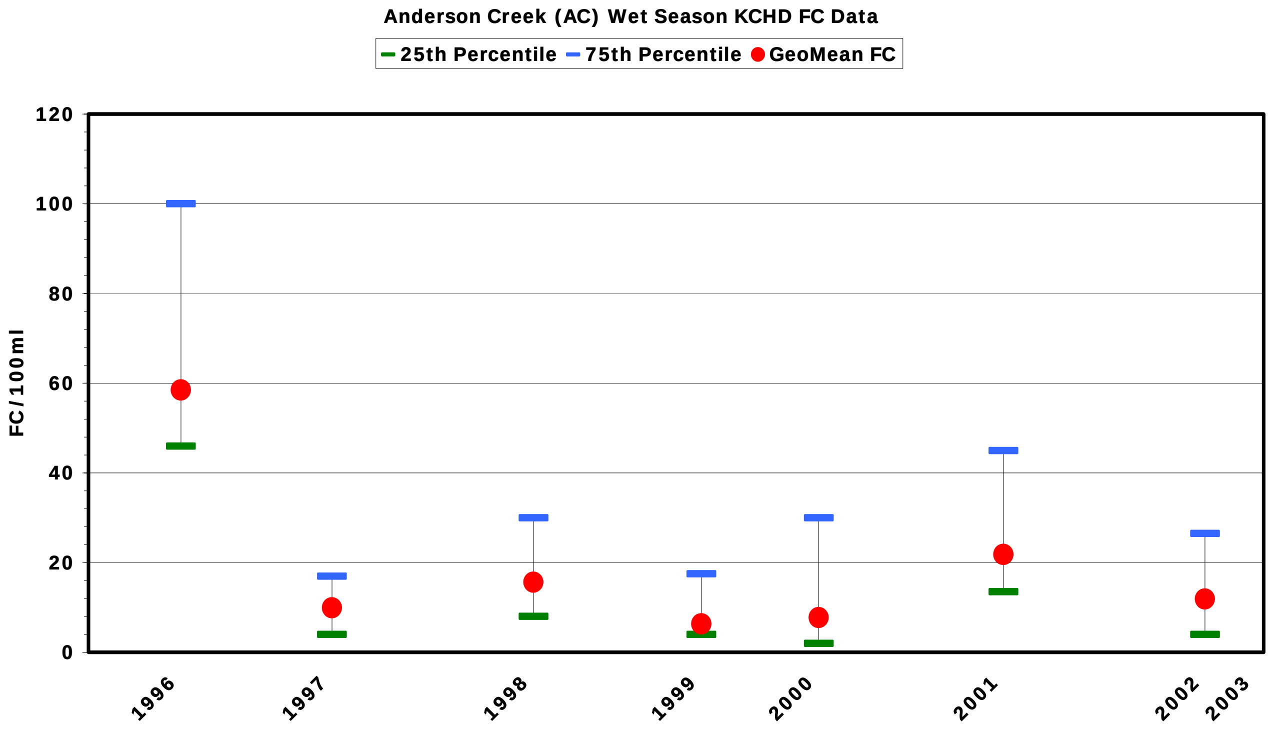


Figure 7 cont. Anderson Creek site (AC) historical FC trend



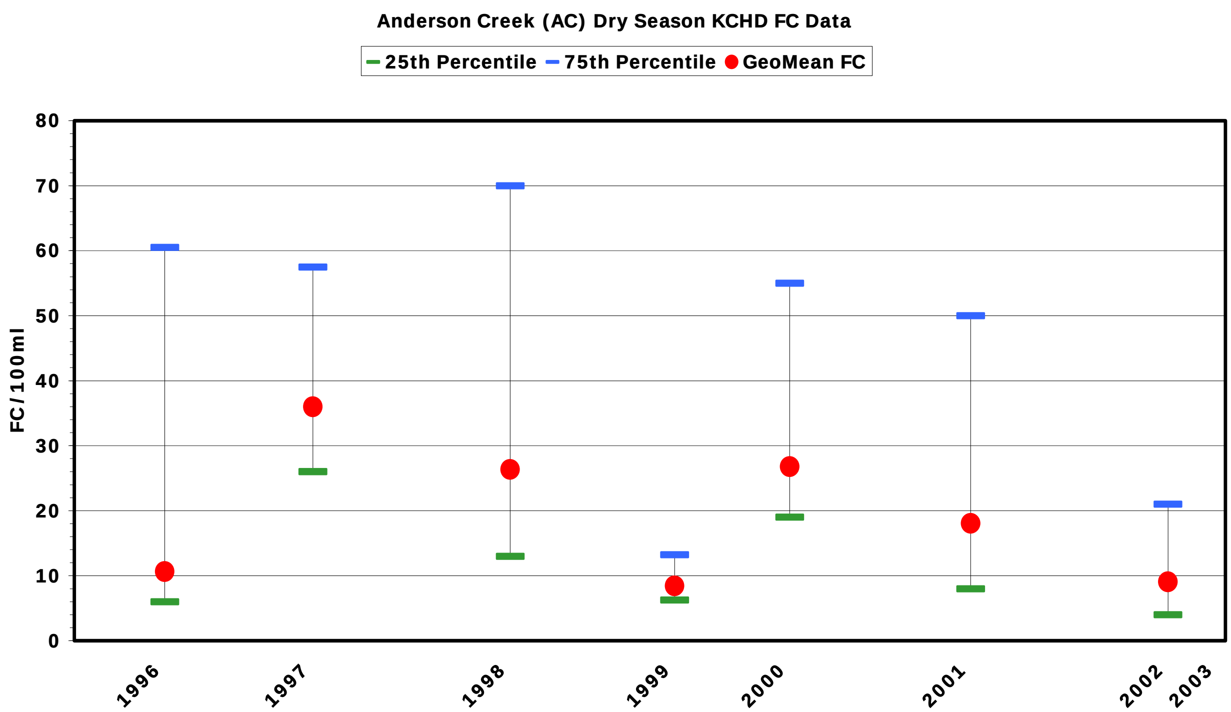


Figure 7 cont. Anderson Creek site (AC) historical FC trend

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE/TIME	METHOD_LABEL	FC	pH	Spec. Cond.	TEMP C	Turbidity
02450424	AC	SSTREAMS	11/07/2002 11:05 AM	FCOL(MF)	2	7.67	86.7	8.47	2.5
02460404	AC	SSTREAMS	11/13/2002 09:50 AM	FCOL(MF)	1	6.98	99	9	1.81
02460414	AC	SSTREAMS	11/14/2002 09:45 AM	FCOL(MF)	1	7.95	81	8.6	1.29
02470403	AC	SSTREAMS	11/18/2002 09:15 AM	FCOL(MF)	3				1.38
02470404	AC	SSTREAMS	11/18/2002 09:15 AM	FCOL(MF)	1				1.38
02470413	AC	SSTREAMS	11/20/2002 09:40 AM	FCOL(MF)	6	6.87	88	9.2	1.46
02470423	AC	SSTREAMS	11/21/2002 09:55 AM	FCOL(MF)	49	7.29	102	8.9	1.66
02490403	AC	SSTREAMS	12/05/2002 10:30 AM	FCOL(MF)	4				4.11
02500401	AC	SSTREAMS	12/09/2002 01:30 PM	FCOL(MF)	8	7.34	100	7.4	4.67
02500413	AC	SSTREAMS	12/11/2002 09:45 AM	FCOL(MF)	250	6.5	97	7.3	25.7
02500424	AC	SSTREAMS	12/12/2002 10:00 AM	FCOL(MF)	11		103	8.6	7.6
02510404	AC	SSTREAMS	12/16/2002 08:45 AM	FCOL(MF)	22				
02510414	AC	SSTREAMS	12/19/2002 09:45 AM	FCOL(MF)	88				
03020403	AC	SSTREAMS	01/06/2003 10:20 AM	FCOL(MF)	17	7.24	56.6	6.16	4.36
03020404	AC	SSTREAMS	01/06/2003 10:20 AM	FCOL(MF)	11	7.24	53.6	6.16	4.36
03030403	AC	SSTREAMS	01/13/2003 10:15 AM	FCOL(MF)	10	7.15	61.3	7	3.12
03030413	AC	SSTREAMS	01/15/2003 11:50 AM	FCOL(MF)	9	7.2	55.6	6.67	2.05
03040433	AC	TEC-STORM	01/22/2003 08:00 AM	FCOL(MF)	230				
03040403	AC	SSTREAMS	01/22/2003 12:55 PM	FCOL(MF)	72	7.21	47.2	7.34	20
03040442	AC	TEC-STORM	01/22/2003 11:30 PM	FCOL(MF)	26				
03040449	AC	TEC-STORM	01/23/2003 09:30 AM	FCOL(MF)	20				
03040414	AC	SSTREAMS	01/23/2003 01:42 PM	FCOL(MF)	10	7.16	47	7.83	6.26
03050433	AC	TEC-STORM	01/29/2003 12:00 PM	FCOL(MF)	54				
03050441	AC	TEC-STORM	01/30/2003 02:35 PM	FCOL(MF)	11				
03050448	AC	TEC-STORM	01/30/2003 09:45 PM	FCOL(MF)	80				

Table 2 Raw Fecal Coliform and Ancillary data from ENVVEST Project water quality monitoring site

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
AC	Lower Mainstem Anderson Crk	15	1	250	7	52	111	158%	23	2	9%	YES	2	9%	YES

Table 3 Anderson Creek site (AC) Data Summary Wet Season 2002-2003

Barker Creek

Barker Creek is a class "A" stream within the Dyes Inlet watershed boundary that supports Coho and Chum Salmon (May, et al, 2003), and enters Dyes Inlet obliquely to the Inlets eastern shore line (Zimny et al., 2003). Fig. 1 shows the location of Barker Creek basin in Dyes Inlet, while (Fig. 2) shows a 1995 aerial photo of the basin ("Maps a la carte, Inc.", 2004). After a short run northeast from Dyes Inlet, Barker Creek turns north and extends for approximately 3.5 miles to its headwaters at Island Lake. The principle watershed is elongated and divided into five sub-watersheds (Fig. 3). Forty Six percent of the area is in vacant, estate and mixed use Right of Way land with the total impervious area (%TIA) of Barker Creek approximately 26.0%. Combined Land cover data of the individual sub-watersheds is found in Table 1. While the dominant surficial hydrogeologic unit for Barker Creek basin is Vashon till, the stream itself courses through different Quaternary deposits. The immediate underlying materials for the Island Lake headwaters are, marsh, bog and peat deposits surrounded by patches of Vashon advanced outwash and till. Barker Creek heads south from here, channeling through Quaternary alluvium until it turns southwest towards Dyes Inlet. Here it runs through Quaternary recessional outwash, advance outwash, till and flood plain deposits before emptying into Dyes Inlet (Jones, et al, 1998). Figure 5 is a newer aerial photograph of Barker Creek Basin (Space Imaging, 2002). A gaging station within the watershed boundary near Dyes Inlet has been established by Kitsap PUD to monitor the flow of Barker Creek (Fig. 4) ("Maps a la carte, Inc.", 2004). Available flow data for the catchment is shown in (Fig. 6), water years combined over a water year period, and (Fig. 7), water years by the month over a water year period. The ENVVEST project team established three water quality sampling sites (BA-BHRD, BA-NN, BA) along Barker Creek for sampling during the winter 2002-2003 storm season (Fig. 4). The Fecal Coliform and ancillary data that were collected during this period are shown in (Table 2) with the wet season summary presented in Table 3. Figures 8-10 show the historical trend of Fecal Coliform for the Barker Creek sites (BA-BH, BA-NN, BA) (May, et al, 2003).

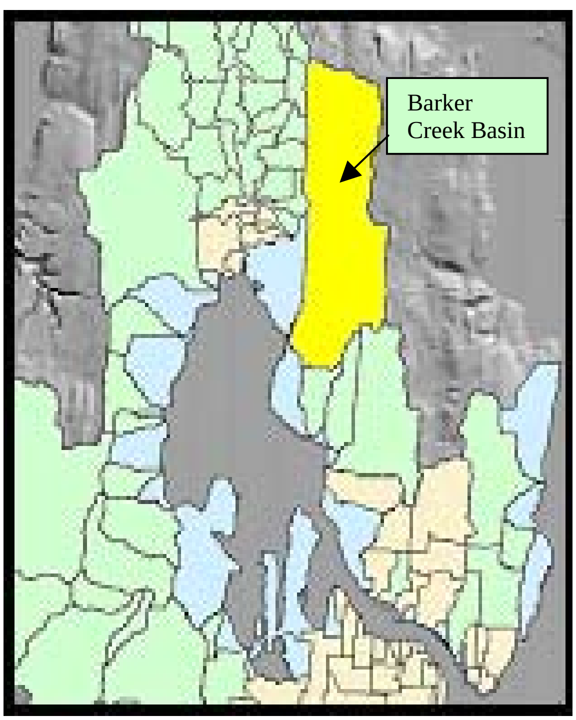


Figure 1. Location of Barker Creek Basin in Dyes Inlet

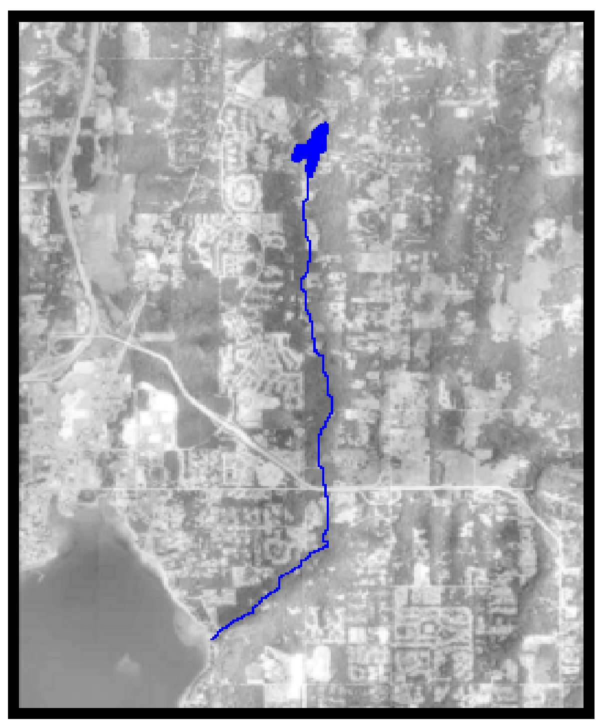


Figure 2. Shaded relief photo of Barker Creek basin

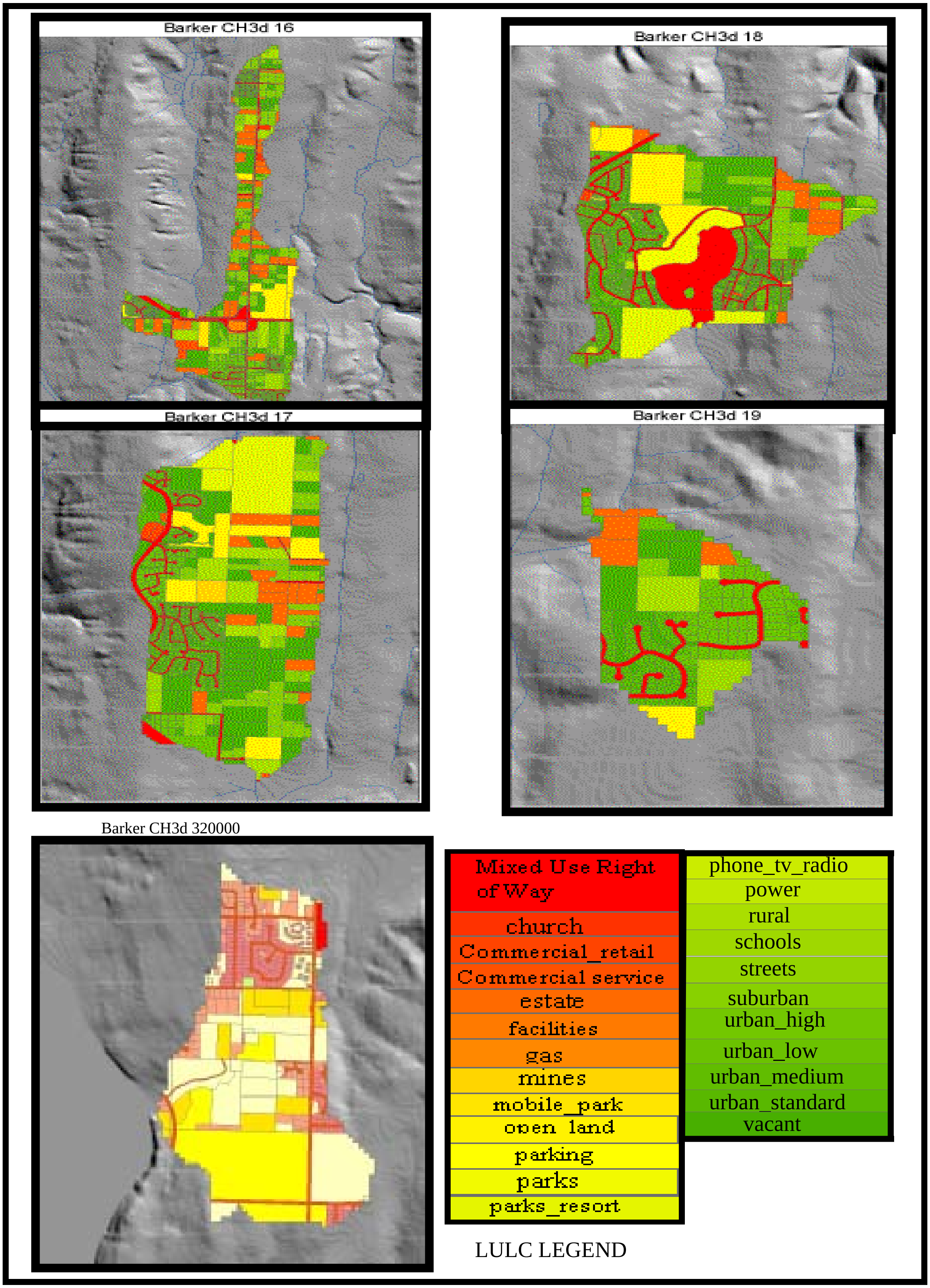


Figure 3 Sub-watersheds of Barker Creek with their respective land codes shown in color blocks.

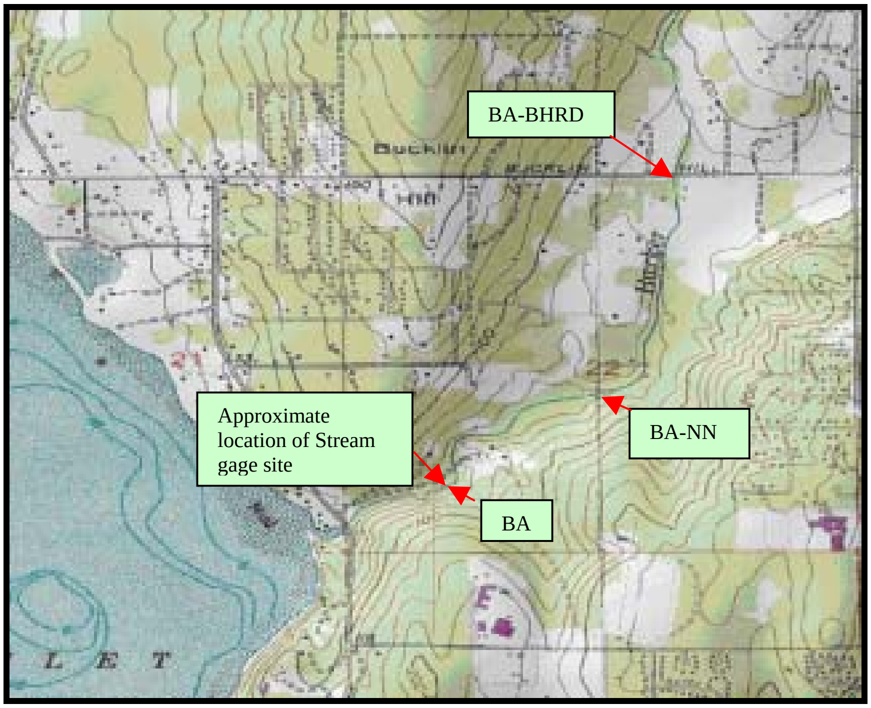


Figure 4. Sampling sites and stream gage location

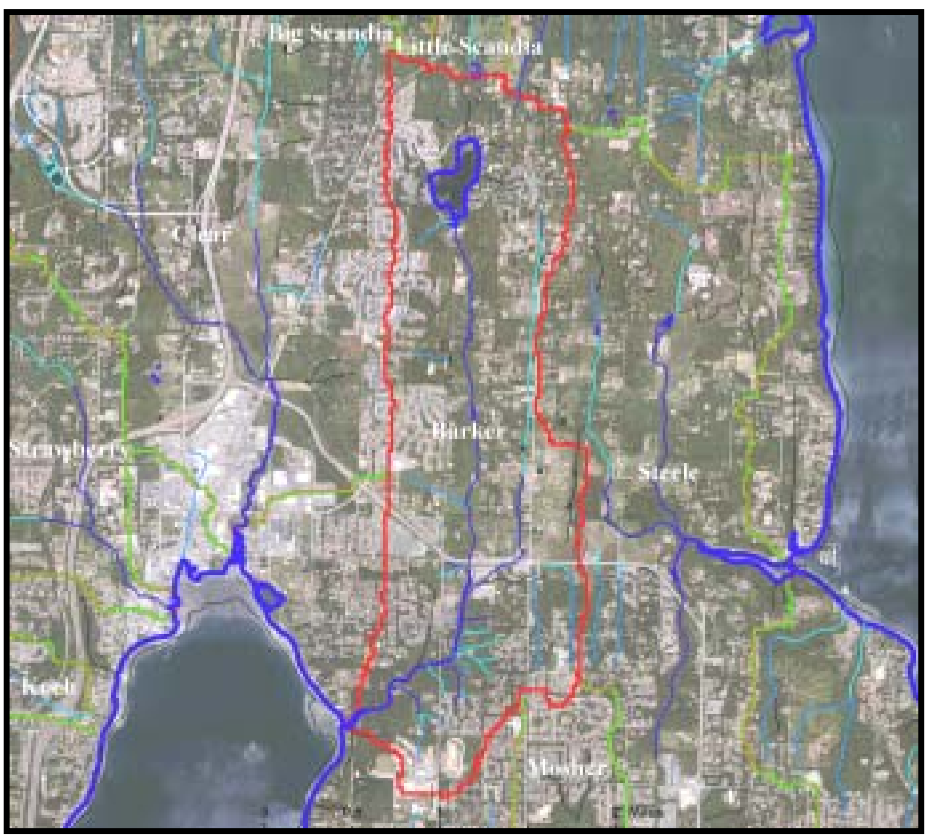


Figure 5 Aerial Photograph of Barker Creek Basin

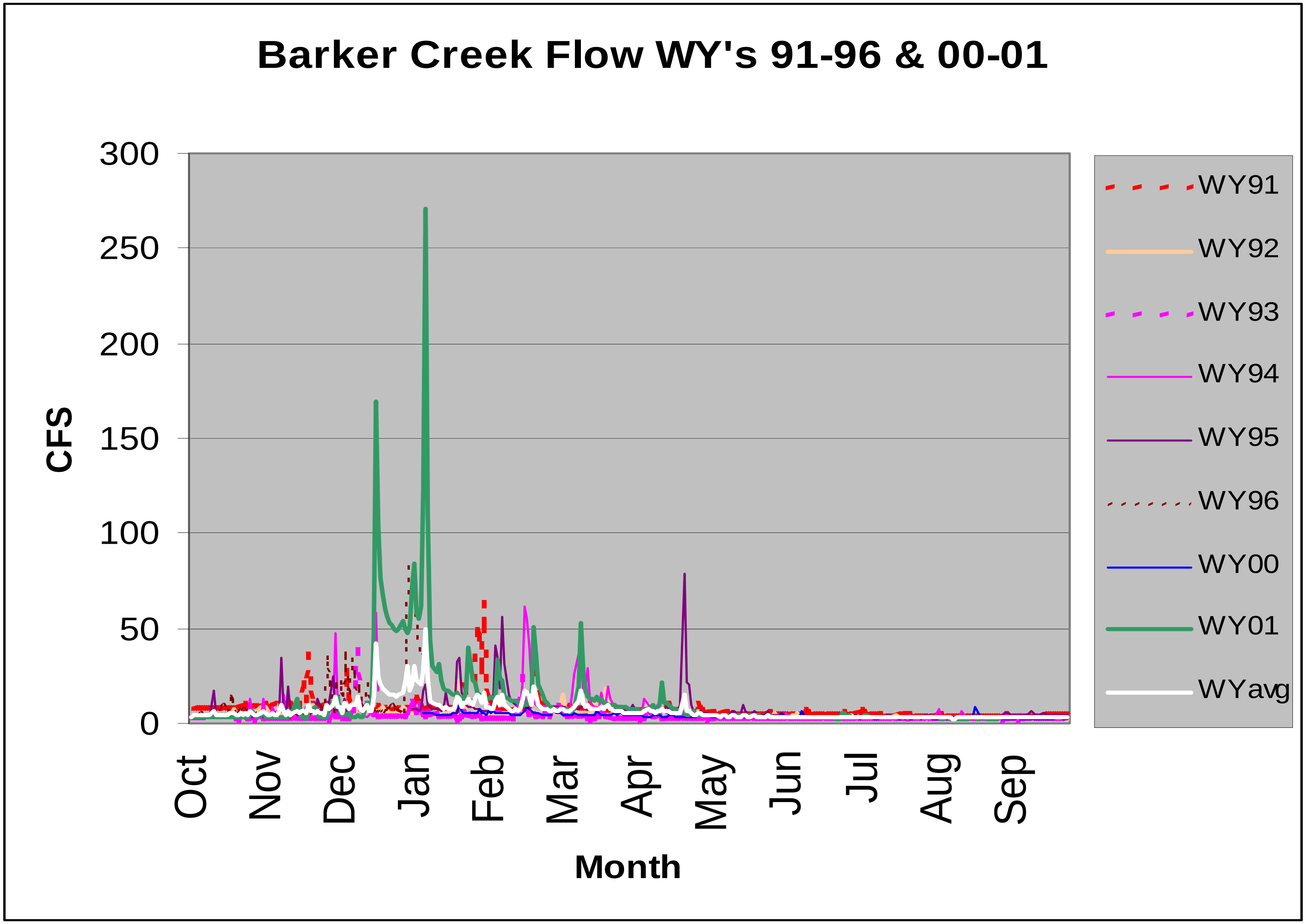
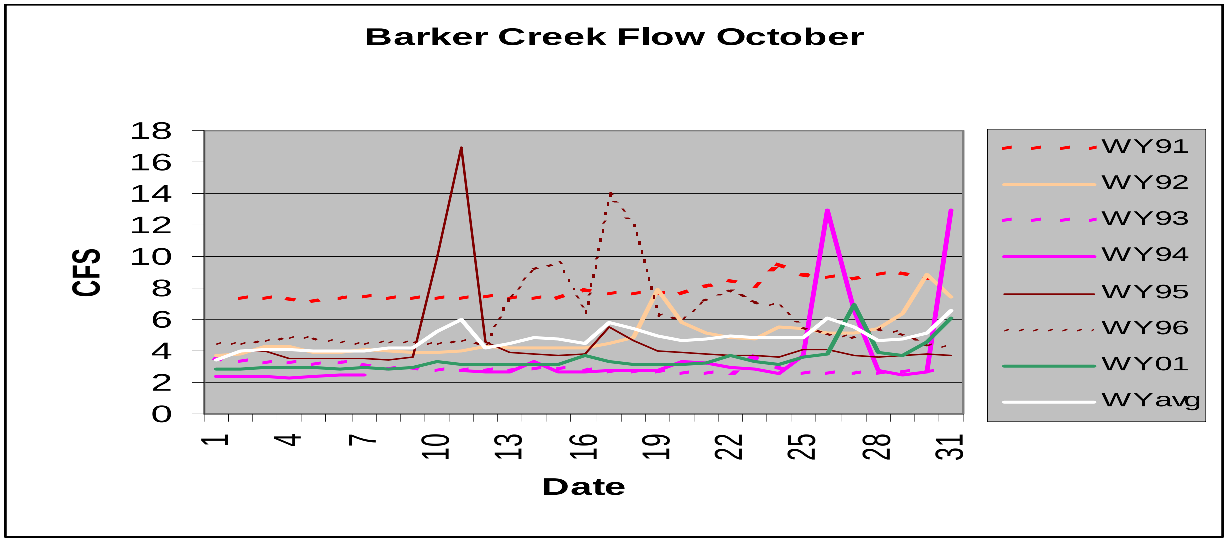
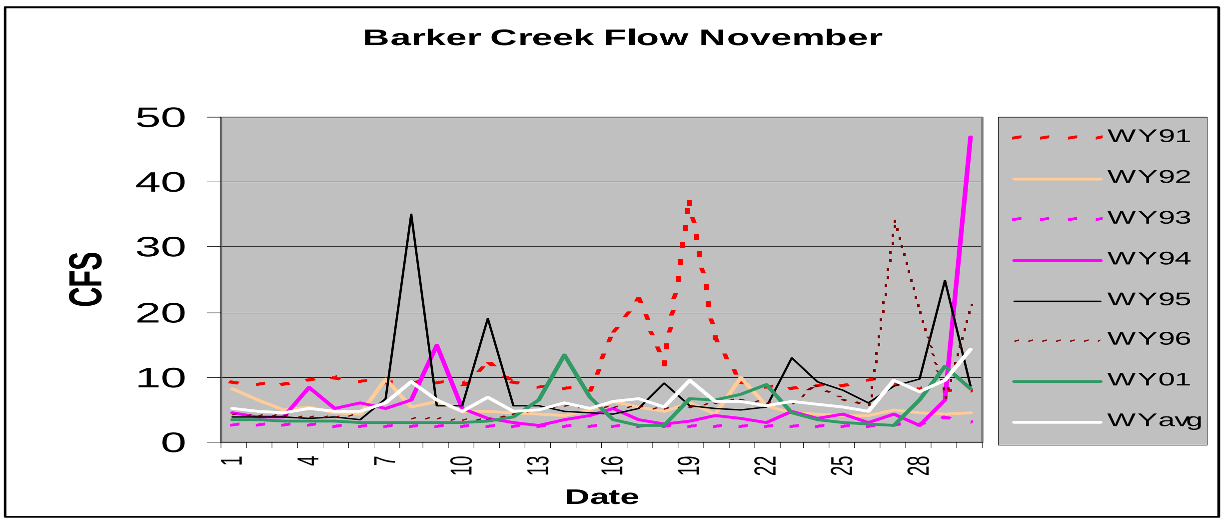


Figure 6 Flow Data for Barker Creek Basin





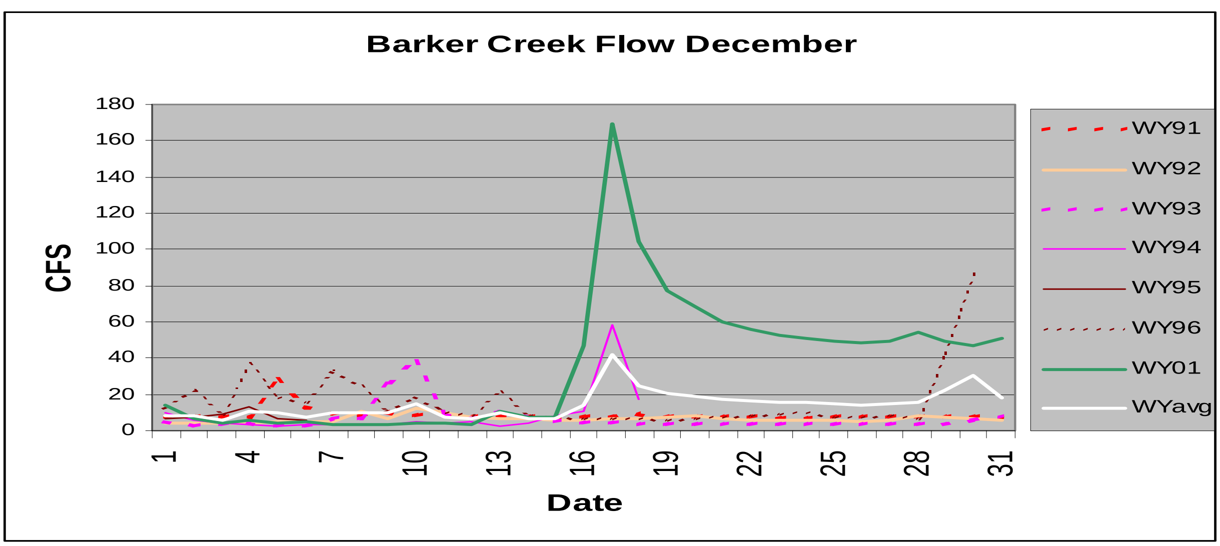
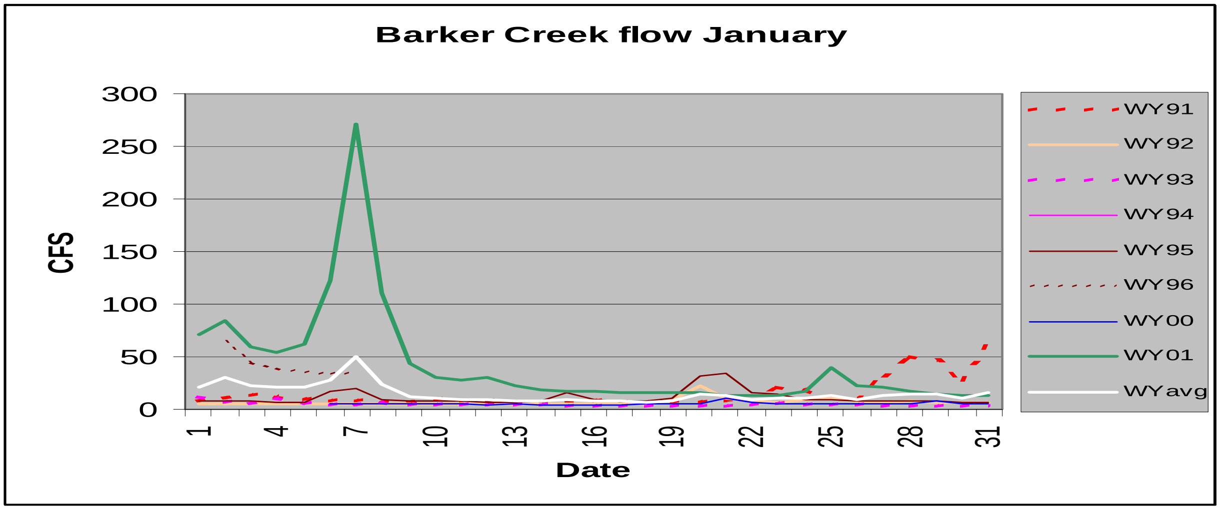
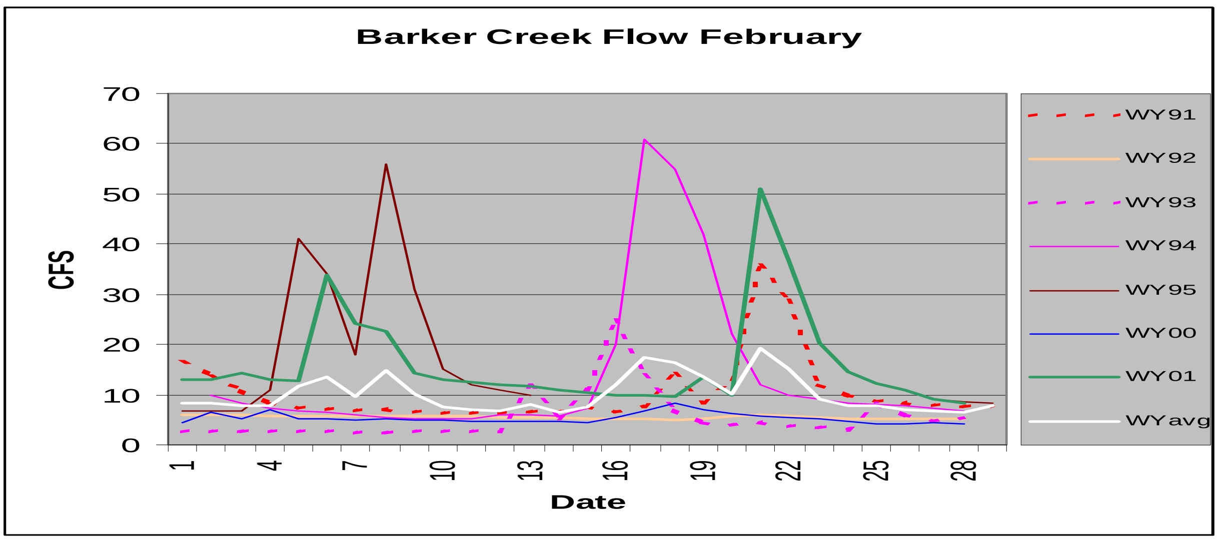


Figure 7 Barker Creek Flow Data in Monthly





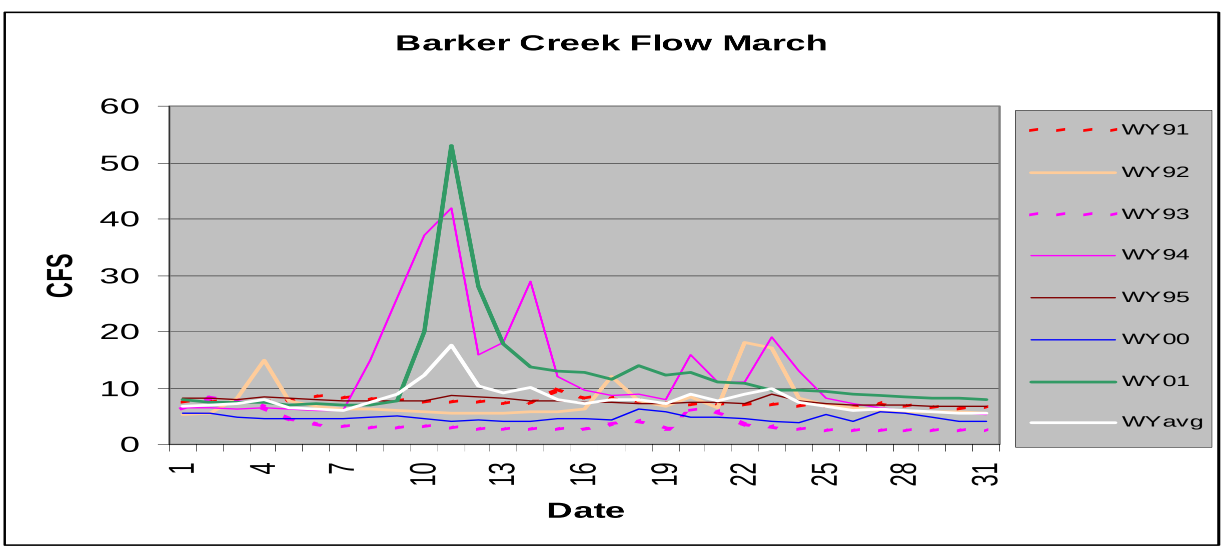
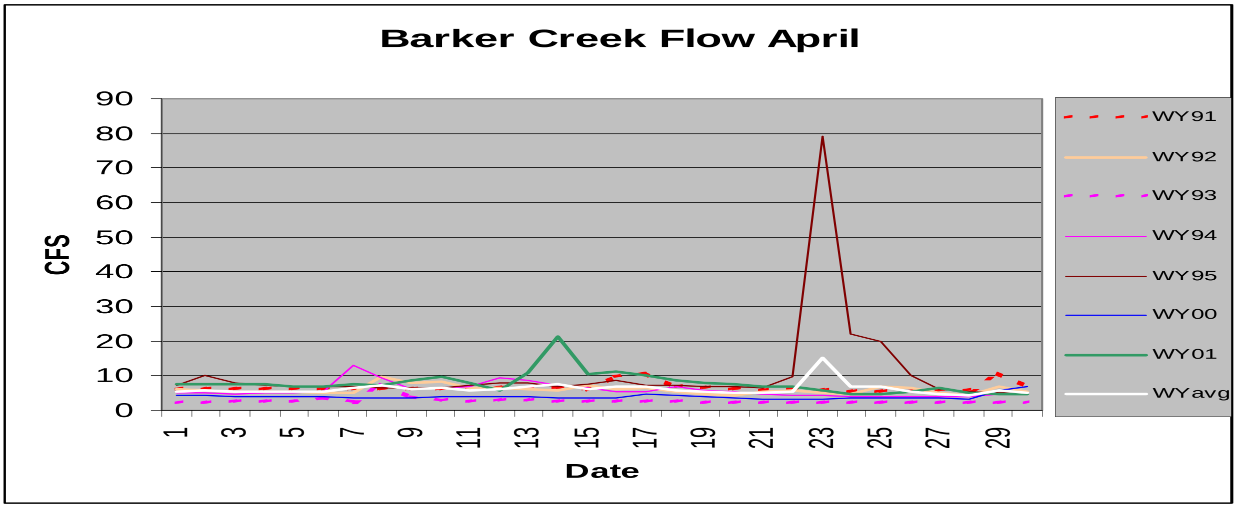
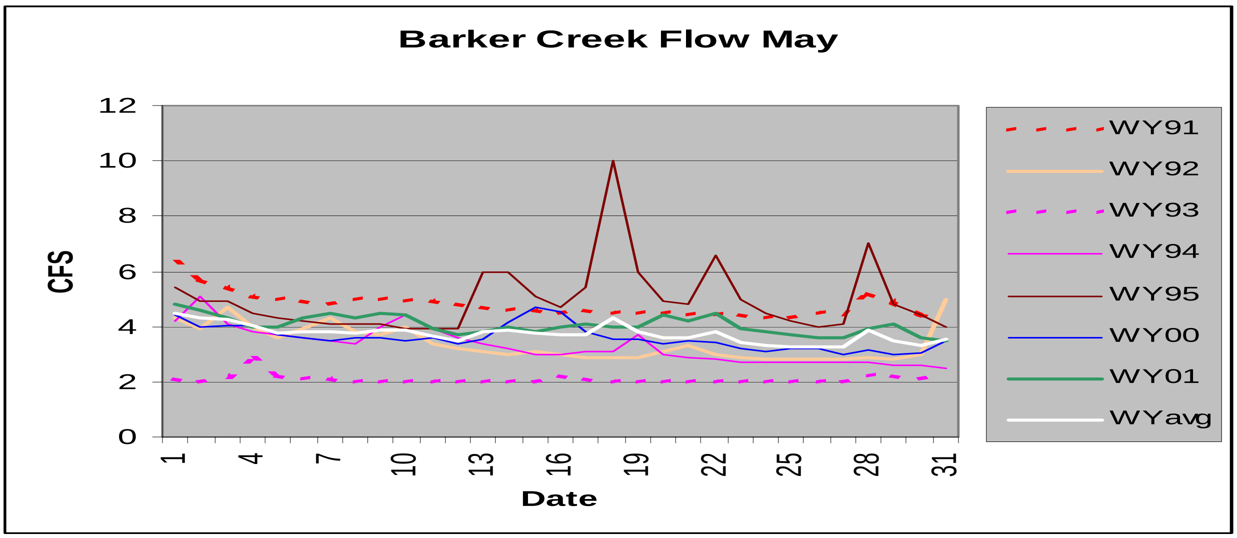


Figure 7 cont. Barker Creek Flow Data in Monthly





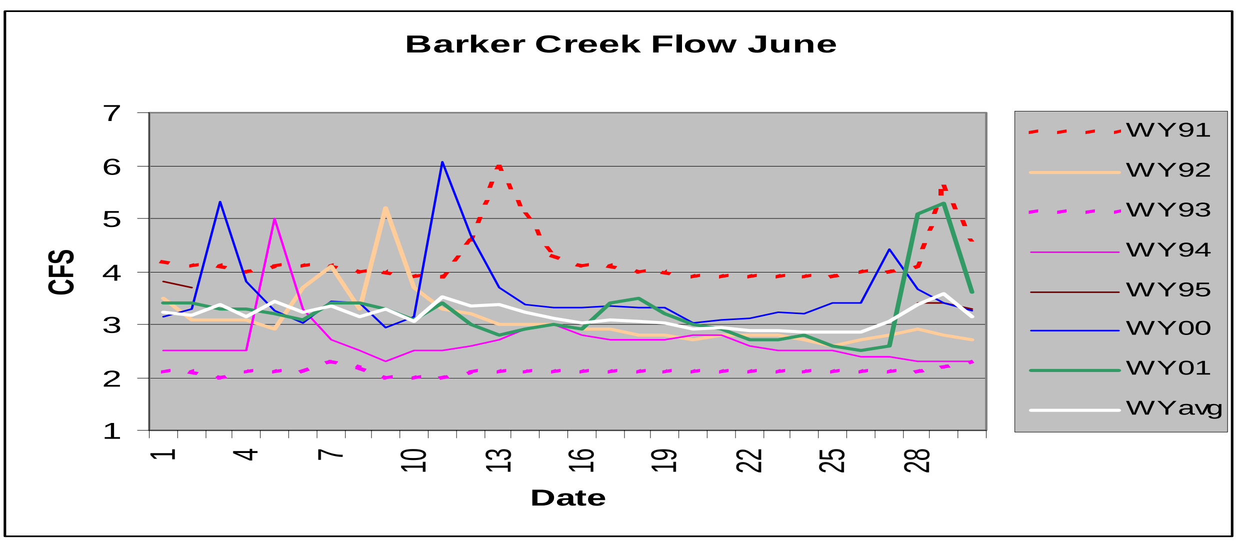
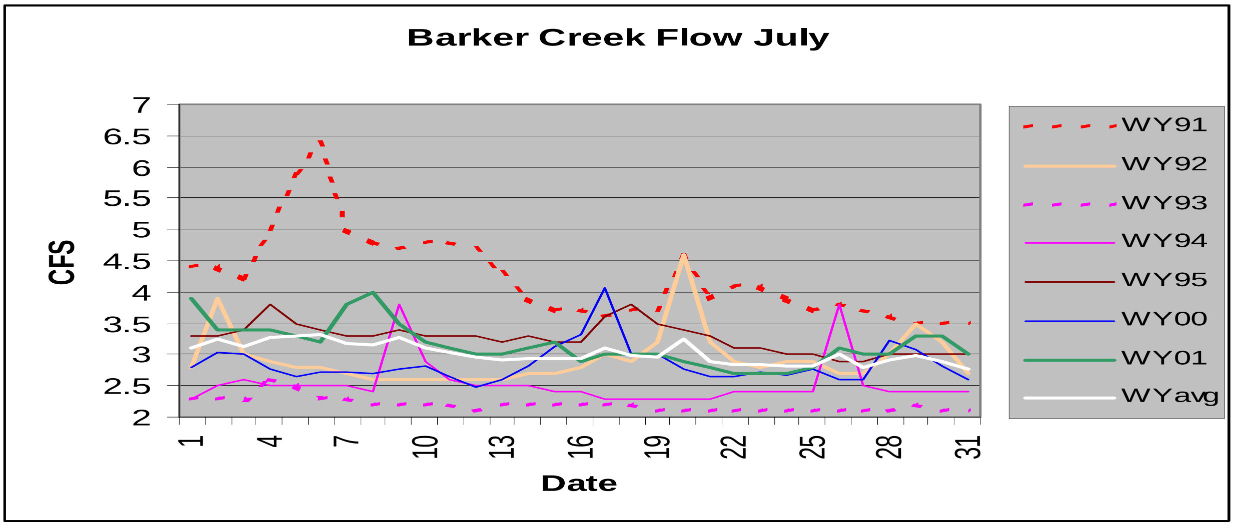
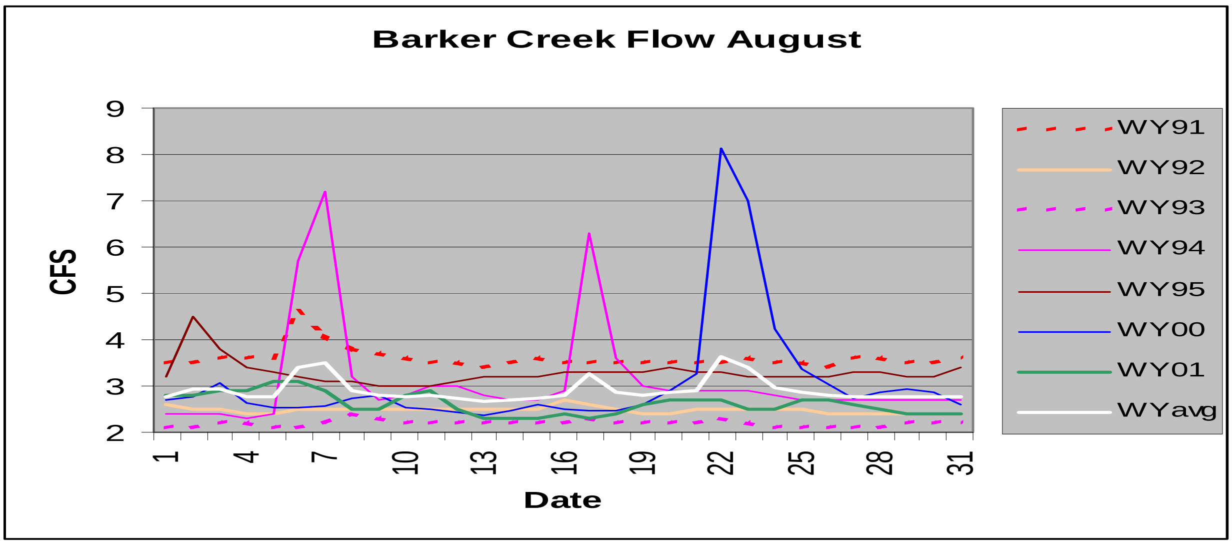


Figure 7 cont. Barker Creek Flow Data in Monthly





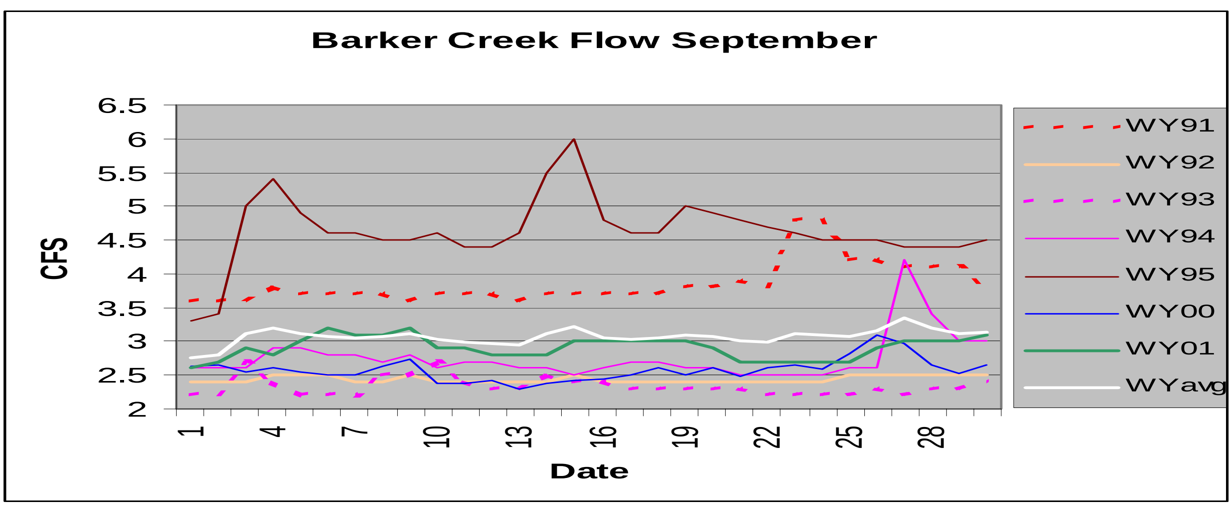


Figure 7 cont. Barker Creek Flow Data in Monthly increments

Land Code	Percent Impervious	Area Sq. Feet	% of total Area	Impervious Area Sq Feet	%TIA of Total Area
Mixed Use-Right of Way	44.30%	11829841.62	11.16%	5240619.84	4.95%
Church	46.00%	220673.76	0.21%	101509.93	0.10%
Commercial_Retail	59.50%	420457.67	0.40%	250172.31	0.24%
Commercial_Service	55.10%	677645.15	0.64%	373382.48	0.35%
Estate	20.80%	11746789.09	11.09%	2443332.13	2.31%
Facilities	66.40%	64470.97	0.06%	42808.73	0.04%
Mines	4.80%	435600.05	0.41%	20908.80	0.02%
Gas	54.30%	316178.84	0.30%	171685.11	0.16%
Mobile_Park	43.70%	463393.44	0.44%	202502.93	0.19%
Open_Land	9.27%	10103397.08	9.53%	936584.91	0.88%
Parking	51.40%	79634.22	0.08%	40931.99	0.04%
Parks	18.10%	4248402.57	4.01%	768960.86	0.73%
Parks_Resort	19.20%	5517880.53	5.21%	1059433.06	1.00%
Phone_TV_Radio	3.90%	1945.97	0.00%	75.89	0.00%
Power	5.70%	158003.16	0.15%	9006.18	0.01%
Rural	16.10%	5732828.60	5.41%	922985.40	0.87%
Schools	46.00%	1164742.82	1.10%	535781.70	0.51%
Streets_	49.90%	106032.47	0.10%	52910.20	0.05%
Suburban	38.90%	7170889.37	6.77%	2789475.96	2.63%
Urban_High	25.90%	639667.11	0.60%	165673.78	0.16%
Urban_Low	38.20%	8819139.77	8.32%	3368911.39	3.18%
Urban_Medium	35.60%	582661.44	0.55%	207427.47	0.20%
Urban_Standard	44.00%	10451040.54	9.86%	4598457.84	4.34%
Vacant	11.40%	25015789.23	23.61%	2851799.97	2.69%
Total		105967105.465		27155338.88	25.63%
ACRES		2432.67		623.40	

Table 1 Barker Creek watershed Land Use and Land Cover Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
02450652	BA-BHRD	NSTREAMS	08-Nov-02	FCOL(MF)	6.9		137		111	10		12.5
02460654	BA-BHRD	NSTREAMS	13-Nov-02	FCOL(MF)	7.5		75		101	11.1		30.1
02460674	BA-BHRD	NSTREAMS	14-Nov-02	FCOL(MF)	7.6		26		103	11.1		4.9
02470658	BA-BHRD	NSTREAMS	19-Nov-02	FCOL(MF)	7.8		470		98	11.3		2.4
02470669	BA-BHRD	NSTREAMS	20-Nov-02	FCOL(MF)			29					
02490660	BA-BHRD	NSTREAMS	04-Dec-02	FCOL(MF)	7.8		6		178	9.5		3.3
02500658	BA-BHRD	NSTREAMS	10-Dec-02	FCOL(MF)	7.5		180		109	8.8		1.6
02500679	BA-BHRD	SSWM-SW	11-Dec-02	FCOL(MF)	7.5		330		110	7.35		7.35
02510658	BA-BHRD	NSTREAMS	16-Dec-02	FCOL(MF)	7		76		64	9.5		1.4
02510676	BA-BHRD	NSTREAMS	19-Dec-02	FCOL(MF)	7.1		28		83	7.8		4.4
03020658	BA-BHRD	NSTREAMS	07-Jan-03	FCOL(MF)	7.5		18		68	7.4		3.1
03030658	BA-BHRD	NSTREAMS	13-Jan-03	FCOL(MF)	6.7		31		83	9.5		2
03030672	BA-BHRD	NSTREAMS	15-Jan-03	FCOL(MF)	6.8		32		89	6.9		1.1
03040650	BA-BHRD	NSTREAMS	21-Jan-03	FCOL(MF)	6.9		350		111	7		2
03040675	BA-BHRD	NSTREAMS	24-Jan-03	FCOL(MF)			88					
02450651	BA-NN	NSTREAMS	08-Nov-02	FCOL(MF)	6.9		317		135	10.4		19.9
02460655	BA-NN	NSTREAMS	13-Nov-02	FCOL(MF)	7.3		100		118	11.2		11.7
02460675	BA-NN	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		180		122	11.2		4.1
02470659	BA-NN	NSTREAMS	19-Nov-02	FCOL(MF)	7.6		240		113	11.6		0.5
02470667	BA-NN	NSTREAMS	20-Nov-02	FCOL(MF)			43					
02470668	BA-NN	NSTREAMS	20-Nov-02	FCOL(MF)			34					
02490659	BA-NN	NSTREAMS	04-Dec-02	FCOL(MF)	7.7		160		130	9.5		0.9
02500659	BA-NN	NSTREAMS	10-Dec-02	FCOL(MF)	7.6		200		119	8.7		9.3
02500680	BA-NN	SSWM-SW	11-Dec-02	FCOL(MF)	7.4		480		131	7.56		10.3
02510659	BA-NN	NSTREAMS	16-Dec-02	FCOL(MF)	6.9		132		73	9.4		6.4
02510675	BA-NN	NSTREAMS	19-Dec-02	FCOL(MF)	7.8		16		163	9.3		2.6
03020659	BA-NN	NSTREAMS	07-Jan-03	FCOL(MF)	7.8		49		150	8.9		5.9
03030659	BA-NN	NSTREAMS	13-Jan-03	FCOL(MF)	7		83		91	9.5		0.5
03030673	BA-NN	NSTREAMS	15-Jan-03	FCOL(MF)	6.8		37		78	8		0.9
03040651	BA-NN	NSTREAMS	21-Jan-03	FCOL(MF)	7.1		66		91	7.1		2.2
03040676	BA-NN	NSTREAMS	24-Jan-03	FCOL(MF)			130					
04171729	BA-NN	NSTREAMS	20-Apr-04	FCOL(MF)	7.8		17		99	10.5		1.1
101700BK01	BK01	BKCHD	17-Oct-00	APAH 9221-E	11		500	157		10.8	98.5	0.1
111500BK01	BK01	BKCHD	15-Nov-00	APAH 9221-E	12		80	165		5.8	96.8	0.11
013101BK01	BK01	BKCHD	31-Jan-01	APAH 9221-E			30					
022701BK01	BK01	BKCHD	27-Feb-01	APAH 9221-E	13		80	152		4	94.8	0.1
032901BK01	BK01	BKCHD	29-Mar-01	APAH 9221-E	11		23	137	3.7	7.9	93.3	0.06
041801BK01	BK01	BKCHD	18-Apr-01	APAH 9221-E			8					
050901BK01	BK01	BKCHD	09-May-01	APAH 9221-E	10		170	164		10.7	93.5	0.11

Table 2 Barker Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality Sites BA-BHRD, BA-NN, And BA (KCHD site BK01).

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
120500BK01	BK01	BKCHD	12-May-01	APAH 9221-E	12			157		5.6	93.8	0.1
062001BK01	BK01	BKCHD	20-Jun-01	APAH 9221-E	9.6		240	171	1.5	12	88.1	0.11
071701BK01	BK01	BKCHD	17-Jul-01	APAH 9221-E	10		900	157	5	12.7	97.8	0.1
071801BK01	BK01	BKCHD	18-Jul-01	APAH 9221-E			220					
080801BK01	BK01	BKCHD	08-Aug-01	APAH 9221-E	11		500	180	3.5	12.3	99.8	0.12
091901BK01	BK01	BKCHD	19-Sep-01	APAH 9221-E	11		220	199		12.1	98.1	0.13
101001BK01	BK01	KCHD	10-Oct-01	APAH 9221-E	8	10.9	70	95.2	171.9	9.4	0.11	10.4
110701BK01	BK01	KCHD	07-Nov-01	APAH 9221-E	7.8	11.8	110	96.2	173.1	6.9	0.11	19.2
012302BK01	BK01	KCHD	23-Jan-02	APAH 9221-E	8	12.5	50	98.7	152.3	5.1	0.1	
022002BK01	BK01	KCHD	20-Feb-02	APAH 9221-E	7.8	11.8	17	96.2	141.4	7	0.09	4.2
FC-200203-017	BK01	KPUD	12-Mar-02	APAH -MPN			49					
031202BK01	BK01	KCHD	12-Mar-02	APAH 9221-E	7.5	12	300	99.5	81.4	7.2	0.05	16.4
FC-200203-037	BK01	KPUD	13-Mar-02	APAH -MPN			13					
042302BK01	BK01	KCHD	23-Apr-02	APAH 9221-E	8.3	11.7	50	99.4	146.7	7.8	0.84	
051402BK01	BK01	KCHD	14-May-02	APAH 9221-E	7.9	11.2	50	97.3	167.8	9.8	0.11	2.8
062502BK01	BK01	KCHD	25-Jun-02	APAH 9221-E	8	10.5	130	96.8	175.8	12.1	0.11	13.5
072302BK01	BK01	KCHD	23-Jul-02	APAH 9221-E	7.6	9.9	50	94.1	184.1	13.3	0.12	
082802BK01	BK01	KCHD	28-Aug-02	APAH 9221-E		10.6	300	99.2	180.6	12.6	0.12	4
092502BK01	BK01	KCHD	25-Sep-02	APAH 9221-E	7.6	11	500	98.4	172.4	10.7	0.11	3.4
102302BK01	BK01	KCHD	23-Oct-02	APAH 9221-E	8	11.1	30	96.6	182.1	9.3	0.11	3
02450650	BK01	NSTREAMS	08-Nov-02	FCOL(MF)	6.2		260		166	10.6		36.3
02460656	BK01	NSTREAMS	13-Nov-02	FCOL(MF)	7.6		50		124	11.2		25.1
02460657	BK01	NSTREAMS	13-Nov-02	FCOL(MF)			130					
02460676	BK01	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		46		132	11.5		6.9
02470660	BK01	NSTREAMS	19-Nov-02	FCOL(MF)	7.9		69		119	11.6		1.2
02470666	BK01	NSTREAMS	20-Nov-02	FCOL(MF)			35					
112502BK01	BK01	KCHD	25-Nov-02	APAH 9221-E	8.2	12.4	300	100	167.1	6.5	0.11	
02490658	BK01	NSTREAMS	04-Dec-02	FCOL(MF)	7.7		37		135	9.6		3.7
120402BK01	BK01	KCHD	04-Dec-02	APAH 9221-E	8.4	11.4	50	96.9	166.5	8	0.11	
02500656	BK01	NSTREAMS	10-Dec-02	FCOL(MF)	7.7		110		128	8.9		6.7
02500657	BK01	NSTREAMS	10-Dec-02	FCOL(MF)			130					
02500681	BK01	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	12.4	370	103	121	7.39		19.9
02510455	BK01	TEC-STORM	15-Dec-02	FCOL(MF)			49					
02510441	BK01	TEC-STORM	16-Dec-02	FCOL(MF)			160					
02510446	BK01	TEC-STORM	16-Dec-02	FCOL(MF)			169					
02510431	BK01	TEC-STORM	16-Dec-02	FCOL(MF)			96					
02510660	BK01	NSTREAMS	16-Dec-02	FCOL(MF)	7		92		75	9.5		13.3
02510674	BK01	NSTREAMS	19-Dec-02	FCOL(MF)	7.3		88		108	7.7		4
03020660	BK01	NSTREAMS	07-Jan-03	FCOL(MF)	7.8		39		97	6.7		12.6

Table 2 cont. Barker Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality Site BA (KCHD site BK01).

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
03020661	BK01	NSTREAMS	07-Jan-03	FCOL(MF)			8					
010903BK01	BK01	KCHD	09-Jan-03	APAH 9221-E	7.4	12.6	80	97.2	130	4.7	0.08	0.6
03020436	BK01	TEC-STORM	11-Jan-03	FCOL(MF)			34					
03020437	BK01	TEC-STORM	11-Jan-03	FCOL(MF)			31					
03020440	BK01	TEC-STORM	11-Jan-03	FCOL(MF)			380					
03020450	BK01	TEC-STORM	12-Jan-03	FCOL(MF)			270					
03030660	BK01	NSTREAMS	13-Jan-03	FCOL(MF)	6.9		49		91	9.5		0.5
03030674	BK01	NSTREAMS	15-Jan-03	FCOL(MF)	7		27		83	7.8		0.5
03040652	BK01	NSTREAMS	21-Jan-03	FCOL(MF)	7.1		55		83	7.1		3.1
03040677	BK01	NSTREAMS	24-Jan-03	FCOL(MF)			88					
020503BK01	BK01	KCHD	05-Feb-03	APAH 9221-E	7.7	12.7	17	103	129.1	6.7	0.08	6.2
022603BK01	BK01	KCHD	26-Feb-03	APAH 9221-E	7.9	12.4	240	96.5	147.5	5	0.09	4.7
03110431	BK01	TEC-STORM	08-Mar-03	FCOL(MF)	7.8		220		0.148	43.7		10.2
03110438	BK01	TEC-STORM	09-Mar-03	FCOL(MF)	7.4		530		0.093	42.8		108
03110446	BK01	TEC-STORM	09-Mar-03	FCOL(MF)	7.3		330		0.076	44.1		248
03110455	BK01	TEC-STORM	12-Mar-03	FCOL(MF)	7.5		480		0.109	48		114
03110462	BK01	TEC-STORM	12-Mar-03	FCOL(MF)	6.8		540		0.051	48.7		104
03110463	BK01	TEC-STORM	12-Mar-03	FCOL(MF)	6.8		570		0.051	48.7		104
03110470	BK01	TEC-STORM	13-Mar-03	FCOL(MF)	6.8		370		0.038	48.2		127
03110475	BK01	TEC-STORM	13-Mar-03	FCOL(MF)	6.8		92		0.033	49.5		1011
040903BK01	BK01	KCHD	09-Apr-03	APAH 9221-E	7.8	11.6	30	98.4	115.2	8.7	0.07	4.2
051403BK01	BK01	KCHD	14-May-03	APAH 9221-E	8.1	11.1	30	97.9	156.5	10	0.1	
060403BK01	BK01	KCHD	04-Jun-03	APAH 9221-E	7.9	10	50	93.2	180.4	12.9	0.12	
070903BK01	BK01	KCHD	09-Jul-03	APAH 9221-E	7.3	11.5	170	109	176.2	13.5	0.11	3.2
080703BK01	BK01	KCHD	07-Aug-03	APAH 9221-E	8.1	11.2	70	104	184.2	12.4	0.12	
090203BK01	BK01	KCHD	02-Sep-03	APAH 9221-E	8	10	70	104	175.7	13	0.11	
04171712	BK01	NSTREAMS	19-Apr-04	FCOL(MF)	7.2		47		101	11.3		20.5
04171713	BK01	NSTREAMS	19-Apr-04	FCOL(MF)	7.2		66		101	11.3		20.5
04171683	BK01	SSWM-SW	20-Apr-04	FCOL(MF)	7.7		160		161	9.4		2.25
04171728	BK01	NSTREAMS	20-Apr-04	FCOL(MF)	7.6		35		133	11.1		

Table 2 cont. Barker Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality Site BA (KCHD site BK01).

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
BA	Barker Creek At Gaging Site	82	27	380	46	156	230	90%	21	7	33.3%	NO	4	19.0%	NO
BA-NN	Barker Creek Nels Nelson Rd	91	16	317	48.5	170	261	71.6%	15.000	7.000	46.7%	NO	2.000	13.3%	NO
BA-BHRD	Barker Creek Bucklin Hill Rd	64.9	6	470	28.5	158.5	319	115.6%	15	5	33.3%	NO	3	20%	NO

Table 3. Barker Creek sites (BA, BA-NN, BA-BHRD) FC Data Summary Wet season 2002-2003

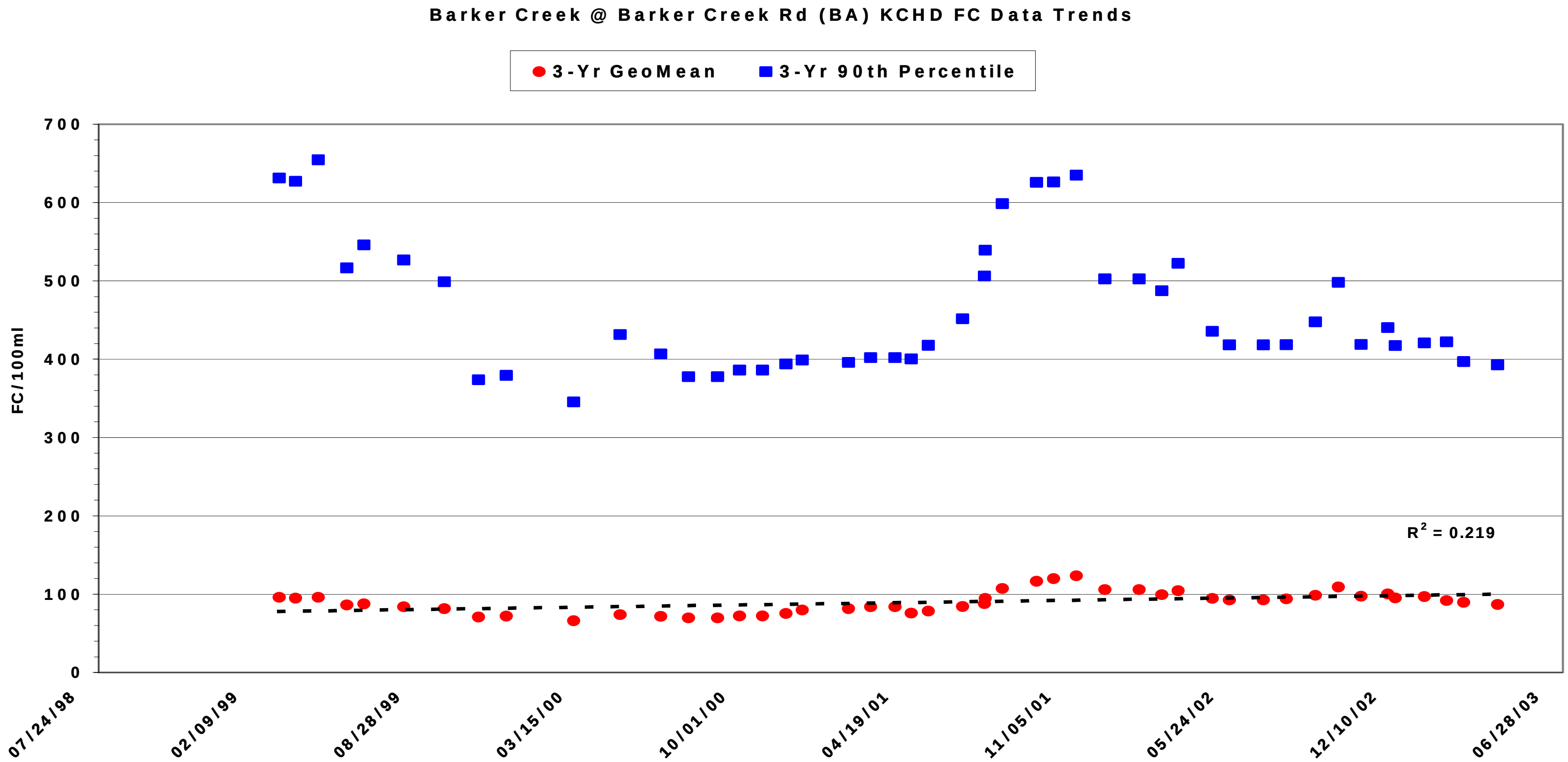
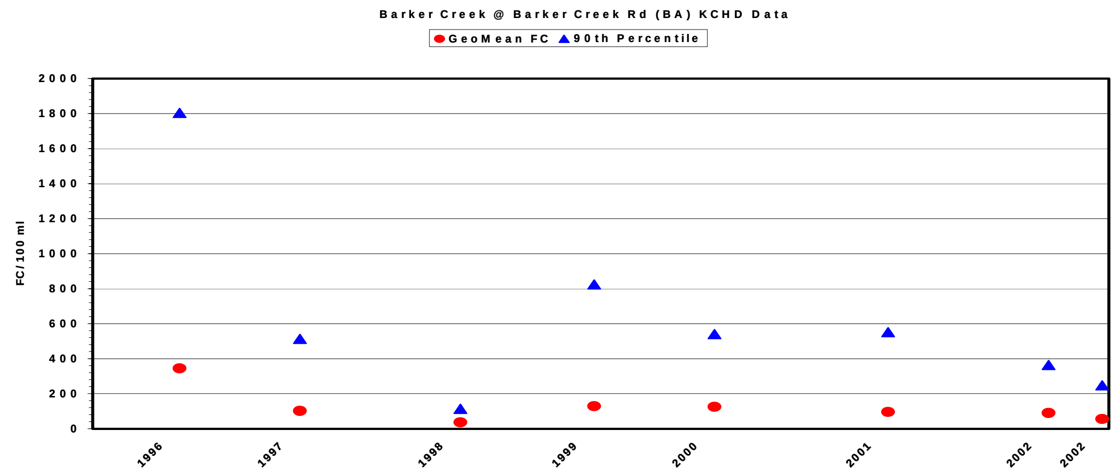
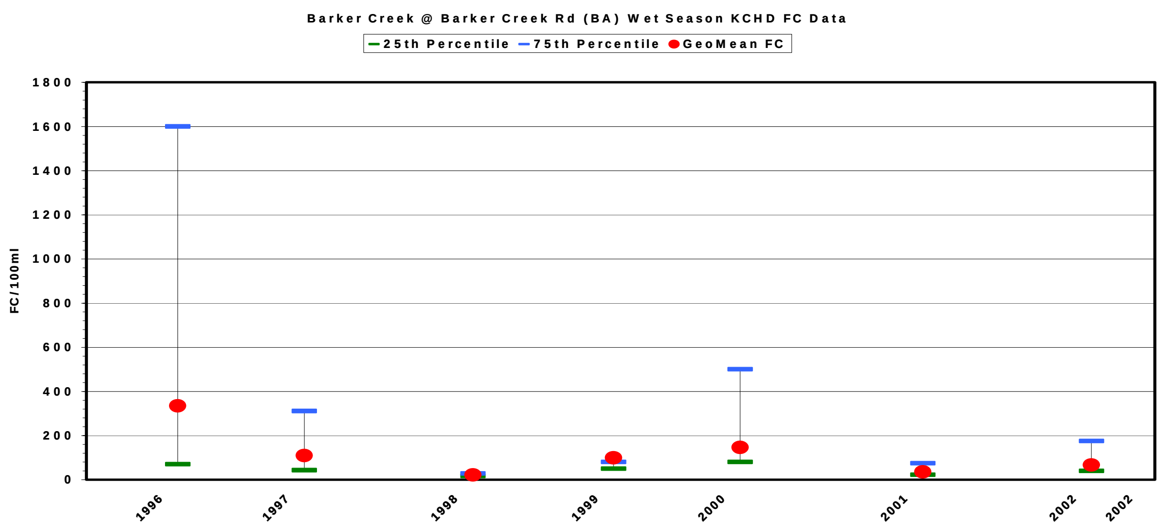


Figure 8 Barker Creek site (BA) historical FC trend





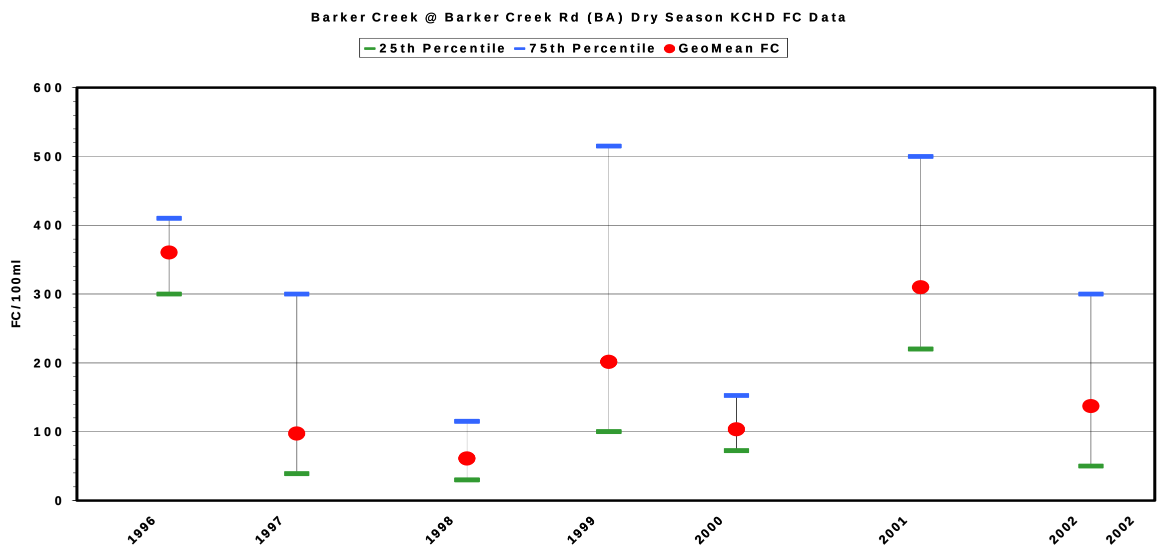


Figure 8 cont. Barker Creek site (BA) historical FC trend.

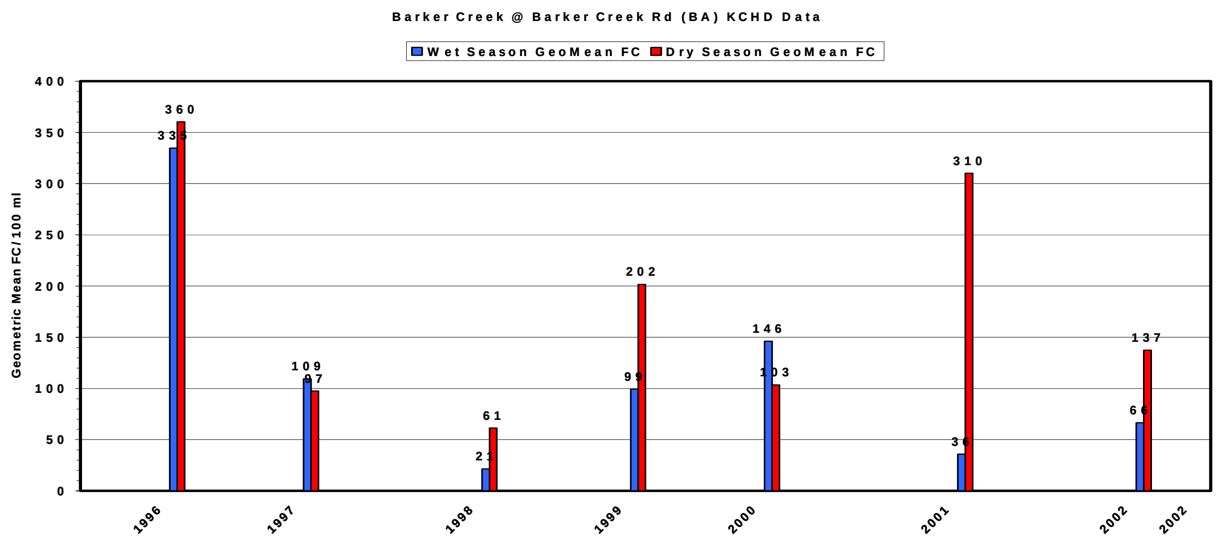


Figure 8 cont. Barker Creek site (BA) historical FC trend.

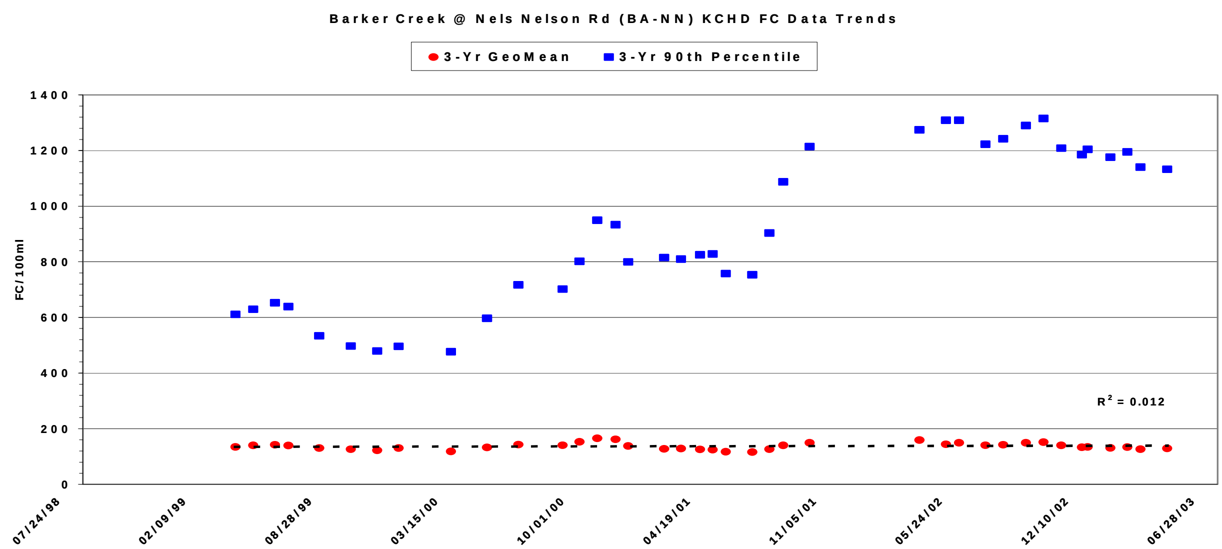


Figure 9 Barker Creek site (BA-NN) historical FC trend.

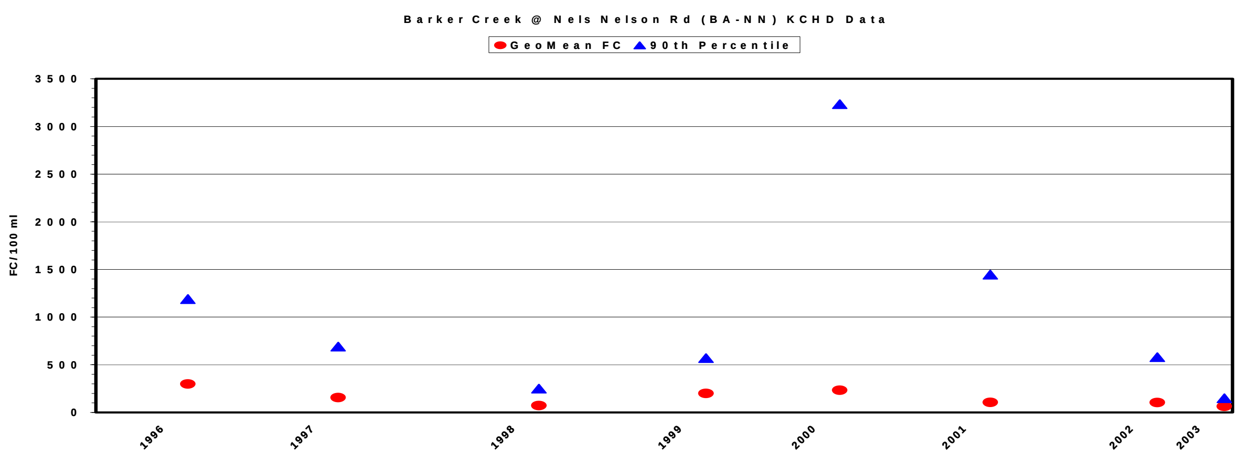
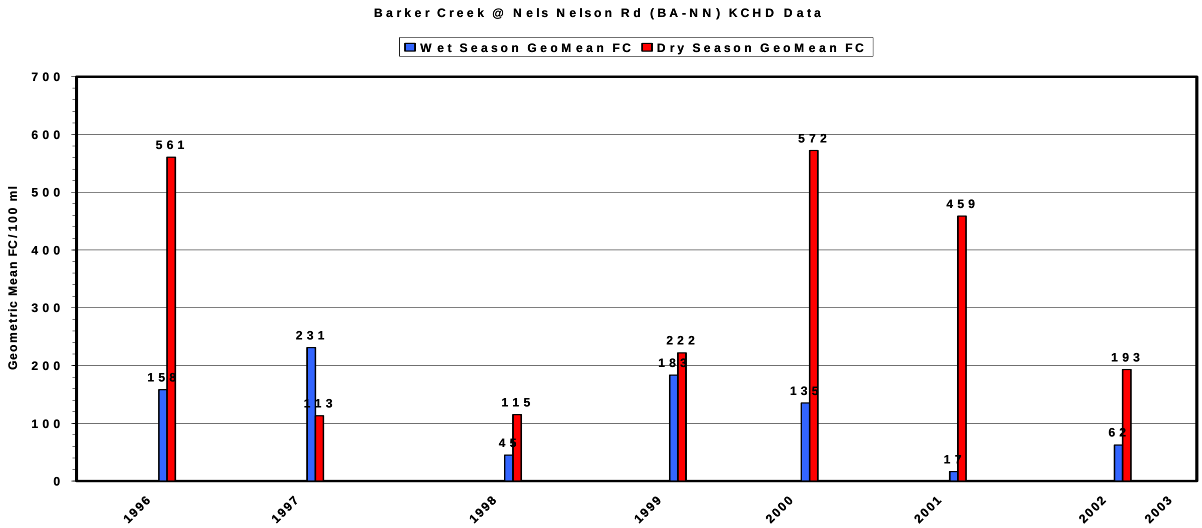
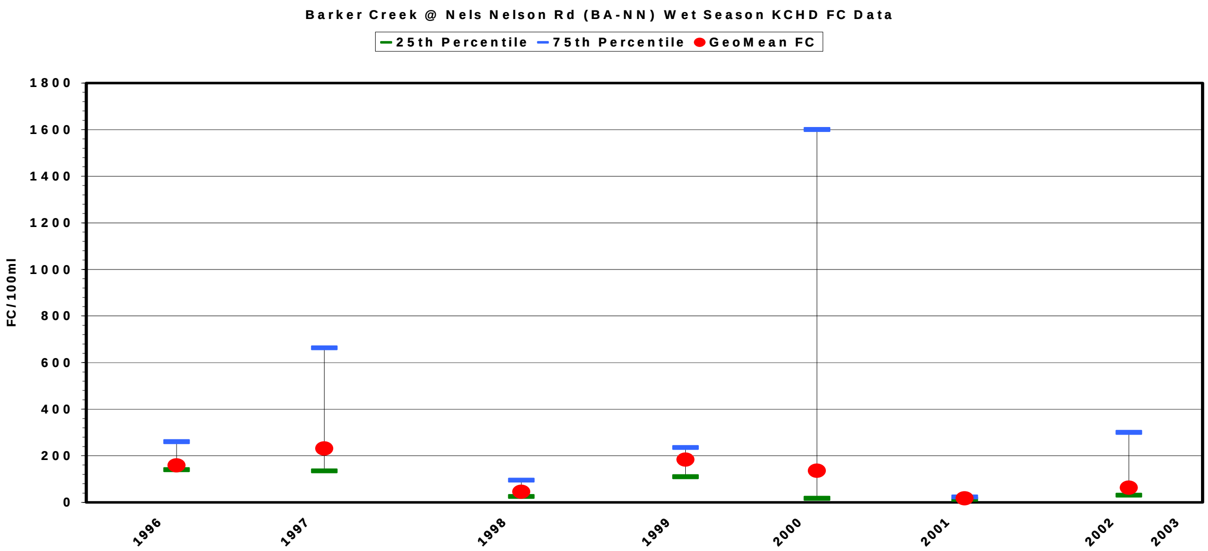


Figure 9 cont. Barker Creek site (BA-NN) historical FC trend.





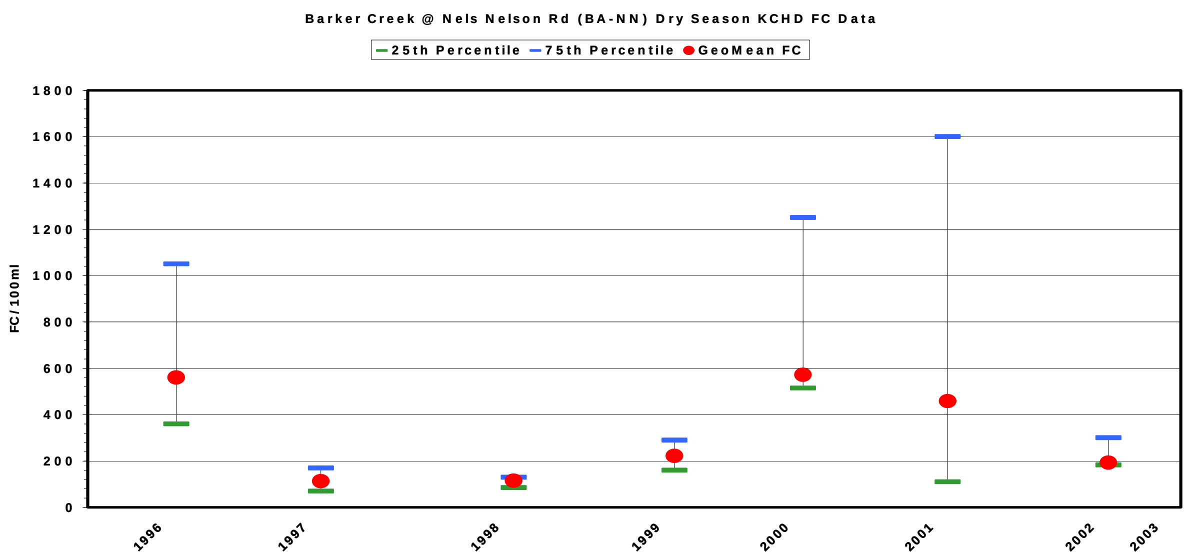


Figure 9 cont. Barker Creek site (BA) historical FC trend.

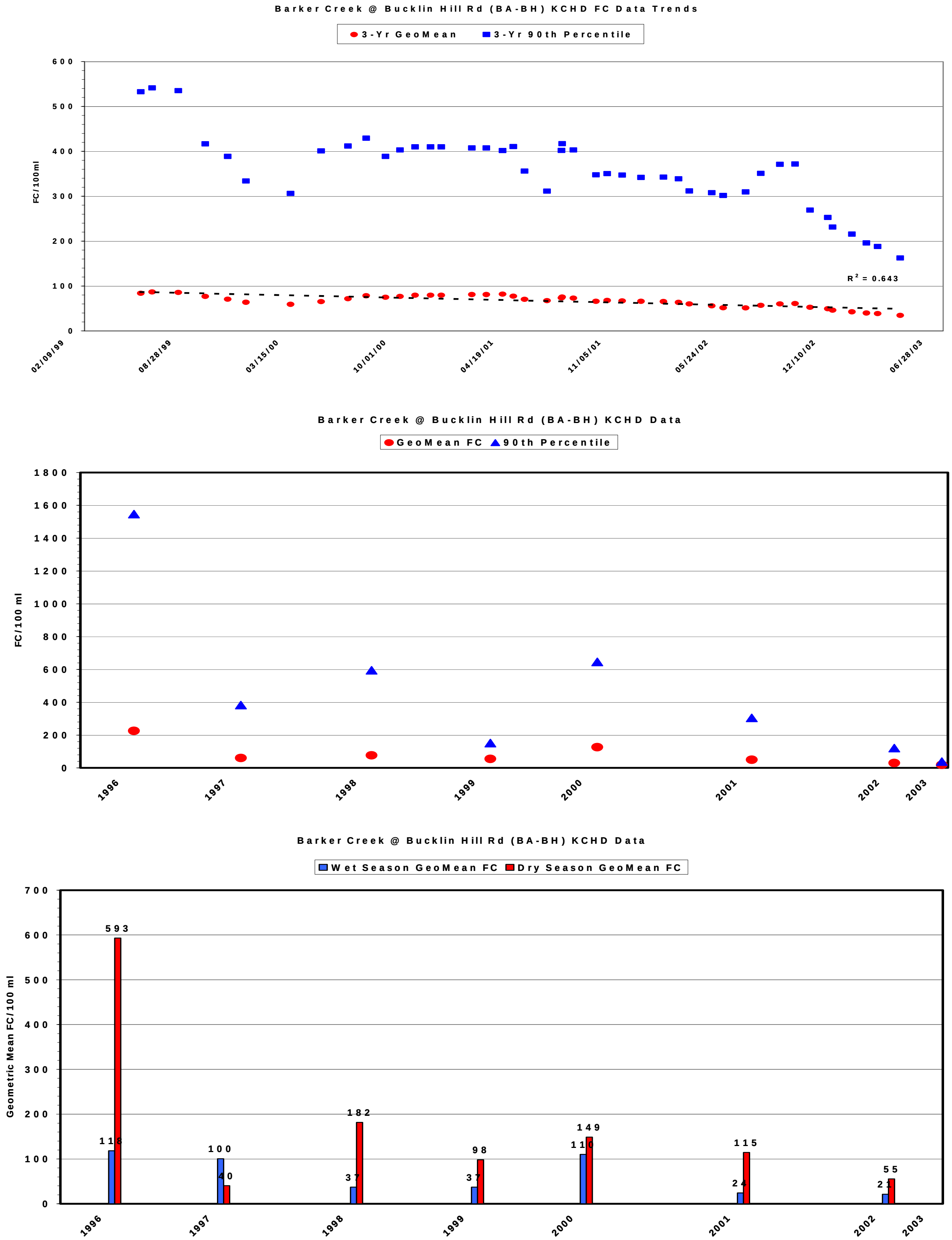
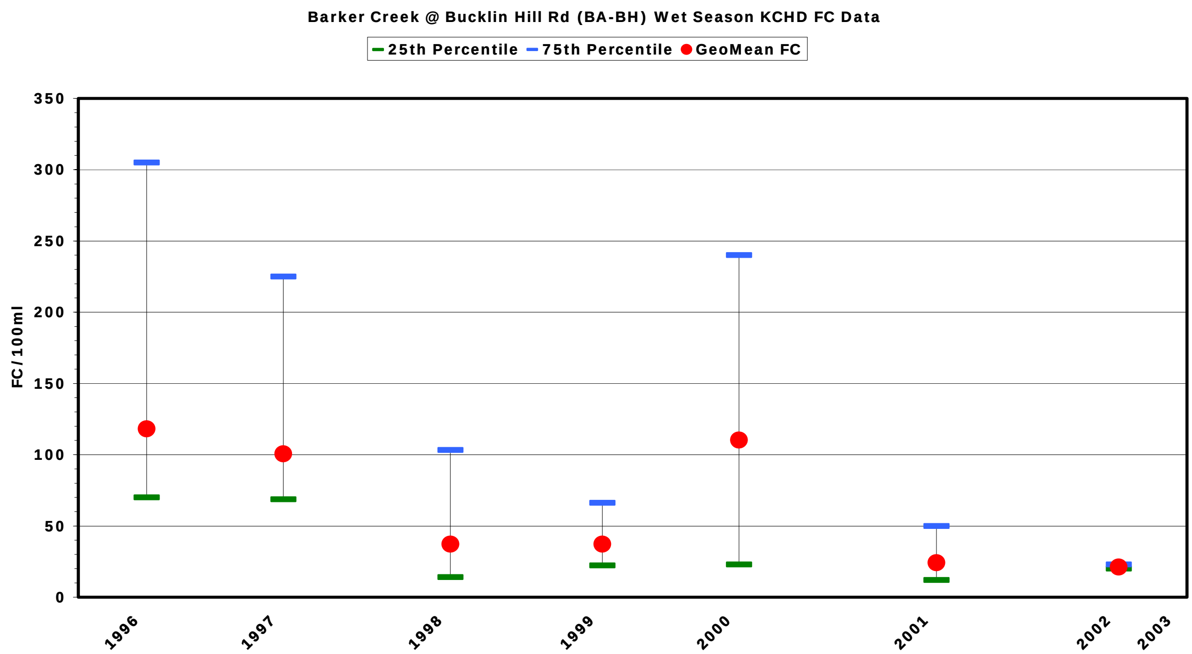


Figure 10 Barker Creek site (BA-BH) historical FC trend.



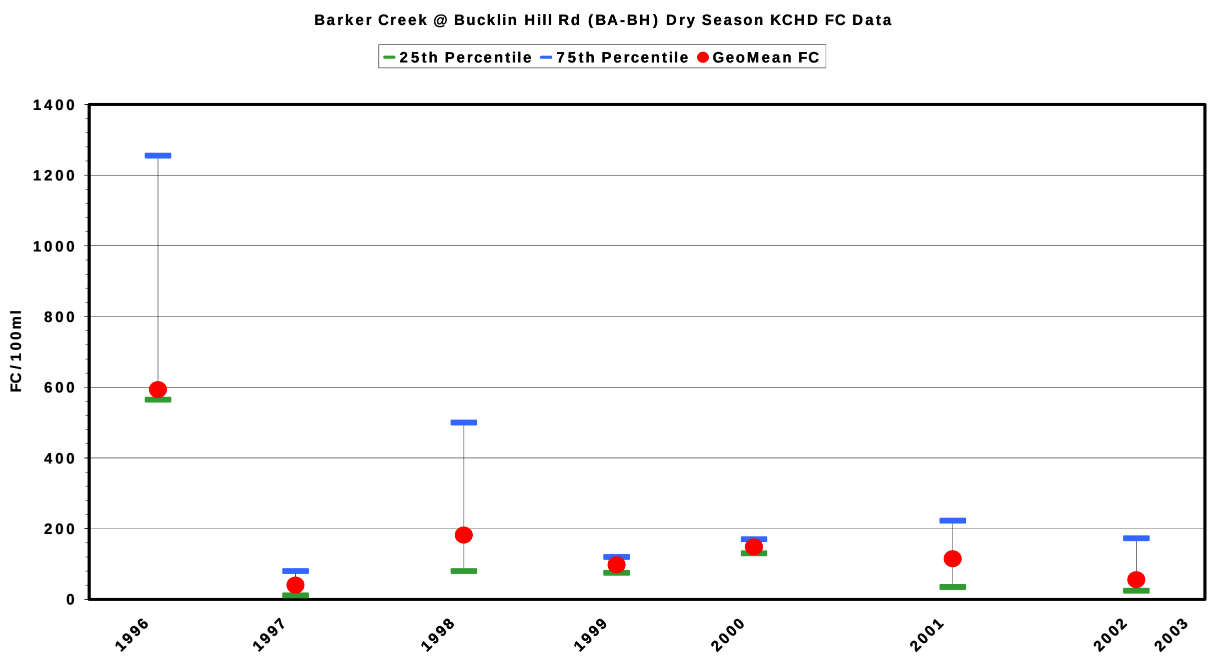


Figure 10 cont. Barker Creek site (BA) historical FC trend.

Beaver Creek

Figure 1 shows the location of the Beaver Creek watershed to Rich Passage. The Creek is a class "AA" stream and enters the west end of Clam Bay in Rich Passage Fig.2 ("Maps a la carte, Inc.", 2004). The dominant surficial hydrogeologic unit for the basin is Vashon till with patches of fine recessional outwash, marsh and bog deposits in the upper basin. The stream's origin is in marsh and bog material, where it then extends north approximately one and one half miles through Vashon advanced outwash before turning east and running through alluvium. Prior to entering Clam Bay, Beaver Creek runs a short distance through Vashon till and bedrock (Jones, et al, 1998). An aerial photograph of Beaver Creek Basin is shown in figure 3 (Space Imaging, 2002). The basin land use is predominantly vacant land, rural land, and estate (Fig. 4), with less than 21% of the land in total impervious area (%TIA) (Table 1). A Water quality sampling site (BE-LOW) was established up stream of the Ecology Lab culvert for sampling during the winter 2002-2003 storm season (Fig. 5). Fecal Coliform and ancillary data were collected during winter 2002-2003 (Table 2) and a summary for the wet season is presented in Table 3. Figures 6-7 show the historical trend of Fecal Coliform for the Beaver Creek sites of Kitsap County Health District (May, et al, 2003).

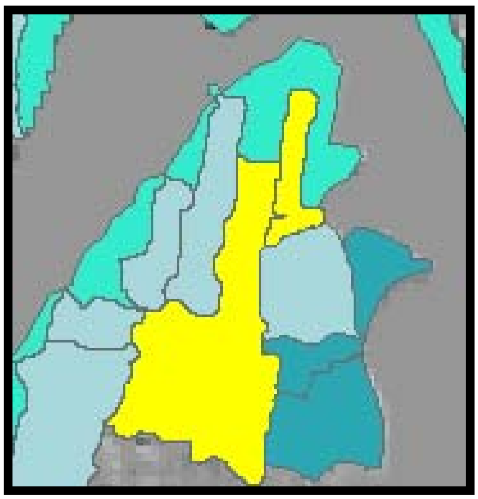


Figure 1Location of Beaver Creek Basin

Figure 2 Shaded Relief Photo of Beaver Creek Basin

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	4243361.28	1879809.05	8.09%	3.59%
Estate	20.8%	7179310.06	1493296.49	13.69%	2.85%
Gas	54.3%	504155	273756.17	0.96%	0.52%
Open_Land	9.3%	5863425.53	543539.55	11.18%	1.04%
Parking	51.4%	106271.086	54623.34	0.20%	0.10%
Parks	18.1%	1141330.00	206580.73	2.18%	0.39%
Power	5.7%	180565.93	10292.26	0.34%	0.02%
Rural	16.1%	5904756.301	950665.76	11.26%	1.81%
Streets_	49.9%	5687.899	2838.26	0.01%	0.01%
Suburban	38.9%	3844803.81	1495628.68	7.33%	2.85%
Urban_Low	38.2%	3367606.03	1286425.50	6.42%	2.45%
Urban_Standard	44.0%	1490147.59	655664.94	2.84%	1.25%
Vacant	11.4%	18049616.82	2057656.32	34.43%	3.92%
Wooded	4.2%	546496.000	22952.83	1.04%	0.04%
Total Area Sq.Ft.		52427533.34	10933729.88		20.85%
Acres		1203.57	251.00		

Table 1 Beaver Creek Land Use Land Cover Data

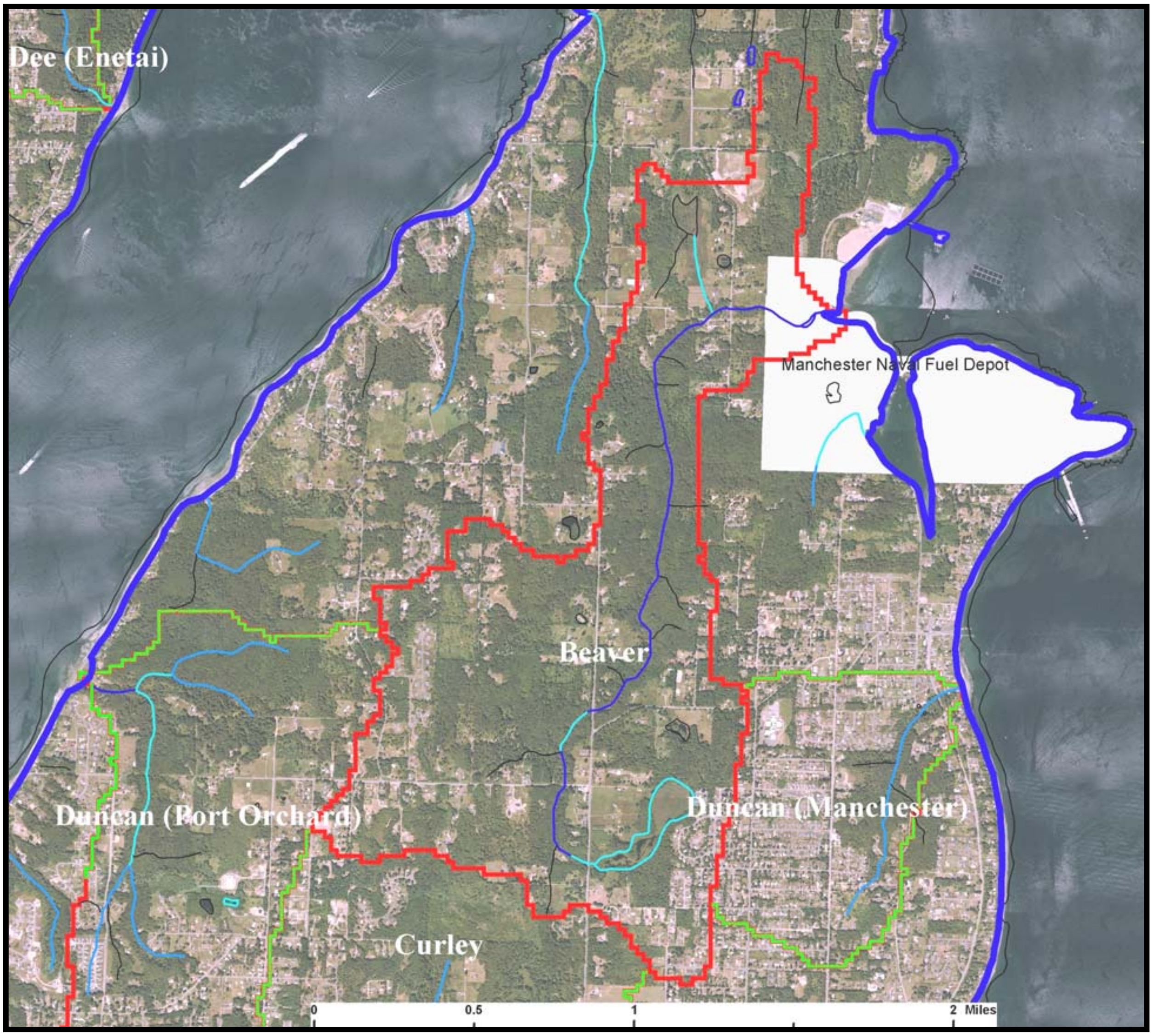
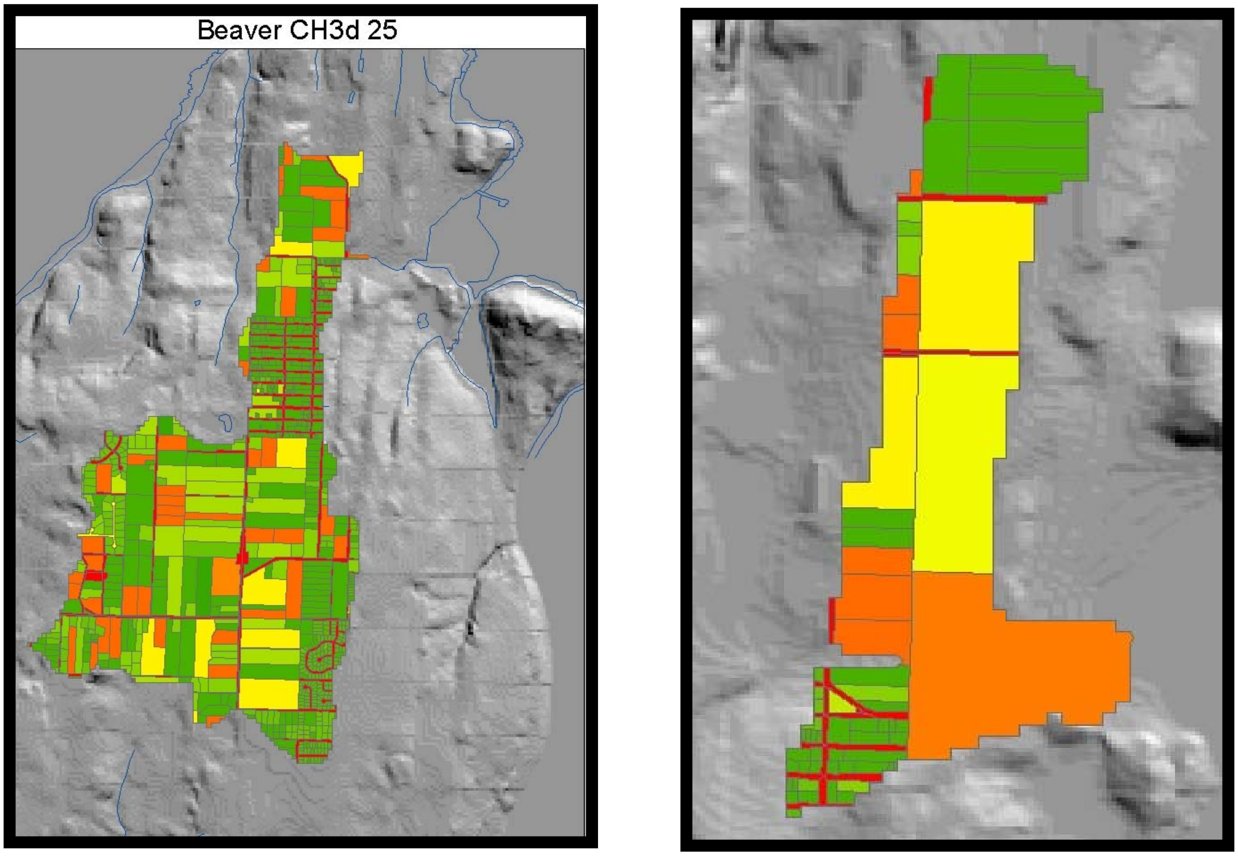


Figure 3 Aerial Photograph of Beaver Creek Basin

Figure 4 Land Use Land Cover for Beaver Creek Basin



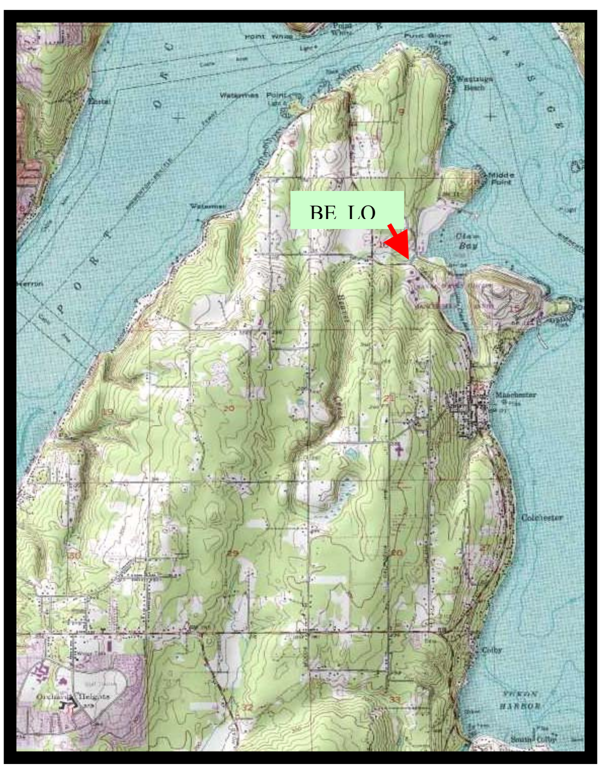
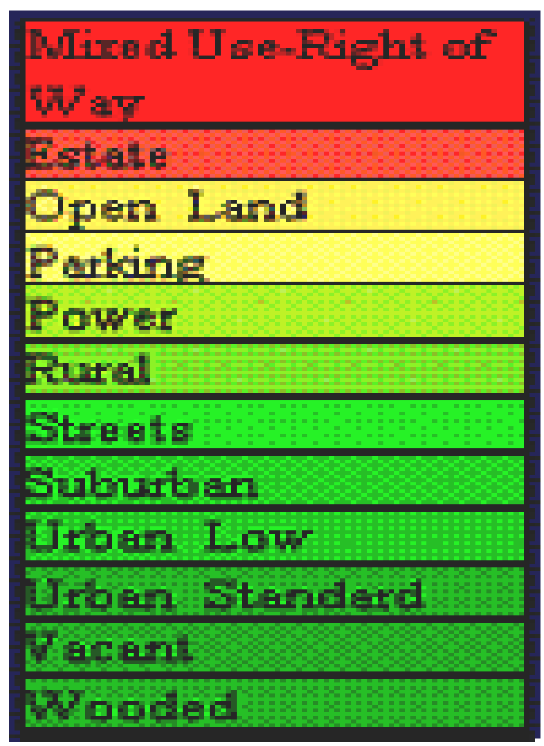


Figure 5. Location of Beaver Creek sampling site



LULC LEGEND

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
101800BV01	BV01	KCHD	18-Oct-00	APAH 9221-E	7.3	500	134.6	11.3	
111400BV01	BV01	KCHD	14-Nov-00	APAH 9221-E	8	50	135.8	5.9	
013001BV01	BV01	KCHD	30-Jan-01	APAH 9221-E		80			
032701BV01	BV01	KCHD	27-Mar-01	APAH 9221-E	7.7	240	108	6.5	
041801BV01	BV01	KCHD	18-Apr-01	APAH 9221-E	8.5	240	118.9	10.2	1.2
050801BV01	BV01	KCHD	08-May-01	APAH 9221-E	8	110	133.8	9.8	
061901BV01	BV01	KCHD	19-Jun-01	APAH 9221-E	7	170	141.5	11.4	
071801BV01	BV01	KCHD	18-Jul-01	APAH 9221-E		300			
080701BV01	BV01	KCHD	07-Aug-01	APAH 9221-E	8.4	170	149	12.8	
092001BV01	BV01	KCHD	20-Sep-01	APAH 9221-E	7.8	170	144.5	10.2	2.9
100901BV01	BV01	KCHD	09-Oct-01	APAH 9221-E	7.9	500	144.8	9.4	7.2
110601BV01	BV01	KCHD	06-Nov-01	APAH 9221-E	7.6	30	144.2	7.4	13
121101BV01	BV01	KCHD	11-Dec-01	APAH 9221-E	7.4	50	94.8	6	14.8
012402BV01	BV01	KCHD	24-Jan-02	APAH 9221-E	7.6	900	84.4	6	
021902BV01	BV01	KCHD	19-Feb-02	APAH 9221-E	7.4	300	98.5	6.6	18.7
031302BV01	BV01	KCHD	13-Mar-02	APAH 9221-E	7.4	110	67.9	6.3	20.3
042402BV01	BV01	KCHD	24-Apr-02	APAH 9221-E	8	80	107.4	7.1	
051502BV01	BV01	KCHD	15-May-02	APAH 9221-E	7.8	70	131	9.3	2.5
062602BV01	BV01	KCHD	26-Jun-02	APAH 9221-E	7.8	1601	146.7	12.8	8.3

Table 2 Raw Fecal Coliform and ancillary data from KCHD water quality monitoring site BV01, (ENVVEST site BE-LOW)

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
072402BV01	BV01	KCHD	24-Jul-02	APAH 9221-E	7.5	220	146	14.4	
082902BV01	BV01	KCHD	29-Aug-02	APAH 9221-E	7.5	300	144.4	12.9	3
092602BV01	BV01	KCHD	26-Sep-02	APAH 9221-E	7.6	30	145.1	10.9	0.9
101502BV01	BV01	KCHD	15-Oct-02	APAH 9221-E	8.8	30	153	12.7	2.7
02450429	BE-LOW	SSTREAMS	08-Nov-02	FCOL(MF)	7.6	132	132	8.53	5.14
02470409	BE-LOW	SSTREAMS	13-Nov-02	FCOL(MF)		30			1.63
02470419	BE-LOW	SSTREAMS	14-Nov-02	FCOL(MF)	7	14	140	10.8	1.14
02510409	BE-LOW	SSTREAMS	21-Nov-02	FCOL(MF)		348			
02470429	BE-LOW	SSTREAMS	21-Nov-02	FCOL(MF)	5.9	12	156		1.19
112102BV01	BV01	KCHD	21-Nov-02	APAH 9221-E	7.9	8	145.9	9.6	
120902BV01	BV01	KCHD	09-Dec-02	APAH 9221-E	8.3	11	140.7	5.7	
02500409	BE-LOW	SSTREAMS	09-Dec-02	FCOL(MF)	7.1	11	156	6.2	1.21
02500418	BE-LOW	SSTREAMS	11-Dec-02	FCOL(MF)	5.1	420	147	6.9	7.47
02500419	BE-LOW	SSTREAMS	11-Dec-02	FCOL(MF)	5.1	270	147	6.9	7.47
02460409	BE-LOW	SSTREAMS	11-Dec-02	FCOL(MF)	7.9	77	120	9.8	3.05
02500429	BE-LOW	SSTREAMS	12-Dec-02	FCOL(MF)		160	130	8.3	5.64
02460419	BE-LOW	SSTREAMS	16-Dec-02	FCOL(MF)	7.7	83	116	9.4	2.37
02510419	BE-LOW	SSTREAMS	19-Dec-02	FCOL(MF)		60			
03020409	BE-LOW	SSTREAMS	06-Jan-03	FCOL(MF)	7	130	88.2	2.3	7.59
03030409	BE-LOW	SSTREAMS	13-Jan-03	FCOL(MF)	6.9	69	86.7	6.32	8.07
03030418	BE-LOW	SSTREAMS	15-Jan-03	FCOL(MF)	7.1	84	80	5.91	4.77
03030419	BE-LOW	SSTREAMS	15-Jan-03	FCOL(MF)	7.1	54	80	5.91	4.77
011603BV01	BV01	KCHD	16-Jan-03	APAH 9221-E	6.9	50	97.1	5.7	8.2
02490409	BE-LOW	SSTREAMS	21-Jan-03	FCOL(MF)		128			1.1
03040409	BE-LOW	SSTREAMS	22-Jan-03	FCOL(MF)	7.2	600	55.2	6.83	73.8
03040419	BE-LOW	SSTREAMS	23-Jan-03	FCOL(MF)	6.8	140	62.8	7.45	17.9
022703BV01	BV01	KCHD	27-Feb-03	APAH 9221-E	7.6	11	115.1	4.3	26
031803BV01	BV01	KCHD	18-Mar-03	APAH 9221-E		30			
041703BV01	BV01	KCHD	17-Apr-03	APAH 9221-E	7.8	110	102.3	9.5	12.6
052203BV01	BV01	KCHD	22-May-03	APAH 9221-E	7.9	130	133.3	10.8	
061103BV01	BV01	KCHD	11-Jun-03	APAH 9221-E	7.8	500	136.5	12.5	
072203BV01	BV01	KCHD	22-Jul-03	APAH 9221-E		150			
081903BV01	BV01	KCHD	19-Aug-03	APAH 9221-E	8	130	65.7	14	
091503BV01	BV01	KCHD	15-Sep-03	APAH 9221-E	7.5	80	142.9	11	6.4

Table 2 cont. Raw Fecal Coliform and ancillary data from KCHD water quality monitoring site BV01, (ENVVEST site BE-LOW)

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
BE-LOW	Lower segment at culvert on road to Manchester Lab	84	11	600	60	140	378	110%	17	8	47.1%	NO	3	17.6%	NO

Table 3. Beaver Creek site (BE-LOW) FC Data Summary Wet season 2002-2003

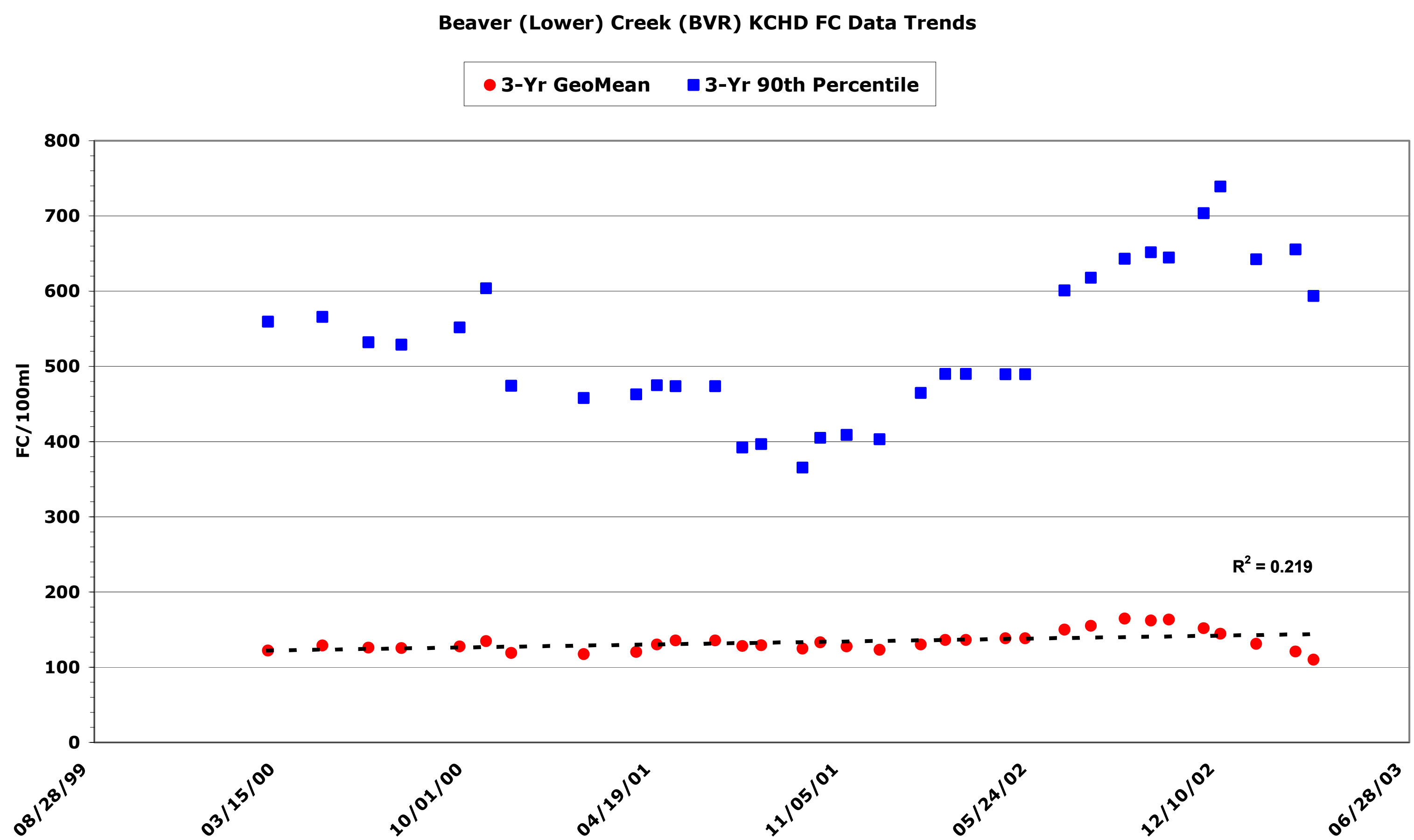
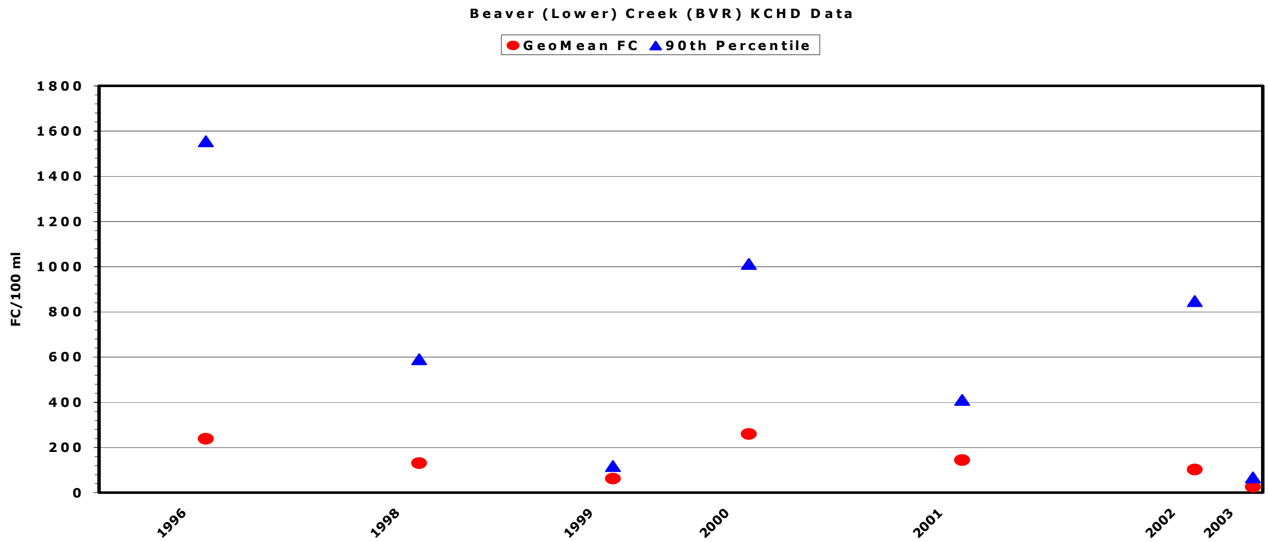
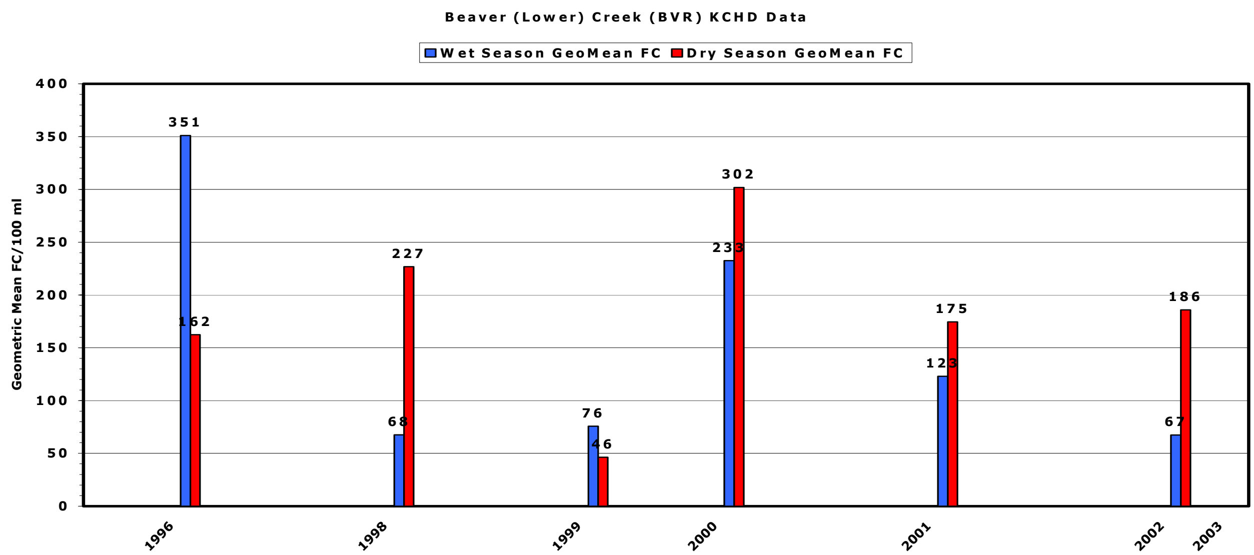


Figure 6. Lower Beaver Creek historical FC trend





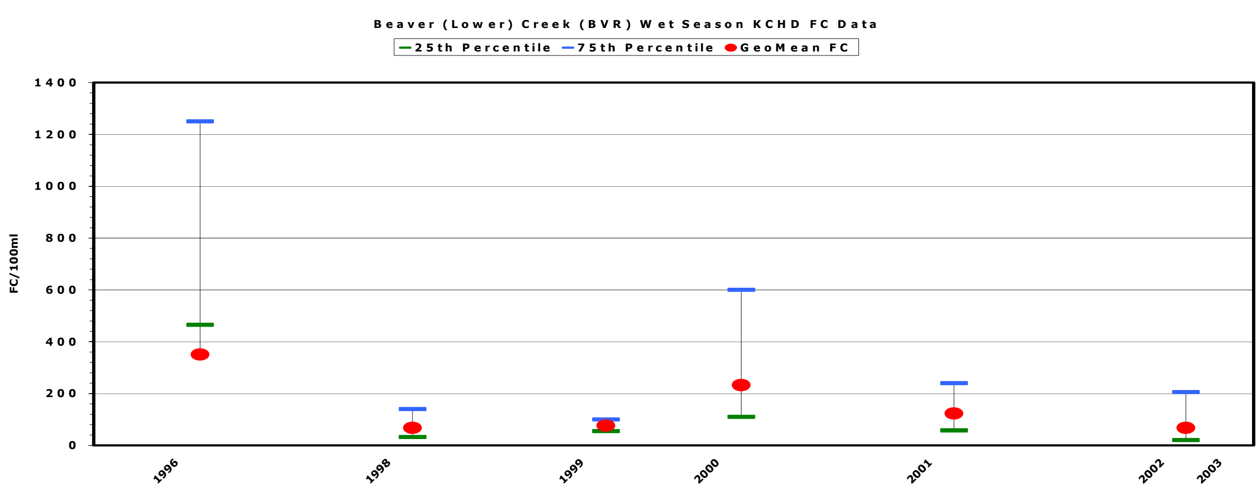


Figure 6 cont. Lower Beaver Creek historical FC trend

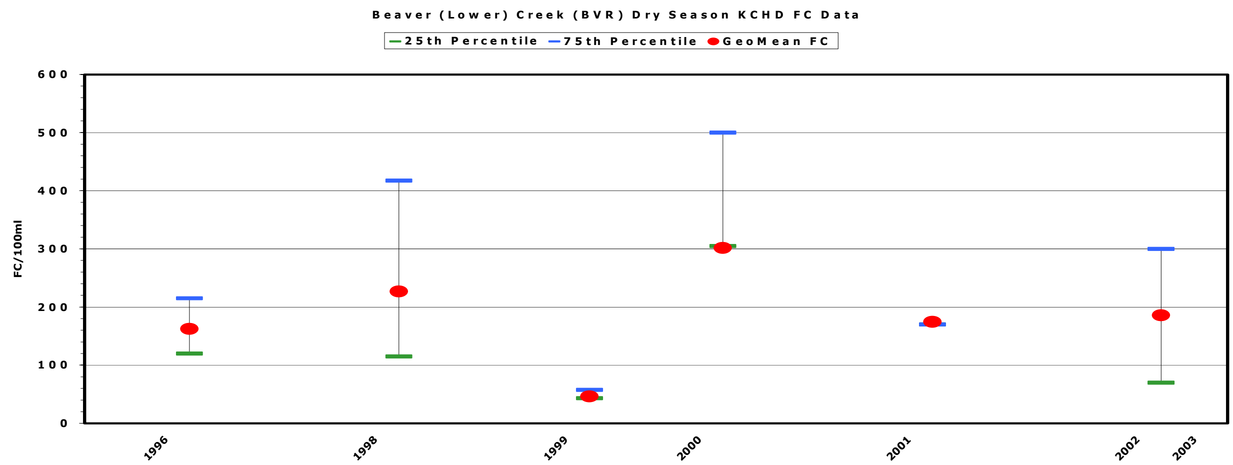


Figure 6.cont. Lower Beaver Creek historical FC trend

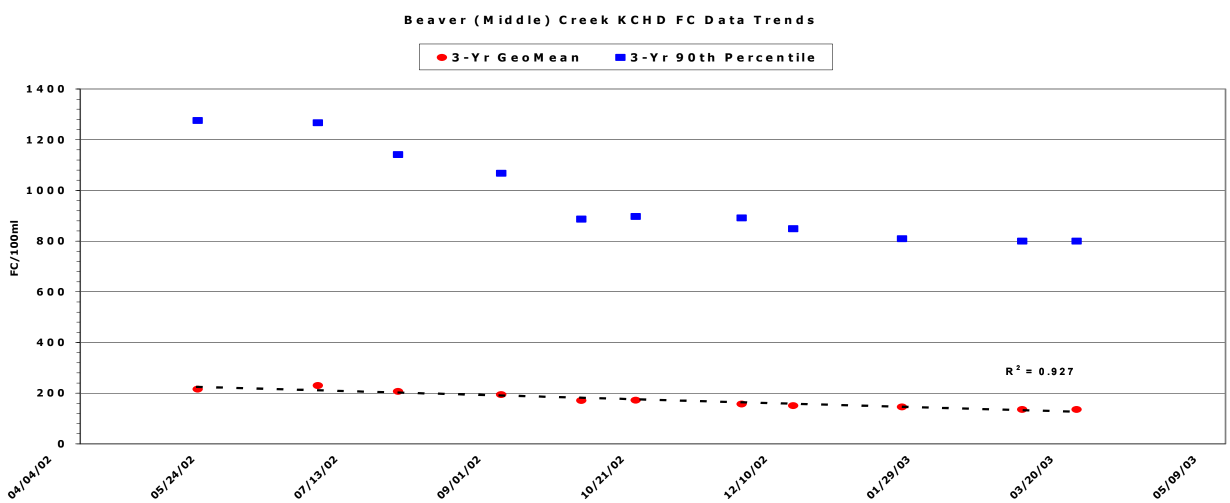


Figure 6.cont. Lower Beaver Creek historical FC trend

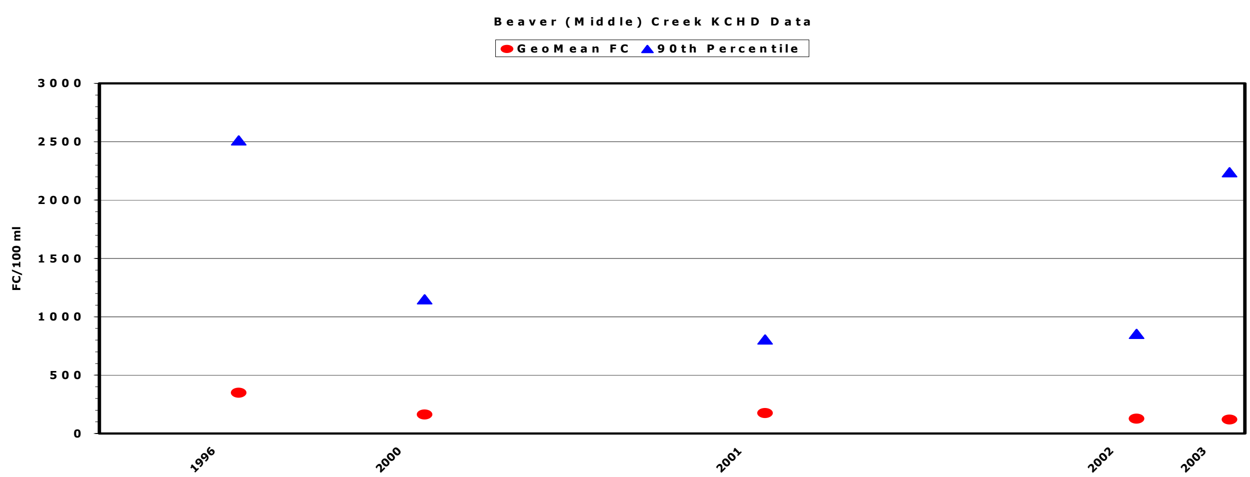
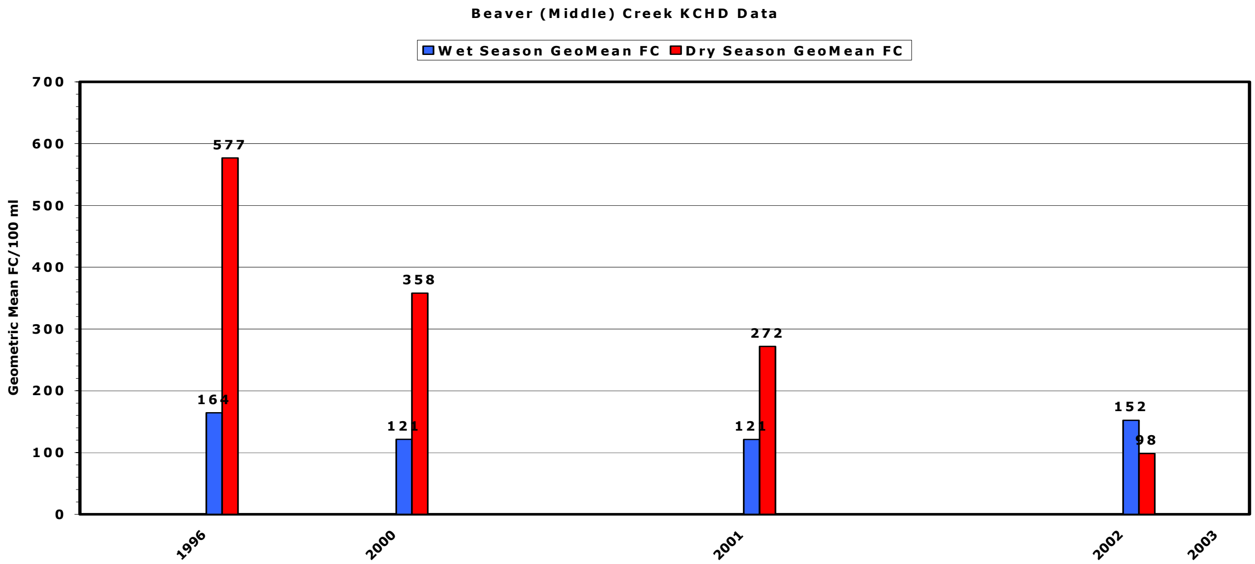
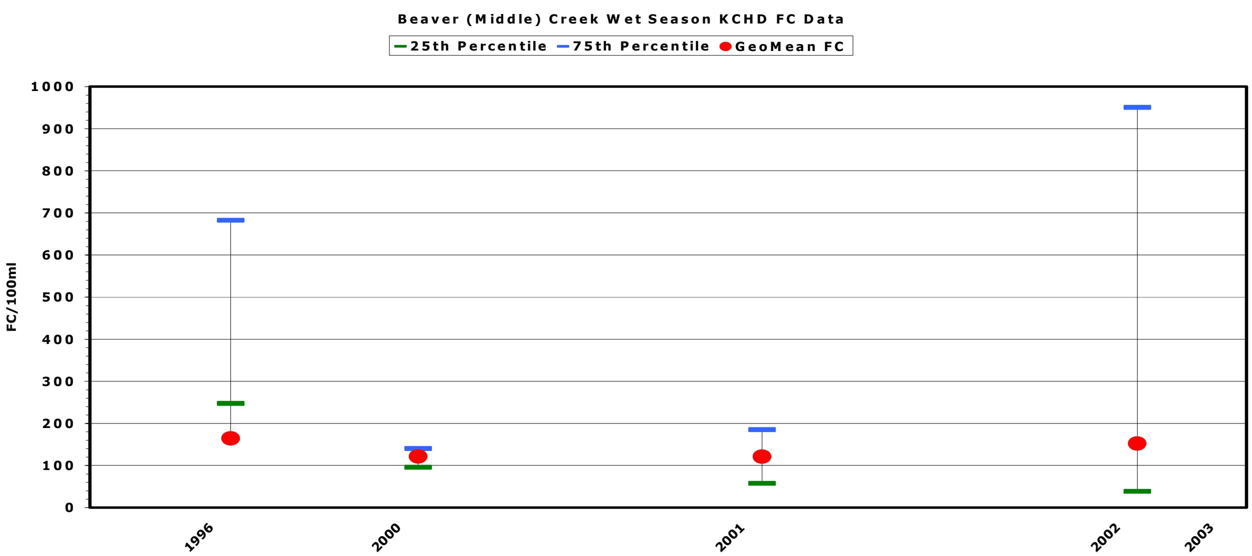


Figure 7. Middle Beaver Creek historical FC trend.





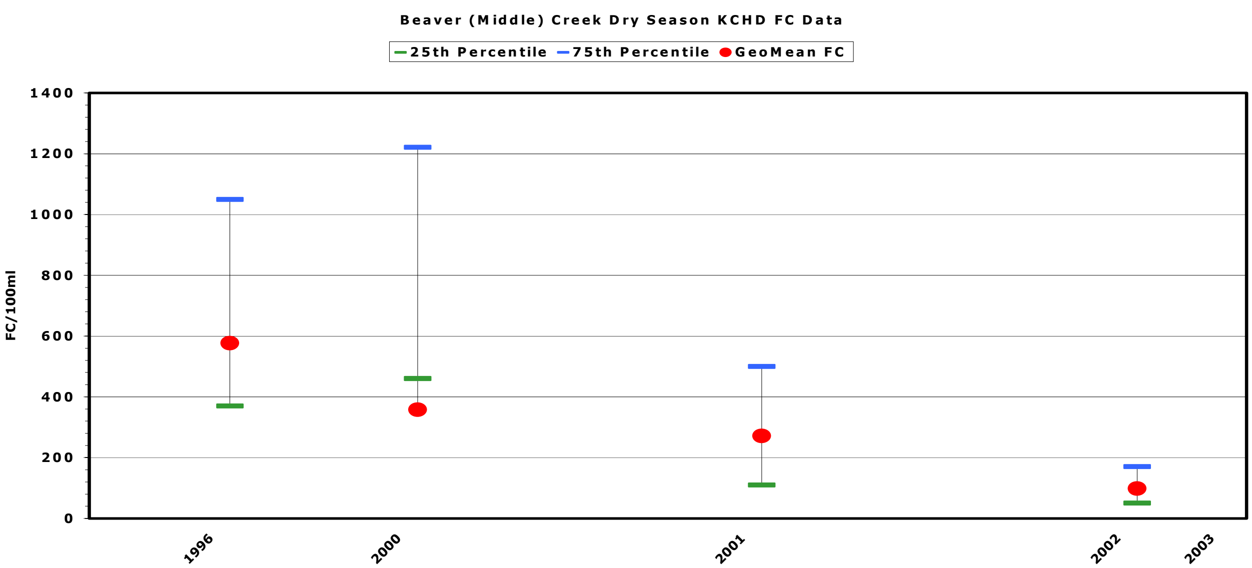


Figure 7 cont. Middle Beaver Creek historical FC trend

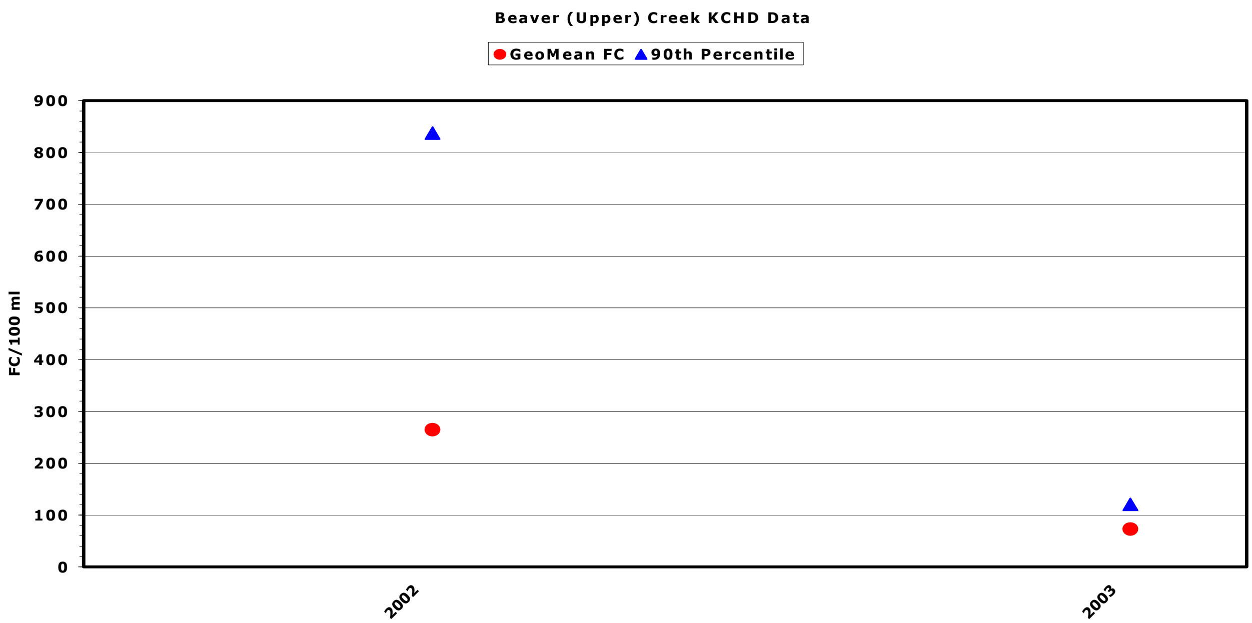
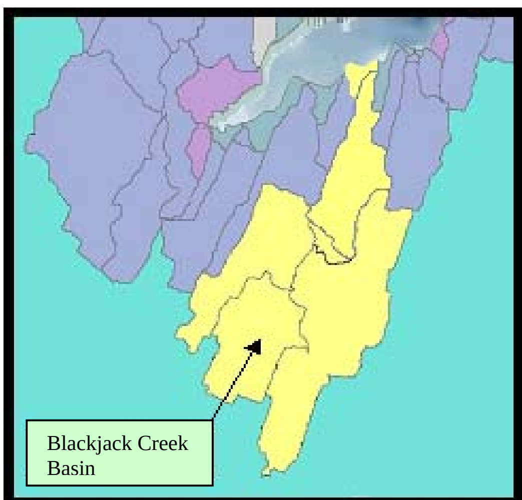


Figure 7 cont. Middle Beaver Creek historical FC trend.

BLACKJACK CREEK

Blackjack Creek is a class "A" stream within the Sinclair Inlet watershed boundary (Zimny et al., 2003). Over 1600 acres of basin, makes the Blackjack watershed one of the largest in Sinclair and Dyes Inlets, supporting Coho and Chum Salmon (May, et al, 2003). Fig. 1 shows the location of the basin within the Sinclair Inlet watershed boundary. Flowing in a northeasterly direction Blackjack Creek enters Sinclair Inlet on the eastern side of the City of Port Orchard Fig. 2. Figure 3 shows the 6 sub-watersheds, which are predominantly open land, wooded land, vacant land and suburban land use, with less than 18% of Blackjack basin being total impervious area (%TIA) Table 1. While the stream courses through various Quaternary deposits, the dominant surficial hydrogeologic unit for Blackjack Creek basin is Vashon till, with the upper basin patched with marsh, bog and peat deposits. As the stream heads north from its headwaters, it cuts through recessional fine outwash deposits before its final leg to Sinclair Inlet. As the last reach drops towards the bay it incises deeply into Vashon advance outwash composed of sands, silts and clays. Before entering Sinclair Inlet, Blackjack Creek crosses through a small rim of nonglacial floodplain deposits of the Kitsap and Whidbey formations (Jones, et al, 1998). A gaging station Fig. 4 has been established by Kitsap PUD to monitor the flow of Blackjack Creek. The compilation of this flow data for three water years is shown in Figures 6 and 7. Figure 5 is an aerial photograph of Blackjack Creek Basin (Space Imaging, 2002). The ENVVEST team established two water quality sampling sites (BL, BL-KFC) along Blackjack Creek for sampling during the winter 2002-2003 storm season Fig. 4. The fecal Coliform and ancillary data that were collected during this period are shown in Table 2 with the wet season summary presented in Table 3. Figures 8-10 show the historical trend of Fecal Coliform for the Blackjack Creek sites (May, et al, 2003).

Figure 1. Location of Blackjack Creek basin



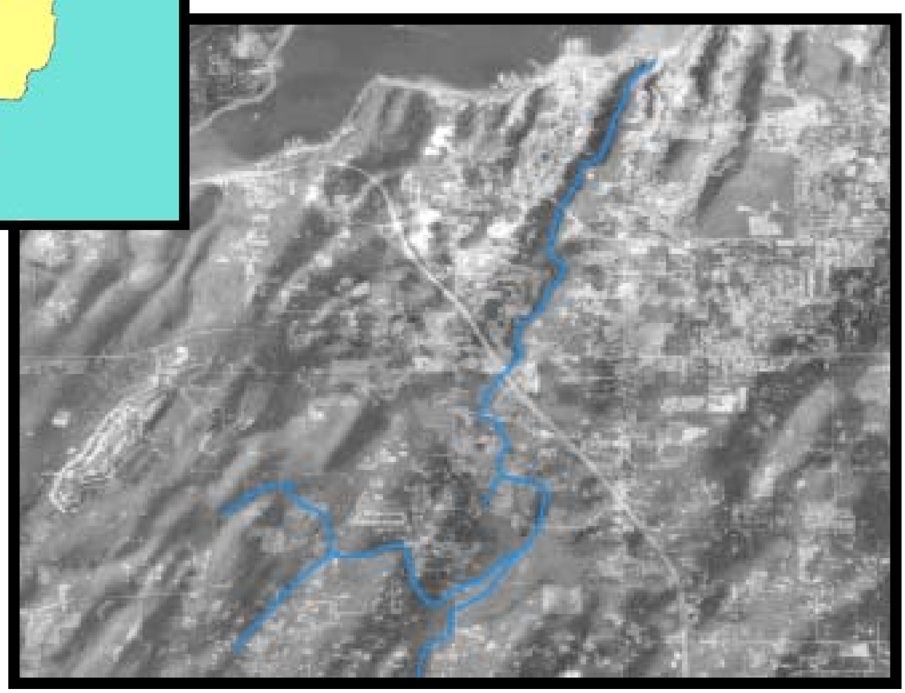


Figure 2. Photo Relief of Blackjack Creek basin

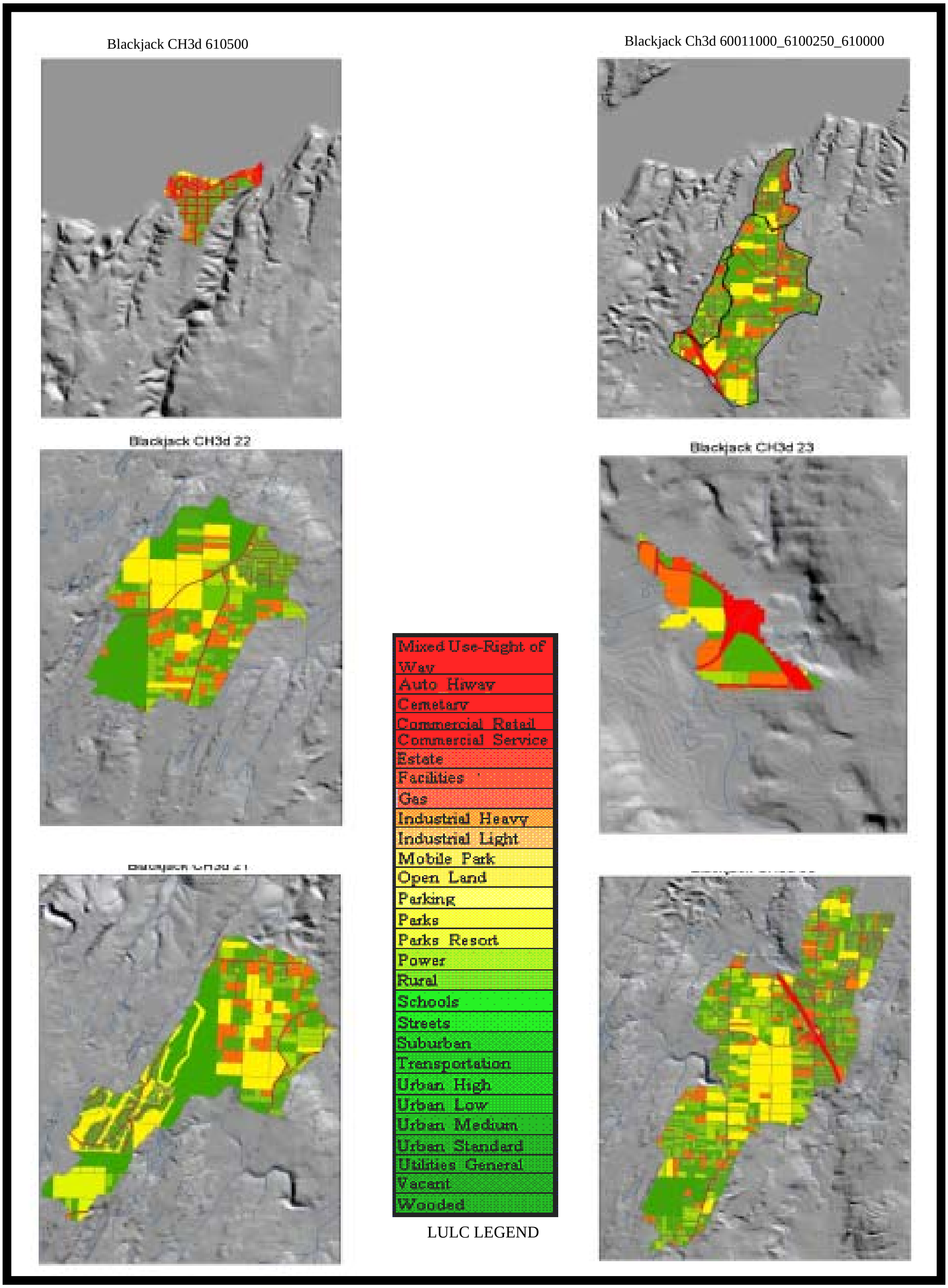


Figure 3. Blackjack Creek sub-basins Land Use Land Cover

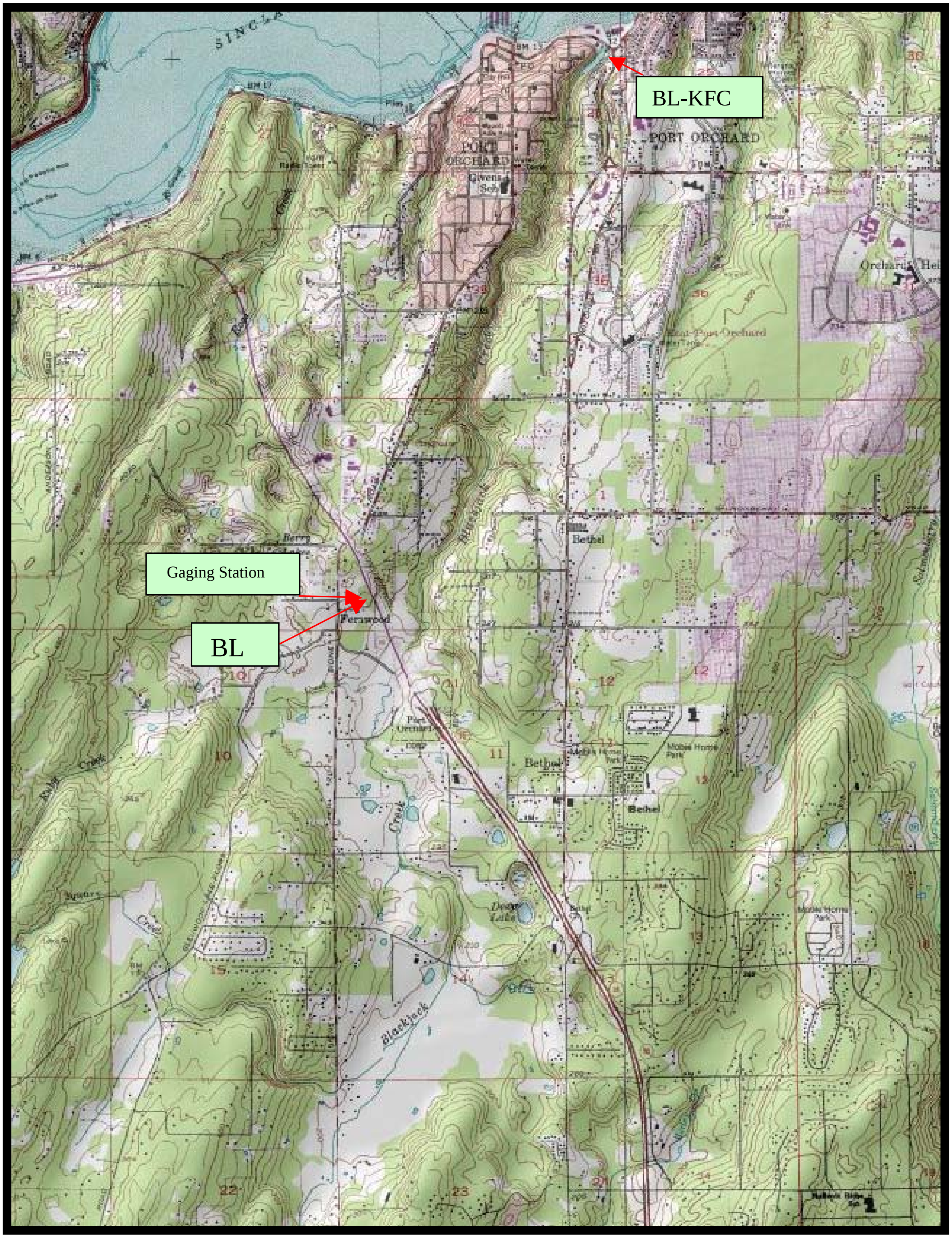


Figure 4 Blackjack Creek sampling sites and stream gage locations

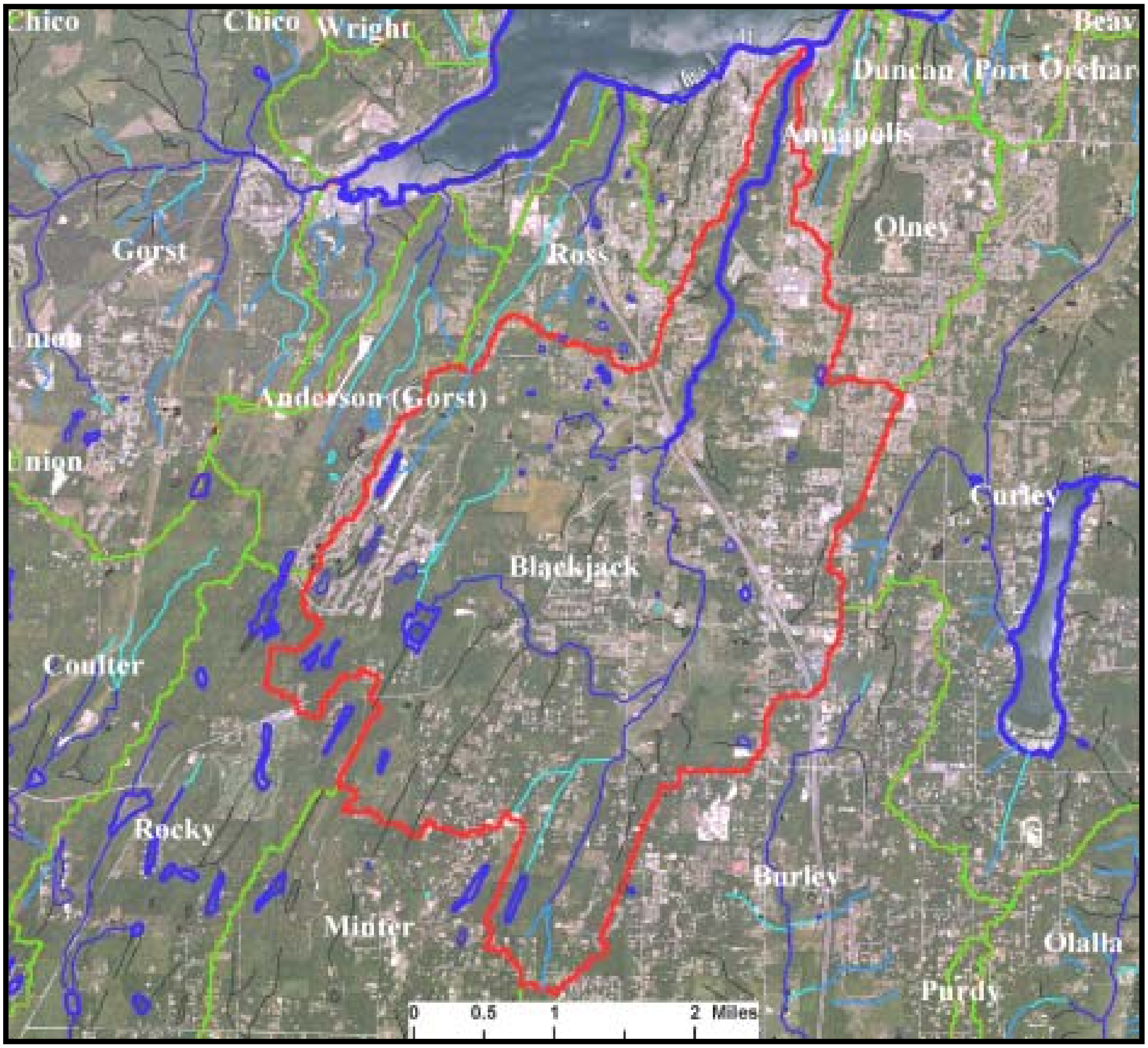


Figure 5 Aerial Photograph of Blackjack Creek Basin

Land Code	Percent Impervious	Area Sq. Feet	% of total Area	Impervious Area sq feet	%TIA of Total Area
Mixed Use-Right of Way	0.443	19809805.67	5.836%	8775743.91	2.5855%
Auto_Hiway	59.90%	224376.20	0.066%	134401.34	0.0396%
Cemetary	17.10%	232719.00	0.069%	39794.95	0.0117%
Church	46.00%	1091828.45	0.322%	502241.09	0.1480%
Commercial_Retail	59.50%	2130512.04	0.628%	1267654.66	0.3735%
Commercial_Service	55.10%	1354444.94	0.399%	746299.16	0.2199%
Estate	20.80%	32525214.14	9.582%	6765244.54	1.9931%
Facilities	66.40%	871152.58	0.257%	578445.31	0.1704%
Gas	54.30%	86190.70	0.025%	46801.55	0.0138%
Industrial_Heavy	82.10%	98880.00	0.029%	81180.48	0.0239%
Industrial_Light	59.80%	452230.82	0.133%	270434.03	0.0797%
Mobile_Park	43.70%	332581.60	0.098%	145338.16	0.0428%
Open_Land	9.27%	65599512.76	19.327%	6081074.83	1.7916%
Parking	51.40%	605767.53	0.178%	311364.51	0.0917%
Parks	18.10%	2650916.50	0.781%	479815.89	0.1414%
Parks_Resort	19.20%	4398293.00	1.296%	844472.26	0.2488%
Power	5.70%	711381.92	0.210%	40548.77	0.0119%
Rural	16.10%	23061842.82	6.794%	3712956.69	1.0939%
Schools	46.00%	860946.10	0.254%	396035.21	0.1167%
Streets_	49.90%	234286.12	0.069%	116908.77	0.0344%
Suburban	38.90%	37792327.30	11.134%	14701215.32	4.3312%
Transportation	10.90%	49562.70	0.015%	5402.33	0.0016%
Urban_High	25.90%	7130.62	0.002%	1846.83	0.0005%
Urban_Low	38.20%	28174226.06	8.301%	10762554.35	3.1708%
Urban_Medium	35.60%	163067.43	0.048%	58052.00	0.0171%
Urban_Standard	44.00%	6896999.06	2.032%	3034679.58	0.8941%
Utilities_General	2.10%	57744.90	0.017%	1212.64	0.0004%
Vacant	11.40%	68481023.00	20.176%	7806836.62	2.3000%
Wooded	4.20%	40470144.05	11.923%	1699746.05	0.5008%
Total		339425107.98		69408301.86	20.4488%
Acres		7792.13		1593.40	

Table 1 Blackjack Creek Land Use Land Cover

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
BJ01	BKCHD	18-Oct-00	APAH 9221-E	7.2	11	110	97.4	243	11.2	0.16	1.7
BJ01	BKCHD	14-Nov-00	APAH 9221-E			13					
BJ01	BKCHD	08-Dec-00	APAH 9221-E			70					
BJ01	BKCHD	30-Jan-01	APAH 9221-E			14					
BJ01	BKCHD	27-Mar-01	APAH 9221-E	7.8	11	23	94	141.5	7.1	0.09	1.8
BJ01	BKCHD	18-Apr-01	APAH 9221-E	8.1	11	50	97	122.1	10.3	0.08	18.4
BJ01	BKCHD	08-May-01	APAH 9221-E		11	50	99.3	155	10.7	0.1	
BJ01	BKCHD	19-Jun-01	APAH 9221-E	7.9	10	240	98.1	143.3	13	0.09	
BJ01	BKCHD	18-Jul-01	APAH 9221-E		11	300	98	176	11.9	0.11	13.2
BJ01	BKCHD	07-Aug-01	APAH 9221-E		11	110	105	174	14.5	0.11	
BJ01	BKCHD	20-Sep-01	APAH 9221-E	7.7	12	140	104	246	10.9	0.16	3.8
BJ01	KCHD	09-Oct-01	APAH 9221-E	7.8	11	60	99.6	143.6	9.2	0.09	7.6
BJ01	KCHD	06-Nov-01	APAH 9221-E	7.7	11	23	90.7	262.1	8	0.17	12.7
BJ01	KCHD	11-Dec-01	APAH 9221-E	7.4		30		101.3	5.9	0.07	11
BJ01	KCHD	24-Jan-02	APAH 9221-E	7.6	12	170	99.7	70.8	6	0.05	
BJ01	KCHD	19-Feb-02	APAH 9221-E	7.6	12	23	95.6	115.4	7.4	0.07	20.4
BJ01	KCHD	13-Mar-02	APAH 9221-E	7.4	13	170	104	54.7	6.2	0.04	20.8
BJ01	KCHD	24-Apr-02	APAH 9221-E	8.2	12		103	105.9	7.9	0.07	
BJ01	KCHD	15-May-02	APAH 9221-E	7.9	8.7	50	84.8	120	11.1	0.08	3.8
BJ01	KCHD	26-Jun-02	APAH 9221-E	8.1	11	500	102	173.1	14.3	0.1	9.5
BJ01	KCHD	24-Jul-02	APAH 9221-E	7.8	11	110	105	158.1	15.9	0.1	
BJ01	KCHD	29-Aug-02	APAH 9221-E	7.8	10	50	94.7	144.5	12.7	0.09	1.2
BJ01	KCHD	26-Sep-02	APAH 9221-E	8.2	12	80	108	217.2	11.6	0.14	2.7
BJ01	KCHD	15-Oct-02	APAH 9221-E	7.6	11	11	93.5	137.8	8.1	0.08	1.7
BL-KFC	SSTREAMS	07-Nov-02	FCOL(MF)	7.4		464		243	8.17		7.62
BL-KFC	SSTREAMS	13-Nov-02	FCOL(MF)	6.8		50		482	9.7		4.55
BL-KFC	SSTREAMS	13-Nov-02	FCOL(MF)			18					3.65
BL-KFC	SSTREAMS	14-Nov-02	FCOL(MF)	6.9		43		5	9.1		5.98
BL-KFC	SSTREAMS	14-Nov-02	FCOL(MF)	6.6		20		143	10.2		3.71
BL-KFC	SSTREAMS	21-Nov-02	FCOL(MF)	7		12		262	9.3		2.31
BL-KFC	SSTREAMS	21-Nov-02	FCOL(MF)	7		8		262	9.3		2.31
BJ01	KCHD	21-Nov-02	APAH 9221-E	7.9	11	23	98.7	228.1	9.5	0.15	
BL-KFC	SSTREAMS	05-Dec-02	FCOL(MF)			80					1.38
BJ01	KCHD	09-Dec-02	APAH 9221-E			170					
BL-KFC	SSTREAMS	09-Dec-02	FCOL(MF)	7		18		234	6.3		1.86
BL-KFC	SSTREAMS	11-Dec-02	FCOL(MF)	6.7		620		130	6.7		8.22
BL-KFC	SSTREAMS	12-Dec-02	FCOL(MF)			400					13.1
BL-KFC	SSTREAMS	16-Dec-02	FCOL(MF)			420					
BL-KFC	SSTREAMS	19-Dec-02	FCOL(MF)			115					
BL-KFC	SSTREAMS	06-Jan-03	FCOL(MF)	7.5		46		94.5	5.14		8.07
BL-KFC	SSTREAMS	13-Jan-03	FCOL(MF)	7.4		92		75.1	6.16		7.4
BL-KFC	SSTREAMS	15-Jan-03	FCOL(MF)	6.6		33		73.9	5.5		5.15

Table 2 Blackjack Creek Fecal Coliform Data for ENVVEST water quality site BL-KFC (KCHD site BJ01)

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
BL-KFC	SSTREAMS	22-Jan-03	FCOL(MF)	7.2		700		55.2	6.67		54.7
BL-KFC	SSTREAMS	23-Jan-03	FCOL(MF)	7.2		200		56.7	7.87		12.1
BJ01	KCHD	27-Feb-03	APAH 9221-E	7.7	13	23	98.1	298	4.5	0.16	6.7
BJ01	KCHD	18-Mar-03	APAH 9221-E			110					
BJ01	KCHD	17-Apr-03	APAH 9221-E	8.1		8		124.9	10	0.08	3.3
BJ01	KCHD	22-May-03	APAH 9221-E	8.3	11	30	106	144.2	12.1	0.09	
BJ01	KCHD	11-Jun-03	APAH 9221-E	8	12	110	110	150	13.3	0.1	
BJ01	KCHD	22-Jul-03	APAH 9221-E	8.3	11	140	102	161.7	13.7	0.1	
BJ01	KCHD	19-Aug-03	APAH 9221-E	8.1	1	900	97.8	449.3	15.1	0.29	
BJ01	KCHD	15-Sep-03	APAH 9221-E	7.8	12	90	114	243.6	12	0.16	3.8
BL	KPUD	12-Mar-02	APAH -MPN			49					
BL	KPUD	13-Mar-02	APAH -MPN			11					
BL	SSTREAMS	07-Nov-02	FCOL(MF)	7.2		368		103	7.74		1.85
BL	SSTREAMS	13-Nov-02	FCOL(MF)	6.3		450		110	9.1		3.63
BL	SSTREAMS	13-Nov-02	FCOL(MF)			37					1.9
BL	SSTREAMS	14-Nov-02	FCOL(MF)	6.4		68		90	9.7		2.13
BL	SSTREAMS	14-Nov-02	FCOL(MF)	7.2		190		93	8.9		2091
BL	SSTREAMS	14-Nov-02	FCOL(MF)	6.4		54		90	9.7		2.13
BL	SSTREAMS	21-Nov-02	FCOL(MF)	6.9		13		113	8.8		1.55
BL	SSTREAMS	05-Dec-02	FCOL(MF)			96					2.13
BL	SSTREAMS	09-Dec-02	FCOL(MF)	6.7		18		111	5.9		1.91
BL	SSTREAMS	11-Dec-02	FCOL(MF)	6.9		740		100	6.3		9.96
BL	SSTREAMS	12-Dec-02	FCOL(MF)			270		98	8		5.45
BL	SSTREAMS	16-Dec-02	FCOL(MF)			410					
BL	SSTREAMS	19-Dec-02	FCOL(MF)			92					
BL	SSTREAMS	06-Jan-03	FCOL(MF)	7		140		55.4	4.74		4.84
BL	SSTREAMS	13-Jan-03	FCOL(MF)	6.9		54		63.5	5.98		3.19
BL	SSTREAMS	15-Jan-03	FCOL(MF)	7		37		60.9	5.26		2.54
BL	TEC-STORM	22-Jan-03	FCOL(MF)			120					
BL	TEC-STORM	22-Jan-03	FCOL(MF)			80					
BL	SSTREAMS	22-Jan-03	FCOL(MF)	7		1100		43.7	6.22		27.2
BL	TEC-STORM	22-Jan-03	FCOL(MF)			320					
BL	TEC-STORM	23-Jan-03	FCOL(MF)			310					
BL	SSTREAMS	23-Jan-03	FCOL(MF)	7		270		47.4	7.63		5.11
BL	TEC-STORM	29-Jan-03	FCOL(MF)			57					
BL	TEC-STORM	29-Jan-03	FCOL(MF)			66					
BL	TEC-STORM	30-Jan-03	FCOL(MF)			60					
BL	TEC-STORM	30-Jan-03	FCOL(MF)			188					
BL	TEC-STORM	31-Jan-03	FCOL(MF)			124					
BL	TEC-STORM	08-Mar-03	FCOL(MF)	7.2		6		0.134	42.8		2.3
BL	TEC-STORM	09-Mar-03	FCOL(MF)	7		100		0.124	42.2		20.9
BL	TEC-STORM	09-Mar-03	FCOL(MF)	6.9		320		0.117	45.7		28.3

Table 2 cont. Blackjack Creek Fecal Coliform Data for ENVVEST water quality site BL and BL-KFC (KCHD site BJ01

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
BL	KPUD Blackjack Creek At Gaging Site	134	13	1100	59.25	312.5	569.5	110%	24	14	58%	NO	9	38%	NO
BL-KFC	Ecology Blackjack Creek Behind KFC	89	12	700	33	400	511.9	117.7%	17	7	41.2%	NO	5	29.4%	NO

Table 3 Blackjack Creek sites (BL, BL-KFC) FC Data Summary Wet season 2002-2003

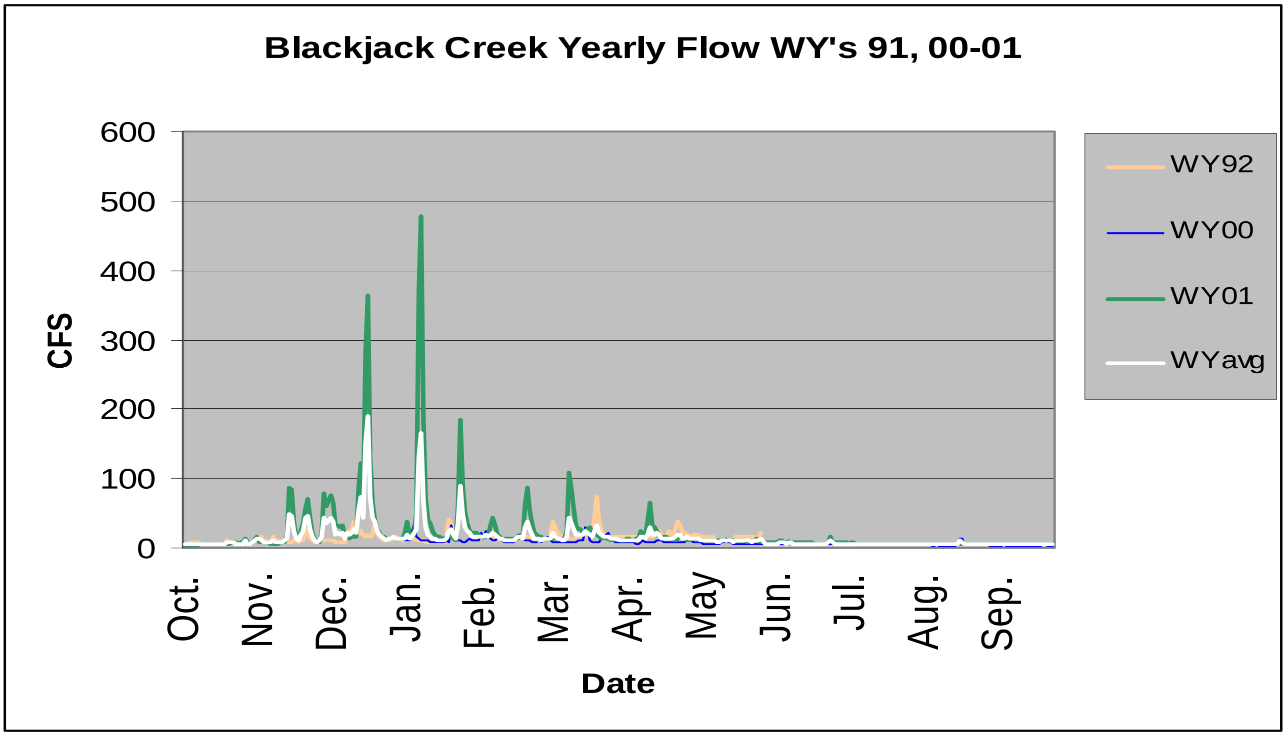
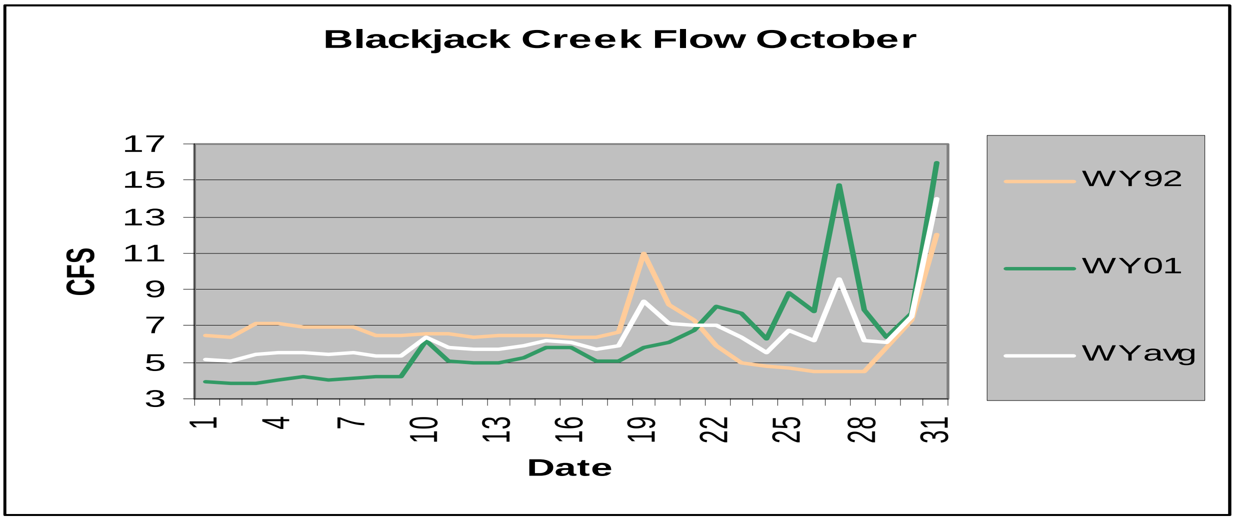
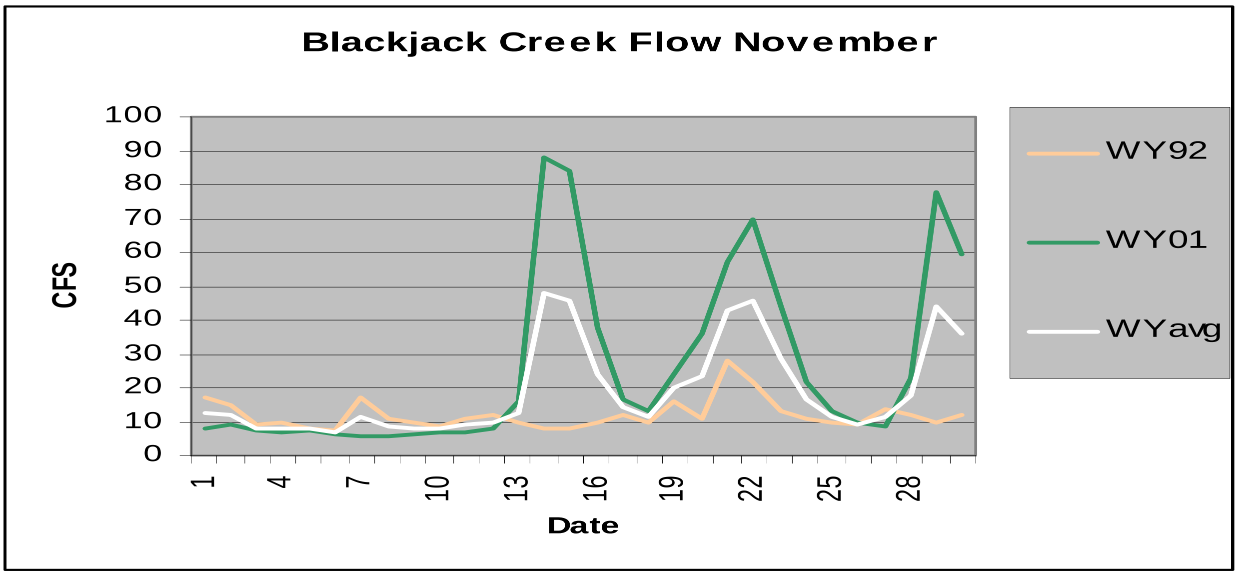


Figure 6 Flow Data for Blackjack Creek Basin





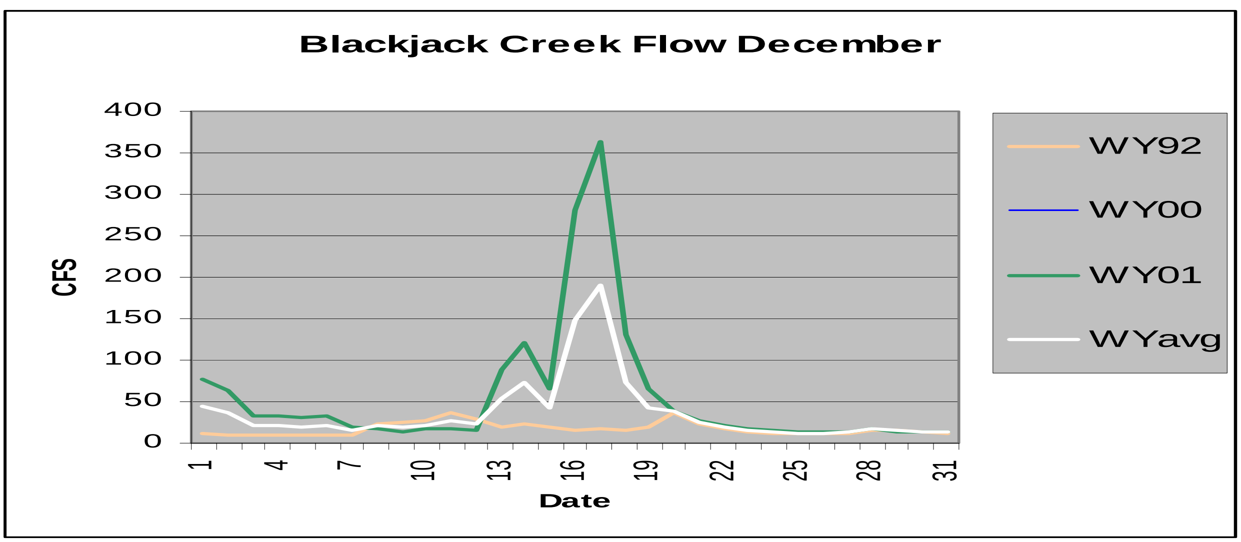
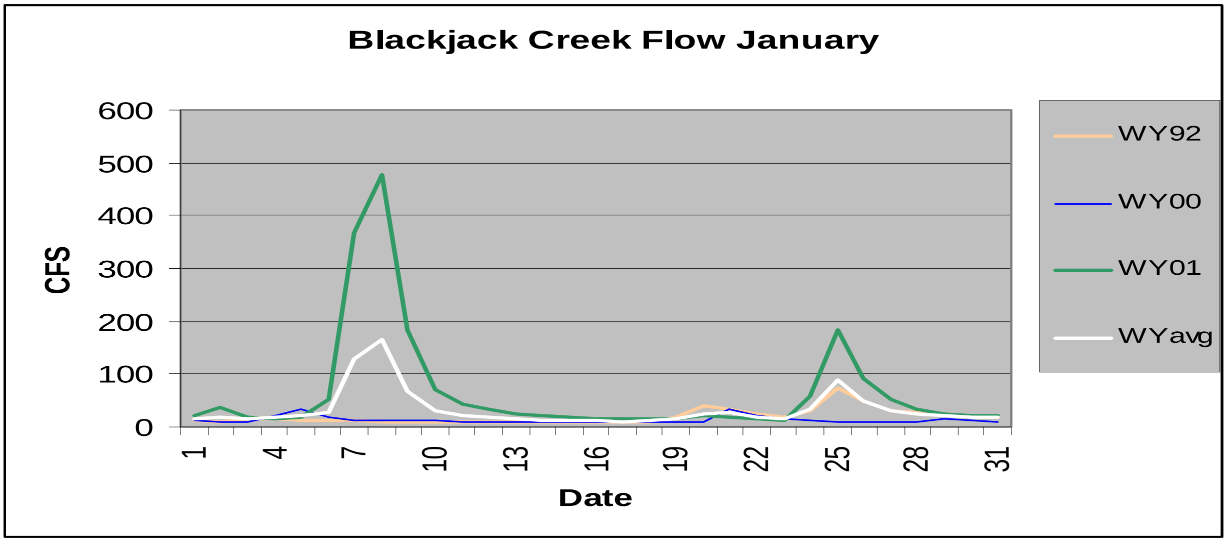
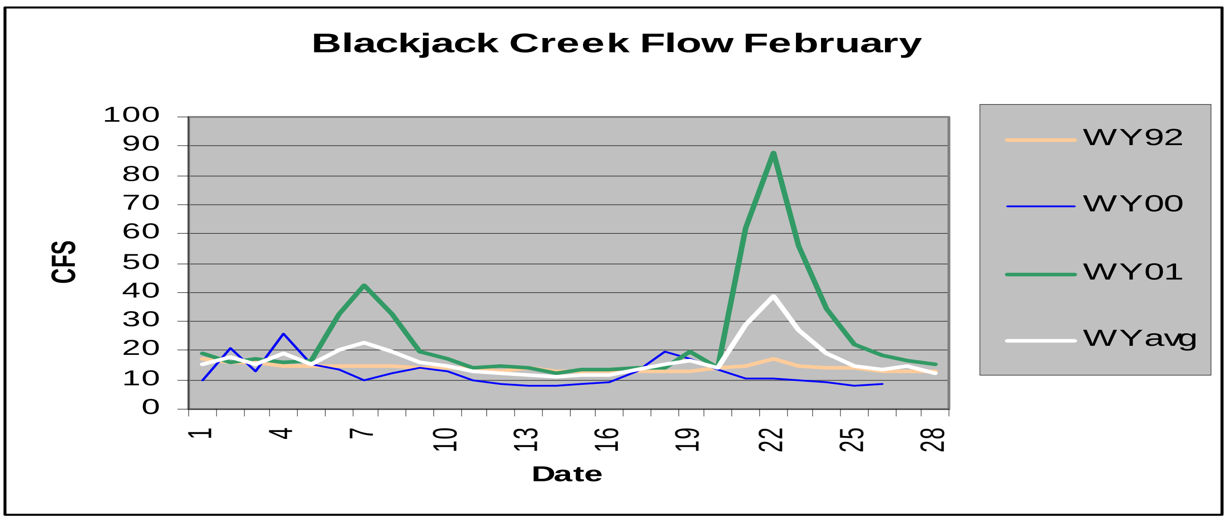


Figure 7 Blackjack Creek Flow Data Monthly





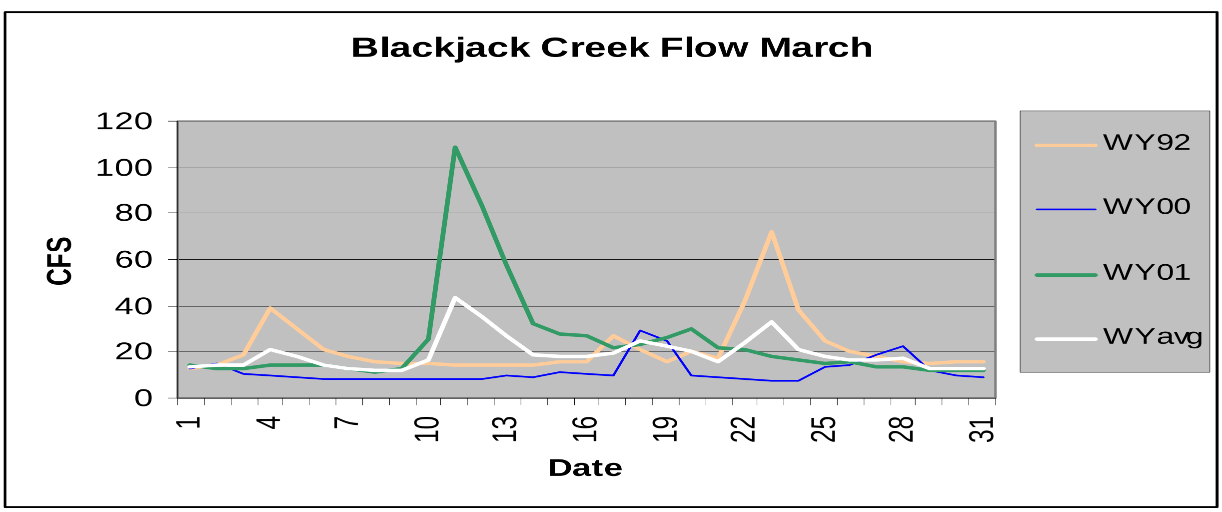
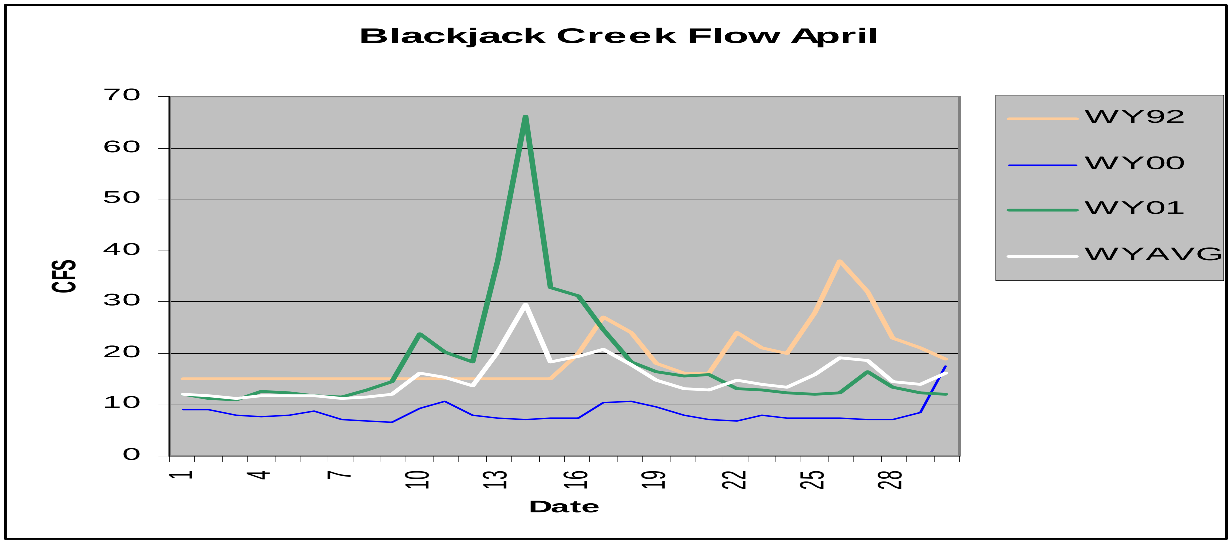
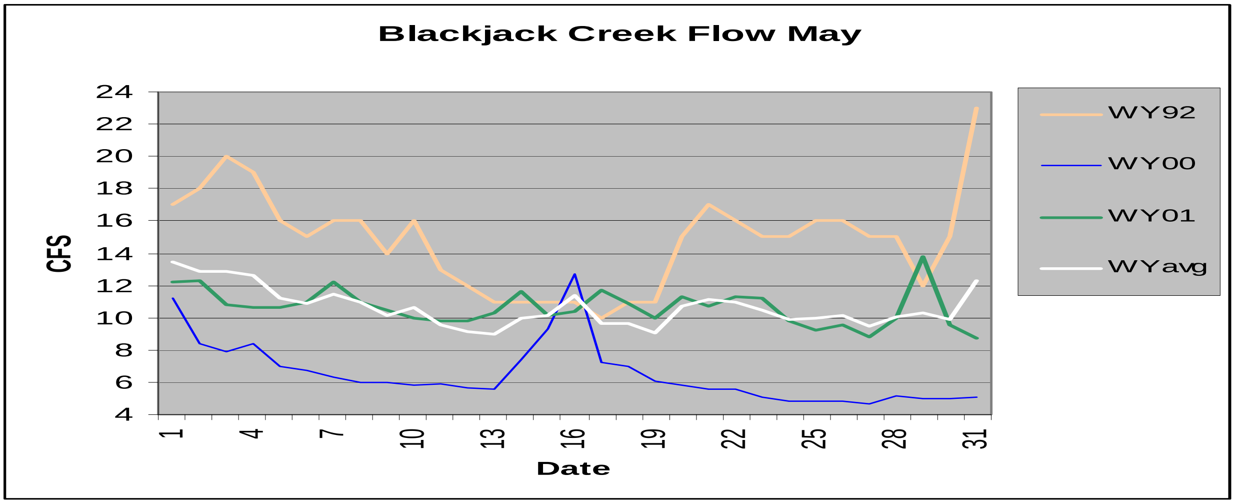


Figure 7 cont. Blackjack Creek Flow Data Monthly





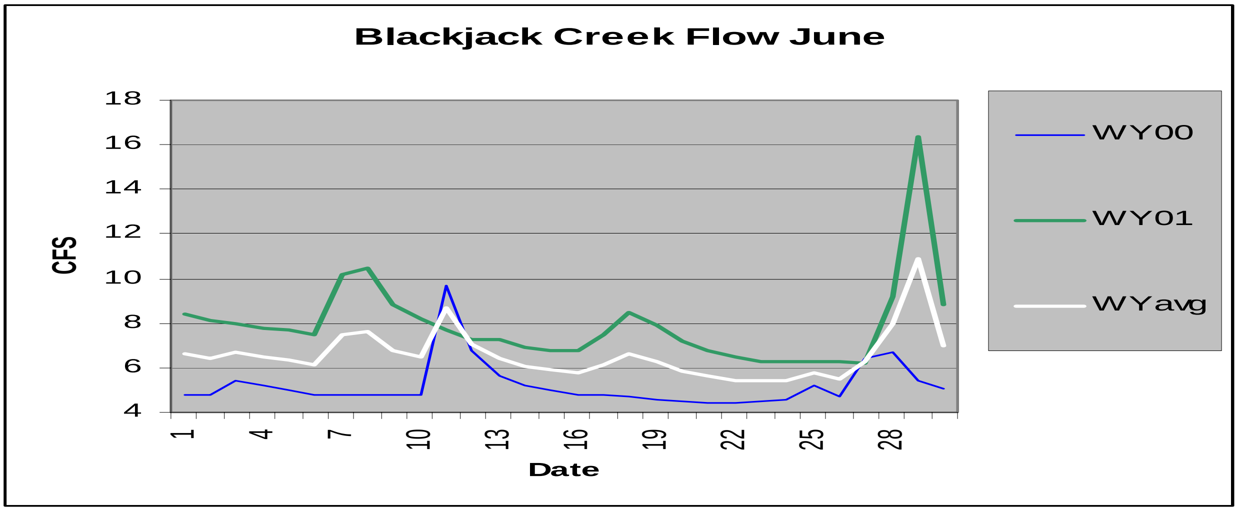
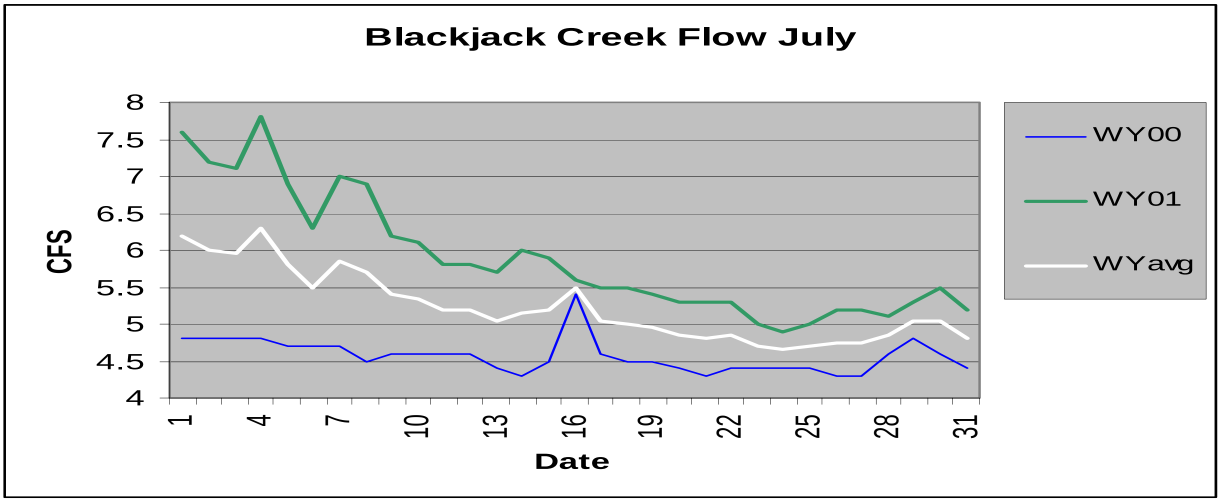
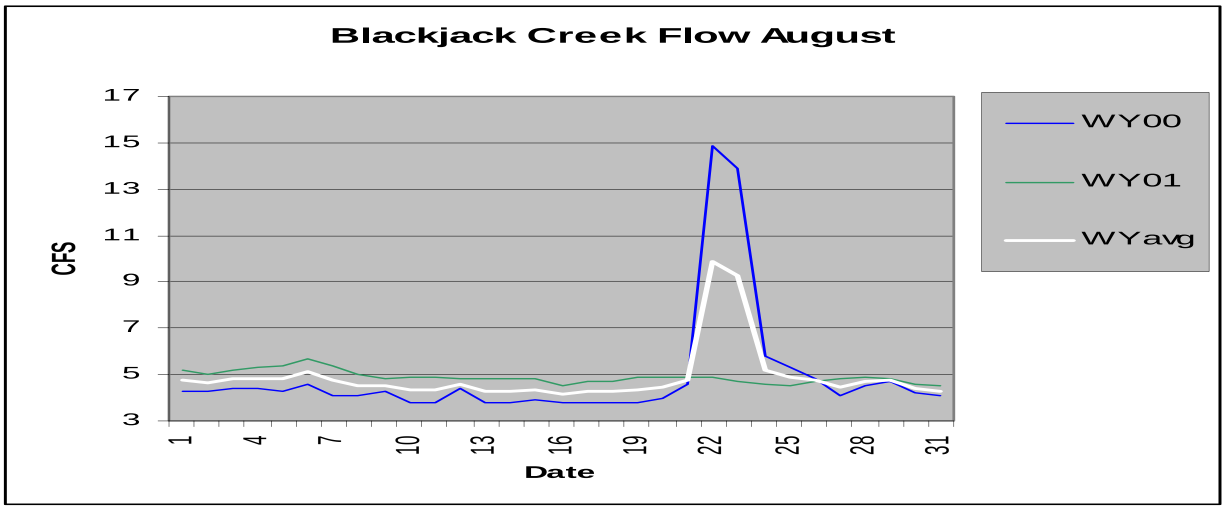


Figure 7 Blackjack Creek Flow Data Monthly





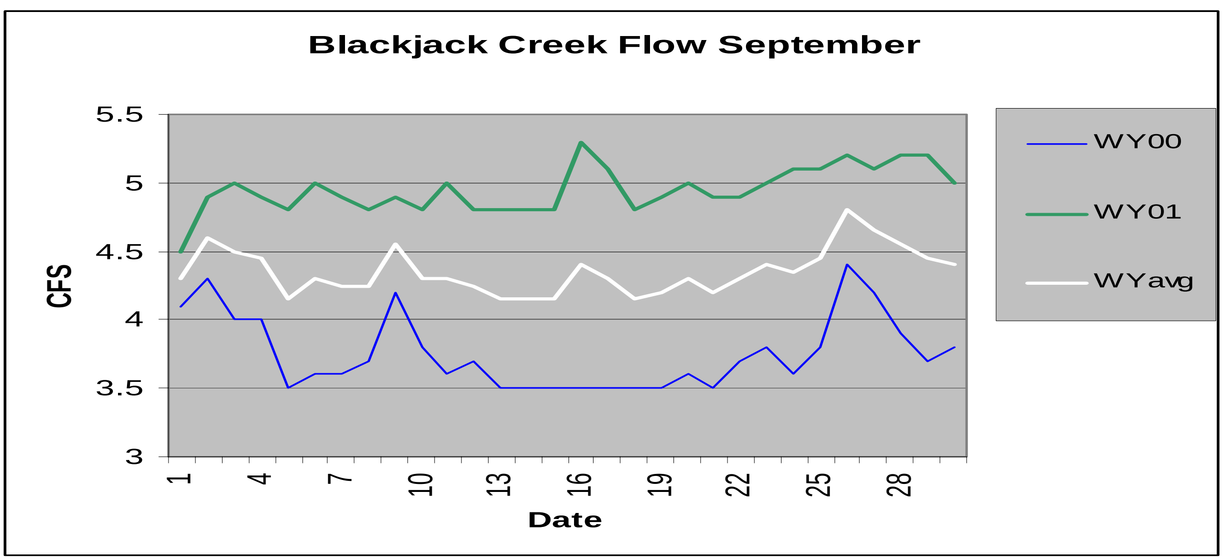
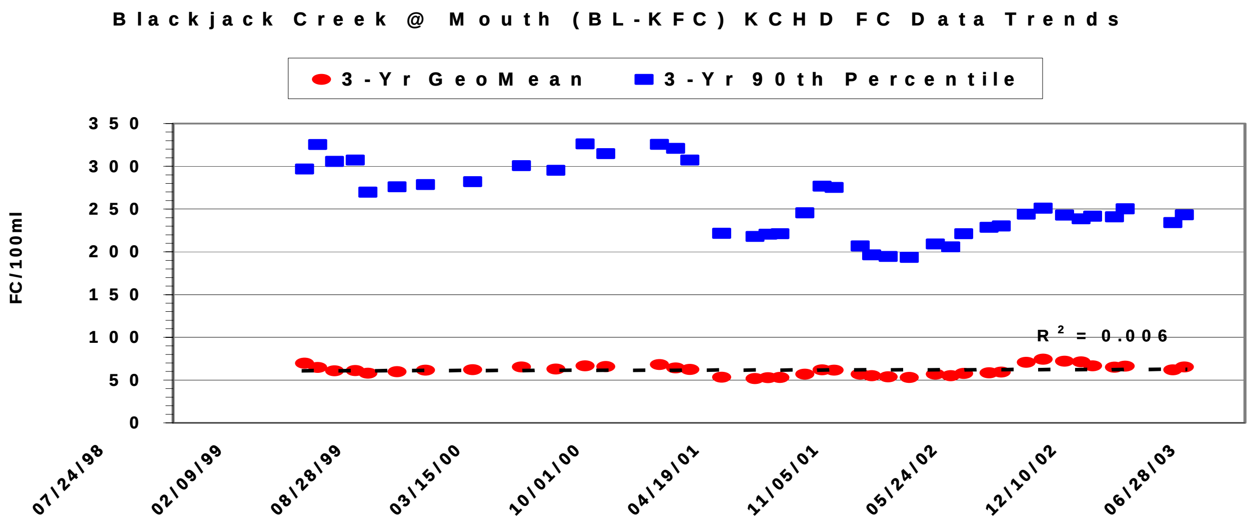
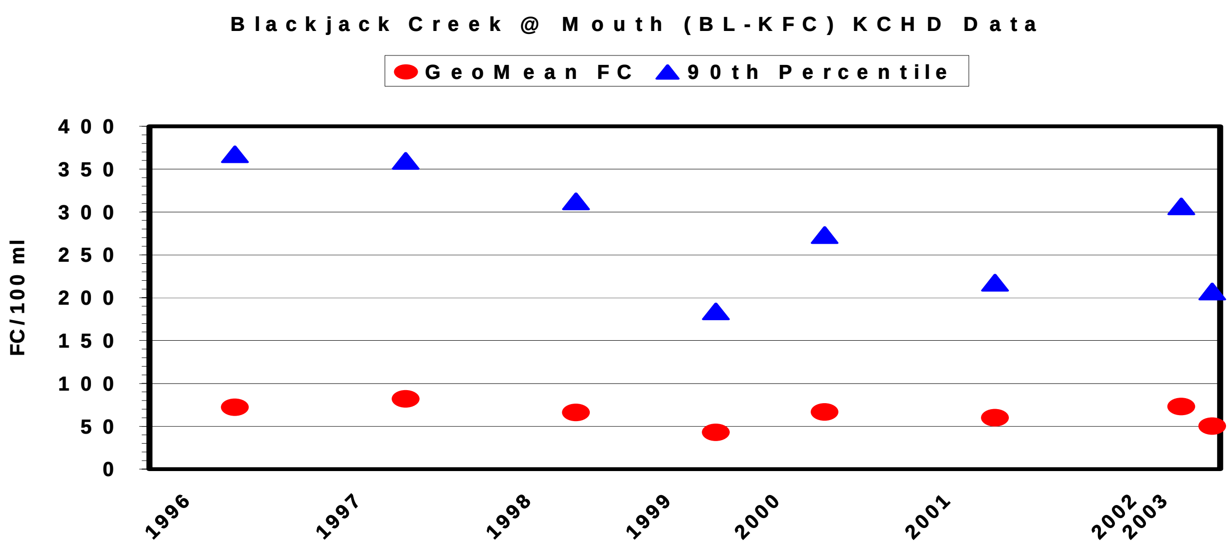


Figure 7 cont. Blackjack Creek Flow Data Monthly





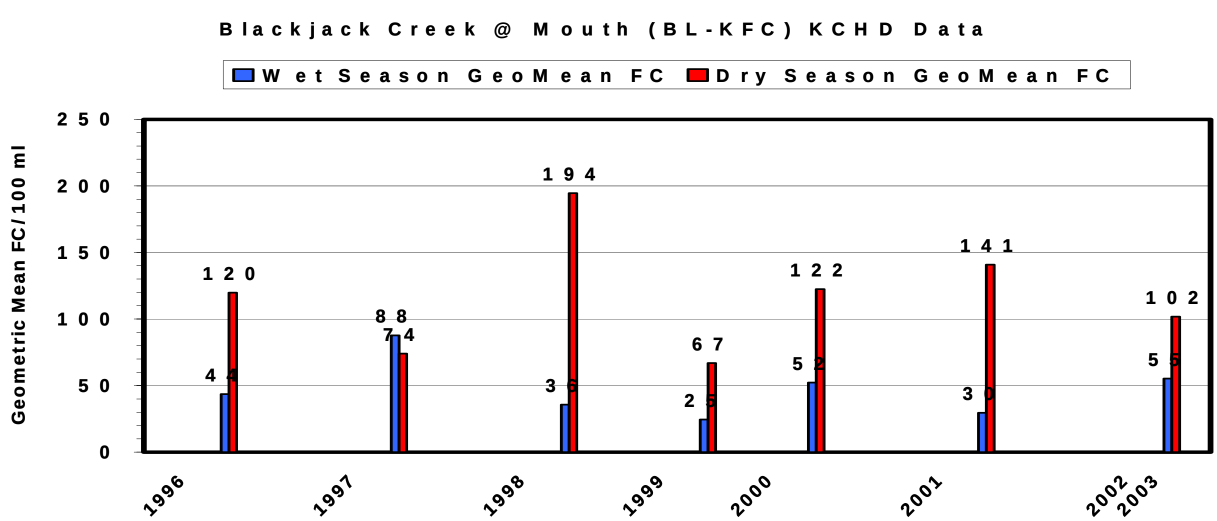
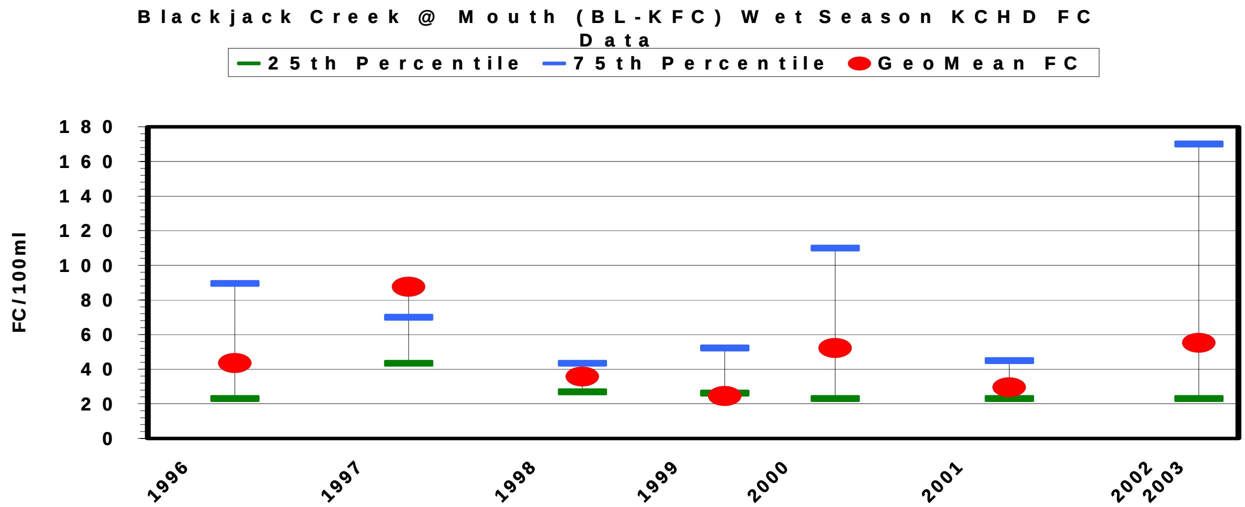


Figure 8 Blackjack Creek site (BL-KFC) historical FC trend.



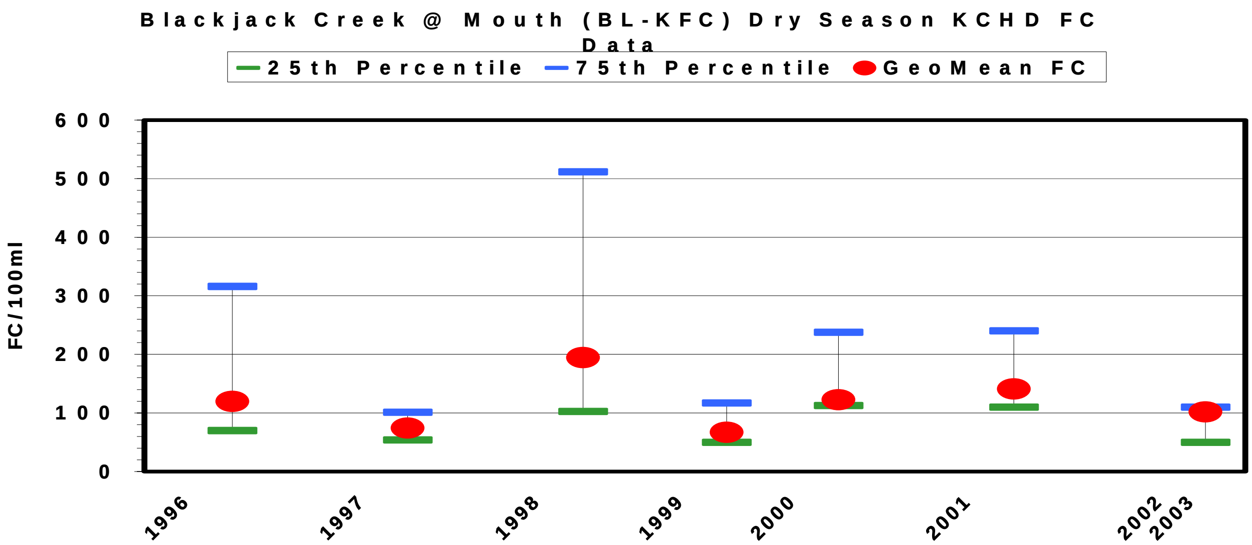


Figure 8 Blackjack Creek site (BL-KFC) historical FC trend.

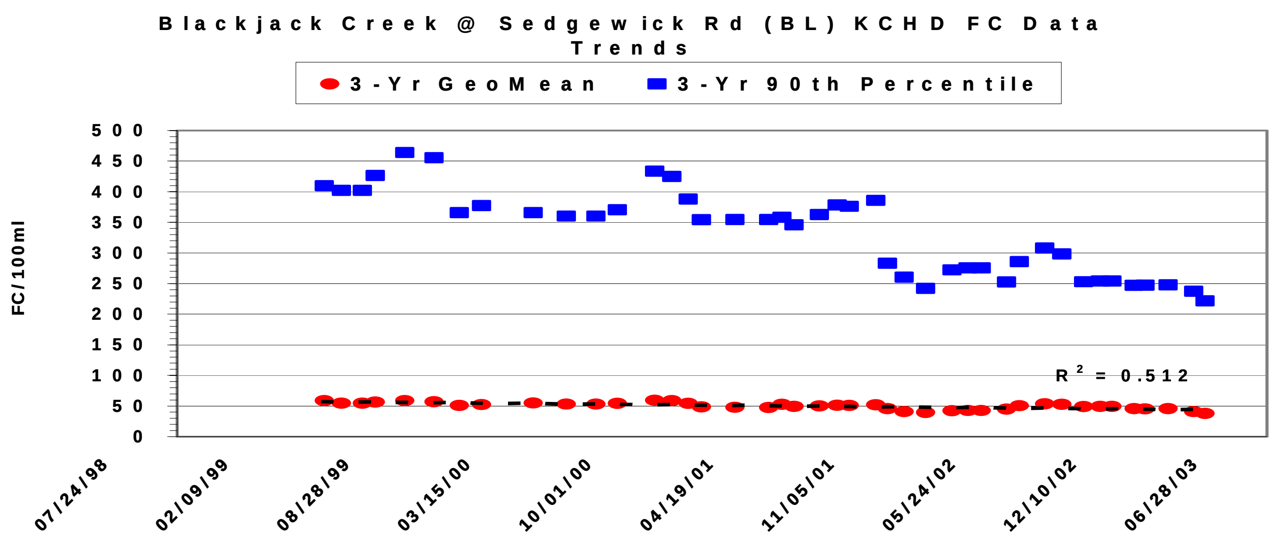
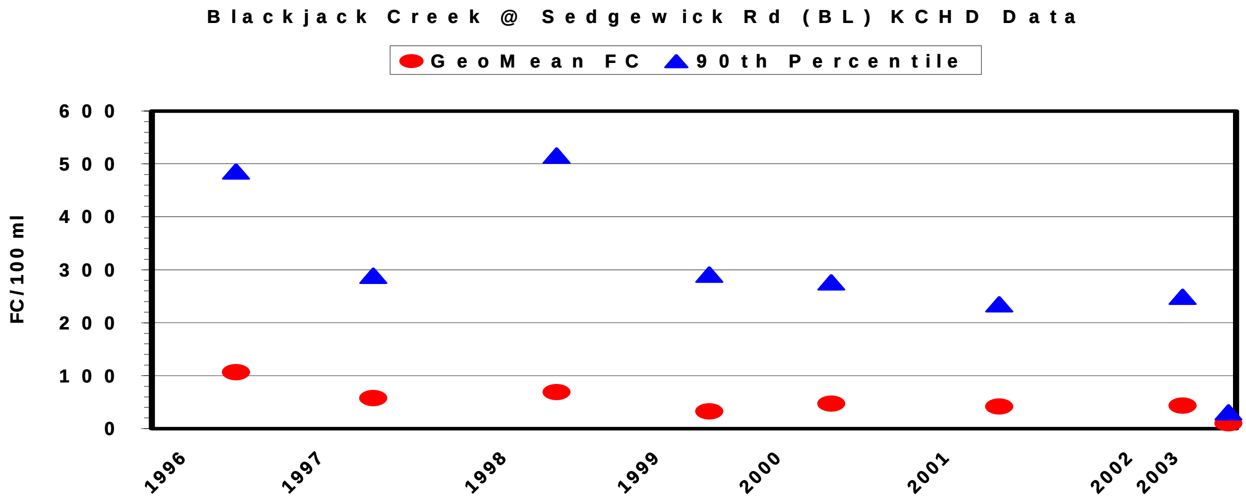
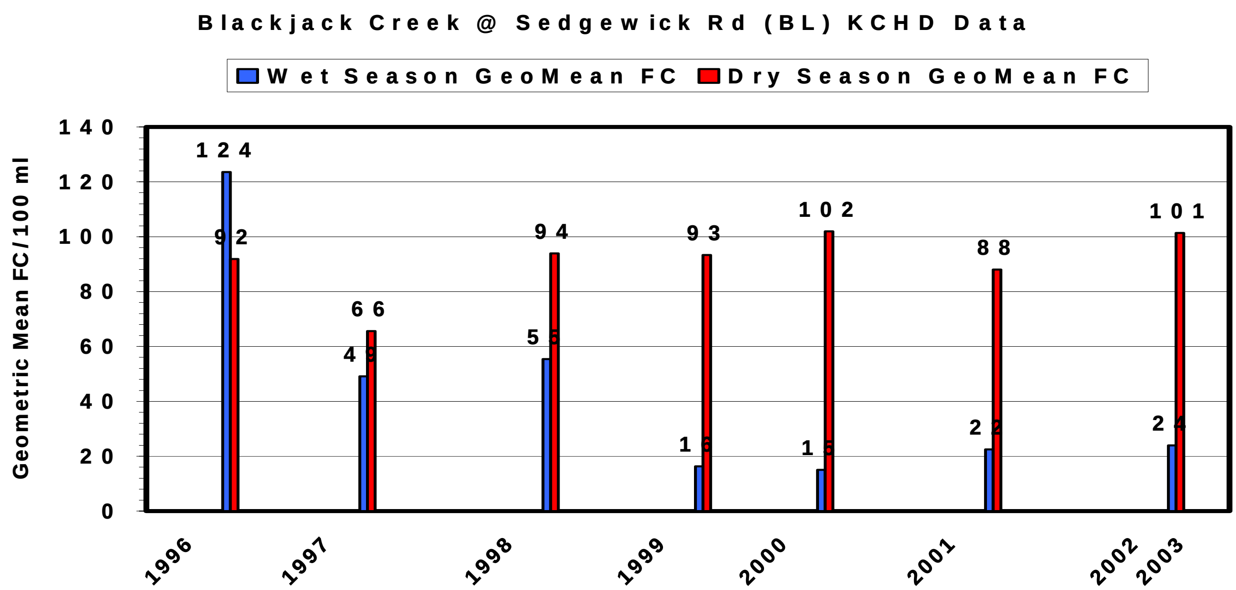


Figure 9 Blackjack Creek site (BL) historical FC trend





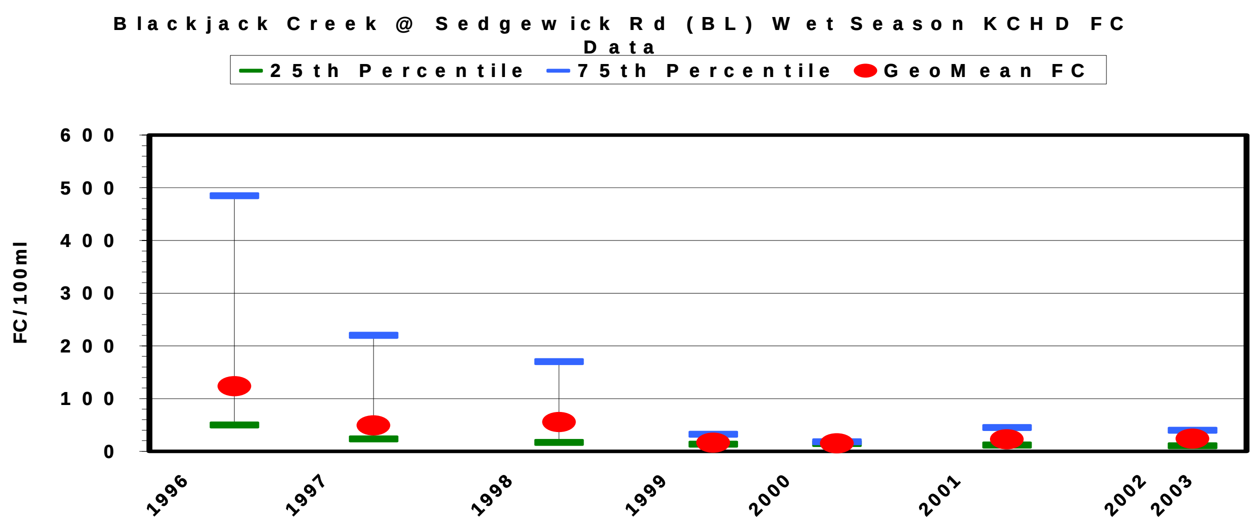


Figure 9 cont. Blackjack Creek site (BL) historical FC trend.

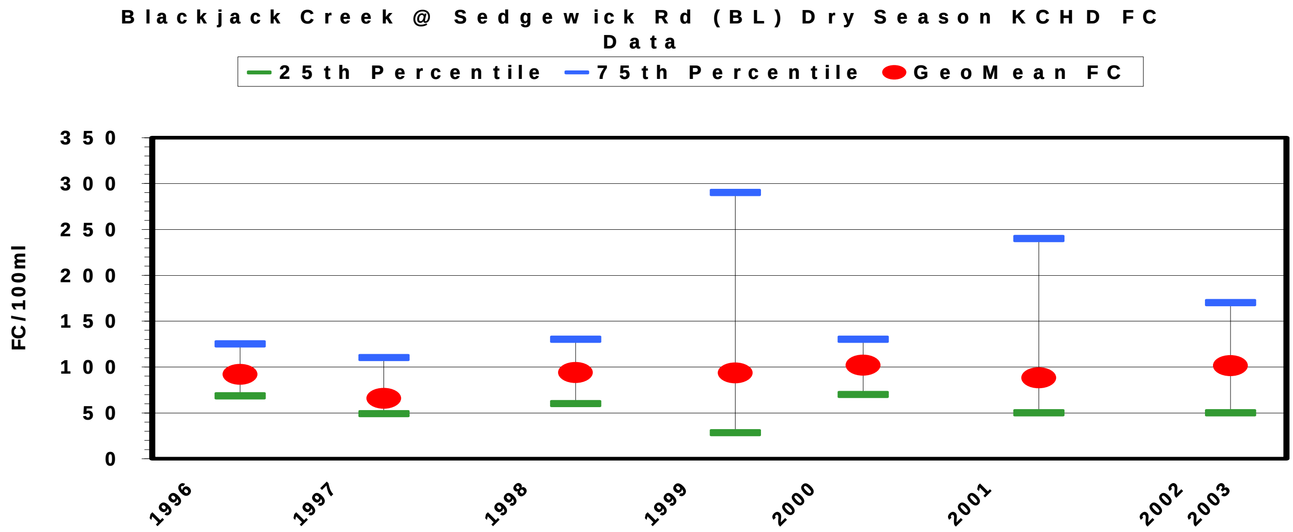
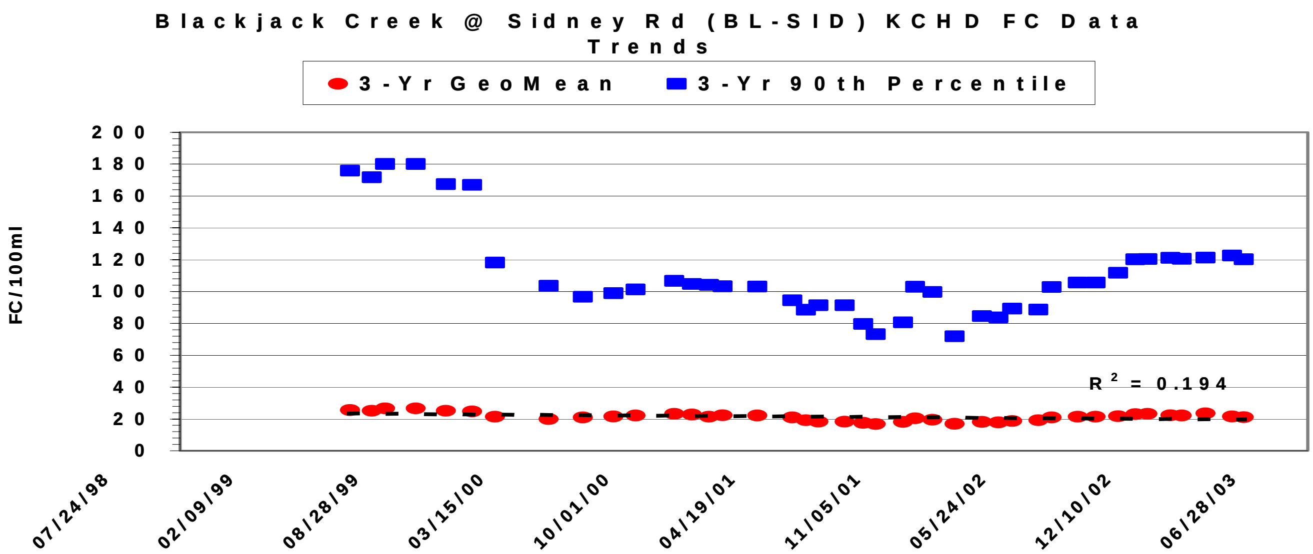


Figure 10 Blackjack Creek site (BL) historical FC trend.



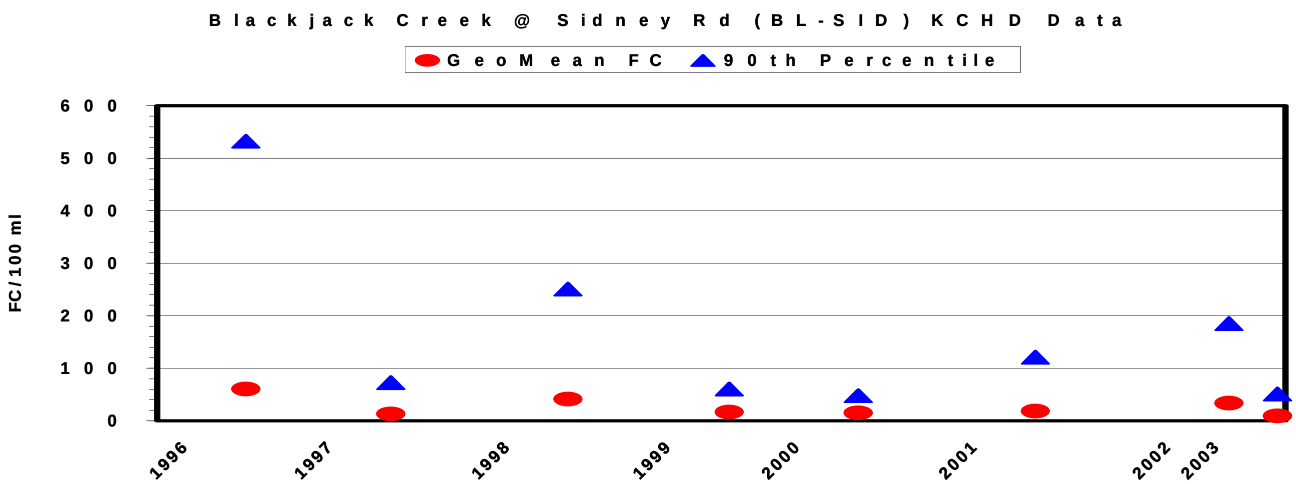
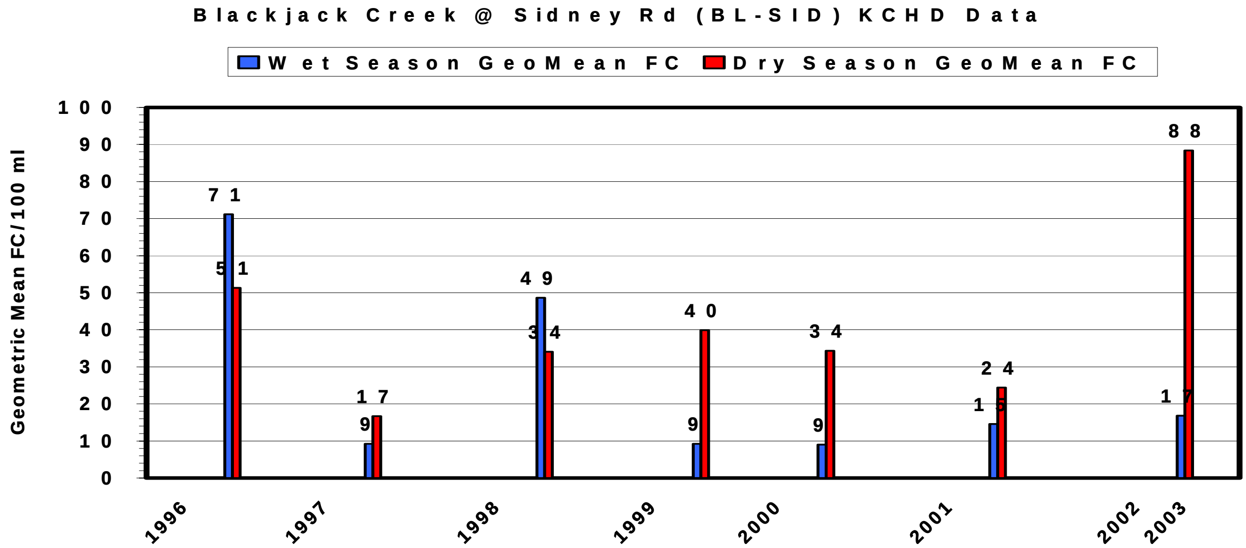
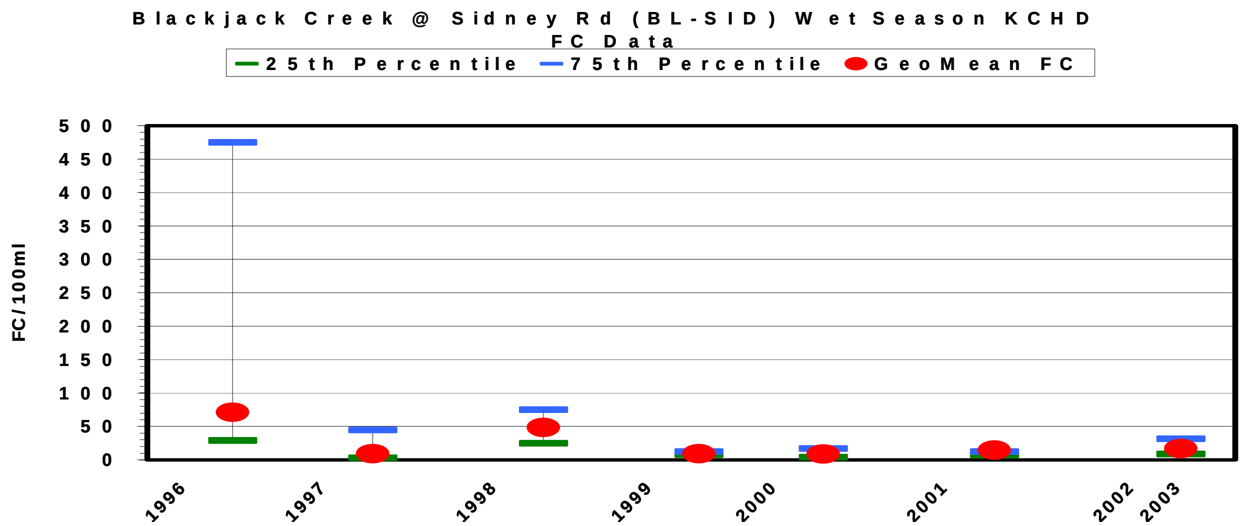


Figure 10 Blackjack Creek site (BL-SID) historical FC trend.





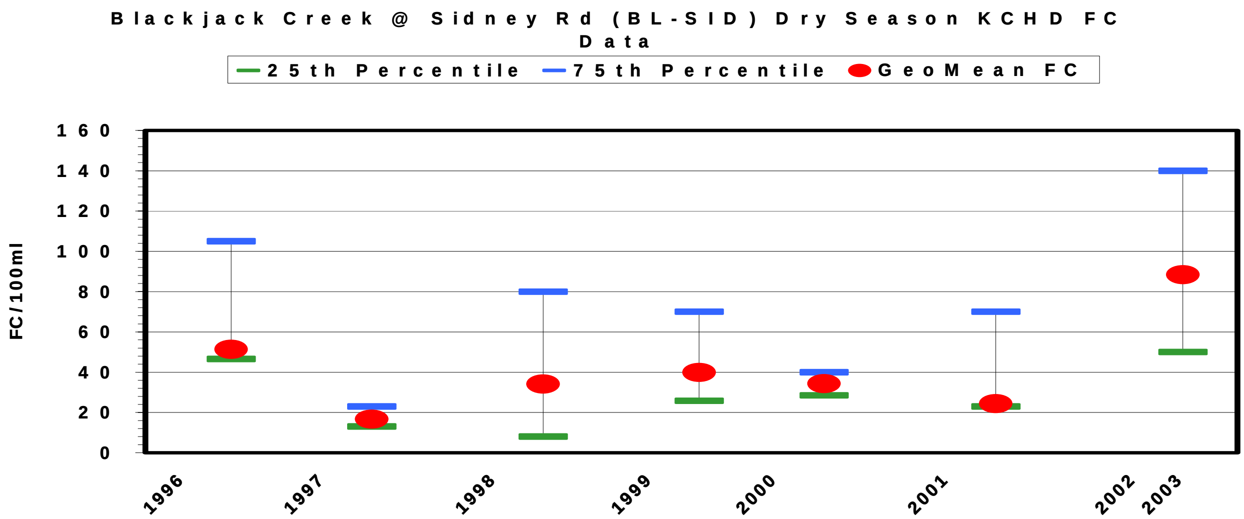
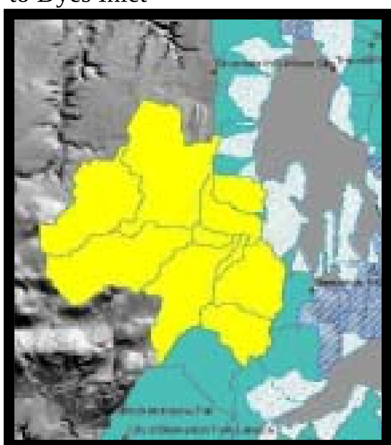


Figure 10 cont. Blackjack Creek site (BL-SID) historical FC trend

CHICO CREEK

Chico Creek is a class “A” stream within the Dyes Inlet watershed boundary (Zimny et al., 2003) that supports Coho and Chum Salmon (May, et al, 2003). Fig. 1 shows the location of Chico basin and its ten sub-watersheds within the Dyes Inlet watershed boundary. Flowing in a northeasterly direction Chico Creek enters the western side of Dyes Inlet at the head of Chico Bay. Contributing to Chico’s mainstream is Wildcat, Lost, Dickerson, and Kitsap Creeks Fig. 2 (“Maps a la carte, Inc.”, 2004). Figure 3 shows the 10 sub-watersheds, which combined are 43% wooded land, and 21% Open land use, with approximately 14% total impervious area (%TIA) Table 1. Figure 4 shows an aerial photograph of Chico Creek Basin (Space Imaging, 2002). Chico Creek basin is bounded on the west by Green Mountain and the east by Dyes Inlet. Even though Vashon till is the principal surficial hydrogeologic unit for the basin, a large area in the southwest region is fine recessional outwash. Chico Creek flows northeast through an extension of this finer material as it meanders toward Chico Bay (Jones, et al, 1998). Kitsap PUD monitors the flow of Chico Creek by use of an established flow meter on the mainstem Fig. 2. The ENVVEST team established water quality sampling sites (CH, KC, DI, CT, KL, and KL01) at Chico Creek and Kitsap Lake for sampling during the winter 2002-2003 storm season Fig. 2. The Fecal Coliform and ancillary data that were collected during this period are shown in Table 2 with the wet season summary presented in Table 3. The flow data for Chico, Wildcat, and Dickerson Creeks are shown in Figures 5, 7 and 9, while the monthly comparisons are shown in Figures 6, 8 and 10.

Figure 1 Location of Chico Creek Basin to Dyes Inlet



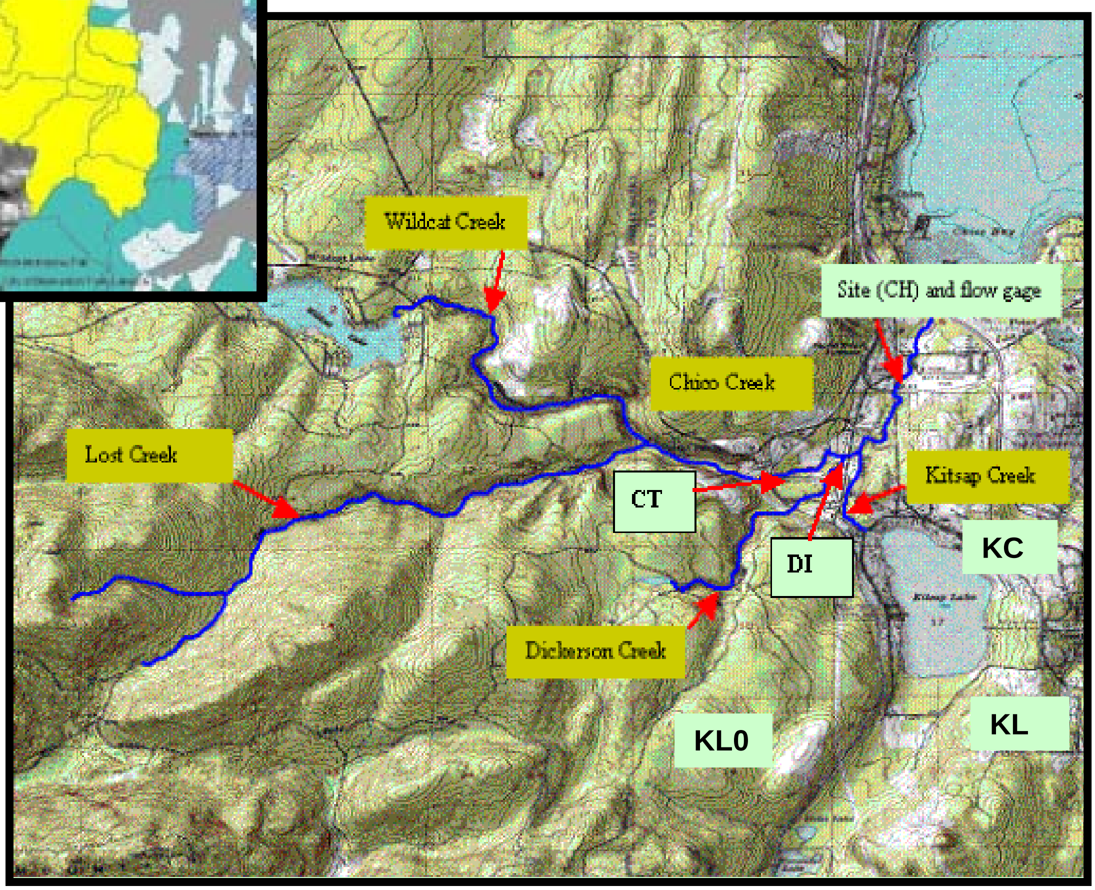


Figure 2 Chico Creek and its tributaries

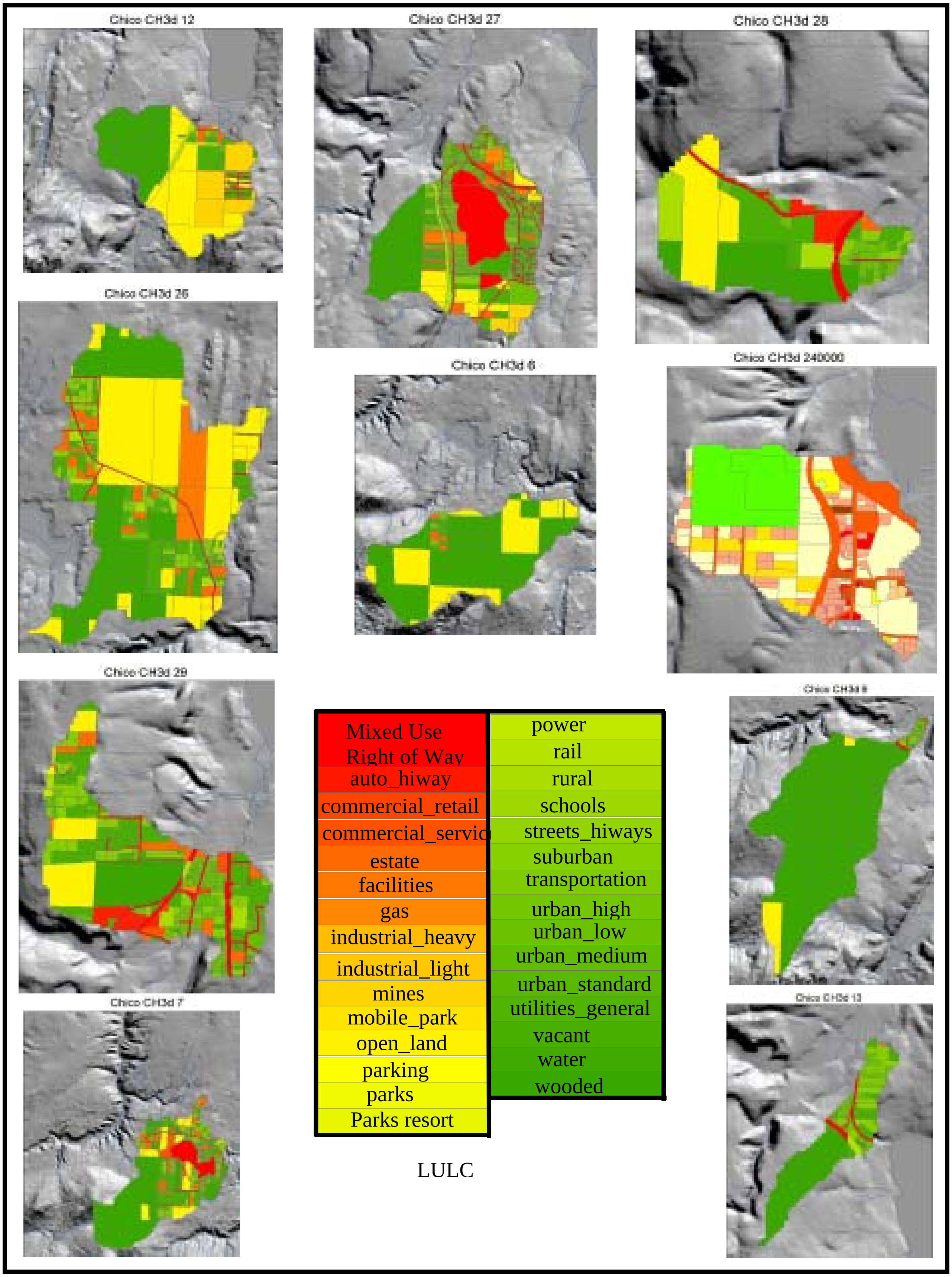


Figure 3 Land Use Land Cover for Chico Creek basin

Land Code	Percent Impervious	Area Sq. Feet	% of total Area	Impervious Area Sq Feet	%TIA of Total Area
Mixed Use-Right of Way	44.30%	22167784.67	4.83%	9820328.61	2.138%
Auto_Hiway	59.90%	2222093.30	0.48%	1331033.89	0.290%
Commercial_Retail	59.50%	809757.20	0.18%	481805.53	0.105%
Commercial_Service	55.10%	2042266.03	0.44%	1125288.58	0.245%
Estate	20.80%	14279206.56	3.11%	2970074.97	0.647%
Facilities	66.40%	8467849.58	1.84%	5622652.12	1.224%
Gas	54.30%	905496.45	0.20%	491684.57	0.107%
Mines	4.80%	7606267.15	1.66%	365100.82	0.079%
Mobile_Park	43.70%	244327.40	0.05%	106771.07	0.023%
Open_Land	9.27%	96269259.69	20.96%	8924160.37	1.943%
Parking	51.40%	118377.60	0.03%	60846.09	0.013%
Parks	18.10%	1322814.07	0.29%	239429.35	0.052%
Power	3.70%	174333.28	0.04%	6450.33	0.001%
Rail	1.90%	1624837.89	0.35%	30871.92	0.007%
Rural	16.10%	4443088.24	0.97%	715337.21	0.156%
Streets	49.90%	444958.48	0.10%	222034.28	0.048%
Suburban	38.90%	24221194.31	5.27%	9422044.59	2.052%
Urban_Low	38.20%	18663189.02	4.06%	7129338.21	1.552%
Urban_Medium	35.60%	944163.67	0.21%	336122.27	0.073%
Urban_Standard	44.00%	2814333.23	0.61%	1238306.62	0.270%
Utilities_General	2.10%	29098.10	0.01%	611.06	0.000%
Vacant	11.40%	48357928.24	10.53%	5512803.82	1.200%
Water	9.20%	1035048.36	0.23%	95224.45	0.021%
Wooded	4.20%	200039986.42	43.56%	8401679.43	1.829%
Total		459247658.94		64650000.15	14.077%
Acres		10542.88		1484.16	

Table 1 Chico Creek Land Use Land Cover Data

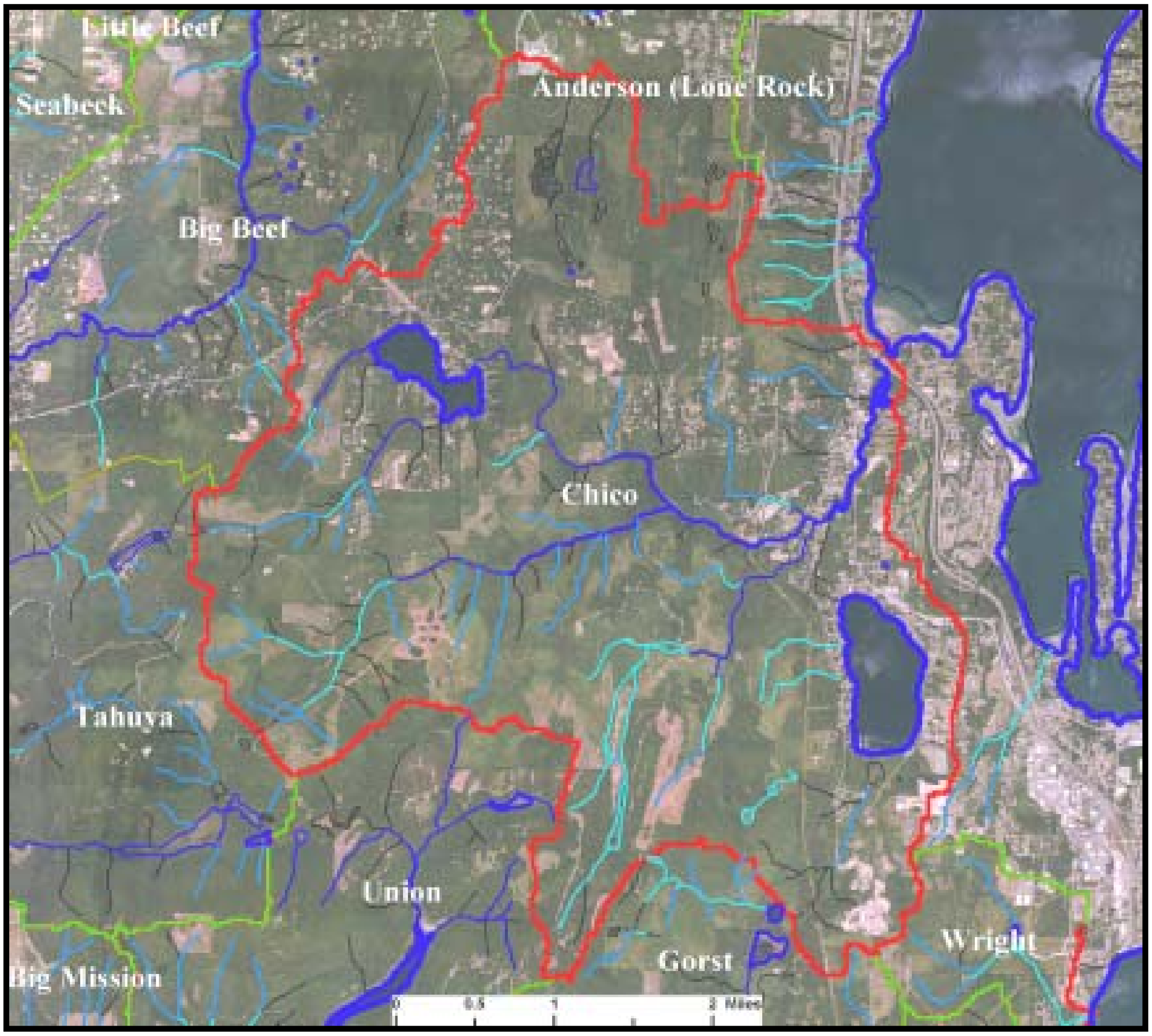


Figure 4 Aerial Photograph of Chico Creek Basin

AMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	ph	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
101700CH01	CH01	BKCHD	17-Oct-00	APAH 9221-E	7.2	10.6	30	97.2	90.7	12.3	0.06	
111500CH01	CH01	BKCHD	15-Nov-00	APAH 9221-E	7.4	10.5	17	84.6	85.2	6.5	0.06	
120500CH01	CH01	BKCHD	05-Dec-00	APAH 9221-E	7.6	11.6	30	92.6	76.2	6.1	0.05	
013101CH01	CH01	BKCHD	31-Jan-01	APAH 9221-E			4					
022701CH01	CH01	BKCHD	27-Feb-01	APAH 9221-E	7.8	12.8	7	98.8	73.1	4.7	0.05	
032901CH01	CH01	BKCHD	29-Mar-01	APAH 9221-E	7.6	11.2	8	95	70.4	8.5	0.05	
041801CH01	CH01	BKCHD	18-Apr-01	APAH 9221-E			7					
050901CH01	CH01	BKCHD	09-May-01	APAH 9221-E		10.4	11	92.4	80.9	10.6	0.05	
062001CH01	CH01	BKCHD	20-Jun-01	APAH 9221-E	7.5	8.6	80	86.6	92.8	16	0.06	
071701CH01	CH01	BKCHD	17-Jul-01	APAH 9221-E		10.1	50	96.5	96.1	13.2	0.06	
071801CH01	CH01	BKCHD	18-Jul-01	APAH 9221-E			23					
080801CH01	CH01	BKCHD	08-Aug-01	APAH 9221-E		9	110	90.7	103.6	15.5	0.07	1.2
091901CH01	CH01	BKCHD	19-Sep-01	APAH 9221-E	7.5	10.3	50	97.2	99.5	12.9	0.06	
101001CH01	CH01	KCHD	10-Oct-01	APAH 9221-E	7.6	10.1	50	91.2	98.1	10.5	0.06	9.8
110701CH01	CH01	KCHD	07-Nov-01	APAH 9221-E	7.5	10.7	13	91.4	99.1	8.9	0.06	114
121201CH01	CH01	KCHD	12-Dec-01	APAH 9221-E	7.3	10.3	70	83.3	72.1	6.5	0.05	6.4
012302CH01	CH01	KCHD	23-Jan-02	APAH 9221-E	7.5	12.6	7	98.8	74.9	4.7	0.05	
022002CH01	CH01	KCHD	20-Feb-02	APAH 9221-E	7.3	12.4	13	98.2	68	6.2	0.04	2.4
FC-200203-015	CH	KPUD	12-Mar-02	APAH -MPN			26					
031202CH01	CH01	KCHD	12-Mar-02	APAH 9221-E	7.4	12.7	22	103	47.2	6.4	0.03	14.6
FC-200203-035	CH	KPUD	13-Mar-02	APAH -MPN			1.8					
042302CH01	CH01	KCHD	23-Apr-02	APAH 9221-E	8	11.7	13	103	65.8	9.6	0.04	
051402CH01	CH01	KCHD	14-May-02	APAH 9221-E	7.4	11.8	170	107	83.3	11	0.05	0.6
062502CH01	CH01	KCHD	25-Jun-02	APAH 9221-E	7.8	9.1	22	95.5	90.7	18.3	0.05	4.6
072302CH01	CH01	KCHD	23-Jul-02	APAH 9221-E	7.4	8.8	50	91.1	98.7	17	0.06	
082802CH01	CH01	KCHD	28-Aug-02	APAH 9221-E		9.6	23	95.8	99.2	15.8	0.06	2.7
092502CH01	CH01	KCHD	25-Sep-02	APAH 9221-E	7.3	10	130	94.5	279.8	12.8	0.18	1.3
102302CH01	CH01	KCHD	23-Oct-02	APAH 9221-E	7.5	10	13	89.6	108.7	11.3	0.06	4
02450661	CH	NSTREAMS	08-Nov-02	FCOL(MF)	7.9		144		84	11.4		13
02460661	CH	NSTREAMS	13-Nov-02	FCOL(MF)	7.6		31		78	13.1		14.9
02460677	CH	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		26		81	11.6		2.3
02470661	CH	NSTREAMS	19-Nov-02	FCOL(MF)	8		51		76	11.6		2.3
02470680	CH	NSTREAMS	19-Nov-02	FCOL(MF)			40					
112502CH01	CH01	KCHD	25-Nov-02	APAH 9221-E	7.7	8.4	80	70.4	110.6	7.6	0.07	
120402CH01	CH01	KCHD	04-Dec-02	APAH 9221-E	7.5	5.4	30	45.5	111.2	7.8	0.07	
02490661	CH	NSTREAMS	04-Dec-02	FCOL(MF)	7.4		288		90	9.1		0.8
02500660	CH	NSTREAMS	10-Dec-02	FCOL(MF)	7.5		160		92	8.2		3.3
02500661	CH	NSTREAMS	10-Dec-02	FCOL(MF)			150					
02500671	CH	SSWM-SW	11-Dec-02	FCOL(MF)	7.4	12.8	360	105	92	6.91		19
02510450	CH	TEC-STORM	15-Dec-02	FCOL(MF)			100					
02510451	CH	TEC-STORM	15-Dec-02	FCOL(MF)			108					
02510430	CH	TEC-STORM	16-Dec-02	FCOL(MF)			37					

Table 2 Chico Creek Data for ENVVEST water quality Site CH, and KCHD site CH01

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	ph	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
02510436	CH	TEC-STORM	16-Dec-02	FCOL(MF)			148					
02510661	CH	NSTREAMS	16-Dec-02	FCOL(MF)	7.5		154		51	9.6		9.2
02510672	CH	NSTREAMS	19-Dec-02	FCOL(MF)	7.1		69		78	7.5		5.5
03020662	CH	NSTREAMS	07-Jan-03	FCOL(MF)	7.1		17		66	7.8		1.5
03020667	CH	NSTREAMS	07-Jan-03	FCOL(MF)			14					
010903CH01	CH01	KCHD	09-Jan-03	APAH 9221-E	6.8	10.7	50	84.3	63.5	5.7	0.04	6.6
03020439	CH	TEC-STORM	11-Jan-03	FCOL(MF)			43					
03020445	CH	TEC-STORM	12-Jan-03	FCOL(MF)			77					
03020446	CH	TEC-STORM	12-Jan-03	FCOL(MF)			51					
03020449	CH	TEC-STORM	12-Jan-03	FCOL(MF)			560					
03020452	CH	TEC-STORM	12-Jan-03	FCOL(MF)			217					
03030661	CH	NSTREAMS	13-Jan-03	FCOL(MF)	7.1		41		55	9		0.5
03030664	CH	NSTREAMS	15-Jan-03	FCOL(MF)	7.4		37		78	6		0.9
03040662	CH	NSTREAMS	21-Jan-03	FCOL(MF)	7.4		150		66	6.9		2
03040430	CH	TEC-STORM	22-Jan-03	FCOL(MF)			170					
03040440	CH	TEC-STORM	22-Jan-03	FCOL(MF)			54					
03040447	CH	TEC-STORM	23-Jan-03	FCOL(MF)			40					
03040679	CH	NSTREAMS	24-Jan-03	FCOL(MF)			31					
03050430	CH	TEC-STORM	29-Jan-03	FCOL(MF)			120					
03050437	CH	TEC-STORM	30-Jan-03	FCOL(MF)			14					
03050445	CH	TEC-STORM	30-Jan-03	FCOL(MF)			40					
03050446	CH	TEC-STORM	30-Jan-03	FCOL(MF)			37					
03050452	CH	TEC-STORM	31-Jan-03	FCOL(MF)			40					
020503CH01	CH01	KCHD	05-Feb-03	APAH 9221-E	7.3	12.3	50	99.1	62.4	6.5	0.04	6.1
022603CH01	CH01	KCHD	26-Feb-03	APAH 9221-E	7.2	12	50	95.1	68.4	5.7	0.04	4.5
03110453	CH	TEC-STORM	09-Mar-03	FCOL(MF)	7.5		220		0.06	46.9		15.4
03110460	CH	TEC-STORM	12-Mar-03	FCOL(MF)	7.3		69		0.047	46.9		85.6
03110467	CH	TEC-STORM	13-Mar-03	FCOL(MF)	7.2		80		0.043	46.9		93.8
03110474	CH	TEC-STORM	13-Mar-03	FCOL(MF)	7.2		38		0.042	47.5		87.5
040903CH01	CH01	KCHD	09-Apr-03	APAH 9221-E	7.6	11.2	4		60.1	10.1	0.04	1.6
051403CH01	CH01	KCHD	14-May-03	APAH 9221-E	7.6	10.3	30	94.7	74	11.8	0.05	
060403CH01	CH01	KCHD	04-Jun-03	APAH 9221-E	7.5	9.2	30	87.7	89.5	13.6	0.06	
070903CH01	CH01	KCHD	09-Jul-03	APAH 9221-E			50					
080603CH01	CH01	KCHD	06-Aug-03	APAH 9221-E	7.7	9.7	8	101	100	17.5	0.06	
090203CH01	CH01	KCHD	02-Sep-03	APAH 9221-E	7.6	9	50	90.6	101.1	16.6	0.06	
04171740	CH01	ENVVEST	19-Apr-04	FCOL(MF)			43		0.0625	10.89		127
04171741	CH	ENVVEST	19-Apr-04	FCOL(MF)			49			17.7		52
04171720	CH01	NSTREAMS	20-Apr-04	FCOL(MF)	7.1		12		72	11.6		1
04171721	CH01	NSTREAMS	20-Apr-04	FCOL(MF)			21					
04171722	CH	SSWM-SW	20-Apr-04	FCOL(MF)	7.5		6		69	12.3		
04171693	CH01	SSWM-SW	20-Apr-04	FCOL(MF)	7.8		13		86	11.4		1.81
04171694	CH	SSWM-SW	20-Apr-04	FCOL(MF)	7.8		6		80	11.9		0.87
101700CH01	CH01	BKCHD	17-Oct-00	APAH 9221-E	7.2	10.6	30	97.2	90.7	12.3	0.06	

Table 2 cont. Chico Creek Data for ENVVEST water quality Site CH, and KCHD site CH01

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	ph	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
111500CH01	CH01	BKCHD	15-Nov-00	APAH 9221-E	7.4	10.5	17	84.6	85.2	6.5	0.06	
120500CH01	CH01	BKCHD	05-Dec-00	APAH 9221-E	7.6	11.6	30	92.6	76.2	6.1	0.05	
013101CH01	CH01	BKCHD	31-Jan-01	APAH 9221-E			4					
022701CH01	CH01	BKCHD	27-Feb-01	APAH 9221-E	7.8	12.8	7	98.8	73.1	4.7	0.05	
032901CH01	CH01	BKCHD	29-Mar-01	APAH 9221-E	7.6	11.2	8	95	70.4	8.5	0.05	
041801CH01	CH01	BKCHD	18-Apr-01	APAH 9221-E			7					
050901CH01	CH01	BKCHD	09-May-01	APAH 9221-E		10.4	11	92.4	80.9	10.6	0.05	
062001CH01	CH01	BKCHD	20-Jun-01	APAH 9221-E	7.5	8.6	80	86.6	92.8	16	0.06	
071701CH01	CH01	BKCHD	17-Jul-01	APAH 9221-E		10.1	50	96.5	96.1	13.2	0.06	
071801CH01	CH01	BKCHD	18-Jul-01	APAH 9221-E			23					
080801CH01	CH01	BKCHD	08-Aug-01	APAH 9221-E		9	110	90.7	103.6	15.5	0.07	1.2
091901CH01	CH01	BKCHD	19-Sep-01	APAH 9221-E	7.5	10.3	50	97.2	99.5	12.9	0.06	
101001CH01	CH01	KCHD	10-Oct-01	APAH 9221-E	7.6	10.1	50	91.2	98.1	10.5	0.06	9.8
110701CH01	CH01	KCHD	07-Nov-01	APAH 9221-E	7.5	10.7	13	91.4	99.1	8.9	0.06	114
121201CH01	CH01	KCHD	12-Dec-01	APAH 9221-E	7.3	10.3	70	83.3	72.1	6.5	0.05	6.4
012302CH01	CH01	KCHD	23-Jan-02	APAH 9221-E	7.5	12.6	7	98.8	74.9	4.7	0.05	
022002CH01	CH01	KCHD	20-Feb-02	APAH 9221-E	7.3	12.4	13	98.2	68	6.2	0.04	2.4
031202CH01	CH01	KCHD	12-Mar-02	APAH 9221-E	7.4	12.7	22	103	47.2	6.4	0.03	14.6
042302CH01	CH01	KCHD	23-Apr-02	APAH 9221-E	8	11.7	13	103	65.8	9.6	0.04	
051402CH01	CH01	KCHD	14-May-02	APAH 9221-E	7.4	11.8	170	107	83.3	11	0.05	0.6
062502CH01	CH01	KCHD	25-Jun-02	APAH 9221-E	7.8	9.1	22	95.5	90.7	18.3	0.05	4.6
072302CH01	CH01	KCHD	23-Jul-02	APAH 9221-E	7.4	8.8	50	91.1	98.7	17	0.06	
082802CH01	CH01	KCHD	28-Aug-02	APAH 9221-E		9.6	23	95.8	99.2	15.8	0.06	2.7
092502CH01	CH01	KCHD	25-Sep-02	APAH 9221-E	7.3	10	130	94.5	279.8	12.8	0.18	1.3
102302CH01	CH01	KCHD	23-Oct-02	APAH 9221-E	7.5	10	13	89.6	108.7	11.3	0.06	4
02450663	CT	NSTREAMS	08-Nov-02	FCOL(MF)	7.7		31		65	9.3		6.3
02460662	CT	NSTREAMS	13-Nov-02	FCOL(MF)	6.7		330		69	12.2		12.4
02460678	CT	NSTREAMS	14-Nov-02	FCOL(MF)	7.3		80		68	10.6		4.6
02470679	CT	NSTREAMS	19-Nov-02	FCOL(MF)			24					
02470662	CT	NSTREAMS	19-Nov-02	FCOL(MF)	7.7		43		62	11.2		3.2
112502CH01	CH01	KCHD	25-Nov-02	APAH 9221-E	7.7	8.4	80	70.4	110.6	7.6	0.07	
120402CH01	CH01	KCHD	04-Dec-02	APAH 9221-E	7.5	5.4	30	45.5	111.2	7.8	0.07	
02490662	CT	NSTREAMS	04-Dec-02	FCOL(MF)	7.2		39		82	8.2		0.5
02500662	CT	NSTREAMS	10-Dec-02	FCOL(MF)	7		92		83	7.5		2.2
02500670	CT	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	12.8	200	104	82	6.42		8.49
02510662	CT	NSTREAMS	16-Dec-02	FCOL(MF)	7.4		139		41	9.4		12.4
02510671	CT	NSTREAMS	19-Dec-02	FCOL(MF)	7		26		47	7.4		9.6
03020663	CT	NSTREAMS	07-Jan-03	FCOL(MF)	7.2		1		44	7.4		1.1
03020668	CT	NSTREAMS	07-Jan-03	FCOL(MF)			9					
010903CH01	CH01	KCHD	09-Jan-03	APAH 9221-E	6.8	10.7	50	84.3	63.5	5.7	0.04	6.6
03030662	CT	NSTREAMS	13-Jan-03	FCOL(MF)	7.1		43		50	8.3		0.3
03030665	CT	NSTREAMS	15-Jan-03	FCOL(MF)	7.1		14		66	5.9		0.1
03040663	CT	NSTREAMS	21-Jan-03	FCOL(MF)	7.2		43		83	6.6		1.9

Table 2 Chico Creek Data for ENVVEST water quality Site CT, and KCHD site CH01

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	ph	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
03040431	CT	TEC-STORM	22-Jan-03	FCOL(MF)			47					
03040439	CT	TEC-STORM	22-Jan-03	FCOL(MF)			69					
03040446	CT	TEC-STORM	23-Jan-03	FCOL(MF)			65					
03040680	CT	NSTREAMS	24-Jan-03	FCOL(MF)			39					
03050431	CT	TEC-STORM	29-Jan-03	FCOL(MF)			26					
03050438	CT	TEC-STORM	30-Jan-03	FCOL(MF)			6					
03050444	CT	TEC-STORM	30-Jan-03	FCOL(MF)			11					
03050453	CT	TEC-STORM	31-Jan-03	FCOL(MF)			11					
020503CH01	CH01	KCHD	05-Feb-03	APAH 9221-E	7.3	12.3	50	99.1	62.4	6.5	0.04	6.1
022603CH01	CH01	KCHD	26-Feb-03	APAH 9221-E	7.2	12	50	95.1	68.4	5.7	0.04	4.5
040903CH01	CH01	KCHD	09-Apr-03	APAH 9221-E	7.6	11.2	4		60.1	10.1	0.04	1.6
051403CH01	CH01	KCHD	14-May-03	APAH 9221-E	7.6	10.3	30	94.7	74	11.8	0.05	
060403CH01	CH01	KCHD	04-Jun-03	APAH 9221-E	7.5	9.2	30	87.7	89.5	13.6	0.06	
070903CH01	CH01	KCHD	09-Jul-03	APAH 9221-E			50					
080603CH01	CH01	KCHD	06-Aug-03	APAH 9221-E	7.7	9.7	8	101	100	17.5	0.06	
090203CH01	CH01	KCHD	02-Sep-03	APAH 9221-E	7.6	9	50	90.6	101.1	16.6	0.06	
04171740	CH01	ENVVEST	19-Apr-04	FCOL(MF)			43		0.0625	10.89		127
04171720	CH01	NSTREAMS	20-Apr-04	FCOL(MF)	7.1		12		72	11.6		1
04171721	CH01	NSTREAMS	20-Apr-04	FCOL(MF)			21					
04171693	CH01	SSWM-SW	20-Apr-04	FCOL(MF)	7.8		13		86	11.4		1.81
101601KL01	KL01	KCHD	16-Oct-01	APAH 9221-E	7.4	9.8	300	86.8	362	10	0.24	83.1
011502KL01	KL01	KCHD	15-Jan-02	APAH 9221-E	7.4	12.9	13	101	158.4	4.9	0.1	
021202KL01	KL01	KCHD	12-Feb-02	APAH 9221-E	7.3	12.7	2	95.7	100.8	4.2	0.07	4
031902KL01	KL01	KCHD	19-Mar-02	APAH 9221-E	7.4	12.7	13	97.3	81.4	4.3	0.05	
02450665	KL	NSTREAMS	08-Nov-02	FCOL(MF)	7.6		163		114	10.5		7.8
02460665	KL	NSTREAMS	13-Nov-02	FCOL(MF)	7.5		50		103	12.7		1.1
02460681	KL	NSTREAMS	14-Nov-02	FCOL(MF)	7.5		31		101	11.2		0.5
02470675	KL	NSTREAMS	19-Nov-02	FCOL(MF)			20					
02470665	KL	NSTREAMS	19-Nov-02	FCOL(MF)	7.3		460		96	14		2.2
02490665	KL	NSTREAMS	04-Dec-02	FCOL(MF)	7.4		84		106	9.6		0.8
02500665	KL	NSTREAMS	10-Dec-02	FCOL(MF)	7		100		99	7.5		8.3
02500666	KL	SSWM-SW	11-Dec-02	FCOL(MF)	6.6	11.8	590	98.7	114	7.47		14.9
02510665	KL	NSTREAMS	16-Dec-02	FCOL(MF)	7		41		72	9.5		9.7
02510666	KL	NSTREAMS	19-Dec-02	FCOL(MF)	6.4		29		123	7.6		4.2
02510667	KL	NSTREAMS	19-Dec-02	FCOL(MF)			28					
03020666	KL	NSTREAMS	07-Jan-03	FCOL(MF)	6.8		33		91	9.1		2.2
03030668	KL	NSTREAMS	15-Jan-03	FCOL(MF)	6.9		17		91	6.6		0.3
03030670	KL	NSTREAMS	15-Jan-03	FCOL(MF)			10					
03040666	KL	NSTREAMS	21-Jan-03	FCOL(MF)	6.6		170		101	7.4		33.3
03040683	KL	NSTREAMS	24-Jan-03	FCOL(MF)			100					
02450662	DI	NSTREAMS	08-Nov-02	FCOL(MF)	8.1		77		88	9.6	1.1	
02450664	KC	NSTREAMS	08-Nov-02	FCOL(MF)	7.8		23		82	12.1	11.1	
02460663	DI	NSTREAMS	13-Nov-02	FCOL(MF)	7.1		150		83	12.1	13.3	

Table 2 Chico Creek Data for ENVVEST water quality Sites CT, KL, DI, KC and KCHD sites CH01

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	ph	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
02460664	KC	NSTREAMS	13-Nov-02	FCOL(MF)	7.6		31		76	13.9	1.7	
02460679	DI	NSTREAMS	14-Nov-02	FCOL(MF)	7.3		40		92	10.8	2.8	
02460680	KC	NSTREAMS	14-Nov-02	FCOL(MF)	7.4		10		78	12.6	1	
02470676	KC	NSTREAMS	19-Nov-02	FCOL(MF)			11					
02470677	DI	NSTREAMS	19-Nov-02	FCOL(MF)			84					
02470678	DI	NSTREAMS	19-Nov-02	FCOL(MF)			88					
02470663	DI	NSTREAMS	19-Nov-02	FCOL(MF)	7.5		14		87	11.5	1.4	
02470664	KC	NSTREAMS	19-Nov-02	FCOL(MF)	7.5		23		75	11.8	1	
02490663	DI	NSTREAMS	04-Dec-02	FCOL(MF)	7.3		232		78	8.3	0.3	
02490664	KC	NSTREAMS	04-Dec-02	FCOL(MF)	7.4		33		76	10.1	1.1	
02500663	DI	NSTREAMS	10-Dec-02	FCOL(MF)	7.1		88		78	7.4	1.1	
02500664	KC	NSTREAMS	10-Dec-02	FCOL(MF)	7		36		89	7.5	7.8	
02500667	KC	SSWM-SW	11-Dec-02	FCOL(MF)	7.2	11.1	29	93	99	7.8	2.92	
02500668	DI	SSWM-SW	11-Dec-02	FCOL(MF)	7.3	13	170	105	106	6.29	3.51	
02500669	DI	SSWM-SW	11-Dec-02	FCOL(MF)	7.4	12.2	180	98.1	106	6.17	4.3	
02510663	DI	NSTREAMS	16-Dec-02	FCOL(MF)	7.1		12		78	9.5	11.1	
02510664	KC	NSTREAMS	16-Dec-02	FCOL(MF)	7		39		74	9.5	8.1	
02510668	KC	NSTREAMS	19-Dec-02	FCOL(MF)	7		25		86	8.5	1.4	
02510669	KC	NSTREAMS	19-Dec-02	FCOL(MF)			20					
02510670	DI	NSTREAMS	19-Dec-02	FCOL(MF)	7.1		37		60	7.2	6.2	
03020664	DI	NSTREAMS	07-Jan-03	FCOL(MF)	7.1		7		55	8.3	1.1	
03020669	DI	NSTREAMS	07-Jan-03	FCOL(MF)			7					
03020665	KC	NSTREAMS	07-Jan-03	FCOL(MF)	7		28		89	9.9	7.8	
03030663	DI	NSTREAMS	13-Jan-03	FCOL(MF)	6.8		172		63	7.8	0.1	
03030666	DI	NSTREAMS	15-Jan-03	FCOL(MF)	7		11		83	5.8	0.2	
03030667	KC	NSTREAMS	15-Jan-03	FCOL(MF)	7.1		9		123	7.8	0.2	
03030669	KC	NSTREAMS	15-Jan-03	FCOL(MF)			8					
03040664	DI	NSTREAMS	21-Jan-03	FCOL(MF)	7.1		37		55	6.6	2.2	
03040665	KC	NSTREAMS	21-Jan-03	FCOL(MF)	7		110		78	8.3	11.5	
03040681	DI	NSTREAMS	24-Jan-03	FCOL(MF)			43					
03040682	KC	NSTREAMS	24-Jan-03	FCOL(MF)			27					

Table 2 Chico Creek Data for ENVVEST water quality Sites DI, and KC (KCHD site CH02)

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200
CH	Mainstem Chico Crk @ Golf Course	71	14	560	40	150	232	110%	29	11	38%	NO	4	14%
CH-CT	Chico Crk @ Taylor Rd (Lost & Wildcat Tribs)	35	1	330	25	68	171	120%	22	3	14%	NO	1	5%
CH-DI	Chico Crk Dickerson Tributray @ Taylor Rd	48	7	232	26	119	201	91%	15	4	27%	NO	1	7%
CH-KC	Kitsap NR Kitsap Creek at Lake outfall	25	9	110	23	33	57	79%	14	1	7%	YES	0	
CH-KL	Upper Segment at Lake Control	73	17	590	32	147	301	129%	14	4	29%	NO	2	14%

Table 3 Chico Creek site Data Summary Wet Season 2002-2003

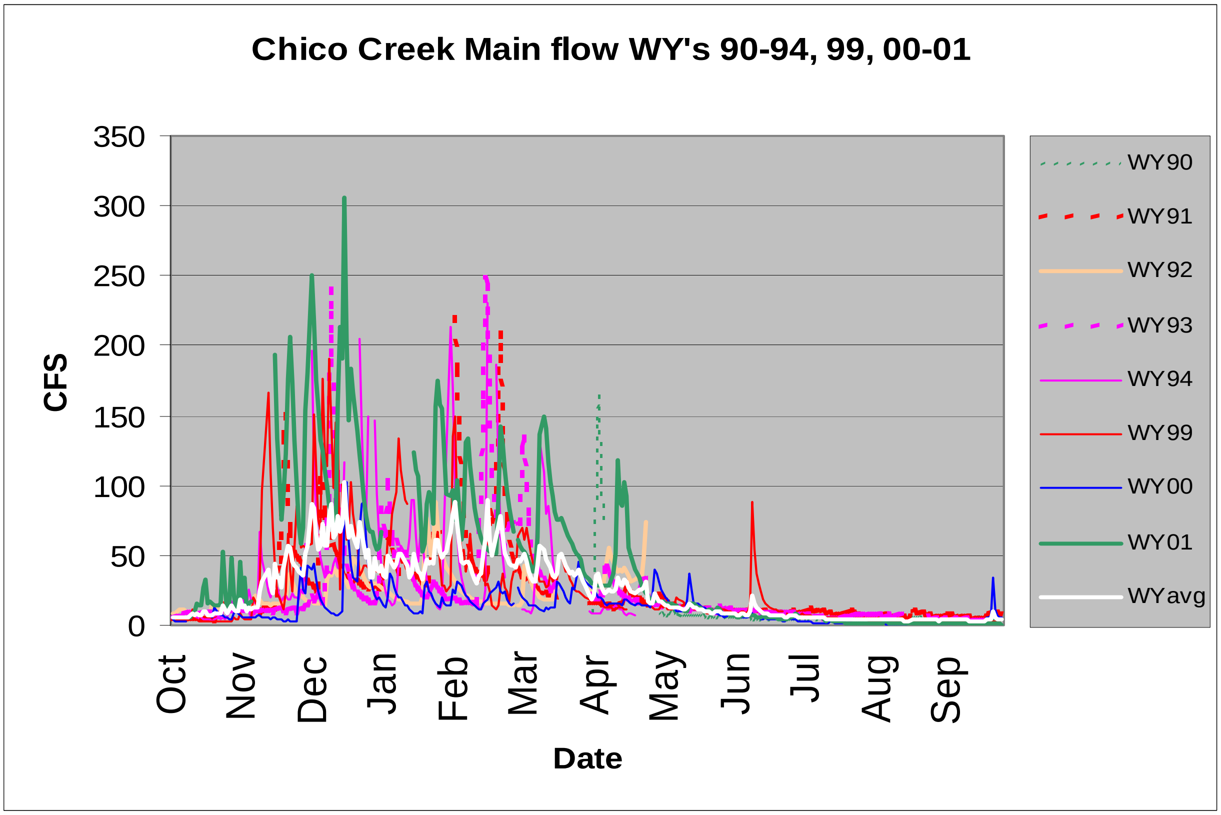


Figure 5 Chico Creek Main Yearly Flow Comparisons

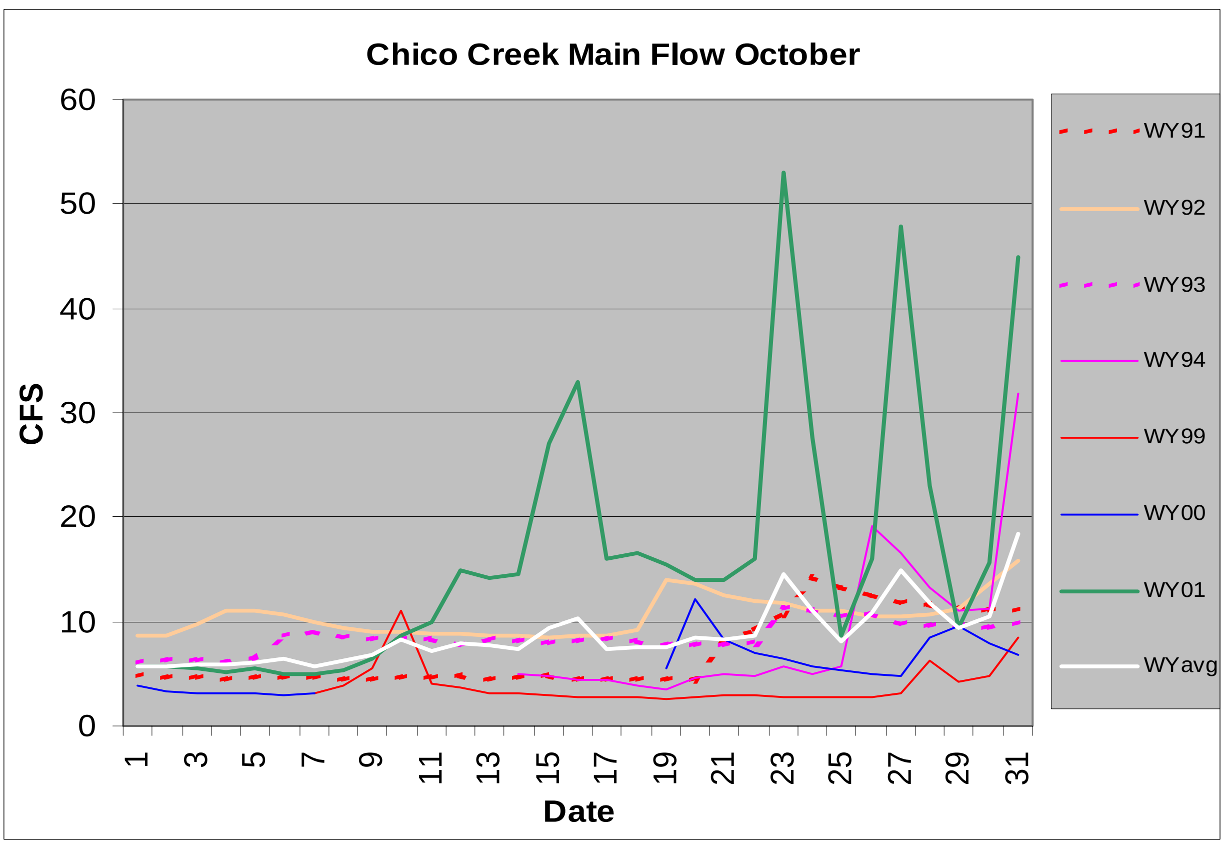
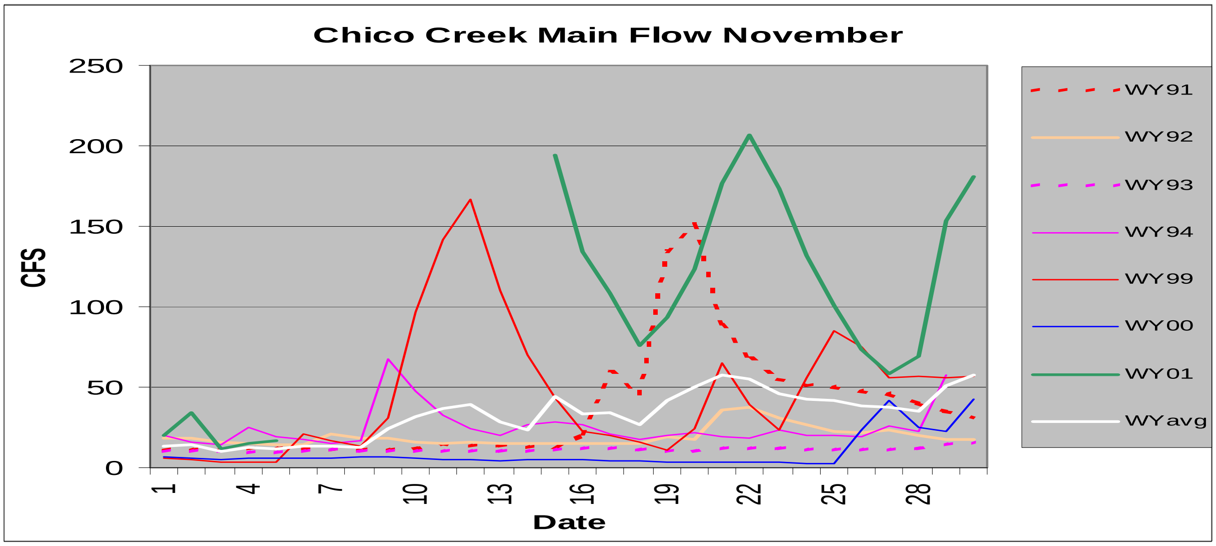
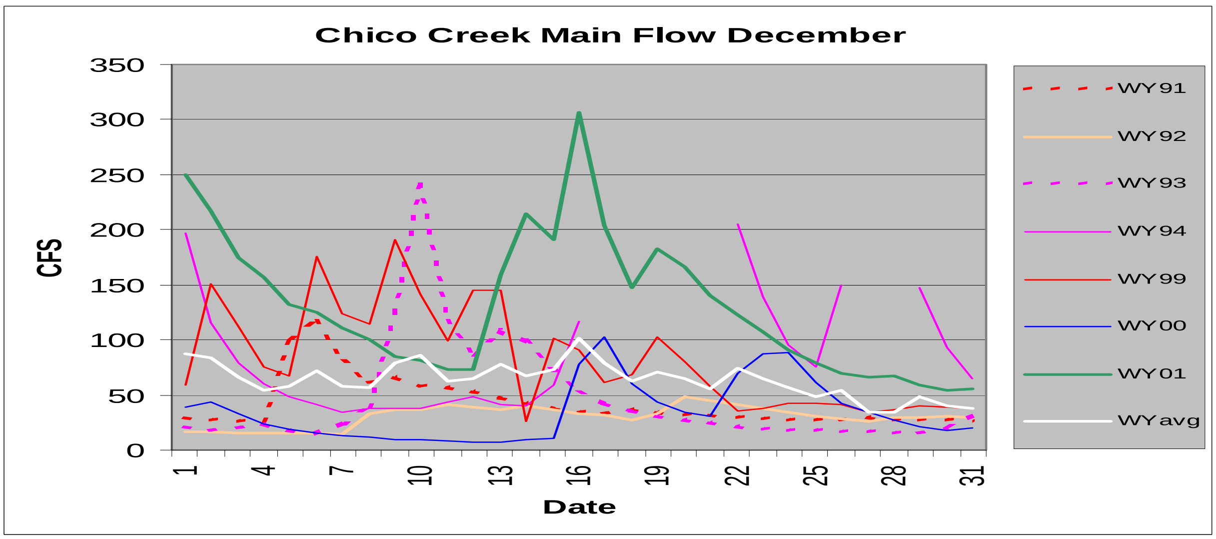


Figure 6 Chico Creek Main Monthly Flow Comparisons





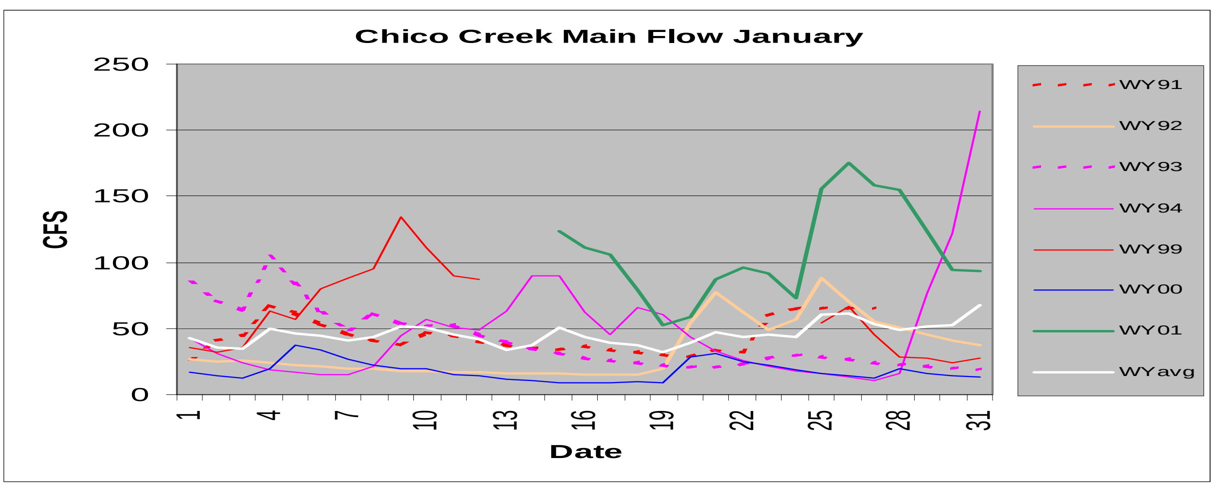
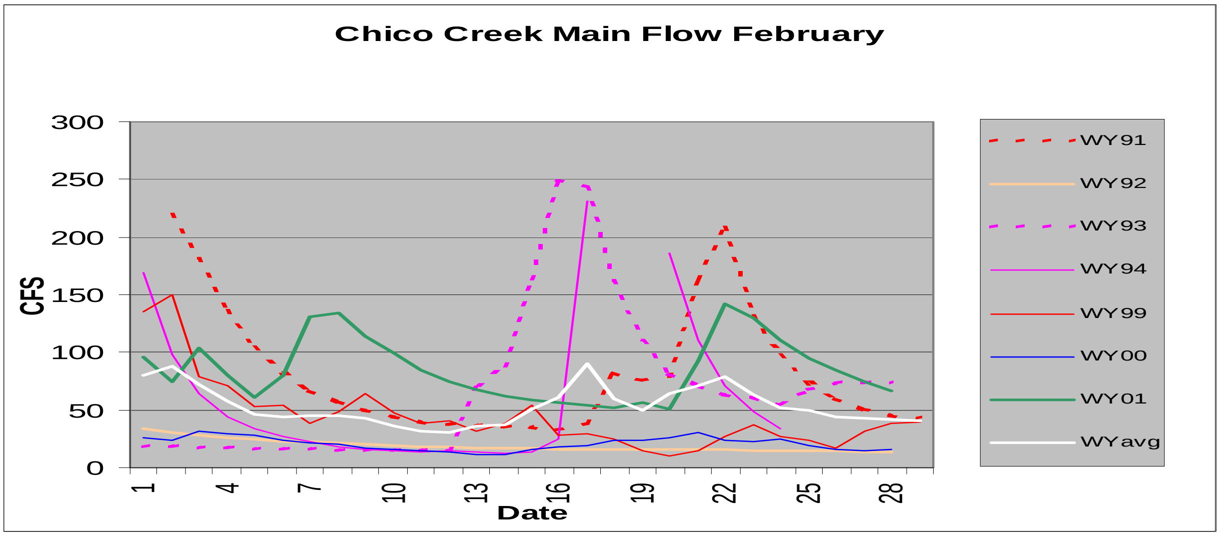
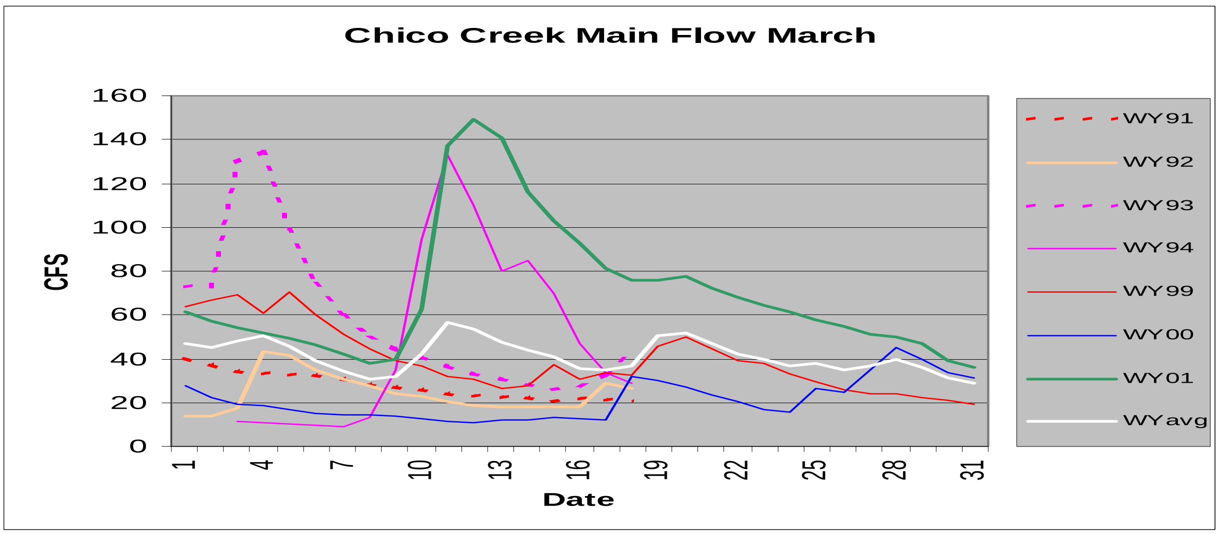


Figure 6 cont. Chico Creek Main Monthly Flow





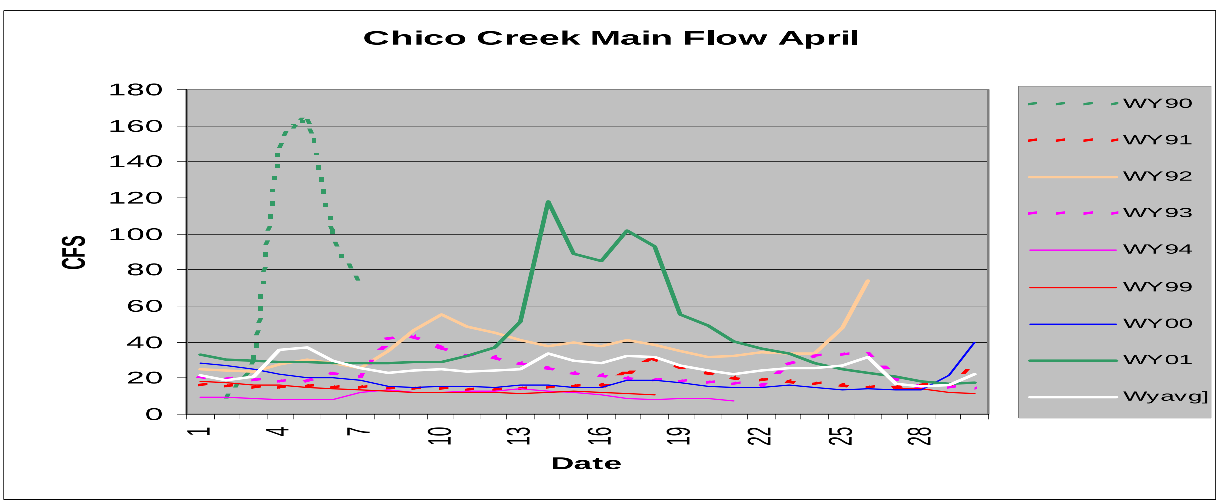
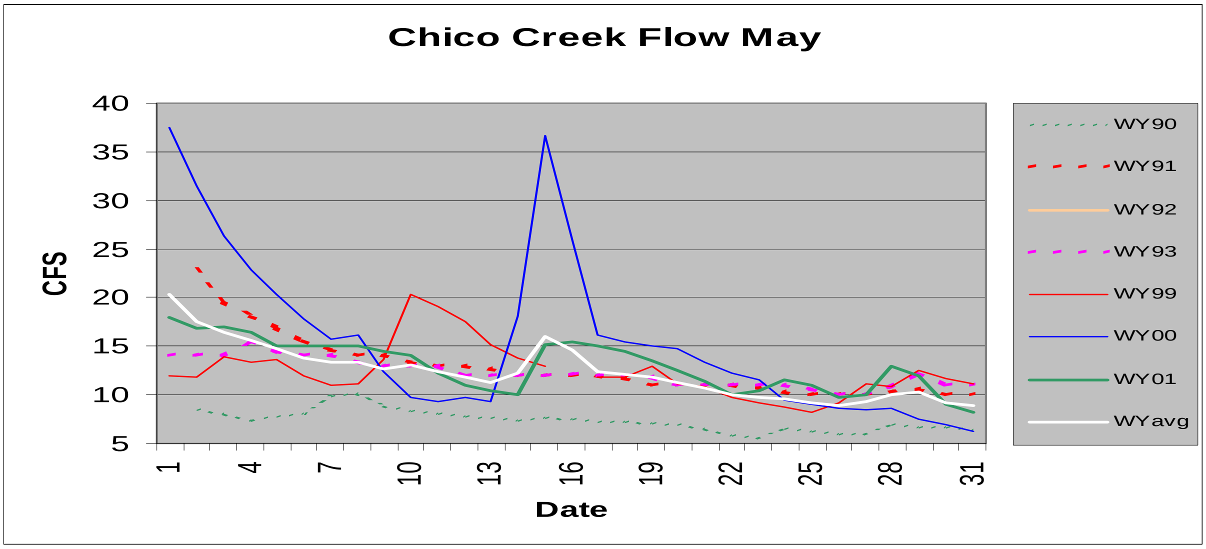
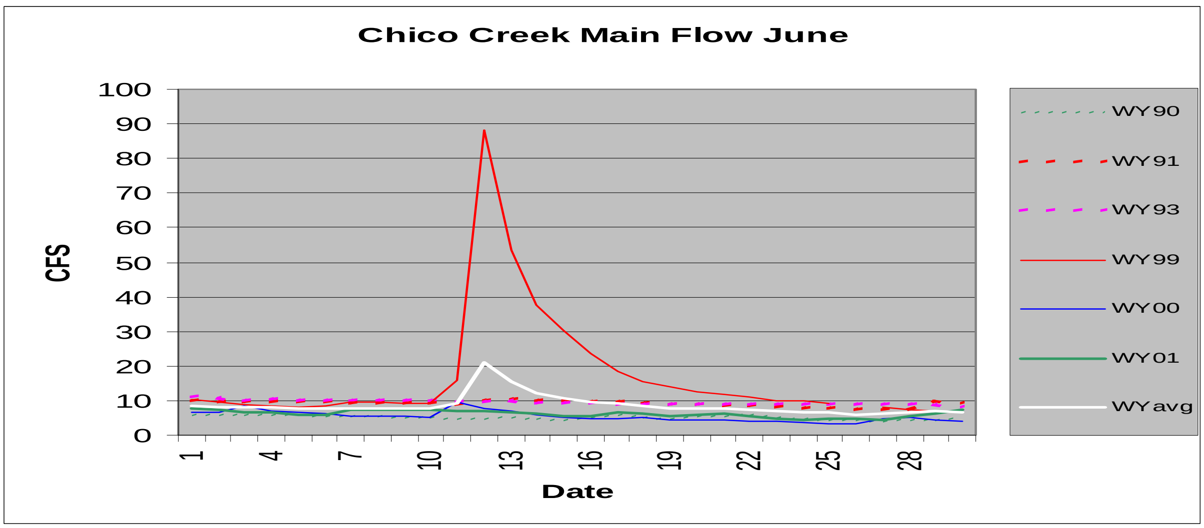


Figure 6 cont. Chico Creek Main Monthly Flow Comparisons





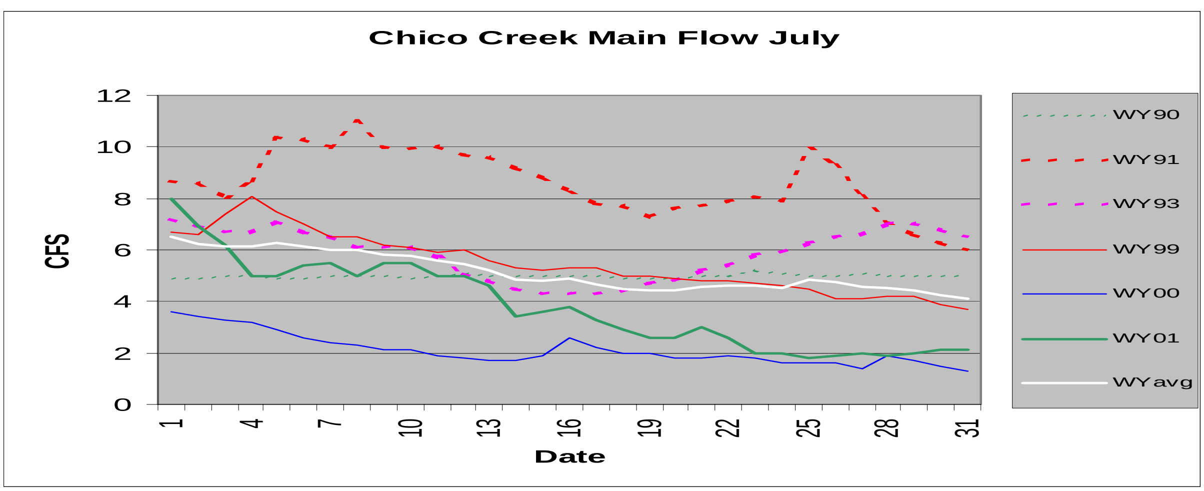
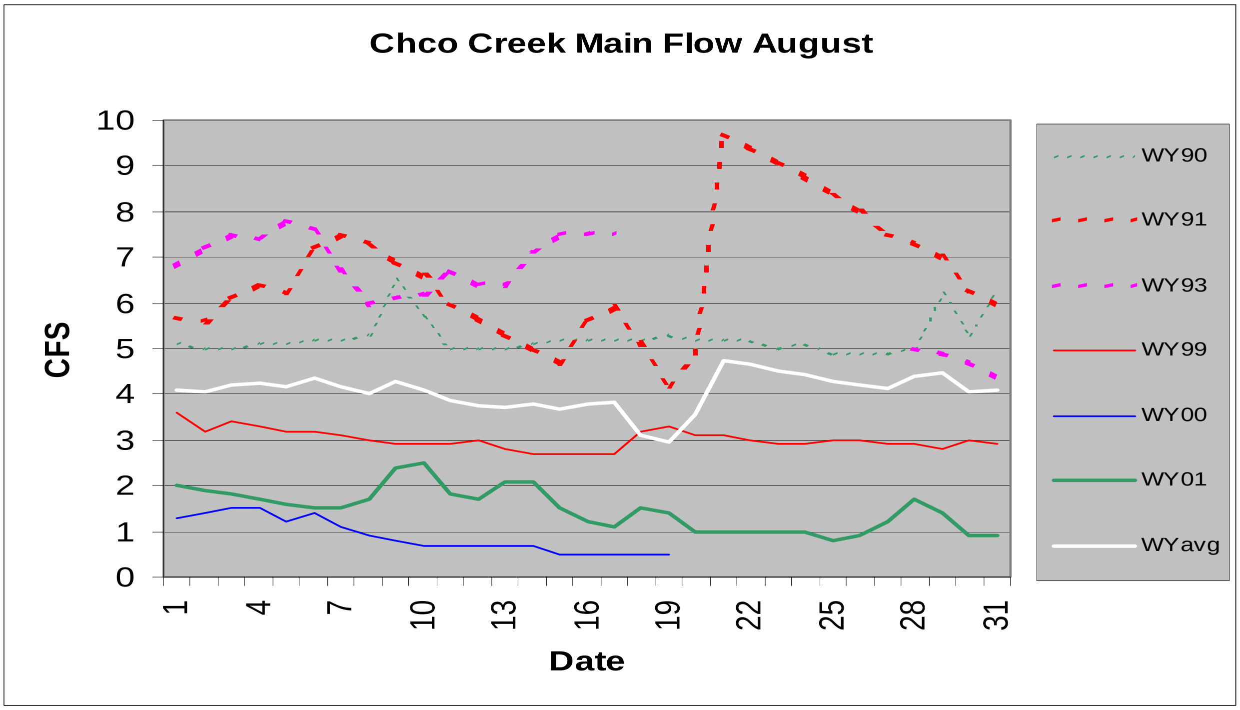


Figure 6 cont. Chico Creek Main Monthly Flow Comparisons



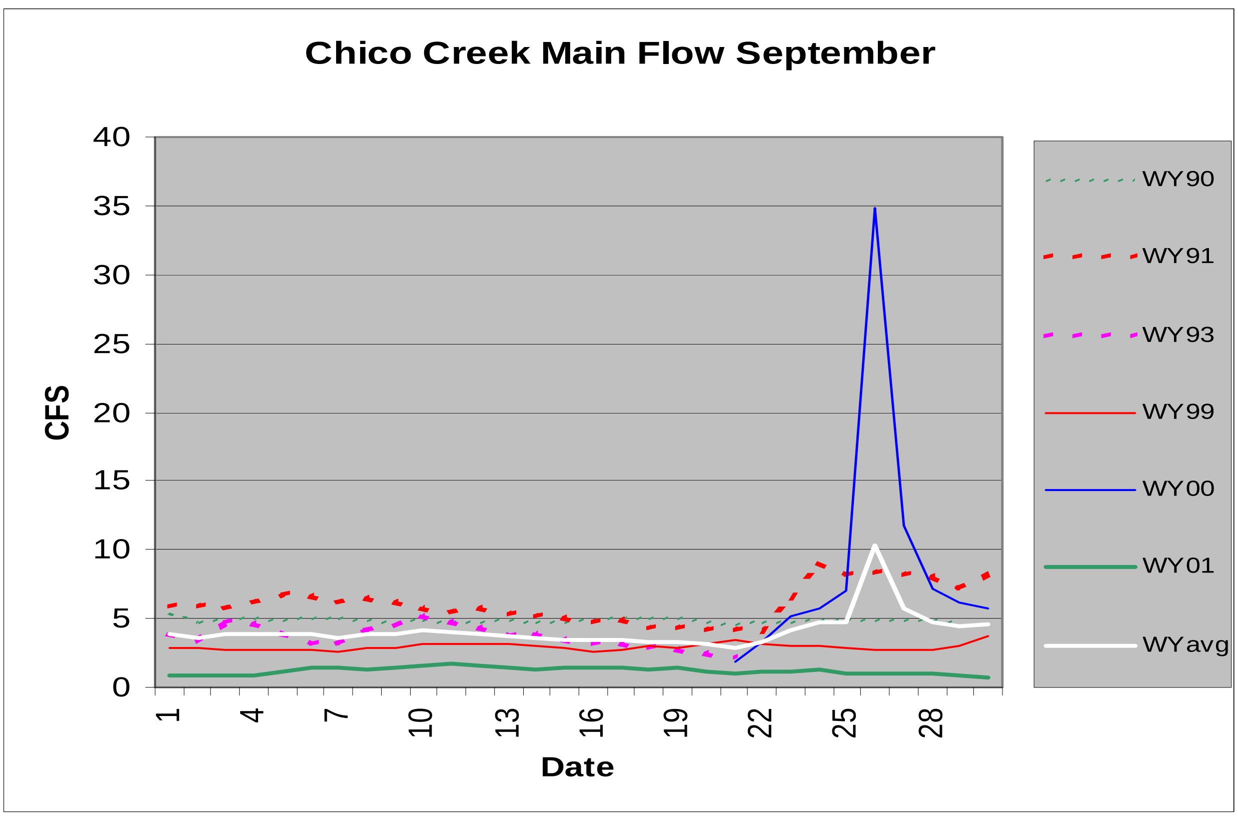


Figure 6 cont. Chico Creek Main Monthly Flow Comparisons

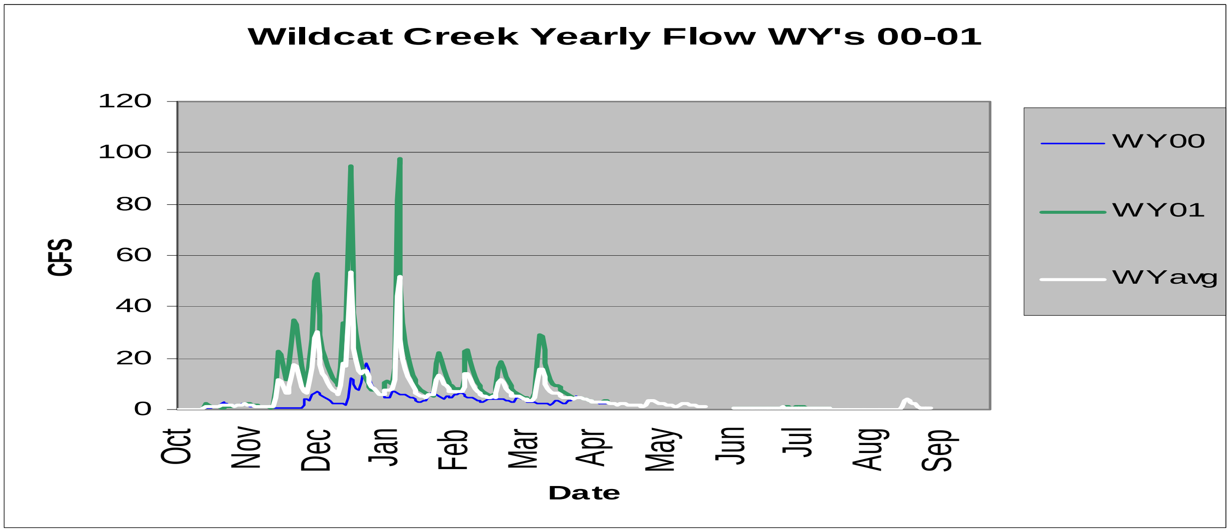
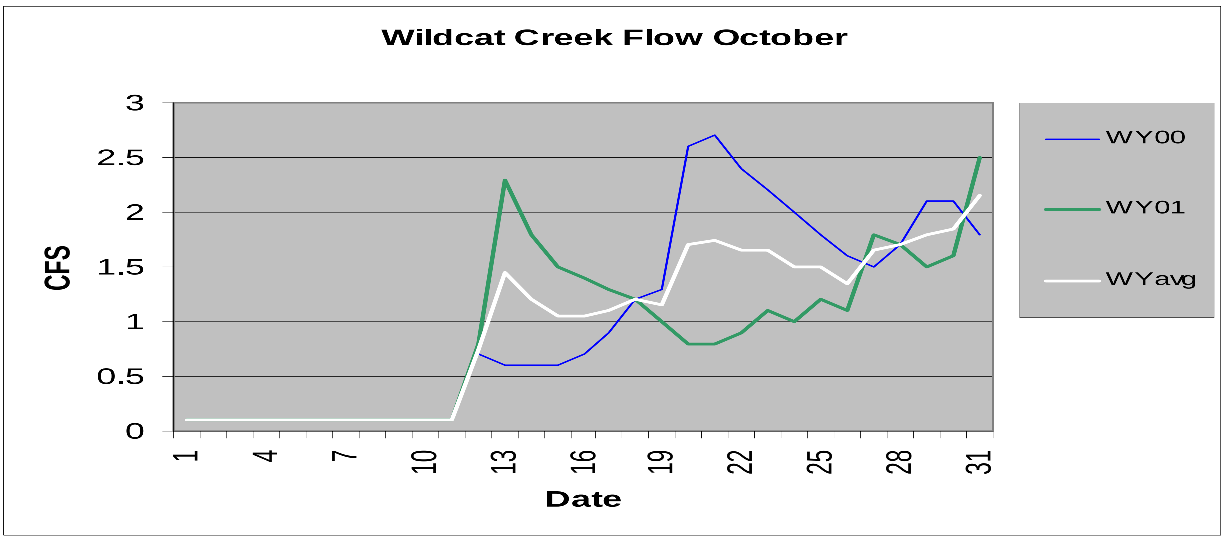


Figure 7 Wildcat Creek Yearly Flow Comparisons



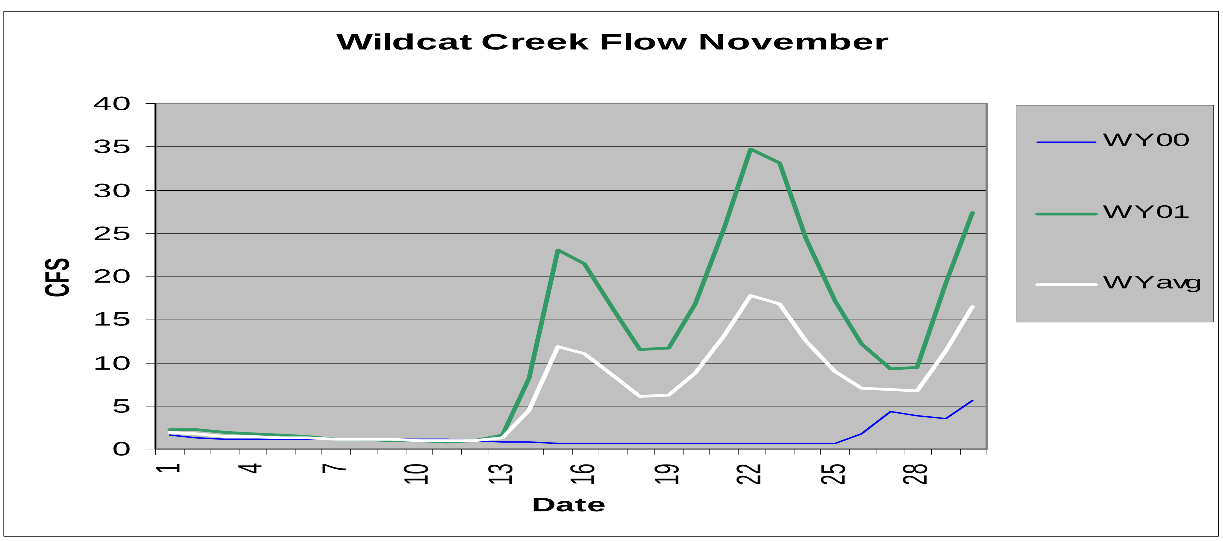
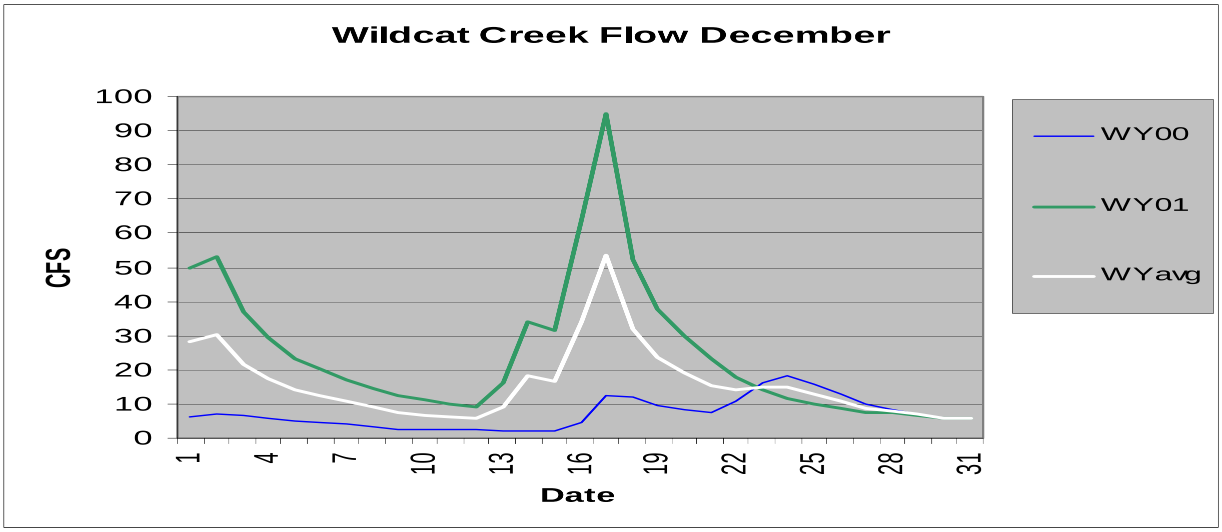
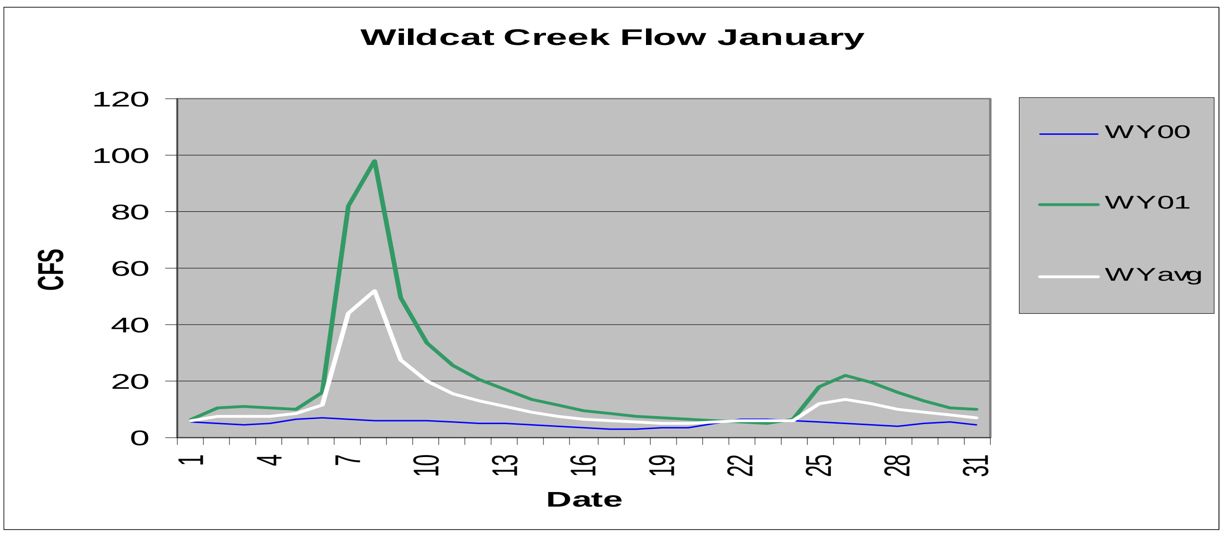


Figure 8 Wildcat Creek Monthly Flow Comparisons





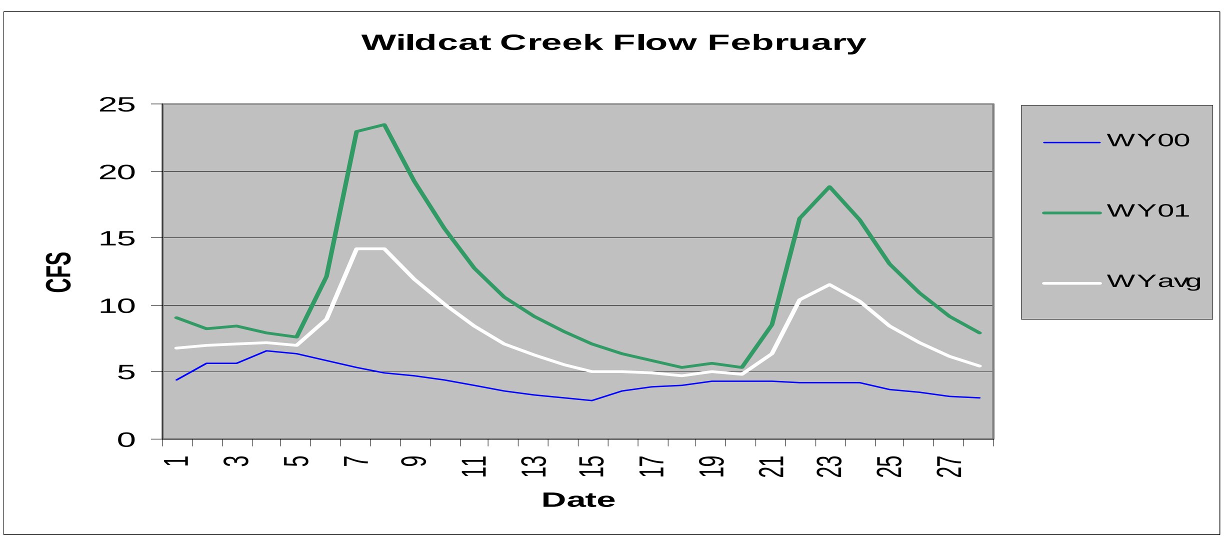
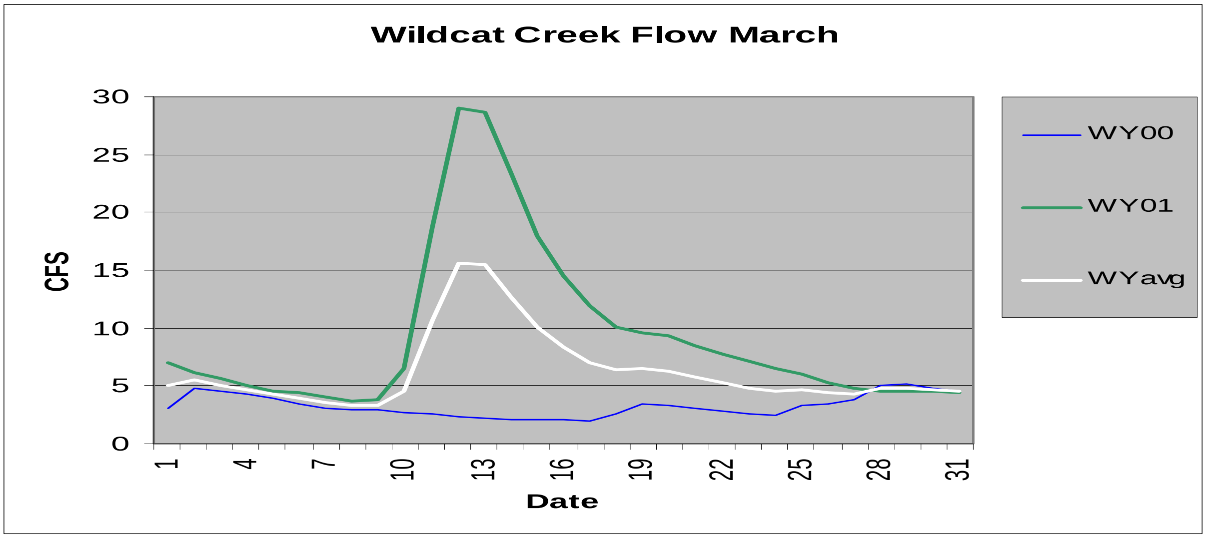
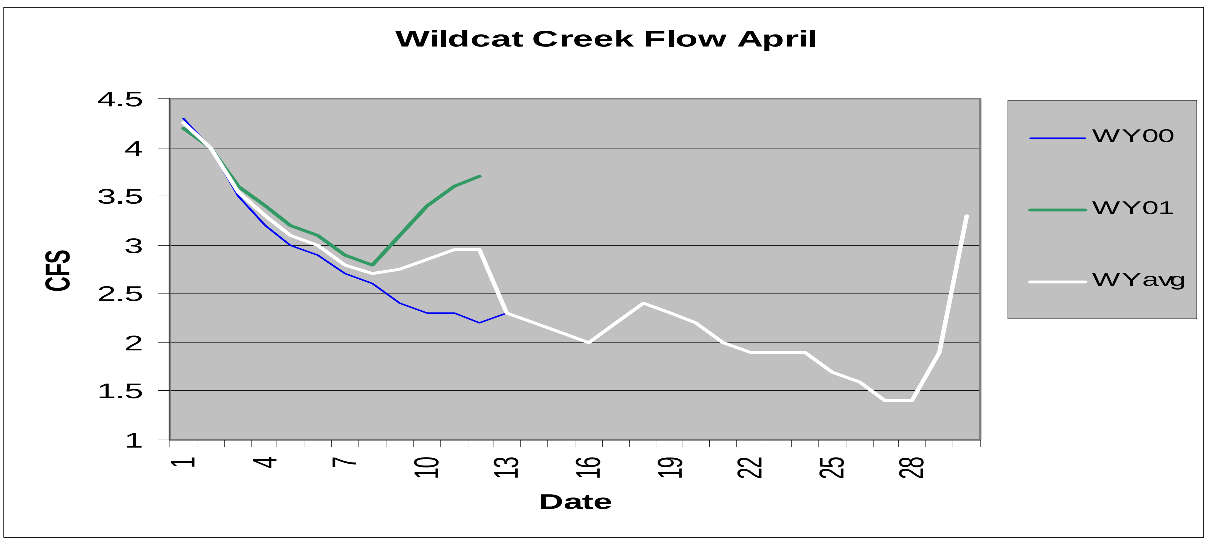


Figure 8 Wildcat Creek Monthly Flow Comparisons





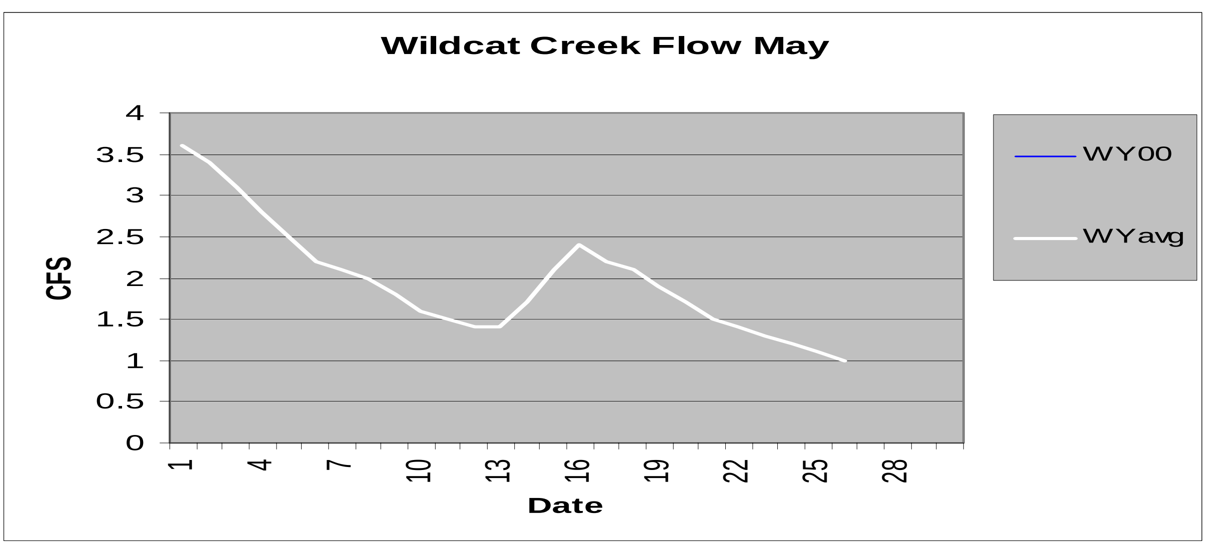
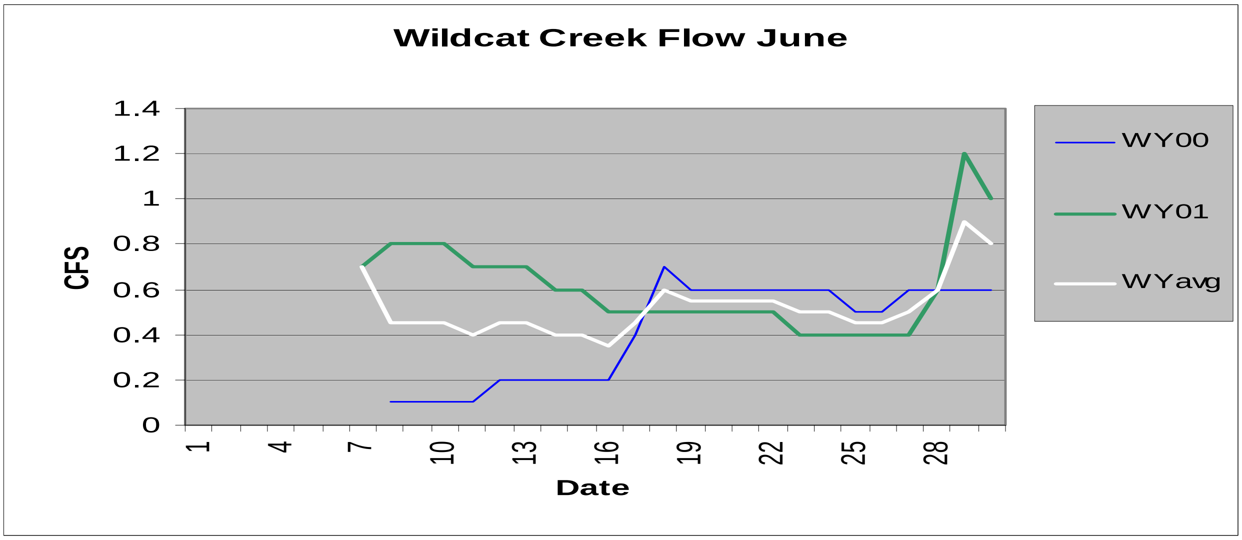
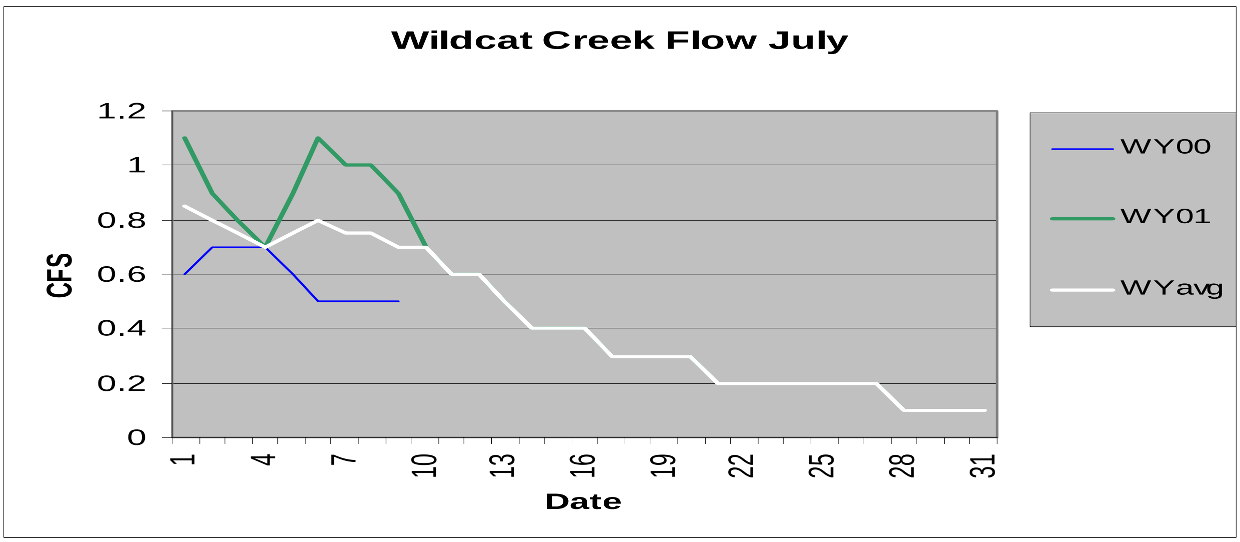


Figure 8 cont. Wildcat Creek Monthly Flow Comparisons





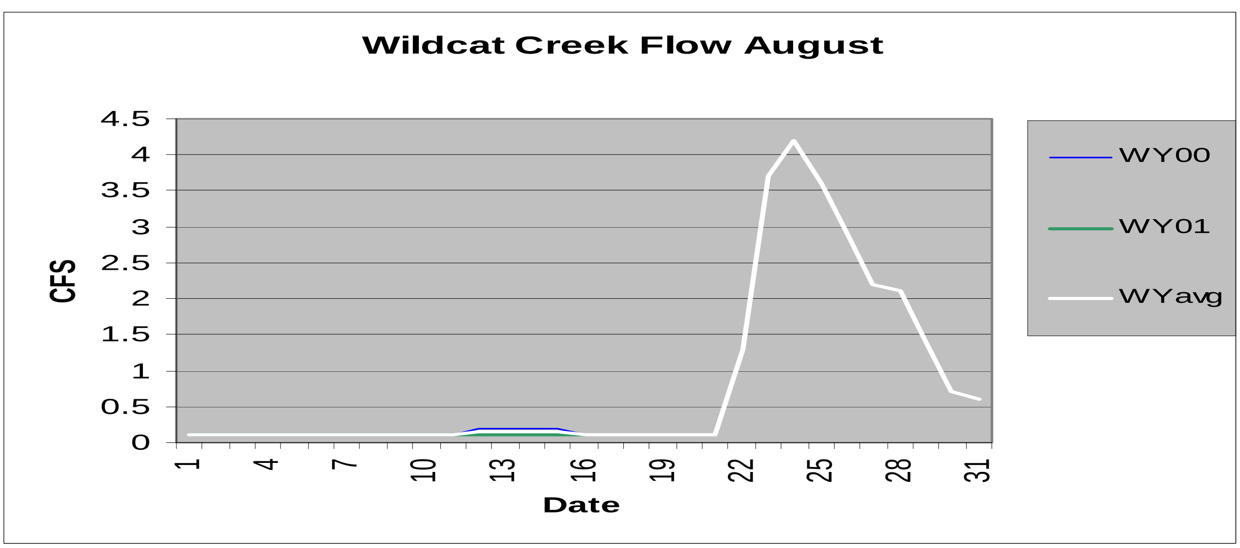


Figure 8 cont. Wildcat Creek Monthly Flow Comparisons

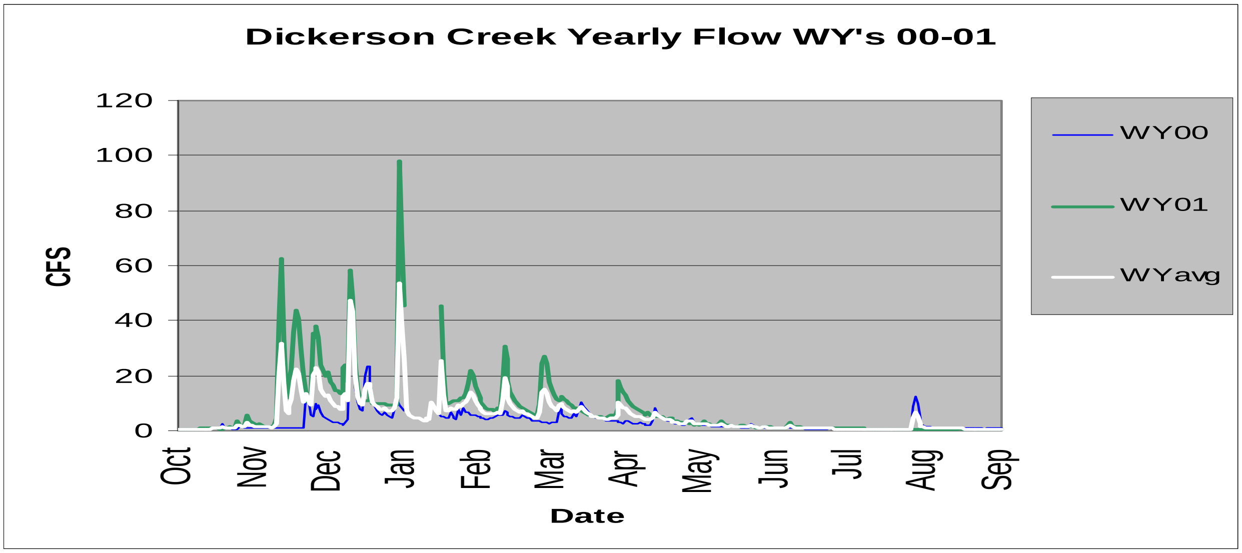
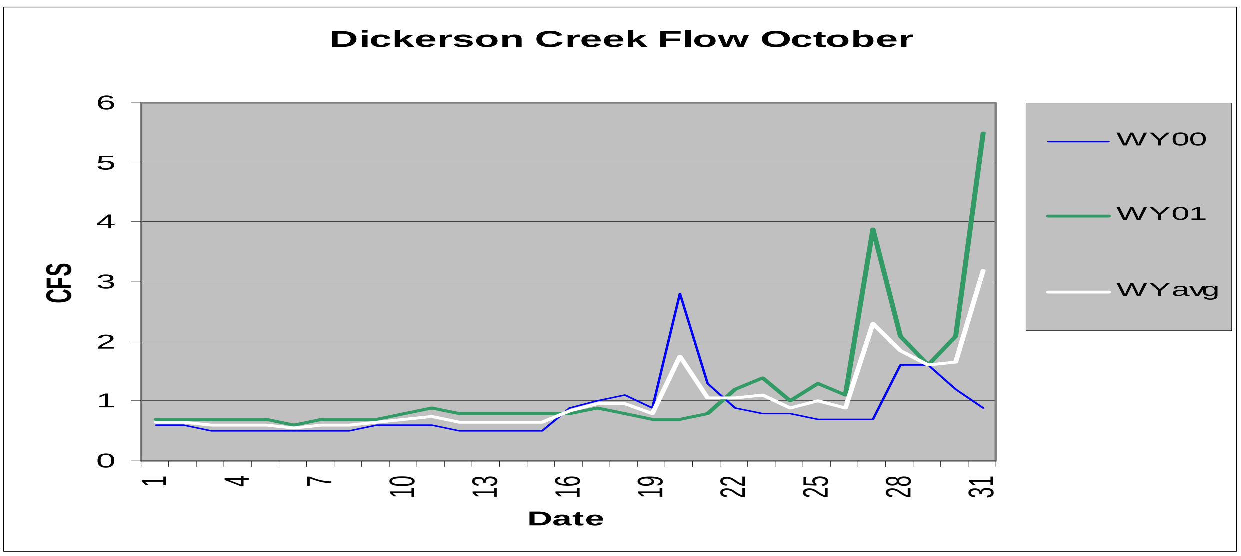


Figure 9 Dickerson Creek Yearly Flow Comparisons



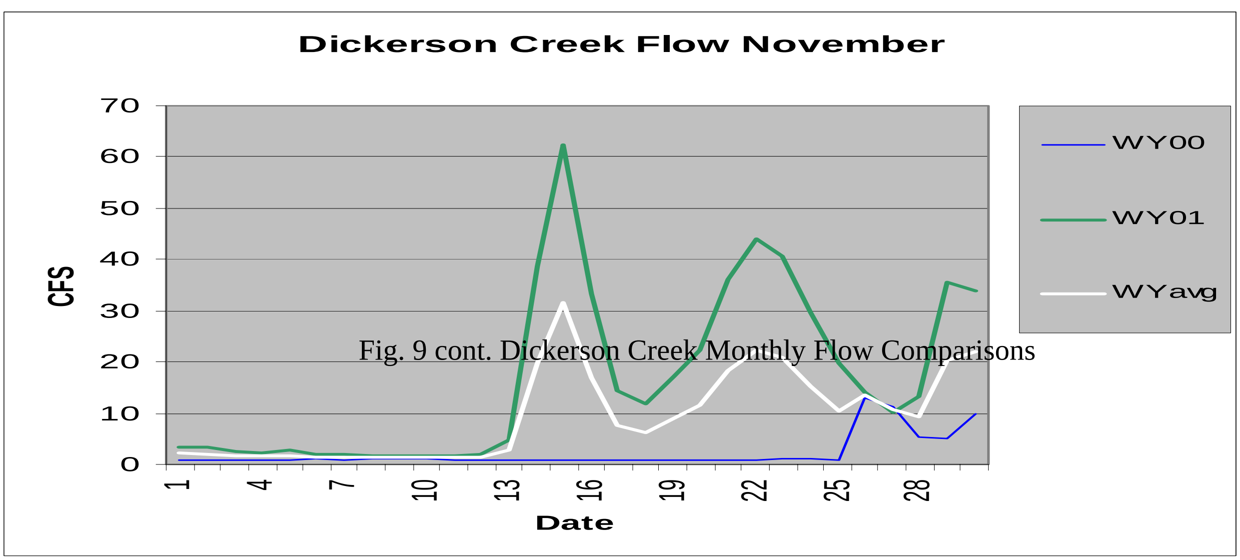
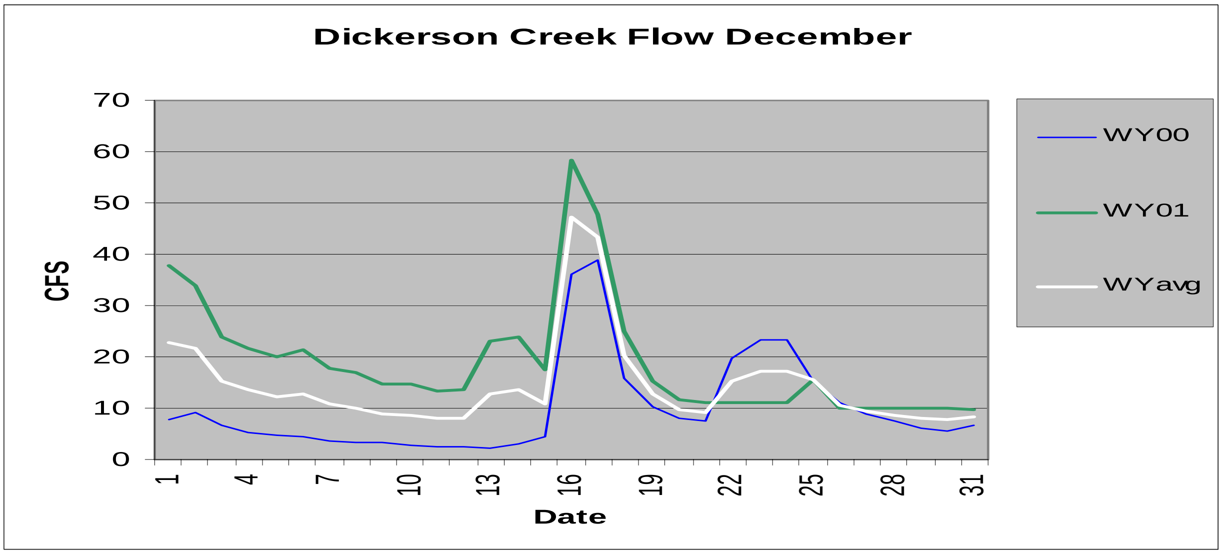
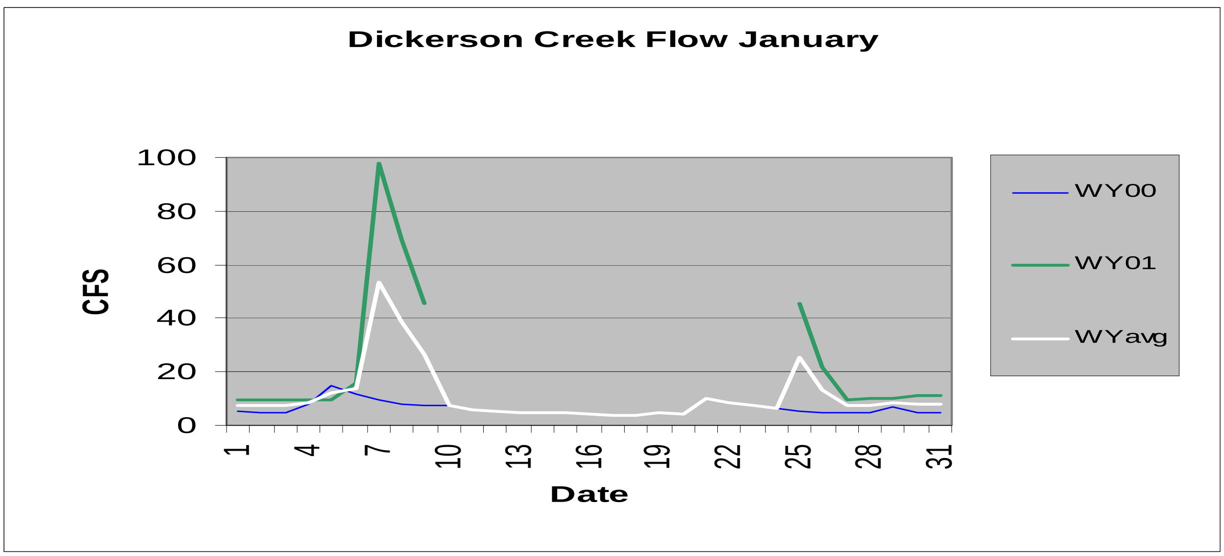
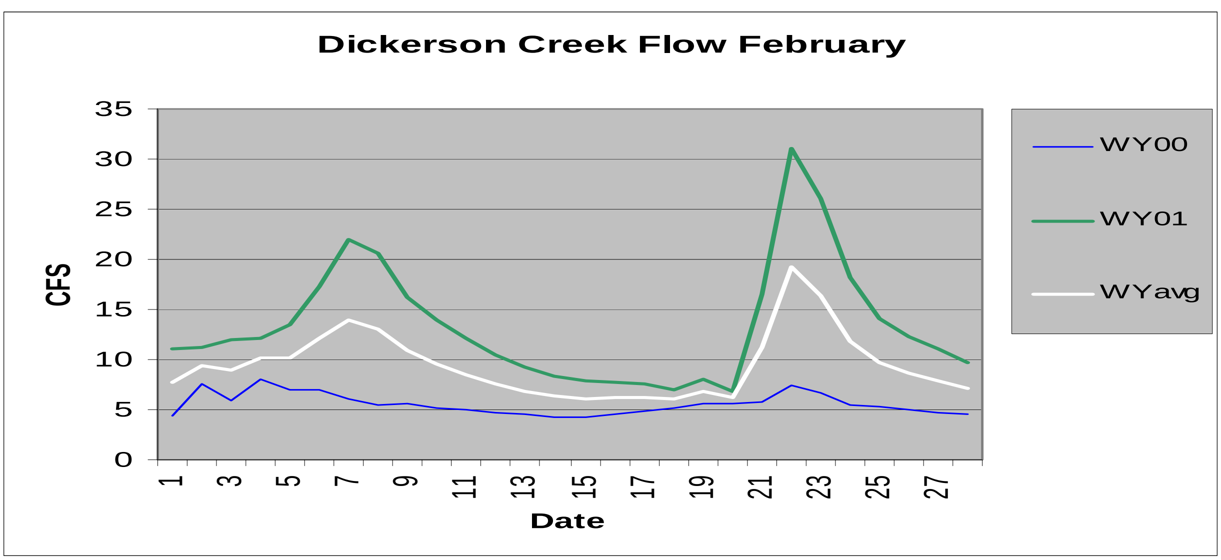


Fig. 9 cont. Dickerson Creek Monthly Flow Comparisons

Figure 10 Dickerson Creek Monthly Flow Comparisons







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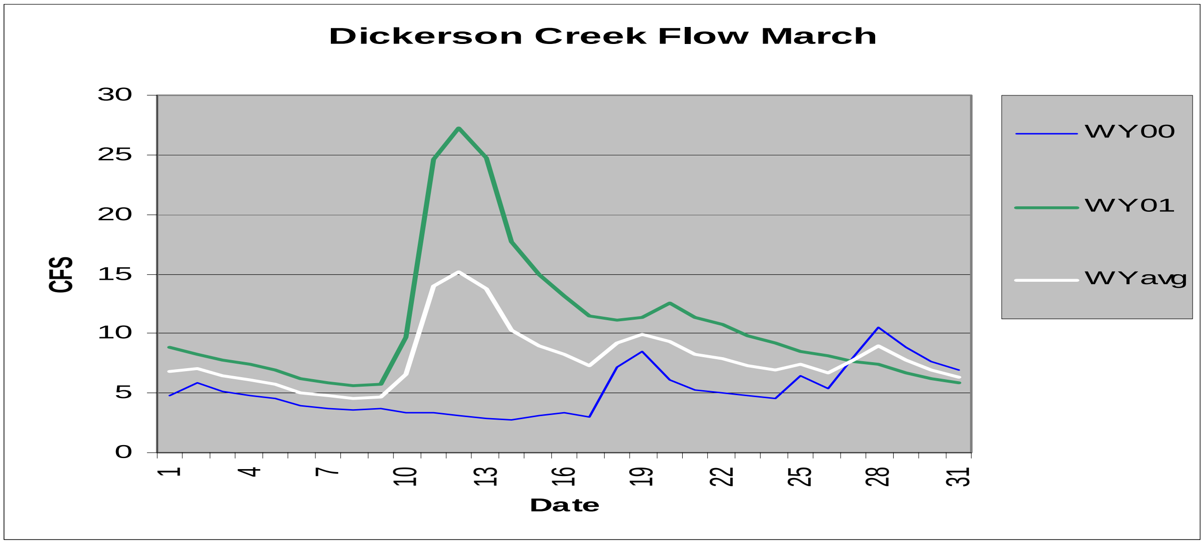
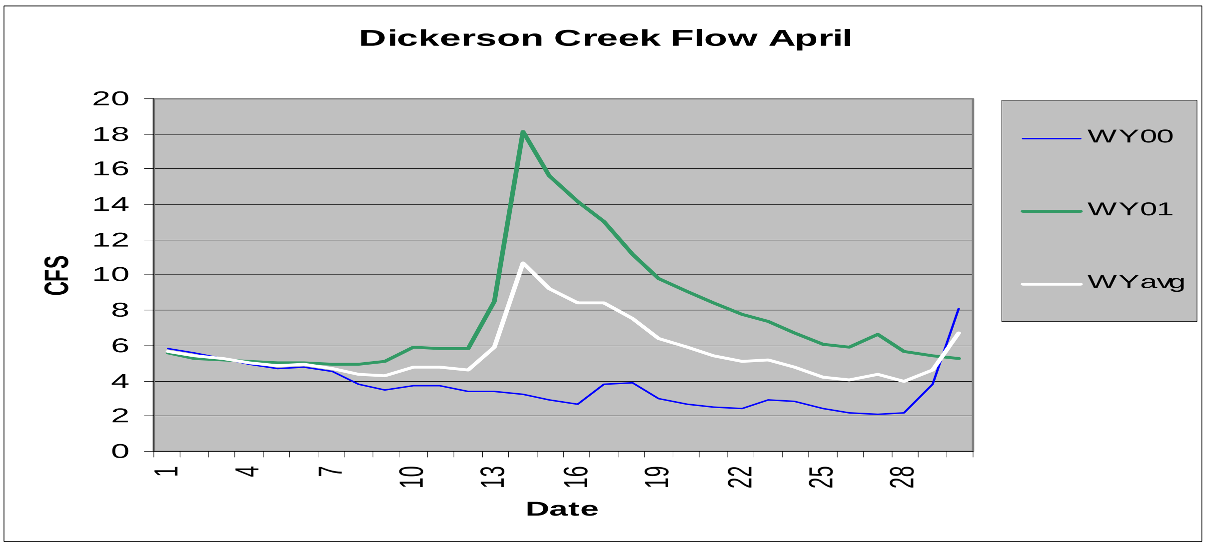




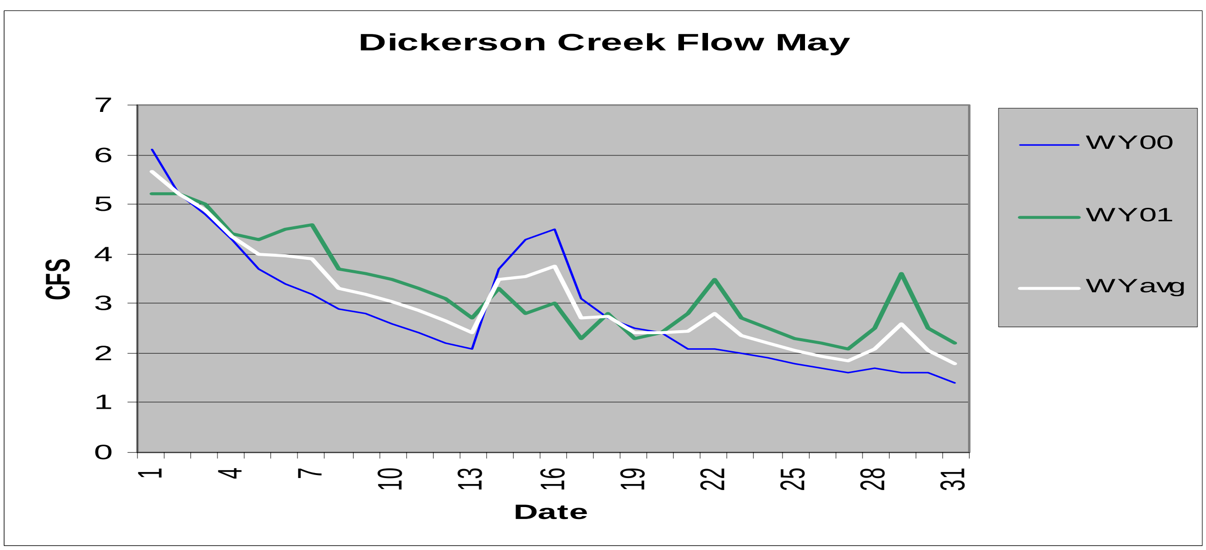
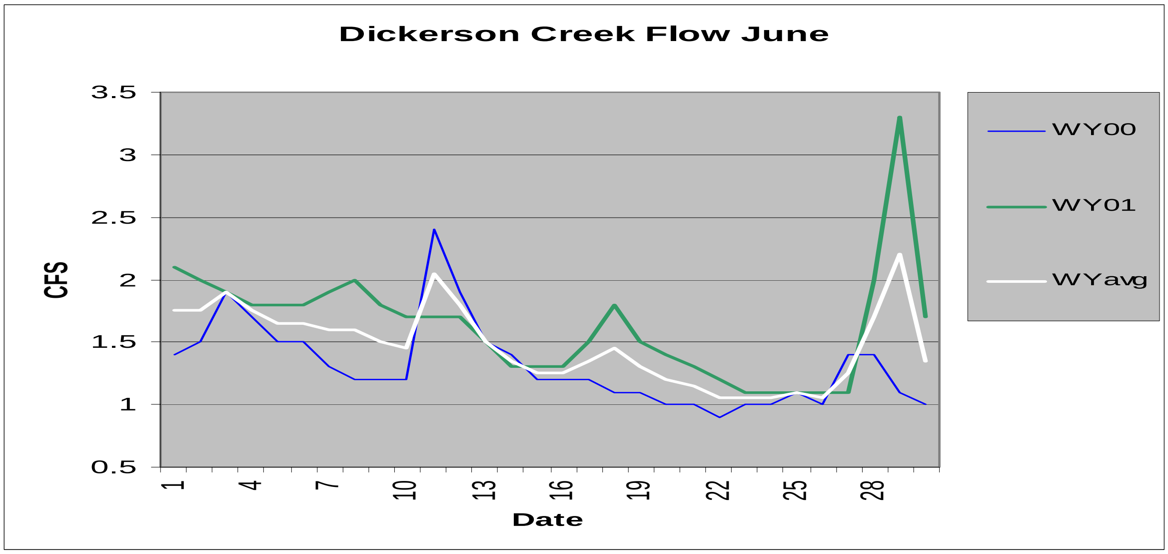
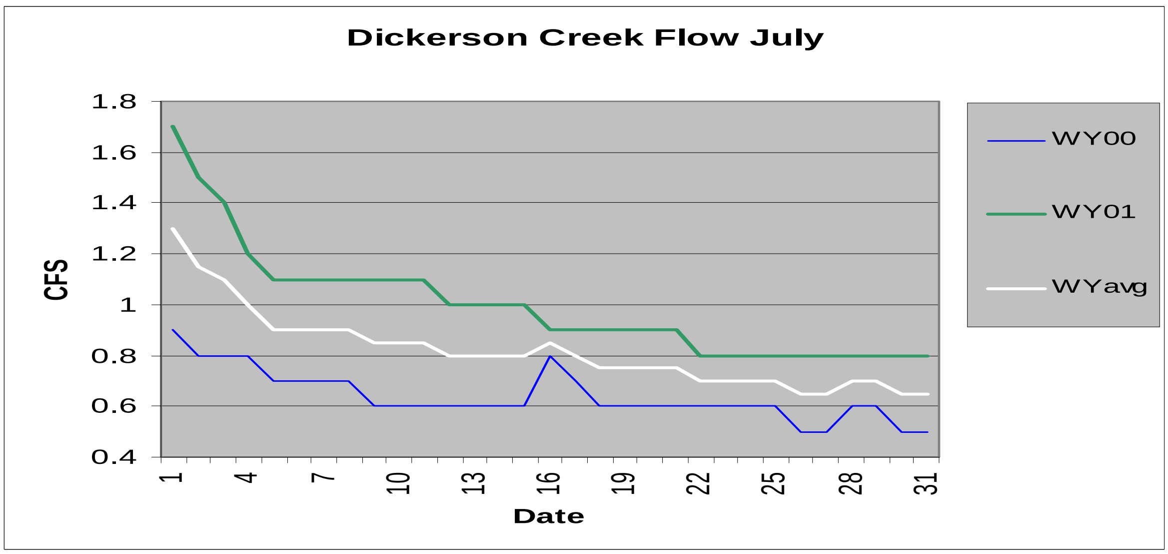


Figure 10 cont. Dickerson Creek Monthly Flow Comparisons





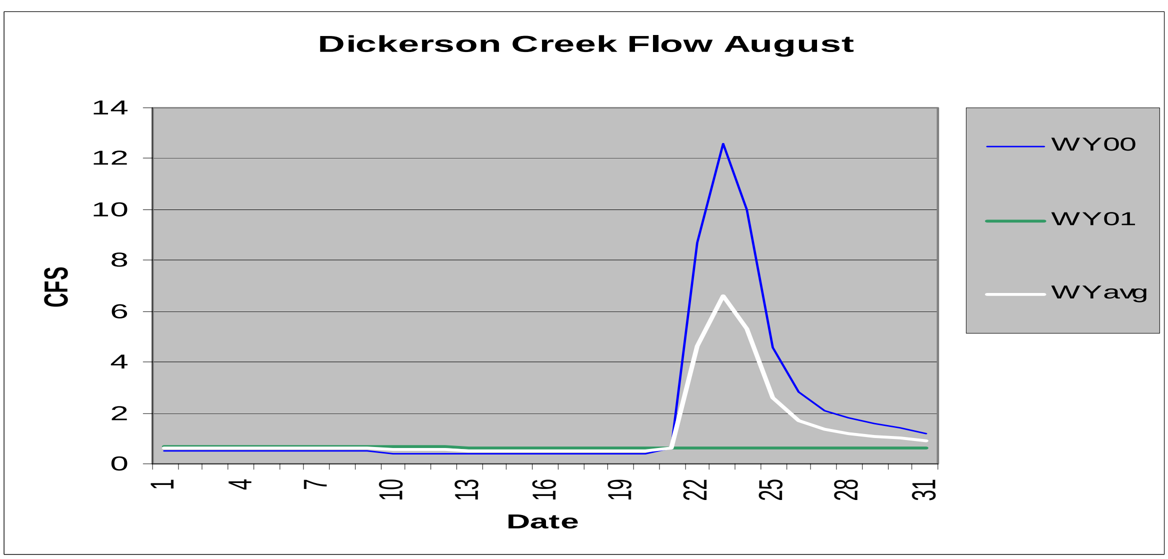


Figure 10 cont. Dickerson Creek Monthly Flow Comparisons

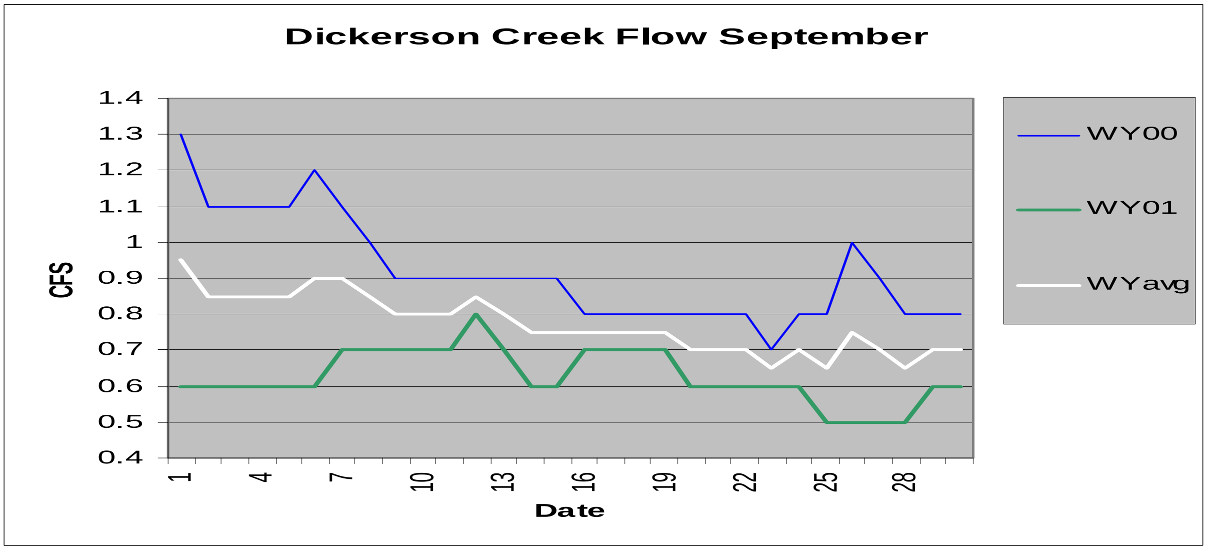
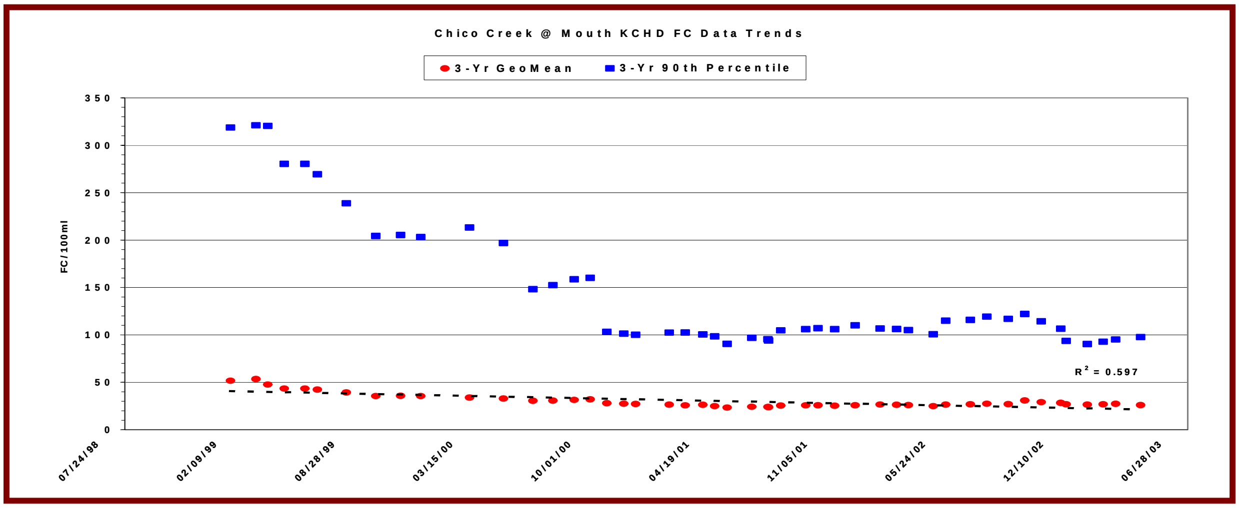
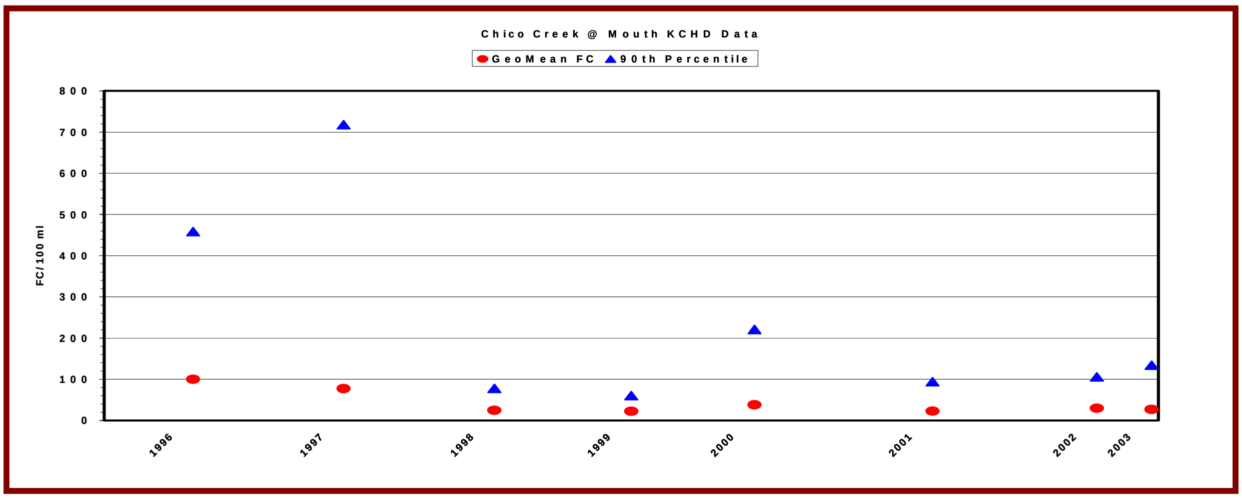


Figure 10 cont. Dickerson Creek Monthly Flow Comparisons





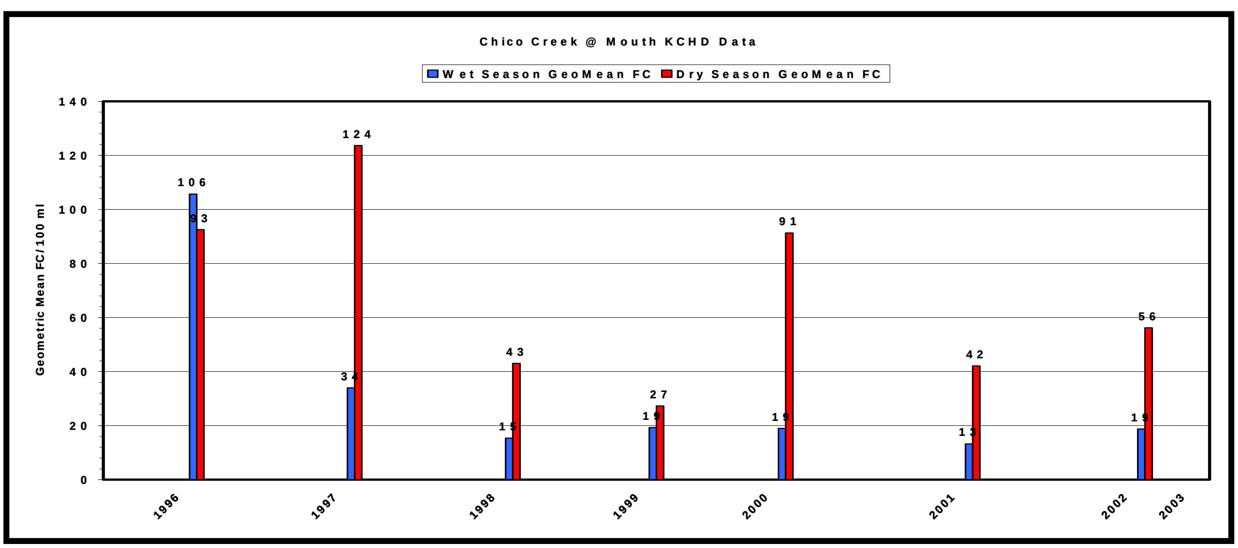
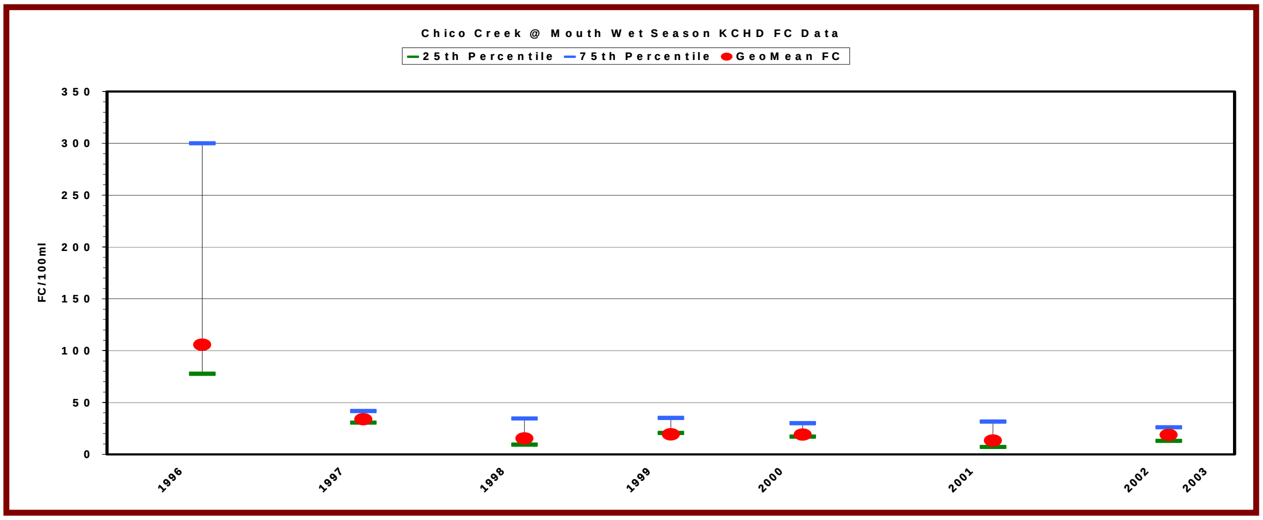


Figure 10 Chico Creek @ Mouth KCHD FC Data Trends



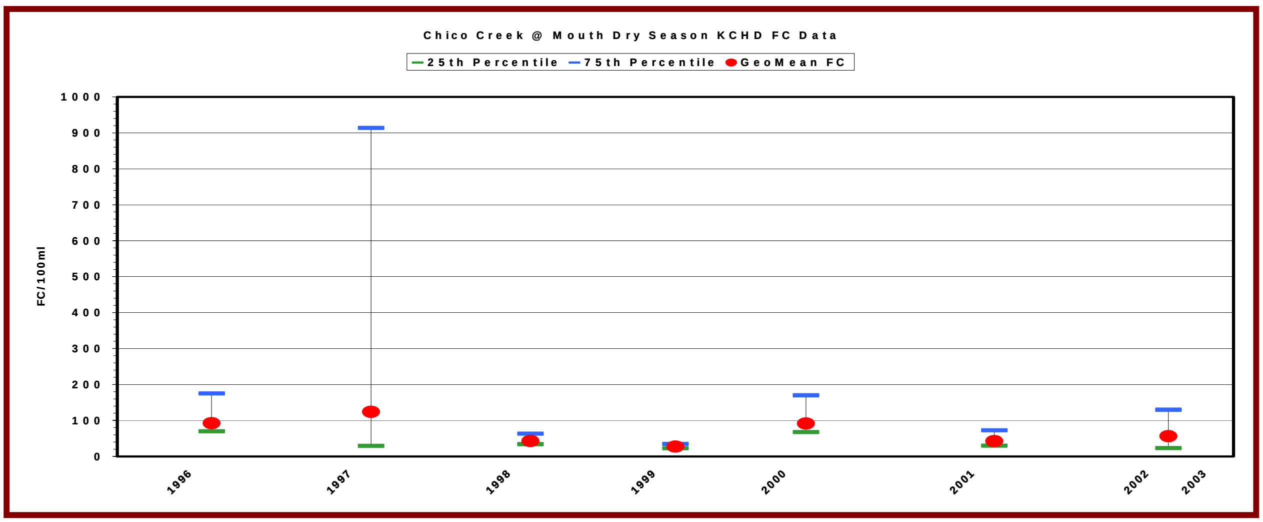


Figure 10 cont. Chico Creek @ Mouth KCHD FC Data Trends

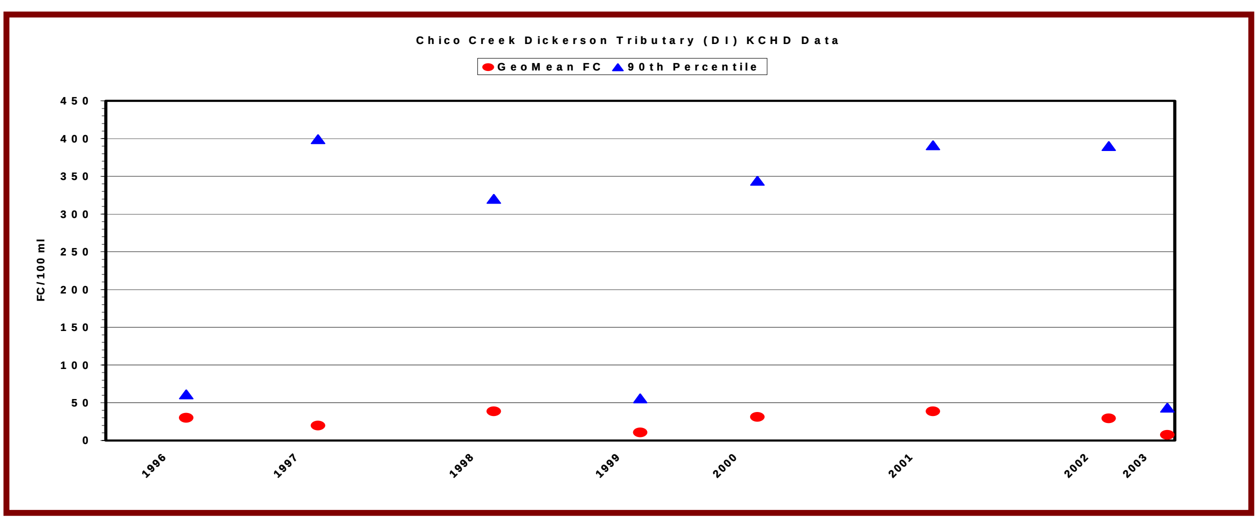
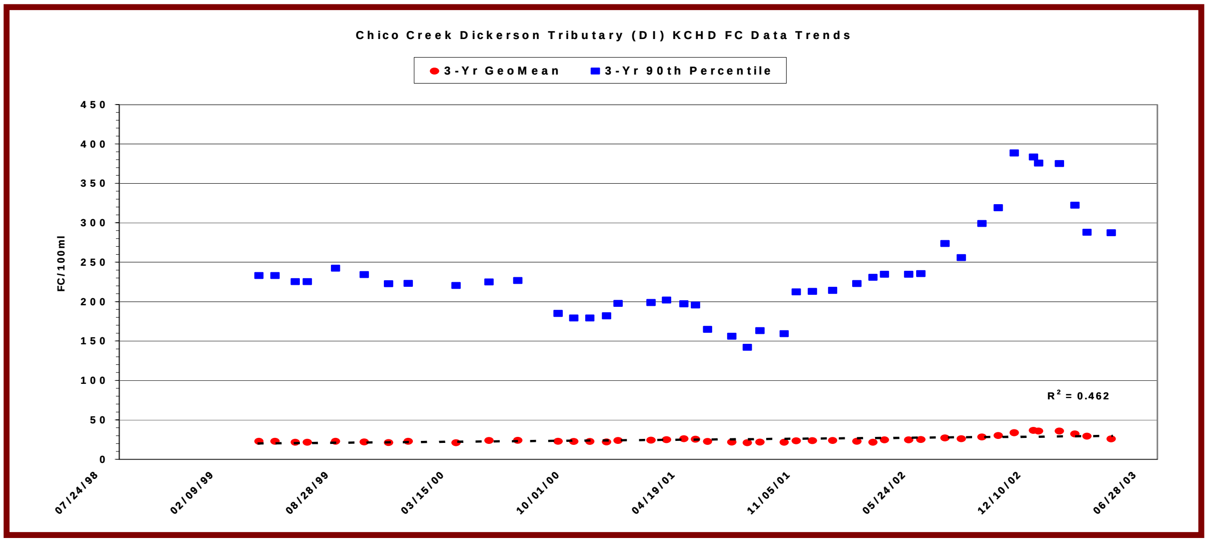
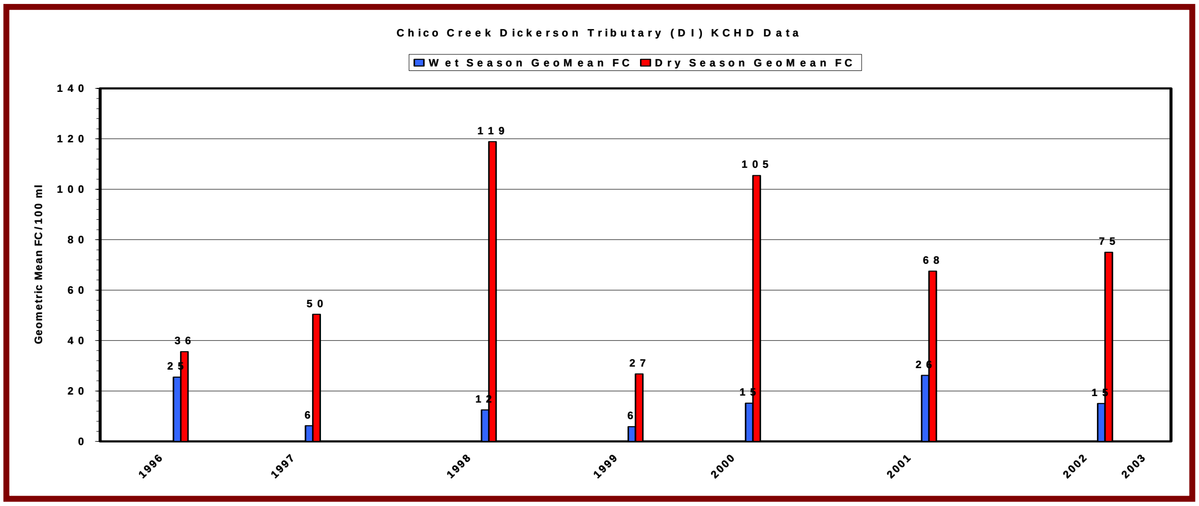


Figure 11 Chico Creek Dickerson Tributary (DI) KCHD FC Data Trends





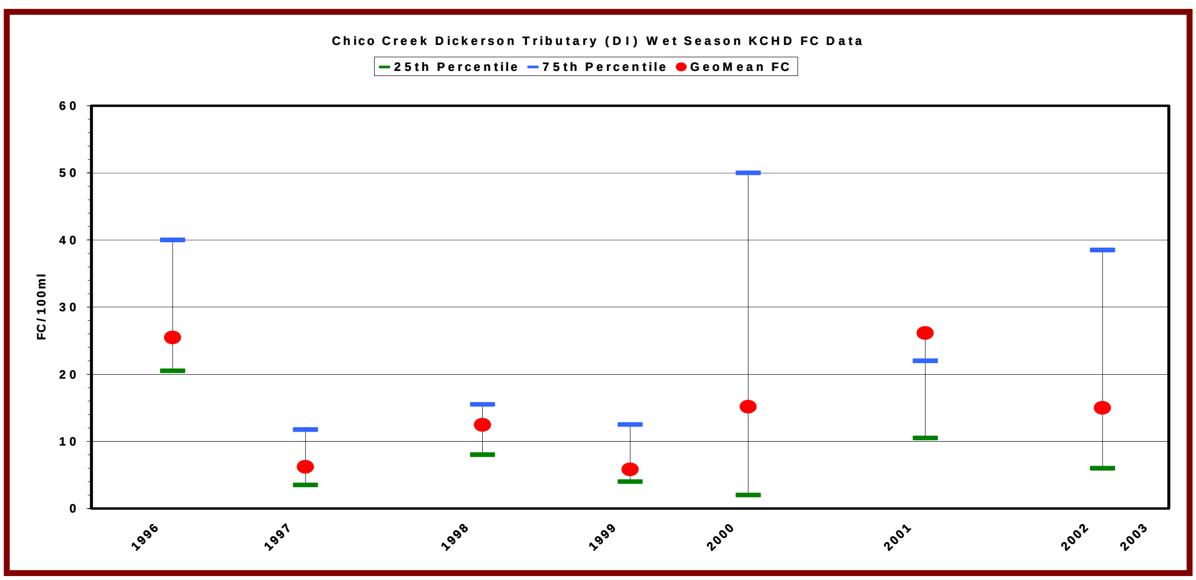


Figure 11 cont. Chico Creek Dickerson Tributary (DI) KCHD FC Data Trends

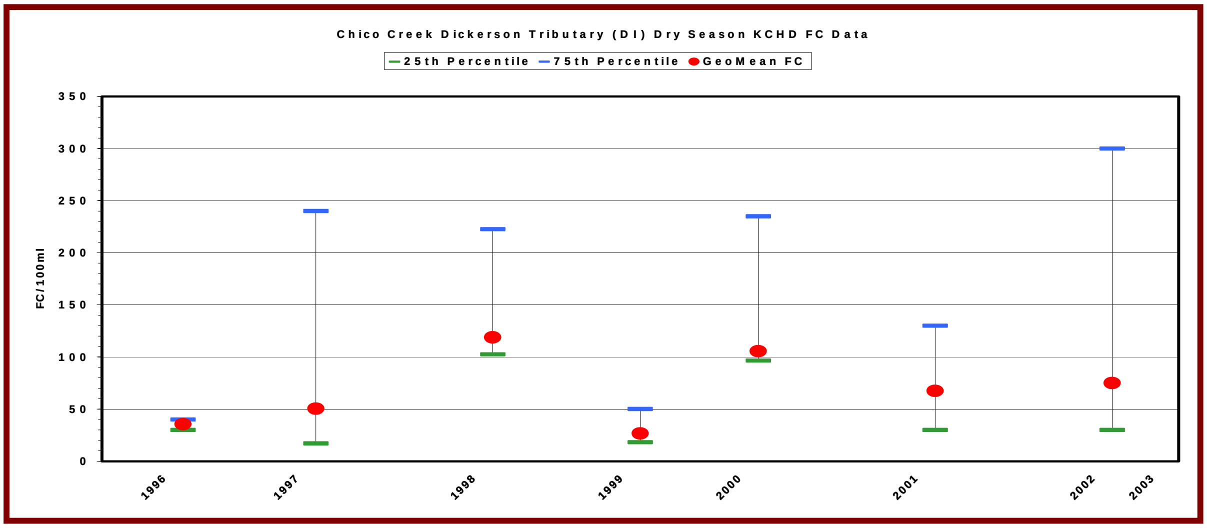
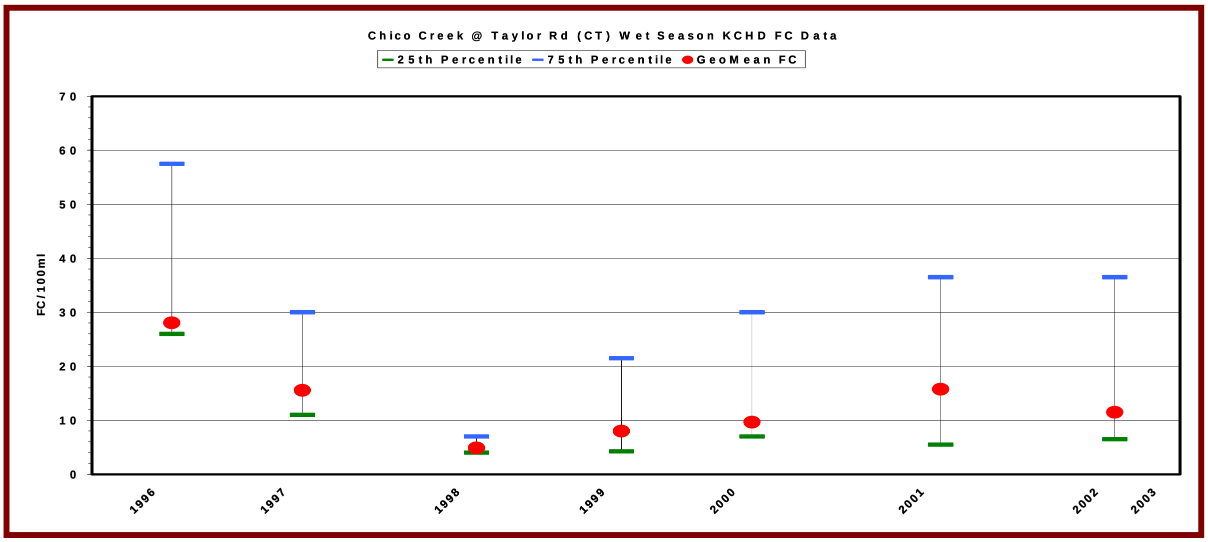


Figure 11 cont. Chico Creek Dickerson Tributary (DI) KCHD FC Data Trends



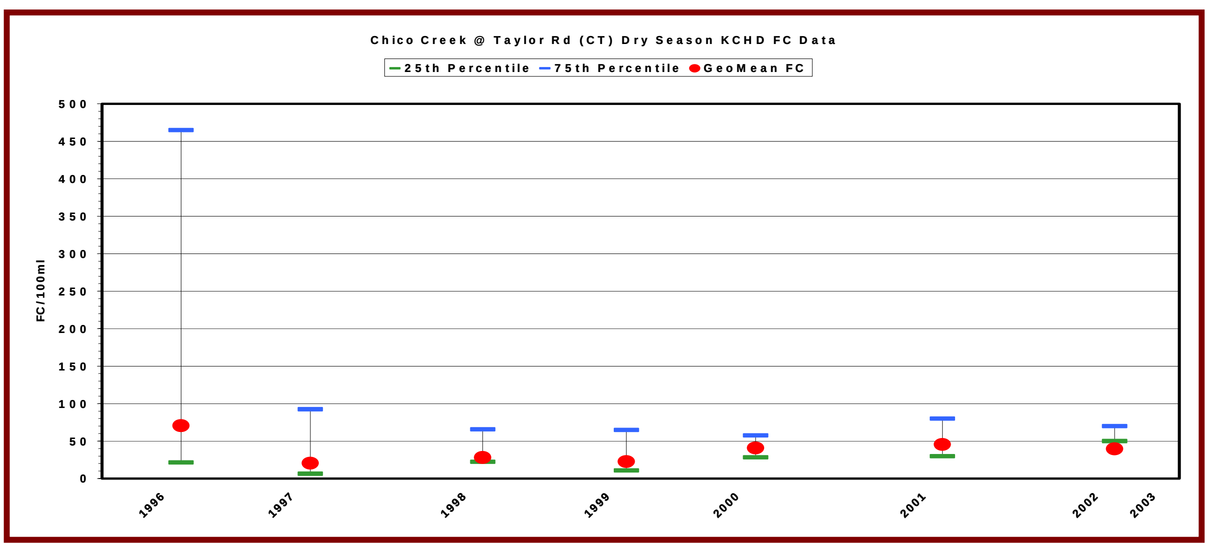
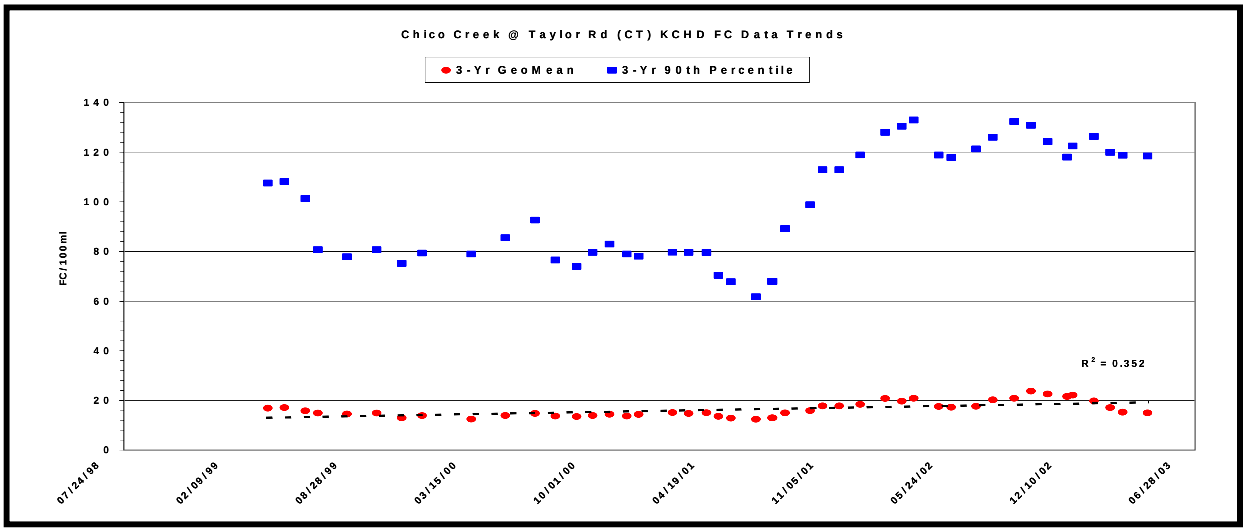
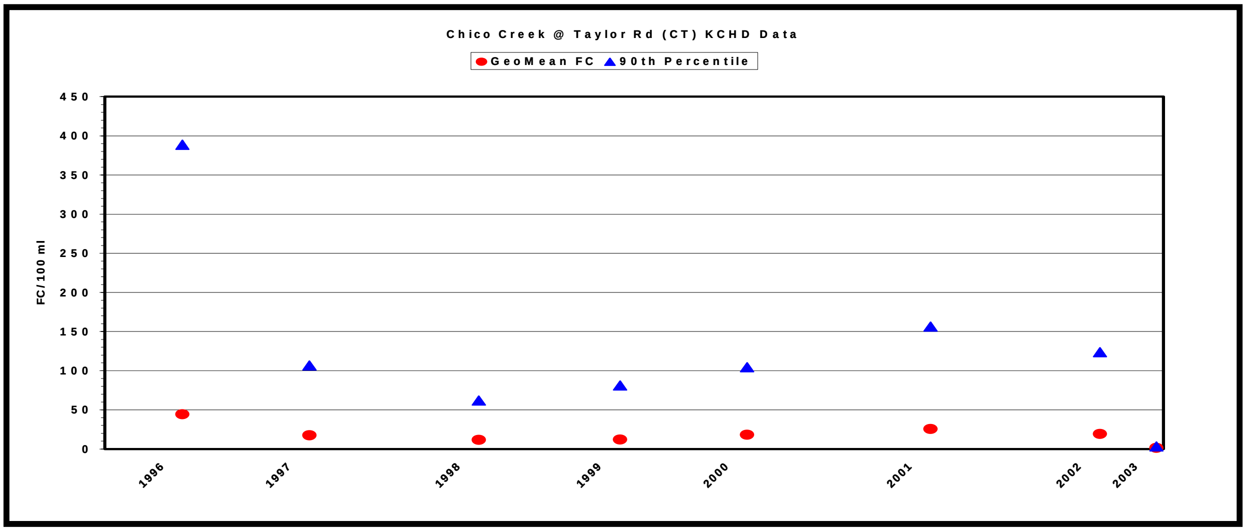


Figure 12 Chico Creek @ Taylor Road KCHD FC Data Trends





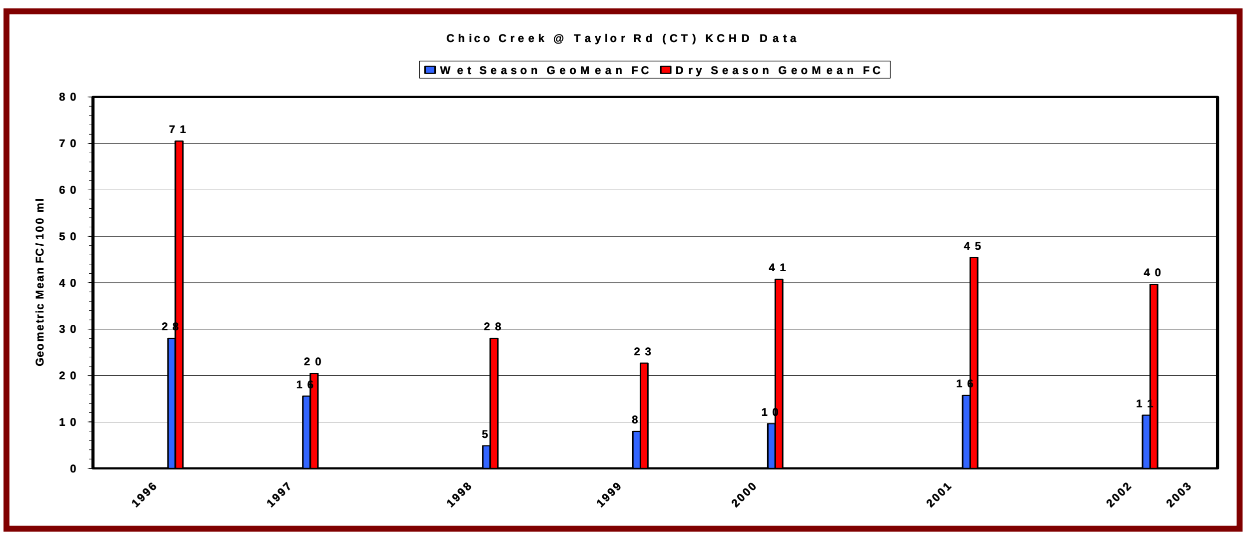
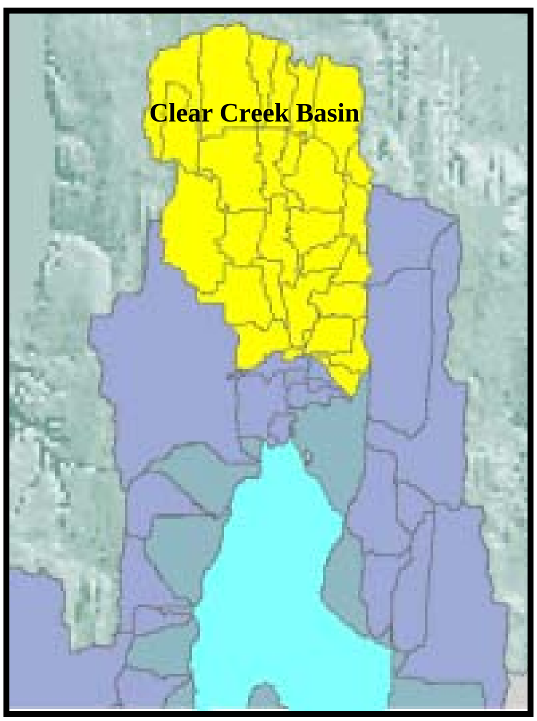


Figure 12 cont. Chico Creek @ Taylor Road KCHD FC Data Trends

Clear Creek

Clear Creek watershed lies on the northern side of Dyes Inlet and hosts a class "A" stream composing of approximately 12 miles of mainstem and tributaries (Zimny et al., 2003). The watershed is semi-rectangular in shape and divided into twenty-nine sub-basins. Clear Creek's discharge point into Dyes Inlet is from the northern shoreline (Fig. 1). The drainage area of Clear Creek supports Coho and Chum Salmon, Cutthroat trout and possibly Steelhead (May, et al, 2003). Figure 2 shows the location of water quality sampling sites (CC, CE, CW), established for sampling during the winter (2002-2003) storm season by the ENVVEST project team ("Maps a la carte, Inc.", 2004). Sites BTL and BSWP (not shown on map) are water filled basins located within Bangor Naval Base. Based on Land Use Land Cover data of the area Fig. 3, the basin is predominantly facilities land, followed by vacant and open land use with approximately 36% total impervious area (%TIA) (Table 1). The dominant surficial hydrogeologic unit for the basin is Vashon till with some large patches of marsh and bog deposits in the upper basin. Coarse and fine recessional deposits are found within the stream network where the streams have cut down through the Vashon till (Jones, et al, 1998). Figure 4 shows an aerial photograph of Clear Creek Basin (Space Imaging, 2002). Kitsap PUD monitors Clear Creek flow through two gaging stations located on the east and west forks of the Creek (Fig. 2). The available flow data is shown in Figure 5 for yearly summaries and Figure 6 for monthly summaries. Fecal Coliform and ancillary data are shown in table 2 with the wet season summary presented in table 3. Figures 7-9 show the historical trend of Fecal Coliform for the Anderson Creek site (AC) (May, et al, 2003).

Figure 1 Location of Clear Creek Basin to Dyes Inlet



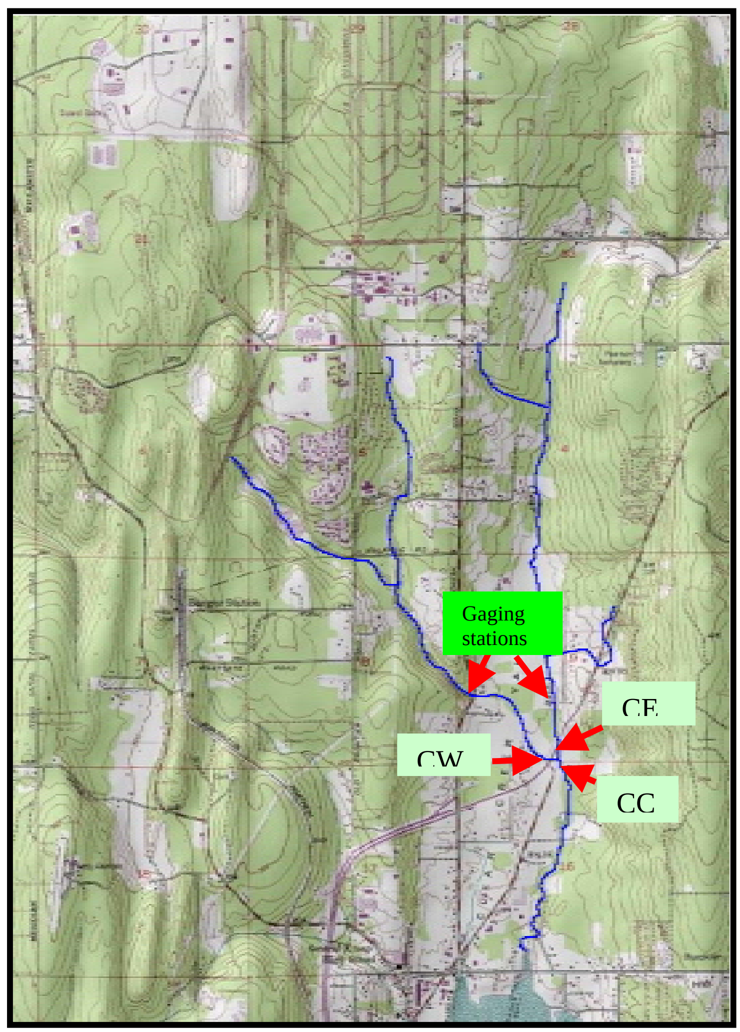


Figure 2 The location of sampling stations in Clear Creek Basin

Landcode	Percent Impervious	Area Sq. Feet	% of total Area	Impervious Area Sq Feet	%TIA of Total Area
Mixed Use-Right of Way	44.300	19510663.89	9.80%	8643224.10	4.34%
Cemetary	17.100	224918.59	0.11%	38461.08	0.02%
Church	46.000	367379.60	0.18%	168994.61	0.08%
Commercial_Retail	59.500	73776.89	0.04%	43897.25	0.02%
Commercial_Service	55.100	168396.50	0.08%	92786.47	0.05%
Estate	20.800	14168737.81	7.11%	2947097.46	1.48%
Facilities	66.400	56903251.35	28.57%	37783758.90	18.97%
Mobile_Park	43.700	1007883.06	0.51%	440444.90	0.22%
Open_Land	9.270	26848427.28	13.48%	2488849.21	1.25%
Parking	51.400	56286.10	0.03%	28931.05	0.01%
Parks	18.100	579816.13	0.29%	104946.72	0.05%
Power	5.700	340033.17	0.17%	19381.89	0.01%
Rural	16.100	7991212.96	4.01%	1286585.29	0.65%
Schools	46.000	523272.00	0.26%	240705.12	0.12%
Suburban	38.900	13390944.52	6.72%	5209077.42	2.62%
Urban_High	25.900	1559762.81	0.78%	403978.57	0.20%
Urban_Low	38.200	15464993.19	7.77%	5907627.40	2.97%
Urban_Medium	35.600	825940.01	0.41%	294034.64	0.15%
Urban_Standard	44.000	4162660.38	2.09%	1831570.57	0.92%
Vacant	11.400	30744483.81	15.44%	3504871.15	1.76%
Wooded	4.200	4230483.80	2.12%	177680.32	0.09%
Total area (sq. feet)		199143323.84		71656904.12	35.98%
Total area acres		4571.70		1645.02	
Total impervious area percentage					

Table 3 Clear Creek Land Use Land Cover Data

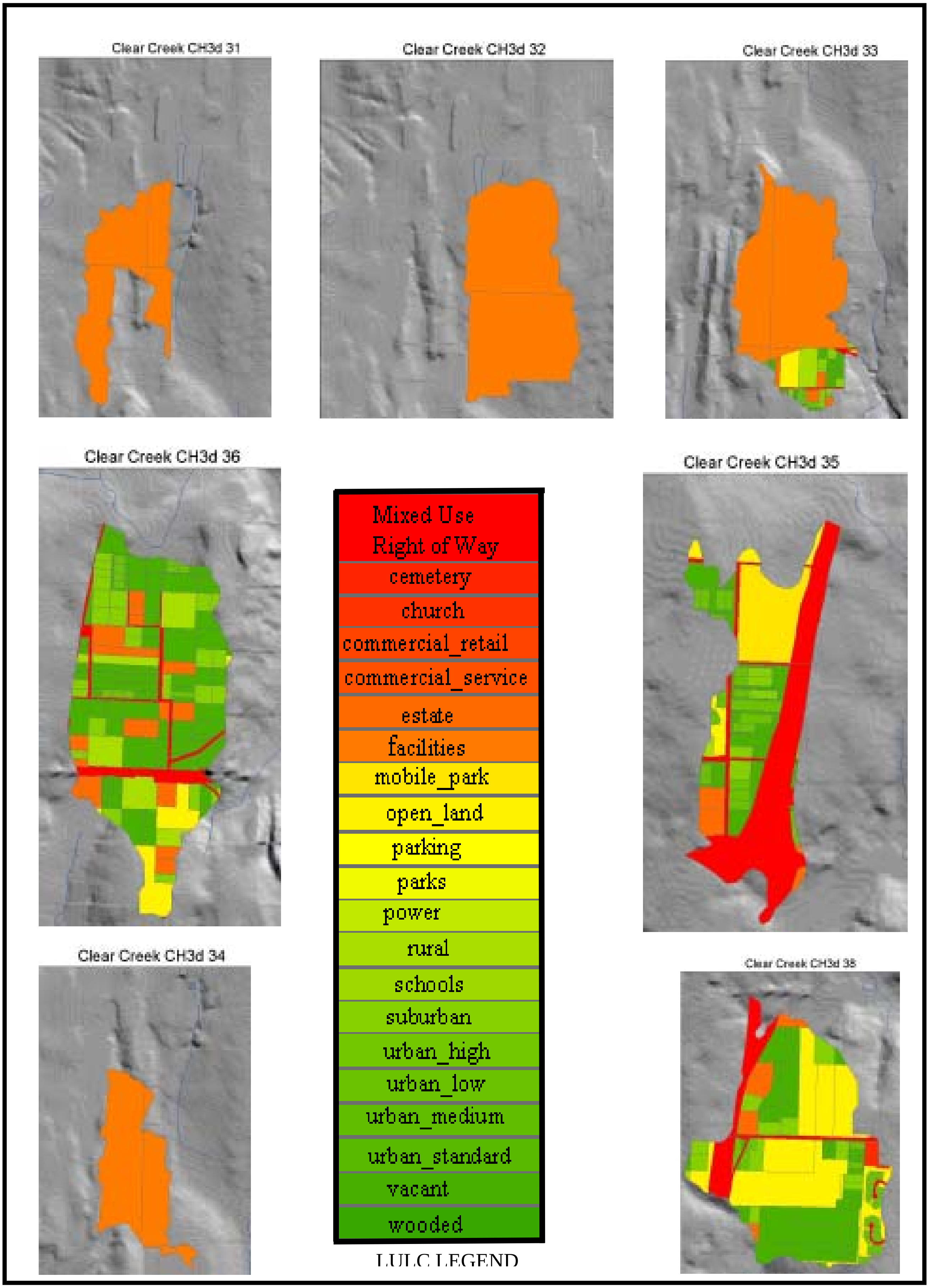


Figure 3 Land Use Land Cover for Clear Creek Basin

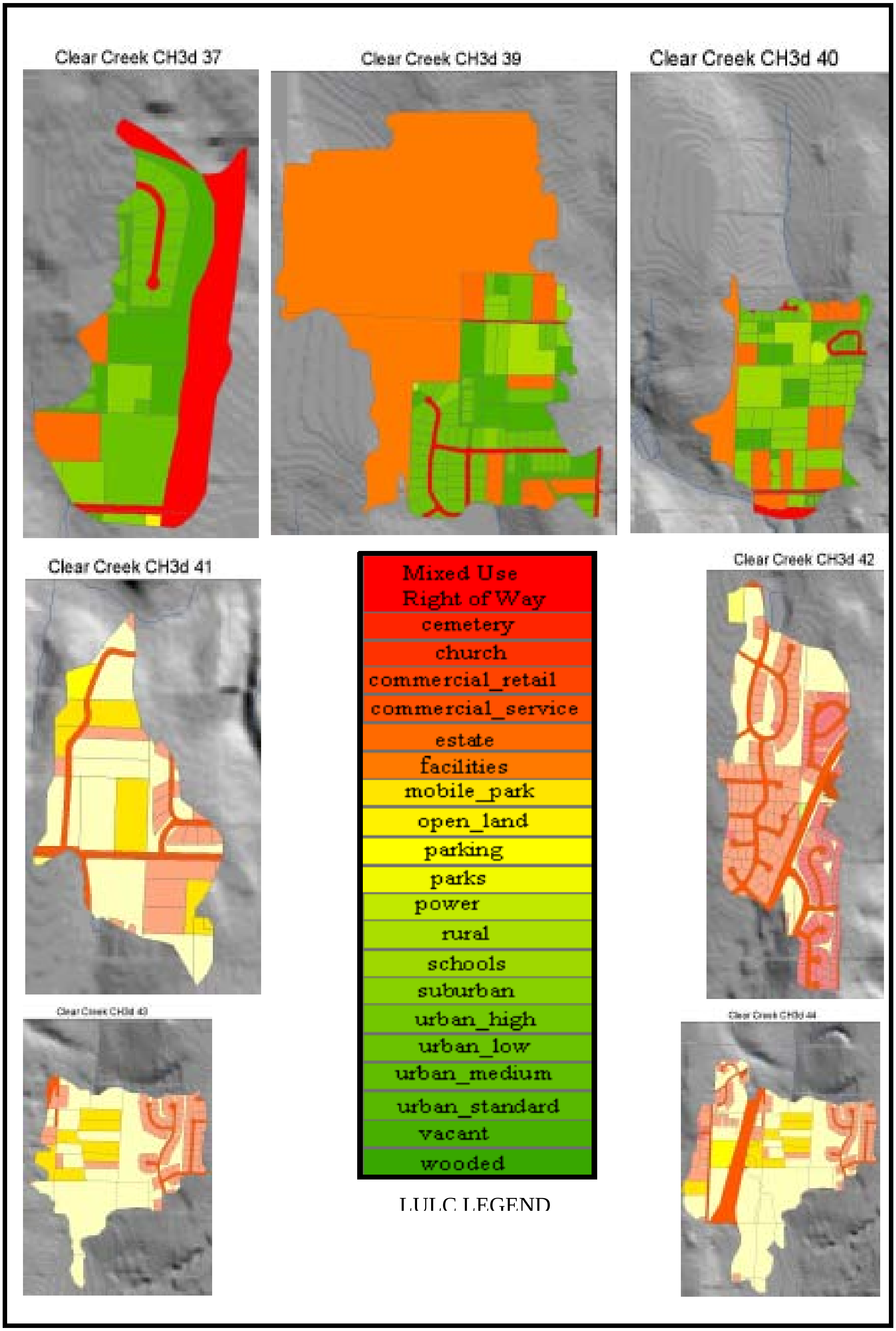


Figure 3 cont. Land Use Land Cover for Clear Creek Basin

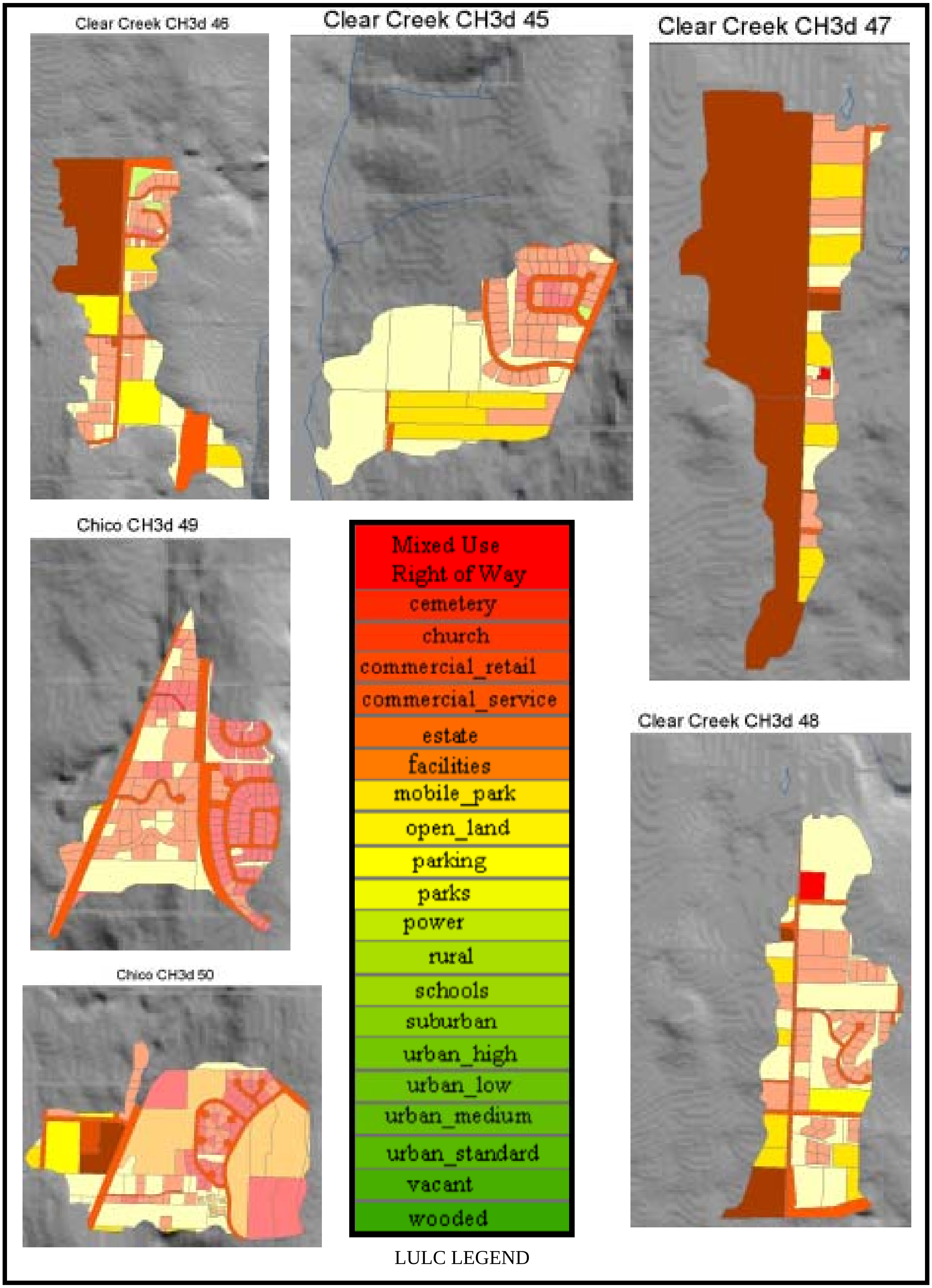


Figure 3 cont. Land Use Land Cover for Clear Creek Basin

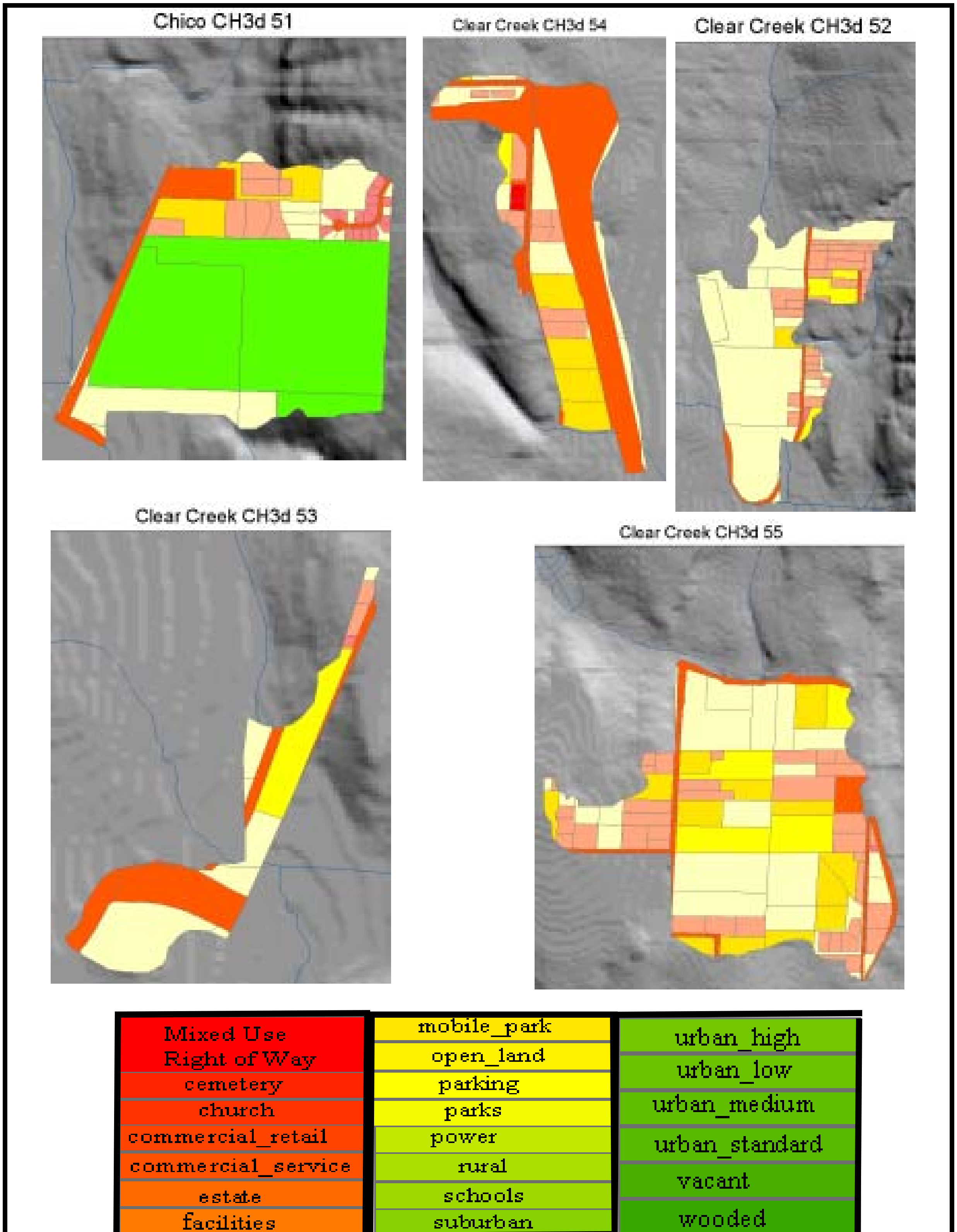


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Figure 3 cont. Land Use Land Cover for Clear Creek Basin

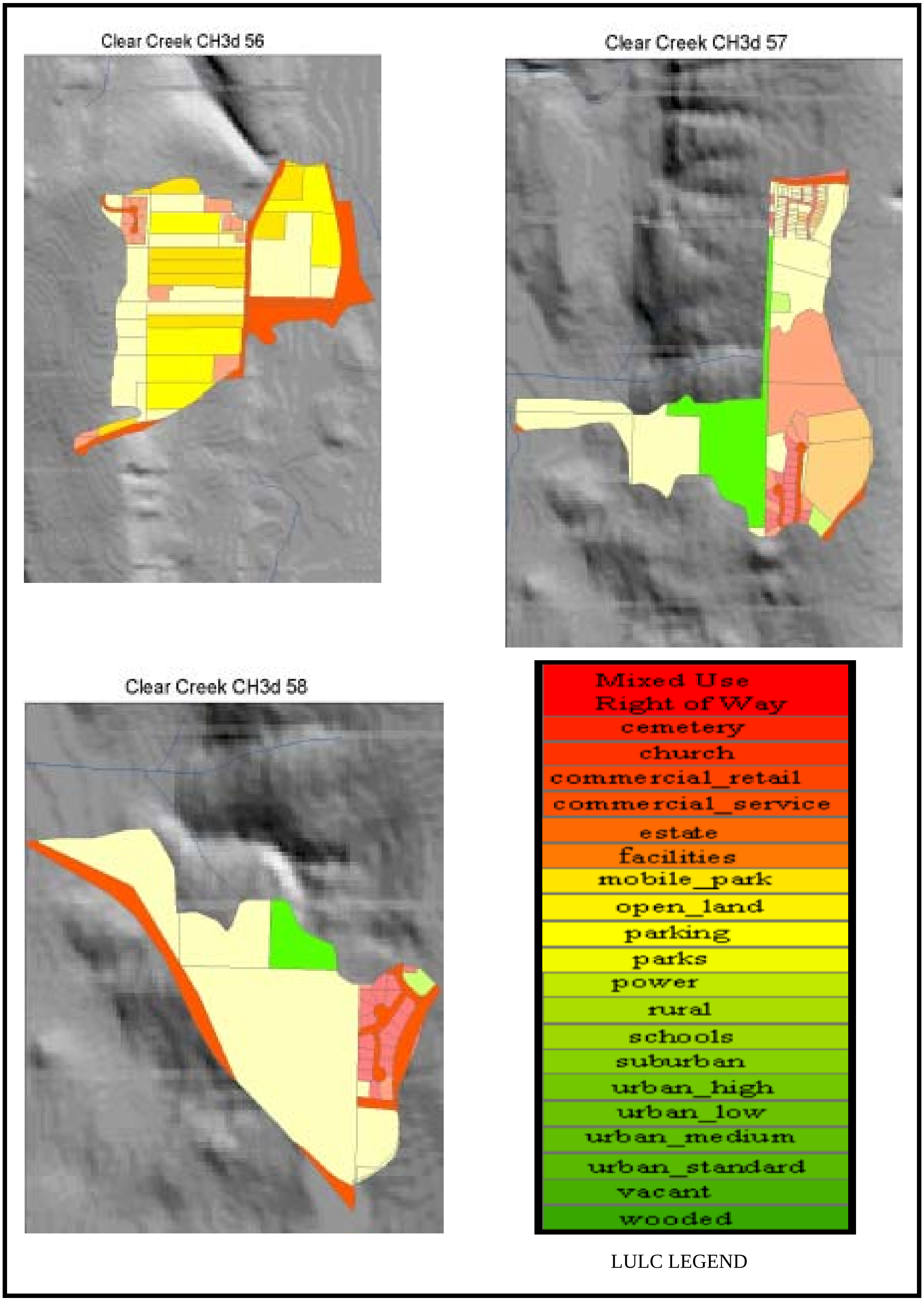


Figure 3 cont. Land Use Land Cover for Clear Creek Basin

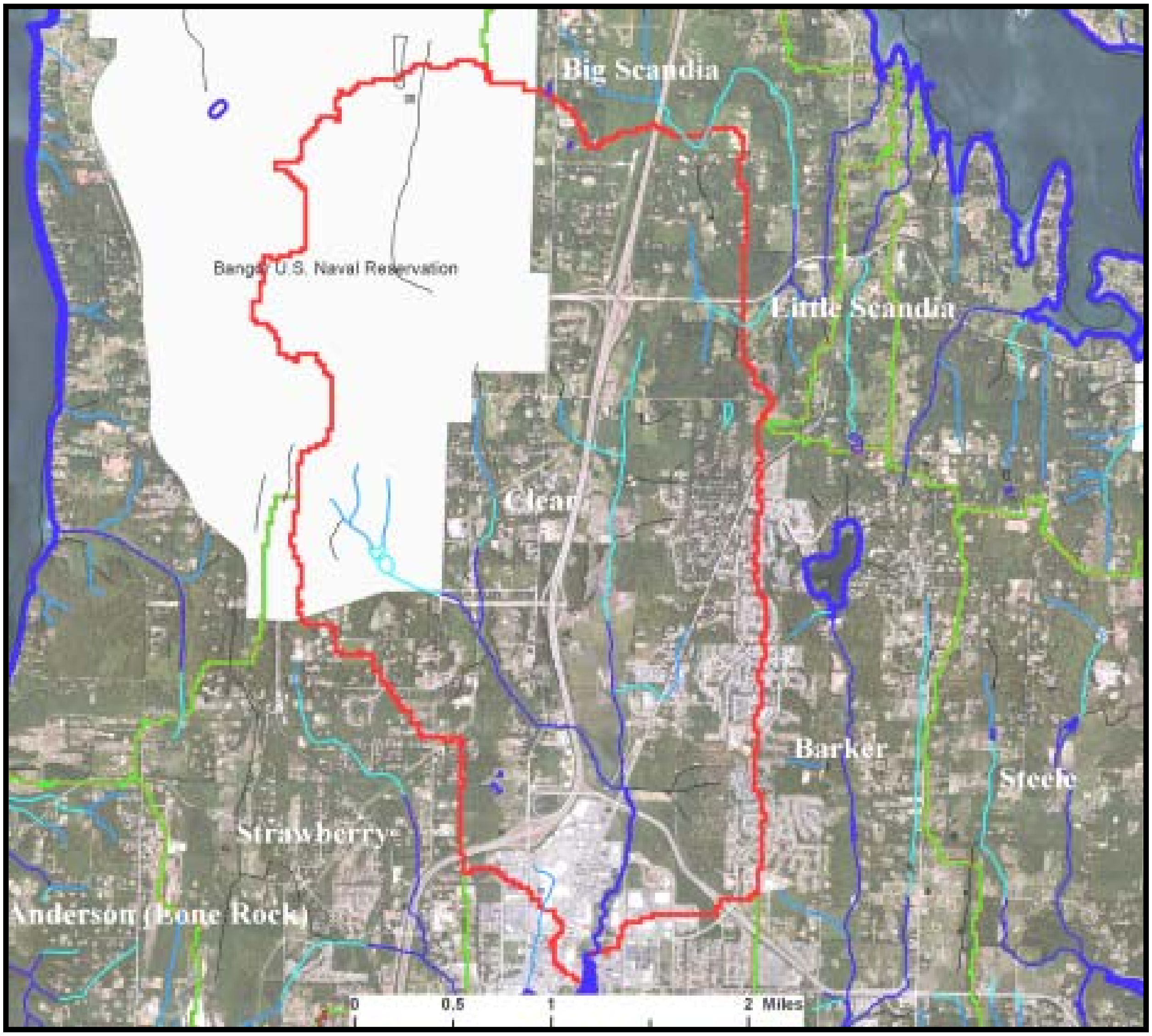


Figure 4 Aerial Photograph of Clear Creek Basin

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	Turb
FC-200203-018	CC	KPUD	12-Mar-02	APAH -MPN			79				
FC-200203-038	CC	KPUD	13-Mar-02	APAH -MPN			6.8				
02450653	CC	NSTREAMS	08-Nov-02	FCOL(MF)	7		660		123	10.5	20.1
02450654	CE	NSTREAMS	08-Nov-02	FCOL(MF)	7		1680		129	10.5	8.6
02460658	CC	NSTREAMS	13-Nov-02	FCOL(MF)	7.4		50		117	13.8	7
02460659	CE	NSTREAMS	13-Nov-02	FCOL(MF)	7.2		250		122	12.5	2.6
02460668	CE	NSTREAMS	14-Nov-02	FCOL(MF)	7.4		92		130	11.1	1.1
02460669	CE	NSTREAMS	14-Nov-02	FCOL(MF)			71				
02460672	CC	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		74		151	11.1	8
02470652	CE	NSTREAMS	19-Nov-02	FCOL(MF)	7.6		167		122	11.6	3.3
02470654	CC	NSTREAMS	19-Nov-02	FCOL(MF)	7.6		62		119	11.5	1.5
02470655	CC	NSTREAMS	19-Nov-02	FCOL(MF)			20				
02470670	CC	NSTREAMS	20-Nov-02	FCOL(MF)			14				
02470671	CE	NSTREAMS	20-Nov-02	FCOL(MF)			20				
02490652	CE	NSTREAMS	04-Dec-02	FCOL(MF)	7.4		29		132	9	2.7
02490654	CC	NSTREAMS	04-Dec-02	FCOL(MF)	7.5		15		126	9.5	4.6
02490655	CC	NSTREAMS	04-Dec-02	FCOL(MF)			10				
02500652	CE	NSTREAMS	10-Dec-02	FCOL(MF)	7.4		320		124	8.7	6.7
02500654	CC	NSTREAMS	10-Dec-02	FCOL(MF)	7.5		380		123	8.7	3.1
02500676	CE	SSWM-SW	11-Dec-02	FCOL(MF)	7.4	11.4	760	94.1	123	7.08	10.1
02500678	CC	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	11.5	510	95.1	124	7.27	8.4
02510453	CC	TEC-STORM	15-Dec-02	FCOL(MF)			112				
02510452	CE	TEC-STORM	15-Dec-02	FCOL(MF)			71				
02510440	CC	TEC-STORM	15-Dec-02	FCOL(MF)			37				
02510442	CC	TEC-STORM	16-Dec-02	FCOL(MF)			93				
02510444	CE	TEC-STORM	16-Dec-02	FCOL(MF)			400				
02510432	CC	TEC-STORM	16-Dec-02	FCOL(MF)			120				
02510433	CE	TEC-STORM	16-Dec-02	FCOL(MF)			440				
02510654	CE	NSTREAMS	16-Dec-02	FCOL(MF)	7.1		230		65	9.1	7.5
02510656	CC	NSTREAMS	16-Dec-02	FCOL(MF)	6.9		123		62	9.1	8.3
02510677	CC	NSTREAMS	19-Dec-02	FCOL(MF)	7.8		40		105	7.6	3.4
02510678	CE	NSTREAMS	19-Dec-02	FCOL(MF)	7.3		43		99	7.3	1
03020652	CE	NSTREAMS	07-Jan-03	FCOL(MF)	7.1		37		83	5.8	1.4
03020653	CE	NSTREAMS	07-Jan-03	FCOL(MF)			34				
03020656	CC	NSTREAMS	07-Jan-03	FCOL(MF)	7.4		38		85	6.3	11.6
03020434	CE	TEC-STORM	11-Jan-03	FCOL(MF)			20				
03020435	CC	TEC-STORM	11-Jan-03	FCOL(MF)			9				
03020441	CC	TEC-STORM	11-Jan-03	FCOL(MF)			910				
03020443	CE	TEC-STORM	11-Jan-03	FCOL(MF)			930				
03020448	CE	TEC-STORM	12-Jan-03	FCOL(MF)			440				
03030654	CE	NSTREAMS	13-Jan-03	FCOL(MF)	7		71		111	9.4	1.2
03030656	CC	NSTREAMS	13-Jan-03	FCOL(MF)	7.1		51		155	9.5	4.4

Table 2 Clear Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality sites CC and CE

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	Turb
03030675	CC	NSTREAMS	15-Jan-03	FCOL(MF)	7.3		15		155	8.8	1.9
03030676	CE	NSTREAMS	15-Jan-03	FCOL(MF)	7.1		16		89	7.1	0.2
03030680	CE	NSTREAMS	15-Jan-03	FCOL(MF)			29				
03040655	CC	NSTREAMS	21-Jan-03	FCOL(MF)	7.5		73		144	7.5	3.3
03040660	CC	NSTREAMS	21-Jan-03	FCOL(MF)			57				
03040656	CE	NSTREAMS	21-Jan-03	FCOL(MF)	7.4		190		115	7.2	2.5
03040671	CE	NSTREAMS	24-Jan-03	FCOL(MF)			69				
03040684	CE	NSTREAMS	24-Jan-03	FCOL(MF)			190				
03040670	CC	NSTREAMS	24-Jan-03	FCOL(MF)			140				
03110432	CC	TEC-STORM	08-Mar-03	FCOL(MF)	5.9		11		0.227	43.5	8.7
03110433	CE	TEC-STORM	08-Mar-03	FCOL(MF)	7.4		54		0.129	43	11
03110440	CC	TEC-STORM	09-Mar-03	FCOL(MF)	6.2		380		0.151	42.6	50.3
03110441	CC	TEC-STORM	09-Mar-03	FCOL(MF)	6.2		350		0.151	42.6	50.3
03110442	CE	TEC-STORM	09-Mar-03	FCOL(MF)	7		350		0.078	42.3	52.1
03110447	CC	TEC-STORM	09-Mar-03	FCOL(MF)	6.1		580		0.114	44	30.3
03110448	CE	TEC-STORM	09-Mar-03	FCOL(MF)	6.9		600		0.064	9	25.1
03110456	CC	TEC-STORM	12-Mar-03	FCOL(MF)	6.2		160		0.181	48.2	50
03110457	CE	TEC-STORM	12-Mar-03	FCOL(MF)	7.1		400		0.101	48.4	434
03110458	CE	TEC-STORM	12-Mar-03	FCOL(MF)	7.1		320		0.101	48.4	434
03110464	CC	TEC-STORM	12-Mar-03	FCOL(MF)	5.8		270		0.083	49.2	22.6
03110465	CE	TEC-STORM	12-Mar-03	FCOL(MF)	6.6		380		0.05	48.9	16.3
03110471	CC	TEC-STORM	13-Mar-03	FCOL(MF)	5.8		290		0.076	48.5	19
03110472	CE	TEC-STORM	13-Mar-03	FCOL(MF)	6.6		300		0.05	48.2	12.4
03110476	CC	TEC-STORM	13-Mar-03	FCOL(MF)	5.9		220		0.076	49.9	19.5
03110477	CE	TEC-STORM	13-Mar-03	FCOL(MF)	6.6		250		0.051	50.2	12.2
04171710	CC	NSTREAMS	19-Apr-04	FCOL(MF)	6.1		69		133	10.2	21
04171688	CC	SSWM-SW	20-Apr-04	FCOL(MF)	7.7		51		149	10.1	1.93
04171725	CC	NSTREAMS	20-Apr-04	FCOL(MF)	7.2		26		111	12.2	5.5
02450655	CW	NSTREAMS	08-Nov-02	FCOL(MF)	7.3		231		119	10.7	3.6
02460660	CW	NSTREAMS	13-Nov-02	FCOL(MF)	7.4		8		110	12.5	6.6
02460670	CW	NSTREAMS	14-Nov-02	FCOL(MF)	7.4		14		119	11.1	0.6
02460671	CW	NSTREAMS	14-Nov-02	FCOL(MF)			6				
02470653	CW	NSTREAMS	19-Nov-02	FCOL(MF)	7.8		17		116	11.5	1.9
02470672	CW	NSTREAMS	20-Nov-02	FCOL(MF)			9				
02490653	CW	NSTREAMS	04-Dec-02	FCOL(MF)	7.5		11		125	9.5	7
02500653	CW	NSTREAMS	10-Dec-02	FCOL(MF)	7.4		120		120	9.2	6.5
02500677	CW	SSWM-SW	11-Dec-02	FCOL(MF)	7.4	12.2	220	102	124	7.46	7.96
02510443	CW	TEC-STORM	16-Dec-02	FCOL(MF)			104				
02510434	CW	TEC-STORM	16-Dec-02	FCOL(MF)			124				
02510655	CW	NSTREAMS	16-Dec-02	FCOL(MF)	7.2		100		59	9.3	7.8
02510679	CW	NSTREAMS	19-Dec-02	FCOL(MF)	7.2		14		103	7.9	3.7
03020654	CW	NSTREAMS	07-Jan-03	FCOL(MF)	7.3		47		90	7	8.6

Table 2 cont. Clear Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality sites CC, CW and CE

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	Turb
03020655	CW	NSTREAMS	07-Jan-03	FCOL(MF)			43				
03020433	CW	TEC-STORM	11-Jan-03	FCOL(MF)			11				
03020442	CW	TEC-STORM	11-Jan-03	FCOL(MF)			243				
03020447	CW	TEC-STORM	12-Jan-03	FCOL(MF)			240				
03030655	CW	NSTREAMS	13-Jan-03	FCOL(MF)	7		22		83	9.1	0.6
03030677	CW	NSTREAMS	15-Jan-03	FCOL(MF)	7.1		9		91	7.5	0.4
03030681	CW	NSTREAMS	15-Jan-03	FCOL(MF)			10				
03040657	CW	NSTREAMS	21-Jan-03	FCOL(MF)	7.8		17		121	7.3	2.4
03040672	CW	NSTREAMS	24-Jan-03	FCOL(MF)			160				
03040685	CW	NSTREAMS	24-Jan-03	FCOL(MF)			160				
03110434	CW	TEC-STORM	08-Mar-03	FCOL(MF)	3.1		14		0.142	44.2	9.2
03110435	CW	TEC-STORM	08-Mar-03	FCOL(MF)	3.1		6		0.142	44.2	9.2
03110443	CW	TEC-STORM	09-Mar-03	FCOL(MF)	3.1		250		0.1	43.3	53.1
03110449	CW	TEC-STORM	09-Mar-03	FCOL(MF)	3.2		300		0.07	45.1	40
03110459	CW	TEC-STORM	12-Mar-03	FCOL(MF)	95		150		0.108	48.6	56
03110466	CW	TEC-STORM	12-Mar-03	FCOL(MF)	74		360		0.052	49.1	46
03110473	CW	TEC-STORM	13-Mar-03	FCOL(MF)	58		260		0.045	48.4	38.7
03110478	CW	TEC-STORM	13-Mar-03	FCOL(MF)	54		123		0.044	49.5	39.6
02450656	BSWP	NSTREAMS	08-Nov-02	FCOL(MF)	8		520		85	11	3.4
02450657	BSWP	NSTREAMS	08-Nov-02	FCOL(MF)			510				
02460650	BSWP	NSTREAMS	13-Nov-02	FCOL(MF)	6		38		151	10.9	3.3
02460666	BSWP	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		3		124	10.8	3.2
02470651	BSWP	NSTREAMS	19-Nov-02	FCOL(MF)	7.9		69		103	11.2	1.3
02470673	BSWP	NSTREAMS	20-Nov-02	FCOL(MF)			17				
02490651	BSWP	NSTREAMS	04-Dec-02	FCOL(MF)	7.3		69		156	9	1
02500651	BSWP	NSTREAMS	10-Dec-02	FCOL(MF)	7.2		120		168	8.7	1.2
02510651	BSWP	NSTREAMS	16-Dec-02	FCOL(MF)	7.5		120		43	9.1	7.1
02510653	BSWP	NSTREAMS	16-Dec-02	FCOL(MF)			73				
02510681	BSWP	NSTREAMS	19-Dec-02	FCOL(MF)	7.5		9		96	7.5	1.9
03020650	BSWP	NSTREAMS	07-Jan-03	FCOL(MF)	7		11		64	6	9.1
03030651	BSWP	NSTREAMS	13-Jan-03	FCOL(MF)	7.1		177		78	9.3	1.1
03030653	BSWP	NSTREAMS	13-Jan-03	FCOL(MF)			169				
03030679	BSWP	NSTREAMS	15-Jan-03	FCOL(MF)	6.9		20		74	6.1	0.1
03030683	BSWP	NSTREAMS	15-Jan-03	FCOL(MF)			26				
03040659	BSWP	NSTREAMS	21-Jan-03	FCOL(MF)	7		11		120	7.1	4.5
03040674	BSWP	NSTREAMS	24-Jan-03	FCOL(MF)			680				
02500675	BSWP	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	12	260	98.3	111	6.78	3.35
02450658	BTL	NSTREAMS	08-Nov-02	FCOL(MF)	8		51		146	11	1.8
02450659	BTL	NSTREAMS	08-Nov-02	FCOL(MF)			74				

Table 2 cont. Clear Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality sites CW, BSWP and BTL

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	Turb
02460651	BTL	NSTREAMS	13-Nov-02	FCOL(MF)	7		9		146	11.1	4
02460667	BTL	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		10		116	11.7	1.1
02470650	BTL	NSTREAMS	19-Nov-02	FCOL(MF)	8.5		17		112	11.7	1.5
02470674	BTL	NSTREAMS	20-Nov-02	FCOL(MF)			39				
02490650	BTL	NSTREAMS	04-Dec-02	FCOL(MF)	6.5		19		141	10.7	1.1
02500650	BTL	NSTREAMS	10-Dec-02	FCOL(MF)	6.8		53		148	10.6	1.8
02510650	BTL	NSTREAMS	16-Dec-02	FCOL(MF)	7.8		172		71	9.1	4.4
02510652	BTL	NSTREAMS	16-Dec-02	FCOL(MF)			180				
02510680	BTL	NSTREAMS	19-Dec-02	FCOL(MF)	7.4		10		100	8.9	6.6
03020651	BTL	NSTREAMS	07-Jan-03	FCOL(MF)	6.3		66		159	8	1.5
03030650	BTL	NSTREAMS	13-Jan-03	FCOL(MF)	6.9		15		125	9.1	8.3
03030652	BTL	NSTREAMS	13-Jan-03	FCOL(MF)			11				
03030678	BTL	NSTREAMS	15-Jan-03	FCOL(MF)	7.8		10		101	8	0.1
03030682	BTL	NSTREAMS	15-Jan-03	FCOL(MF)			9				
03040658	BTL	NSTREAMS	21-Jan-03	FCOL(MF)	7.8		160		178	7.7	3.1
03040661	BTL	NSTREAMS	21-Jan-03	FCOL(MF)			69				
03040673	BTL	NSTREAMS	24-Jan-03	FCOL(MF)			88				
02500673	BTL	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	12.9	460	108	122	7.48	3.68
02500674	BTL	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	11.7	420	97.3	122	7.42	3.63

Table 2 cont. Clear Creek Fecal Coliform and Ancillary Data for ENVVEST Water Quality sites CW, BSWP and BTL

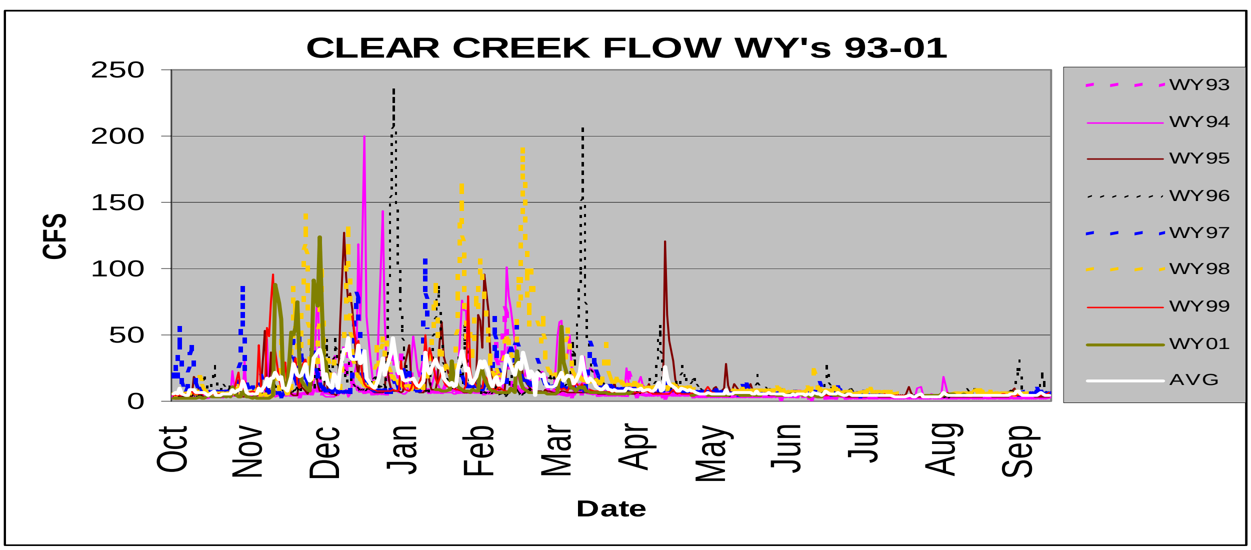
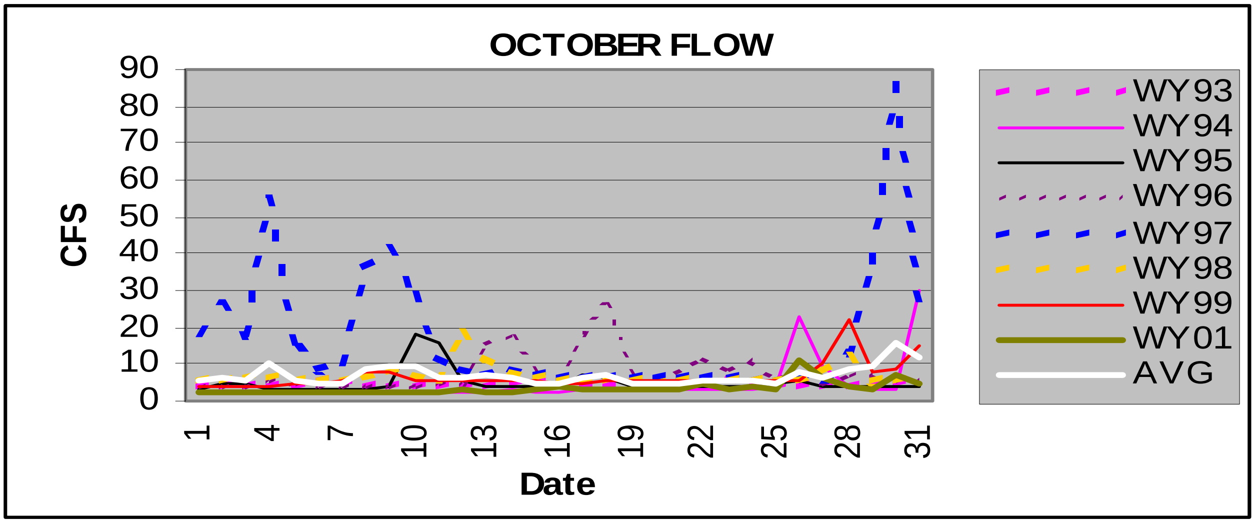
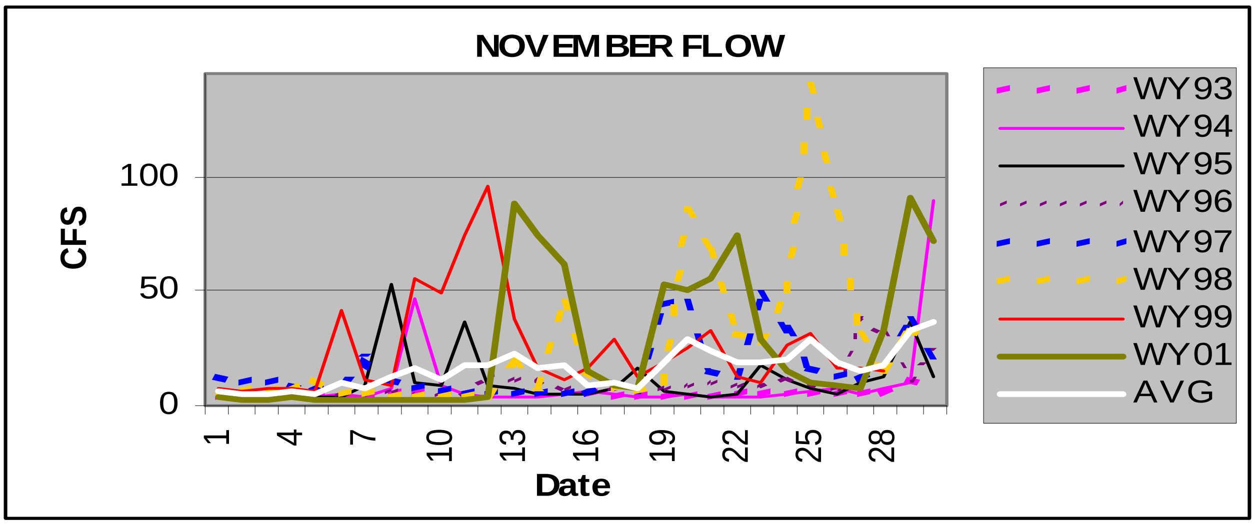


Figure 5 Flow Data for Clear Creek Basin





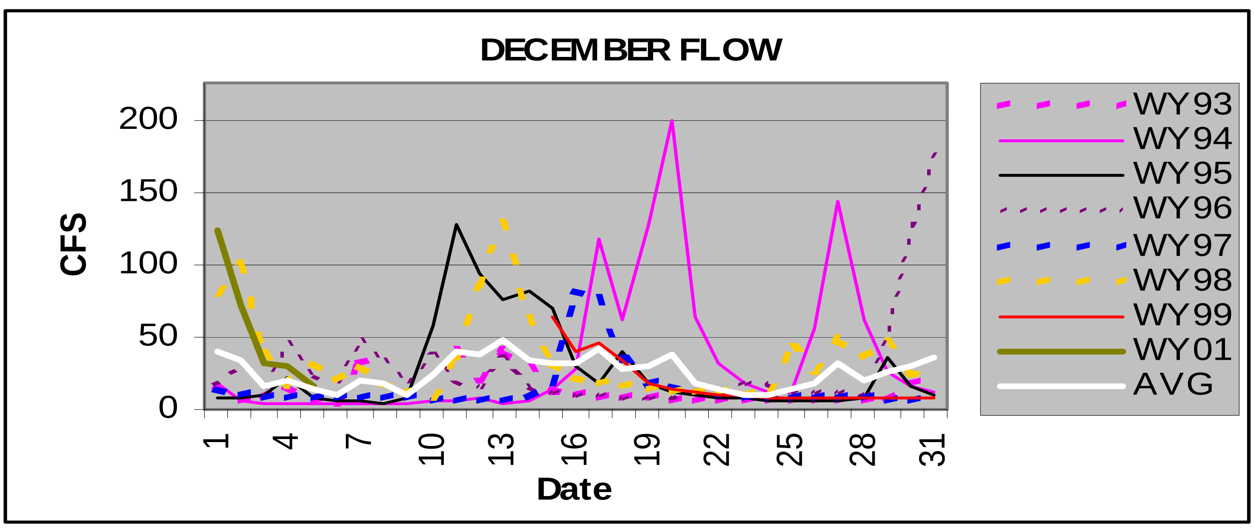
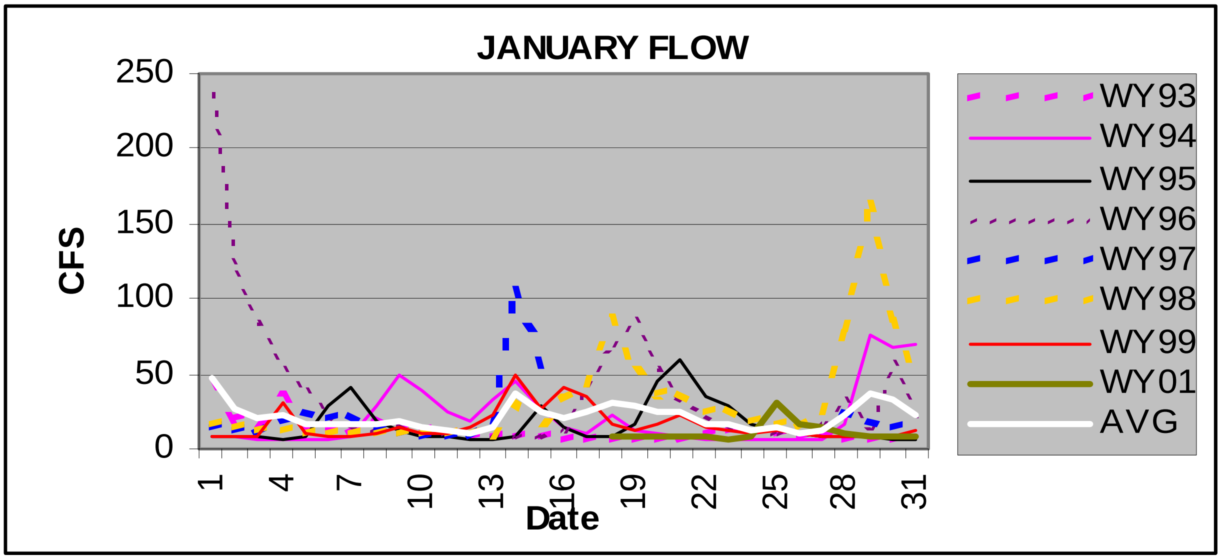
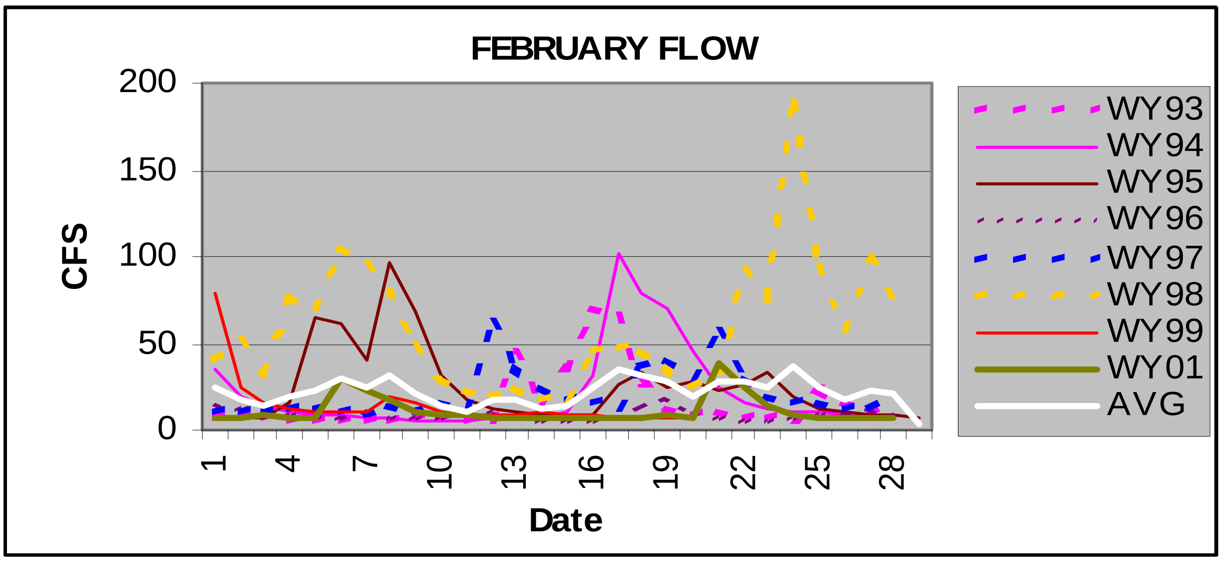


Figure 6 Clear Creek Flow in Monthly Increments


JANUARY FLOW
CFS
250
200
150
100
50
0
1
4
7
10
13
16
19
22
25
28
31
Date
WY93
WY94
WY95
WY96
WY97
WY98
WY99
WY01
AVG


FEBRUARY FLOW
CFS
200
150
100
50
0
1
4
7
10
13
16
19
22
25
28
Date
WY93
WY94
WY95
WY96
WY97
WY98
WY99
WY01
AVG

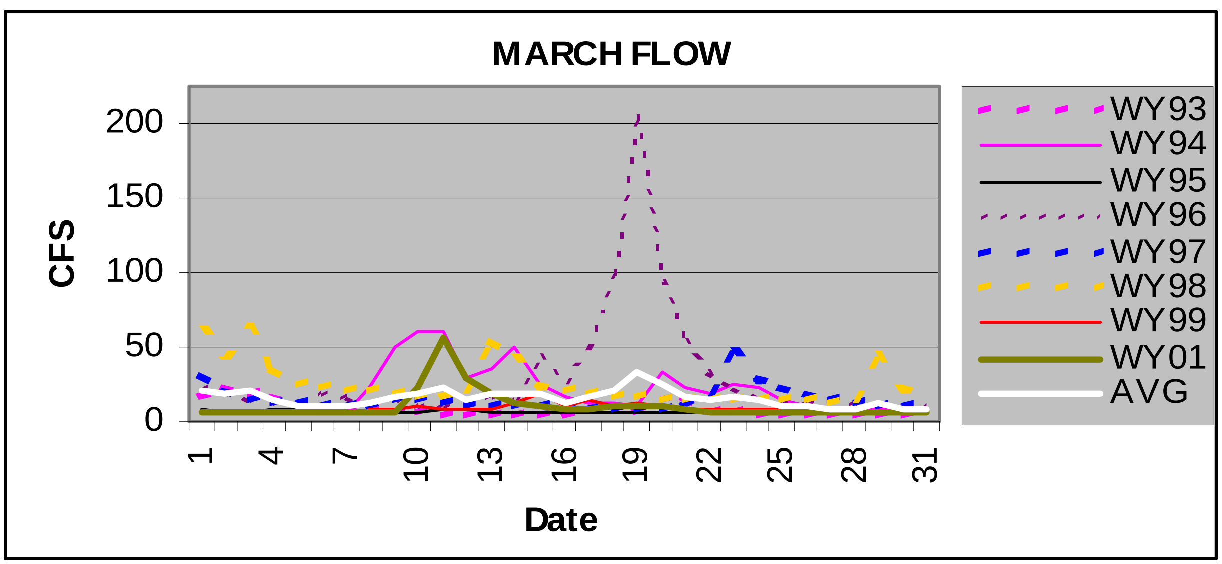
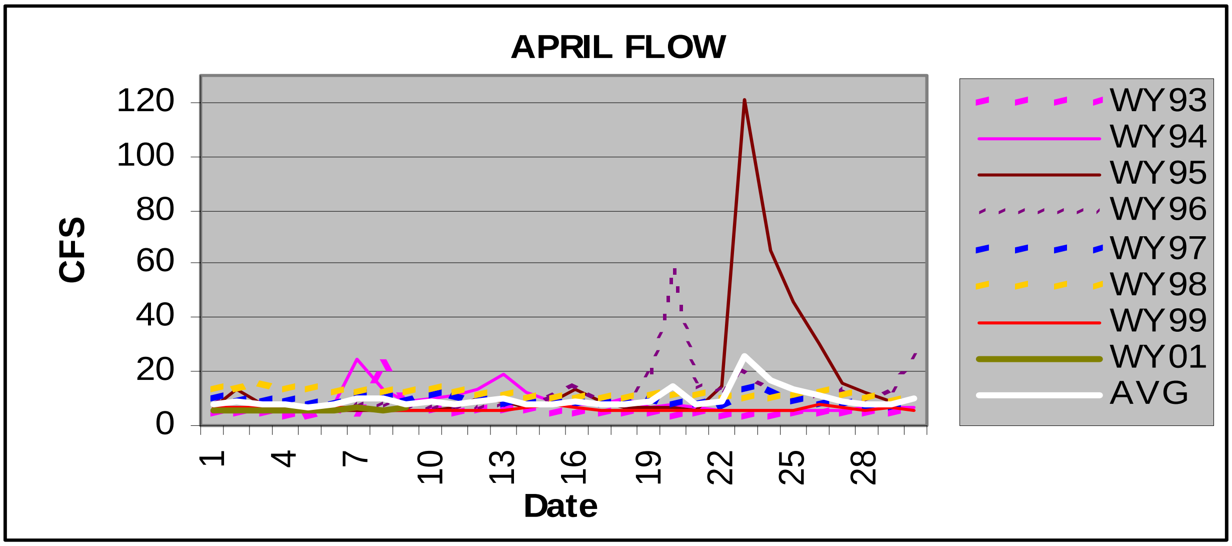
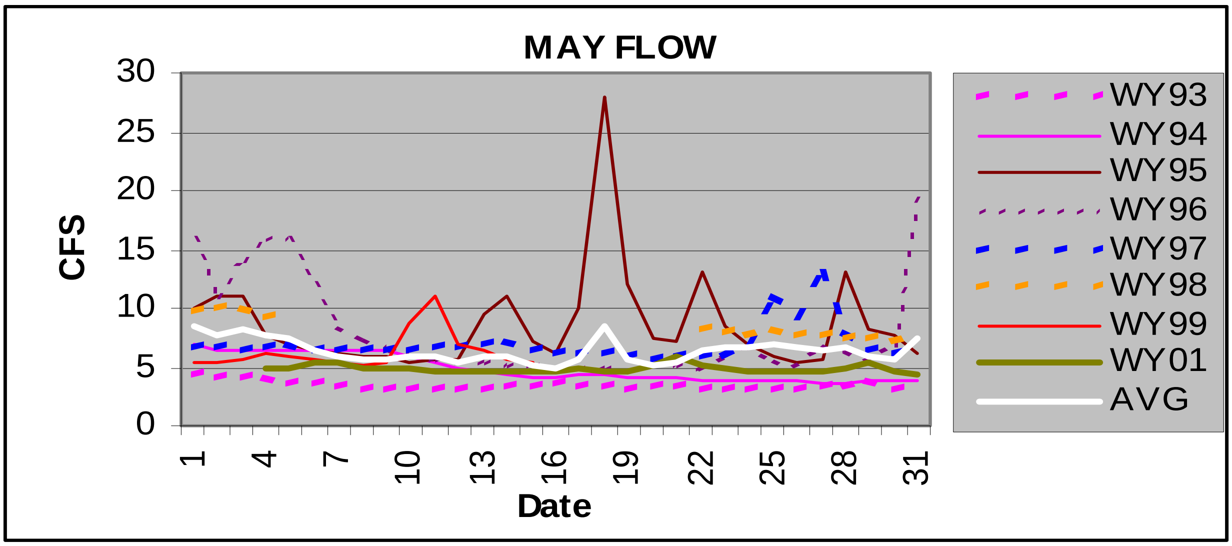

MARCH FLOW
CFS
200
150
100
50
0
1
4
7
10
13
16
19
22
25
28
31
Date
WY93
WY94
WY95
WY96
WY97
WY98
WY99
WY01
AVG

Figure 6 cont. Clear Creek Flow in Monthly Increments





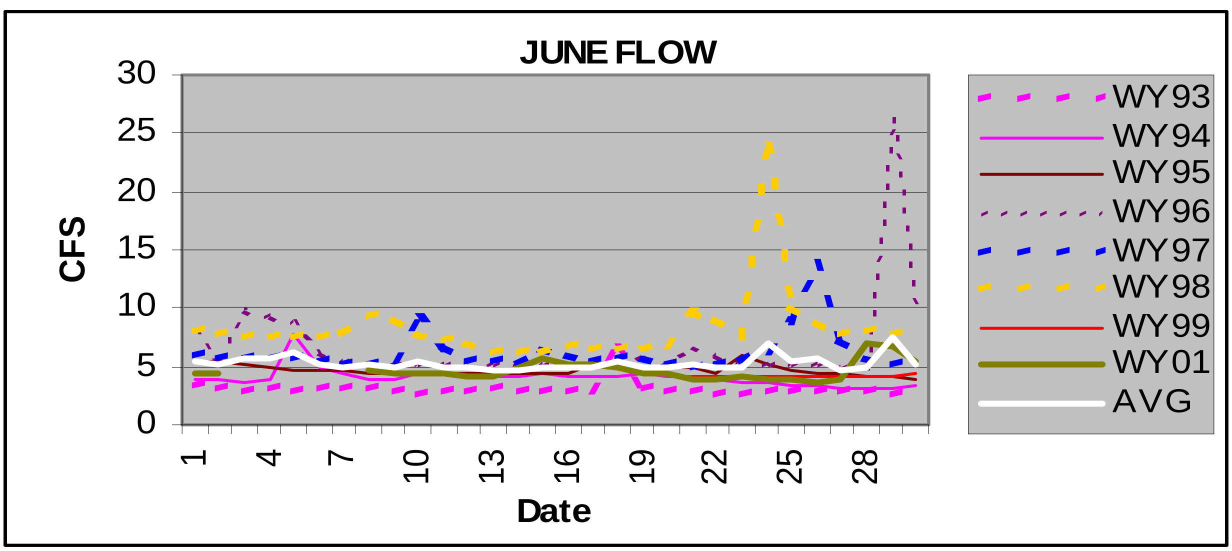
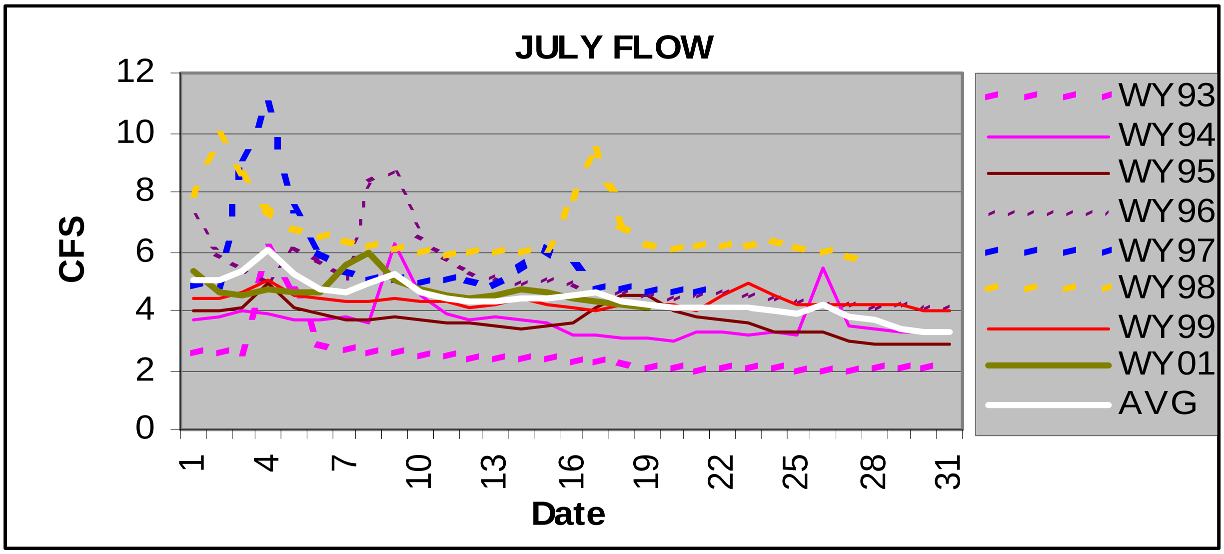


Fig. 6 cont. Clear Creek Flow in Monthly Increments


JULY FLOW
CFS
12
10
8
6
4
2
0
1
4
7
10
13
16
19
22
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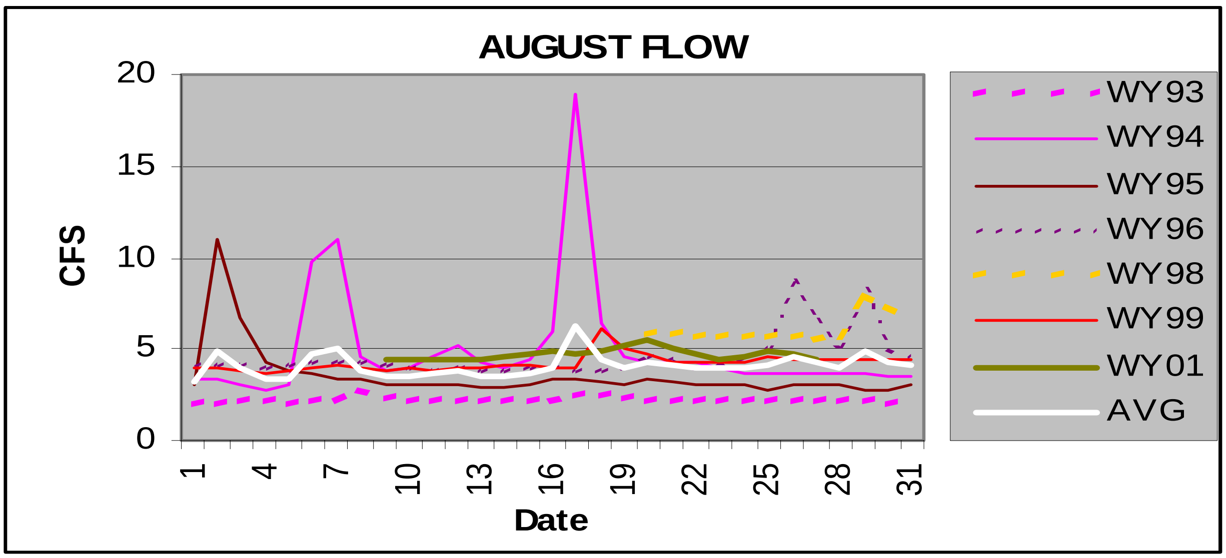
WY99
WY01
AVG


AUGUST FLOW
CFS
20
15
10
5
0
1
4
7
10
13
16
19
22
25
28
31
Date
WY93
WY94
WY95
WY96
WY98
WY99
WY01
AVG

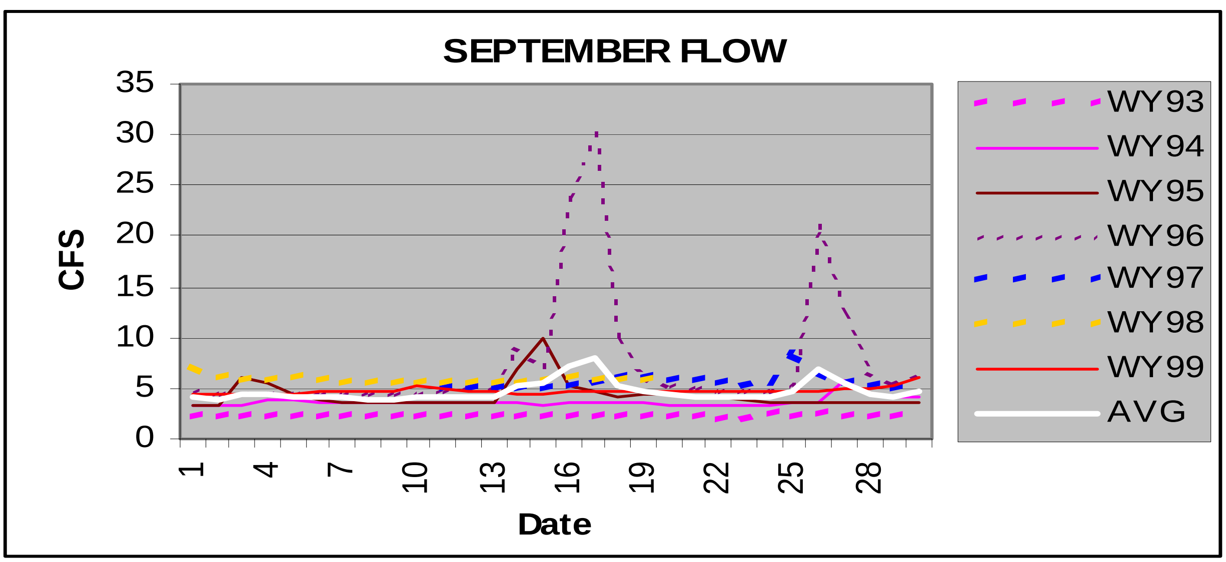

SEPTEMBER FLOW
CFS
35
30
25
20
15
10
5
0
1
4
7
10
13
16
19
22
25
28
Date
WY93
WY94
WY95
WY96
WY97
WY98
WY99
AVG

Figure 6 cont. Clear Creek Flow in Monthly Increments

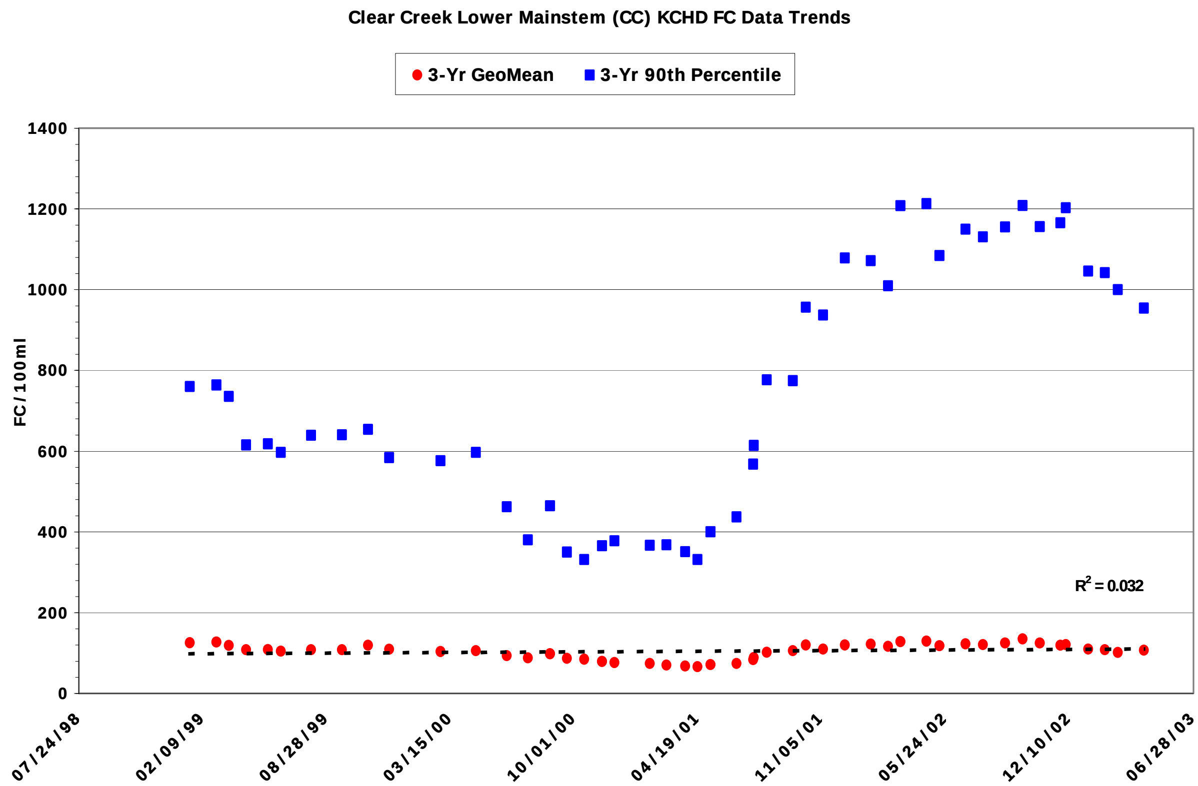


Figure 7 Clear Creek Lower Mainstem (CC) KCHD FC Data Trends

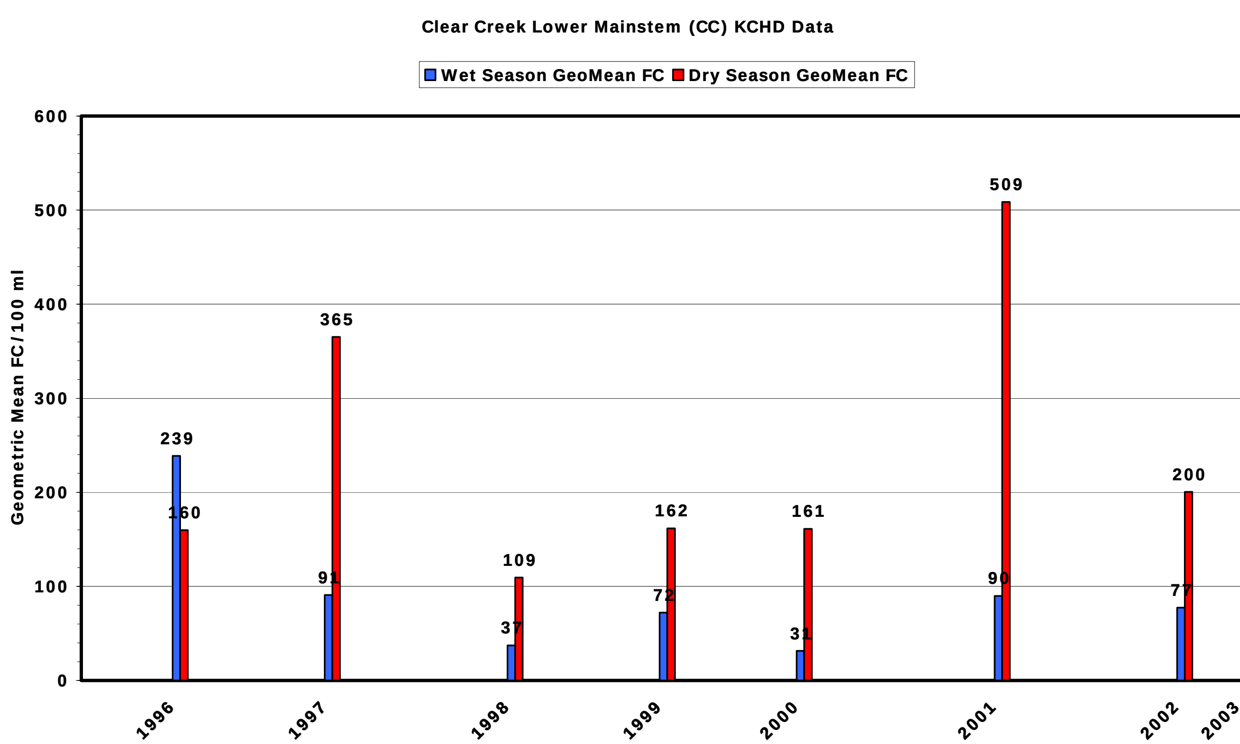


Figure 7 cont. Clear Creek Lower Mainstem (CC) KCHD Data

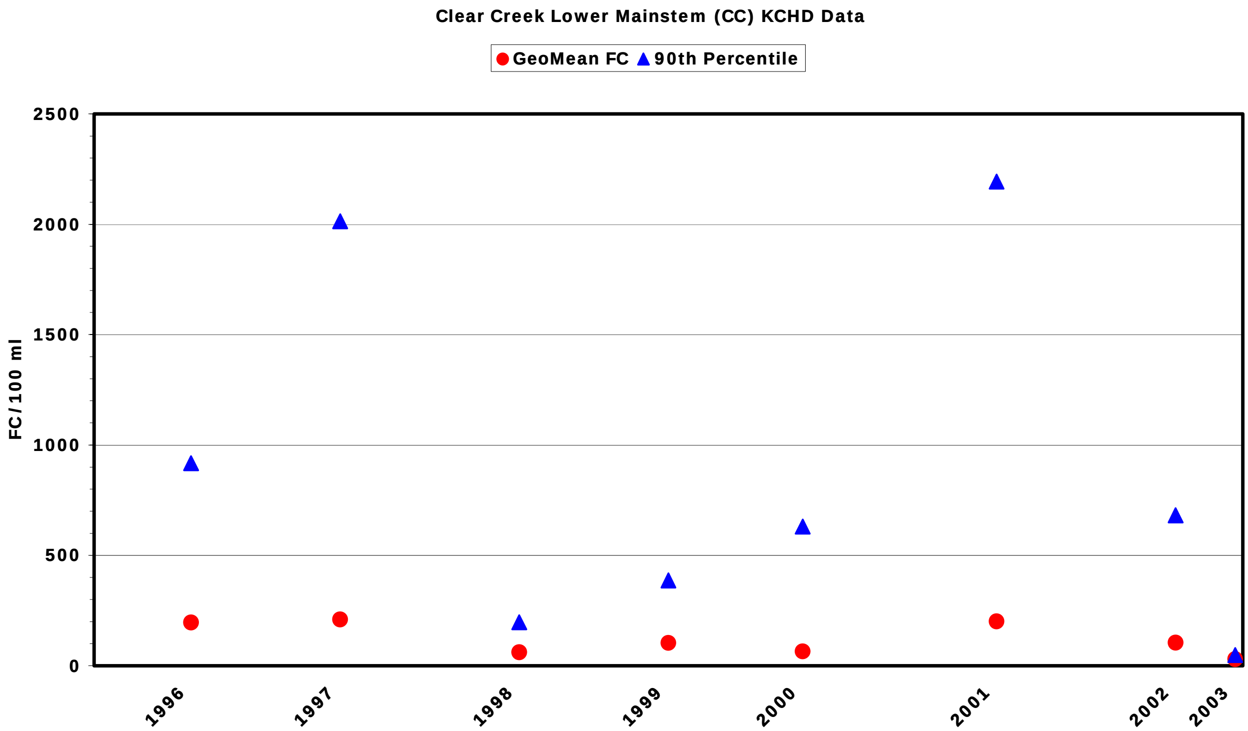


Figure 7 Clear Creek Lower Mainstem (CC) KCHD FC Data Trends

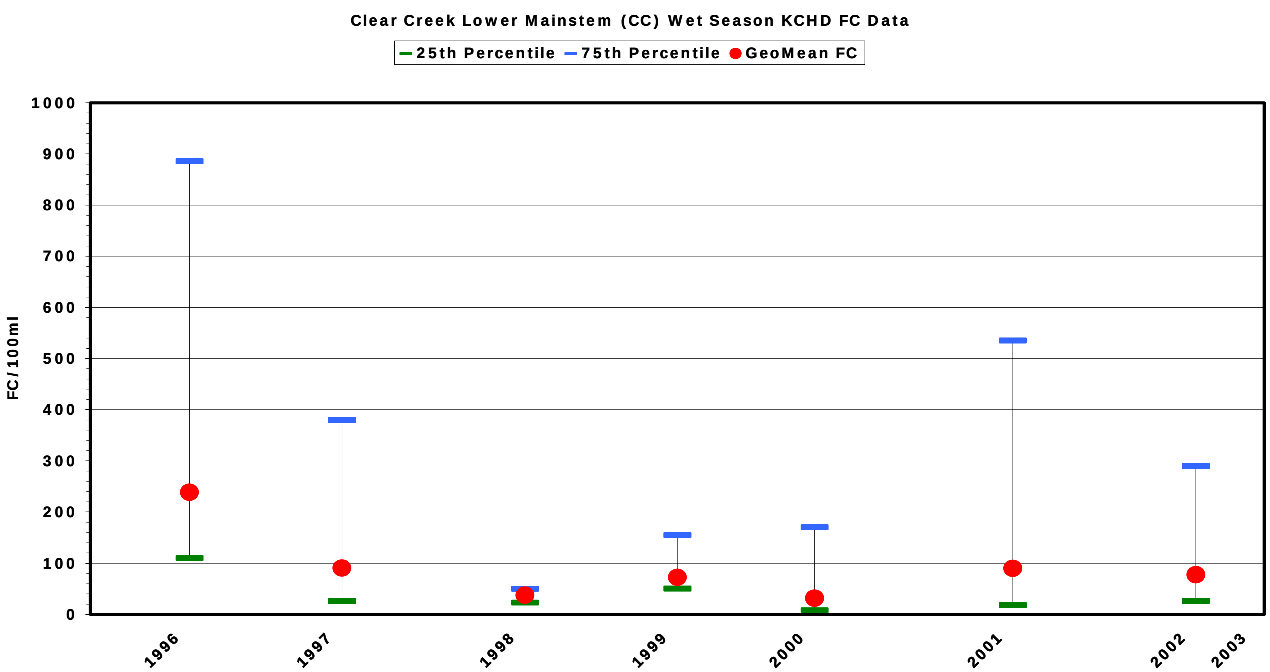


Figure 7 Clear Creek Lower Mainstem (CC) KCHD FC Data Trends

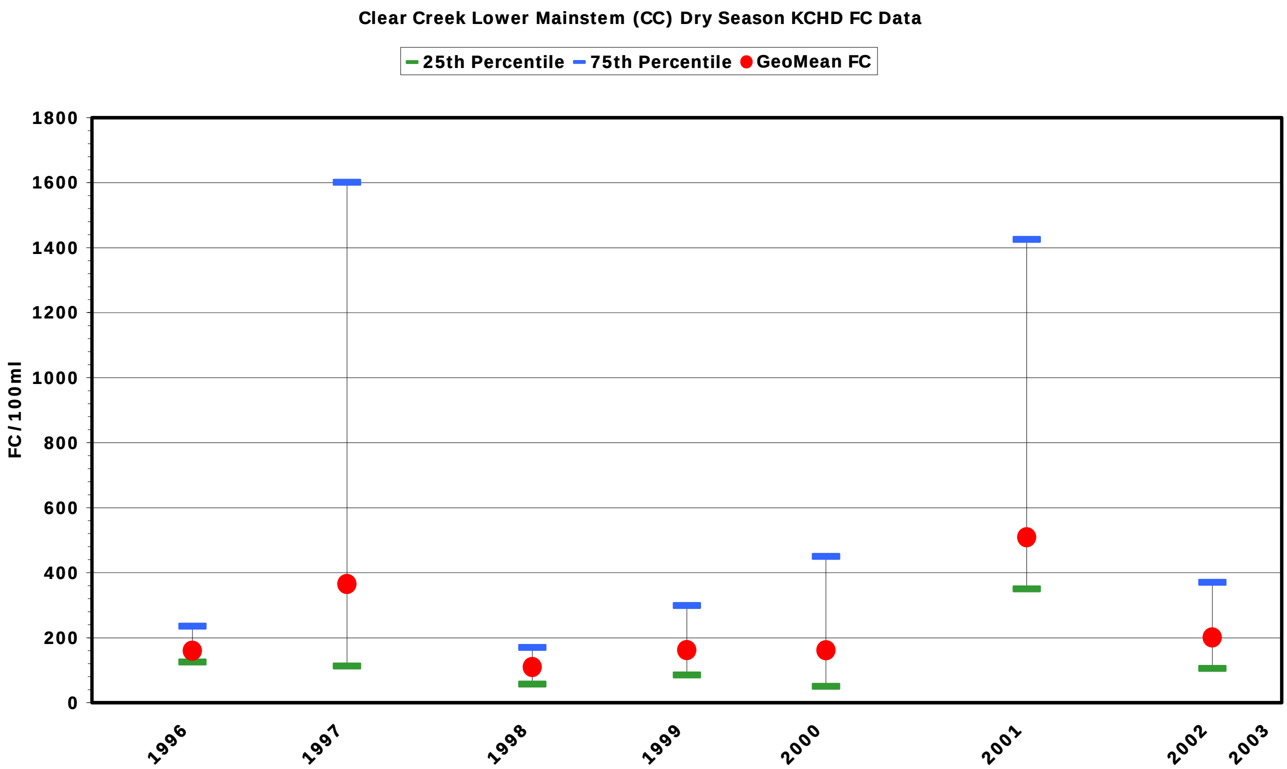


Figure 7 cont. Clear Creek Lower Mainstem (CC) Wet Season KCHD FC Data

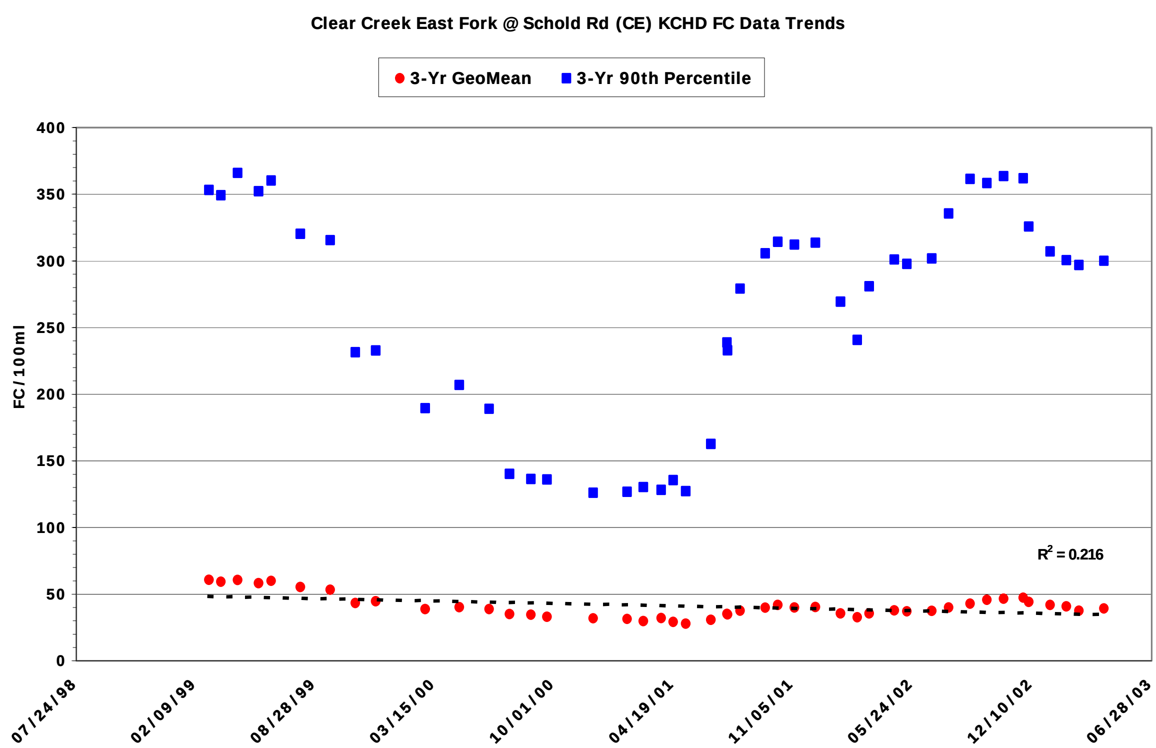


Figure 8 Clear Creek East Fork @ Schold Rd (CE) KCHD FC Data Trends

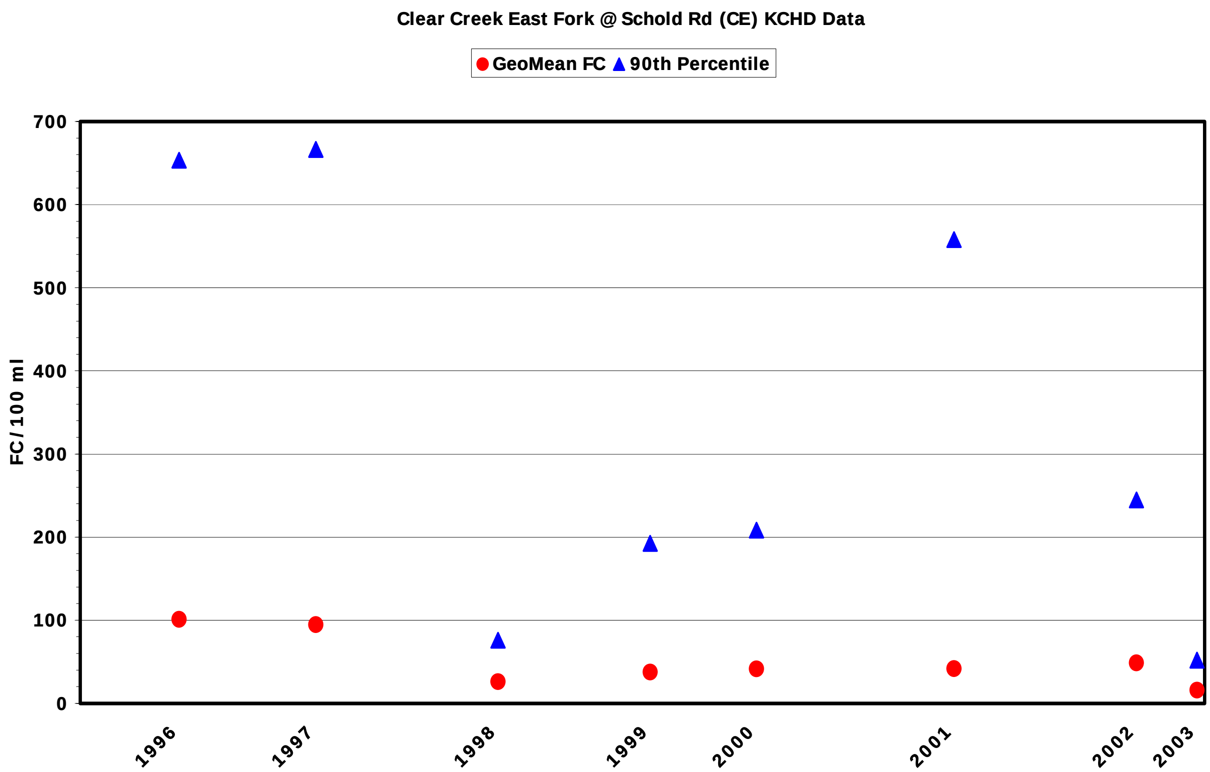


Figure 8 cont. Clear Creek East Fork @ Schold Rd (CE) KCHD Data

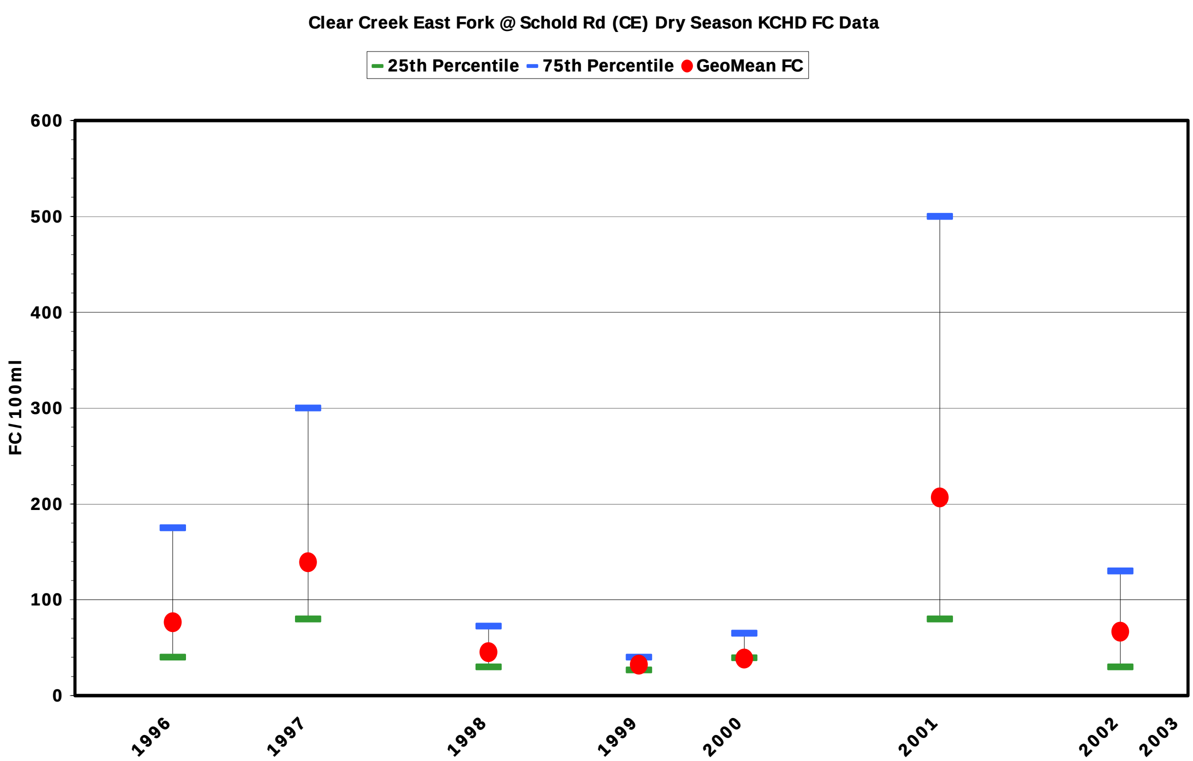


Figure 8 cont. Clear Creek East Fork @ Schold Rd (CE) KCHD Data

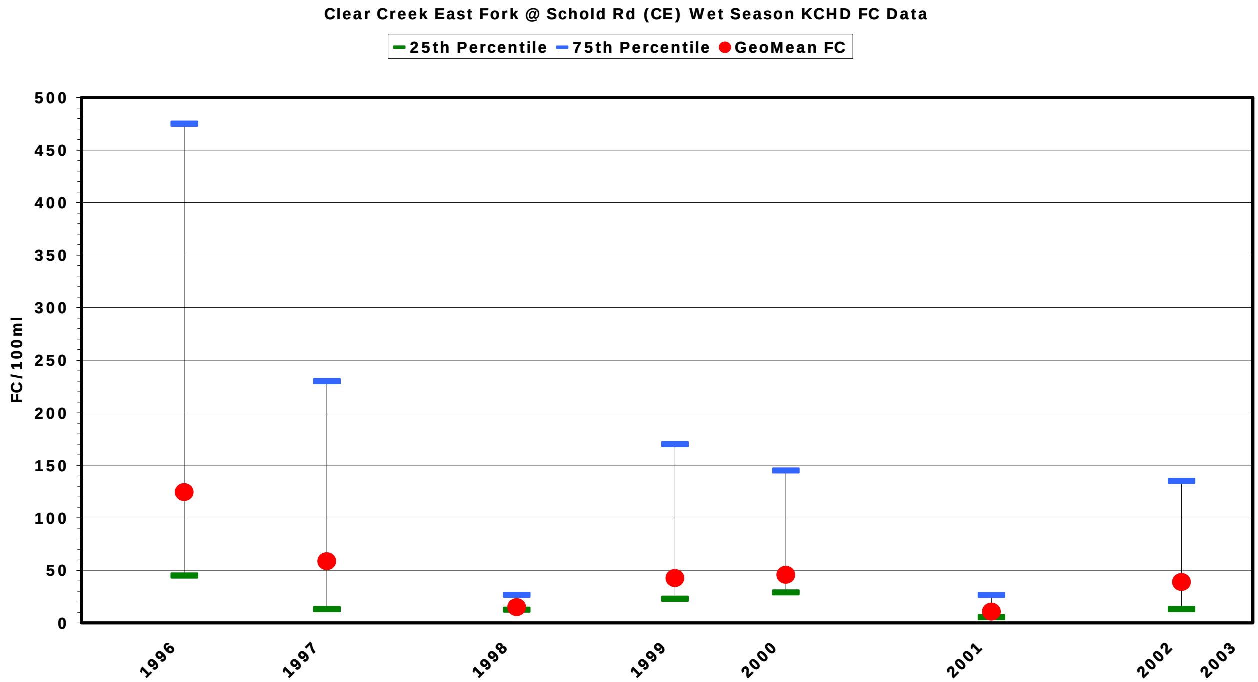


Figure 8 cont. Clear Creek East Fork @ Schold Rd (CE) Wet Season KCHD FC Data

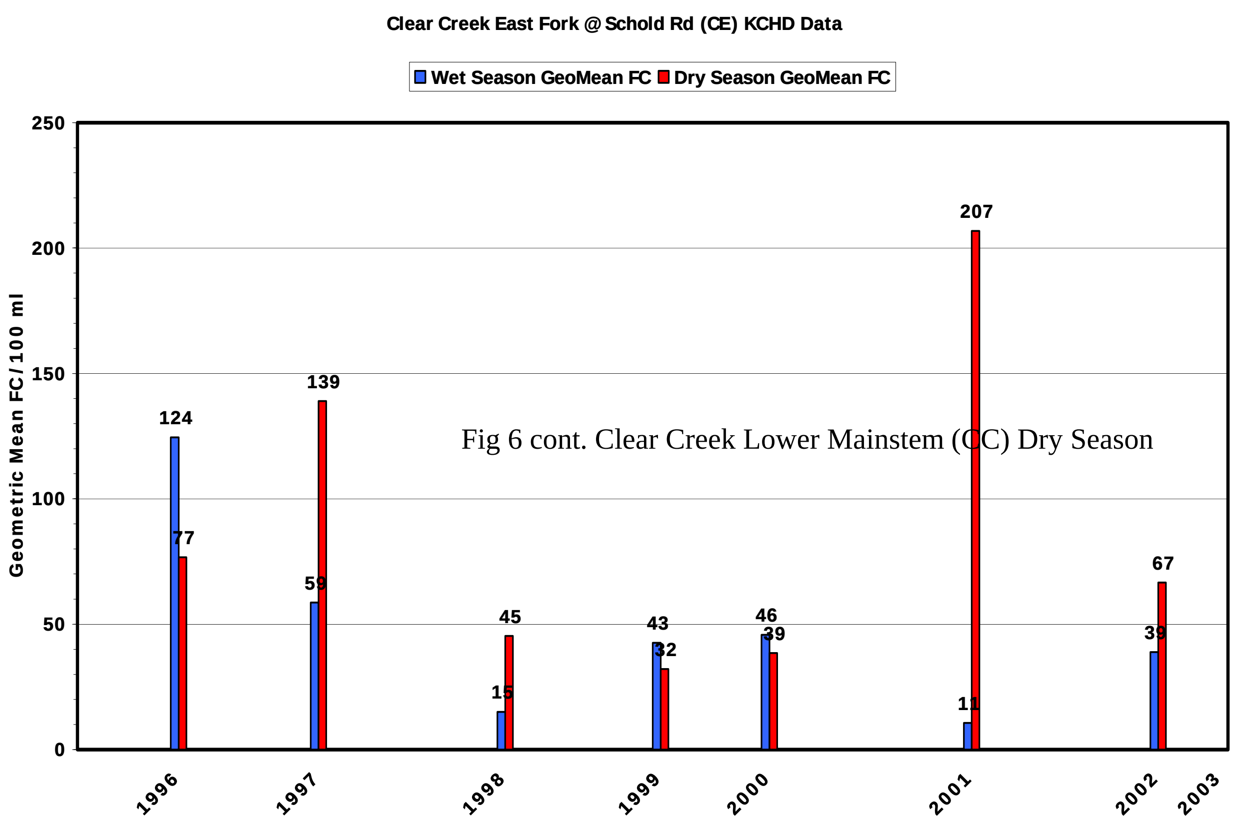


Figure 8 cont. Clear Creek East Fork @ Schold Rd (CE) KCHD Data

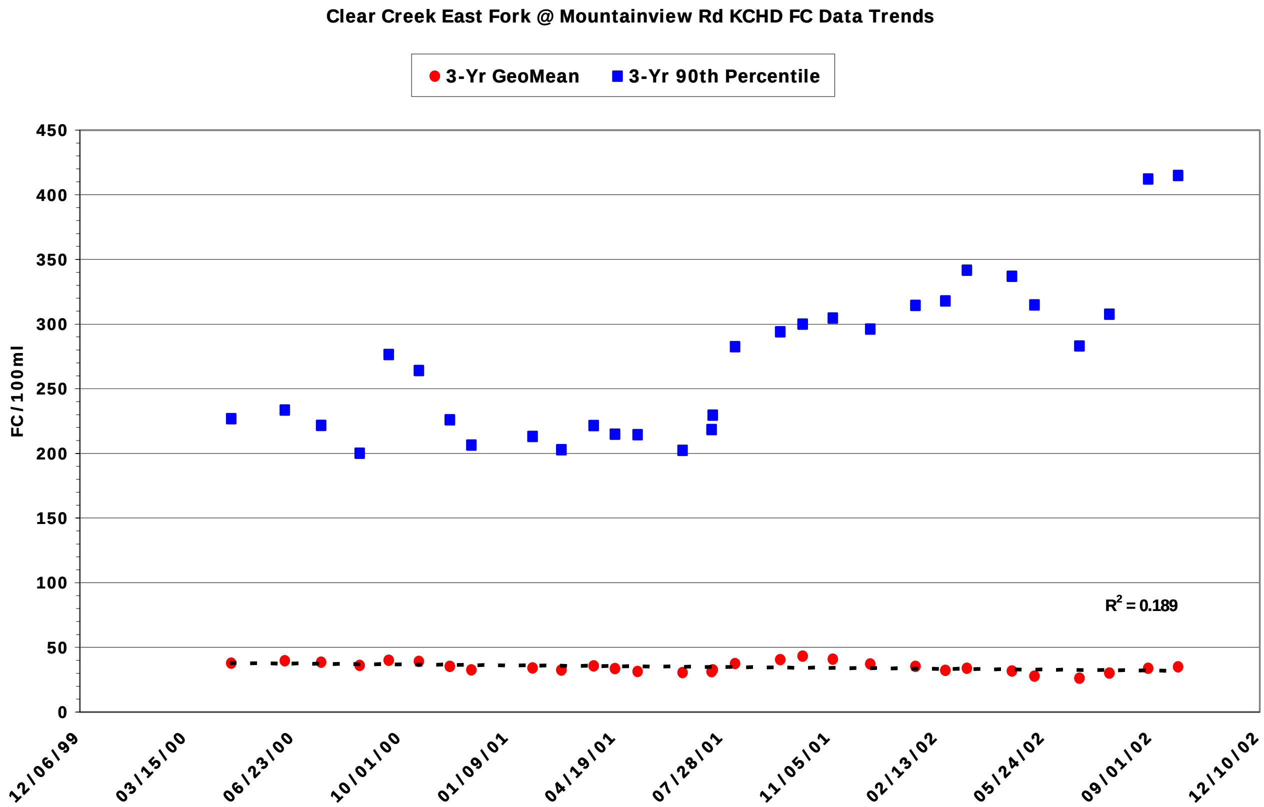


Figure 9 Clear Creek East Fork @ Schold Rd (CE) KCHD Data

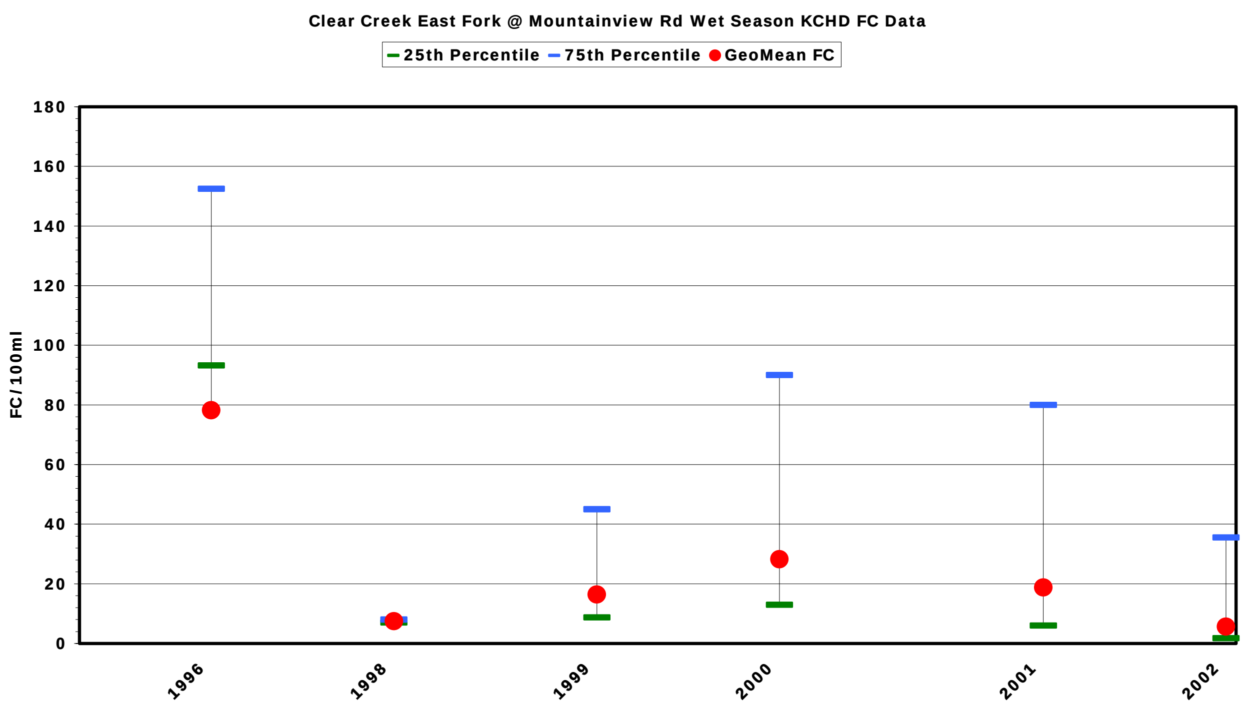


Figure 9 cont. Clear Creek East Fork @ Schold Rd (CE) KCHD Data

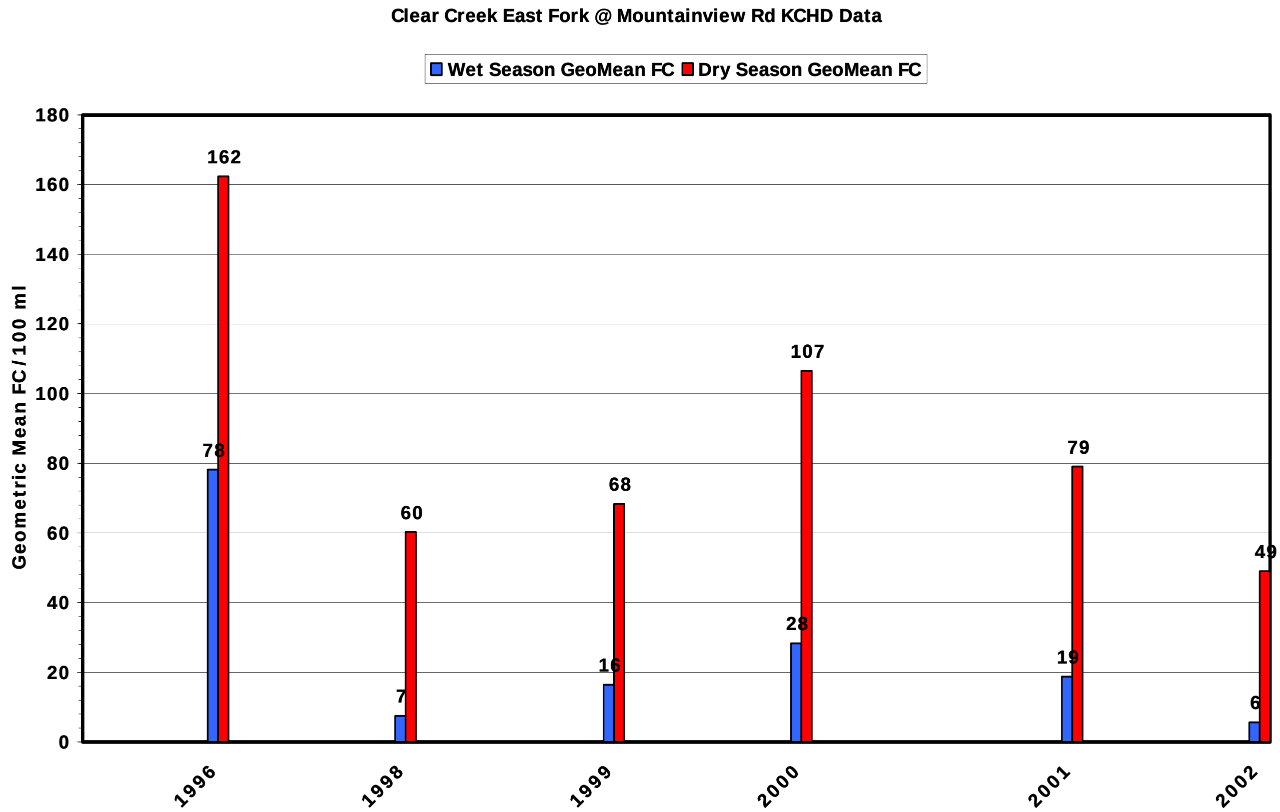


Figure 9 cont. Clear Creek East Fork @ Mountainview Rd KCHD Data

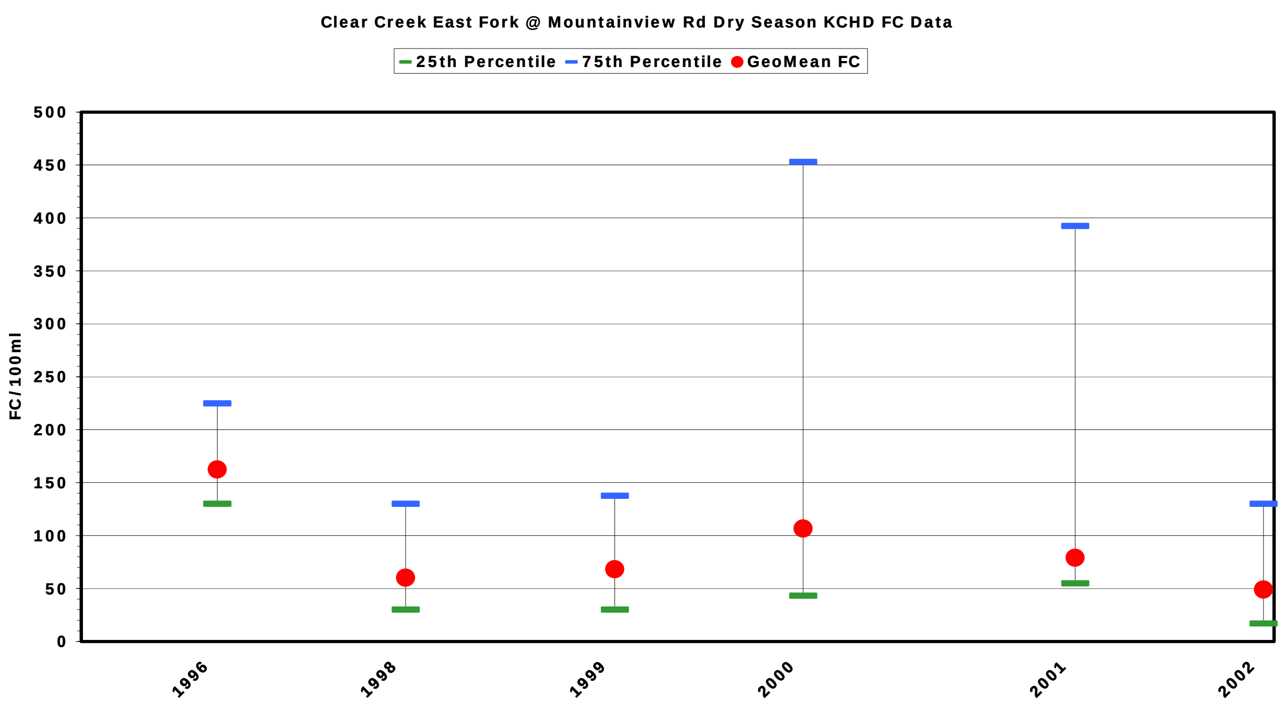


Figure 9 cont. Clear Creek East Fork @ Mountainview Rd Wet Season KCHD FC Data

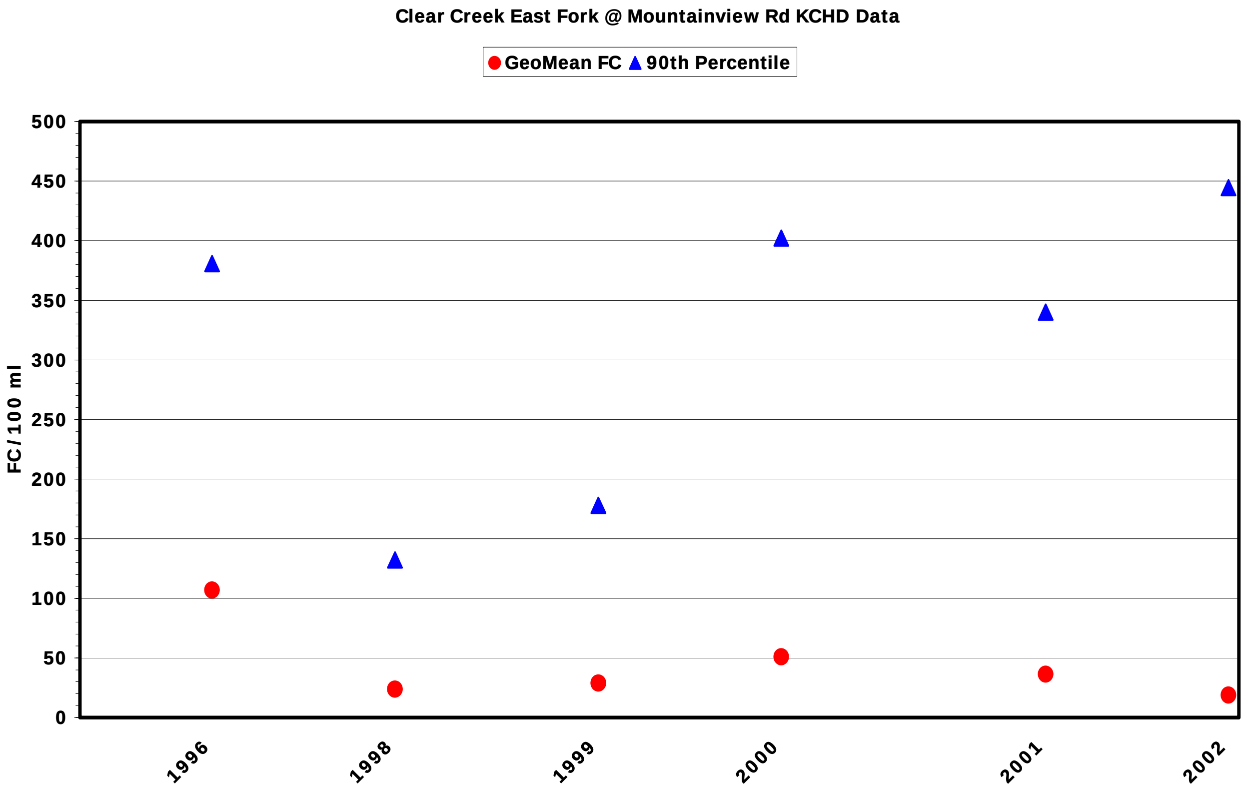


Figure 9 cont. Clear Creek East Fork @ Mountainview Rd Dry Season KCHD FC

Gorst Creek

Gorst Creek is a class "A" stream within the Sinclair Inlet watershed boundary and lies at the west end of the bay where it discharges into the Inlets western end, Figure 1. The watershed is semi-ovate with a large portion of the northern area lying within the City of Bremerton's Water Utility Forest Land (Zimny et al., 2003). Kitsap PUD monitors the flow of Gorst Creek and two of its tributaries, Heins Creek, and Parish Creek with gaging stations on the streams lower ends. The City of Bremerton also monitors Gorst Creek flow with a gaging station at the lower end of the creek. Gorst Creek Basin is divided into four sub-basins, Upper Gorst, Parish, Jarstad and Heins drainage areas Figure 2. The predominant land use for the Gorst Creek Basin is open land (31%) with wooded land (28%) next. The Percent Total Impervious Area (%TIA) for Gorst basin is 18% Table 1. The basins collectively support Coho and Chum Salmon, Cutthroat trout and possibly Steelhead (May, et al, 2003). An aerial photograph of Gorst Creek Basin is shown in Figure 3 (Space Imaging, 2002). The available flow data for monitored streams in Gorst Basin is shown in (Fig. 4), water years combined over a water year period. Figure 5 shows Gorst Creeks water years by the month over a water year period. The ENVVEST project team established four water quality sampling sites on the streams in Gorst Basin (GC-JAR, GC, GC-1, and PA) for sampling during the winter 2002-2003 storm season (Fig. 6). The Fecal Coliform and ancillary data that were collected during this period are shown in (Table 2) with the wet season summary presented in Table 3. Figures 7-8 show the historical trend of Fecal Coliform for the Gorst Creek Basin sites (GC, PA) (May, et al, 2003). The northern boundary of Gorst Creek Basin is dominated by the Green and Gold Mountains rising some 1300 ft. and consisting of Tertiary and older volcanic and sedimentary rocks. The geology of these mountains is considered to be the bedrock geology of this area. Lying at the eastern foothill of Gold Mountain proper is Alexander Lake to which Heins Creek has its origin. The run for Heins Creek is north to south through Quaternary fine recessional outwash sediments. Its length is short, being less than two miles, and dropping a little over 100 feet in elevation to its confluence with Gorst Creek. Heins Creek watershed lies within the City of Bremerton's Water Utility Forest Land. Nestled on the southwestern edge of the most eastern portion of Gold Mountain is Jarstad Lake. The lake is underlain by Tertiary bedrock and is the headwaters for Jarstad Creek. The creek approaches Gorst Creek from the north with a short and direct route. The upper segment of Jarstad Creek flows over Tertiary bedrock, while the lower section incises through fine recessional outwash. Parish Creek watershed is long, narrow and approaches Gorst Creek from the south. It runs through Vashon Advanced Outwash deposits for most of its course. Parish Creek flows a short distance through fine recessional outwash before convergence with Gorst Creek. The upper Gorst Basin's surfical geology is tertiary bedrock on the northern boundary, fine recessional outwash deposits in the central portion and mainly Vashon till with fingers of advance outwash, and bog deposits in the southern portion (Jones, et al, 1998).

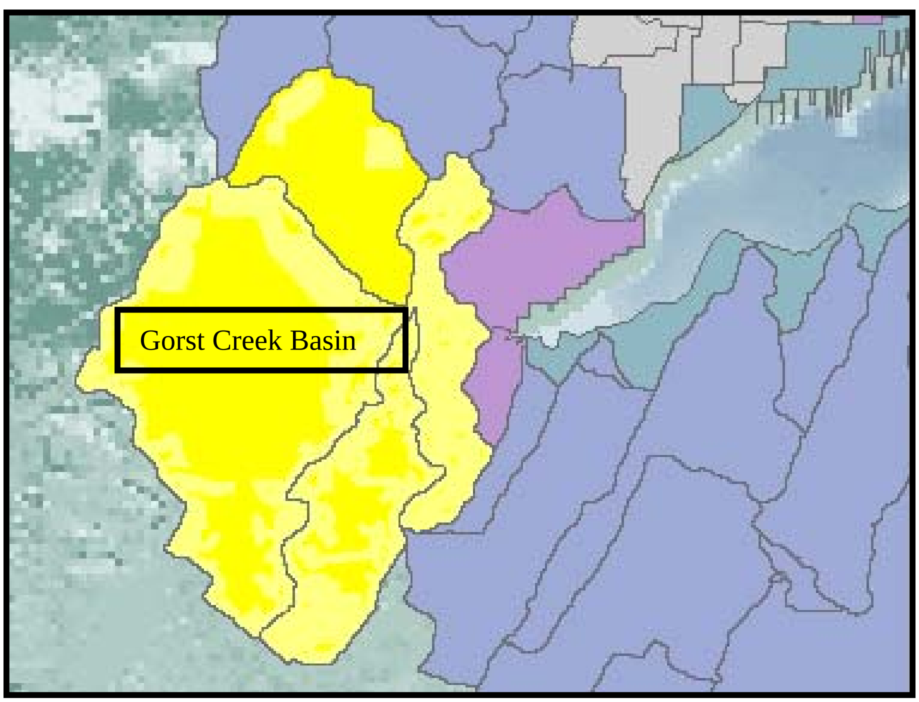


Figure 1 Location of Gorst Creek basin in the Sinclair Inlet watershed boundary.

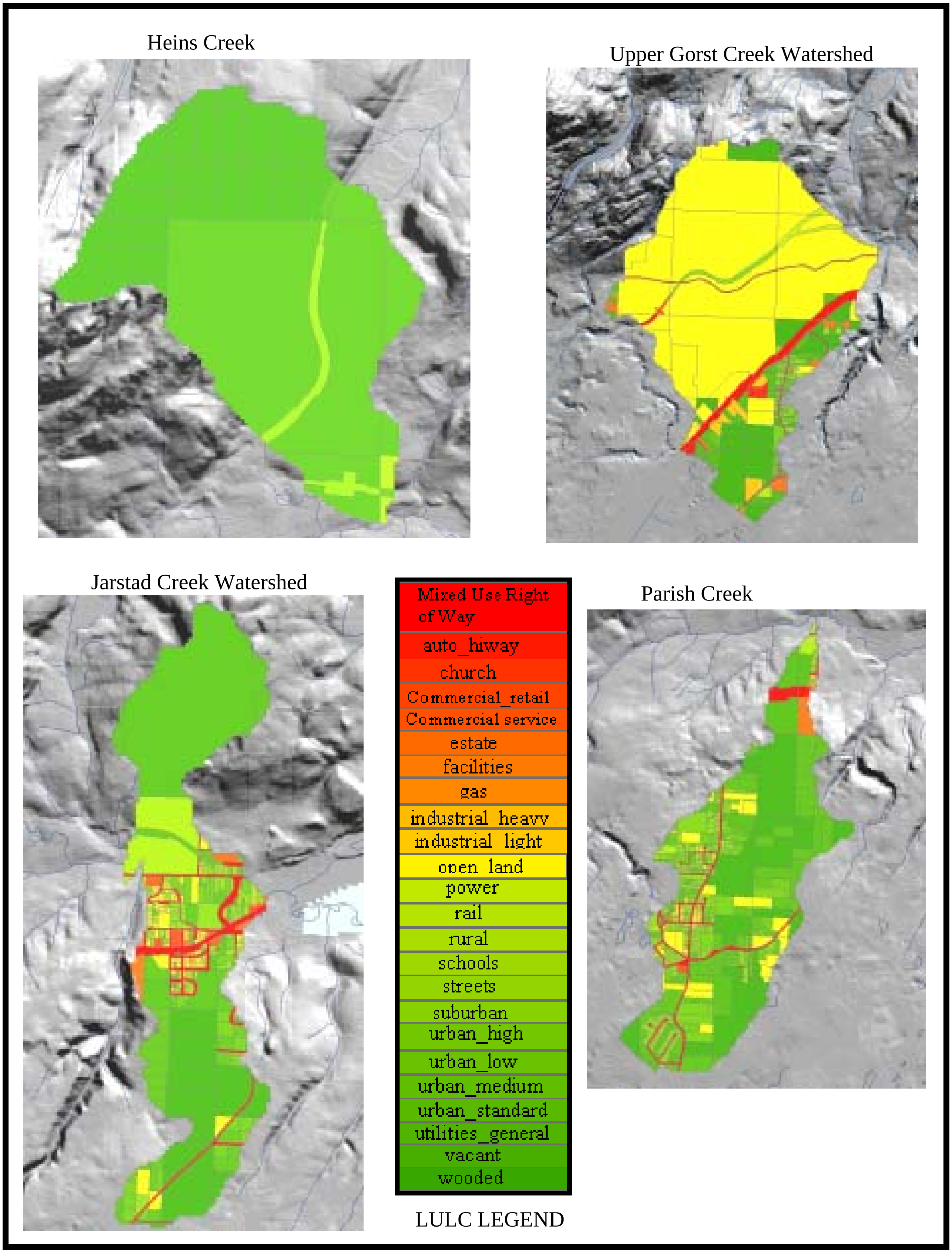


Figure 2 Gorst Creek Land Cover Parcels

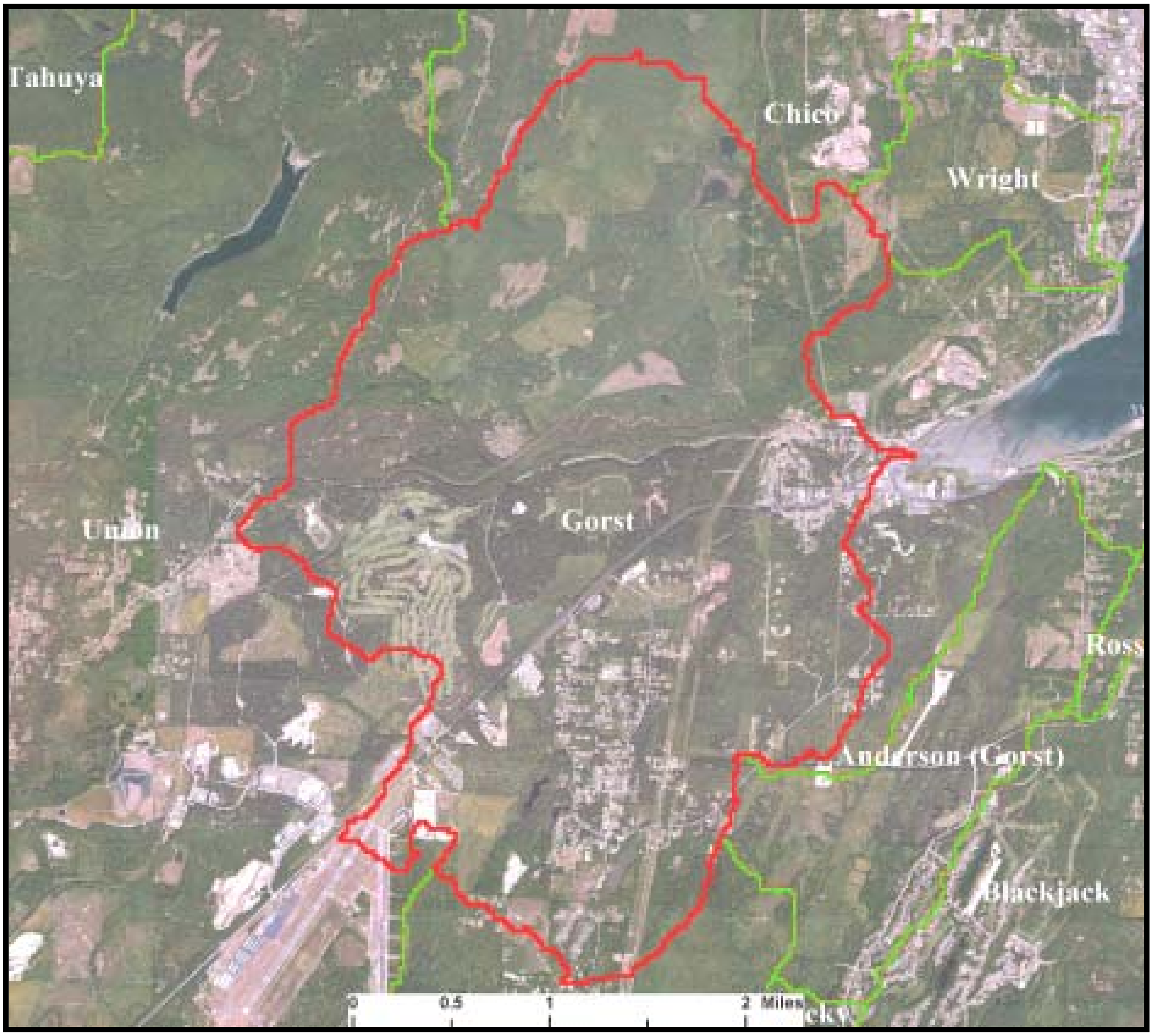


Figure 3 Aerial Photograph of Gorst Creek Basin

Landcode	Percent Impervious	Area_Sq. Feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
Mixed Use-Right of Way	44%	4978235.26	2205358.218	3.268%	1.4475%
Auto_Hiway	60%	24092.10	14431.1673	0.016%	0.0095%
Church	46%	63720.70	29311.522	0.042%	0.0192%
Commercial_Retail	60%	570768.69	339607.3694	0.375%	0.2229%
Commercial_Service	55%	864040.11	476086.1006	0.567%	0.3125%
Estate	21%	4586600.19	954012.8401	3.011%	0.6262%
Facilities	66%	13360471.70	8871353.208	8.769%	5.8229%
Gas	54%	166136.82	90212.29326	0.109%	0.0592%
Industrial_Heavy	82%	57587.40	47279.25376	0.038%	0.0310%
Industrial_Light	60%	206800.14	123666.4813	0.136%	0.0812%
Open_Land	9%	47780712.71	4429272.068	31.362%	2.9073%
Power	6%	3885752.37	221487.8851	2.551%	0.1454%
Rail	2%	1554047.00	29526.893	1.020%	0.0194%
Rural	16%	2084512.00	335606.432	1.368%	0.2203%
Schools	46%	557664.00	256525.44	0.366%	0.1684%
Streets_	50%	66771.96	33319.20854	0.044%	0.0219%
Suburban	39%	5094336.20	1981696.781	3.344%	1.3007%
Urban_High	26%	1132.32	293.270621	0.001%	0.0002%
Urban_Low	38%	7392401.88	2823897.52	4.852%	1.8535%
Urban_Medium	36%	73172.48	26049.40252	0.048%	0.0171%
Urban_Standard	44%	1381527.53	607872.115	0.907%	0.3990%
Utilities_General	2%	26029.21	546.613326	0.017%	0.0004%
Vacant	11%	14946820.53	1703937.54	9.811%	1.1184%
Wooded	4%	42629129.34	1790423.432	27.981%	1.1752%
sum square feet		**152352462.6**	**27391773.05**		**17.9792%**
Acres		**3497.53**	**628.83**		

Table 1 Gorst Creek Land Use Land Code Data

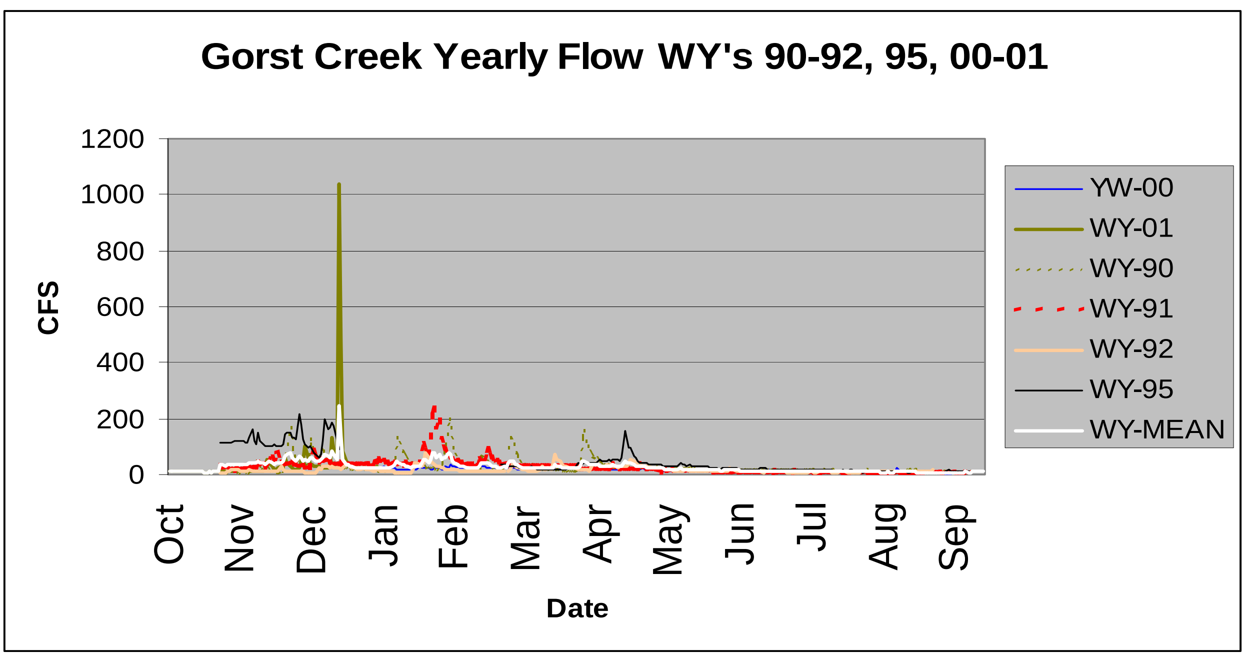


Figure 4 Stream flow data for Gorst Creek for water year (WY) 1990-1992, 1995, 200-2001 (data from KPUD).

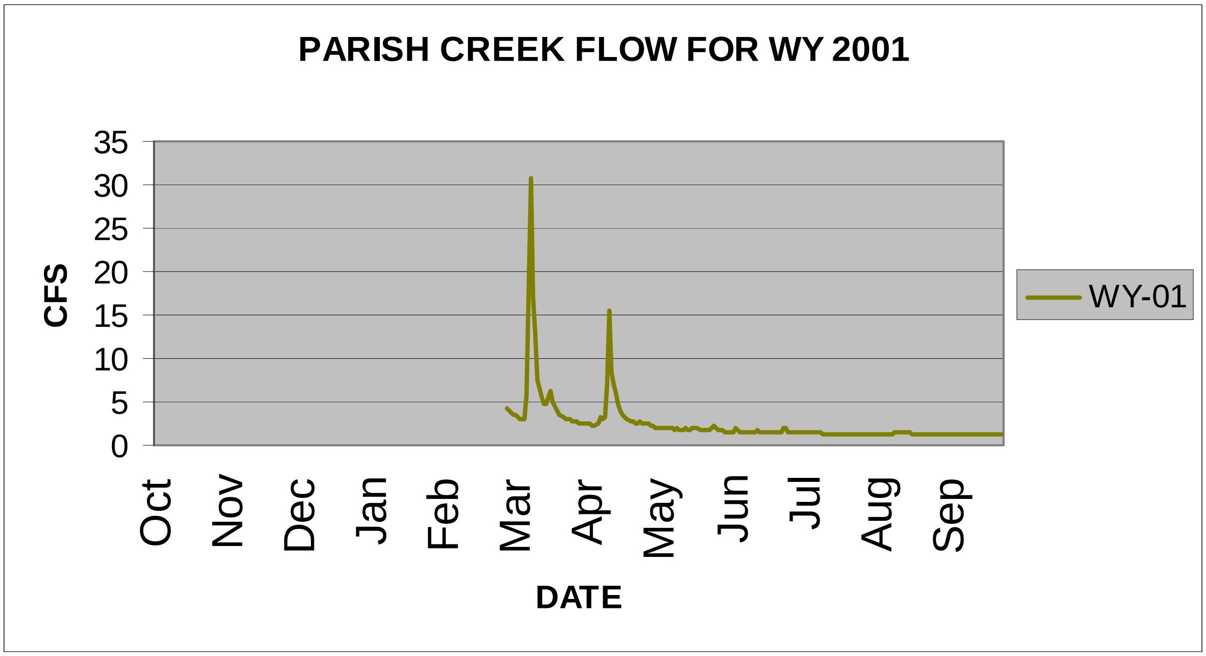


Figure 4 cont. Stream Flow Data for Parish Creek WY 2001

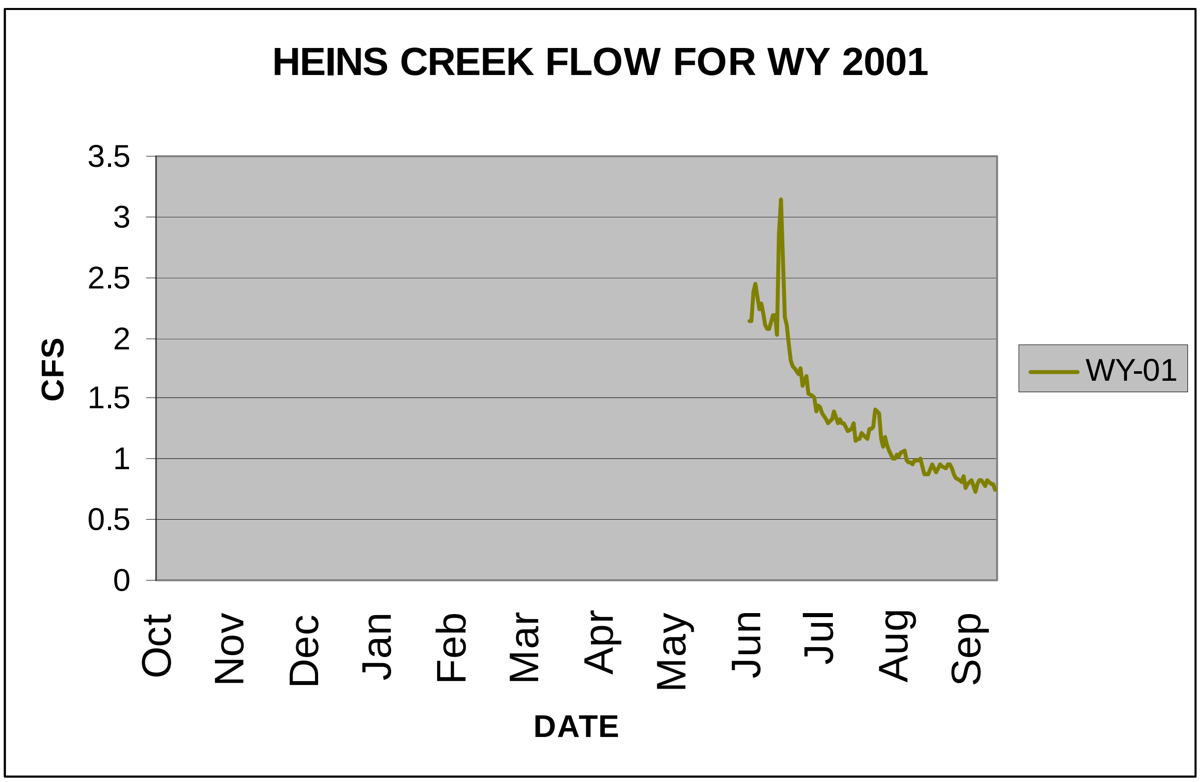
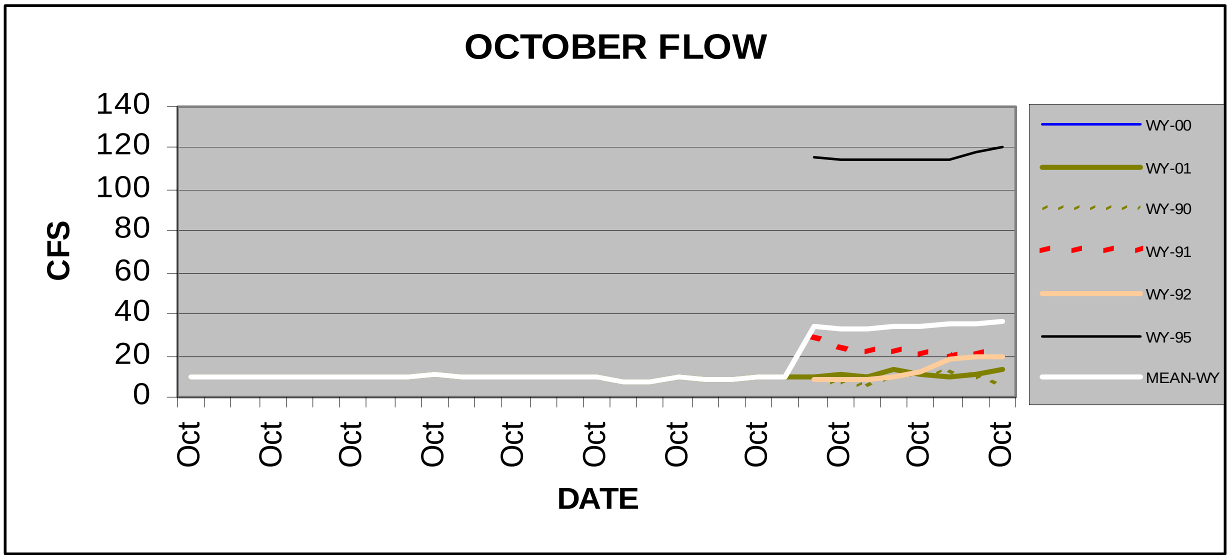
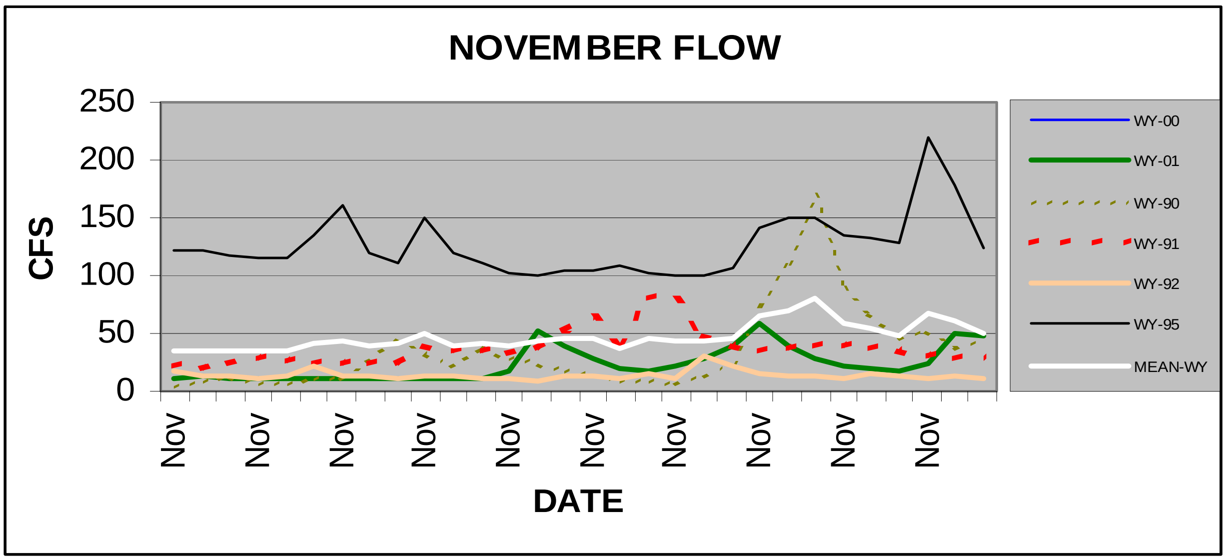


Figure 4 cont. Stream flow data for Heins Creek for water year (WY) 2001





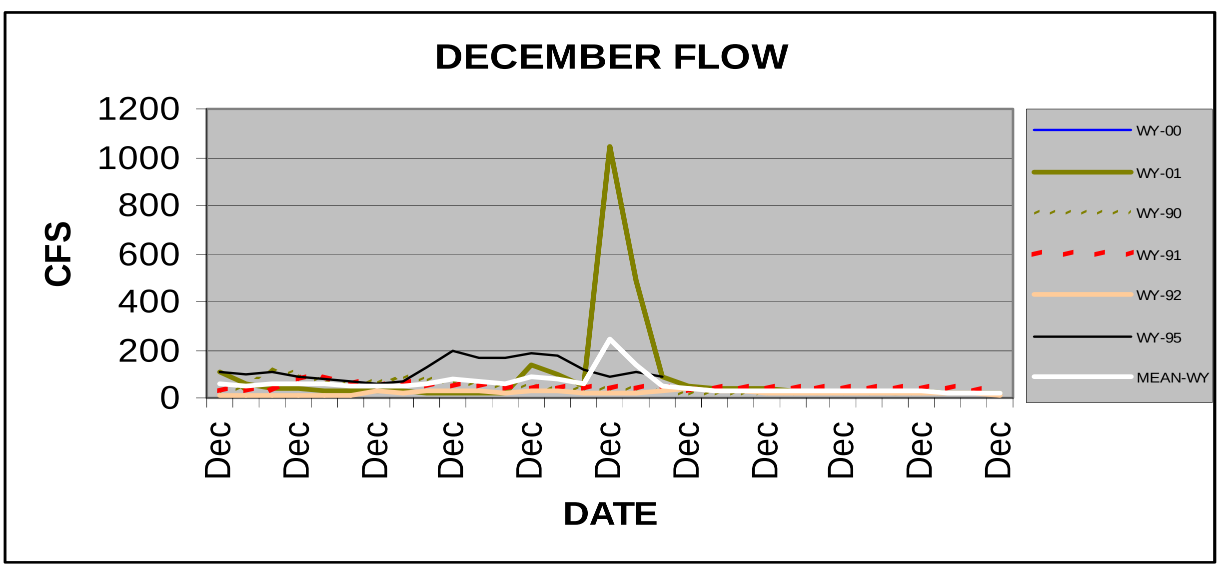
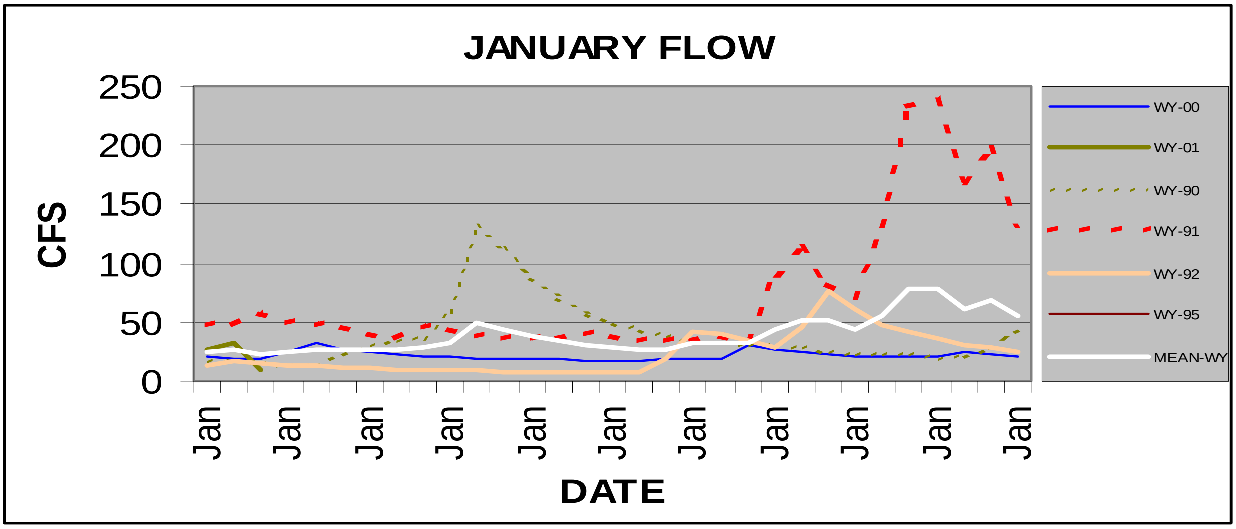
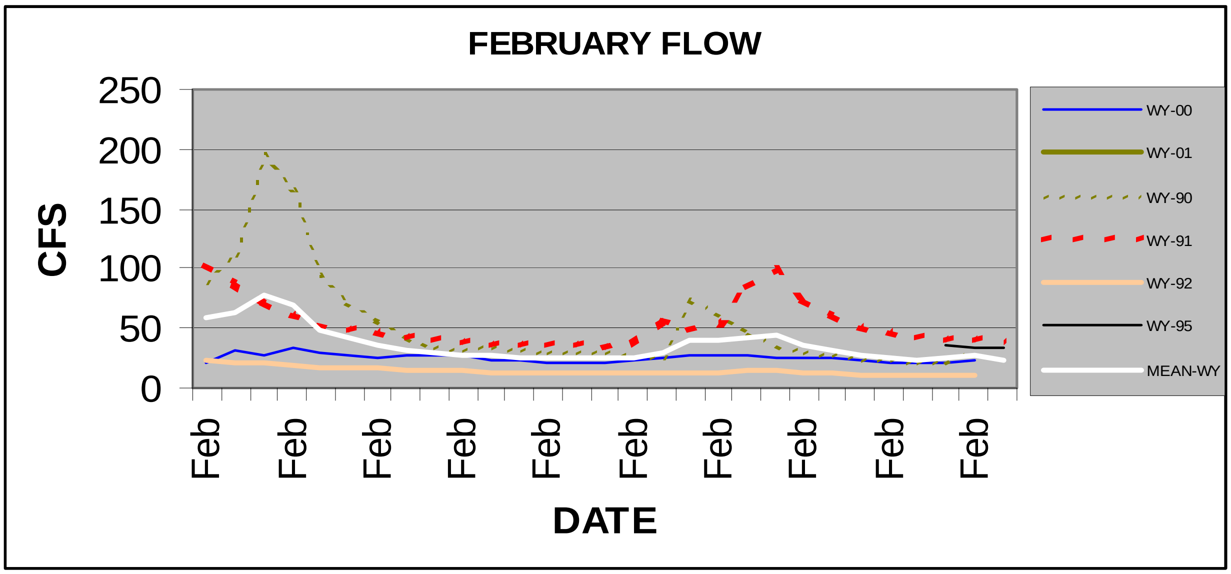


Figure 5 Stream flow data for Gorst Creek Data in Monthly increments





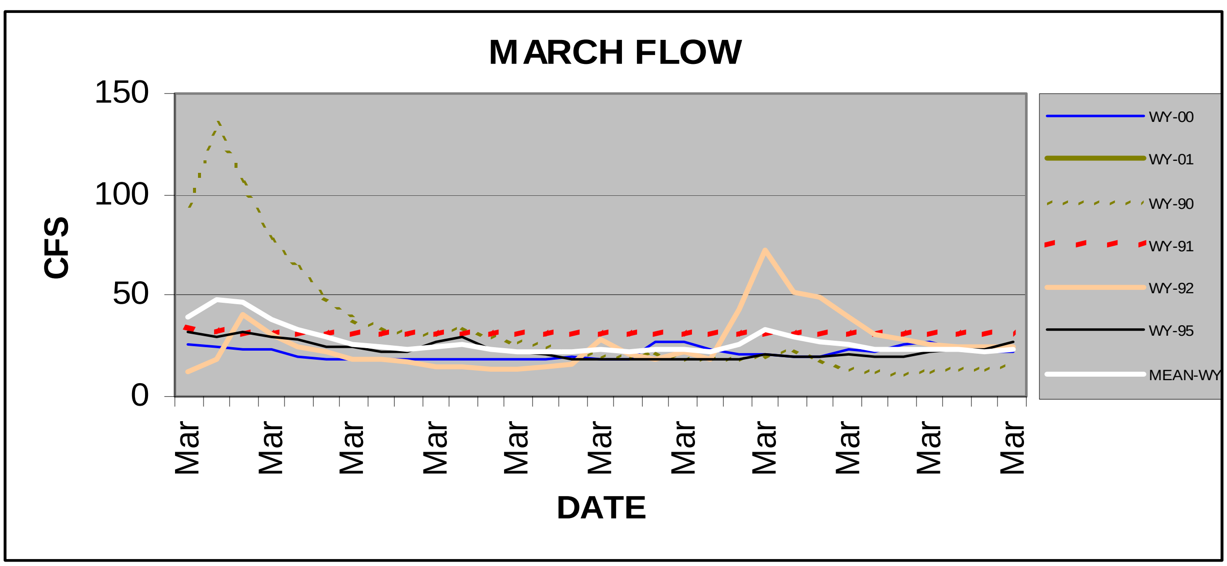
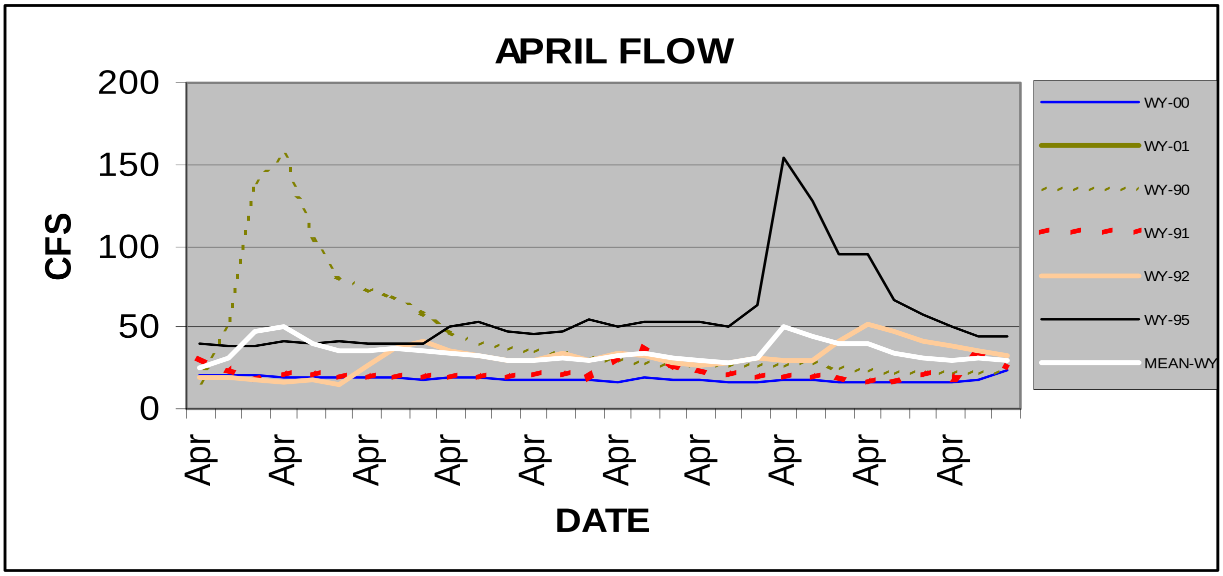
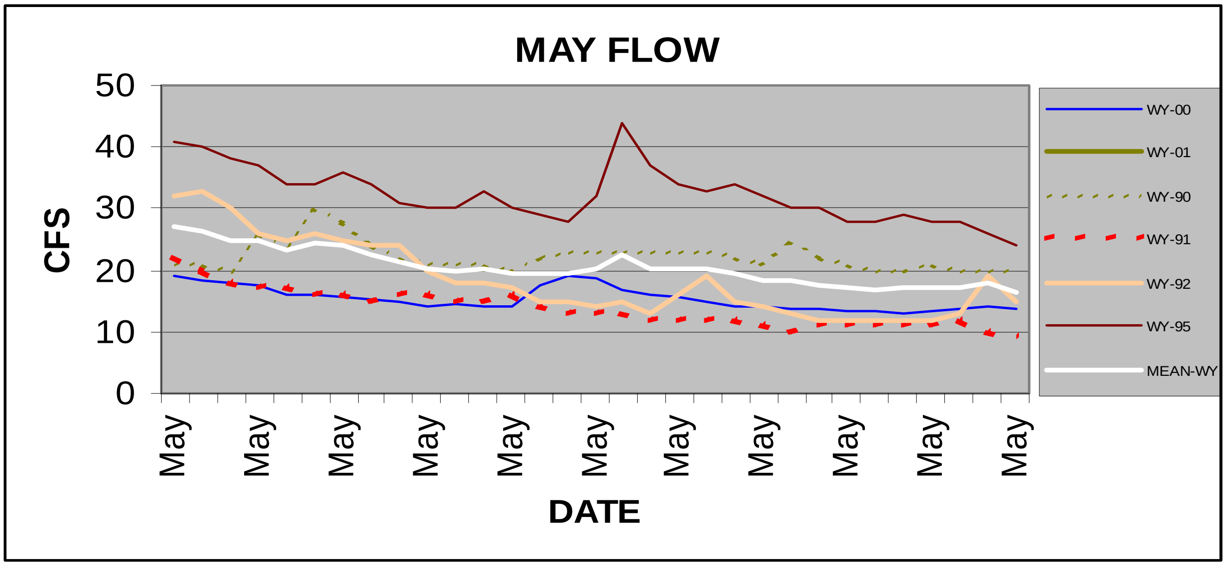


Figure 5 cont. Stream flow data for Gorst Creek Data in Monthly increments





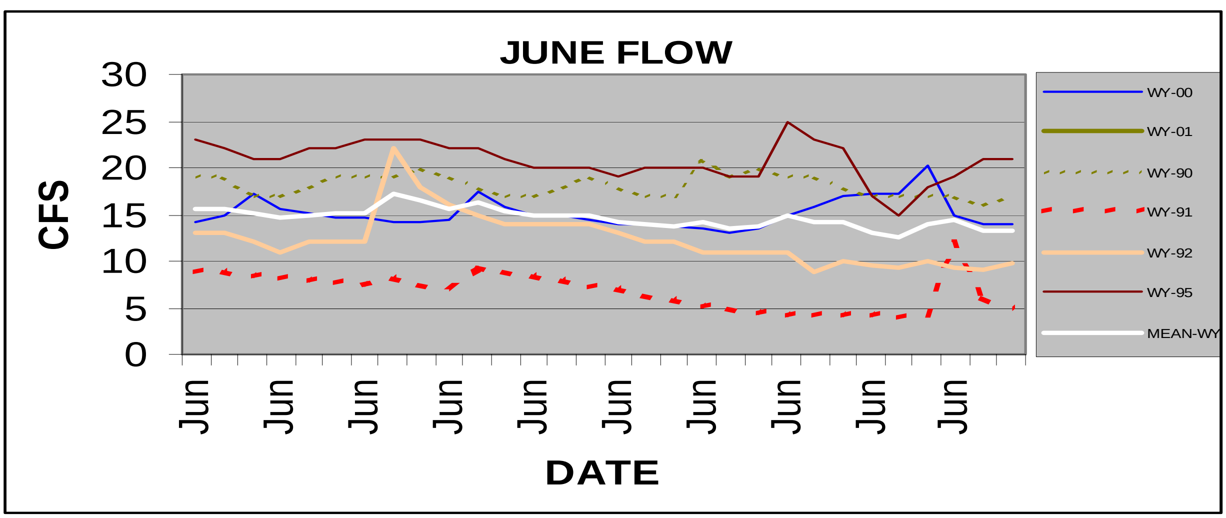
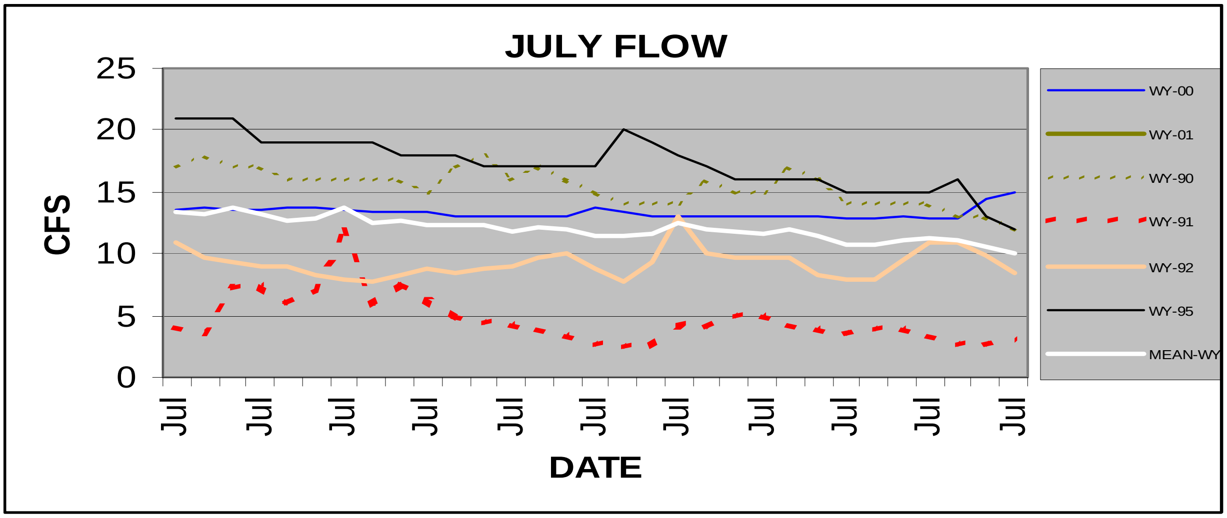
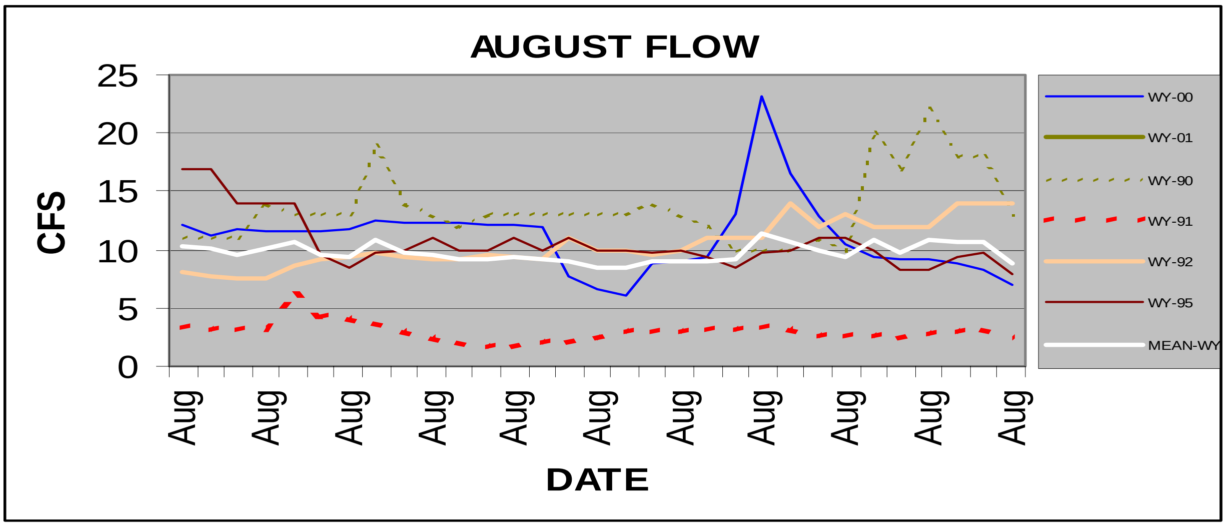


Figure 5 cont. Stream flow data for Gorst Creek Data in Monthly





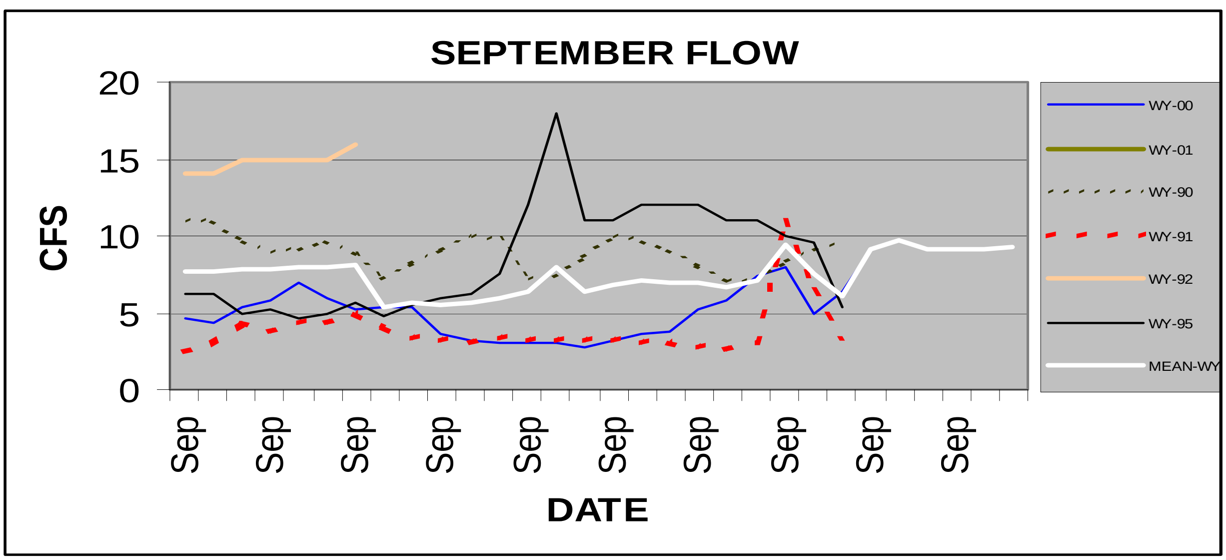


Figure 5 cont. Stream flow data for Gorst Creek Data in Monthly

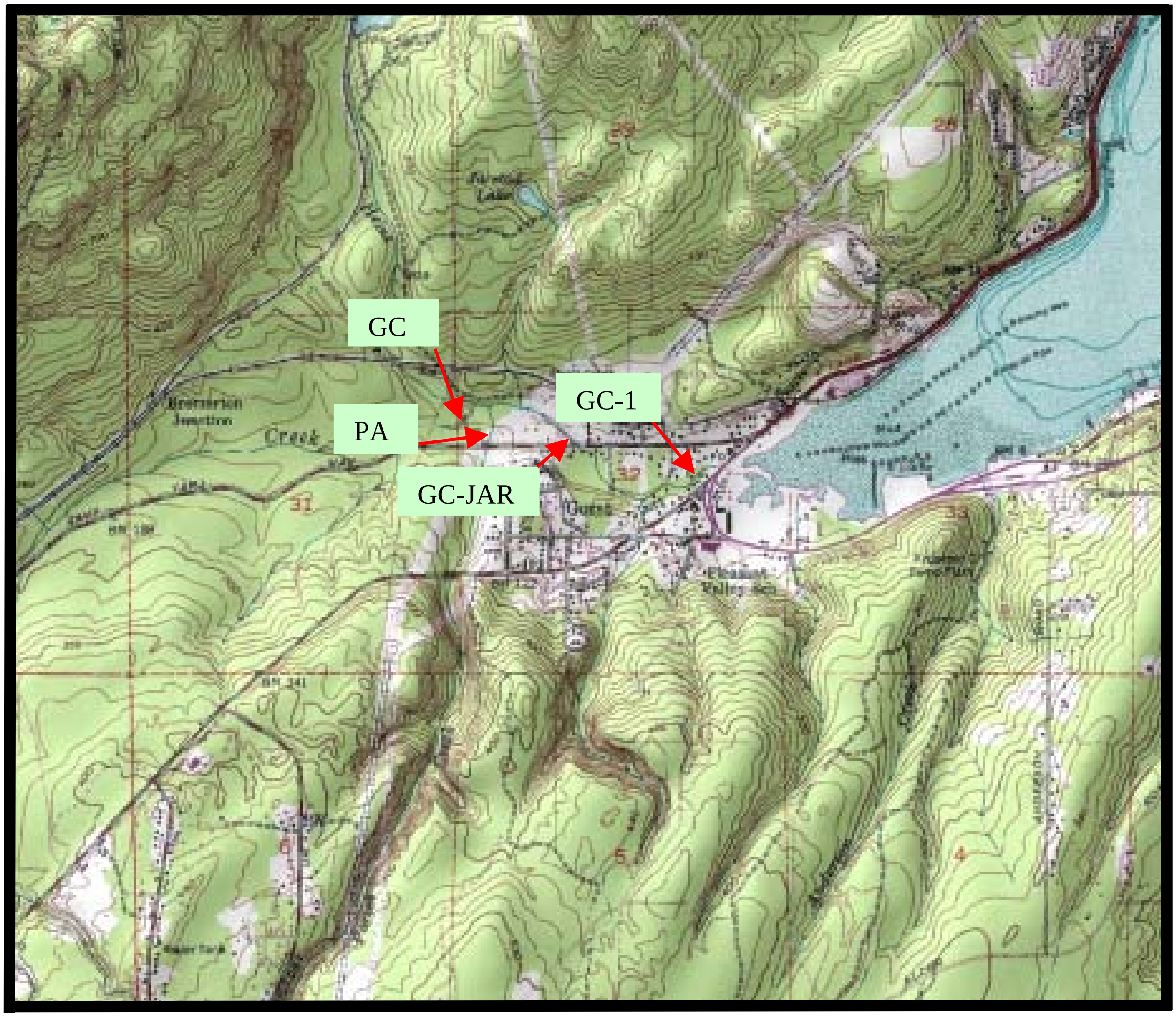


Figure 6 Water quality sampling sites for Gorst Creek watershed

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
FC-200203-013	GC	KPUD	12-Mar-02	APAH -MPN		79			
FC-200203-033	GC	KPUD	13-Mar-02	APAH -MPN		7.8			
02450423	GC-1	SSTREAMS	07-Nov-02	FCOL(MF)	7.4	43	132.5	8.72	1.32
02460402	GC-1	SSTREAMS	13-Nov-02	FCOL(MF)	8.8	40	140	9.6	2.21
02460403	GC-1	SSTREAMS	13-Nov-02	FCOL(MF)	8.8	23	140	9.6	2.21
02470402	GC-1	SSTREAMS	13-Nov-02	FCOL(MF)		26			2.65
02470412	GC-1	SSTREAMS	14-Nov-02	FCOL(MF)	7.1	40	150	9.7	3.08
02460413	GC-1	SSTREAMS	14-Nov-02	FCOL(MF)	7.9	850	140	9	3.2
02470422	GC-1	SSTREAMS	21-Nov-02	FCOL(MF)	8.1	49	123	9.2	2.28
02490402	GC-1	SSTREAMS	05-Dec-02	FCOL(MF)		43			2.84
02500402	GC-1	SSTREAMS	09-Dec-02	FCOL(MF)	7.9	300	154	7.4	3.66
02500412	GC-1	SSTREAMS	11-Dec-02	FCOL(MF)	6.5	1100	129	7.5	21.2
02500423	GC-1	SSTREAMS	12-Dec-02	FCOL(MF)		790	140	8.8	6.16
02510403	GC-1	SSTREAMS	16-Dec-02	FCOL(MF)		100			
02510412	GC-1	SSTREAMS	19-Dec-02	FCOL(MF)		290			
02510413	GC-1	SSTREAMS	19-Dec-02	FCOL(MF)		233			

Table 2 Gorst Creek Basin Fecal Coliform and ancillary data for ENVVEST water quality sites GC and GC-1

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
03020402	GC-1	SSTREAMS	06-Jan-03	FCOL(MF)	6.9	43	73.2	6.33	3.57
03030402	GC-1	SSTREAMS	13-Jan-03	FCOL(MF)	7	56	86.7	7.23	2.16
03030412	GC-1	SSTREAMS	15-Jan-03	FCOL(MF)	7.1	64	79.7	6.64	1.88
03040432	GC	TEC-STORM	22-Jan-03	FCOL(MF)		310			
03040402	GC-1	SSTREAMS	22-Jan-03	FCOL(MF)	7	340	57.4	7.23	22
03040441	GC	TEC-STORM	22-Jan-03	FCOL(MF)		8			
03040448	GC	TEC-STORM	23-Jan-03	FCOL(MF)		23			
03040413	GC-1	SSTREAMS	23-Jan-03	FCOL(MF)	7	69	64.9	8.11	4.48
03050432	GC	TEC-STORM	29-Jan-03	FCOL(MF)		46			
03050439	GC	TEC-STORM	30-Jan-03	FCOL(MF)		26			
03050440	GC	TEC-STORM	30-Jan-03	FCOL(MF)		29			
03050447	GC	TEC-STORM	30-Jan-03	FCOL(MF)		66			
03050454	GC	TEC-STORM	31-Jan-03	FCOL(MF)		20			
02450422	GC-JAR	SSTREAMS	07-Nov-02	FCOL(MF)	7.3	36	124.4	8.47	1.24
02460401	GC-JAR	SSTREAMS	13-Nov-02	FCOL(MF)	9.2	75	130	9.4	1.72
02470401	GC-JAR	SSTREAMS	13-Nov-02	FCOL(MF)		46			2.04
02460411	GC-JAR	SSTREAMS	14-Nov-02	FCOL(MF)	7.8	490	138	8.9	1.84
02460412	GC-JAR	SSTREAMS	14-Nov-02	FCOL(MF)	7.8	500	138	8.9	1.84
02470411	GC-JAR	SSTREAMS	14-Nov-02	FCOL(MF)	6.9	45	140	9.6	1.41
02470421	GC-JAR	SSTREAMS	21-Nov-02	FCOL(MF)	7.5	172	139	9	1.93
02490401	GC-JAR	SSTREAMS	05-Dec-02	FCOL(MF)		74			1.79
02500403	GC-JAR	SSTREAMS	09-Dec-02	FCOL(MF)	7.3	92	113	7.1	3.29
02500411	GC-JAR	SSTREAMS	11-Dec-02	FCOL(MF)	6.2	800	116	7.7	11.8
02500422	GC-JAR	SSTREAMS	12-Dec-02	FCOL(MF)		120	140	8.6	6.84
02510401	GC-JAR	SSTREAMS	16-Dec-02	FCOL(MF)		124			
02510402	GC-JAR	SSTREAMS	16-Dec-02	FCOL(MF)		140			
02510411	GC-JAR	SSTREAMS	19-Dec-02	FCOL(MF)		169			
03020401	GC-JAR	SSTREAMS	06-Jan-03	FCOL(MF)	6.1	59	75	4	2.8
03030401	GC-JAR	SSTREAMS	13-Jan-03	FCOL(MF)	7	32	79	7.04	1.78
03030411	GC-JAR	SSTREAMS	15-Jan-03	FCOL(MF)	6.9	53	72.3	6.41	2.02
03040401	GC-JAR	SSTREAMS	22-Jan-03	FCOL(MF)	6.7	400	52.9	7.09	16.3
03040411	GC-JAR	SSTREAMS	23-Jan-03	FCOL(MF)	6.8	80	61.6	7.99	4.59
03040412	GC-JAR	SSTREAMS	23-Jan-03	FCOL(MF)	6.8	96	61.6	7.99	4.59
02450420	PA	SSTREAMS	07-Nov-02	FCOL(MF)	7.3	7	96.1	7.83	0.72
02450421	PA	SSTREAMS	07-Nov-02	FCOL(MF)	7.3	7	96.1	7.83	0.72
02460400	PA	SSTREAMS	13-Nov-02	FCOL(MF)	6.7	5	90	9	1.04
02470400	PA	SSTREAMS	13-Nov-02	FCOL(MF)		53			0.56
02460410	PA	SSTREAMS	14-Nov-02	FCOL(MF)	7.7	13	108	8.6	74
02470410	PA	SSTREAMS	14-Nov-02	FCOL(MF)	7.1	37	109	9.5	0.58
02470420	PA	SSTREAMS	21-Nov-02	FCOL(MF)	7.2	9	114	8.7	0.68
02490400	PA	SSTREAMS	05-Dec-02	FCOL(MF)		1			0.59
02500400	PA	SSTREAMS	09-Dec-02	FCOL(MF)	7.5	11	112	5.9	0.68

Table 2 cont. Gorst Creek Basin Fecal Coliform and ancillary data for ENVVEST water quality sites GC, GC-1, GC-JAR, and PA

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02500410	PA	SSTREAMS	11-Dec-02	FCOL(MF)	6.5	54	102	6.8	4.19
02500420	PA	SSTREAMS	12-Dec-02	FCOL(MF)		93	100	8.1	2.04
02500421	PA	SSTREAMS	12-Dec-02	FCOL(MF)		84	100	8.1	2.04
02510400	PA	SSTREAMS	16-Dec-02	FCOL(MF)		156			
02510410	PA	SSTREAMS	19-Dec-02	FCOL(MF)		12			
03020400	PA	SSTREAMS	06-Jan-03	FCOL(MF)	7.4	8	44.1	5.37	3.68
03030400	PA	SSTREAMS	13-Jan-03	FCOL(MF)	6.2	22	46.9	6.27	2.47
03030410	PA	SSTREAMS	15-Jan-03	FCOL(MF)	6.3	120	44.9	5.7	1.52
03040400	PA	SSTREAMS	22-Jan-03	FCOL(MF)	6.2	460	30.6	6.58	28.3
03040410	PA	SSTREAMS	23-Jan-03	FCOL(MF)	6	38	34.9	7.53	6.98

Table 2 cont. Gorst Creek Basin Fecal Coliform and ancillary data for ENVVEST water quality site PA

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
GC	Lower Mainstem Gorst Crk @ Mouth	83	8	1100	40	293	440	150%	24	7	29%	NO	7	29%	NO
GC-JAR	Gorst Crk Jarstad Tributary	99	32	490	53	169	282	96%	17	7	41%	NO	3	18%	NO
GC-PA	Gorst Crk Parish Tributary	25	1	460	9	54	179	168%	17	3	18%	NO	2	12%	NO

Table 3 Gorst Creek Basin sites (GC, GC-JAR, GC-PA) Data Summary Wet season 2002-2003

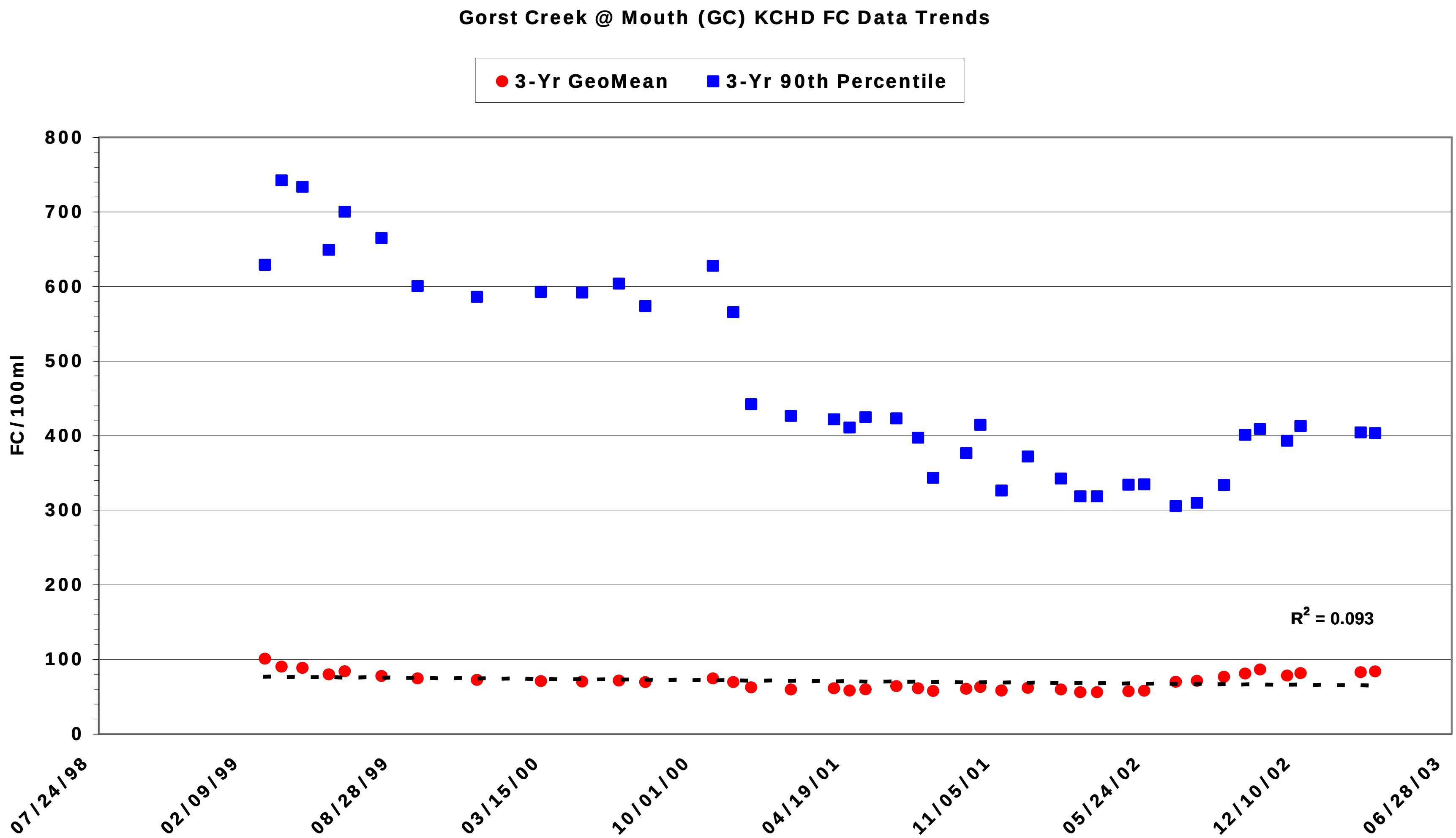


Figure 7 Gorst Creek @ Mouth (GC) KCHD FC Data Trends

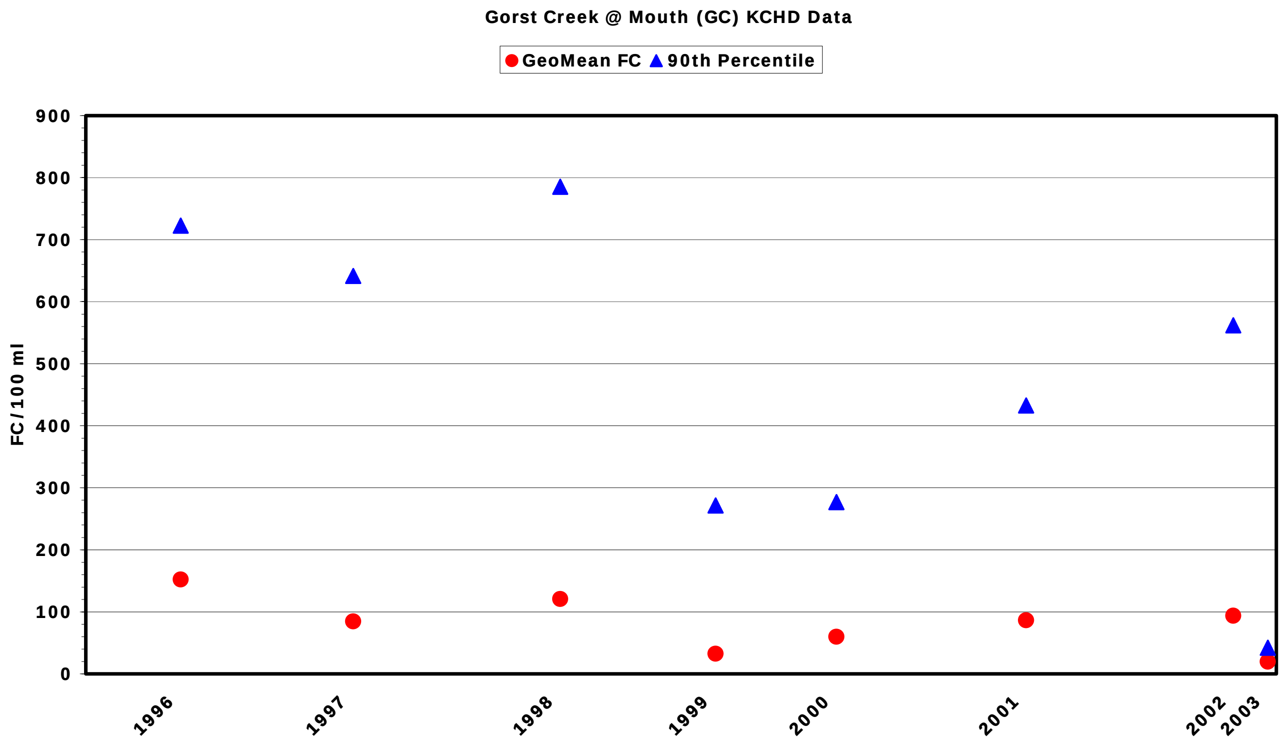


Figure 7 cont. Gorst Creek @ Mouth (GC) KCHD

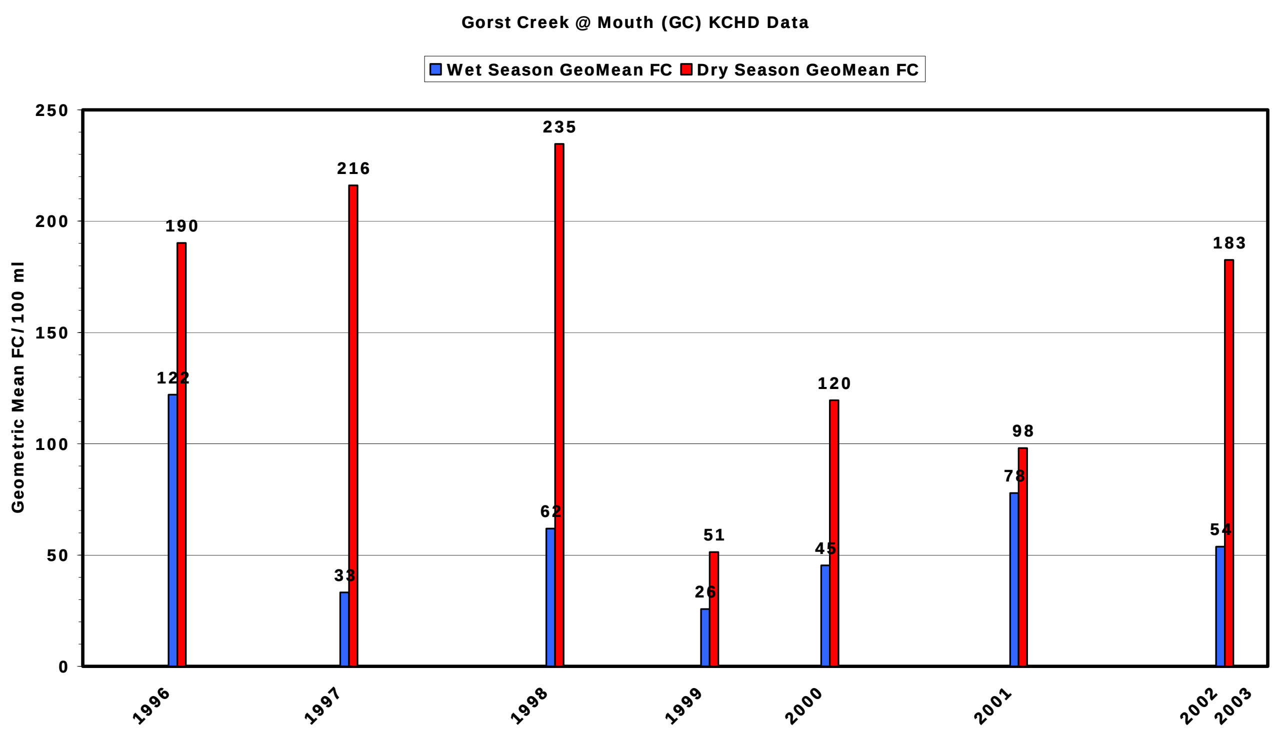


Figure 7 cont. Gorst Creek @ Mouth (GC) KCHD Data

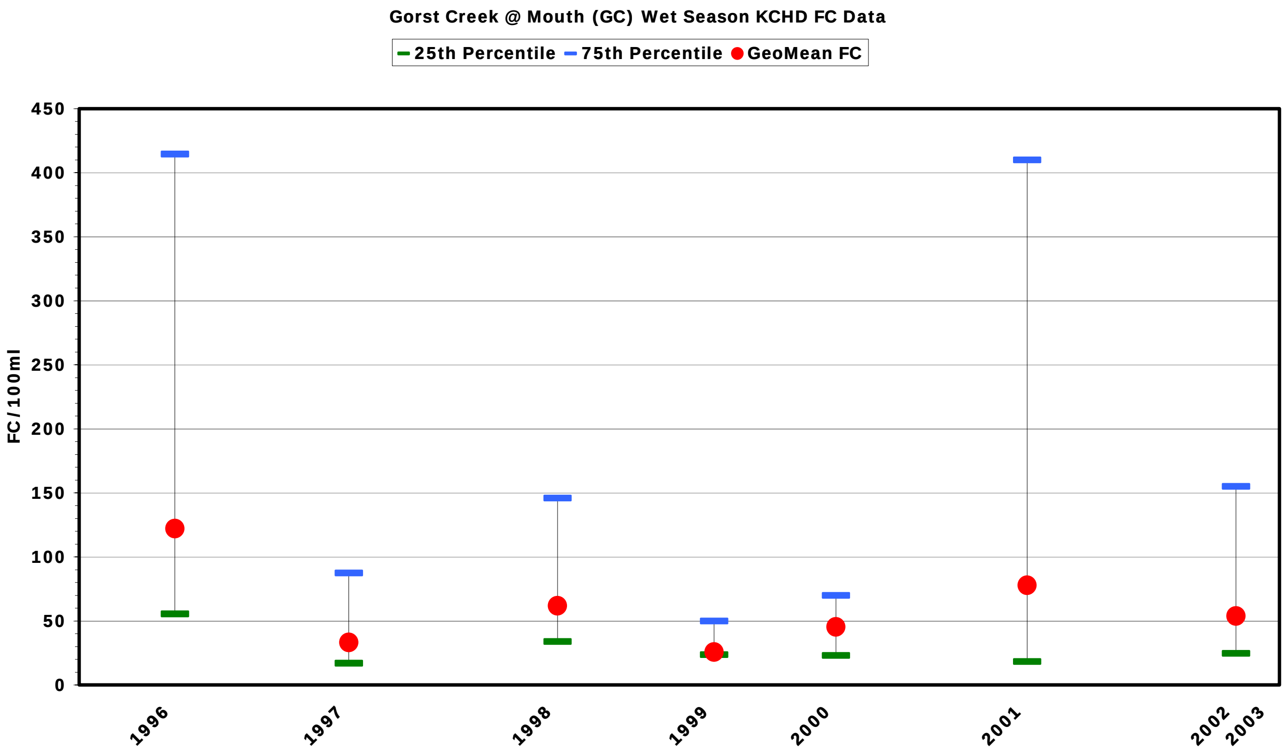


Figure 7 cont. Gorst Creek @ Mouth (GC) Wet Season KCHD FC Data

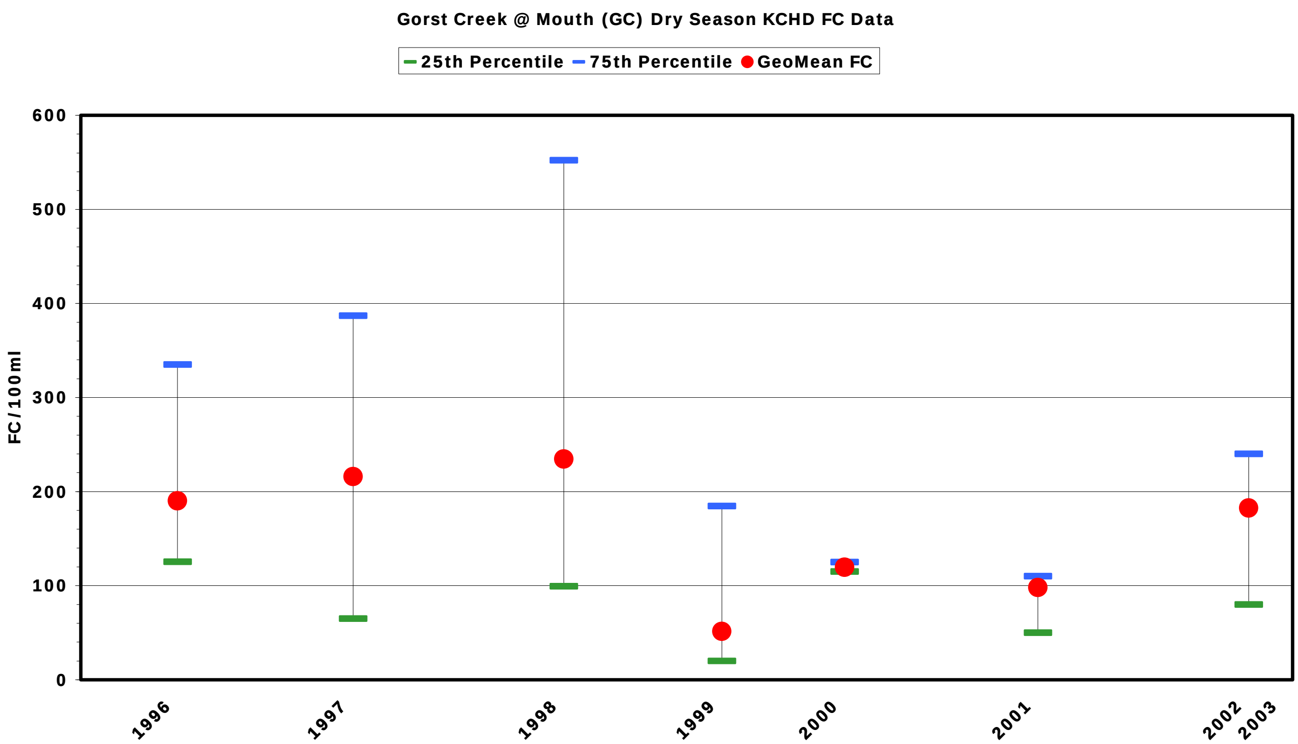
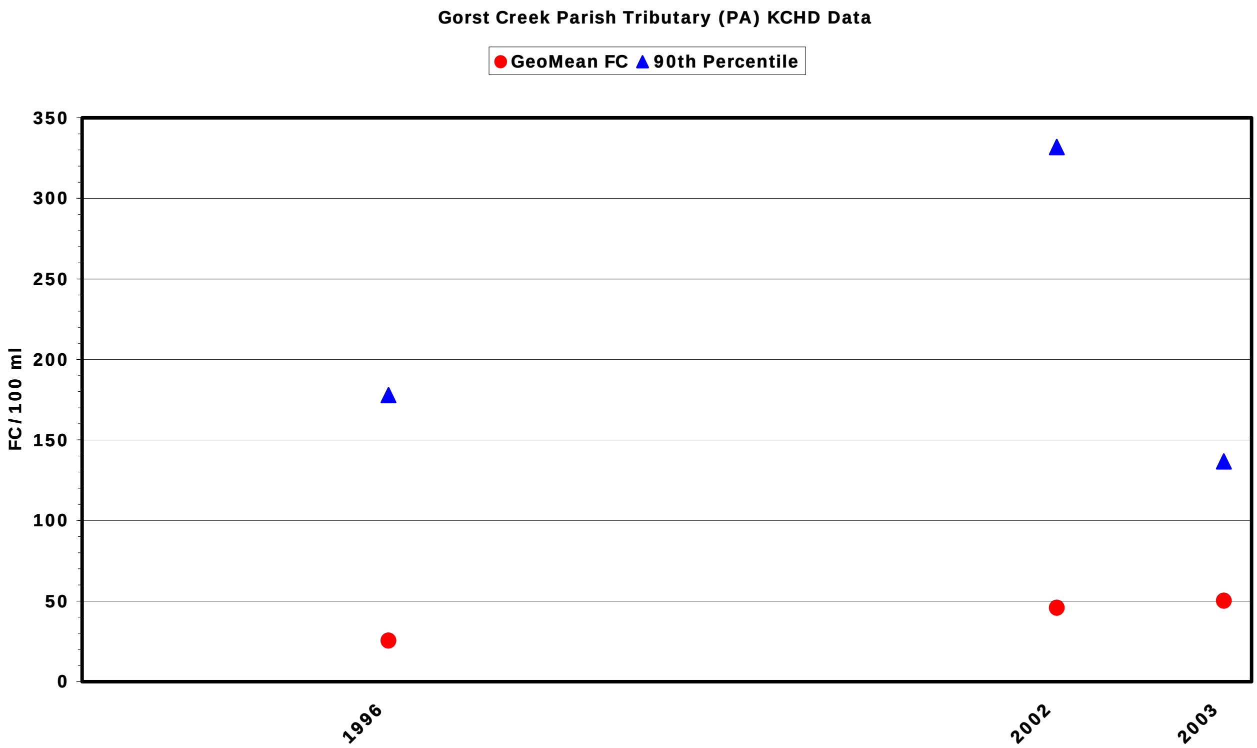


Figure 7 cont. Gorst Creek @ Mouth (GC) Dry Season KCHD FC Data



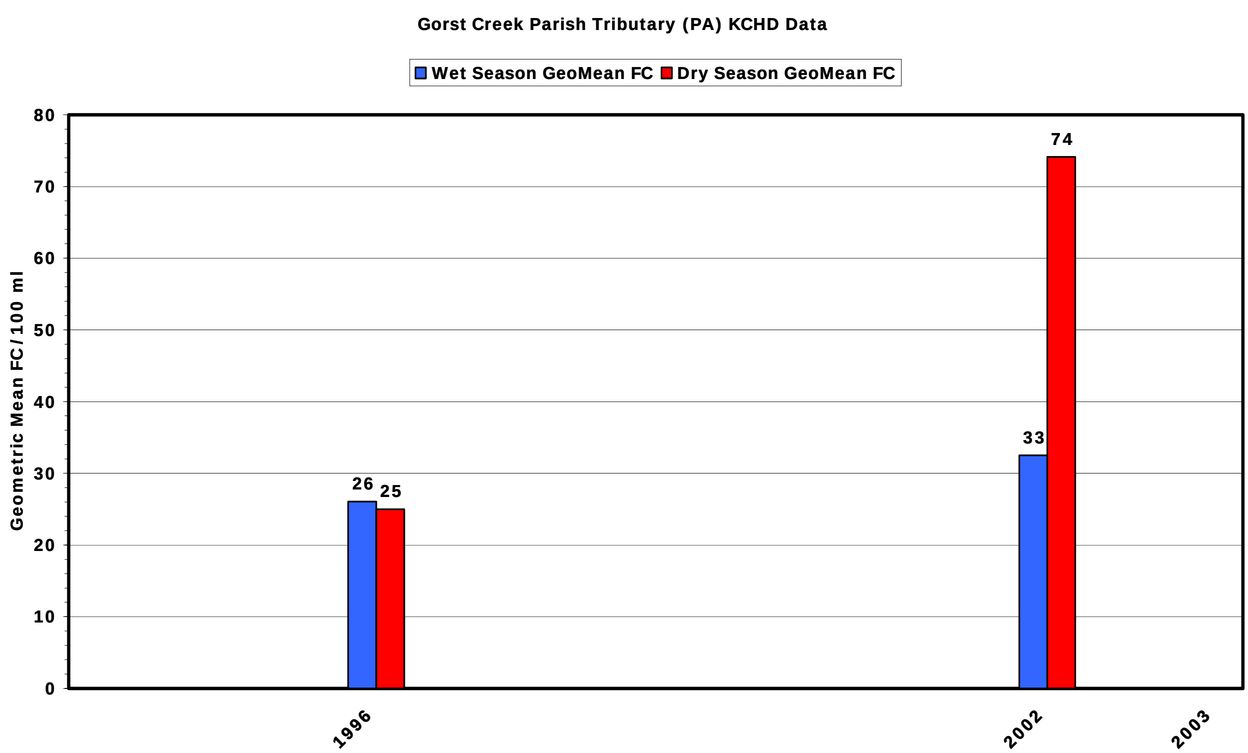
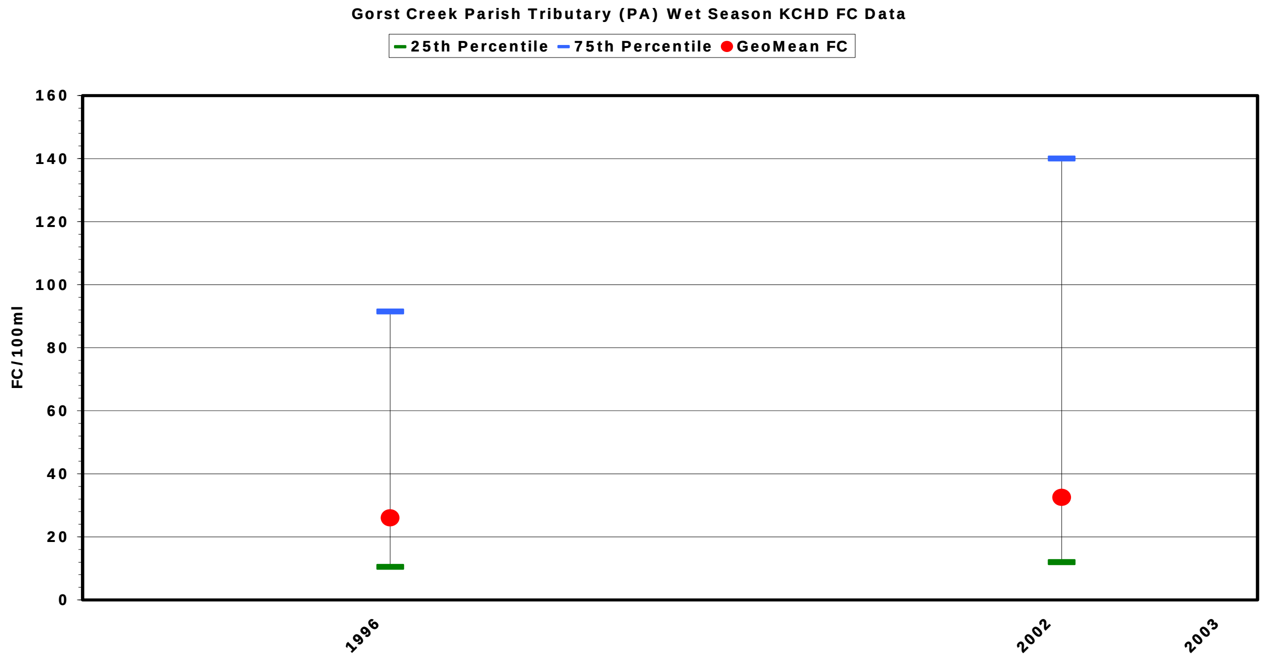


Figure 8 Gorst Creek Parish Tributary (PA) KCHD Data



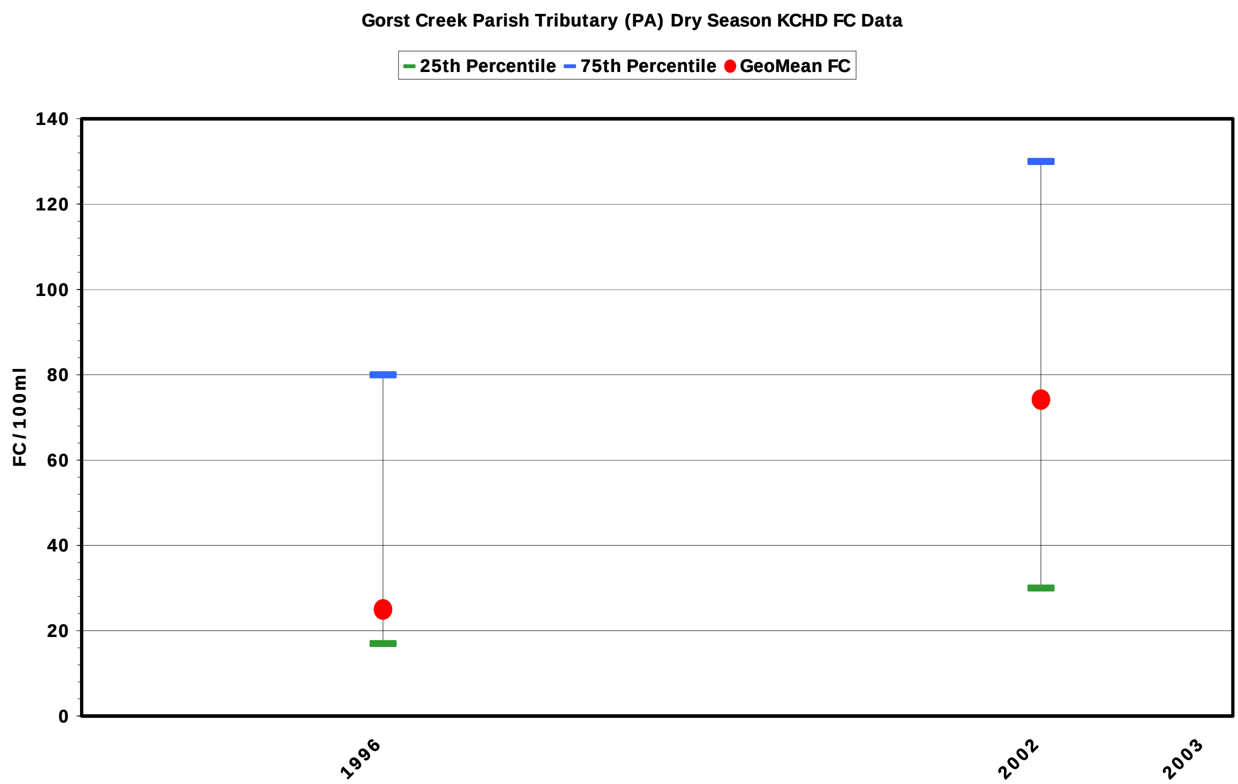


Figure 8 cont. Gorst Creek Parish Tributary (PA) KCHD Data

KARCHER (OLNEY) CREEK

Figure 1 shows the location of Karcher Creek watershed within the Sinclair Inlet watershed boundary. Karcher Creek basin is semi-rectangular in shape, with stream discharge into the southeastern side of Sinclair Inlet near the Karcher Creek Sewage Treatment Plant (KCSTP). The greatest portion of water volume for Karcher Creek comes from several smaller feeder branches through out the streams length (Zimny et al., 2003). Kitsap PUD monitors the flow of Karcher Creek by a gaging station placed near the KCSTP (Fig. 2) ("Maps a la carte, Inc.", 2004). The dominant surficial hydrogeologic unit for the basin is Vashon advanced outwash with patches of Vashon till in the upper basin (Jones, et al, 1998). Karcher Creek Basin is divided into two sub-basins, which are shown in Fig. 3. The basin land use is predominantly urban standard, parks, and mixed use right of way, with approximately 36% of the land in total impervious area (%TIA) (Table 1). A water quality sampling site (OC) was established by the ENVVEST team for sampling during the winter 2002-2003 storm season (Fig. 2). Collected Fecal Coliform and ancillary data are shown in (Table 2) and a summary for the wet season 2002-2003 is presented in Table 3. Figure 4 is an aerial photograph of Karcher (Olney) Creek Basin (Space Imaging, 2002).

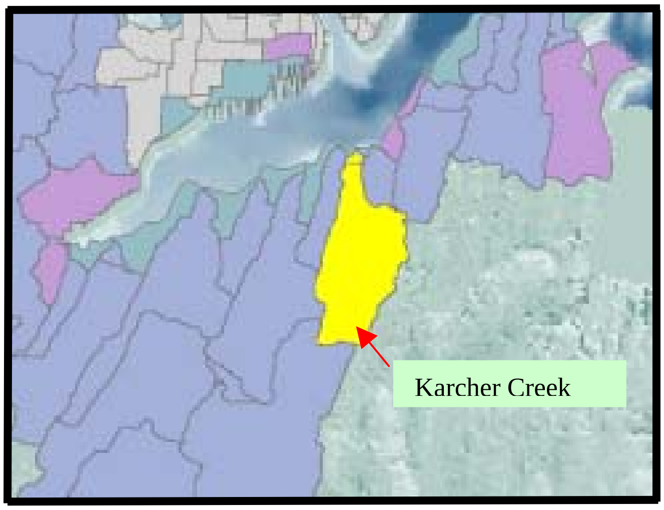


Figure 1 Location of Karcher (Olney) Creek Watershed in Sinclair Inlet Watershed boundary

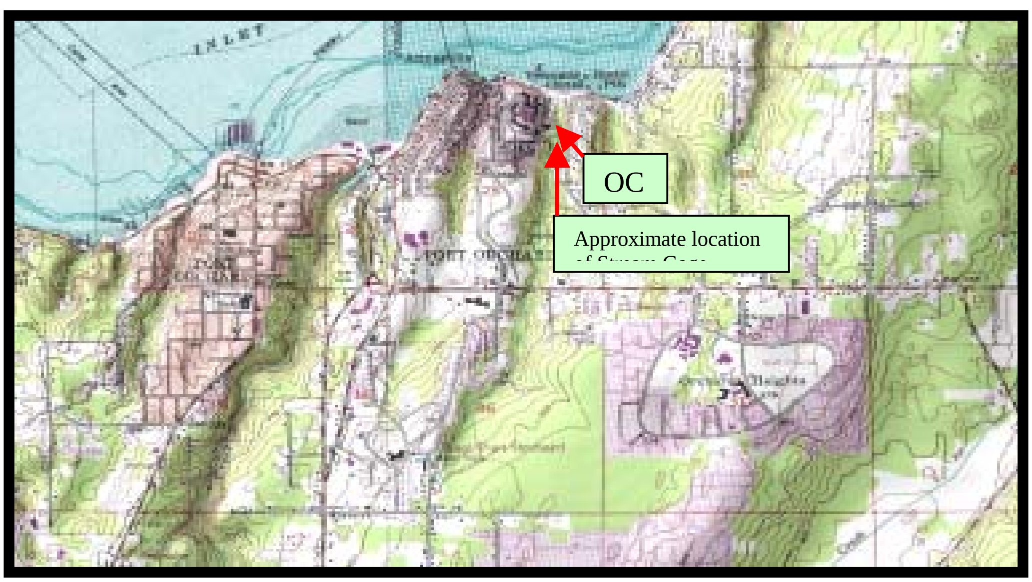


Figure 2 Location of water quality site (OC) and stream gaging site

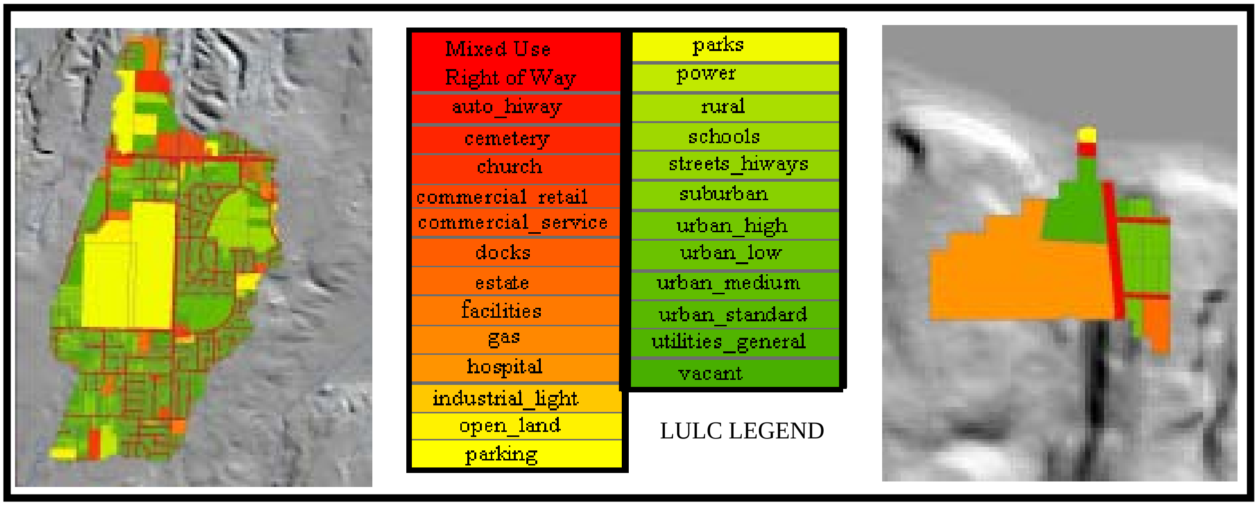


Figure 3 Land Use Land Cover for Karcher Creek Watershed

LandCode	Percent Impervious	Area Sq. Feet	Impervious Area Sq Feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	7050782.21	3123496.52	14.019%	6.210%
Auto_Hiway	59.9%	46701.37	27974.12	0.093%	0.056%
Cemetary	17.1%	591549.00	101154.88	1.176%	0.201%
Church	46.0%	331583.00	152528.18	0.659%	0.303%
Commercial_Retail	59.5%	1578525.04	939222.40	3.139%	1.867%
Commercial_Service	55.1%	308744.35	170118.14	0.614%	0.338%
Docks	21.3%	40556.70	8638.58	0.081%	0.017%
Estate	20.8%	1155261.87	240294.47	2.297%	0.478%
Facilities	66.4%	395924.00	262893.54	0.787%	0.523%
Gas	54.3%	1458.93	792.20	0.003%	0.002%
Hospital	66.4%	581110.00	385857.04	1.155%	0.767%
Industrial_Light	59.8%	198405.00	118646.19	0.394%	0.236%
Open_Land	9.3%	1725169.64	159923.23	3.430%	0.318%
Parking	51.4%	41218.80	21186.47	0.082%	0.042%
Parks	18.1%	9952510.05	1801404.32	19.788%	3.582%
Power	5.7%	605355.49	34505.26	1.204%	0.069%
Rural	16.1%	291633.00	46952.91	0.580%	0.093%
Schools	46.0%	2289700.00	1053262.00	4.553%	2.094%
Streets_	49.9%	11964.10	5970.09	0.024%	0.012%
Suburban	38.9%	2633958.12	1024609.71	5.237%	2.037%
Urban_High	25.9%	230070.62	59588.29	0.457%	0.118%
Urban_Low	38.2%	6344942.00	2423767.84	12.615%	4.819%
Urban_Medium	35.6%	1814790.59	646065.45	3.608%	1.285%
Urban_Standard	44.0%	11409113.38	5020009.89	22.684%	9.981%
Utilities_General	2.1%	99268.97	2084.65	0.197%	0.004%
Vacant	11.4%	564722.51	64378.37	1.123%	0.128%
Total Area Sq. Ft.		50295018.74	17895324.71		35.581%
Acres		1154.61	410.82		

Table 1 Karcher Creek Land Cover Data

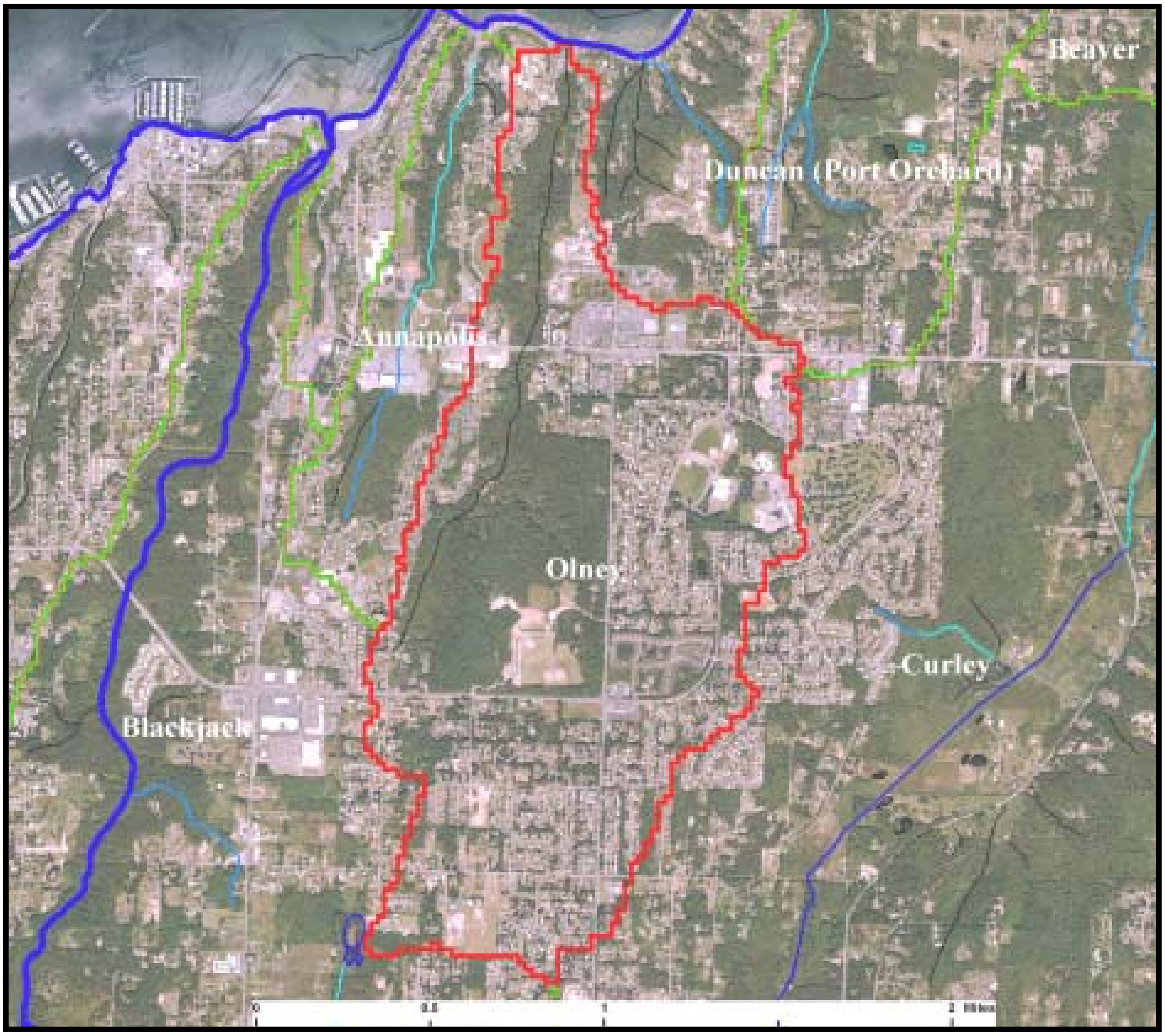
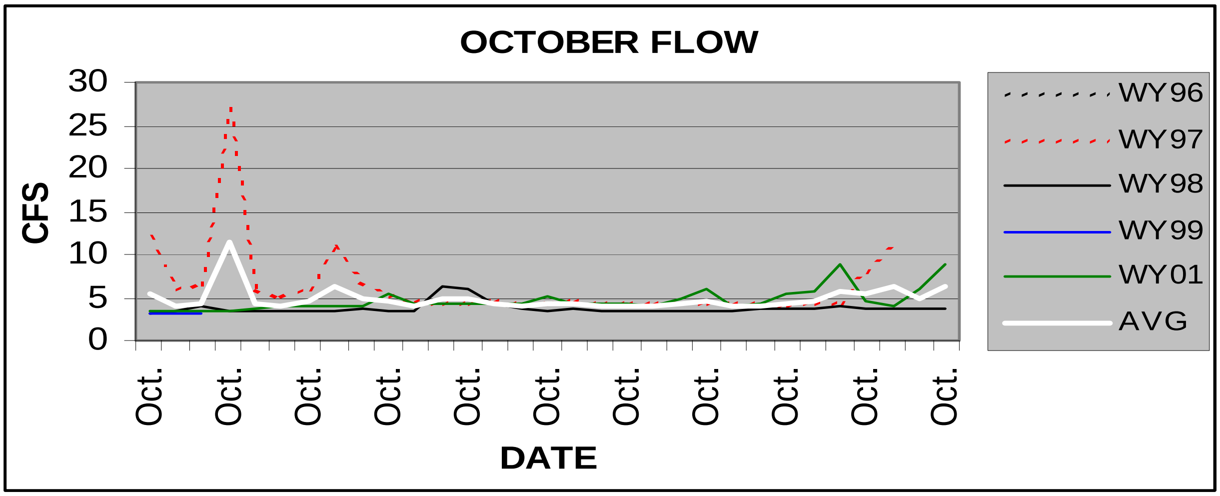


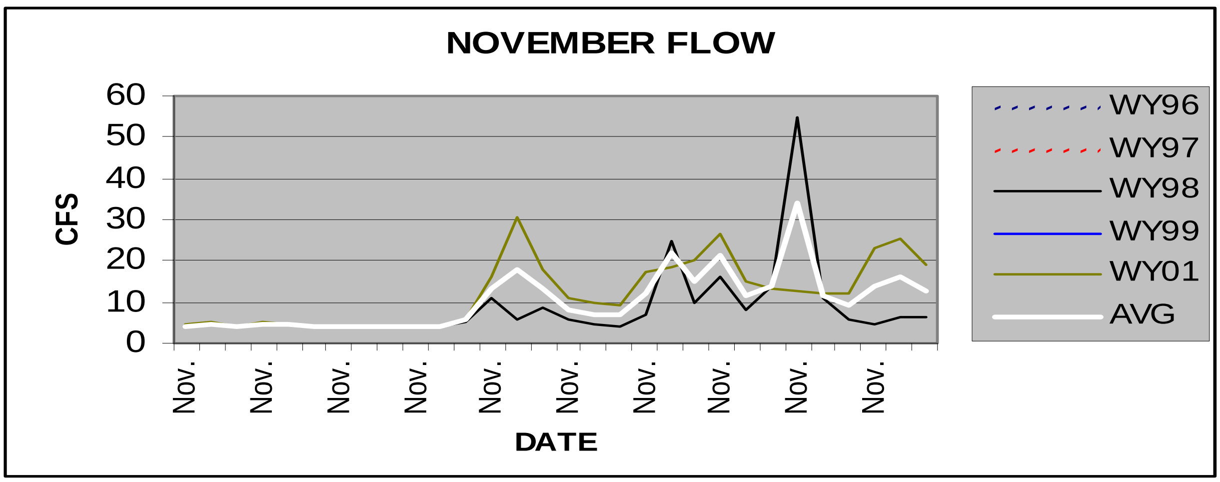
Figure 4 Aerial Photograph of Karcher (Olney) Creek Basin

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	Turb
02450556	OC	POKC	07-Nov-02	FCOL(MF)		10.8	3300		11.7	
02460556	OC	POKC	12-Nov-02	FCOL(MF)		10.7	5800		11.2	
02460564	OC	POKC	13-Nov-02	FCOL(MF)			690			
02470556	OC	POKC	18-Nov-02	FCOL(MF)		10.8	800		11.2	
02470564	OC	POKC	20-Nov-02	FCOL(MF)		10.7	100		11.4	
02480555	OC	POKC	25-Nov-02	FCOL(MF)		11.6	27		9	
02480556	OC	POKC	25-Nov-02	FCOL(MF)		11.6	37		9	
02490555	OC	POKC	04-Dec-02	FCOL(MF)		11.1	131		9.6	
02500556	OC	POKC	09-Dec-02	FCOL(MF)		10.1	37		9.8	
02500564	OC	POKC	10-Dec-02	FCOL(MF)		11.2	500		9.4	
02500572	OC	POKC	12-Dec-02	FCOL(MF)			440			
02510556	OC	POKC	15-Dec-02	FCOL(MF)			360			
02510564	OC	POKC	16-Dec-02	FCOL(MF)			123			
03040438	OC	TEC-STORM	22-Jan-03	FCOL(MF)			2000			
03040444	OC	TEC-STORM	23-Jan-03	FCOL(MF)			200			
03040445	OC	TEC-STORM	23-Jan-03	FCOL(MF)			290			
03040451	OC	TEC-STORM	23-Jan-03	FCOL(MF)			130			
03050436	OC	TEC-STORM	29-Jan-03	FCOL(MF)			540			
03050443	OC	TEC-STORM	30-Jan-03	FCOL(MF)			1233			
03050450	OC	TEC-STORM	30-Jan-03	FCOL(MF)			1500			
03110437	OC	TEC-STORM	08-Mar-03	FCOL(MF)	8		2300	0.125	45.7	75.8
03110445	OC	TEC-STORM	09-Mar-03	FCOL(MF)	8		4100	0.093	44.2	90.1
03110452	OC	TEC-STORM	09-Mar-03	FCOL(MF)	8		780	0.131	48.4	14.3

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
OC	Lower Mainstem Olney Crk	400	27	5800	130	1125	2672	147%	18	15	83%	NO	11	61%	NO

Table 3 Karcher (Olney) Creek site (OC) Data Summary





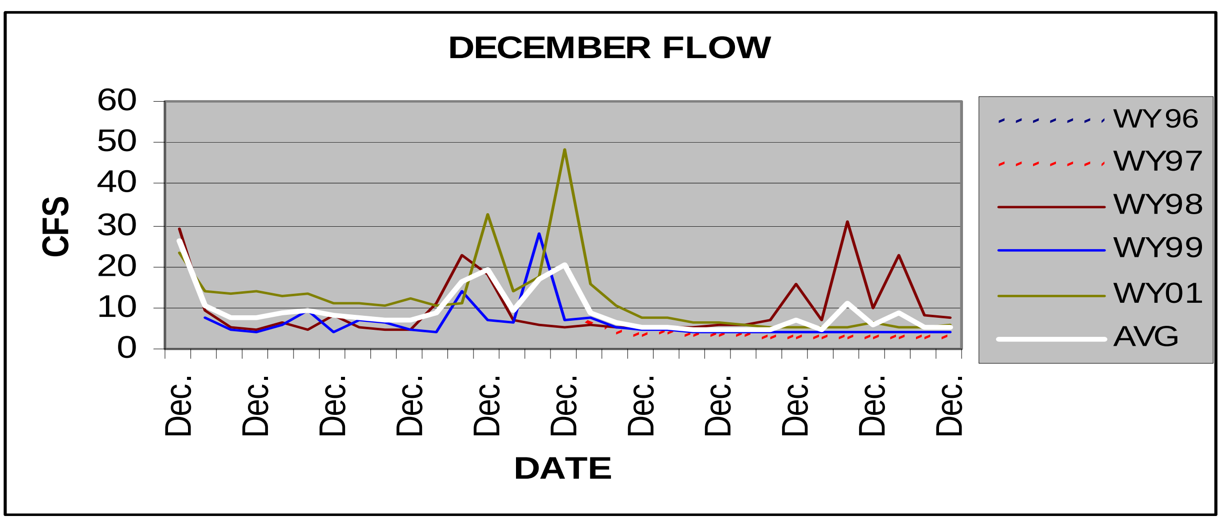
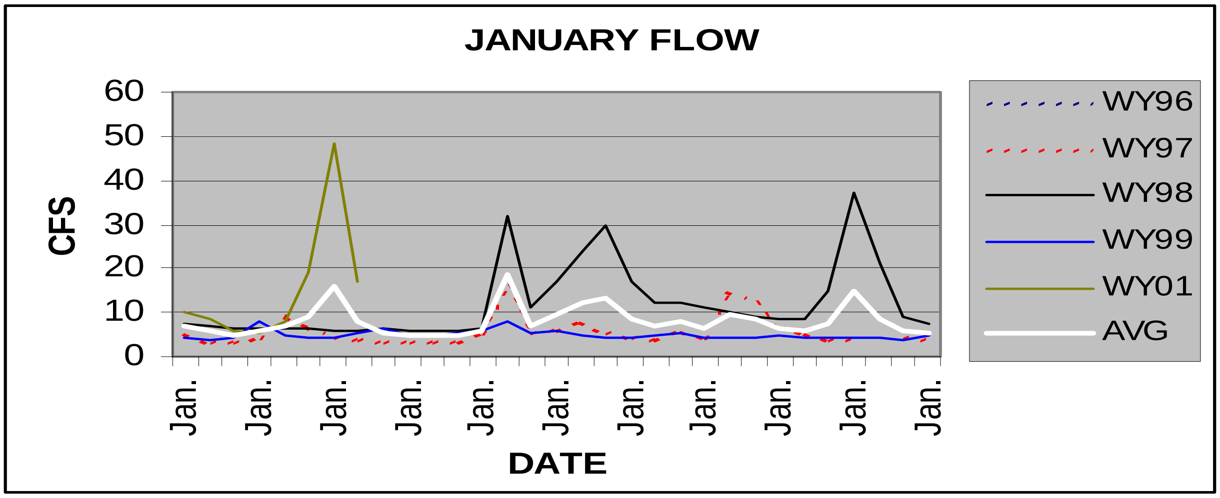
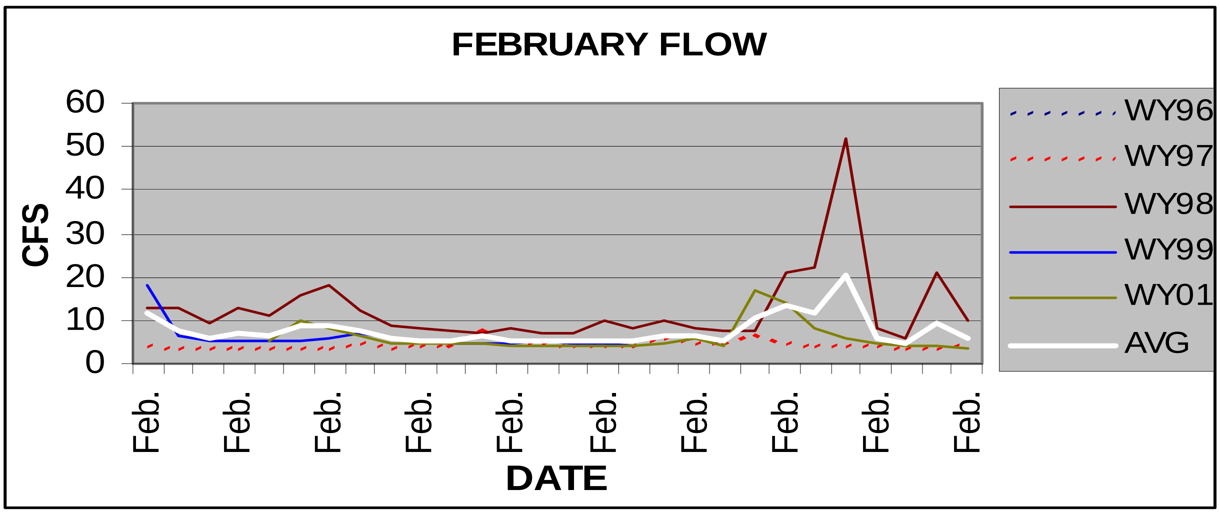


Figure 4 Karcher (Olney) Creek Flow Data in Monthly increments





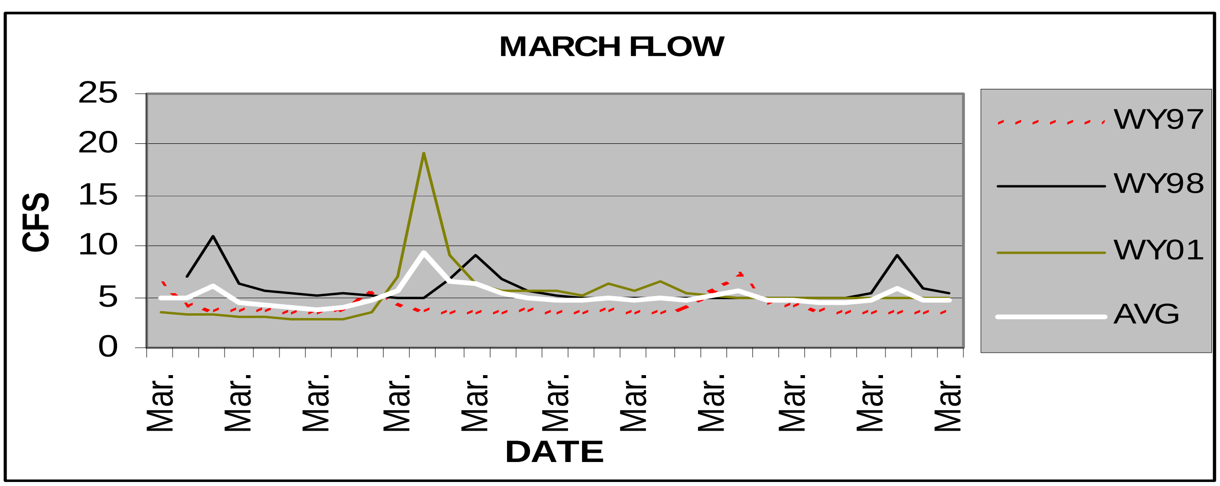
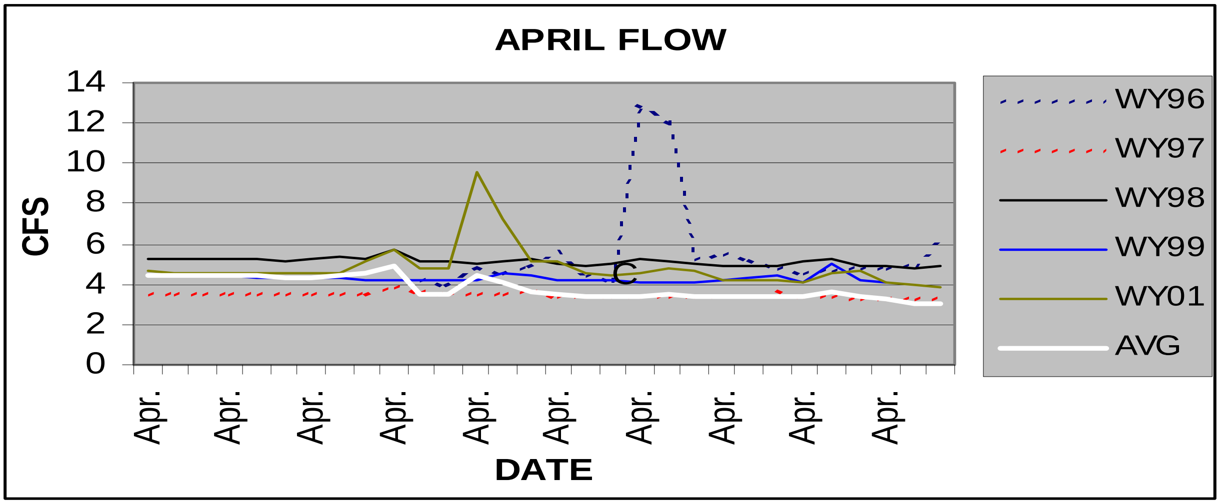
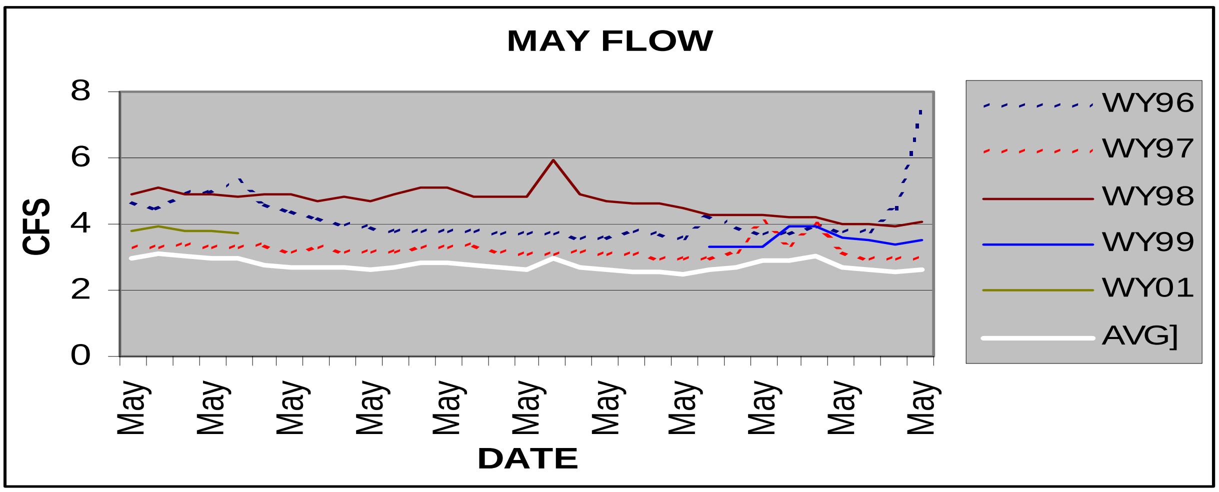


Figure 4 Karcher (Olney) Creek Flow Data in Monthly increments





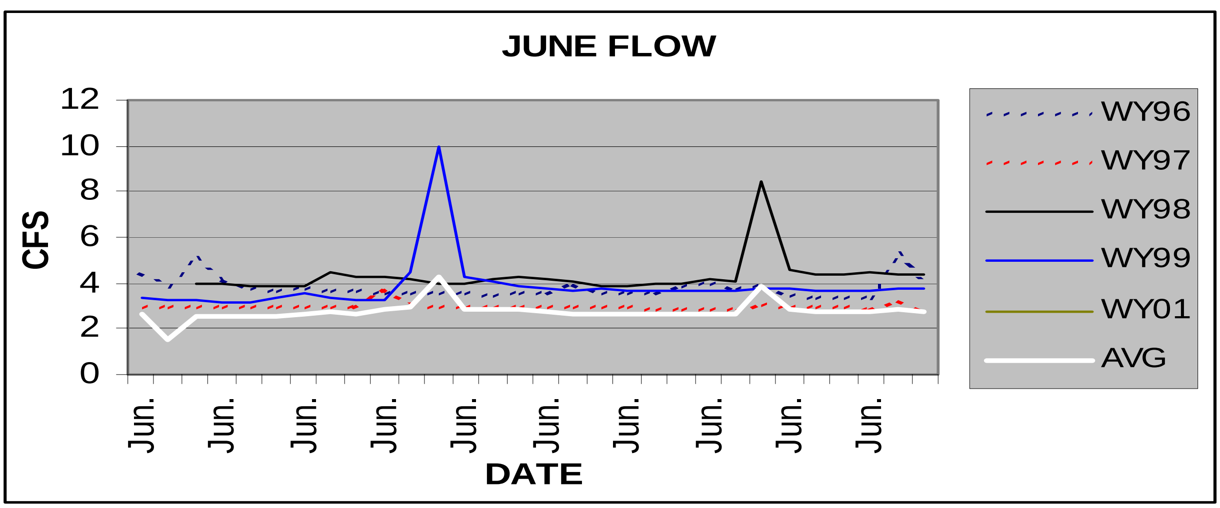
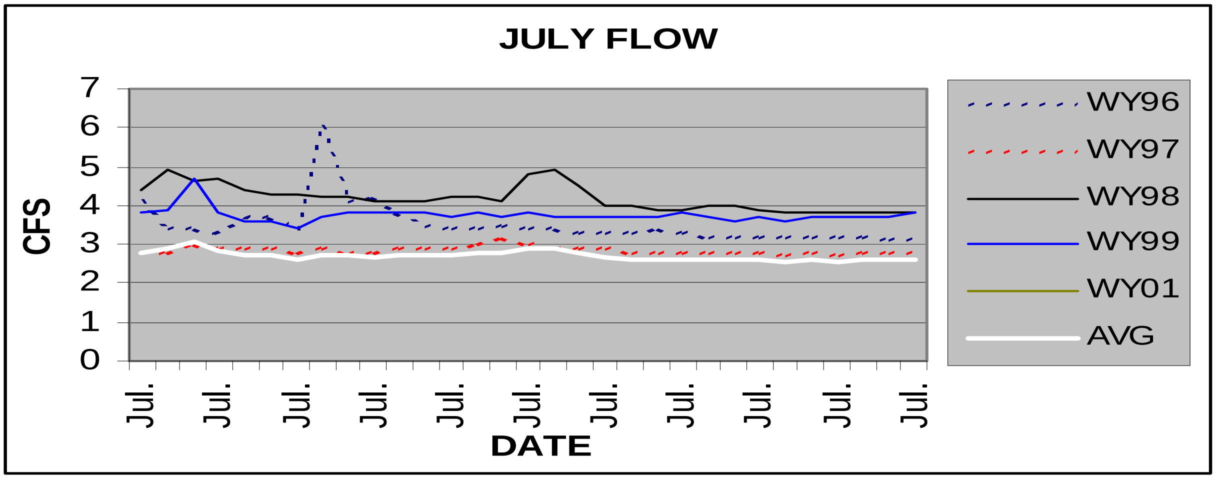
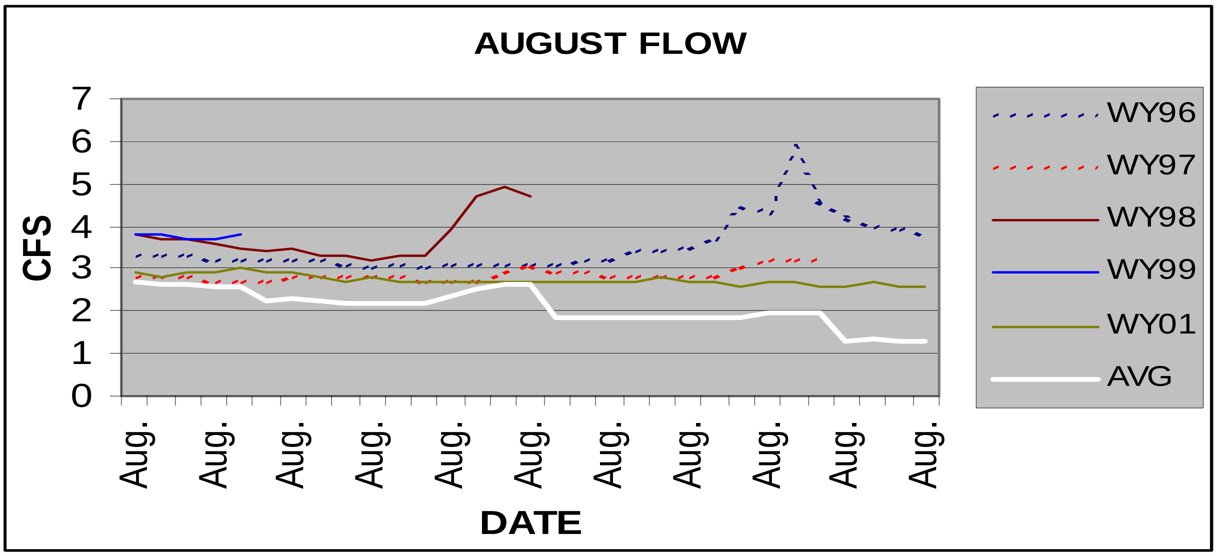


Figure 4 Karcher (Olney) Creek Flow Data in Monthly increments





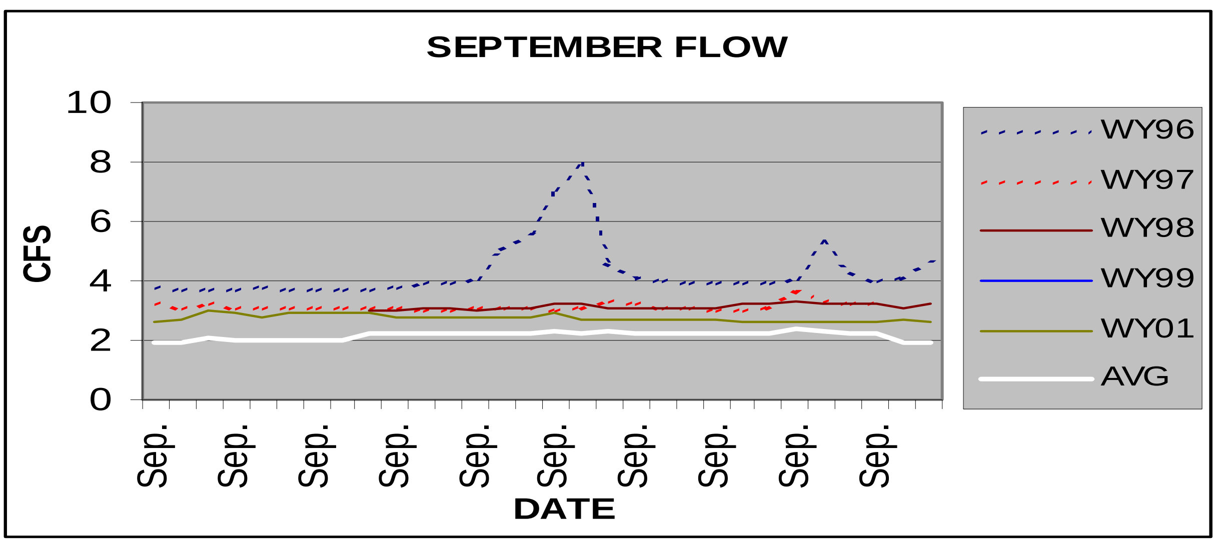


Figure 4 Karcher (Olney) Creek Flow Data in Monthly increments

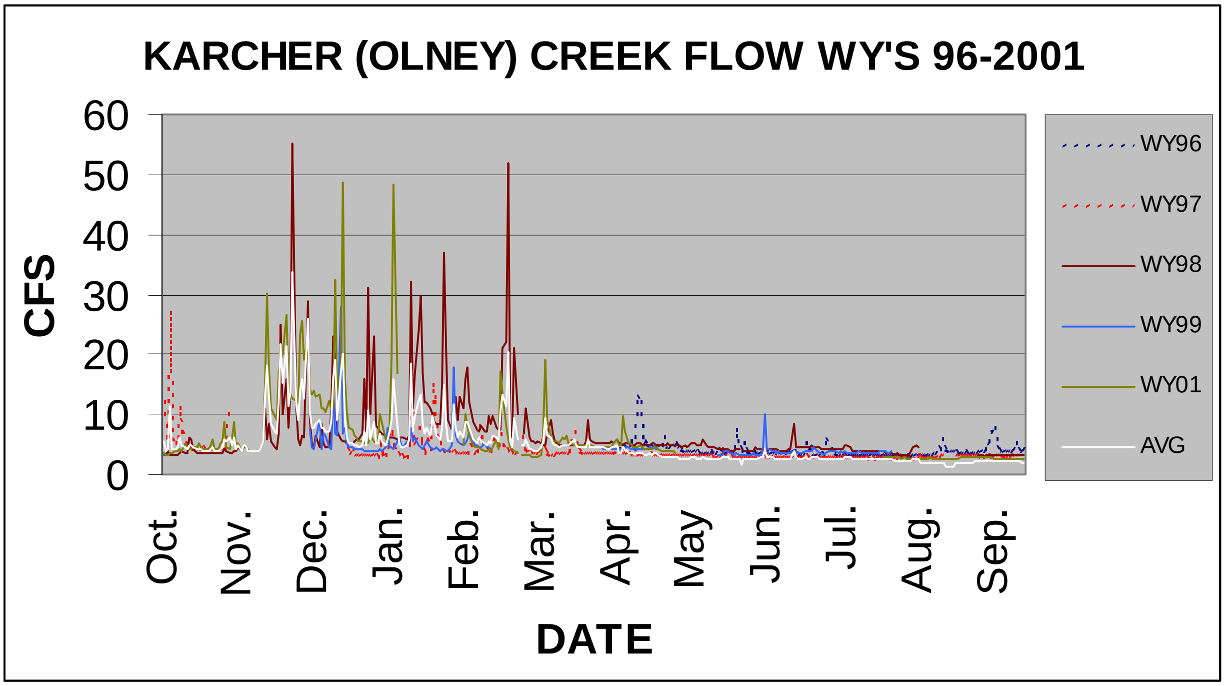


Figure 5 Karcher (Olney) Creek yearly flow data.

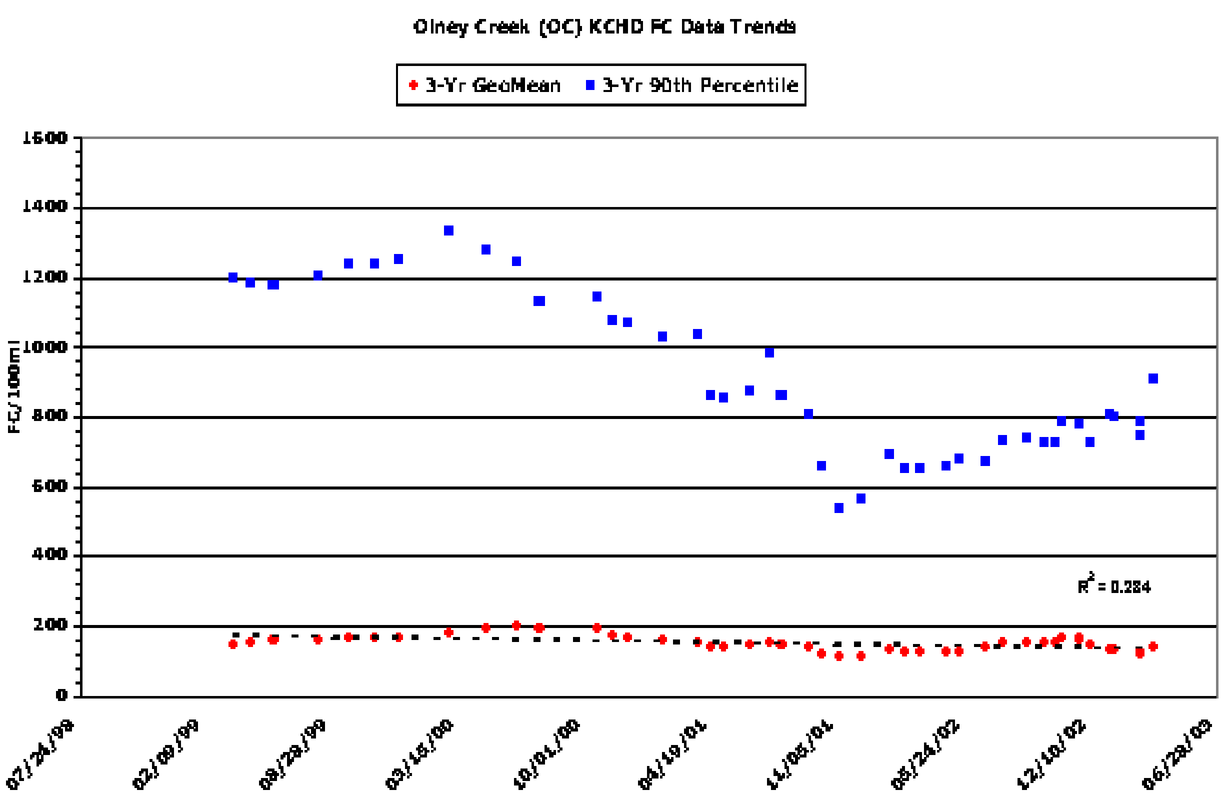


Figure 6 Olney Creek (OC) KCHD FC Data Trends

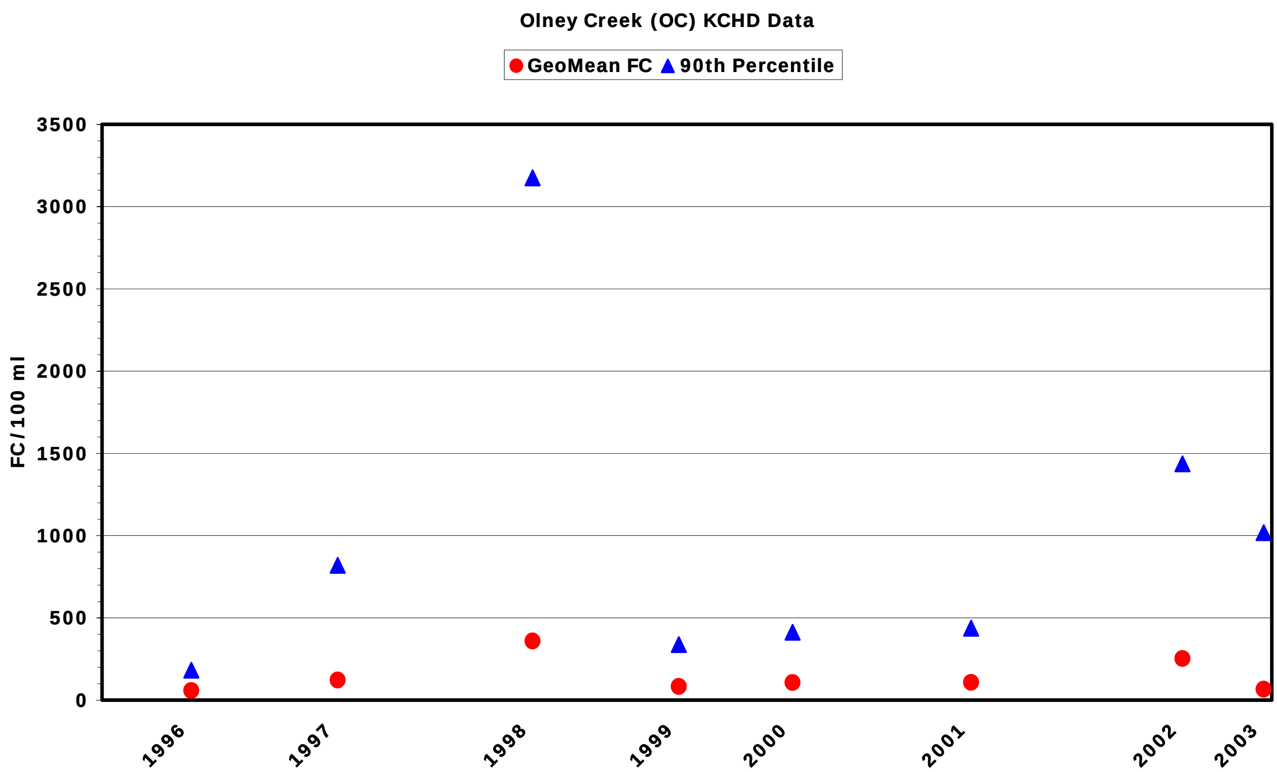


Figure 6 cont. Olney Creek (OC) KCHD Data

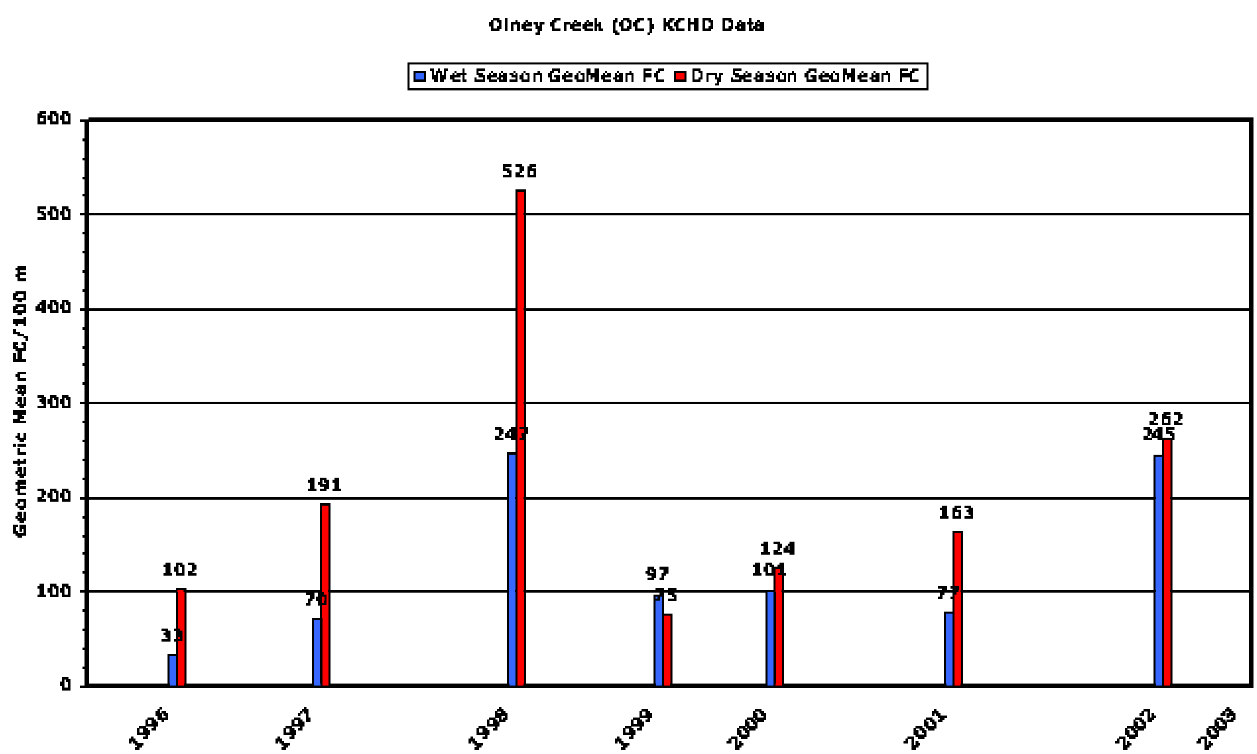


Figure 6 cont. Olney Creek (OC) KCHD Data

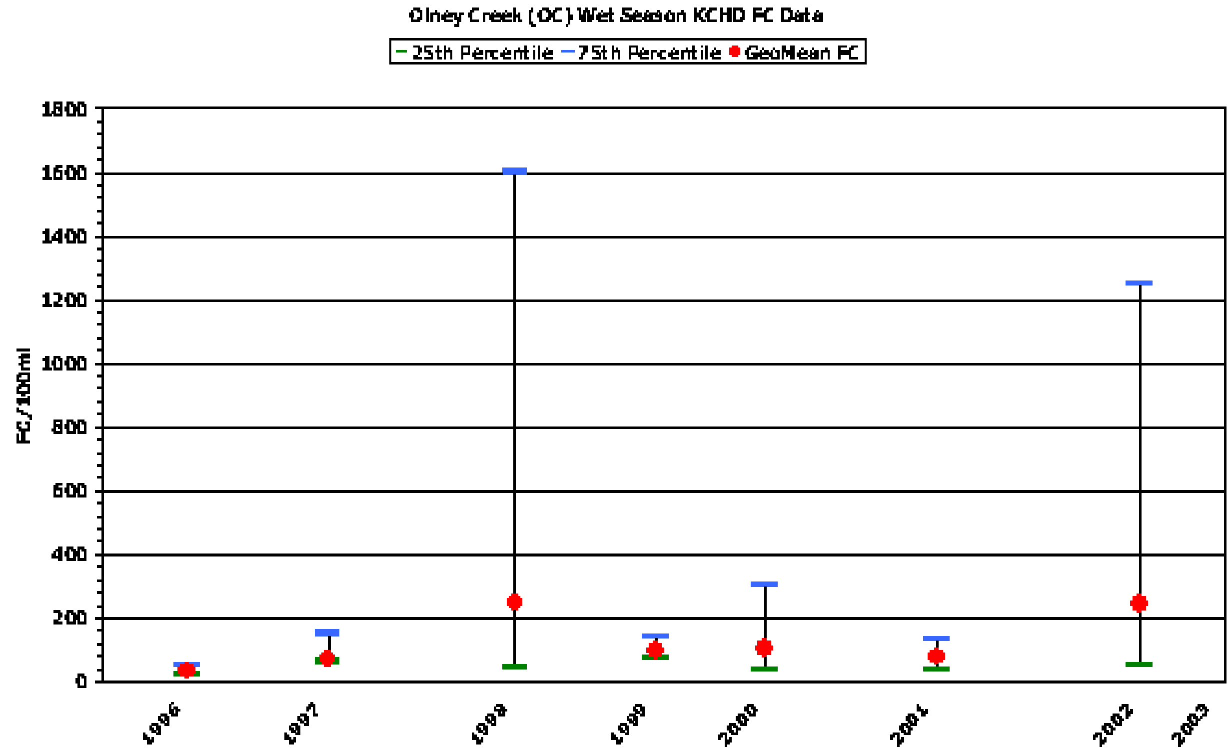


Figure 6 cont. Olney Creek (OC) KCHD Data

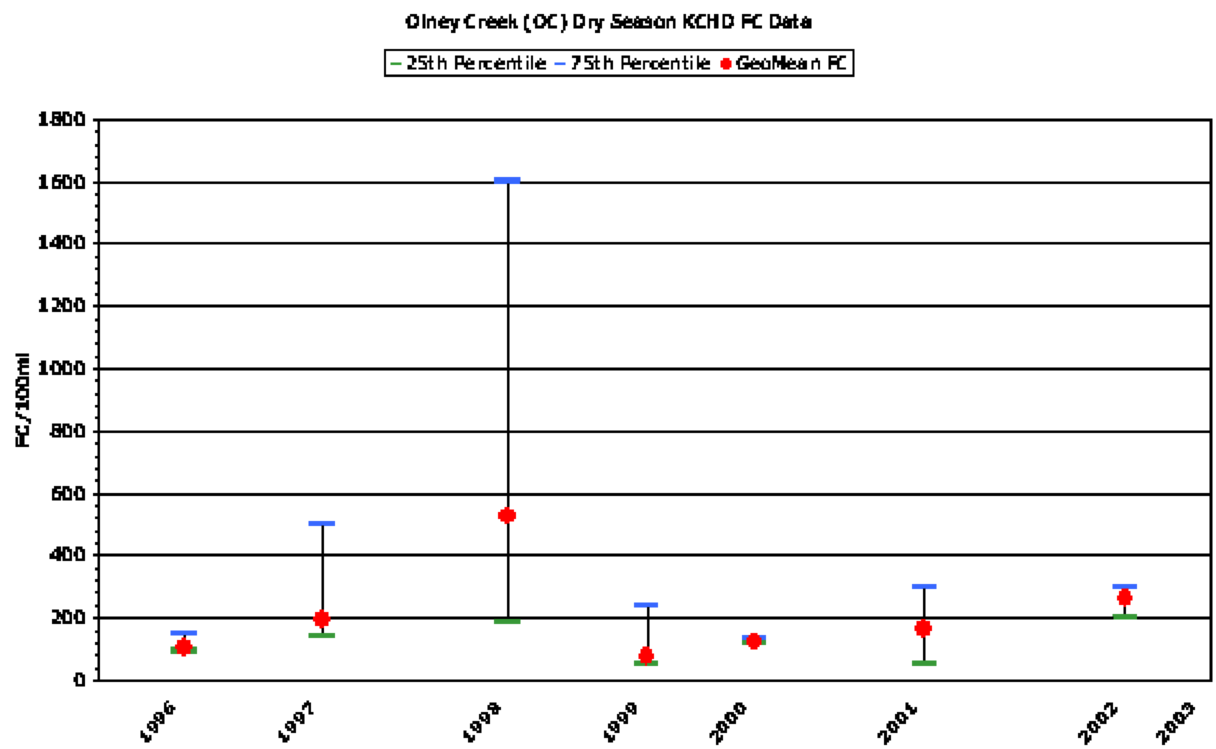


Figure 6 cont. Olney Creek (OC) KCHD Data

ROSS CREEK

Figure 1 shows the location of Ross Creek watershed within the Sinclair Inlet watershed boundary. Ross Creek basin is hatchet shaped, covers about 1200 acres, and has its headwaters near McCormick Woods (Zimny et al., 2003). Being influenced by the local area geology, the stream network is dendritic as seen in the shaded relief map of the Ross Creek Watershed (Fig. 2) ("Maps a la carte, Inc.", 2004). However, the mainstream of Ross Creek is long, relatively straight and narrow making for a rapid flow response to precipitation. A short ways from the discharge into Sinclair Inlet, a small branch feeder stream from the south confluences with Ross's mainstem. Surficial hydrogeology of the area consists of Vashon till in the upper basin, and a large patch of till in the lower area. Ross Creek has cut down through the till into Vashon advance outwash through the length of its main concourse, which is also true of the branch feeder stream coming from the south. The northern boundary of the Ross Creek Basin is rimed by, Quaternary nonglacial floodplain deposits (Jones, et al, 1998). Ross Creek Basin Land Use Land Cover map is shown in Fig. 3, with the basin land use predominantly vacant land, open land, and mixed use right of way, with approximately 23% of the land in total impervious area (%TIA) (Table 1). Figure 4 is an aerial photograph of Ross Creek Basin (Space Imaging. 2002). Ross Creek flow is not monitored and the only water quality sampling site for the creek is (RS02), established by the Kitsap County Health Department. This is not a sampling basin for the ENVVEST project.

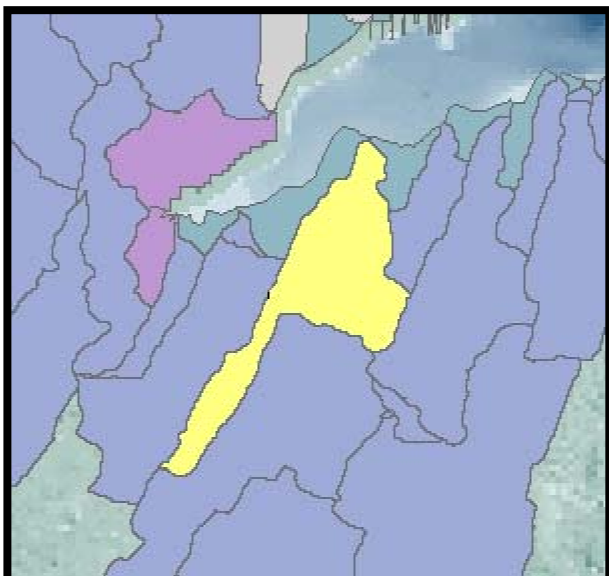


Fig 1 Location of Ross Creek Watershed in Sinclair Inlet

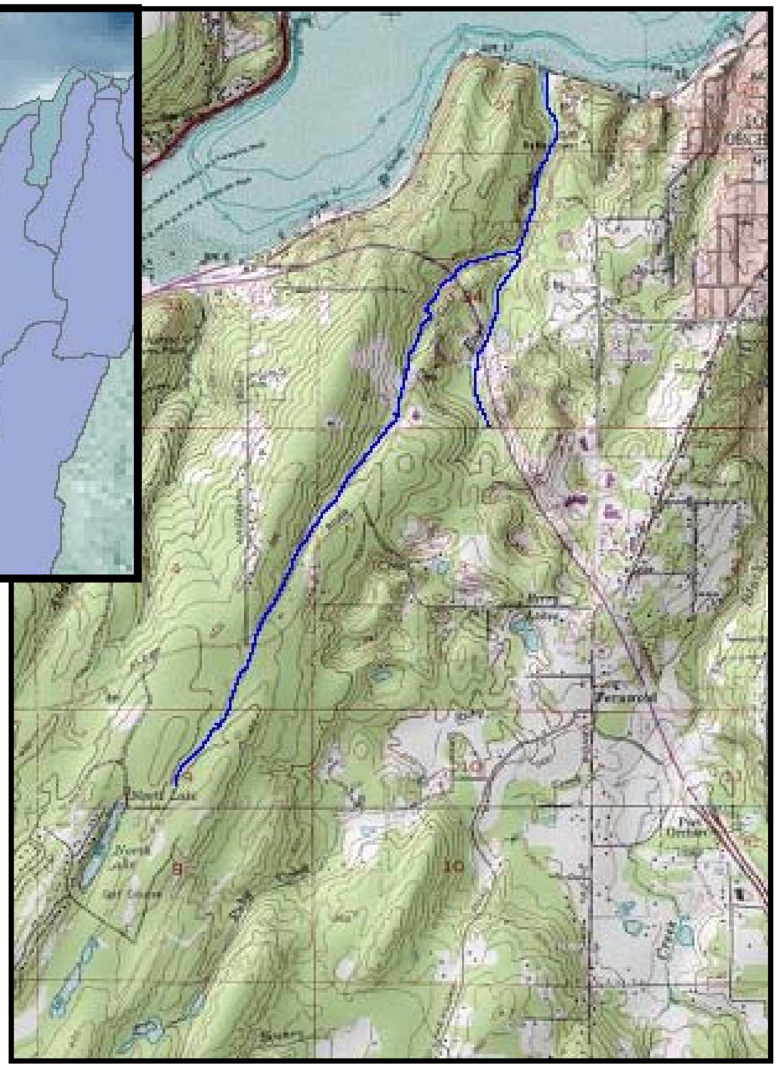
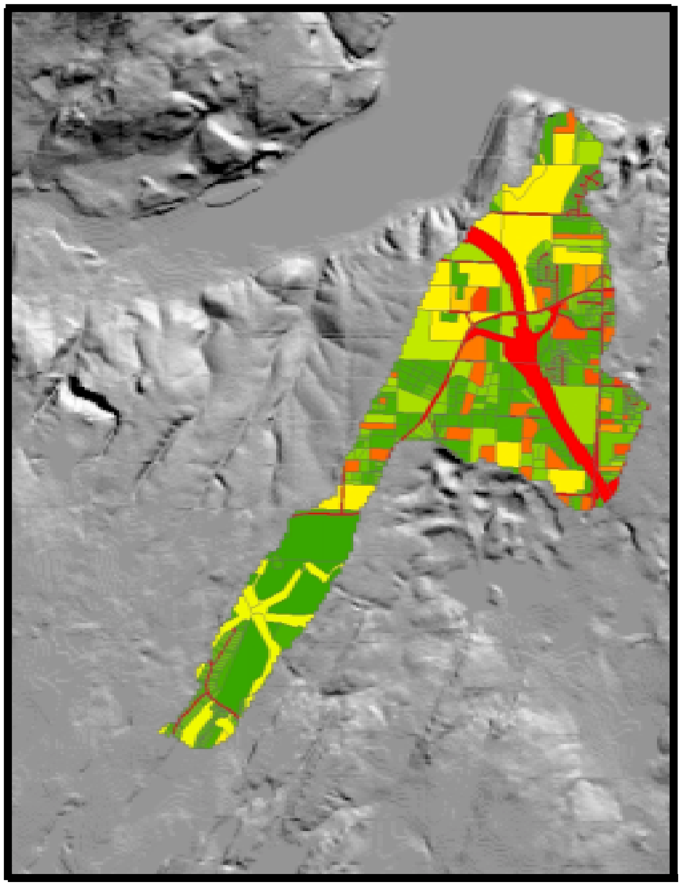
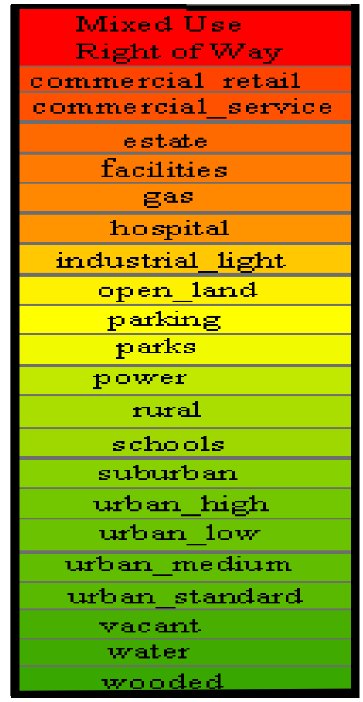


Fig. 2 Shaded Relief Map of Ross Creek Watershed Area





LULC KEY

Fig. 3 Ross Creek Land Use Land Code Parcels

LandCode	Percent impervious	Area_sq. feet	% Total Area	Impervious Area sq feet	% TIA
Mixed Use-Right of Way	44.300	6679784.02	12.04%	2959144.32	5.33%
Commercial_Retail	59.500	439260.87	0.79%	261360.22	0.47%
Commercial_Service	55.100	698843.80	1.26%	385062.93	0.69%
Estate	20.800	2906088.64	5.24%	604466.44	1.09%
Facilities	66.400	367935.00	0.66%	244308.84	0.44%
Gas	54.300	82170.68	0.15%	19967.47	0.04%
Hospital	66.400	686017.17	1.24%	455515.40	0.82%
Industrial_Light	59.800	335623.00	0.61%	200702.55	0.36%
Open_Land	9.270	8608550.90	15.52%	798012.67	1.44%
Parking	51.400	4204.75	0.01%	2161.24	0.00%
Parks	18.100	2854781.57	5.15%	516715.46	0.93%
Power	5.700	1143809.00	2.06%	65197.11	0.12%
Rural	16.100	3006146.13	5.42%	483989.53	0.87%
Schools	46.000	1302430.00	2.35%	599117.80	1.08%
Suburban	38.900	2643262.97	4.76%	1028229.29	1.85%
Urban_High	25.900	566175.10	1.02%	146639.35	0.26%
Urban_Low	38.200	3189328.37	5.75%	1218323.44	2.20%
Urban_Medium	35.600	280944.72	0.51%	100016.32	0.18%
Urban_Standard	44.000	1930373.05	3.48%	849364.14	1.53%
Vacant	11.400	11751767.39	21.18%	1339701.48	2.42%
Water	9.200	45302.70	0.08%	4167.85	0.01%
Wooded	4.200	5950696.80	10.73%	249929.27	0.45%
Total sq. Feet		55473496.61		12532093.13	22.59%
Acres		1192.21		287.70	

Table 1 Ross Creek Land Use Land Code Data

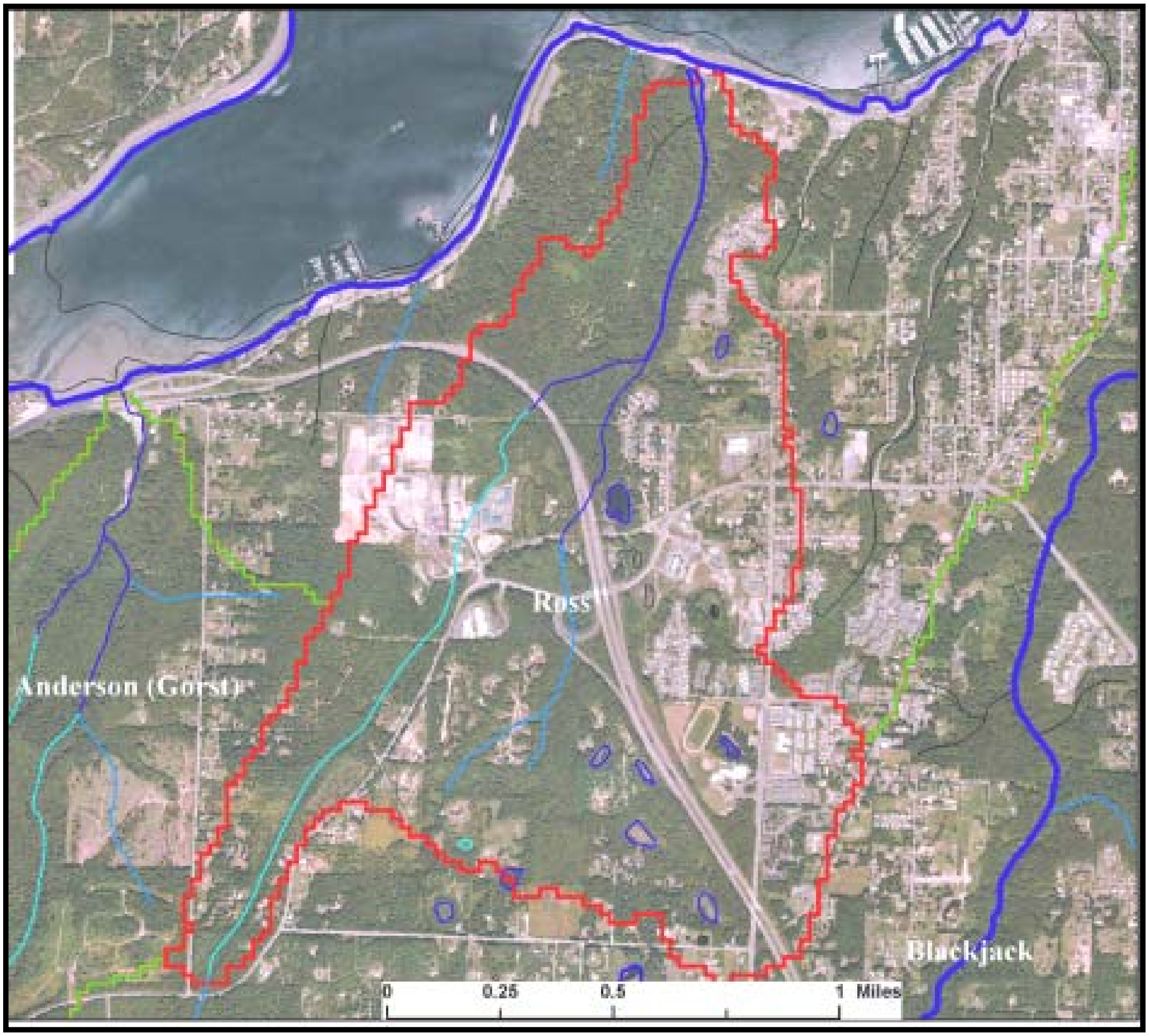


Fig. 4 Aerial Photograph of Ross Creek Basin

SACCO CREEK

Sacco Creek basin is a small watershed with an area of less than 200 acres. It's location within the Sinclair Inlet watershed boundary is on the southern shoreline as seen in Fig. 1 (Zimny et al., 2003). The mainstream of Sacco Creek is about one-half mile in length with a slope to bay of approximately 10% Fig. 2 ("Maps a la carte, Inc.", 2004). Surficial hydrogeology of the area consists of Vashon Advance outwash in the upper basin, with the northern portion of the watershed being Quaternary non-glacial floodplain deposits (Jones, et al, 1998). The Land Use Land Cover map for Sacco Creek Basin is shown in Fig. 3. The basin's land use is predominantly Vacant Land with approximately 26% of the land in total impervious area (%TIA) (Table 1). Sacco Creek flow is not monitored and the only water quality sampling site for the creek is (Sacco) Fig 2, established by the ENVVEST project team for the 2002-2003 wet season. Data for the water quality site is found in Table 2.

Figure 4 Location of Sacco Creek Watershed in Sinclair Inlet

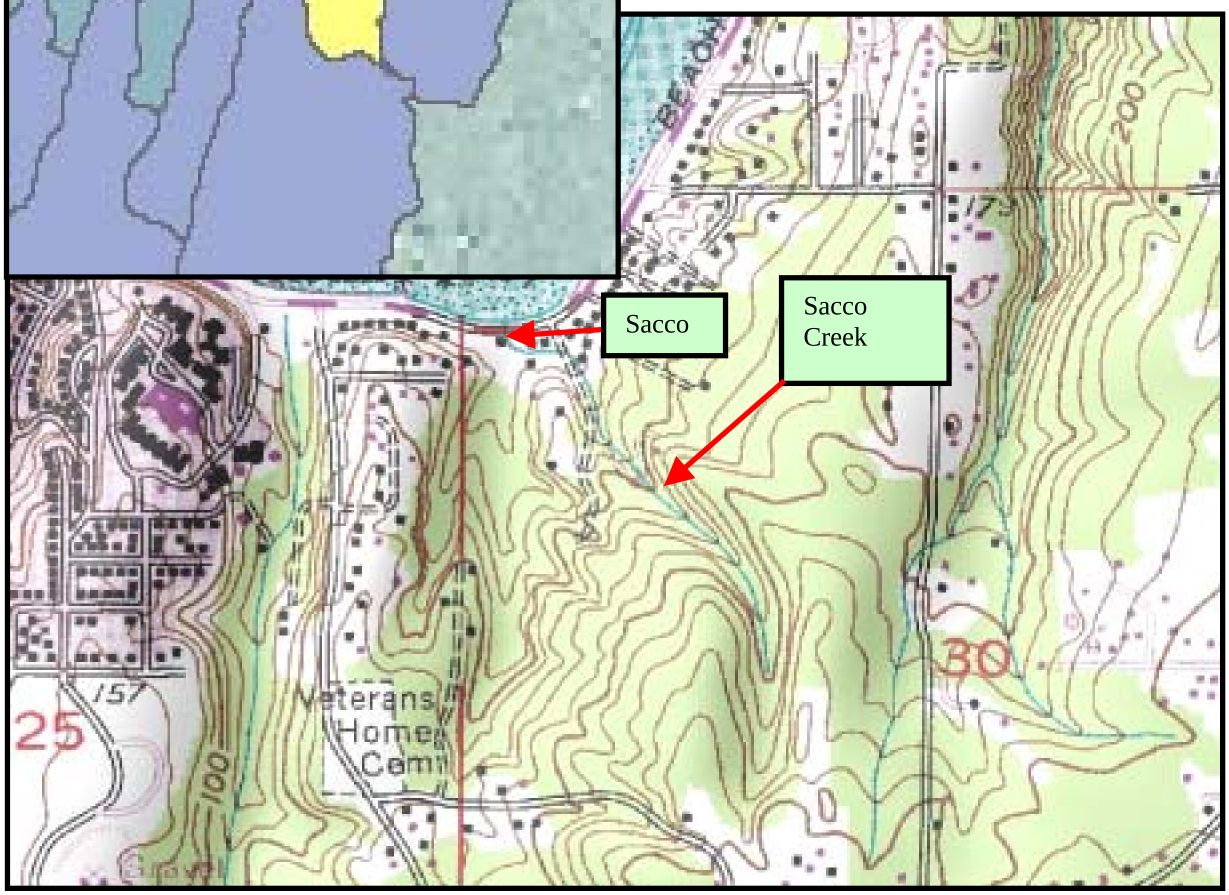


Figure 2 Shaded Relief Map of Sacco Creek Watershed and Water Quality Site (SACCO)

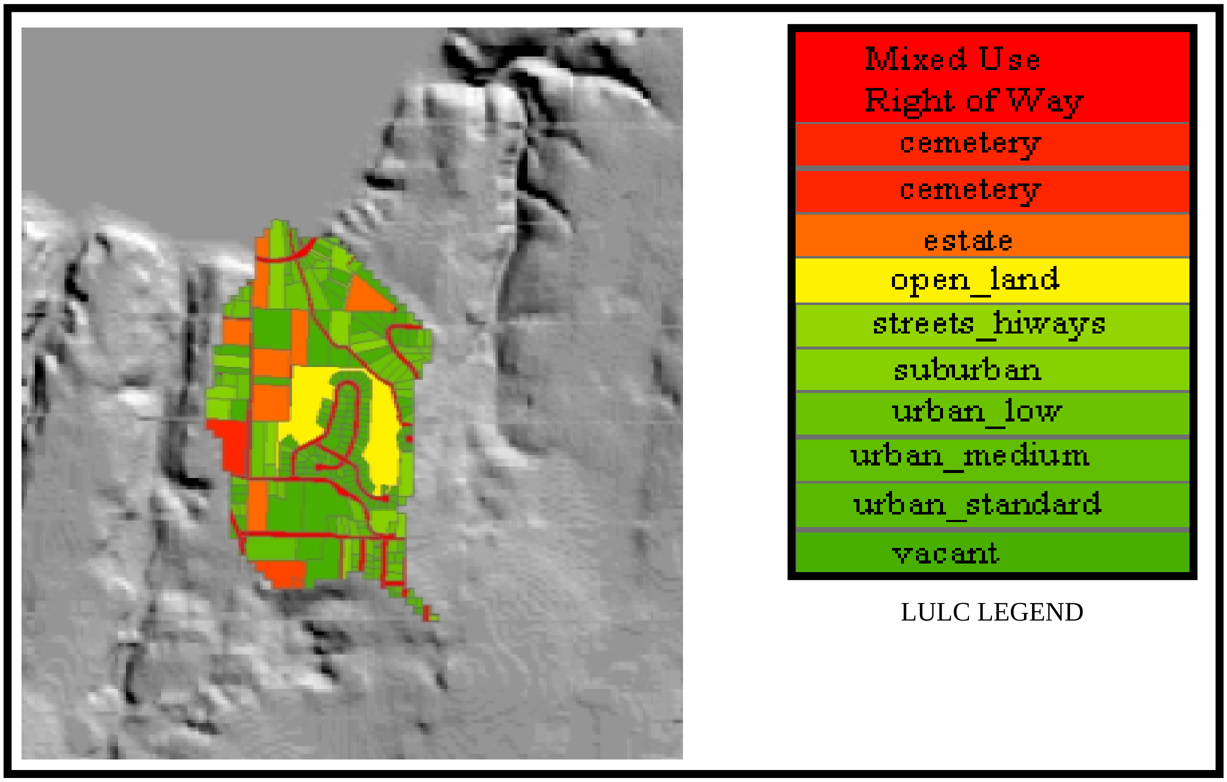


Figure 3 Sacco Creek Watershed Land Use Land Cover

LandCode	Percent impervious	Area_sq. feet	% of Total Area	Impervious Area sq feet	% TIA
Mixed Use-Right of Way	44.30	880943.66	10.27%	390258.039	4.55%
Cemetary	17.10	212031.00	2.47%	36257.301	0.42%
Commercial_Retail	59.50	168630.50	1.97%	100335.148	1.17%
Estate	20.80	1018133.00	11.87%	211771.664	2.47%
Open_Land	9.27	874962.00	10.20%	81108.977	0.95%
Streets_	49.90	34695.30	0.40%	17312.955	0.20%
Suburban	38.90	887719.23	10.35%	345322.780	4.03%
Urban_Low	38.20	1227345.33	14.31%	468845.917	5.47%
Urban_Medium	35.60	168854.00	1.97%	60112.024	0.70%
Urban_Standard	44.00	409325.56	4.77%	180103.248	2.10%
Vacant	11.40	2691230.15	31.39%	306800.238	3.58%
Total		**8573869.74**		**2198228.29**	**25.64%**
Acres		**196.83**		**50.46**	

Table 5 Sacco Creek Land Use Land Code Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02450427	SACCO	SSTREAMS	07-Nov-02	FCOL(MF)	7.7	120	422	8.9	1.71
02470407	SACCO	SSTREAMS	13-Nov-02	FCOL(MF)		20			1.2
02460407	SACCO	SSTREAMS	13-Nov-02	FCOL(MF)	7.1	29		9.9	2.04
02460417	SACCO	SSTREAMS	14-Nov-02	FCOL(MF)	6.9	500	160	9.3	2.48
02470417	SACCO	SSTREAMS	14-Nov-02	FCOL(MF)	7.2	208	290	10.2	3.6
02470427	SACCO	SSTREAMS	21-Nov-02	FCOL(MF)	6.7	8	362	9.8	0.99
02490406	SACCO	SSTREAMS	05-Dec-02	FCOL(MF)		29			6.41
02490407	SACCO	SSTREAMS	05-Dec-02	FCOL(MF)		31			6.41
02500406	SACCO	SSTREAMS	09-Dec-02	FCOL(MF)	7.1	130	395	6.8	3.13
02500416	SACCO	SSTREAMS	11-Dec-02	FCOL(MF)	6.7	1100	237	7.1	5.85
02500427	SACCO	SSTREAMS	12-Dec-02	FCOL(MF)		120	215	8.5	5.13
02510407	SACCO	SSTREAMS	16-Dec-02	FCOL(MF)		420			
02510417	SACCO	SSTREAMS	19-Dec-02	FCOL(MF)		108			
03020407	SACCO	SSTREAMS	06-Jan-03	FCOL(MF)	7.2	240	260	1.83	5.35
03030406	SACCO	SSTREAMS	13-Jan-03	FCOL(MF)	7.3	60	123.6	6.82	8.06
03030416	SACCO	SSTREAMS	15-Jan-03	FCOL(MF)	7.3	140	136.1	6.18	5.14
03040406	SACCO	SSTREAMS	22-Jan-03	FCOL(MF)	7.2	320	69	7.21	36.5
03040407	SACCO	SSTREAMS	22-Jan-03	FCOL(MF)	7.2	310	69	7.21	36.5
03040417	SACCO	SSTREAMS	23-Jan-03	FCOL(MF)	7.2	66	93.3	8.21	11.6

Table 6 Sacco Creek Fecal Coliform and ancillary data for ENVVEST water quality site SACCO

STRAWBERRY CREEK

Strawberry Creek is a Class 'A' stream on the Northwest end of the Dyes Inlet (Zimny et al., 2003). The watershed boundary with approximately 3.8 miles of mainstream and feeders supports cutthroat trout, Coho and Chum Salmon (May, et al, 2003). Fig. 1 shows the location of Strawberry Creek basin within the Dyes Inlet watershed boundary. Strawberry Creek, flowing in a southeasterly direction enters Dyes Inlet on the west side of the bays northern boundary Fig. 2 Figure 3 is the watershed Land Use Land Code which shows the basin being mostly vacant, urban low and open land use, with a basin total impervious area (%TIA) of approximately 27% Table 1. Figure 4 is an aerial photograph of Strawberry Creek Basin. Strawberry Creek basin has Vashon till in the northern portion and a strip of till on it's southern boundary. Vashon advanced outwash deposits run in a north-south direction on the western edge of the basin, while the main stream runs through Vashon recessional outwash as it flows to Dyes Inlet. Two narrow stripes of bog and peat material run in a northerly direction on the northern side of the watershed (Jones, et al, 1998). Kitsap PUD monitors the flow of Strawberry Creek by use of an established flow meter on the mainstem Fig. 2. The ENVVEST project team also established a water quality sampling site (SC) at Strawberry Creek mainstem Fig. 2. The wet season summary is presented in Table 2. Collected Fecal Coliform and ancillary data are shown in Table 3.

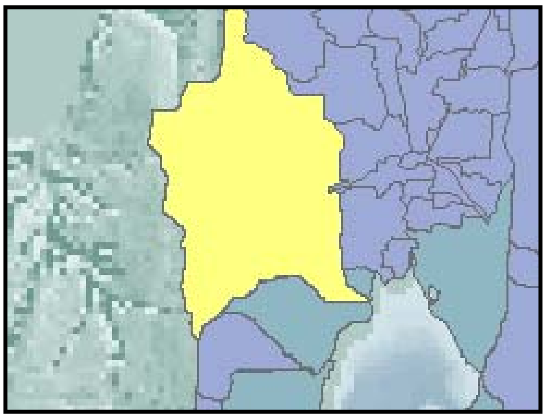


Figure 1 Location of Strawberry Creek in the Dyes Inlet Watershed boundary.

Figure 2 Approximate locations of stream gage and water quality site in Strawberry Creek watershed boundary.

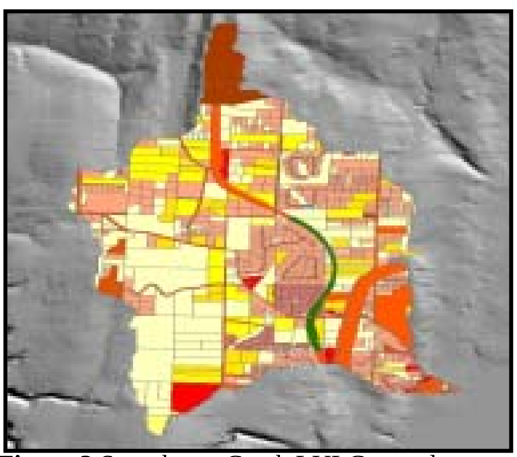
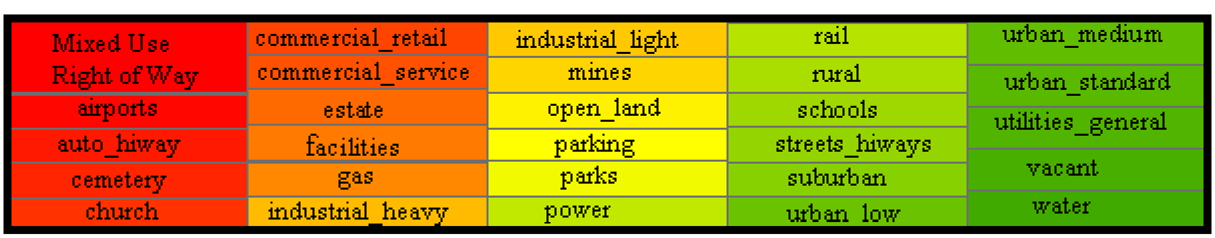


Figure 3 Strawberry Creek LULC parcels



LULC LEGEND

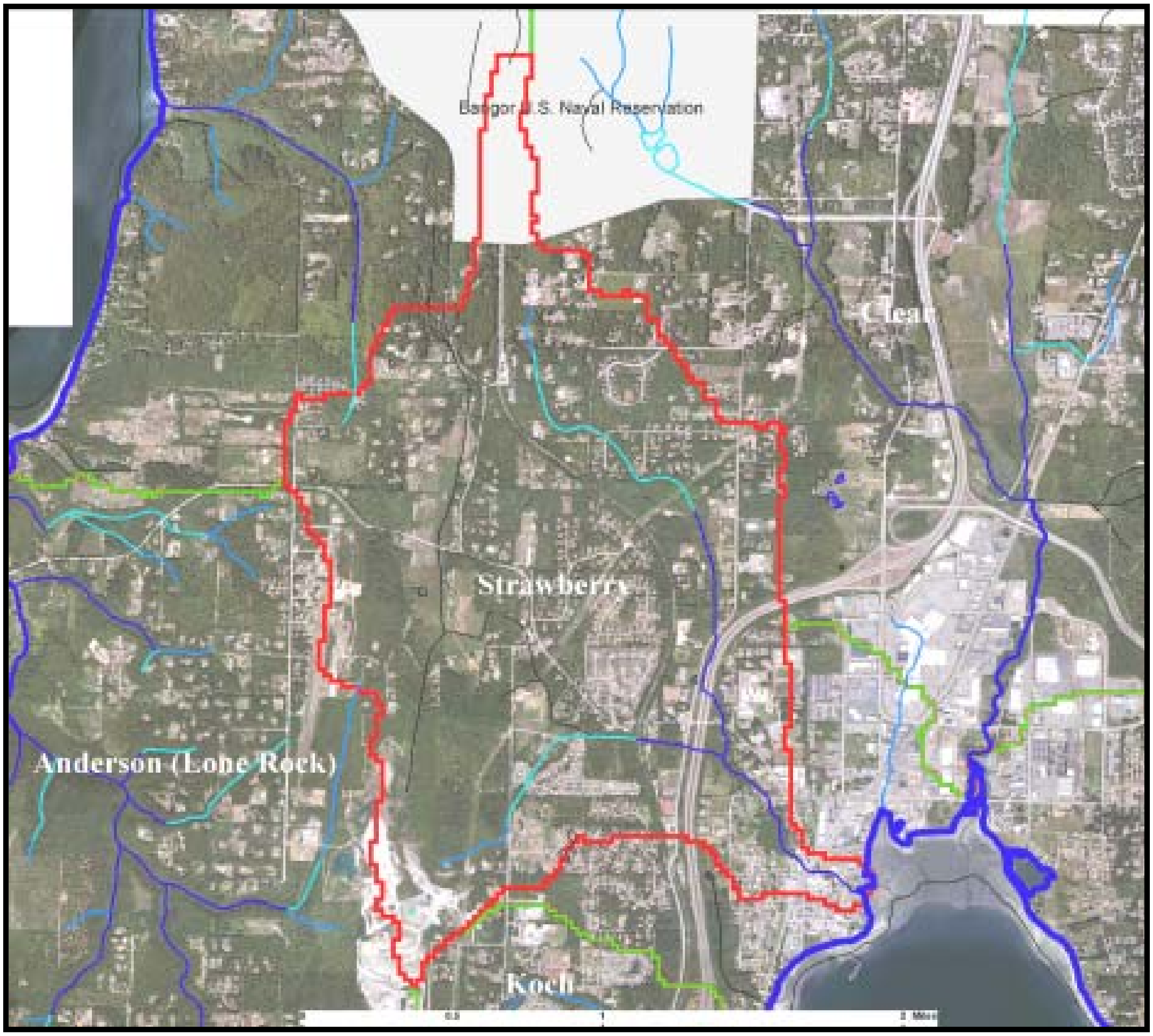


Figure 4 Aerial Photograph of Strawberry Creek

LandCode	% impervious	Area_sq. feet	% of Total Area	Impervious Area sq feet	%TIA of Total Area
Mixed Use-Right of Way	44.30	8094380.04	10.05%	3585810.36	4.454%
Airports	55.90	653904.00	0.81%	365532.34	0.454%
Auto_Hiway	59.90	37462.39	0.05%	22439.97	0.028%
Cemetary	17.10	213405.00	0.27%	36492.26	0.045%
Church	46.00	448694.32	0.56%	206399.39	0.256%
Commercial_Retail	59.50	197206.05	0.24%	117337.60	0.146%
Commercial_Service	55.10	1533918.49	1.91%	845189.09	1.050%
Estate	20.80	5890101.80	7.32%	1225141.18	1.522%
Facilities	66.40	319651.30	0.40%	212248.46	0.264%
Gas	54.30	166548.30	0.21%	90435.73	0.112%
Industrial_Heavy	82.10	2893.72	0.00%	2375.74	0.003%
Industrial_Light	59.80	136658.80	0.17%	81721.96	0.102%
Mines	4.80	359400.00	0.45%	17251.20	0.021%
Open_Land	9.27	13524741.24	16.80%	1253743.51	1.557%
Parking	51.40	104885.25	0.13%	53911.02	0.067%
Parks	18.10	1072947.90	1.33%	194203.57	0.241%
Power	5.70	66703.40	0.08%	3802.09	0.005%
Rail	1.90	946934.00	1.18%	17991.75	0.022%
Rural	16.10	5533961.48	6.87%	890967.80	1.107%
Schools	46.00	1847045.45	2.29%	849640.91	1.055%
Streets_	49.90	37329.57	0.05%	18627.45	0.023%
Suburban	38.90	9445424.25	11.73%	3674270.03	4.564%
Urban_Low	38.20	12665127.90	15.73%	4838078.86	6.010%
Urban_Medium	35.60	23540.50	0.03%	8380.42	0.010%
Urban_Standard	44.00	2149678.15	2.67%	945858.39	1.175%
Utilities_General	2.10	31241.70	0.04%	656.08	0.001%
Vacant	11.40	14959914.41	18.58%	1705430.24	2.118%
Water	9.20	42447.00	0.05%	3905.12	0.005%
Total		**80506146.39**		**21267842.50**	**26.42%**
Acres		**1848.17**		**488.24**	

Table 1 Strawberry Creek Land Use Land Cover Data

		GeoMean	Min	Max	25th	75th	90th	FC	Count	#FC	%FC	Meets AA	#FC	%FC	Meets A
Site ID	Site Description	FC	FC	FC	Percentile	Percentile	Percentile	COV	(N)	>100	>100	WQ Std	>200	>200	WQ Std
SC	Lower Mainstem Strawberry Crk	114	6	910	37	270	700	107%	21	13	62%	NO	9	43%	NO

Table 2 Strawberry Creek Basin Site (SC) Summary Wet Season 2002-2003

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	Turb
FC-200203-016	SC	KPUD	12-Mar-02	APAH -MPN			130				
FC-200203-036	SC	KPUD	13-Mar-02	APAH -MPN			130				
02450660	SC	NSTREAMS	08-Nov-02	FCOL(MF)	7.8		910		153	11.3	3.1
02460652	SC	NSTREAMS	13-Nov-02	FCOL(MF)	7.6		23		136	11.1	12
02460653	SC	NSTREAMS	13-Nov-02	FCOL(MF)			25				
02460673	SC	NSTREAMS	14-Nov-02	FCOL(MF)	7.7		9		133	11.5	3.2
02470656	SC	NSTREAMS	19-Nov-02	FCOL(MF)	7.7		25		128	11.8	1
02470657	SC	NSTREAMS	19-Nov-02	FCOL(MF)			33				
02470681	SC	NSTREAMS	19-Nov-02	FCOL(MF)			6				
02490656	SC	NSTREAMS	04-Dec-02	FCOL(MF)	7.6		80		139	9.5	7.5
02490657	SC	NSTREAMS	04-Dec-02	FCOL(MF)			104				
02500655	SC	NSTREAMS	10-Dec-02	FCOL(MF)	7.6		210		125	9.1	5.8
02500672	SC	SSWM-SW	11-Dec-02	FCOL(MF)	7.5	12.8	810	107	99	7.42	15.1
02510454	SC	TEC-STORM	15-Dec-02	FCOL(MF)			100				
02510445	SC	TEC-STORM	16-Dec-02	FCOL(MF)			169				
02510435	SC	TEC-STORM	16-Dec-02	FCOL(MF)			174				
02510657	SC	NSTREAMS	16-Dec-02	FCOL(MF)	7.1		185		73	9.6	5.8
02510673	SC	NSTREAMS	19-Dec-02	FCOL(MF)	7		300		105	8	7.8
03020657	SC	NSTREAMS	07-Jan-03	FCOL(MF)	7.5		17		91	7.3	8.8
03020438	SC	TEC-STORM	11-Jan-03	FCOL(MF)			237				
03020444	SC	TEC-STORM	12-Jan-03	FCOL(MF)			340				
03020451	SC	TEC-STORM	12-Jan-03	FCOL(MF)			251				
03030657	SC	NSTREAMS	13-Jan-03	FCOL(MF)	7		176		189	9.9	9.1
03030671	SC	NSTREAMS	15-Jan-03	FCOL(MF)	7.5		37		144	8.3	1.5
03040653	SC	NSTREAMS	21-Jan-03	FCOL(MF)	7.3		270		189	7.8	5.5
03040654	SC	NSTREAMS	21-Jan-03	FCOL(MF)			360				
03040678	SC	NSTREAMS	24-Jan-03	FCOL(MF)			430				
03110430	SC	TEC-STORM	08-Mar-03	FCOL(MF)	7.7		23		0.138	43.8	22.9
03110439	SC	TEC-STORM	09-Mar-03	FCOL(MF)	7.2		550		0.066	43.1	113
03110450	SC	TEC-STORM	09-Mar-03	FCOL(MF)	7.4		290		0.08	45.5	10.4
03110454	SC	TEC-STORM	12-Mar-03	FCOL(MF)	7.4		1300		0.085	48.7	129
03110461	SC	TEC-STORM	12-Mar-03	FCOL(MF)	6.9		620		0.055	48.6	523
03110468	SC	TEC-STORM	13-Mar-03	FCOL(MF)	6.7		430		0.052	48	297
03110469	SC	TEC-STORM	13-Mar-03	FCOL(MF)	6.7		340		0.052	48	297
03110479	SC	TEC-STORM	13-Mar-03	FCOL(MF)	6.8		300		0.052	49	1412
04171716	SC	NSTREAMS	19-Apr-04	FCOL(MF)	6.5		250		110	11.6	8.8
04171691	SC	SSWM-SW	20-Apr-04	FCOL(MF)	7.9		29		165	10.1	1.44
04171723	SC	NSTREAMS	20-Apr-04	FCOL(MF)	7.7		15		130	10.9	2.2

Table 3 Fecal Coliform and Ancillary Data for Strawberry Creek Water Quality Site (SC)

WRIGHT CREEK

Wright Creek Basin, with a non-fish bearing stream is a small watershed that lies on the Northern side of Sinclair Inlet (Zimny et al., 2003). The location of Wright Creek basin within the Sinclair Inlet watershed boundary is shown in Fig. 1, with general basin topography displayed in Fig. 2 ("Maps a la carte, Inc.", 2004). Figure 3 is the watershed Land Use Land Cover designations which shows the basin being mostly vacant, and open land use, with a total impervious area (%TIA) approximately 19% Table 1. Wright Creek basin has Vashon till in the northern portion with Vashon recessional fine outwash deposits on the lower or southern end. Non-glacial flood plane deposits rim the lower end of the basin where it adjoins Sinclair Inlet (Jones, et al, 1998). Figure 4 shows an aerial photograph of Wright Creek Basin (Space Imaging, 2002). Wright Creek is a non-monitored and non-sampled creek for ENVVEST.

Figure1 Location of Wright Creek Basin in Sinclair Inlet Watershed boundary

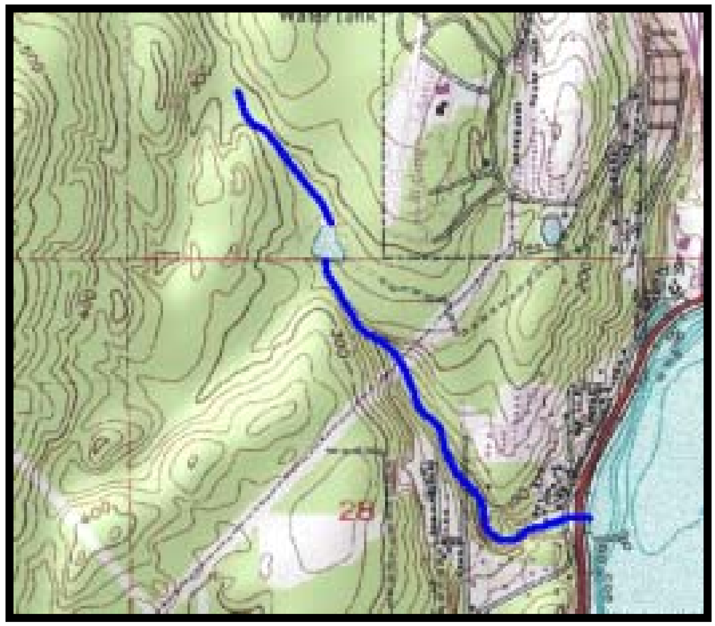


Figure 2 Topography of Wright Creek Basin

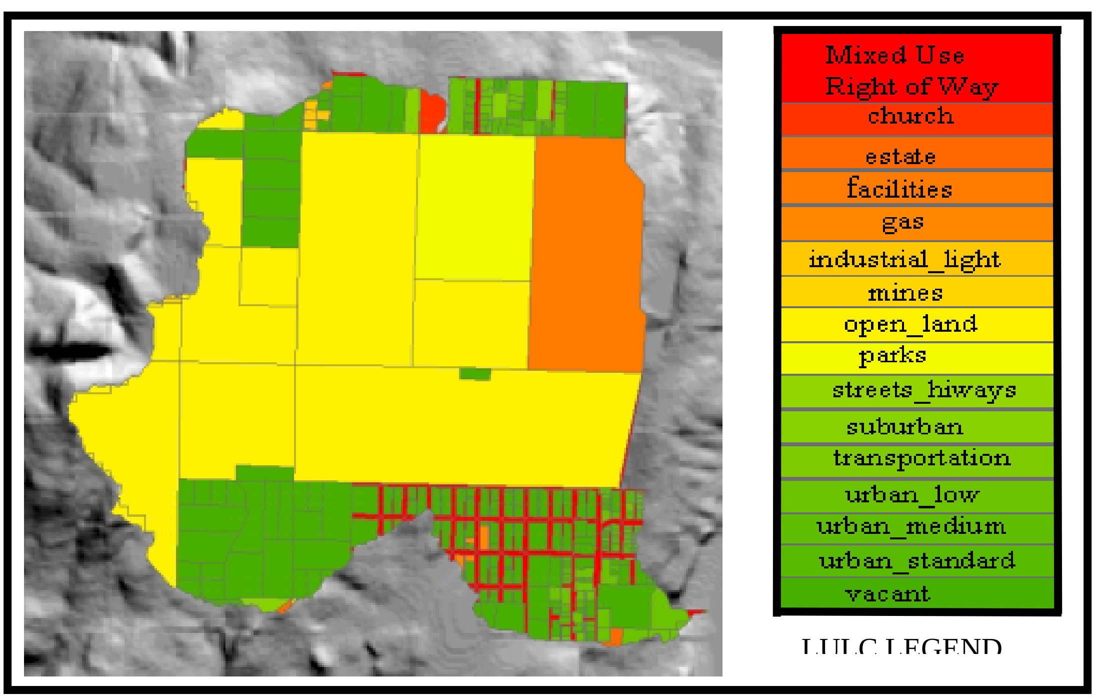


Figure 3 Wright Creek Land Use Land Cover Parcels

LandCode	Percent Impervious	Area_Sq. Feet	% of Total land Area	Impervious Area sq feet	% TIA
Mixed Use-right-of-way	44%	414380.39	1.3%	183570.51	0.5940%
church	46%	127065.00	0.4%	58449.90	0.1891%
estate	21%	46293.32	0.1%	9629.01	0.0312%
facilities	66%	3274331.03	10.6%	2174155.80	7.0349%
gas	54%	64164.60	0.2%	34841.38	0.1127%
industrial_light	60%	64266.70	0.2%	38431.49	0.1244%
mines	5%	18127.85	0.1%	870.14	0.0028%
open_land	9%	15765067.26	51.0%	1461421.73	4.7287%
parks	18%	2190790.00	7.1%	396532.99	1.2831%
streets_hiways	50%	5657.03	0.0%	2822.86	0.0091%
suburban	39%	278661.00	0.9%	108399.13	0.3507%
transportation	11%	983.39	0.0%	107.19	0.0003%
urban_low	38%	836728.52	2.7%	319630.29	1.0342%
urban_medium	36%	72455.07	0.2%	25794.01	0.0835%
urban_standard	44%	356661.78	1.2%	156931.18	0.5078%
vacant	11%	7389798.04	23.9%	842436.98	2.7259%
Total Area Sq. Ft.		30905430.98		5814024.59	19%
Acres		709.49		133.47	

Table 1 Wright Creek Land Use Land Cover Data

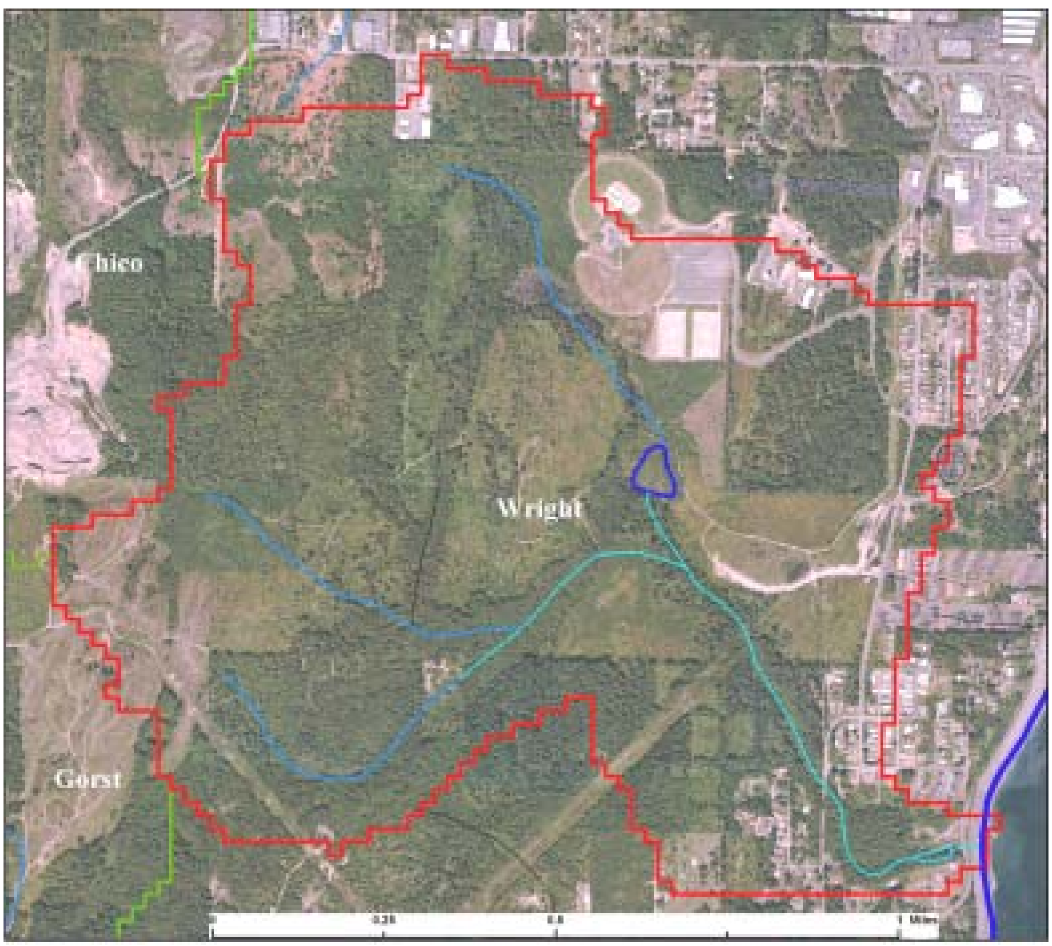


Figure 4 Aerial Photograph of Wright Creek Basin

Mosher Creek

Moser Creek is a class "A" stream within the Dyes Inlet watershed boundary and enters the bay perpendicular to the eastern shoreline (Fig. 1). The watershed is long and rectangular shaped with a small protuberance on the watersheds southern end (Zimny et al., 2003). Fig. 2 shows a shaded reilief map of the basin for topographic clarity ("Maps a la carte, Inc.", 2004), and Figure 3 is an aerial photograph of the basin (Space Imaging, 2002). The dominant surficial hydrogeologic unit of the basin is Vashon till. Marsh and bog deposits make up a large area in the upper basin, while the man stream channel flows through Quaternary alluvium (Jones, et al, 1998). The basin is predominantly urban low, vacant, and urban standard land use (Fig. 4), with over 31% of the land being total impervious area (%TIA) (Table 1). A water quality sampling site (MS01) (Fig. 2) was established by KCHD on Mosher Creek for monitoring Fecal Coliform. The ENVVEST project team for scheduled sampling also uses this site during storm events. Fecal Coliform and ancillary data collected during 2000- June 2004 are shown in (Table 2).

Figure 1 Location of Mosher Creek to Dyes Inlet

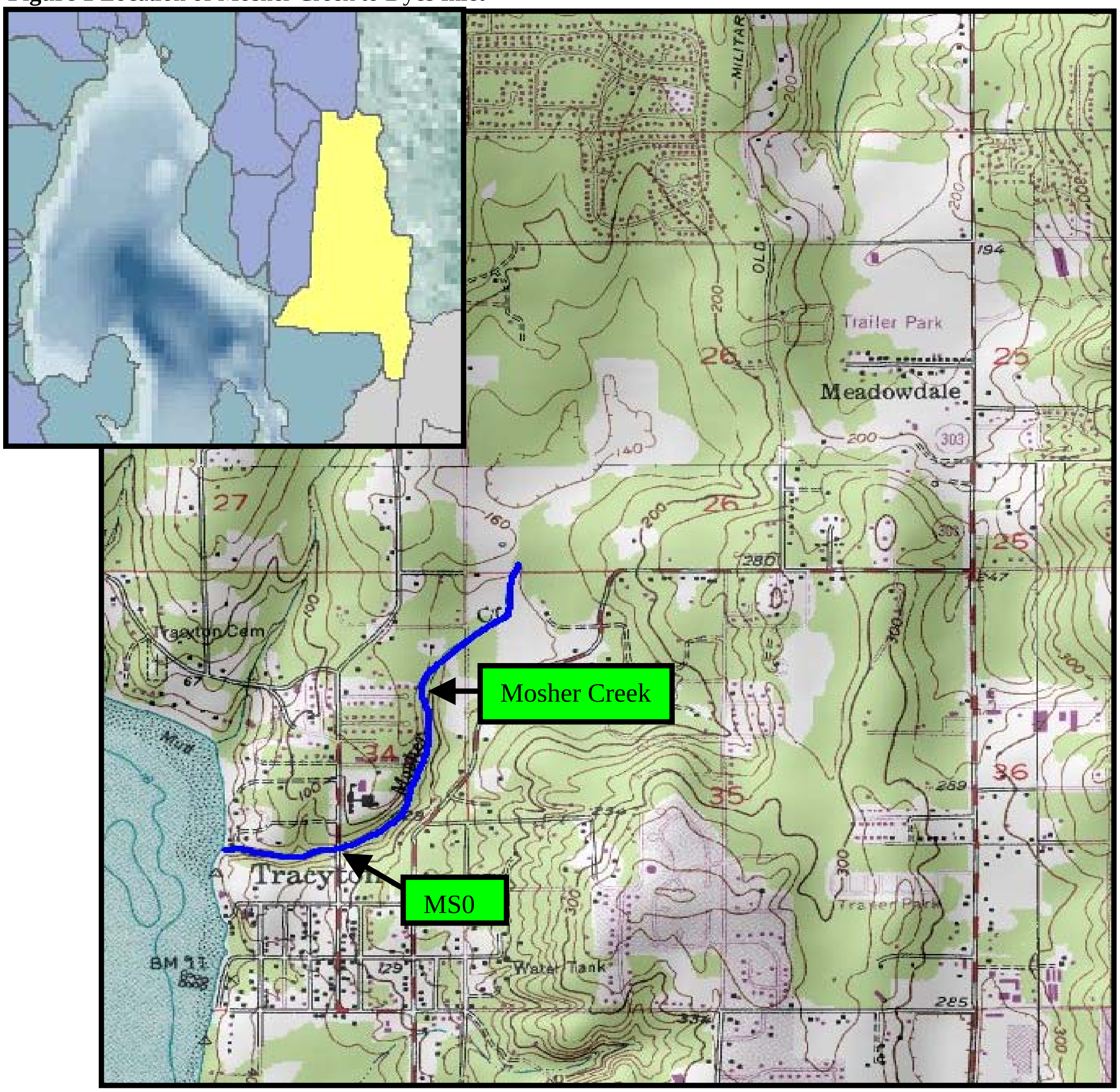


Figure 2 Shaded Relief Map of Mosher Creek Basin and Water Quality site

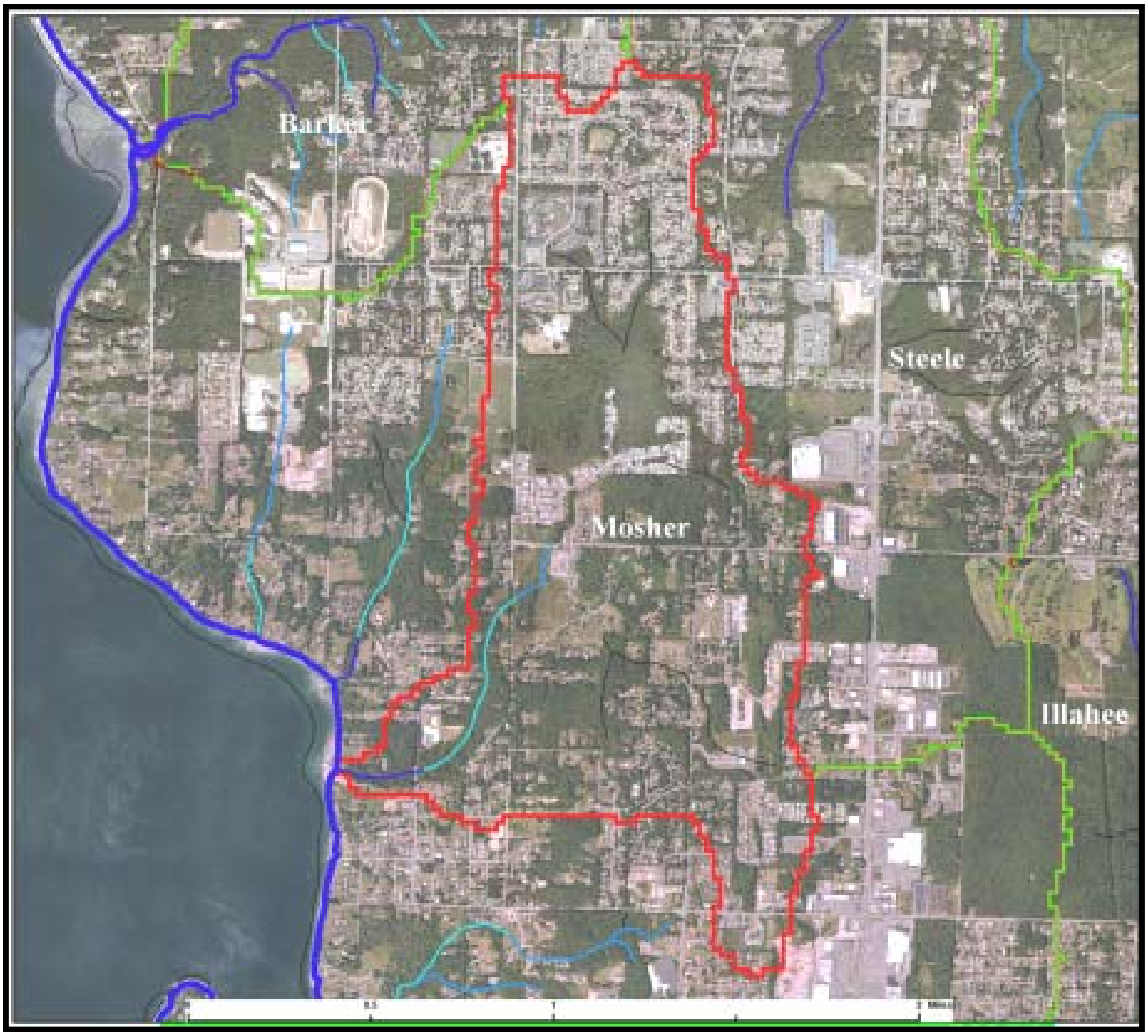


Figure 3 Aerial Photograph of Mosher Creek Basin

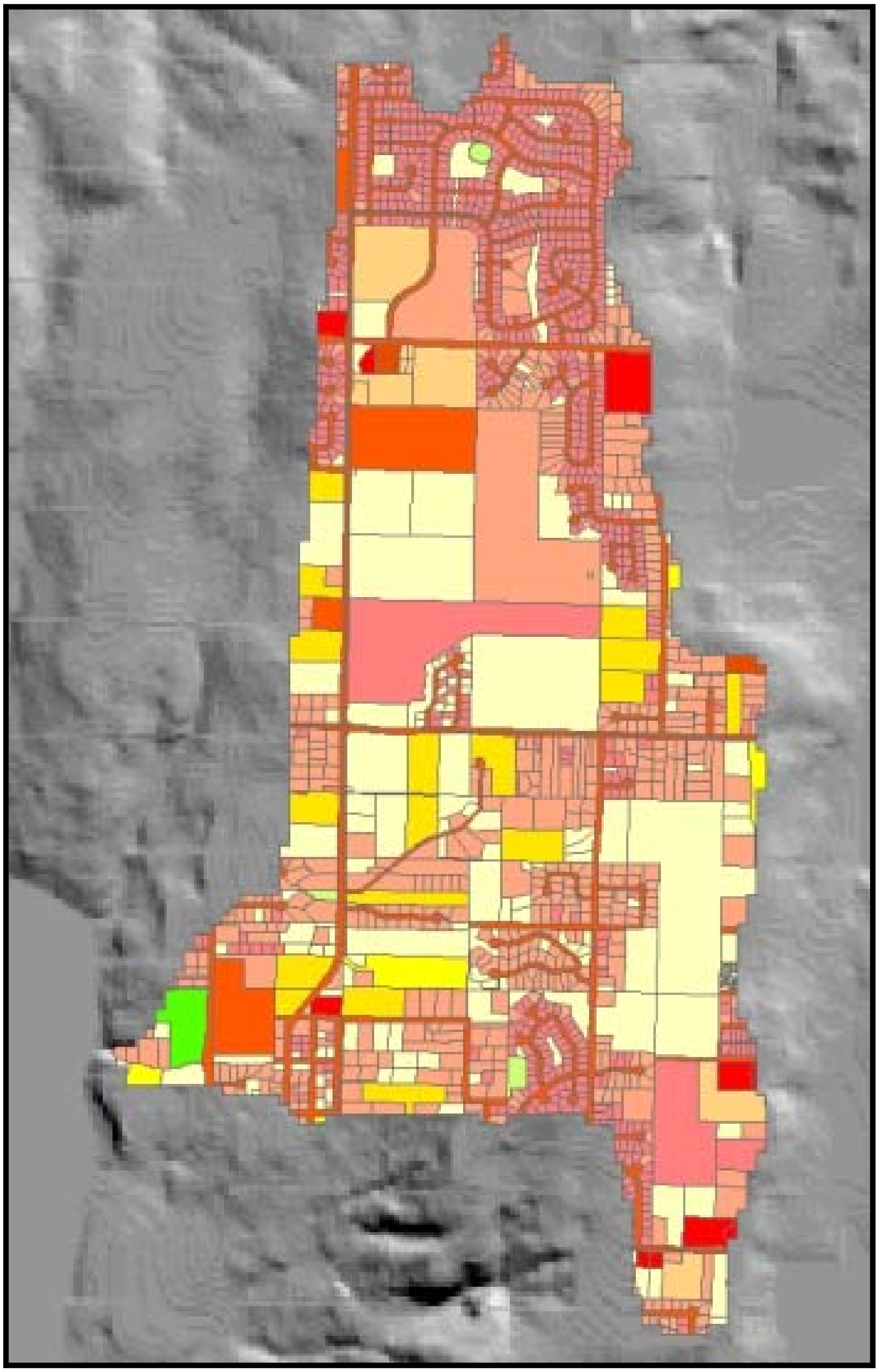


Figure 4 Mosher Creek basin Land Use Land Cover Parcels

Land Code	Percent Impervious	Area Sq. feet	Impervious Area sq feet	% of total Area	% TIA of Total Area
Mixed Use-Right of Way	44.3%	4900659.21	2170992.03	10.26%	4.544%
Church	46.0%	101677.00	46771.42	0.21%	0.098%
Commercial_Retail	59.5%	143840.30	85584.98	0.30%	0.179%
Commercial_Service	55.1%	745633.89	410844.28	1.56%	0.860%
Estate	20.8%	2823794.29	587349.21	5.91%	1.229%
Gas	54.3%	59814.90	32479.49	0.13%	0.068%
Mobile_Park	43.7%	2246488.00	981715.26	4.70%	2.055%
Open_Land	9.3%	4924929.70	456540.98	10.31%	0.956%
Parking	51.4%	13721.20	7052.70	0.03%	0.015%
Parks	18.1%	10648.50	1927.38	0.02%	0.004%
Power	5.7%	146314.48	8339.93	0.31%	0.017%
Rural	16.1%	564055.63	90812.96	1.18%	0.190%
Schools	46.0%	1458156.50	670751.99	3.05%	1.404%
Streets_	49.9%	3015.04	1504.50	0.01%	0.003%
Suburban	38.9%	2912932.56	1133130.77	6.10%	2.372%
Urban_High	25.9%	572035.95	148157.31	1.20%	0.310%
Urban_Low	38.2%	10295289.84	3932800.72	21.55%	8.232%
Urban_Medium	35.6%	1154552.79	411020.79	2.42%	0.860%
Urban_Standard	44.0%	7006383.79	3082808.87	14.67%	6.453%
Utilities_General	2.1%	30629.60	643.22	0.06%	0.001%
Vacant	11.4%	7331656.18	835808.80	15.35%	1.750%
Wooded	4.2%	325755.99	13681.75	0.68%	0.029%
Total Area Sq. Ft.		47771985.35	15110719.34		31.631%
Acres		1096.69	346.89		

Table 1 Mosher Creek Watershed Land Use Land Cover Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	% O2	Spec Cond	Temp C	DO	Turb
022800MS01	MS01	BKCHD	28-Feb-00	APAH 9221-E			14					
042500MS01	MS01	BKCHD	25-Apr-00	APAH 9221-E	7.5	11.3	300	98	140.1		0.09	6
061400MS01	MS01	BKCHD	14-Jun-00	APAH 9221-E	7.2	9.9	130	91.3	138.8	9	0.089	5.7
071800MS01	MS01	BKCHD	18-Jul-00	APAH 9221-E			110			12.5		
082300MS01	MS01	BKCHD	23-Aug-00	APAH 9221-E	7.1	12.2	50	109.9	177		0.114	
091900MS01	MS01	BKCHD	19-Sep-00	APAH 9221-E	7.4	9.8	30	91.5	177	11.8	0.113	4.2
101700MS01	MS01	BKCHD	17-Oct-00	APAH 9221-E	7.4	10.7	900	95.5	131	12.3	0.085	
111500MS01	MS01	BKCHD	15-Nov-00	APAH 9221-E	7.6	11.5	90	93.8	165	10.5	0.111	
120500MS01	MS01	BKCHD	05-Dec-00	APAH 9221-E	7.7	11.7	4	92.8	143.2	6.3	0.092	
013101MS01	MS01	BKCHD	31-Jan-01	APAH 9221-E			2			5.6		
022701MS01	MS01	BKCHD	27-Feb-01	APAH 9221-E	7.6	12.3	7	91.3	137.7		0.088	
032901MS01	MS01	BKCHD	29-Mar-01	APAH 9221-E		10.8	4	89.7	110.2	3.5	0.07	
041801MS01	MS01	BKCHD	18-Apr-01	APAH 9221-E			26			7.5		
050901MS01	MS01	BKCHD	09-May-01	APAH 9221-E		9.9	130	87.9	160		0.102	
062001MS01	MS01	BKCHD	20-Jun-01	APAH 9221-E	7.8	9.8	170	88.8	168	10.4	0.108	
071701MS01	MS01	BKCHD	17-Jul-01	APAH 9221-E		10.1	900	93.8	173	11.3	0.107	0.8
071801MS01	MS01	BKCHD	18-Jul-01	APAH 9221-E			110			11.9		
080801MS01	MS01	BKCHD	08-Aug-01	APAH 9221-E		10.3	50	95	180		0.114	6
091901MS01	MS01	BKCHD	19-Sep-01	APAH 9221-E	8.1	10.3	130	94.8	175	12.1	0.112	
101001MS01	MS01	KCHD	10-Oct-01	APAH 9221-E	7.9	10.1	50	98.1	169.7	9.4	0.108	13.1
110701MS01	MS01	KCHD	07-Nov-01	APAH 9221-E	7.6	11.3	110	93.9	160.5	7.6	0.103	38
121201MS01	MS01	KCHD	12-Dec-01	APAH 9221-E	7.6	10.8	27	85.3	103.1	5.6	0.066	6.4
012302MS01	MS01	KCHD	23-Jan-02	APAH 9221-E	7.9	12.5	4	97.8	131.4	4.8	0.084	
022002MS01	MS01	KCHD	20-Feb-02	APAH 9221-E	7.7	11.9	13	96.1	111.7	6.5	0.079	2.1
031202MS01	MS01	KCHD	12-Mar-02	APAH 9221-E	7.5	12.4	70	102.8	68.3	7	0.043	21
042302MS01	MS01	KCHD	23-Apr-02	APAH 9221-E	8.3	11.2	9	94.8	126.2	7.7	0.081	
051402MS01	MS01	KCHD	14-May-02	APAH 9221-E	7.8	11.5	220	99.4	121.2	9.9	0.067	1.9
062502MS01	MS01	KCHD	25-Jun-02	APAH 9221-E	7.9	9.2	130	84.8	175.2	11.7	0.106	4.6
072302MS01	MS01	KCHD	23-Jul-02	APAH 9221-E	7.4	9.6	110	90.6	177.8	12.9	0.114	
082802MS01	MS01	KCHD	28-Aug-02	APAH 9221-E		10	23	93.9	180.6	12.6	0.11	4.9
092502MS01	MS01	KCHD	25-Sep-02	APAH 9221-E	7.5	10.3	30	93	172	11	0.116	11.9
102302MS01	MS01	KCHD	23-Oct-02	APAH 9221-E	7.8	10.3	9	89.8	173.2	9.6	0.116	2.7

Table 2 Fecal Coliform data of Water Quality Site MS01 on Mosher Creek

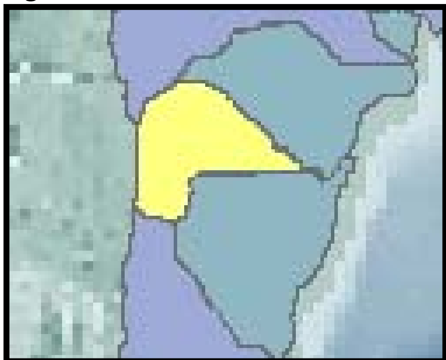
SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	% O2	Spec Cond	Temp C	DO	Turb
112502MS01	MS01	KCHD	25-Nov-02	APAH 9221-E	8.2	11.8	1	97.4	175.6	7.2	0.106	
120402MS01	MS01	KCHD	04-Dec-02	APAH 9221-E	8.3	11.1	13	94.1	160.4	8	0.102	
010903MS01	MS01	KCHD	09-Jan-03	APAH 9221-E	7.1	12.6	17	94.5	113.7	3.9	0.072	
020503MS01	MS01	KCHD	05-Feb-03	APAH 9221-E	7.4	12.5	2	99.8	113.6	6.1	0.072	3.1
022603MS01	MS01	KCHD	26-Feb-03	APAH 9221-E	7.5	12.5	23	96.7	132.1	4.7	0.084	3.2
040903MS01	MS01	KCHD	09-Apr-03	APAH 9221-E	7.9	11.3	30	97.5	91.4	9.3	0.059	3.3
051403MS01	MS01	KCHD	14-May-03	APAH 9221-E	7.9	10.3	8	91.7	141.4	10.7	0.09	
060403MS01	MS01	KCHD	04-Jun-03	APAH 9221-E	7.8	9.3	30	89.8	170	12.6	0.109	
070903MS01	MS01	KCHD	09-Jul-03	APAH 9221-E	7.2	10.6	80	98.2	175.1	12.7	0.112	5
080703MS01	MS01	KCHD	07-Aug-03	APAH 9221-E	8.1	10.5	80	97.3	174	12.2	0.111	
090203MS01	MS01	KCHD	02-Sep-03	APAH 9221-E	7.9	9.7	170	90.6	167.9	13.2	0.108	
04171714	MS01	NSTREAMS	19-Apr-04	FCOL(MF)	7.11		56		123	12.56		15.5
04171681	MS01	SSWM-SW	20-Apr-04	FCOL(MF)	7.7		63		125	9		3.12
04171726	MS01	NSTREAMS	20-Apr-04	FCOL(MF)	7.45		120		122	10.8		3.3

Table 2 cont. Fecal Coliform data of Water Quality Site MS01 on Mosher Creek

KOCH CREEK

Koch Creek is located on the North end of Dyes Inlet as shown in Figure 1. The watershed is small; tear shaped, and empties into the bay on the west side of the northern boundary. Figure 2 is a shaded relief of the watershed showing its general topography (Maps a la carte, Inc., 2004), while figure 3 is an aerial photograph of the basin and the development within its boundaries (Kitsap County, 2004). The watershed Land Use Land Cover is displayed in figure 4, showing the basin being over 60 % vacant and urban land use, with a basin total impervious area (%TIA) of approximately 30% Table 1. Koch Creek basin has Vashon till as the main surficial hydrogeolgical unit, with a strip of Vashon advanced outwash deposits running in a north-south direction on the western edge of the basin (Jones, et al, 1998). Koch Creek is not a monitored stream, and the only water quality site is nearshore site (464) established by Washington State Department of Health (WDOH) for Fecal Coliform monitoring.

Figure 1 Location of Koch Creek



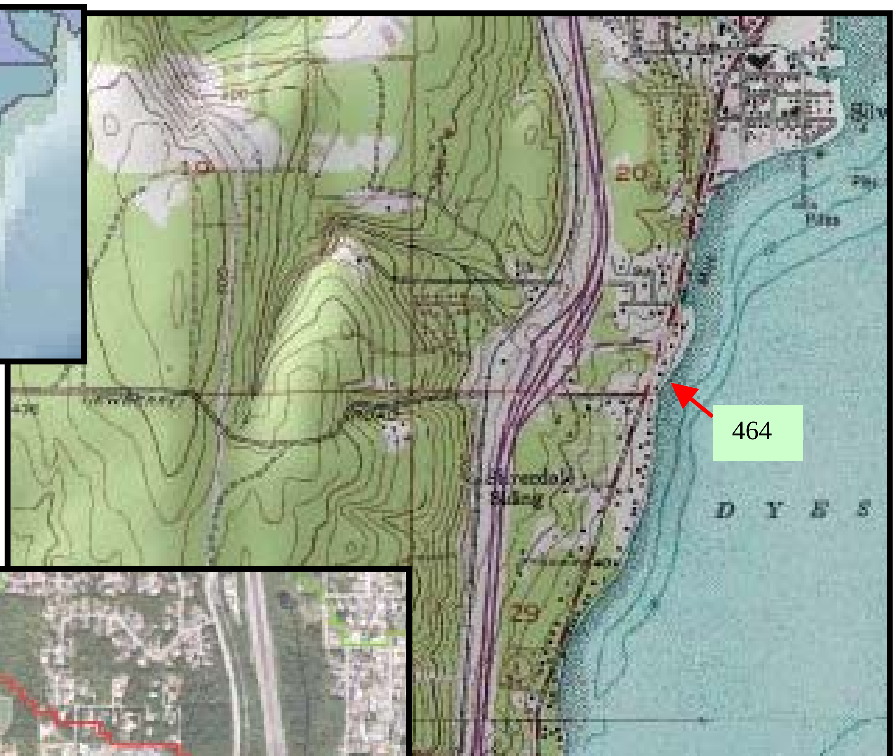
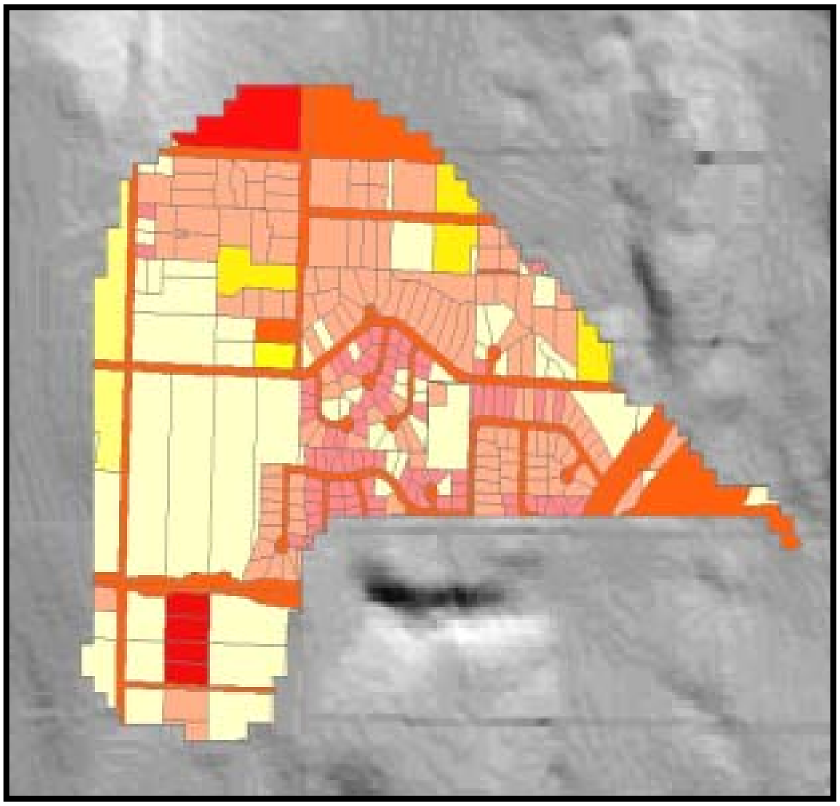
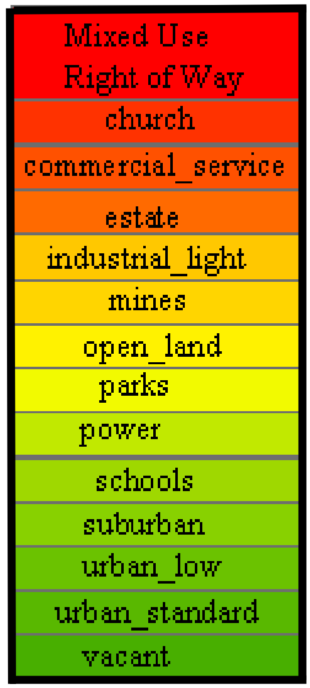


Figure 2 Shaded Relief map of Koch Creek

Figure 3 Aerial Photograph of Koch Creek Basin





LULC LEGEND

Figure 4 Koch Creek Basin Land Use Land Cover Parcels

Land Code	Percent Impervious	Area Sq. Feet	% Of total Area	Impervious Area Sq Feet	%TIA of Total Area
Mixed Use-Right of Way	44.3%	1761134.74	15.96%	780182.69	7.068%
Church	46.0%	12423.66	0.11%	5714.88	0.052%
Commercial_Service	55.1%	283412.11	2.57%	156160.07	1.415%
Estate	20.8%	384473.51	3.48%	79970.49	0.725%
Industrial_Light	59.8%	188182.20	1.70%	112532.96	1.020%
Mines	4.8%	322646.00	2.92%	15487.01	0.140%
Open_Land	9.3%	133648.34	1.21%	12389.20	0.112%
Parks	18.1%	46534.20	0.42%	8422.69	0.076%
Power	5.7%	1885.48	0.02%	107.47	0.001%
Schools	46.0%	360310.59	3.26%	165742.87	1.502%
Suburban	38.9%	593106.21	5.37%	230718.32	2.090%
Urban_Low	38.2%	2598515.21	23.54%	992632.81	8.993%
Urban_Standard	44.0%	800927.15	7.26%	352407.95	3.193%
Vacant	11.4%	3550511.89	32.17%	404758.36	3.667%
Total Area Sq. Ft.		11037711.29		3317227.76	30.054%
Acres		253.39		76.15	

Table 1 Koch Creek Land Use Land Cover Data

BAINBRIDGE ISLAND SPRING BROOK CREEK (SBC) WATERSHED

Bainbridge Island Spring Brook Creek Watershed lays in a north south direction and empties into Fletcher Bay of the Puget water body. Figure 1 shows the location of the watershed on Bainbridge Island, and Figure 2 the topography of the area as a shaded relief map ("Maps a la carte, Inc.", 2004). The largest land code areas for Spring Brook Creek are Open Land, and Vacant Land with approximately 12% Total Impervious Area (TIA) Table 1. Figure 3 shows Bainbridge Island Spring Brook Creek Watershed Land Use Land Cover parcels. The watershed is mainly Vashon till, with strips of Quaternary alluvium, advanced outwash and recessional fine outwash on its east side in the stream channel area (Jones, et al, 1998). A water quality sampling site (BI-SBC) Figure 2 was established by the ENVVEST project team for sampling Fecal Coliform and ancillary data as shown in Table 2. Figure 4 is an aerial photograph of Bainbridge Island Spring Brook Creek watershed (Space Imaging, 2002).

Figure 2 Shaded Relief Map of Bainbridge Island Spring Brook Creek Watershed and ENVVEST Water Quality site BI-SBC

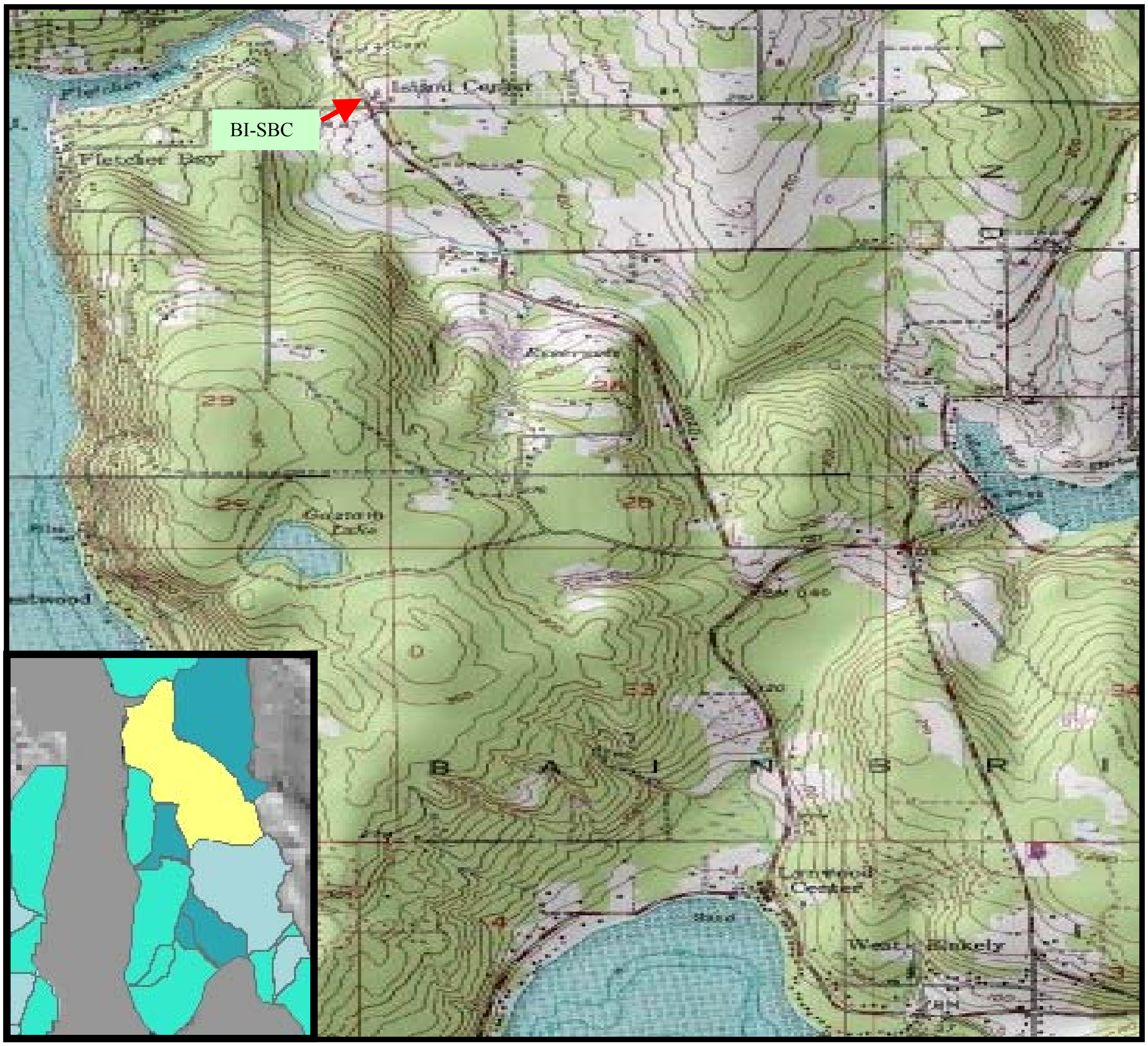


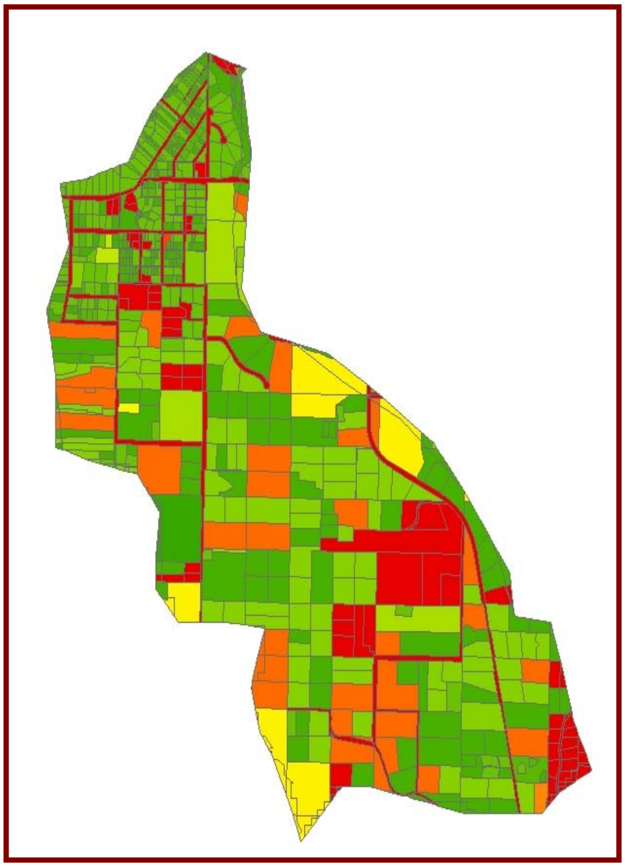
Figure 1 Location of Bainbridge Island Spring Brook Creek watershed

Land Code	Percent Impervious	Area Sq. Feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
estate	20.8%	8367004.80	1740337.00	4.02%	0.837%
gas	54.3%	180338.40	97923.75	0.09%	0.047%
open_land	9.3%	162407797.20	15055202.80	78.09%	7.239%
parks	18.1%	39639.60	7174.77	0.02%	0.003%
power	5.7%	86248.80	4916.18	0.04%	0.002%
rural	16.1%	4280205.60	689113.10	2.06%	0.331%
streets_hiways	49.9%	40075.20	19997.52	0.02%	0.010%
suburban	38.9%	9065707.20	3526560.10	4.36%	1.696%
urban_low	38.2%	4690105.20	1791620.19	2.26%	0.861%
urban_medium	35.6%	83635.20	29774.13	0.04%	0.014%
urban_standard	44.0%	622908.00	274079.52	0.30%	0.132%
vacant	11.4%	14281146.00	1628050.64	6.87%	0.783%
wooded	4.2%	3839814.00	161272.19	1.85%	0.078%
Total Area Sq. Ft.		207984625.20	25026021.90		12.033%
Acres		4774.67	574.52		

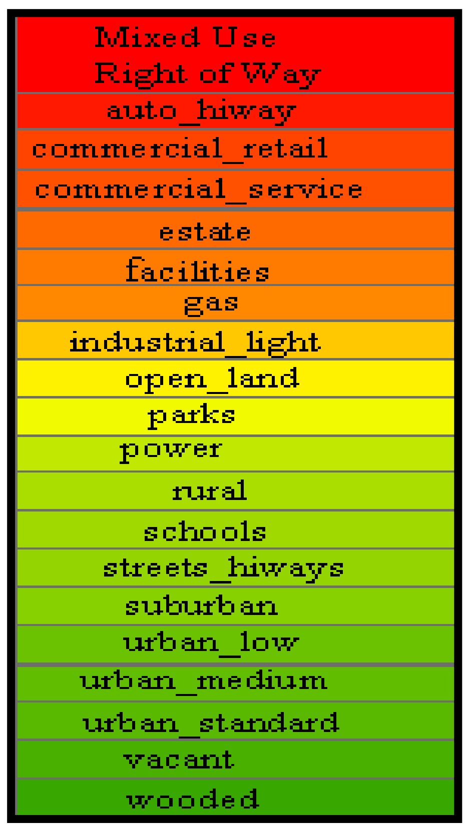
Table 1 Bainbridge Island Spring Brook Creek Land Use Land Cover Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02450580	BI-SBC	PSNS	BI-SW	07-Nov-02	FCOL(MF)		88			
02450580	BI-SBC	PSNS	BI-SW	07-Nov-02	FCOL(MF)				10.1	
02450580	BI-SBC	PSNS	BI-SW	07-Nov-02	FCOL(MF)					2.18
02450580	BI-SBC	PSNS	BI-SW	07-Nov-02	FCOL(MF)	9				
02460580	BI-SBC	PSNS	BI-SW	13-Nov-02	FCOL(MF)		88			
02460580	BI-SBC	PSNS	BI-SW	13-Nov-02	FCOL(MF)				9.9	
02460580	BI-SBC	PSNS	BI-SW	13-Nov-02	FCOL(MF)					2.9
02460580	BI-SBC	PSNS	BI-SW	13-Nov-02	FCOL(MF)	9.1				
02460580	BI-SBC	PSNS	BI-SW	13-Nov-02	FCOL(MF)			366		
02470580	BI-SBC	PSNS	BI-SW	18-Nov-02	FCOL(MF)		51			
02470585	BI-SBC	PSNS	BI-SW	18-Nov-02	FCOL(MF)		43			
02510580	BI-SBC	PSNS	BI-SW	16-Dec-02	FCOL(MF)		231			
04171524	BI-SBC	PSNS	TEC-STORM	19-Apr-04	FCOL(MF)		100			
04171525	BI-SBC	PSNS	TEC-STORM	19-Apr-04	FCOL(MF)		170			
04171522	BI-SBC	PSNS	TEC-STORM	19-Apr-04	FCOL(MF)		29			
04171523	BI-SBC	PSNS	TEC-STORM	19-Apr-04	FCOL(MF)		35			
04223700	BI-SBC	PSNS	TEC-STORM	25-May-04	FCOL(MF)		100			
04223701	BI-SBC	PSNS	TEC-STORM	25-May-04	FCOL(MF)		400			
04223702	BI-SBC	PSNS	TEC-STORM	26-May-04	FCOL(MF)		2100			
04223703	BI-SBC	PSNS	TEC-STORM	26-May-04	FCOL(MF)		1300			
04223704	BI-SBC	PSNS	TEC-STORM	26-May-04	FCOL(MF)		390			
04223705	BI-SBC	PSNS	TEC-STORM	26-May-04	FCOL(MF)		440			

Table 1 Bainbridge Island Spring Brook Creek Fecal Coliform and Ancillary Data



Spring Brook Creek Watershed



LULC LEGEND

Figure 3 Bainbridge Island Spring Brook Creek Land Use Land Cover Parcels

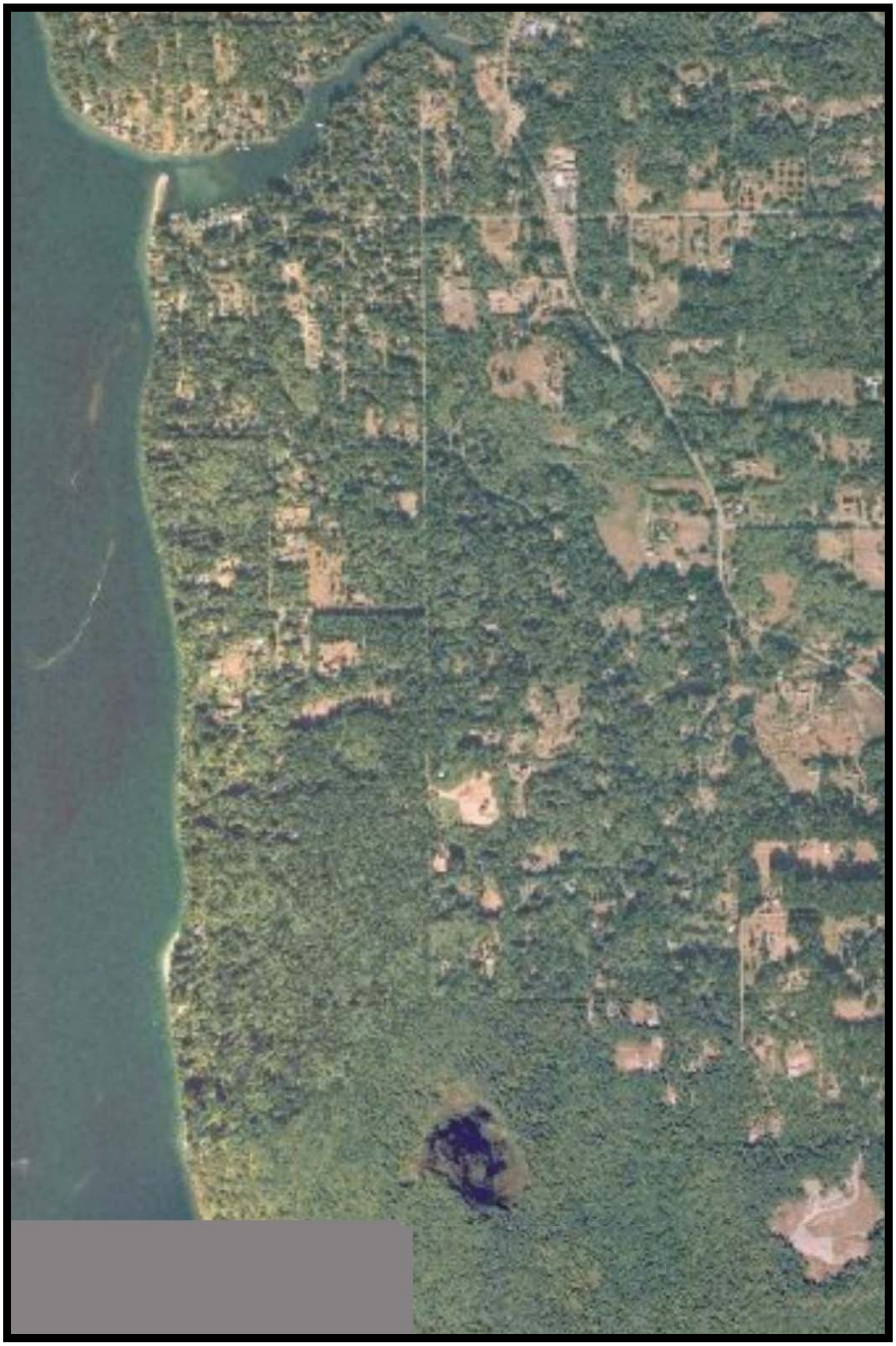
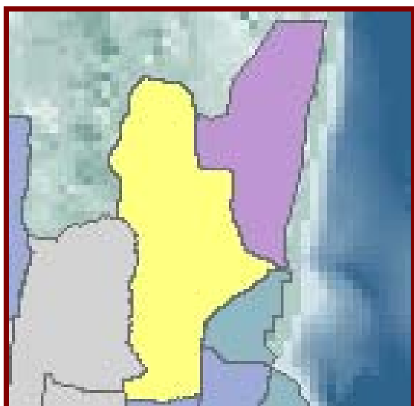


Figure 4 Aerial Photograph of Bainbridge Island Spring Brook Creek Watershed

ILLAHEE CREEK WATERSHED

Illahee Creek Watershed forms a long and narrow strip running north south and contains a Class AA stream (Zimny et al., 2003). Water is collected from the north and south ends of the watershed and flows to the main stem in the central portion of the basin. From here Illahee Creek flows to Port Orchard Passage of the Puget water body. Figure 1 shows the location of the Illahee basin area near Port Orchard Passage. Figure 2 shows the region as a shaded relief map to help give visual clarity to the topography of area ("Maps a la carte, Inc.", 2004). Figure 2 shows the location of water quality site (IC01) established by KCHD for monitoring the stream. Over 57% of the watershed is vacant and open land, followed closely with approximately 10% in urban low development. The total land area in impervious surface (TIA) is approximately 20%, Table 1. In Figure 3 are Illahee Creek Watershed Land Use Land Cover parcels with the Land Code legend. The basin's Surfacial Hydrogeologic material consists of a strip of Vashon till protruding into Quaternary advanced outwash deposits in the northern end. In the basins southern end is an oblong island of till running north south in the advanced outwash deposits. The pour point into Port Orchard bay is composed of Holocene alluvium (Jones, et al, 1998). Fecal Coliform and ancillary data of water quality site (IC01) is found in Table 2. Figure 4 is an aerial photograph of Illahee Creek Watershed (Space Imaging, 2002).

Figure 1 Location Illahee Creek Watershed



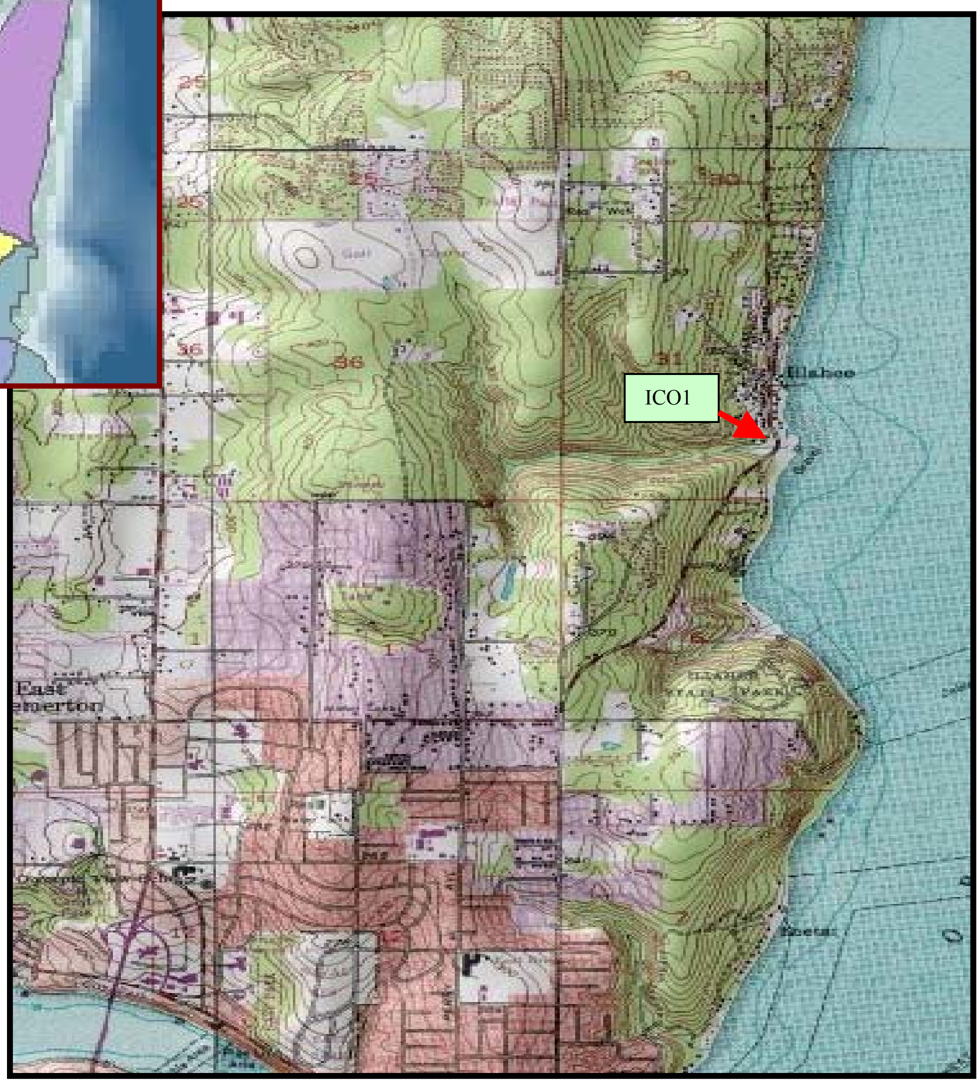
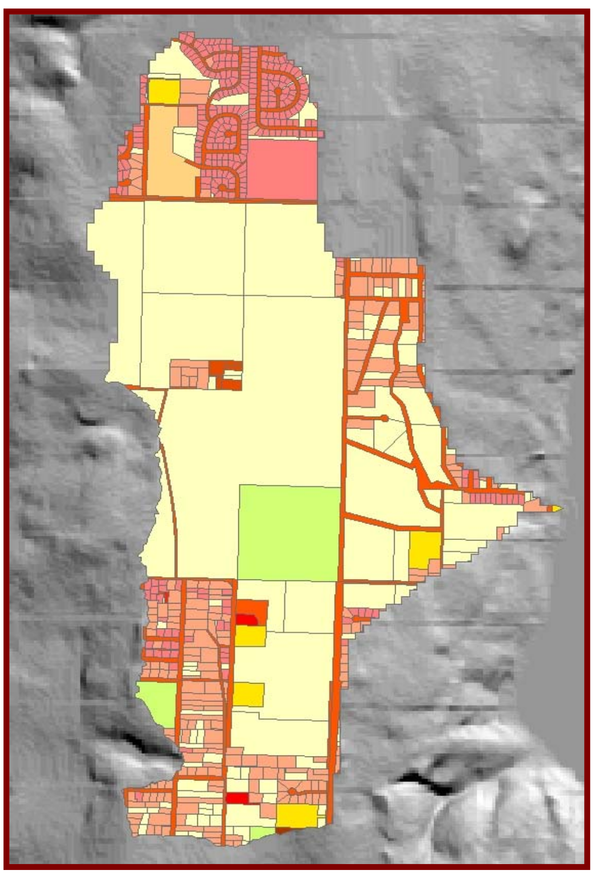


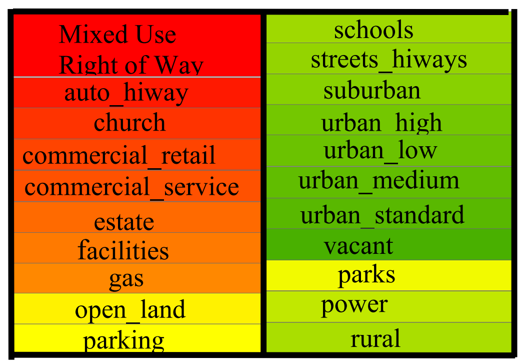
Figure 2 Shaded Relief Map of Illahee Creek Watershed

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
Mixed Use-Right of Way	0.443	3118266.063	1381391.87	8.93%	3.96%
Church	0.460	100395.000	46181.70	0.29%	0.13%
Commercial_Retail	0.595	125862.898	74888.42	0.36%	0.21%
Commercial_Service	0.551	93466.199	51499.88	0.27%	0.15%
Estate	0.208	765485.075	159220.90	2.19%	0.46%
Facilities	0.664	21532.439	14297.54	0.06%	0.04%
Open_Land	0.093	16126111.898	1494890.57	46.20%	4.28%
Power	0.057	2009805.316	114558.90	5.76%	0.33%
Streets_	0.499	7283.629	3634.53	0.02%	0.01%
Suburban	0.389	987822.101	384262.80	2.83%	1.10%
Urban_Low	0.382	3645750.996	1392676.88	10.45%	3.99%
Urban_Medium	0.356	583978.000	207896.17	1.67%	0.60%
Urban_Standard	0.440	3236534.113	1424075.01	9.27%	4.08%
Vacant	0.114	4080383.773	465163.75	11.69%	1.33%
Total Area Sq. Ft.		34902677.50	7214638.91		20.671%
Acres		801.26	165.63		

Table 1 Illahee Creek Watershed Land Use Land Cover Data



Illahee Creek Basin LULC Parcels



LULC LEGEND

Figure 3 Illahee Creek Watershed Land Use Land Code Parcels

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	TDS	Turb
101100IC01	IC01	KCHD	11-Oct-00	APAH 9221-E			80				
101100IC01	IC01	KCHD	11-Oct-00	APAH 9221-E					11.1		
101100IC01	IC01	KCHD	11-Oct-00	APAH 9221-E		11				0.12	
101100IC01	IC01	KCHD	11-Oct-00	APAH 9221-E	8						
101100IC01	IC01	KCHD	11-Oct-00	APAH 9221-E				182			
113000IC01	IC01	KCHD	30-Nov-00	APAH 9221-E			300				
113000IC01	IC01	KCHD	30-Nov-00	APAH 9221-E					6.2		
113000IC01	IC01	KCHD	30-Nov-00	APAH 9221-E		12				0.09	
113000IC01	IC01	KCHD	30-Nov-00	APAH 9221-E							5.9
113000IC01	IC01	KCHD	30-Nov-00	APAH 9221-E	8						
113000IC01	IC01	KCHD	30-Nov-00	APAH 9221-E				141.7			
122100IC01	IC01	KCHD	21-Dec-00	APAH 9221-E			13				
122100IC01	IC01	KCHD	21-Dec-00	APAH 9221-E					4.5		
122100IC01	IC01	KCHD	21-Dec-00	APAH 9221-E		12				1	
122100IC01	IC01	KCHD	21-Dec-00	APAH 9221-E							2.4
122100IC01	IC01	KCHD	21-Dec-00	APAH 9221-E	8						
122100IC01	IC01	KCHD	21-Dec-00	APAH 9221-E				155.9			
020901IC01	IC01	KCHD	09-Feb-01	APAH 9221-E			23				
020901IC01	IC01	KCHD	09-Feb-01	APAH 9221-E					4.2		
020901IC01	IC01	KCHD	09-Feb-01	APAH 9221-E		11				0.09	
020901IC01	IC01	KCHD	09-Feb-01	APAH 9221-E							9
020901IC01	IC01	KCHD	09-Feb-01	APAH 9221-E	7						
020901IC01	IC01	KCHD	09-Feb-01	APAH 9221-E				145.8			
030901IC01	IC01	KCHD	09-Mar-01	APAH 9221-E			17				
040501IC01	IC01	KCHD	05-Apr-01	APAH 9221-E			1				
040501IC01	IC01	KCHD	05-Apr-01	APAH 9221-E					9.3		
040501IC01	IC01	KCHD	05-Apr-01	APAH 9221-E		11				0.1	
040501IC01	IC01	KCHD	05-Apr-01	APAH 9221-E	8						
040501IC01	IC01	KCHD	05-Apr-01	APAH 9221-E				162			
051701IC01	IC01	KCHD	17-May-01	APAH 9221-E			300				
051701IC01	IC01	KCHD	17-May-01	APAH 9221-E					9.9		
051701IC01	IC01	KCHD	17-May-01	APAH 9221-E		10				0.1	
051701IC01	IC01	KCHD	17-May-01	APAH 9221-E	8						
051701IC01	IC01	KCHD	17-May-01	APAH 9221-E				154			
062701IC01	IC01	KCHD	27-Jun-01	APAH 9221-E			80				
062701IC01	IC01	KCHD	27-Jun-01	APAH 9221-E					13		
062701IC01	IC01	KCHD	27-Jun-01	APAH 9221-E		10				0.12	
062701IC01	IC01	KCHD	27-Jun-01	APAH 9221-E							3.1
062701IC01	IC01	KCHD	27-Jun-01	APAH 9221-E	8						
062701IC01	IC01	KCHD	27-Jun-01	APAH 9221-E				170.4			
072701IC01	IC01	KCHD	27-Jul-01	APAH 9221-E			30				
072701IC01	IC01	KCHD	27-Jul-01	APAH 9221-E					13.5		
072701IC01	IC01	KCHD	27-Jul-01	APAH 9221-E		10				0.12	

Table 2 Fecal Coliform and Ancillary Data for Water Quality Site (IC01)

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	TDS	Turb
072701IC01	IC01	KCHD	27-Jul-01	APAH 9221-E							1.5
072701IC01	IC01	KCHD	27-Jul-01	APAH 9221-E	9						
072701IC01	IC01	KCHD	27-Jul-01	APAH 9221-E				190			
082301IC01	IC01	KCHD	23-Aug-01	APAH 9221-E			1601				
082301IC01	IC01	KCHD	23-Aug-01	APAH 9221-E					14.6		
082301IC01	IC01	KCHD	23-Aug-01	APAH 9221-E		9.6				0.08	
082301IC01	IC01	KCHD	23-Aug-01	APAH 9221-E							35.7
082301IC01	IC01	KCHD	23-Aug-01	APAH 9221-E	8						
082301IC01	IC01	KCHD	23-Aug-01	APAH 9221-E				130.9			
091301IC01	IC01	KCHD	13-Sep-01	APAH 9221-E			50				
091301IC01	IC01	KCHD	13-Sep-01	APAH 9221-E					13.1		
091301IC01	IC01	KCHD	13-Sep-01	APAH 9221-E		10				0.12	
091301IC01	IC01	KCHD	13-Sep-01	APAH 9221-E	8						
091301IC01	IC01	KCHD	13-Sep-01	APAH 9221-E				188			
101601IC01	IC01	KCHD	16-Oct-01	APAH 9221-E			500				
101601IC01	IC01	KCHD	16-Oct-01	APAH 9221-E					10.3		
101601IC01	IC01	KCHD	16-Oct-01	APAH 9221-E		11				0.09	
101601IC01	IC01	KCHD	16-Oct-01	APAH 9221-E							22.6
101601IC01	IC01	KCHD	16-Oct-01	APAH 9221-E	8						
101601IC01	IC01	KCHD	16-Oct-01	APAH 9221-E				138.3			
111301IC01	IC01	KCHD	13-Nov-01	APAH 9221-E			90				
120501IC01	IC01	KCHD	05-Dec-01	APAH 9221-E			50				
120501IC01	IC01	KCHD	05-Dec-01	APAH 9221-E					6		
120501IC01	IC01	KCHD	05-Dec-01	APAH 9221-E		13				0.08	
120501IC01	IC01	KCHD	05-Dec-01	APAH 9221-E							8.4
120501IC01	IC01	KCHD	05-Dec-01	APAH 9221-E	8						
120501IC01	IC01	KCHD	05-Dec-01	APAH 9221-E				128.6			
011502IC01	IC01	KCHD	15-Jan-02	APAH 9221-E			50				
011502IC01	IC01	KCHD	15-Jan-02	APAH 9221-E					6.2		
011502IC01	IC01	KCHD	15-Jan-02	APAH 9221-E		12				0.09	
011502IC01	IC01	KCHD	15-Jan-02	APAH 9221-E	8						
011502IC01	IC01	KCHD	15-Jan-02	APAH 9221-E				134			
021202IC01	IC01	KCHD	12-Feb-02	APAH 9221-E			23				
021202IC01	IC01	KCHD	12-Feb-02	APAH 9221-E					5.7		
021202IC01	IC01	KCHD	12-Feb-02	APAH 9221-E		12				0.08	
021202IC01	IC01	KCHD	12-Feb-02	APAH 9221-E							2.3
021202IC01	IC01	KCHD	12-Feb-02	APAH 9221-E	8						
021202IC01	IC01	KCHD	12-Feb-02	APAH 9221-E				131.9			
031902IC01	IC01	KCHD	19-Mar-02	APAH 9221-E			13				
031902IC01	IC01	KCHD	19-Mar-02	APAH 9221-E					5.8		
031902IC01	IC01	KCHD	19-Mar-02	APAH 9221-E		12				0.08	
031902IC01	IC01	KCHD	19-Mar-02	APAH 9221-E	8						
031902IC01	IC01	KCHD	19-Mar-02	APAH 9221-E				120.7			

Table 2 cont. Fecal Coliform and Ancillary Data for Water Quality Site (IC01)

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	TDS	Turb
041602IC01	IC01	KCHD	16-Apr-02	APAH 9221-E			80				
041602IC01	IC01	KCHD	16-Apr-02	APAH 9221-E					8.5		
041602IC01	IC01	KCHD	16-Apr-02	APAH 9221-E		11				0.08	
041602IC01	IC01	KCHD	16-Apr-02	APAH 9221-E	8						
041602IC01	IC01	KCHD	16-Apr-02	APAH 9221-E				123.8			
050702IC01	IC01	KCHD	07-May-02	APAH 9221-E			30				
050702IC01	IC01	KCHD	07-May-02	APAH 9221-E					9.2		
050702IC01	IC01	KCHD	07-May-02	APAH 9221-E		11				0.1	
050702IC01	IC01	KCHD	07-May-02	APAH 9221-E							1.2
050702IC01	IC01	KCHD	07-May-02	APAH 9221-E	8						
050702IC01	IC01	KCHD	07-May-02	APAH 9221-E				149.9			
071602IC01	IC01	KCHD	16-Jul-02	APAH 9221-E			130				
071602IC01	IC01	KCHD	16-Jul-02	APAH 9221-E					15.1		
071602IC01	IC01	KCHD	16-Jul-02	APAH 9221-E		10				0.11	
071602IC01	IC01	KCHD	16-Jul-02	APAH 9221-E				177.1			
073102IC01	IC01	KCHD	31-Jul-02	APAH 9221-E			130				
073102IC01	IC01	KCHD	31-Jul-02	APAH 9221-E					12.8		
073102IC01	IC01	KCHD	31-Jul-02	APAH 9221-E		11				0.12	
073102IC01	IC01	KCHD	31-Jul-02	APAH 9221-E	8						
073102IC01	IC01	KCHD	31-Jul-02	APAH 9221-E				189.8			
082002IC01	IC01	KCHD	20-Aug-02	APAH 9221-E			30				
082002IC01	IC01	KCHD	20-Aug-02	APAH 9221-E					12.6		
082002IC01	IC01	KCHD	20-Aug-02	APAH 9221-E		11				0.12	
082002IC01	IC01	KCHD	20-Aug-02	APAH 9221-E							6.2
082002IC01	IC01	KCHD	20-Aug-02	APAH 9221-E	8						
082002IC01	IC01	KCHD	20-Aug-02	APAH 9221-E				189.6			
091902IC01	IC01	KCHD	19-Sep-02	APAH 9221-E			23				
091902IC01	IC01	KCHD	19-Sep-02	APAH 9221-E					12.3		
091902IC01	IC01	KCHD	19-Sep-02	APAH 9221-E		9.8				0.12	
091902IC01	IC01	KCHD	19-Sep-02	APAH 9221-E							1.5
091902IC01	IC01	KCHD	19-Sep-02	APAH 9221-E	8						
091902IC01	IC01	KCHD	19-Sep-02	APAH 9221-E				189.8			
102302IC01	IC01	KCHD	23-Oct-02	APAH 9221-E			17				
102302IC01	IC01	KCHD	23-Oct-02	APAH 9221-E					9.8		
102302IC01	IC01	KCHD	23-Oct-02	APAH 9221-E		11				0.12	
102302IC01	IC01	KCHD	23-Oct-02	APAH 9221-E							1.1
102302IC01	IC01	KCHD	23-Oct-02	APAH 9221-E	8						
102302IC01	IC01	KCHD	23-Oct-02	APAH 9221-E				191.2			
112502IC01	IC01	KCHD	25-Nov-02	APAH 9221-E			4				
112502IC01	IC01	KCHD	25-Nov-02	APAH 9221-E					7.3		
112502IC01	IC01	KCHD	25-Nov-02	APAH 9221-E		12				0.11	

Table 2 cont. Fecal Coliform and Ancillary Data for Water Quality Site (IC01)

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	TDS	Turb
112502IC01	IC01	KCHD	25-Nov-02	APAH 9221-E	8						
112502IC01	IC01	KCHD	25-Nov-02	APAH 9221-E				175.4			
120402IC01	IC01	KCHD	04-Dec-02	APAH 9221-E			300				
120402IC01	IC01	KCHD	04-Dec-02	APAH 9221-E					7.6		
120402IC01	IC01	KCHD	04-Dec-02	APAH 9221-E		12				0.11	
120402IC01	IC01	KCHD	04-Dec-02	APAH 9221-E	8						
120402IC01	IC01	KCHD	04-Dec-02	APAH 9221-E				170.6			
010903IC01	IC01	KCHD	09-Jan-03	APAH 9221-E			7				
010903IC01	IC01	KCHD	09-Jan-03	APAH 9221-E					5		
010903IC01	IC01	KCHD	09-Jan-03	APAH 9221-E		12				0.09	
010903IC01	IC01	KCHD	09-Jan-03	APAH 9221-E							4.7
010903IC01	IC01	KCHD	09-Jan-03	APAH 9221-E	7						
010903IC01	IC01	KCHD	09-Jan-03	APAH 9221-E				138.2			
020503IC01	IC01	KCHD	05-Feb-03	APAH 9221-E			1				
020503IC01	IC01	KCHD	05-Feb-03	APAH 9221-E					6.4		
020503IC01	IC01	KCHD	05-Feb-03	APAH 9221-E		13				0.09	
020503IC01	IC01	KCHD	05-Feb-03	APAH 9221-E							4.9
020503IC01	IC01	KCHD	05-Feb-03	APAH 9221-E	8						
020503IC01	IC01	KCHD	05-Feb-03	APAH 9221-E				133.9			
022603IC01	IC01	KCHD	26-Feb-03	APAH 9221-E			11				
022603IC01	IC01	KCHD	26-Feb-03	APAH 9221-E					4.6		
022603IC01	IC01	KCHD	26-Feb-03	APAH 9221-E		13				0.1	
022603IC01	IC01	KCHD	26-Feb-03	APAH 9221-E							6.1
022603IC01	IC01	KCHD	26-Feb-03	APAH 9221-E	8						
022603IC01	IC01	KCHD	26-Feb-03	APAH 9221-E				147.9			
051403IC01	IC01	KCHD	14-May-03	APAH 9221-E			8				
051403IC01	IC01	KCHD	14-May-03	APAH 9221-E					11.2		
051403IC01	IC01	KCHD	14-May-03	APAH 9221-E		12				0.1	
051403IC01	IC01	KCHD	14-May-03	APAH 9221-E	8						
051403IC01	IC01	KCHD	14-May-03	APAH 9221-E				155.5			
060403IC01	IC01	KCHD	04-Jun-03	APAH 9221-E			50				
060403IC01	IC01	KCHD	04-Jun-03	APAH 9221-E					13.5		
060403IC01	IC01	KCHD	04-Jun-03	APAH 9221-E		11				0.11	
060403IC01	IC01	KCHD	04-Jun-03	APAH 9221-E	8						
060403IC01	IC01	KCHD	04-Jun-03	APAH 9221-E				171.1			

Table 2 cont. Fecal Coliform and Ancillary Data for Water Quality Site (IC01)

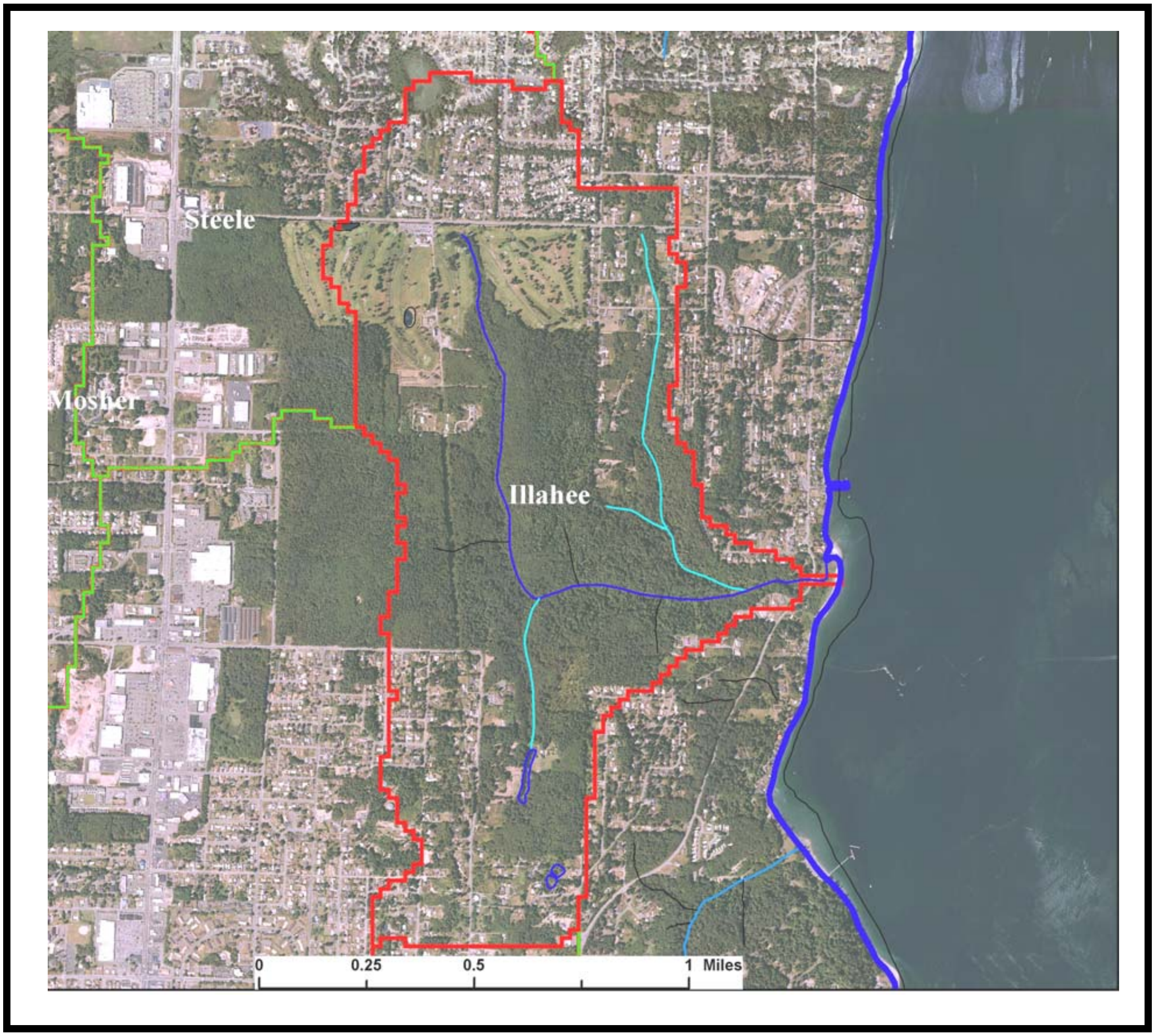


Figure 4 Aerial Photographs of the Illahee Creek Watershed Area

DEE CREEK WATERSHED

Dee Creek Watershed has a blocky shape, runs north south and contains a Class AA stream (Zimny et al., 2003). Figure 1 shows the location of the Dee Creek basin near Port Orchard Passage. Figure 2 shows the region as a shaded relief map to help give visual clarity to the topography of area (“Maps a la carte, Inc.”, 2004). Also shown in Figure 2 is the location of KCHD water quality site (DE01) (ENVVEST site DEECRK) established by Kitsap County Health District for stream monitoring purposes. Over 22 % of the watershed is vacant land, while approximately 41% is in urban development. The basin’s total land area in impervious surface (TIA) is approximately 33%, Table 1. Figure 3 is the Dee Creek Watershed Land Use Land Cover parcels with the Land Code legend. Dee Creek basin’s Surfacial Hydrogeologic material consists of Vashon till in the western region with advanced outwash deposits in the eastern portion trending north south with the stream direction (Jones, et al, 1998). Fecal Coliform and ancillary data of water quality site (DE01 (DEECRK)) are found in Table 2. Figure 4 is an aerial photograph of the Dee Creek Watershed (Space Imaging, 2002).

Figure 1 Location Dee Creek Watershed

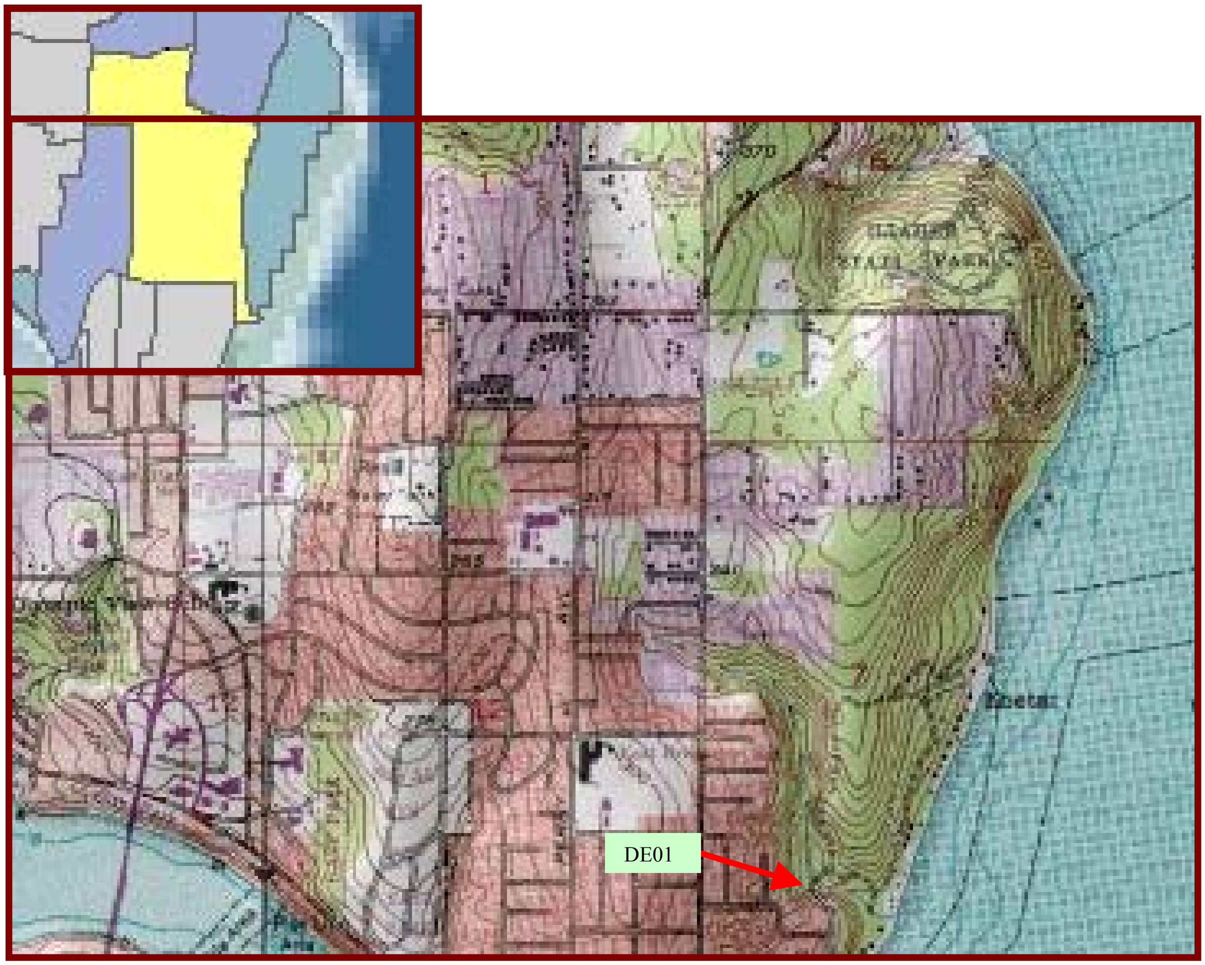


Figure 2 Shaded Relief Map of Dee Creek Watershed

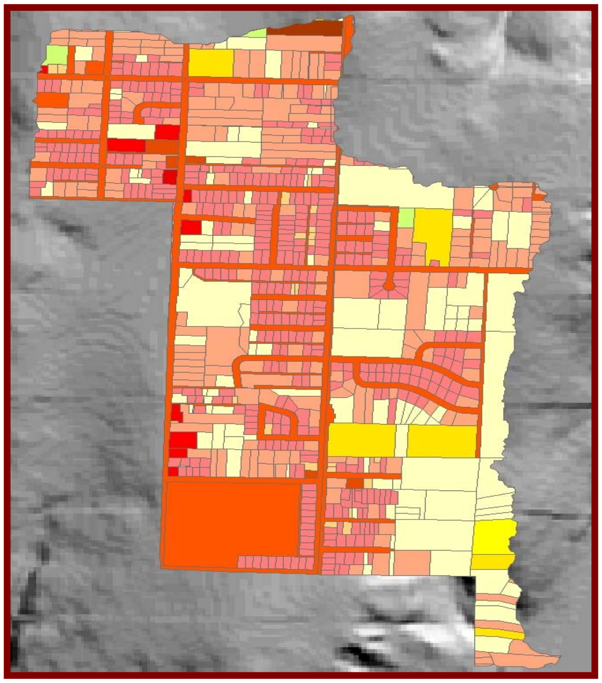
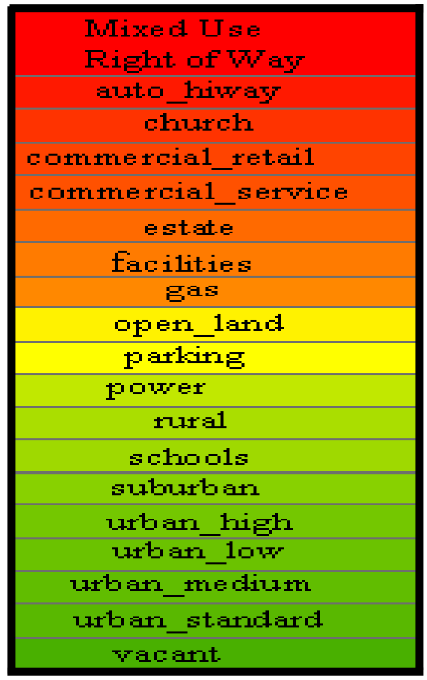


Figure 3 Dee Creek LULC



LULC LEGEND

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	2391414.92	1059396.81	13.83%	6.13%
Auto_Hiway	59.9%	19290.90	11555.25	0.11%	0.07%
Church	46.0%	22746.40	10463.34	0.13%	0.06%
Commercial_Retail	59.5%	103937.38	61842.74	0.60%	0.36%
Commercial_Service	55.1%	198066.93	109134.88	1.15%	0.63%
Estate	20.8%	775307.30	161263.92	4.48%	0.93%
Facilities	66.4%	82005.91	54451.92	0.47%	0.31%
Gas	54.2%	5382.28	2917.20	0.03%	0.02%
Open_Land	9.3%	282967.09	26231.05	1.64%	0.15%
Parking	21.4%	1407.17	301.13	0.01%	0.00%
Power	5.7%	84794.41	4833.28	0.49%	0.03%
Rural	16.1%	125373.41	20185.12	0.72%	0.12%
Schools	46.0%	1000436.20	460200.65	5.79%	2.66%
Suburban	38.9%	995342.69	387188.30	5.76%	2.24%
Urban_High	25.9%	18816.35	4873.43	0.11%	0.03%
Urban_Low	38.2%	3307341.08	1263404.29	19.13%	7.31%
Urban_Medium	35.6%	110278.74	39259.23	0.64%	0.23%
Urban_Standard	44.0%	3812312.78	1677417.62	22.05%	9.70%
Vacant	11.4%	3955738.65	450954.21	22.87%	2.61%
Total Area Sq. Ft.		17292960.57	5805874.39		33.57%
Acres		396.99	133.28		

Table 1 Dee Creek Land Use Land Cover Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)				
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)		340		
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)				9.42
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)				
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)				
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)	7.3			
02450600	DEECRK	PSNS	SSWM-SW	07-Nov-02	FCOL(MF)			226	
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)				
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)		2100		
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)				10.84
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)				
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)				
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)	7.8			
02460611	DEECRK	PSNS	SSWM-SW	12-Nov-02	FCOL(MF)			134	
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)		200		
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				10.75
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)	7.9			
02460623	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)			221	
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)		330		
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				10.64
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)				
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)	7.8			
02460624	DEECRK	PSNS	SSWM-SW	13-Nov-02	FCOL(MF)			220	
02470612	DEECRK	PSNS	SSWM-SW	18-Nov-02	FCOL(MF)		200		
02470623	DEECRK	PSNS	SSWM-SW	20-Nov-02	FCOL(MF)		80		
02470627	DEECRK	PSNS	SSWM-SW	21-Nov-02	FCOL(MF)		36		
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)				
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)		14		
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)				7.82
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)				
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)				
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)				
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)	7.7			
02490601	DEECRK	PSNS	SSWM-SW	05-Dec-02	FCOL(MF)			259	
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)				
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)		530		
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)				7.9

Table 2 Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)				
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)				
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)				
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)	7.9			
02500612	DEECRK	PSNS	SSWM-SW	10-Dec-02	FCOL(MF)			184	
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)		5100		
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				9.43
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)	7.7			
02500623	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)			205	
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)		5700		
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				9.36
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)				
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)	7.7			
02500624	DEECRK	PSNS	SSWM-SW	12-Dec-02	FCOL(MF)			204	
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)				
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)		2700		
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)				8.64
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)				
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)				
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)				
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)	7.5			
02510612	DEECRK	PSNS	SSWM-SW	16-Dec-02	FCOL(MF)			147	
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)				
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)		133		
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)				6.9
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)				
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)				
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)				
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)	6.8			
02510613	DEECRK	PSNS	SSWM-SW	18-Dec-02	FCOL(MF)			207	
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)				
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)		175		
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)				6.91
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)				
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)				

Table 2 cont. Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)				
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)	7.7			
02510626	DEECRK	PSNS	SSWM-SW	19-Dec-02	FCOL(MF)			200	
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)				
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)		250		
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)				7.94
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)				
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)				
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)				
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)	7.8			
03030612	DEECRK	PSNS	SSWM-SW	13-Jan-03	FCOL(MF)			179	
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)				
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)		340		
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)				8.01
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)				
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)				
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)				
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)	7.8			
03030625	DEECRK	PSNS	SSWM-SW	14-Jan-03	FCOL(MF)			176	
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)		1200		
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				7.73
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)	6.8			
03040602	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)			114	
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)		1200		
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				7.63
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)				
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)	7			
03040603	DEECRK	PSNS	SSWM-SW	21-Jan-03	FCOL(MF)			113	
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)				
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)		2100		
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)				7.68
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)				
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)				
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)				
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)	6.9			
03040615	DEECRK	PSNS	SSWM-SW	22-Jan-03	FCOL(MF)			71	

Table 2 cont. Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)				
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)		350		
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)				8.79
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)				
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)				
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)				
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)	7.2			
03040626	DEECRK	PSNS	SSWM-SW	23-Jan-03	FCOL(MF)			141	
04223912	DEECRK	PSNS	ENVVEST	26-May-04	FCOL(MF)		3700		
04223912	DEECRK	PSNS	ENVVEST	26-May-04	FCOL(MF)				12.2
04223912	DEECRK	PSNS	ENVVEST	26-May-04	FCOL(MF)			127	
04223943	DEECRK	PSNS	SSWM	27-May-04	FCOL(MF)		2700		
04223943	DEECRK	PSNS	SSWM	27-May-04	FCOL(MF)				7.3
04223943	DEECRK	PSNS	SSWM	27-May-04	FCOL(MF)				
04223943	DEECRK	PSNS	SSWM	27-May-04	FCOL(MF)	13			
04223943	DEECRK	PSNS	SSWM	27-May-04	FCOL(MF)			164	
101000DE01	DE01	KCHD	KCHD	10-Oct-00	APAH 9221-E		1601		
101000DE01	DE01	KCHD	KCHD	10-Oct-00	APAH 9221-E				11.6
101000DE01	DE01	KCHD	KCHD	10-Oct-00	APAH 9221-E				
101000DE01	DE01	KCHD	KCHD	10-Oct-00	APAH 9221-E				
101000DE01	DE01	KCHD	KCHD	10-Oct-00	APAH 9221-E	7.8			
101000DE01	DE01	KCHD	KCHD	10-Oct-00	APAH 9221-E			203	
112900DE01	DE01	KCHD	KCHD	29-Nov-00	APAH 9221-E		1600		
112900DE01	DE01	KCHD	KCHD	29-Nov-00	APAH 9221-E				6.8
112900DE01	DE01	KCHD	KCHD	29-Nov-00	APAH 9221-E				
112900DE01	DE01	KCHD	KCHD	29-Nov-00	APAH 9221-E				
112900DE01	DE01	KCHD	KCHD	29-Nov-00	APAH 9221-E	7.8			
112900DE01	DE01	KCHD	KCHD	29-Nov-00	APAH 9221-E			136.2	
122000DE01	DE01	KCHD	KCHD	20-Dec-00	APAH 9221-E		500		
122000DE01	DE01	KCHD	KCHD	20-Dec-00	APAH 9221-E				5.2
122000DE01	DE01	KCHD	KCHD	20-Dec-00	APAH 9221-E				
122000DE01	DE01	KCHD	KCHD	20-Dec-00	APAH 9221-E				
122000DE01	DE01	KCHD	KCHD	20-Dec-00	APAH 9221-E	8			
122000DE01	DE01	KCHD	KCHD	20-Dec-00	APAH 9221-E			193	
020801DE01	DE01	KCHD	KCHD	08-Feb-01	APAH 9221-E		70		
020801DE01	DE01	KCHD	KCHD	08-Feb-01	APAH 9221-E				4.8
020801DE01	DE01	KCHD	KCHD	08-Feb-01	APAH 9221-E				
020801DE01	DE01	KCHD	KCHD	08-Feb-01	APAH 9221-E				
020801DE01	DE01	KCHD	KCHD	08-Feb-01	APAH 9221-E	7.5			
020801DE01	DE01	KCHD	KCHD	08-Feb-01	APAH 9221-E			165	
030801DE01	DE01	KCHD	KCHD	08-Mar-01	APAH 9221-E		22		
040401DE01	DE01	KCHD	KCHD	04-Apr-01	APAH 9221-E		70		
040401DE01	DE01	KCHD	KCHD	04-Apr-01	APAH 9221-E				9.1

Table 2 cont. Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
040401DE01	DE01	KCHD	KCHD	04-Apr-01	APAH 9221-E				
040401DE01	DE01	KCHD	KCHD	04-Apr-01	APAH 9221-E	8.2			
040401DE01	DE01	KCHD	KCHD	04-Apr-01	APAH 9221-E			211	
051601DE01	DE01	KCHD	KCHD	16-May-01	APAH 9221-E		1600		
051601DE01	DE01	KCHD	KCHD	16-May-01	APAH 9221-E				10.2
051601DE01	DE01	KCHD	KCHD	16-May-01	APAH 9221-E				
051601DE01	DE01	KCHD	KCHD	16-May-01	APAH 9221-E				
051601DE01	DE01	KCHD	KCHD	16-May-01	APAH 9221-E	8.1			
051601DE01	DE01	KCHD	KCHD	16-May-01	APAH 9221-E			173	
062601DE01	DE01	KCHD	KCHD	26-Jun-01	APAH 9221-E		300		
062601DE01	DE01	KCHD	KCHD	26-Jun-01	APAH 9221-E				12.8
062601DE01	DE01	KCHD	KCHD	26-Jun-01	APAH 9221-E				
062601DE01	DE01	KCHD	KCHD	26-Jun-01	APAH 9221-E				
062601DE01	DE01	KCHD	KCHD	26-Jun-01	APAH 9221-E	8.1			
062601DE01	DE01	KCHD	KCHD	26-Jun-01	APAH 9221-E			242	
072601DE01	DE01	KCHD	KCHD	26-Jul-01	APAH 9221-E		300		
072601DE01	DE01	KCHD	KCHD	26-Jul-01	APAH 9221-E				13.8
072601DE01	DE01	KCHD	KCHD	26-Jul-01	APAH 9221-E				
072601DE01	DE01	KCHD	KCHD	26-Jul-01	APAH 9221-E				
072601DE01	DE01	KCHD	KCHD	26-Jul-01	APAH 9221-E	8.5			
072601DE01	DE01	KCHD	KCHD	26-Jul-01	APAH 9221-E			245	
082201DE01	DE01	KCHD	KCHD	22-Aug-01	APAH 9221-E		1601		
091201DE01	DE01	KCHD	KCHD	12-Sep-01	APAH 9221-E		130		
091201DE01	DE01	KCHD	KCHD	12-Sep-01	APAH 9221-E				13.4
091201DE01	DE01	KCHD	KCHD	12-Sep-01	APAH 9221-E				
091201DE01	DE01	KCHD	KCHD	12-Sep-01	APAH 9221-E				
091201DE01	DE01	KCHD	KCHD	12-Sep-01	APAH 9221-E	8.2			
091201DE01	DE01	KCHD	KCHD	12-Sep-01	APAH 9221-E			237	
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E				
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E		1601		
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E				10.6
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E				
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E				
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E	7.9			
101601DE01	DE01	KCHD	KCHD	16-Oct-01	APAH 9221-E			161.5	
111301DE01	DE01	KCHD	KCHD	13-Nov-01	APAH 9221-E		1601		
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E				
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E		170		
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E				6.5
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E				
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E				
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E	7.8			
120501DE01	DE01	KCHD	KCHD	05-Dec-01	APAH 9221-E			190.7	

Table 2 cont. Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
011502DE01	DE01	KCHD	KCHD	15-Jan-02	APAH 9221-E				
011502DE01	DE01	KCHD	KCHD	15-Jan-02	APAH 9221-E		500		
011502DE01	DE01	KCHD	KCHD	15-Jan-02	APAH 9221-E				6.6
011502DE01	DE01	KCHD	KCHD	15-Jan-02	APAH 9221-E				
011502DE01	DE01	KCHD	KCHD	15-Jan-02	APAH 9221-E	8			
011502DE01	DE01	KCHD	KCHD	15-Jan-02	APAH 9221-E			208.4	
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E				
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E		300		
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E				6.4
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E				
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E				
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E	7.9			
021202DE01	DE01	KCHD	KCHD	12-Feb-02	APAH 9221-E			189.3	
031902DE01	DE01	KCHD	KCHD	19-Mar-02	APAH 9221-E				
031902DE01	DE01	KCHD	KCHD	19-Mar-02	APAH 9221-E		1601		
031902DE01	DE01	KCHD	KCHD	19-Mar-02	APAH 9221-E				6.6
031902DE01	DE01	KCHD	KCHD	19-Mar-02	APAH 9221-E				
031902DE01	DE01	KCHD	KCHD	19-Mar-02	APAH 9221-E	7.9			
031902DE01	DE01	KCHD	KCHD	19-Mar-02	APAH 9221-E			177.2	
041602DE01	DE01	KCHD	KCHD	16-Apr-02	APAH 9221-E				
041602DE01	DE01	KCHD	KCHD	16-Apr-02	APAH 9221-E		170		
041602DE01	DE01	KCHD	KCHD	16-Apr-02	APAH 9221-E				8.9
041602DE01	DE01	KCHD	KCHD	16-Apr-02	APAH 9221-E				
041602DE01	DE01	KCHD	KCHD	16-Apr-02	APAH 9221-E	8.3			
041602DE01	DE01	KCHD	KCHD	16-Apr-02	APAH 9221-E			155.2	
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E				
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E		30		
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E				9.6
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E				
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E				
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E	7.9			
050702DE01	DE01	KCHD	KCHD	07-May-02	APAH 9221-E			214.8	
071602DE01	DE01	KCHD	KCHD	16-Jul-02	APAH 9221-E				
071602DE01	DE01	KCHD	KCHD	16-Jul-02	APAH 9221-E		1600		
071602DE01	DE01	KCHD	KCHD	16-Jul-02	APAH 9221-E				14
071602DE01	DE01	KCHD	KCHD	16-Jul-02	APAH 9221-E				
071602DE01	DE01	KCHD	KCHD	16-Jul-02	APAH 9221-E			230.5	
073102DE01	DE01	KCHD	KCHD	31-Jul-02	APAH 9221-E				
073102DE01	DE01	KCHD	KCHD	31-Jul-02	APAH 9221-E		500		
073102DE01	DE01	KCHD	KCHD	31-Jul-02	APAH 9221-E				12.7
073102DE01	DE01	KCHD	KCHD	31-Jul-02	APAH 9221-E				
073102DE01	DE01	KCHD	KCHD	31-Jul-02	APAH 9221-E	7.9			
073102DE01	DE01	KCHD	KCHD	31-Jul-02	APAH 9221-E			242.3	

Table 2 cont. Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	ORG_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C
020503DE01	DE01	KCHD	KCHD	05-Feb-03	APAH 9221-E	7.9			
020503DE01	DE01	KCHD	KCHD	05-Feb-03	APAH 9221-E			194	
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E				
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E		50		
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E				4.7
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E				
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E				
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E	7.6			
022603DE01	DE01	KCHD	KCHD	26-Feb-03	APAH 9221-E			205.2	
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E				
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E		50		
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E				10
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E				
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E				
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E	8.2			
040903DE01	DE01	KCHD	KCHD	09-Apr-03	APAH 9221-E			181.7	
051403DE01	DE01	KCHD	KCHD	14-May-03	APAH 9221-E				
051403DE01	DE01	KCHD	KCHD	14-May-03	APAH 9221-E		90		
051403DE01	DE01	KCHD	KCHD	14-May-03	APAH 9221-E				11
051403DE01	DE01	KCHD	KCHD	14-May-03	APAH 9221-E				
051403DE01	DE01	KCHD	KCHD	14-May-03	APAH 9221-E	8.3			
051403DE01	DE01	KCHD	KCHD	14-May-03	APAH 9221-E			211.3	
060403DE01	DE01	KCHD	KCHD	04-Jun-03	APAH 9221-E				
060403DE01	DE01	KCHD	KCHD	04-Jun-03	APAH 9221-E		170		
060403DE01	DE01	KCHD	KCHD	04-Jun-03	APAH 9221-E				12.6
060403DE01	DE01	KCHD	KCHD	04-Jun-03	APAH 9221-E				
060403DE01	DE01	KCHD	KCHD	04-Jun-03	APAH 9221-E	7.9			
060403DE01	DE01	KCHD	KCHD	04-Jun-03	APAH 9221-E			229.2	
070903DE01	DE01	KCHD	KCHD	09-Jul-03	APAH 9221-E		1601		
080703DE01	DE01	KCHD	KCHD	07-Aug-03	APAH 9221-E				
080703DE01	DE01	KCHD	KCHD	07-Aug-03	APAH 9221-E		900		
080703DE01	DE01	KCHD	KCHD	07-Aug-03	APAH 9221-E				12.8
080703DE01	DE01	KCHD	KCHD	07-Aug-03	APAH 9221-E				
080703DE01	DE01	KCHD	KCHD	07-Aug-03	APAH 9221-E	8.1			
080703DE01	DE01	KCHD	KCHD	07-Aug-03	APAH 9221-E			240.6	
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E				
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E		300		
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E				13.9
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E				
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E				
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E	8.2			
090203DE01	DE01	KCHD	KCHD	02-Sep-03	APAH 9221-E			232.5	

Table 2 cont. Dee Creek Water Quality Site (DE01) Fecal Coliform and Ancillary Data

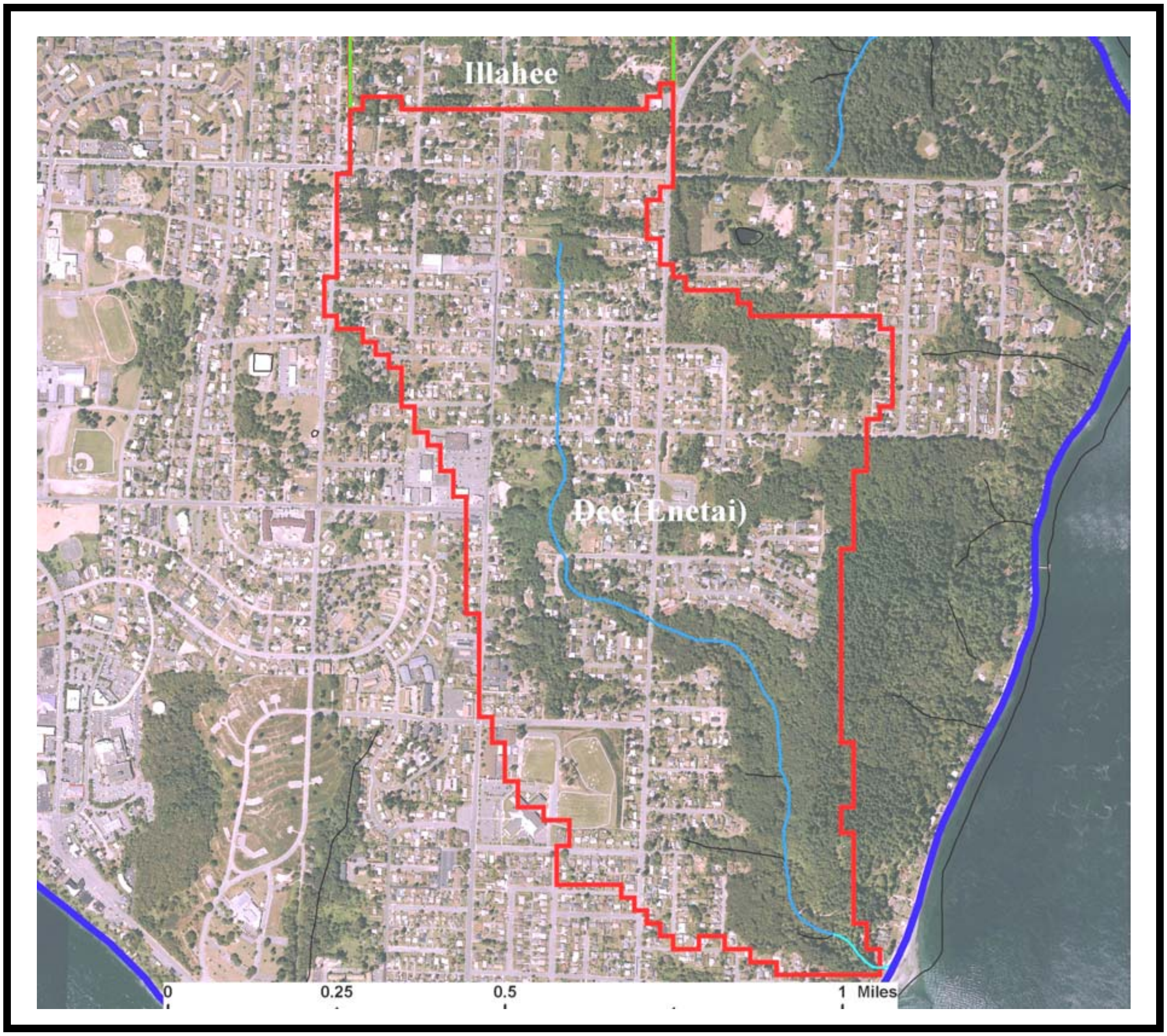


Figure 4 Aerial Photograph of Dee Creek Basin

ILLAHEE STATE PARK CREEK WATERSHED

Illahee State Park Creek Watershed is a small blocky area (Fig. 1) with a Class AA stream that flows into the Puget water body through Illahee State Park (Zimny et al., 2003). Figure 2 is a shaded relief map of the area to help give visual clarity to the topography (“Maps a la carte, Inc.”, 2004). Figure 2 also shows the location of site (SP01) established by KCHD for water quality monitoring of the stream. Over 23% of the watershed is in park land use, with approximately 33% in urban development. The total land area in impervious surface (TIA) is approximately 28%, Table 1. Figure 3 shows Illahee State Park Creek Watershed Land Use Land Cover parcels along with the Land Code legend. The upper basin’s Surfacial Hydrogeologic material consists of Vashon till in the southern portion and advanced outwash deposits in the northern end. A small extent of Holocene alluvium is in the mid upper basin running east west. It gives way to Pleistocene nonglacial flood plain deposits on the basins eastern rim (Jones, et al, 1998). As of this writing, no Fecal Coliform and ancillary data of water quality site (SP01) was available for inclusion in this report. Figure 4 is an aerial photograph Illahee State Park Watershed (Space Imaging, 2002).

Figure 1 Location Illahee State Park Creek Watershed

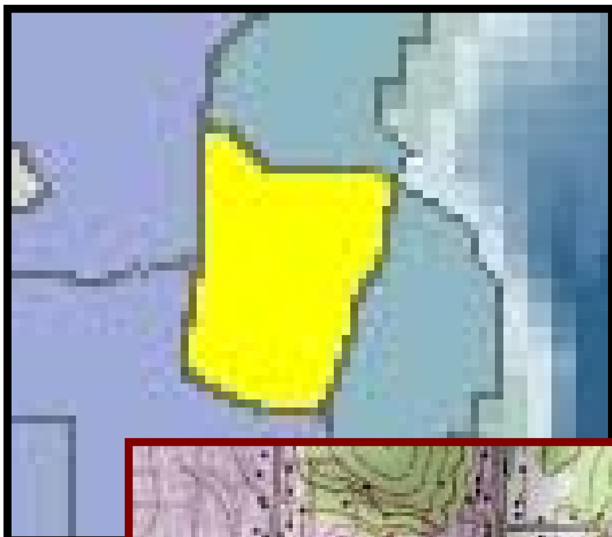
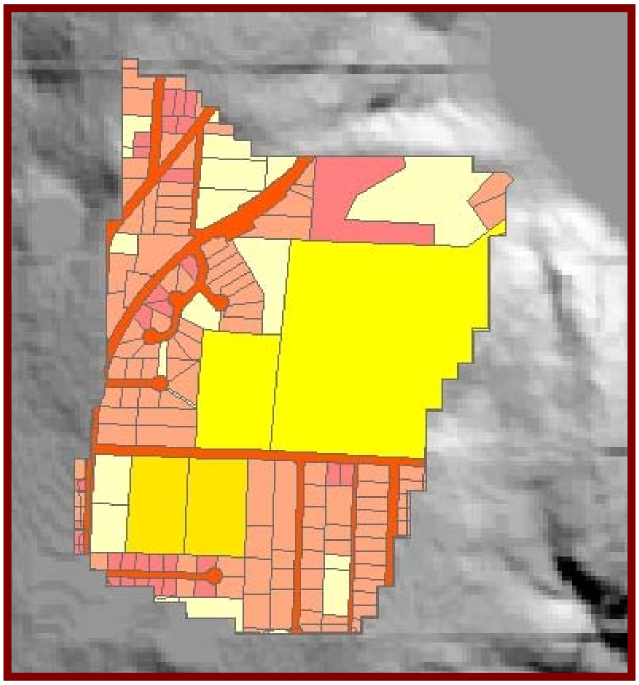
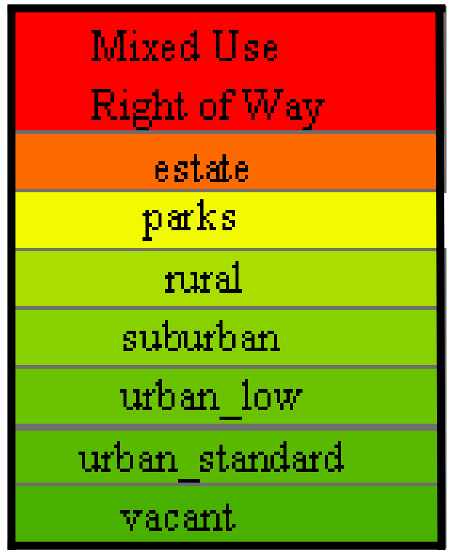


Figure 2 Shaded Relief Map of Illahee State Park Creek Watershed





LULC LEGEND

Figure 3 Illahee State Park Watershed LULC Parcels

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
Mixed Use-Right of Way	0.443	651739.59	288720.64	10.1%	4.5%
Estate	0.208	439541.00	91424.53	6.8%	1.4%
Parks	0.181	1492476.56	270138.26	23.1%	4.2%
Rural	0.161	340589.00	54834.83	5.3%	0.8%
Suburban	0.389	347694.99	135253.35	5.4%	2.1%
Urban_Low	0.382	1667393.60	636944.35	25.8%	9.9%
Urban_Standard	0.440	519626.45	228635.64	8.1%	3.5%
Vacant	0.114	992438.94	113138.04	15.4%	1.8%
Total Area Sq. Ft.		6451500.14	1819089.64		28.196%
Acres		148.11	41.76		

Table 1 Illahee State Park Creek Watershed Land Use Land Cover Data

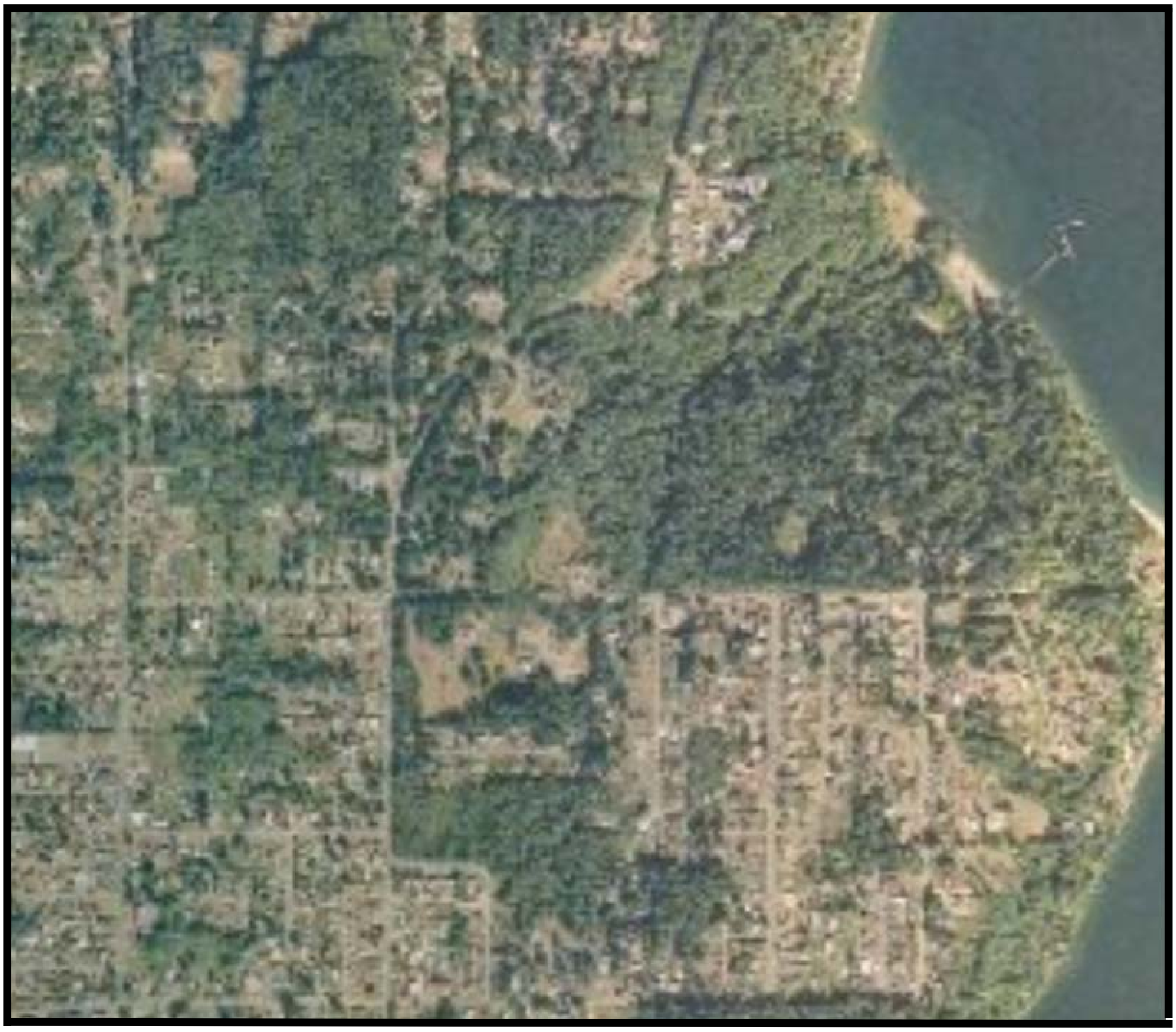


Figure 4 Aerial Photograph of Illahee State Park Creek Watershed Area

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A Summary of Landuse, Landcover, Stream Flow, and Water Quality Data for Watersheds of Streams, Piped Catchments, Open Watersheds, and Nearshore Areas Draining into Sinclair and Dyes Inlets

Section 2. Piped Catchments

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October 2004

Prepared for:
Puget Sound Naval Shipyard & Intermediate Maintenance Facility
Project ENVVEST

Section 2. Piped Catchments

INDRODUCTION

This document was prepared as supporting information for **An Analysis of Microbial Pollution in the Sinclair-Dyes Inlet Watershed** the fecal coliform Total Maxium Daily Load study conducted for Sinclair and Dyes Inlets by PSNS Project ENVVEST. The data herein are from sampling during storm events of the project, supplied historical data, and monitoring records.

Methodology

Methodology:

1. June 2004 is used as the cutoff date for ENVVEST sampling data.
2. Stream flow data used is from Kitsap Public Utility District (KPUD) stream monitoring program. Gaps in flow data cause a skew in graphing the average flows for months and years. Graphing profiles are done for visual observation of general temporal flow characteristics.
3. Historical sampling data from Kitsap County Health District (KCHD) is presented as summations in graphical format.
4. 1998 Land Use Land Code data is used for presenting parcels in map format and for mathematical analysis of land areas.
5. Topographical map portions used to show basin areas are presented in shaded relief format for better representation and visualization of terrain.
6. Surficial hydrogeological information is from the United States Geological Survey (USGS) Surficial Hydrogeological map of the Kitsap Peninsula and surrounding area.
7. Aerial photographs of the ENVVEST project area are from Space Imaging and Land Voyage satellite imaging.

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BAINBRIDGE ISLAND PIPED WATERSHEDS

Bainbridge Island Piped is composed of four basin areas. see (Fig. 1). A shaded relief map of the combined area topography is presented in (Fig. 2) ("Maps a la carte, Inc.", 2004). Over 88 percent of Bainbridge Island piped area is in open land (Fig. 3) with approximately 10% of the combined basin area in impervious surface (%TIA) (Table 1). Figure 4 shows an aerial photograph of the piped areas (Space Imaging, 2002). The surficial hydrogeology of the northern most basin is Vashon till with the middle basin composed of till and patches of advance outwash deposits. The southern basins are a mixture of till, recessional fine, and advanced outwash deposits bordered by Holocene alluvium (Jones, et al, 1998). There are no water quality sites for these basins.

Figure 1 Location of Piped Watersheds

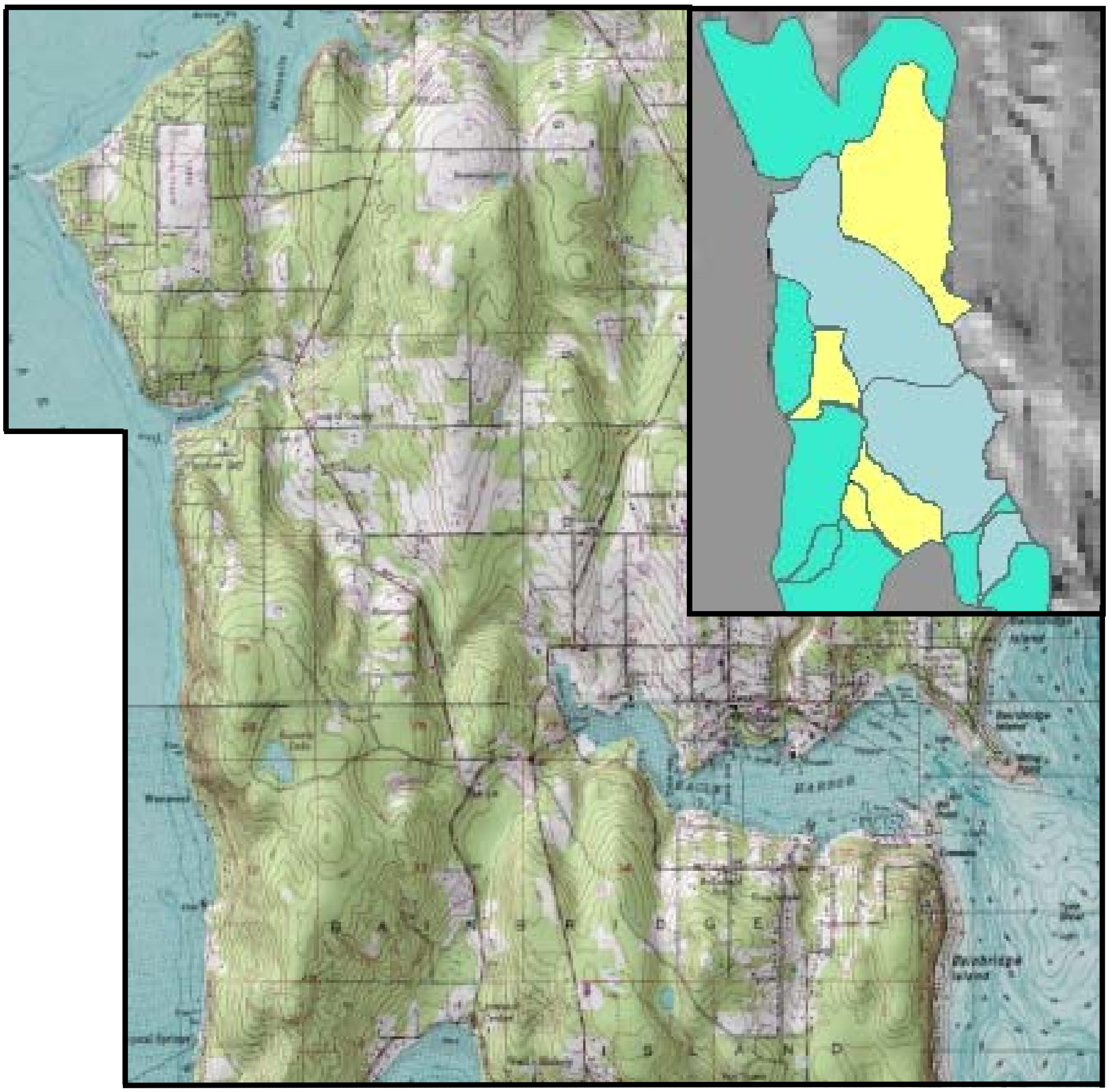
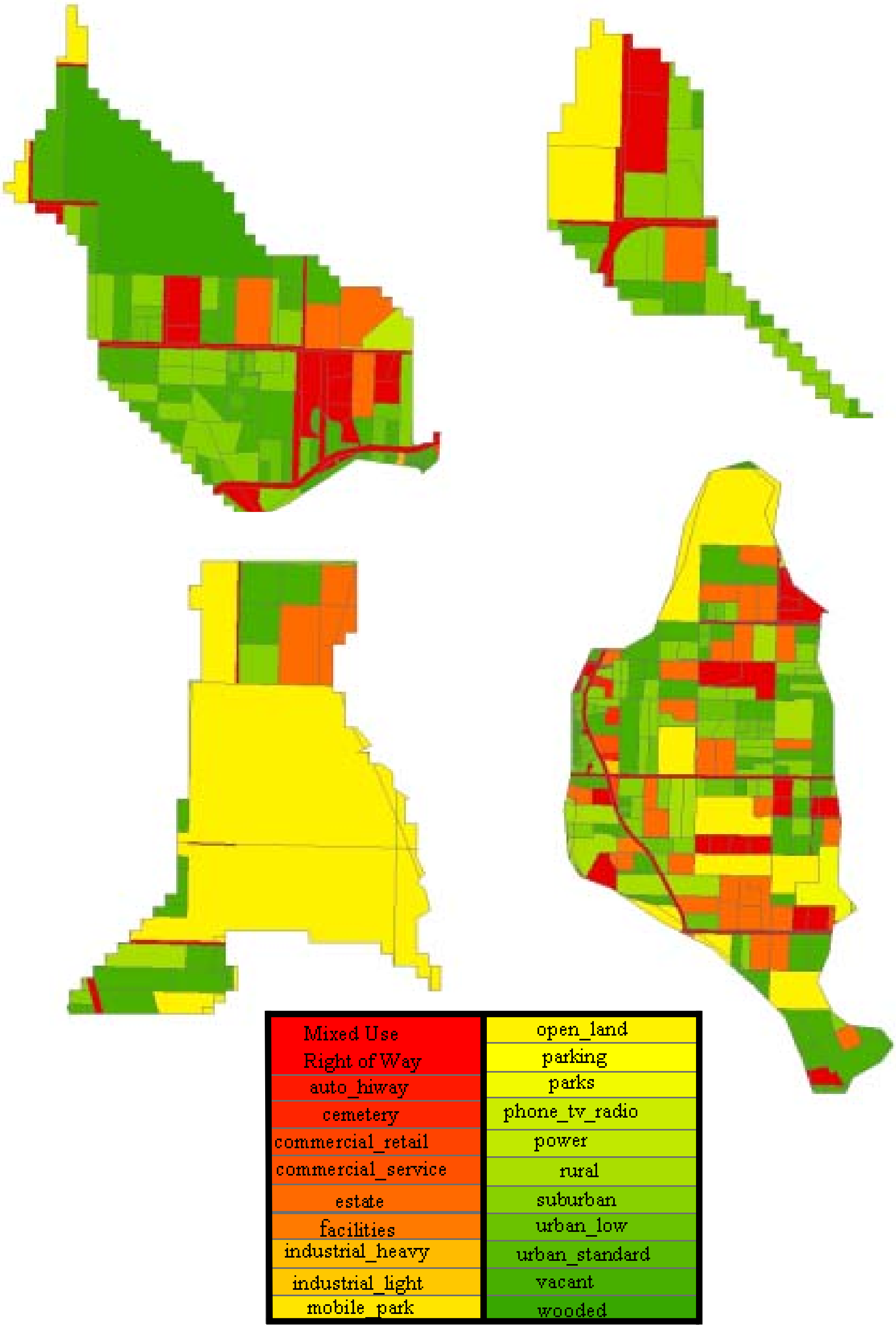


Figure 2 Shaded Relief Map of Bainbridge Island Piped Watersheds


Mixed Use
Right of Way
auto_hiway
cemetery
commercial_retail
commercial_service
estate
facilities
industrial_heavy
industrial_light
mobile_park
open_land
parking
parks
phone_tv_radio
power
rural
suburban
urban_low
urban_standard
vacant
wooded

LULC LEGEND

Figure 3 Bainbridge Island Piped Watersheds Land Use Land Code

Landcode	Percent Impervious	Area Sq. Feet	Impervious Area sq feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	172834.39	76565.64	0.026%	0.011%
Auto_Hiway	59.9%	129808.80	77755.47	0.019%	0.012%
Cemetary	17.1%	79714.80	13631.23	0.012%	0.002%
Commercial_Retail	59.5%	459993.60	273696.19	0.069%	0.041%
Commercial_Service	15.5%	123710.40	19175.11	0.018%	0.003%
Estate	20.8%	12440367.20	2587596.38	1.858%	0.386%
Industrial_Heavy	82.1%	6969.60	5722.04	0.001%	0.001%
Facilities	66.4%	117176.40	77805.13	0.018%	0.012%
Industrial_Light	59.8%	54014.40	32300.61	0.008%	0.005%
Mobile_Park	43.7%	534728.00	233676.14	0.080%	0.035%
Open_Land	9.3%	594929412.00	55149956.49	88.860%	8.237%
Parking	51.4%	25700.40	13210.01	0.004%	0.002%
Parks	18.1%	767527.20	138922.42	0.115%	0.021%
Phone_TV_Radio	3.9%	399445.20	15578.36	0.060%	0.002%
Power	5.7%	287496.00	16387.27	0.043%	0.002%
Rural	16.1%	8430166.80	1357256.85	1.259%	0.203%
Suburban	38.9%	11495400.75	4471710.89	1.717%	0.668%
Urban_Low	38.2%	2804885.46	1071466.24	0.419%	0.160%
Urban_Standard	44.0%	23086.80	10158.19	0.003%	0.002%
Vacant	11.4%	24205646.18	2759443.66	3.615%	0.412%
Wooded	4.2%	12025173.60	505057.29	1.796%	0.075%
Total Area Sq. Ft.		669513257.98	68907071.63		10.292%
Acres		15369.91	1581.89		

Table 1 Bainbridge Island Piped Watersheds Land Use Land Code Data

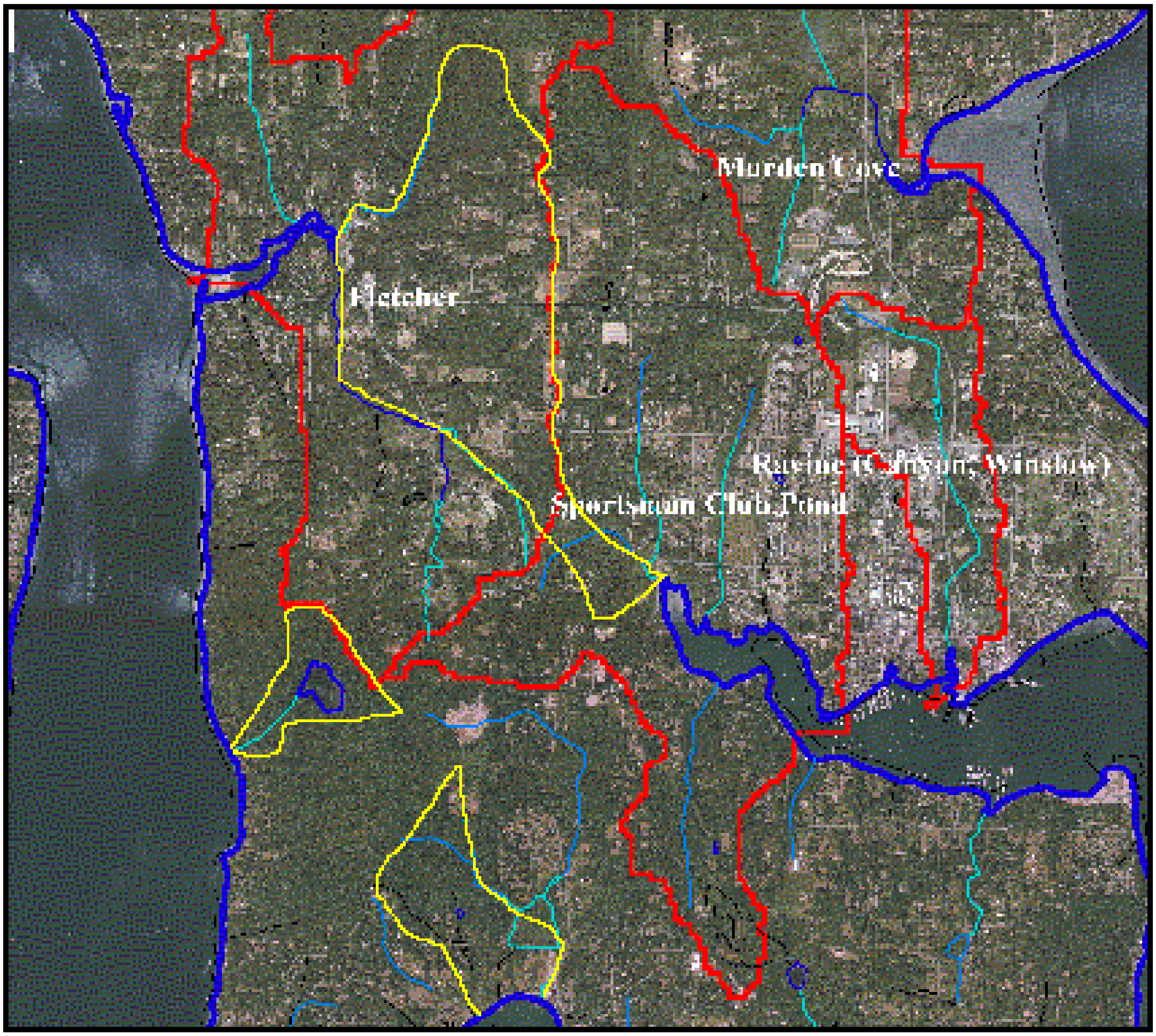


Figure 4 Aerial Photograph of Bainbridge Island Piped Area. Areas in yellow outline are approximations of piped area size and shapes.

CLEAR CREEK PIPED AREA

Clear Creek piped contains 6 catchments at the most downstream area (Fig. 1). To view the topography of the area, a shaded relief map is given, (Fig.2) ("Maps a la carte, Inc.", 2004). Development of the area, (Fig. 3) shows that over 56% of the basin is in commercial retail, commercial service and mixed use right. Approximately 38 % of Clear Creek Piped area is impervious surface area (%TIA) (Table 1). An aerial photograph of the area is displayed in figure 4 (Landvoyager, 2004). Four storm water water quality sampling sites (LMK001, LMK002, LMK004, LMK026) are established in this basin (Fig. 2). The Fecal Coliform and ancillary data for these sites are listed in table 2.

Figure 1 Clear Creek Piped Area watersheds

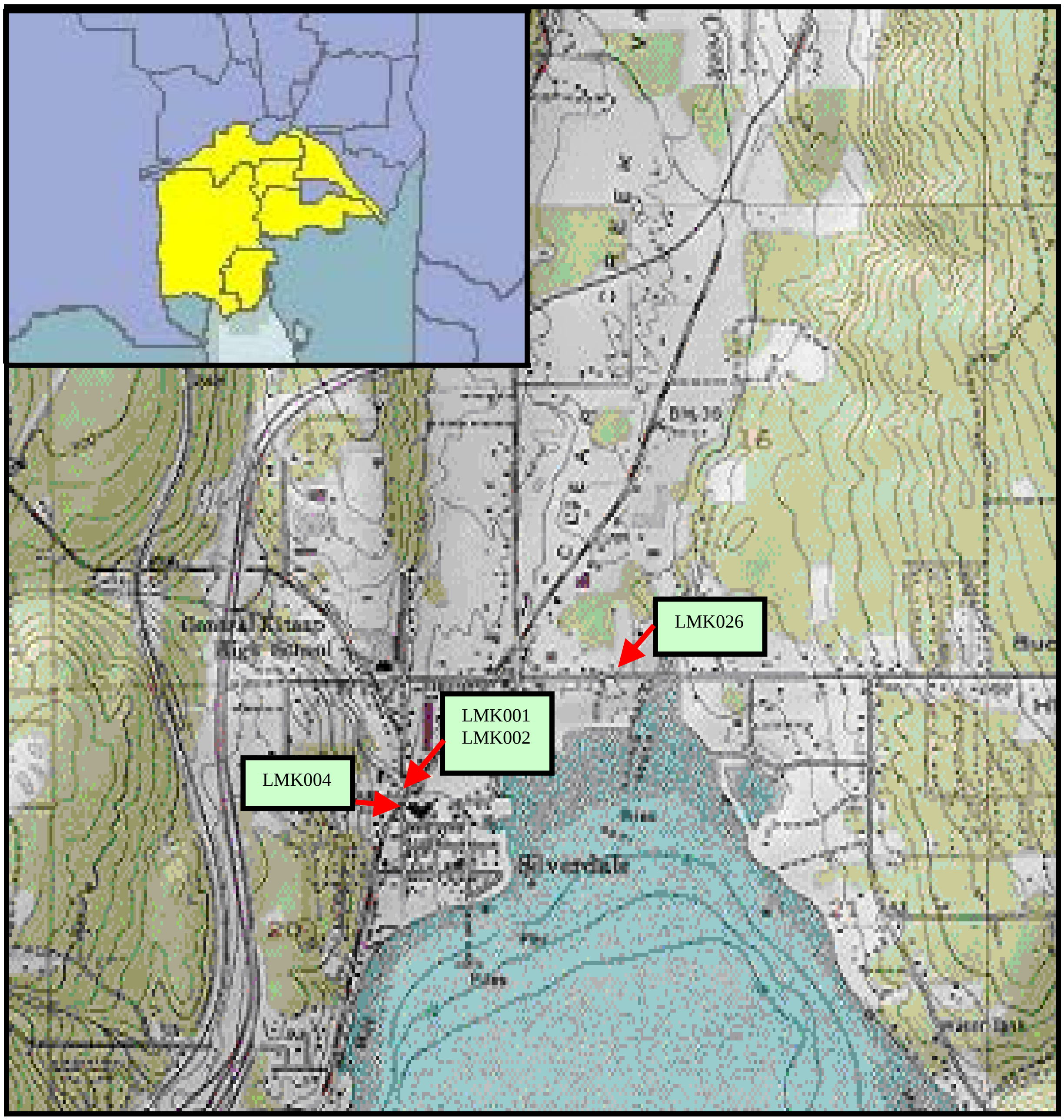


Figure 2 Shaded Relief Map of Clear Creek Piped Area and water quality sites.

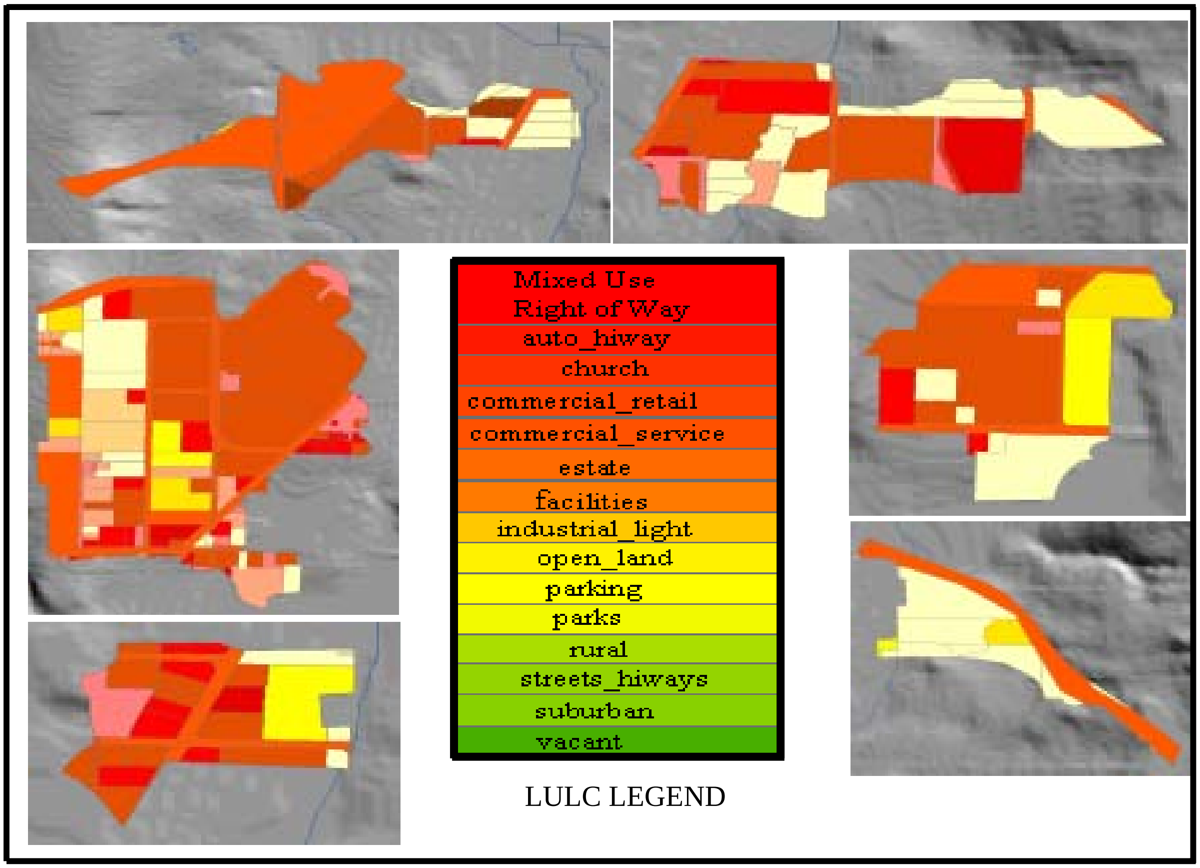


Figure 3 Clear Creek Piped Area Land Use Land Code Parcels

Land Code	Percent Impervious	Area Sq. Feet	Impervious Area Sq. Feet	% of Total Area	% TIA of Total Area
Mixed Use-Right of Way	44.3%	3183350.73	1410224.37	27.2%	12.0%
Auto_Hiway	55.9%	74754.80	41787.93	0.6%	0.4%
Church	46.0%	170033.00	78215.18	1.5%	0.7%
Commercial_Retail	59.5%	2742488.35	1631780.57	23.4%	13.9%
Commercial_Service	55.1%	637018.55	350997.22	5.4%	3.0%
Estate	20.8%	289506.05	60217.26	2.5%	0.5%
Facilities	66.4%	177249.90	117693.93	1.5%	1.0%
Industrial_Light	59.8%	362278.15	216642.33	3.1%	1.8%
Open_Land	9.3%	886337.34	82163.47	7.6%	0.7%
Parking	51.4%	312120.76	160430.07	2.7%	1.4%
Parks	18.1%	231216.90	41850.26	2.0%	0.4%
Rural	16.1%	327425.37	52715.49	2.8%	0.5%
Streets_	49.9%	39462.21	19691.64	0.3%	0.2%
Suburban	38.9%	81232.55	31599.46	0.7%	0.3%
Vacant	11.4%	2198997.70	250685.74	18.8%	2.1%
Total Area Sq. Ft.		11713472.36	4546694.93		38.8%
Acres		268.90	104.38		

Table 1 Clear Creek Piped Land Use Land Code Data

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	Ph	DO	FC	%O2	Sal	Spec Cond	Temp C	Turb.
LMK001	SSWM-SW	07-Nov-02	FCOL(MF)	7.52	11.56	612	106.3	0.08	164	11.57	
LMK001	SSWM-SW	12-Nov-02	FCOL(MF)	7.25	11.49	1000	104.9	0.04	90	11.27	
LMK001	SSWM-SW	12-Nov-02	FCOL(MF)	7.33	11.21	1000	102.1	0.04	93	11.2	
LMK001	SSWM-SW	13-Nov-02	FCOL(MF)	7.81	11.52	140	106.6	0.09	185	11.85	
LMK001	SSWM-SW	18-Nov-02	FCOL(MF)			1100					
LMK001	SSWM-SW	20-Nov-02	FCOL(MF)			62					
LMK001	SSWM-SW	21-Nov-02	FCOL(MF)			248					
LMK001	SSWM-SW	05-Dec-02	FCOL(MF)	7.78	11.39	8	102.4	0.55	1093	10.49	2.45
LMK001	SSWM-SW	16-Dec-02	FCOL(MF)	7.36	11.6	276	100.6	0.06	132	9.12	5.65
LMK001	SSWM-SW	18-Dec-02	FCOL(MF)	7.51	11.89	57	104	0.11	237	9.41	2.6
LMK001	SSWM-SW	19-Dec-02	FCOL(MF)	7.74	12.17	57	105.3	0.1	207	9.01	2.51
LMK001	SSWM-SW	13-Jan-03	FCOL(MF)	7.49	12.47	71	106.8	0.08	161	8.57	4.11
LMK001	SSWM-SW	14-Jan-03	FCOL(MF)	7.59	12.57	11	108.6	0.08	172	8.94	2.87
LMK001	SSWM-SW	21-Jan-03	FCOL(MF)	7.28	11.84	550	101.5	0.04	89	8.58	17.2
LMK001	SSWM-SW	21-Jan-03	FCOL(MF)	7.28	11.61	560	99.4	0.04	89	8.54	16.9
LMK001	SSWM-SW	22-Jan-03	FCOL(MF)	7.12	12.04	460	102	0.03	69	8.13	11
LMK001	SSWM-SW	23-Jan-03	FCOL(MF)	7.57	11.55	54	101.2	0.07	138	9.51	4.84
LMK001	TEC-STORM	19-Apr-04	FCOL(MF)	7		49			0.393	52.7	33.9
LMK001	TEC-STORM	19-Apr-04	FCOL(MF)	6.8		1500			0.048	54.1	26
LMK001	TEC-STORM	19-Apr-04	FCOL(MF)	6.8		1400			0.048	53.6	21.1
LMK001	TEC-STORM	19-Apr-04	FCOL(MF)	6.8		690			0.048	53.6	21.1
LMK001	TEC-STORM	20-Apr-04	FCOL(MF)	7.4		180			0.142	52.2	4.8
LMK001	TEC-STORM	20-Apr-04	FCOL(MF)	7.1		43			0.21	52.2	2.4
LMK001A	SSWM-SW	10-Dec-02	FCOL(MF)	8.07	11.47	140	99.7	0.1	211	9.16	4.97
LMK001A	SSWM-SW	12-Dec-02	FCOL(MF)	7.63	11.78	600	105	0.08	167	10.22	8.28
LMK001A	SSWM-SW	12-Dec-02	FCOL(MF)	7.57	11.31	1300	100.5	0.08	171	10.12	13.2
LMK002	SSWM-SW	07-Nov-02	FCOL(MF)	7.35	10.3	2376	96.2	0.03	70	12.29	
LMK002	SSWM-SW	12-Nov-02	FCOL(MF)	7.26	10.65	2500	98.2	0.02	43	11.75	

Table 2 Fecal Coliform and Ancillary Data for Clear Creek Piped Area

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	Ph	DO	FC	%O2	Sal	Spec Cond	Temp C	Turb.
LMK002	SSWM-SW	13-Nov-02	FCOL(MF)	7.45	9.67	300	93.5	0.12	241	13.83	
LMK002	SSWM-SW	18-Nov-02	FCOL(MF)			1825					
LMK002	SSWM-SW	20-Nov-02	FCOL(MF)			133					
LMK002	SSWM-SW	21-Nov-02	FCOL(MF)			33					
LMK002	SSWM-SW	21-Nov-02	FCOL(MF)			60					
LMK002	SSWM-SW	05-Dec-02	FCOL(MF)	7.49	9.26	100	87.9	0.16	340	12.95	2.13
LMK002	SSWM-SW	16-Dec-02	FCOL(MF)	7.25	11.13	210	97.6	0.06	127	9.54	5.4
LMK002	SSWM-SW	16-Dec-02	FCOL(MF)	7.19	10.65	275	93.6	0.06	129	9.65	5.44
LMK002	SSWM-SW	18-Dec-02	FCOL(MF)	7.35	10.86	20	98.7	0.13	272	11.07	2.76
LMK002	SSWM-SW	19-Dec-02	FCOL(MF)	7.36	10.48	96	93.8	0.25	518	10.37	2.95
LMK002	SSWM-SW	13-Jan-03	FCOL(MF)	7.31	10.62	53	93.5	0.06	137	9.72	10
LMK002	SSWM-SW	14-Jan-03	FCOL(MF)	7.39	10.71	46	96.6	0.11	230	10.76	2.22
LMK002	SSWM-SW	14-Jan-03	FCOL(MF)	7.32	10.61	54	95.9	0.11	231	10.84	2.25
LMK002	SSWM-SW	21-Jan-03	FCOL(MF)	7.41	11.25	1100	97.6	0.02	37	9.11	15.4
LMK002	SSWM-SW	22-Jan-03	FCOL(MF)	7.26	11.31	250	97.7	0.01	27	8.91	8.88
LMK002	SSWM-SW	23-Jan-03	FCOL(MF)	7.32	10.24	370	92	0.09	199	10.55	5.03
LMK002	TEC-STORM	19-Apr-04	FCOL(MF)	7		80			0.393	52.7	33.9
LMK002	TEC-STORM	19-Apr-04	FCOL(MF)	6.8		970			0.048	54.1	26
LMK002	TEC-STORM	20-Apr-04	FCOL(MF)	7.4		34			0.142	52.2	4.8
LMK002	TEC-STORM	20-Apr-04	FCOL(MF)	7.1		8			0.21	52.2	2.4
LMK002A	SSWM-SW	10-Dec-02	FCOL(MF)	7.8	10.46	500	92.7	0.06	119	10	4.66
LMK002A	SSWM-SW	12-Dec-02	FCOL(MF)	7.32	10.03	1200	92.1	0.09	181	11.53	22.2
LMK004	SSWM-SW	07-Nov-02	FCOL(MF)	7.18	10.66	2904	98.3	0.07	145	11.74	
LMK004	SSWM-SW	12-Nov-02	FCOL(MF)	7.38	10.77	1700	98.5	0.02	54	11.35	
LMK004	SSWM-SW	13-Nov-02	FCOL(MF)	7.42	10.35	25	97.5	0.14	297	12.63	
LMK004	SSWM-SW	18-Nov-02	FCOL(MF)			500					
LMK004	SSWM-SW	18-Nov-02	FCOL(MF)			675					
LMK004	SSWM-SW	20-Nov-02	FCOL(MF)			33					
LMK004	SSWM-SW	21-Nov-02	FCOL(MF)			9					

Table 2 cont. Fecal Coliform and Ancillary Data for Clear Creek Piped Area

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	Ph	DO	FC	%O2	Sal	Spec Cond	Temp C	Turb.
LMK004	SSWM-SW	21-Nov-02	FCOL(MF)			5					
LMK004	SSWM-SW	05-Dec-02	FCOL(MF)	7.66	10.06	26	92.6	0.89	1743	11.42	1.08
LMK004	SSWM-SW	16-Dec-02	FCOL(MF)	7.07	10.47	260	91.2	0.08	178	9.27	5.48
LMK004	SSWM-SW	18-Dec-02	FCOL(MF)	7.49	11.41	20	101.8	0.25	521	10.23	1.48
LMK004	SSWM-SW	19-Dec-02	FCOL(MF)	7.49	11.23	49	99.4	0.52	1053	9.85	1.62
LMK004	SSWM-SW	19-Dec-02	FCOL(MF)	7.47	10.46	60	92.9	0.51	1023	9.98	1.71
LMK004	SSWM-SW	13-Jan-03	FCOL(MF)	7.2	11.23	370	97.1	0.1	208	8.97	10.6
LMK004	SSWM-SW	14-Jan-03	FCOL(MF)	7.34	11.5	92	101.4	0.13	262	9.74	1.58
LMK004	SSWM-SW	21-Jan-03	FCOL(MF)	7.29	11.44	340	98.5	0.04	81	8.78	37.8
LMK004	SSWM-SW	22-Jan-03	FCOL(MF)	7.05	11.69	200	100.1	0.03	56	8.57	26
LMK004	SSWM-SW	23-Jan-03	FCOL(MF)	7.37	10.4	490	92.2	0.1	207	10	5.48
LMK004	SSWM-SW	23-Jan-03	FCOL(MF)	7.35	10.39	480	91.7	0.1	206	9.84	5.41
LMK004	ENVVEST	19-Apr-04	FCOL(MF)			160			0.0651	12.78	134
LMK004	ENVVEST	19-Apr-04	FCOL(MF)			120			0.0651	12.78	134
LMK004	SSWM-SW	20-Apr-04	FCOL(MF)	7.5		120			282	12.9	1.03
LMK004	SSWM-SW	20-Apr-04	FCOL(MF)	7.5		130			284	13.1	0.96
LMK004A	SSWM-SW	10-Dec-02	FCOL(MF)	7.21	11.11	520	96.3	0.3	624	8.98	11.3
LMK004A	SSWM-SW	12-Dec-02	FCOL(MF)	7.23	10.31	1500	92.8	0.12	246	10.66	3.06
LMK026	SSWM-SW	07-Nov-02	FCOL(MF)	7.26	10.34	2640	96.3	0.94	1833	11.92	
LMK026	SSWM-SW	12-Nov-02	FCOL(MF)	6.93	10.73	1400	99.8	2.38	4436	11.47	
LMK026	SSWM-SW	13-Nov-02	FCOL(MF)	7.4	9.27	530	89.2	0.19	389	13.56	
LMK026	SSWM-SW	18-Nov-02	FCOL(MF)			623					
LMK026	SSWM-SW	20-Nov-02	FCOL(MF)			208					
LMK026	SSWM-SW	20-Nov-02	FCOL(MF)			123					
LMK026	SSWM-SW	21-Nov-02	FCOL(MF)			40					
LMK026	SSWM-SW	05-Dec-02	FCOL(MF)	7.15	8.94	226	84.6	5.51	9748	11.37	5.15
LMK026	SSWM-SW	16-Dec-02	FCOL(MF)	7.22	11.16	450	98.2	0.08	164	9.71	5.09
LMK026	SSWM-SW	18-Dec-02	FCOL(MF)	7.05	10.39	115	93.7	1.11	2166	10.47	5.19
LMK026	SSWM-SW	18-Dec-02	FCOL(MF)	7.09	9.61	77	86.6	1.26	2436	10.38	5.03

Table 2 cont. Fecal Coliform and Ancillary Data for Clear Creek Piped Area

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	Ph	DO	FC	%O2	Sal	Spec Cond	Temp C	Turb.
LMK026	SSWM-SW	19-Dec-02	FCOL(MF)	7.32	11.5	124	102.7	1.12	2181	10.04	5.48
LMK026	SSWM-SW	13-Jan-03	FCOL(MF)	7.04	10.11	690	88.7	0.08	175	9.58	35.7
LMK026	SSWM-SW	14-Jan-03	FCOL(MF)	7.15	10.62	84	94.3	0.1	209	10.09	8.4
LMK026	SSWM-SW	21-Jan-03	FCOL(MF)	7.4	11.47	1000	99.4	0.08	173	9.05	34
LMK026	SSWM-SW	22-Jan-03	FCOL(MF)	7.34	11.43	360	98.7	0.02	51	8.9	18
LMK026	SSWM-SW	22-Jan-03	FCOL(MF)	7.23	11.19	360	96.4	0.02	48	8.8	18.3
LMK026	SSWM-SW	23-Jan-03	FCOL(MF)	7.34	10.75	100	95.7	0.12	246	10.16	3.87
LMK026	NSTREAMS	19-Apr-04	FCOL(MF)			260					
LMK026	SSWM-SW	20-Apr-04	FCOL(MF)	7.4		15			887	13.1	13
LMK026A	SSWM-SW	10-Dec-02	FCOL(MF)	7.21	10.67	1300	96.6	7.58	13157	8.87	15
LMK026A	SSWM-SW	12-Dec-02	FCOL(MF)	7.24	9.74	800	89.1	0.89	1755	11.16	5.97

Table 2 cont. Fecal Coliform and Ancillary Data for Clear Creek Piped Area

Figure 4 Aerial Photograph of the Clear Creek Piped Area

ANNAPOLIS PIPED AREA

Annapolis piped area is a long and narrow watershed that drains toward the southern edge of Sinclair Inlet (Fig. 1). Figure 2 is a shaded relief map of the basin area and its topography ("Maps a la carte, Inc.", 2004). The surficial hydrogeologic unit for the basin is Vashon advance outwash with the waters edge a strip of nonglacial flood plain deposits (Jones, et al, 1998). One fourth of the basin is in urban development with Urban standard and Urban Low being the greatest developed land use (Fig. 3). Approximately 35% of the area is total impervious area (%TIA) (Table 1). A water quality sampling site (AP01) was established for sampling (Fig. 2). Fecal Coliform and ancillary data collected for this site are shown in (Table 2). Aerial Photograph of Annapolis Piped Area is shown in figure 4(Space Imaging, 2002.

Figure 1 Annapolis Piped Area

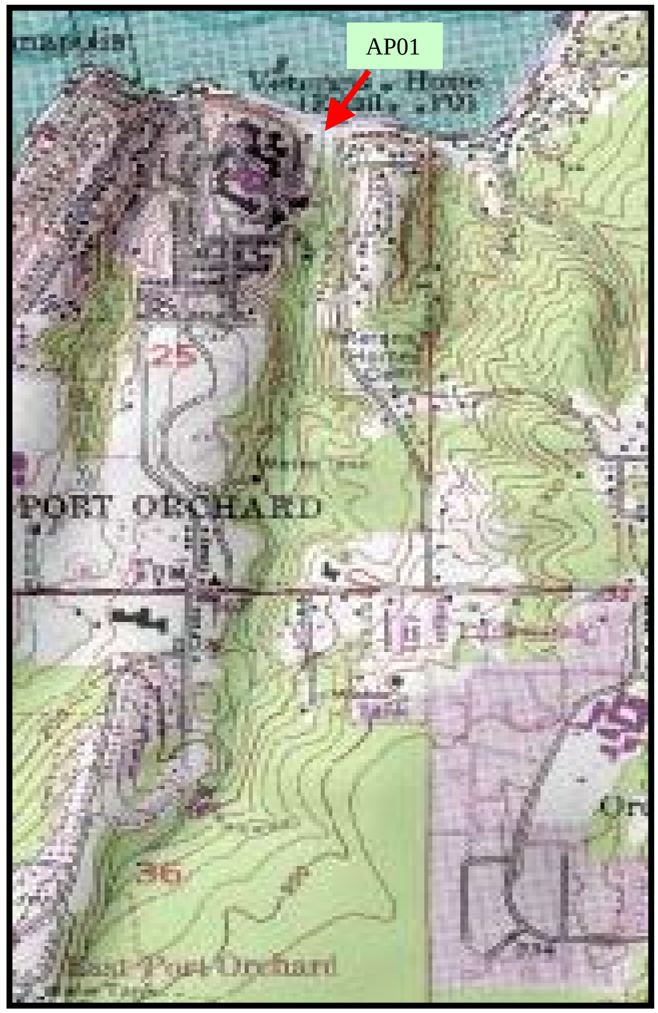
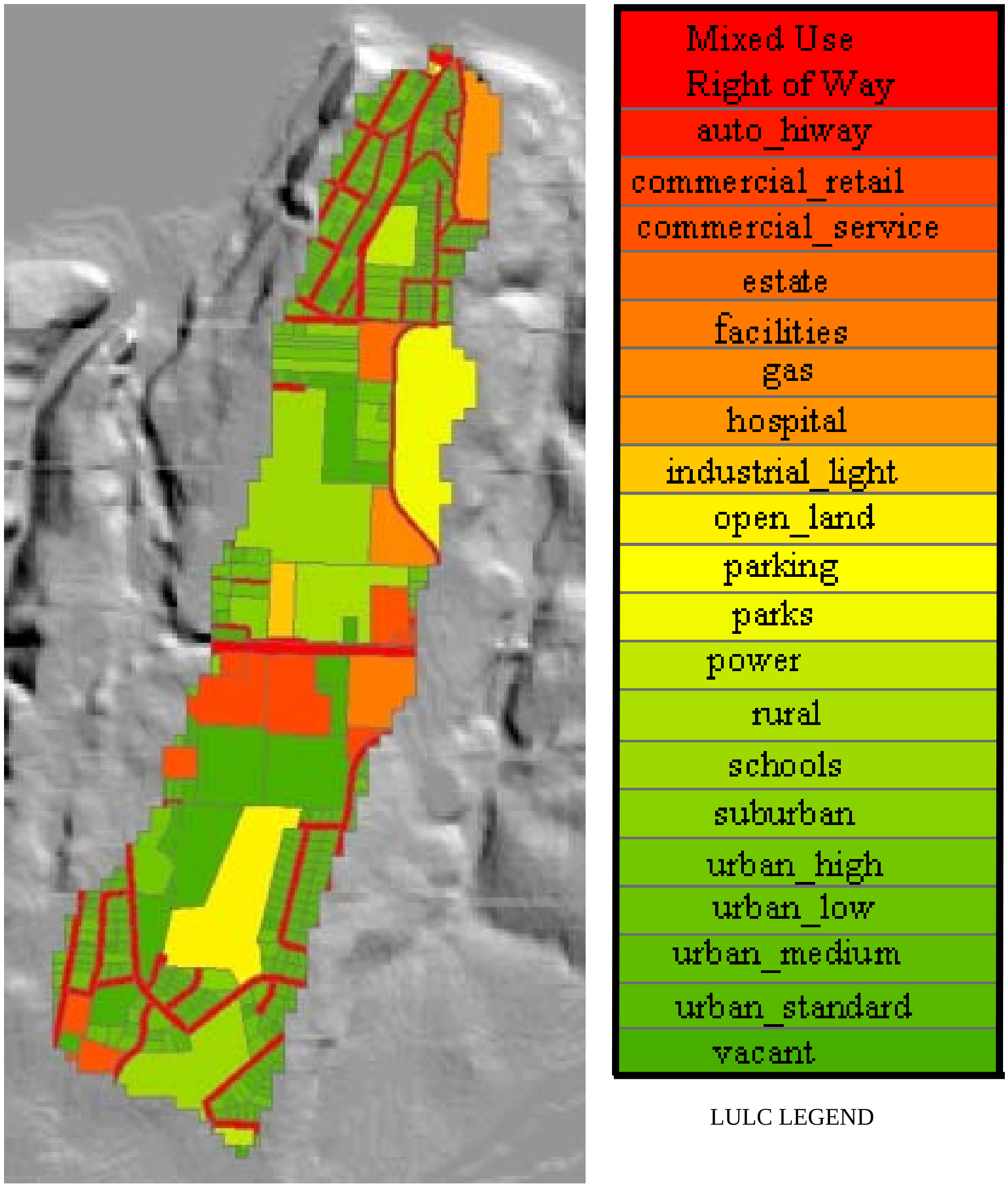


Figure 2 Shaded Relief Map of Annapolis Piped Area and Water Quality Site (AP01)



LULC LEGEND

Figure 3 Annapolis Piped Area Land Use Land Code Parcels

Land Code	Percent Impervious	Area Sq. Feet	Impervious Area Sq Feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	1675118.80	742077.63	12.30%	5.45%
Auto_Hiway	59.9%	4960.31	2971.23	0.04%	0.02%
Commercial_Retail	59.5%	696069.99	414161.64	5.11%	3.04%
Commercial_Service	55.1%	360309.73	198530.66	2.65%	1.46%
Estate	20.8%	140851.12	29297.03	1.03%	0.22%
Facilities	66.4%	287005.00	190571.32	2.11%	1.40%
Gas	54.3%	220969.00	119986.17	1.62%	0.88%
Hospital	66.4%	317864.00	211061.70	2.33%	1.55%
Industrial_Light	60.0%	134199.30	80492.74	0.99%	0.59%
Open_Land	9.3%	785789.00	72842.64	5.77%	0.53%
Parking	51.4%	5448.99	2800.78	0.04%	0.02%
Parks	18.1%	799779.00	144760.00	5.87%	1.06%
Power	5.7%	206181.70	11752.36	1.51%	0.09%
Rural	16.1%	423900.00	68247.90	3.11%	0.50%
Schools	46.0%	1488784.00	684840.64	10.93%	5.03%
Suburban	38.9%	338315.41	131604.70	2.48%	0.97%
Urban_High	25.9%	205127.92	53128.13	1.51%	0.39%
Urban_Low	38.2%	1268731.21	484655.32	9.31%	3.56%
Urban_Medium	35.6%	239935.05	85416.88	1.76%	0.63%
Urban_Standard	44.0%	1681752.45	739971.08	12.35%	5.43%
Vacant	11.4%	2339983.74	266758.15	17.18%	1.96%
Total Area Sq. Ft.		13621075.72	4735928.7		34.77%
Acres		312.70	108.7		

Table 1 Annapolis Piped Area Land Use Land Code Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
101800AP01	AP01	BKCHD	18-Oct-00	APAH 9221-E	7	10	300	94	156		0.1	
111400AP01	AP01	BKCHD	14-Nov-00	APAH 9221-E	7.2	9.9	1601	81.6	212	12.1	0.04	
120800AP01	AP01	BKCHD	08-Dec-00	APAH 9221-E			60			7.2		
013001AP01	AP01	BKCHD	30-Jan-01	APAH 9221-E			130					
032701AP01	AP01	BKCHD	27-Mar-01	APAH 9221-E	7.6	11	80	90.8	144		0.09	
041801AP01	AP01	BKCHD	18-Apr-01	APAH 9221-E	7.9	11	900	93.5	134.5	7.2	0.09	
050801AP01	AP01	BKCHD	08-May-01	APAH 9221-E		11	170	93.6	172	10.3	0.11	
061901AP01	AP01	BKCHD	19-Jun-01	APAH 9221-E	7.5	9.2	1601	86	178	10.6	0.11	5.1
071801AP01	AP01	BKCHD	18-Jul-01	APAH 9221-E		9.7	300	91.5	186	12.4	0.12	2.6
080701AP01	AP01	BKCHD	07-Aug-01	APAH 9221-E		9.7	300	93	188	12.6	0.12	1
092001AP01	AP01	BKCHD	20-Sep-01	APAH 9221-E	7.4	10	240	93.4	184	13.2	0.12	
100901AP01	AP01	KCHD	09-Oct-01	APAH 9221-E	7.5	11	300	94.2	178.2	10	0.11	6.7
110601AP01	AP01	KCHD	06-Nov-01	APAH 9221-E	7.5	11	130	89.3	177.1	8.7	0.11	10
121101AP01	AP01	KCHD	11-Dec-01	APAH 9221-E	7.5		900		138.1	6.7	0.09	8.1
012402AP01	AP01	KCHD	24-Jan-02	APAH 9221-E	7.5	13	1601	102	55.3	6.7	0.04	
021902AP01	AP01	KCHD	19-Feb-02	APAH 9221-E	7.7	12	1601	95.6	125.1	8	0.08	6.1
031302AP01	AP01	KCHD	13-Mar-02	APAH 9221-E	7.5	12	350	100	116.6	7.2	0.08	3.4
042402AP01	AP01	KCHD	24-Apr-02	APAH 9221-E	8	12	500	98.7	160.7	8.1	0.1	
051502AP01	AP01	KCHD	15-May-02	APAH 9221-E	7.5	11	110	98.9	176.1	10.3	0.11	1.2
062602AP01	AP01	KCHD	26-Jun-02	APAH 9221-E	7.6	9.5	300	90.8	183.1	13.2	0.12	8.4
072402AP01	AP01	KCHD	24-Jul-02	APAH 9221-E	7.2	9.6	500	94	192.6	14.6	0.12	
082902AP01	AP01	KCHD	29-Aug-02	APAH 9221-E	7.2	10	500	95.6	189.5	13.1	0.12	1.5
092602AP01	AP01	KCHD	26-Sep-02	APAH 9221-E	7.2	10	300	90.8	190.3	11.2	0.12	1.4
101502AP01	AP01	KCHD	15-Oct-02	APAH 9221-E	7.1	10	170	87.1	191.1	9.5	0.12	1.3
112102AP01	AP01	KCHD	21-Nov-02	APAH 9221-E	7.7	10	30	91.6	172.8	10.1	0.11	
120902AP01	AP01	KCHD	09-Dec-02	APAH 9221-E	8.1	11	130	94.1	262.1	7	0.17	
011603AP01	AP01	KCHD	16-Jan-03	APAH 9221-E	6.7	11	50	86.2	141.1	6.5	0.09	
022703AP01	AP01	KCHD	27-Feb-03	APAH 9221-E	7.5	13	30	96.5	158.6	4.8	0.02	3.8

Table 2 Fecal Coliform and Ancillary Data for Annapolis Piped Area Water Quality Site (AP01)

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Spec Cond	Temp C	TDS	Turb
031803AP01	AP01	KCHD	18-Mar-03	APAH 9221-E			500					
041703AP01	AP01	KCHD	17-Apr-03	APAH 9221-E	7.8		23		160	10	0.1	1.8
052203AP01	AP01	KCHD	22-May-03	APAH 9221-E	7.9	11	50	95.7	152	11.8	0.1	
061103AP01	AP01	KCHD	11-Jun-03	APAH 9221-E	7.5	11	170	98.7	177.6	12.7	0.11	
072203AP01	AP01	KCHD	22-Jul-03	APAH 9221-E	7.9	9.8	900	90.7	180	14.3	0.12	
081903AP01	AP01	KCHD	19-Aug-03	APAH 9221-E	7.6	8.9	900	87	186.3	14.4	0.12	
091503AP01	AP01	KCHD	15-Sep-03	APAH 9221-E	6.9	11	500	98.9	183.8	11.4	0.12	2.4

Table 2 cont. Fecal Coliform and Ancillary Data for Annapolis Piped Area Water Quality Site (AP01)

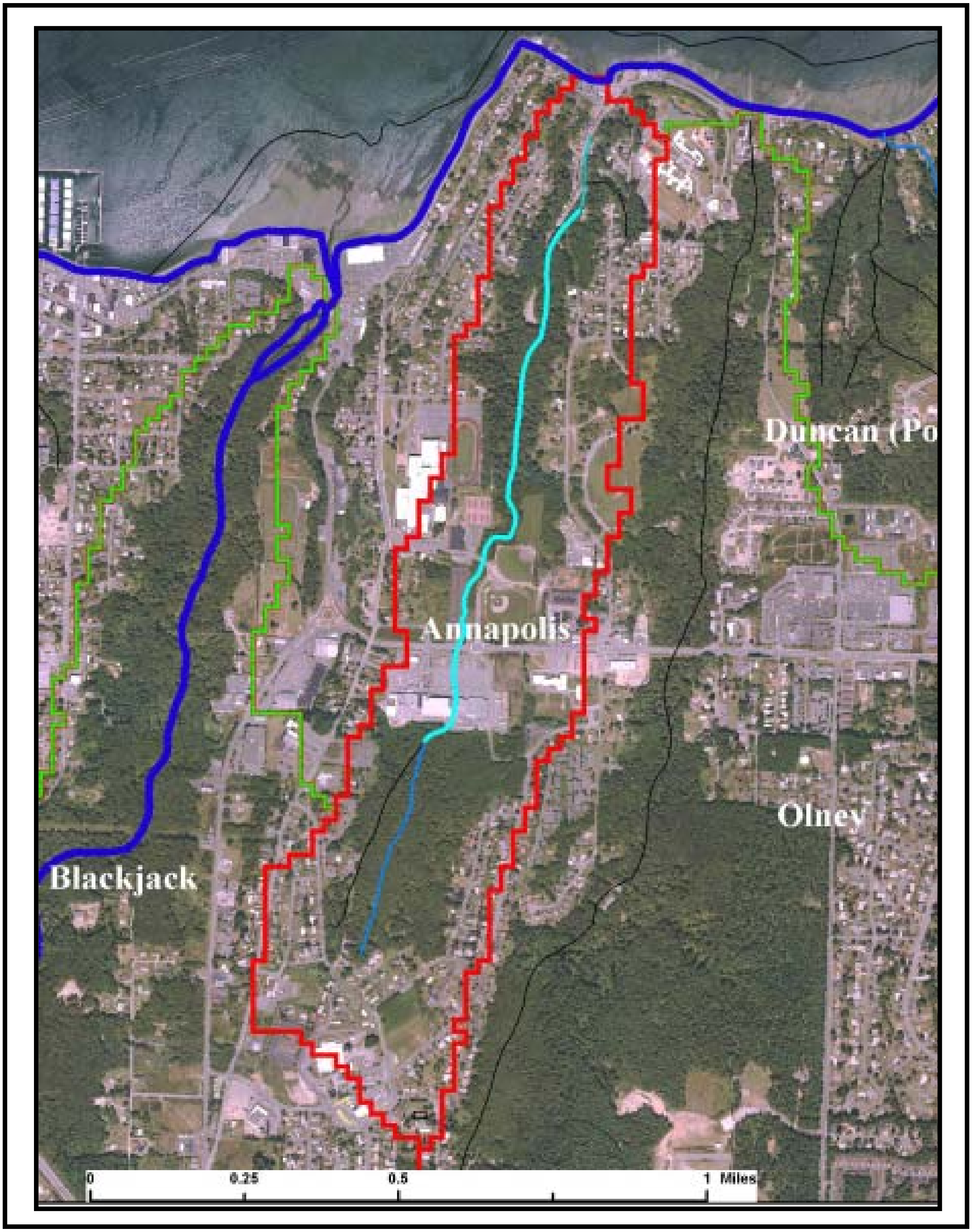


Figure 4 Aerial Photograph of Annapolis Piped Area

DYES INLET PIPED AREA

Dyes Inlet Piped consists of 7 catchments areas as seen in (Fig. 1). A shaded relief map of the combined area and its topography is shown in figure 2 ("Maps a la carte, Inc.", 2004). The basin is over 33% in urban development with urban standard and urban medium land use the most prominent (Fig. 3) with approximately 36% of the piped area in impervious surface (%TIA) (Table 1). An aerial photograph of the region is displayed in figure 4 (Landvoyager, 2004).

Figure 1 Location of Dyes Inlet Piped Watersheds

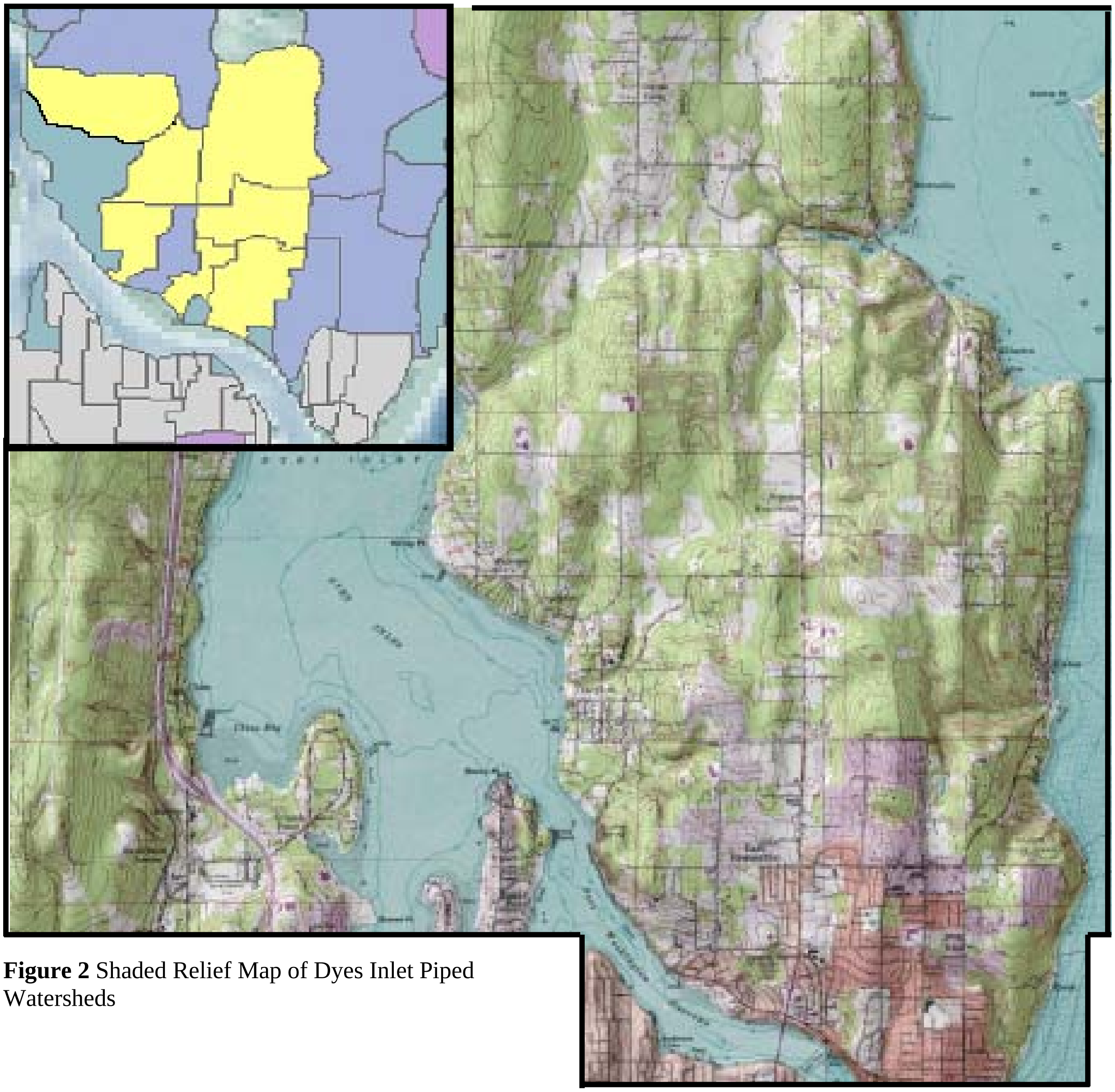


Figure 2 Shaded Relief Map of Dyes Inlet Piped Watersheds

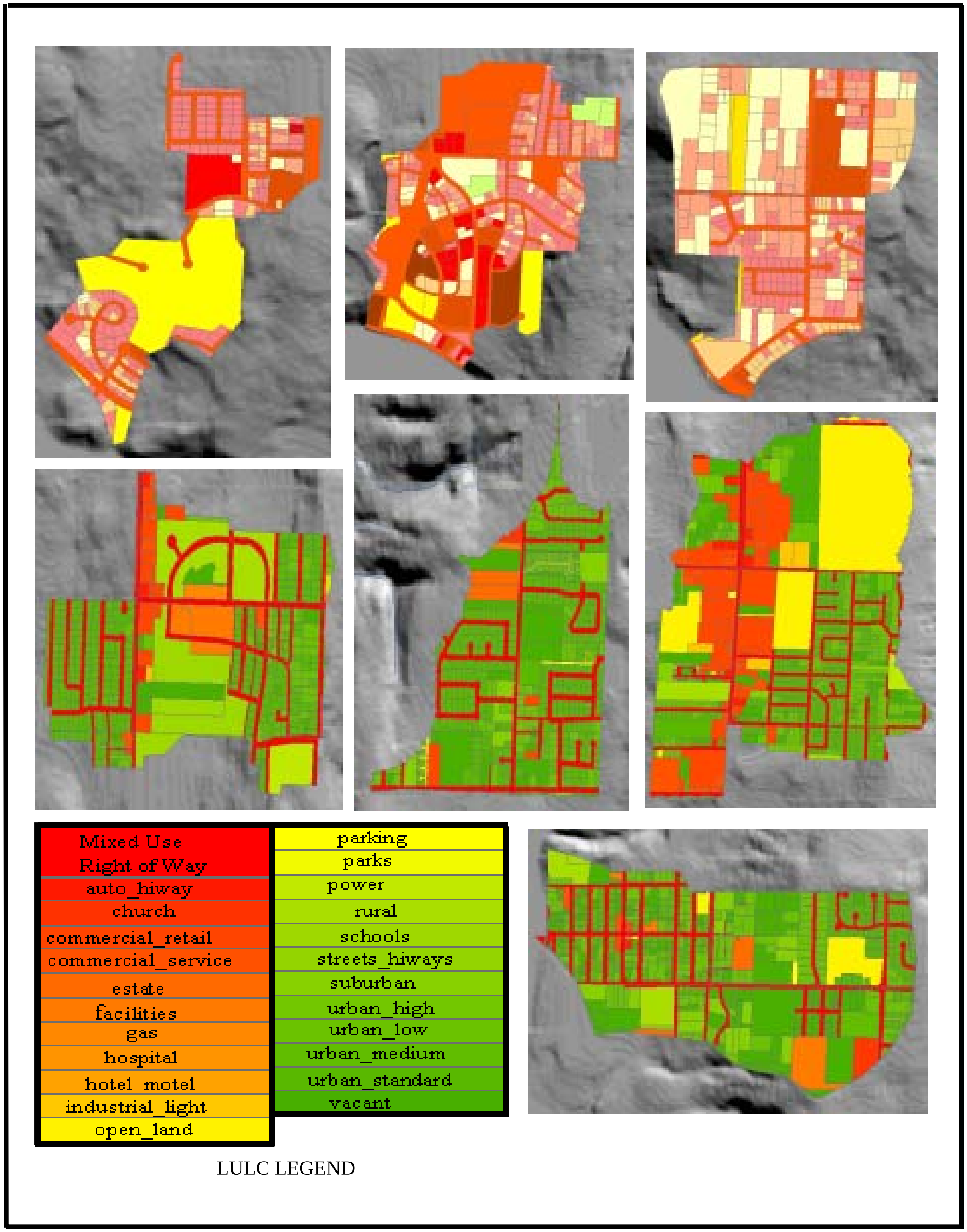


Figure 3 Dyes Inlet Piped Area Land Use Land Code Parcels

Landcode	Percent Impervious	Area Sq. Feet	Impervious Area Sq Feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	8676140.82	3843530.38	14.5%	6.43%
Auto_Hiway	55.9%	352111.40	196830.27	0.6%	0.33%
Church	46.0%	675685.68	310815.41	1.1%	0.52%
Commercial_Retail	59.5%	5121856.51	3047504.62	8.6%	5.10%
Commercial_Service	55.1%	2026207.97	1116440.59	3.4%	1.87%
Estate	20.8%	468784.62	97507.20	0.8%	0.16%
Facilities	66.4%	117071.45	77735.44	0.2%	0.13%
Gas	54.3%	96537.84	52420.04	0.2%	0.09%
Hospital	66.4%	462393.23	307029.11	0.8%	0.51%
Hotel_Motel	38.1%	26657.10	10156.35	0.0%	0.02%
Industrial_Light	59.8%	1290515.30	771728.15	2.2%	1.29%
Open_Land	9.3%	5317439.13	492926.61	8.9%	0.83%
Parking	51.4%	192306.69	98845.64	0.3%	0.17%
Parks	18.1%	1989145.85	360035.40	3.3%	0.60%
Power	5.7%	761990.33	43433.45	1.3%	0.07%
Rural	16.1%	1361455.79	219194.38	2.3%	0.37%
Schools	46.0%	2342948.34	1077756.24	3.9%	1.80%
Streets_	49.9%	66719.13	33292.84	0.1%	0.06%
Suburban	38.9%	899336.42	349841.87	1.5%	0.59%
Urban_High	25.9%	1035112.52	268094.14	1.7%	0.45%
Urban_Low	38.2%	5589038.99	2135012.89	9.4%	3.57%
Urban_Medium	35.6%	1032019.02	367398.77	1.7%	0.62%
Urban_Standard	44.0%	12485940.59	5493813.86	20.9%	9.20%
Vacant	11.4%	7343045.63	837107.20	12.3%	1.40%
Total Area Sq. Ft.		59730460.32	21608450.87		36.18%
Acres		1371.22	496.06		

Table 1 Dyes Inlet Piped Area Land Use Land Cover Data

Figure 4 Aerial Photograph of Dyes Inlet Piped Area

EAST BREMERTON PIPED AREA

East Bremerton piped area consists of 6 catchments areas as seen in (Fig. 1). A shaded relief of the combined area and topography is shown in (Fig 2) ("Maps a la carte, Inc.", 2004). The basin is over 58% in urban development with mostly urban standard and urban low land use (Fig. 3). Approximately 40% of the piped area is impervious surface area (%TIA) (Table 1). An aerial photograph of the area is displayed in figure 4 (Landvoyager, 2004). A storm water water quality sampling site (BST-12) is established in this basin (Fig. 2). The Fecal Coliform and ancillary data for this site is listed in table 2.

Figure 1 Location of East Bremerton Piped Area Basins

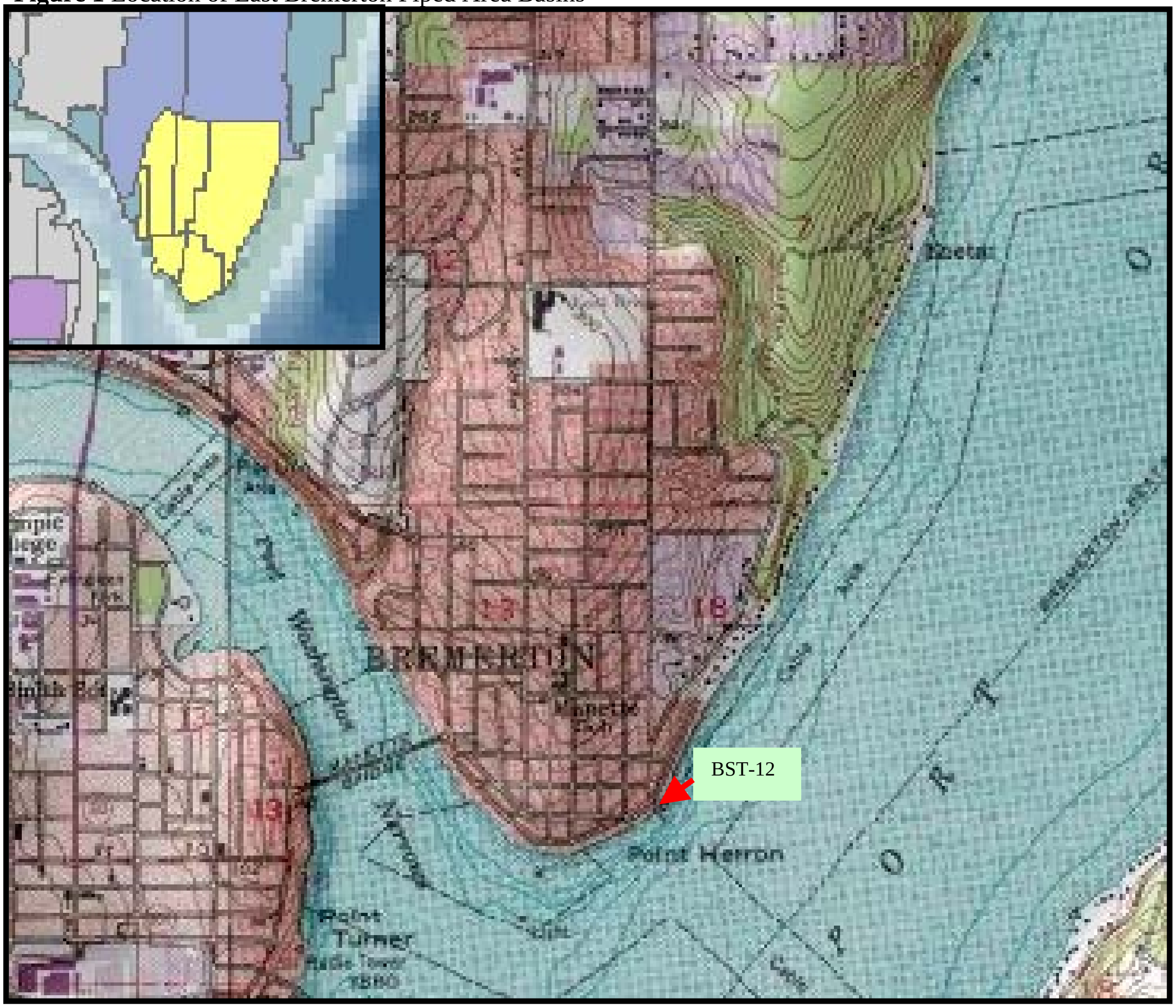


Figure 2 Shaded Relief Map of the East Bremerton Piped Area and Water Quality Site

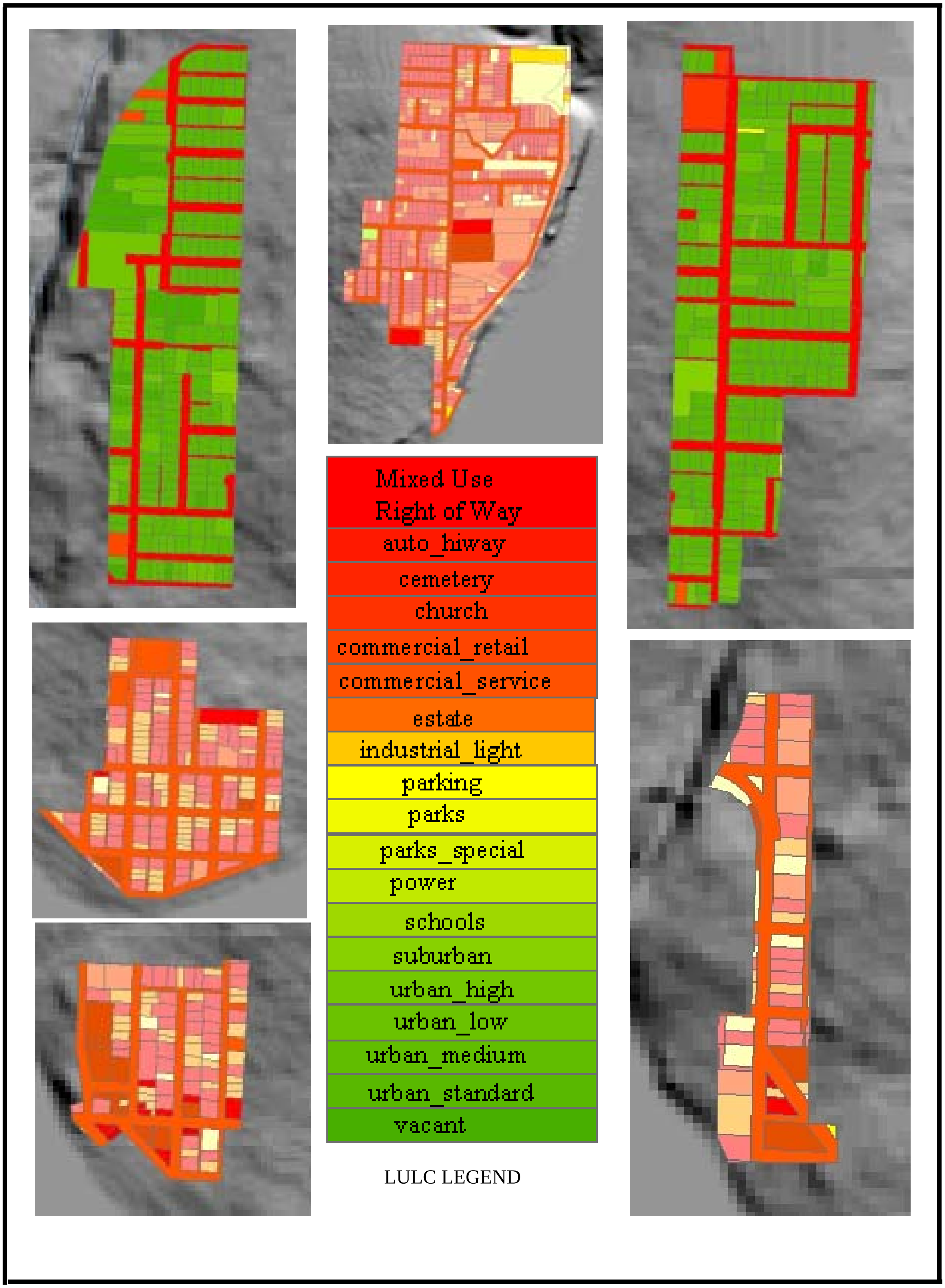


Figure 3 East Bremerton Piped Area Land Use Land Code Parcels

Land Code	Percent Impervious	Area Sq. Feet	Impervious Area sq feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	3566485.79	1579953.20	24.262%	10.748%
Auto_Hiway	55.9%	7506.47	4196.12	0.051%	0.029%
Cemetary	17.1%	46488.60	7949.55	0.316%	0.054%
Church	46.0%	101699.70	46781.86	0.692%	0.318%
Commercial_Retail	59.5%	387286.73	230435.60	2.635%	1.568%
Commercial_Service	55.1%	238391.50	131353.71	1.622%	0.894%
Estate	20.8%	107751.78	22412.37	0.733%	0.152%
Industrial_Light	59.8%	307.85	184.10	0.002%	0.001%
Parking	51.4%	46347.97	23822.86	0.315%	0.162%
Parks	18.1%	8356.47	1512.52	0.057%	0.010%
Parks_Special	19.2%	677.90	130.16	0.005%	0.001%
Power	5.7%	26951.96	1536.26	0.183%	0.010%
Schools	46.0%	68267.30	31402.96	0.464%	0.214%
Suburban	38.9%	450665.12	175308.73	3.066%	1.193%
Urban_High	25.9%	345731.54	89544.47	2.352%	0.609%
Urban_Low	38.2%	1842107.77	703685.17	12.531%	4.787%
Urban_Medium	35.6%	893493.22	318083.59	6.078%	2.164%
Urban_Standard	44.0%	5581772.09	2455979.72	37.971%	16.707%
Vacant	11.4%	979859.15	111703.94	6.666%	0.760%
Total Area Sq. Ft.		14700148.89	5935976.88		40.380%
Acres		337.47	136.27		

Table 1 East Bremerton Piped Area Land Use Land Code Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02450494	SW4/BST-12	BREM-SW	07-Nov-02	FCOL(MF)	7.7	208	140.7	14.4	3.1
02460490	SW4/BST-12	BREM-SW	12-Nov-02	FCOL(MF)		3600			
02460499	SW4/BST-12	BREM-SW	13-Nov-02	FCOL(MF)	8	25	159.2	14.1	1.55
02470490	SW4/BST-12	BREM-SW	18-Nov-02	FCOL(MF)	7.8	450	156.7	13.4	17.9
02470496	SW4/BST-12	BREM-SW	20-Nov-02	FCOL(MF)	7.4	3	225	14.5	0.67
02490492	SW4/BST-12	BREM-SW	04-Dec-02	FCOL(MF)	7.5	25	180	12.6	2.1
02500490	SW4/BST-12	BREM-SW	10-Dec-02	FCOL(MF)	8	1	160	11.7	0.81
02500491	SW4/BST-12	BREM-SW	10-Dec-02	FCOL(MF)	8	1	160	11.7	0.81
02500499	SW4/BST-12	BREM-SW	12-Dec-02	FCOL(MF)	8.3	1	179.4	12.3	1.58
02510490	SW4/BST-12	BREM-SW	16-Dec-02	FCOL(MF)		520			
02510498	SW4/BST-12	BREM-SW	18-Dec-02	FCOL(MF)		4			
02510499	SW4/BST-12	BREM-SW	18-Dec-02	FCOL(MF)		4			
03030491	SW4/BST-12	BREM-SW	14-Jan-03	FCOL(MF)		3			
03040490	SW4/BST-12	BREM-SW	22-Jan-03	FCOL(MF)	8.4	760	50.5	8.1	16.4
03040491	SW4/BST-12	BREM-SW	22-Jan-03	FCOL(MF)	8.4	720	50.5	8.1	16.4
03040499	SW4/BST-12	BREM-SW	23-Jan-03	FCOL(MF)	7.1	18	119.7	9.5	2.39
04171530	SW4/BST-12	TEC-STORM	19-Apr-04	FCOL(MF)	7.1	1900	0.033	57.7	753
04171535	SW4/BST-12	TEC-STORM	19-Apr-04	FCOL(MF)		990			
04171543	SW4/BST-12	TEC-STORM	20-Apr-04	FCOL(MF)		1			

Table 2 Fecal Coliform and Ancillary Data for East Bremerton Piped Area

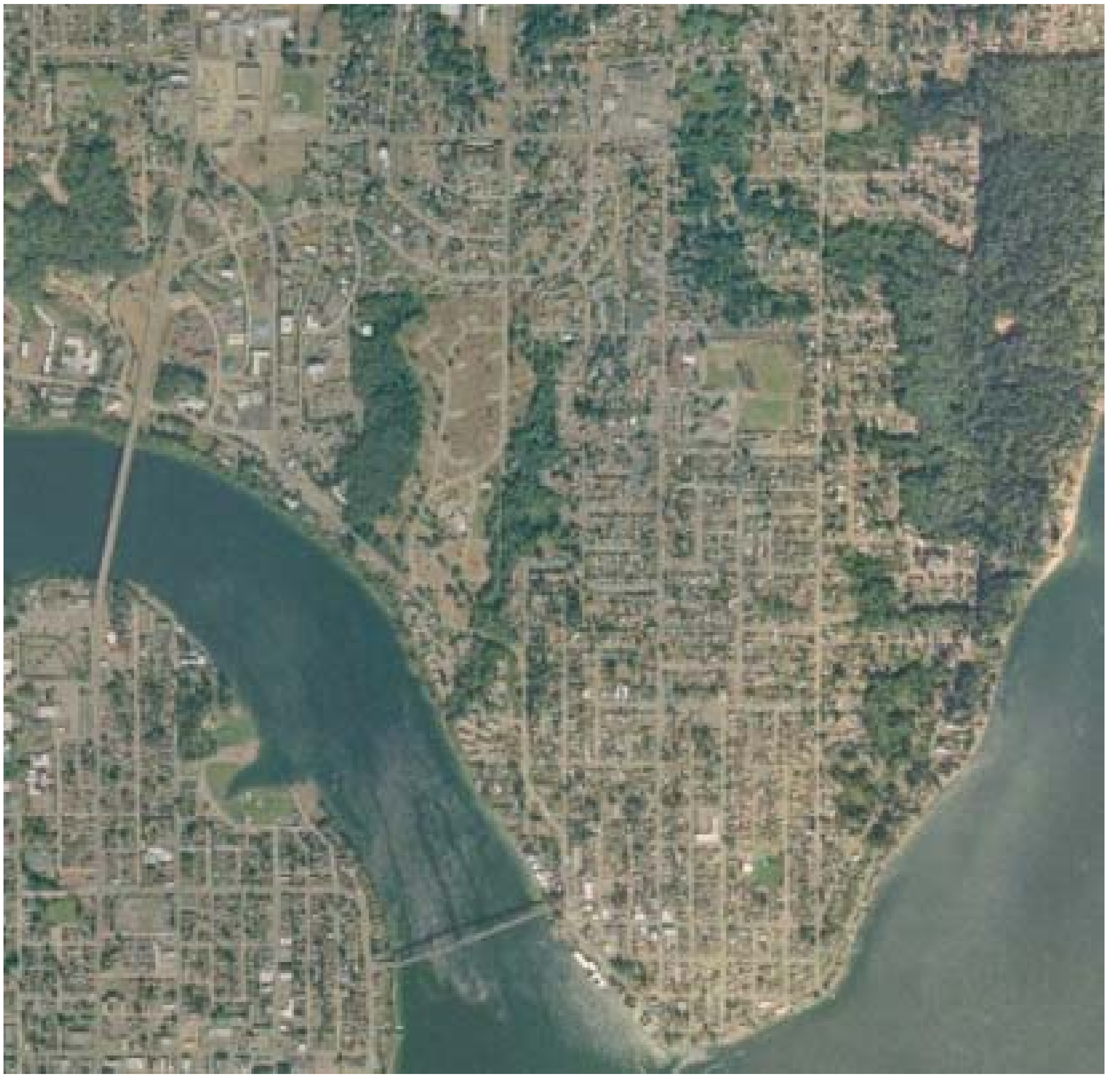


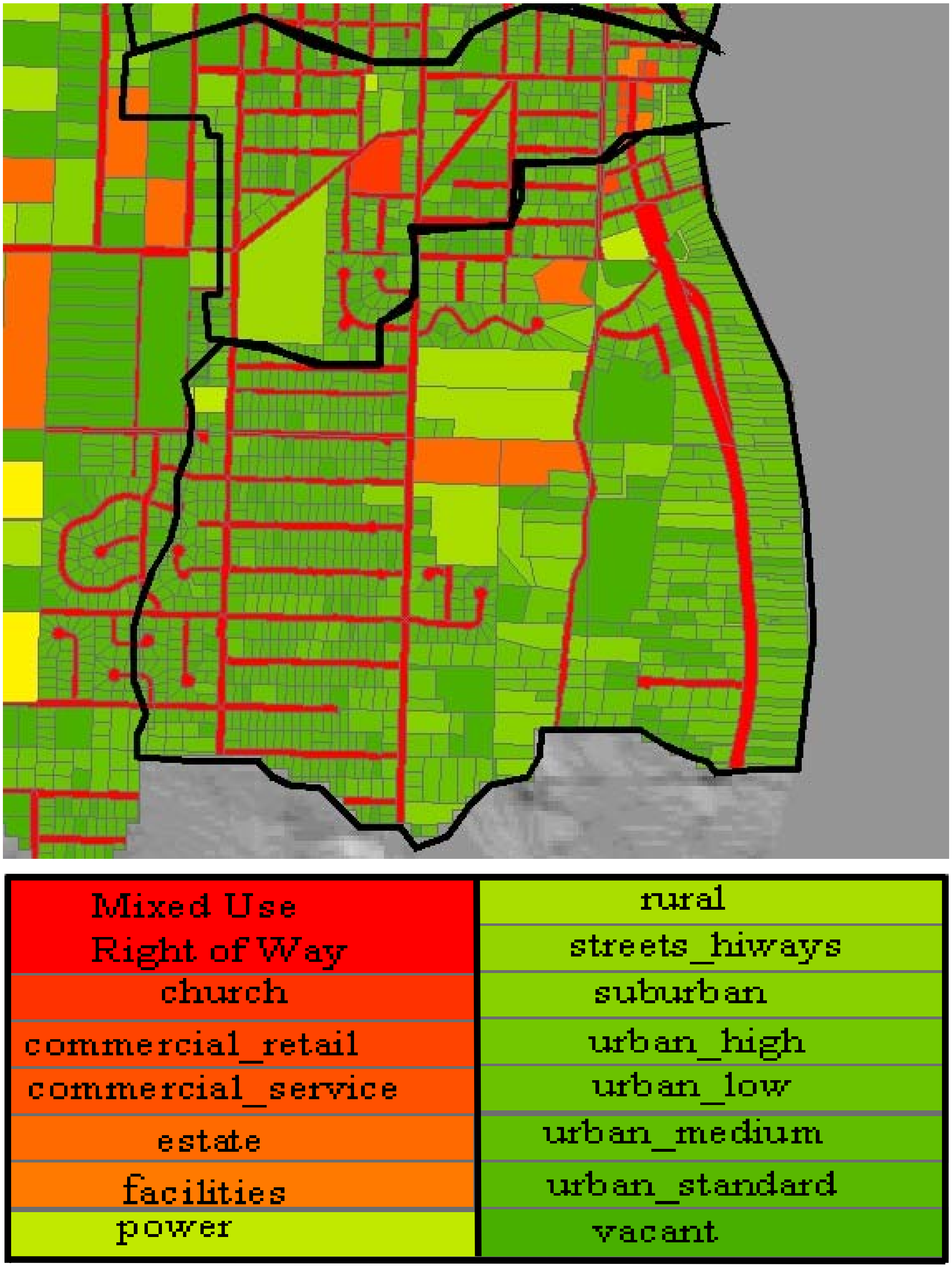
Figure 4 Aerial Photograph of East Bremerton Piped

MANCHERSTER PIPED AREA

Manchester piped area consists of two small adjacent watersheds south of Clam Bay that drain toward Rich Passage (Fig. 1). Figure 2 shows a shaded relief of the basin area and its topography (“Maps a la carte, Inc.”, 2004). The dominant surficial hydrogeologic unit for the basin is Vashon till, while the western edge is rimed by Vashon advance outwash (Jones, et al, 1998). The basin is over 52% in urban development with mostly urban standard and urban low land use (Fig. 3) with approximately 35% of the area in impervious surface (%TIA) (Table 1). A water quality sampling site (LMK038) was established in the area by Kitsap SSWM for monitoring (Fig. 2). The Fecal Coliform and ancillary data collected from this site are shown in (Table 2). Figure 4 is an aerial photograph of the Manchester Piped Area (Landvoyager, 2004)

Figure 1 Manchester Piped Watershed Area

Figure 2 Shaded Relief Map Manchester Piped Area and Water Quality Site LMK038



LULC LEGEND

Figure 3 Manchester Piped Area Land Use Land Code Parcels

Figure 4 Aerial Photograph of Manchester Piped Area

Land Code	Percent Impervious	Area Sq. Feet	Impervious Area Sq Feet	% of Total Area	% TIA of Total Area
Mixed Use-Right of Way	44.3%	2888925.01	1279793.78	14.81%	6.56%
Church	46.0%	126576.00	58224.96	0.65%	0.30%
Commercial_Retail	59.5%	45421.32	27025.68	0.23%	0.14%
Commercial_Service	55.1%	22309.27	12292.41	0.11%	0.06%
Estate	20.8%	488154.00	101536.03	2.50%	0.52%
Facilities	66.4%	32343.90	21476.35	0.17%	0.11%
Power	5.7%	122529.90	6984.20	0.63%	0.04%
Rural	16.1%	1030551.00	165918.71	5.28%	0.85%
Streets_	49.9%	14581.57	7276.20	0.07%	0.04%
Suburban	38.9%	1195837.11	465180.63	6.13%	2.39%
Urban_High	25.9%	16893.84	4375.50	0.09%	0.02%
Urban_Low	38.2%	5016229.21	1916199.56	25.72%	9.83%
Urban_Medium	35.6%	40839.17	14538.74	0.21%	0.07%
Urban_Standard	44.0%	5310119.95	2336452.78	27.23%	11.98%
Vacant	11.4%	3148891.54	358973.64	16.15%	1.84%
Total Area Sq. Ft.		19500202.78	6776249.19		34.75%
Acres		447.66	155.56		

Table 1 Manchester Piped Area Land Use Land Code Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02450428	LMK038	SSTREAMS	07-Nov-02	FCOL(MF)	7.3	3696	148	11.45	5.41
02470408	LMK038	SSTREAMS	13-Nov-02	FCOL(MF)		129			3.38
02460408	LMK038	SSTREAMS	13-Nov-02	FCOL(MF)	6.7	590	178	11.8	3.8
02460418	LMK038	SSTREAMS	14-Nov-02	FCOL(MF)	7.3	440	169	11.6	3.86
02470418	LMK038	SSTREAMS	14-Nov-02	FCOL(MF)	6.8	480	200	11.8	3.32
02470428	LMK038	SSTREAMS	21-Nov-02	FCOL(MF)	6.2	676	203	11.9	4.76
02490408	LMK038	SSTREAMS	05-Dec-02	FCOL(MF)		172			3.16
02500407	LMK038	SSTREAMS	09-Dec-02	FCOL(MF)	6.9	1800	178	9.6	61.1
02500408	LMK038	SSTREAMS	09-Dec-02	FCOL(MF)	6.9	1800	178	9.6	61.1
02500417	LMK038	SSTREAMS	11-Dec-02	FCOL(MF)	5.3	2800	70	7.8	28.6
02500428	LMK038	SSTREAMS	12-Dec-02	FCOL(MF)		270	180	10	9.6
02510408	LMK038	SSTREAMS	16-Dec-02	FCOL(MF)		430			
02510418	LMK038	SSTREAMS	19-Dec-02	FCOL(MF)		290			
03020408	LMK038	SSTREAMS	06-Jan-03	FCOL(MF)	7.1	77	109.8	5.6	60
03030407	LMK038	SSTREAMS	13-Jan-03	FCOL(MF)	7	203	106.2	7.92	3.93
03030408	LMK038	SSTREAMS	13-Jan-03	FCOL(MF)	7	168	106.2	7.92	3.93
03030417	LMK038	SSTREAMS	15-Jan-03	FCOL(MF)	6.9	60	97.9	7.94	3.33
03040408	LMK038	SSTREAMS	22-Jan-03	FCOL(MF)	7.1	3800	54.4	7.94	19.8
03040418	LMK038	SSTREAMS	23-Jan-03	FCOL(MF)	6.8	100	83.9	8.66	5.53
012903LMK038	LMK038	SSWM	29-Jan-03	TWISS 3409		1200			
022003LMK038	LMK038	SSWM	20-Feb-03	TWISS 3409		4000			
031303LMK038	LMK038	SSWM	13-Mar-03	TWISS 3409		380			
051903LMK038	LMK038	SSWM	19-May-03	TWISS 3409		35			
061903LMK038	LMK038	SSWM	19-Jun-03	TWISS 3409		16			
072403LMK038	LMK038	SSWM	24-Jul-03	TWISS 3409		518			
082003LMK038	LMK038	SSWM	20-Aug-03	TWISS 3409		176			

Table 2 Fecal Coliform and Ancillary Data for Manchester Piped Water Quality Site

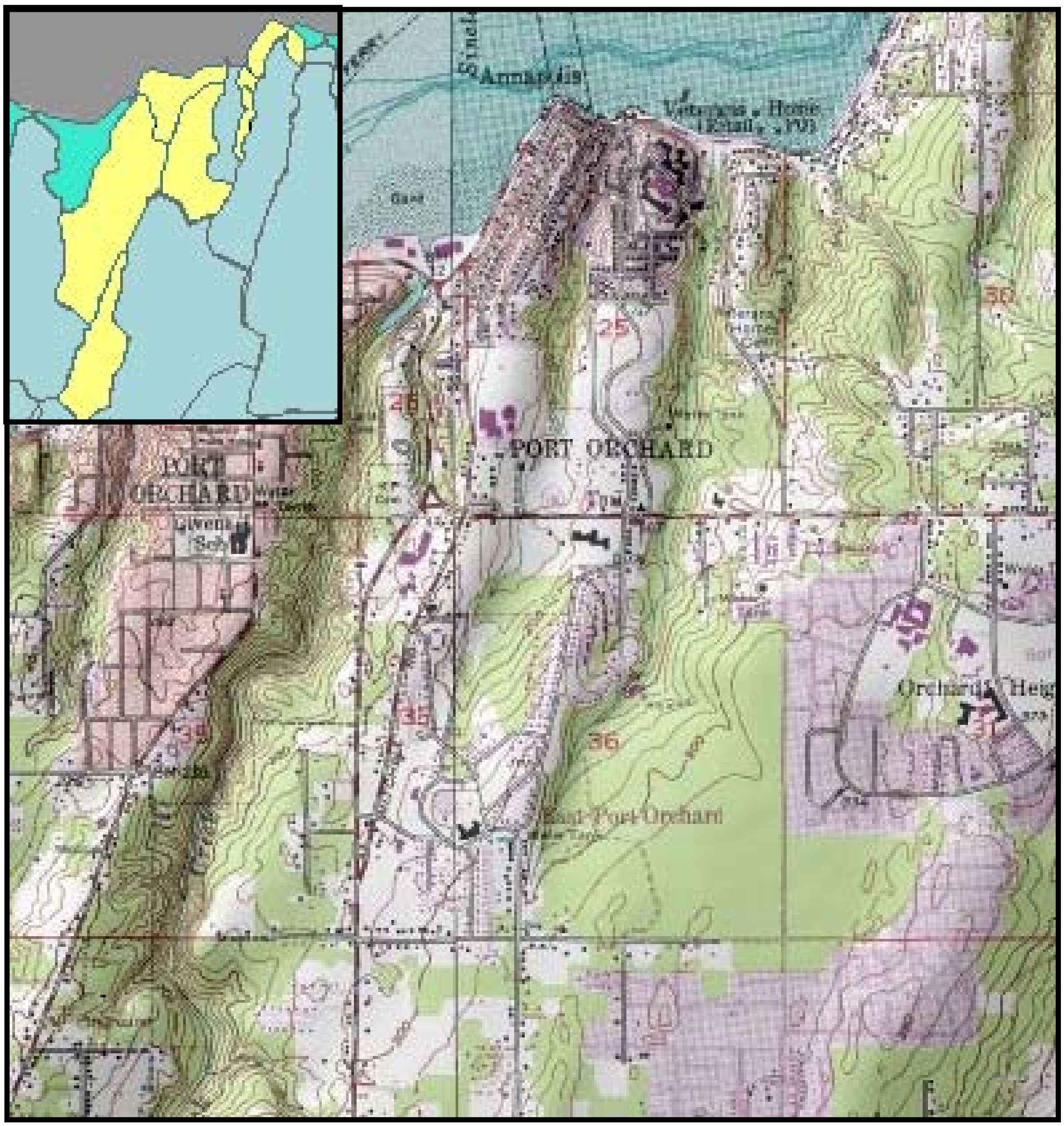
SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
093003LMK038	LMK038	SSWM	30-Sep-03	TWISS 3409		228			
0101503LMK038	LMK038	SSWM	15-Oct-03	TWISS 3409	6.8	1300	99	12.6	18.6
0111703LMK038	LMK038	SSWM	17-Nov-03	TWISS 3409	6.8	650	114	10	31.9
0121003LMK038	LMK038	SSWM	10-Dec-03	TWISS 3409	6.6	500	80	8	15.6
012204LMK038	LMK038	SSWM	22-Jan-04	TWISS 3409	7.3	58	132	7	2.3
021804LMK038	LMK038	SSWM	18-Feb-04	TWISS 3409	6.7	326	115	8	3.7
032404LMK038	LMK038	SSWM	24-Mar-04	TWISS 3409	6.7	250	121	10.6	13.1
041504LMK038	LMK038	SSWM	15-Apr-04	TWISS 3409	6.8	37	176	12.3	2.16
04171509	LMK038	TEC-STORM	19-Apr-04	FCOL(MF)	7.5	7	0.166	54.2	1
04171510	LMK038	TEC-STORM	19-Apr-04	FCOL(MF)	7.5	12	0.166	54.2	1
04171517	LMK038	TEC-STORM	19-Apr-04	FCOL(MF)		1800			
04171548	LMK038	TEC-STORM	20-Apr-04	FCOL(MF)		540			
04171556	LMK038	TEC-STORM	20-Apr-04	FCOL(MF)		55			

Table 2 cont. Fecal Coliform and Ancillary Data for Manchester Piped Water Quality Site

PORT ORCHARD PIPED WATERSHEDS

Port Orchard Piped is composed of eight basin areas. see (Fig. 1). A shaded relief map of the combined piped watershed area topography is presented in (Fig. 2) ("Maps a la carte, Inc.", 2004). Over 68 percent of Port Orchard Piped area is in urban development and mixed use right of way (Fig. 3) with approximately 36% of the combined basin area in impervious surface (%TIA) (Table 1). Figure 4 shows an aerial photograph of Port Orchard Piped area (Landvoyager, 2004). The surficial hydrogeology of the western section is a large area of recessional outwash deposits bordered along the bay side by till and nonglacial floodplain material. Till and nonglacial floodplain deposits continue along to form a rim on the bay side of the watersheds while the eastern interior is mixed till and advanced outwash deposits (Jones, et al, 1998). Water quality sites for these basins are stormwater sites (PO-WILKENS, PO-POBLVD, PO-BAYST, PO-BETHAL) fig.2. Ancillary and Fecal Coliform data for these sites are found in table 2.

Figure 1. Location of Piped watersheds



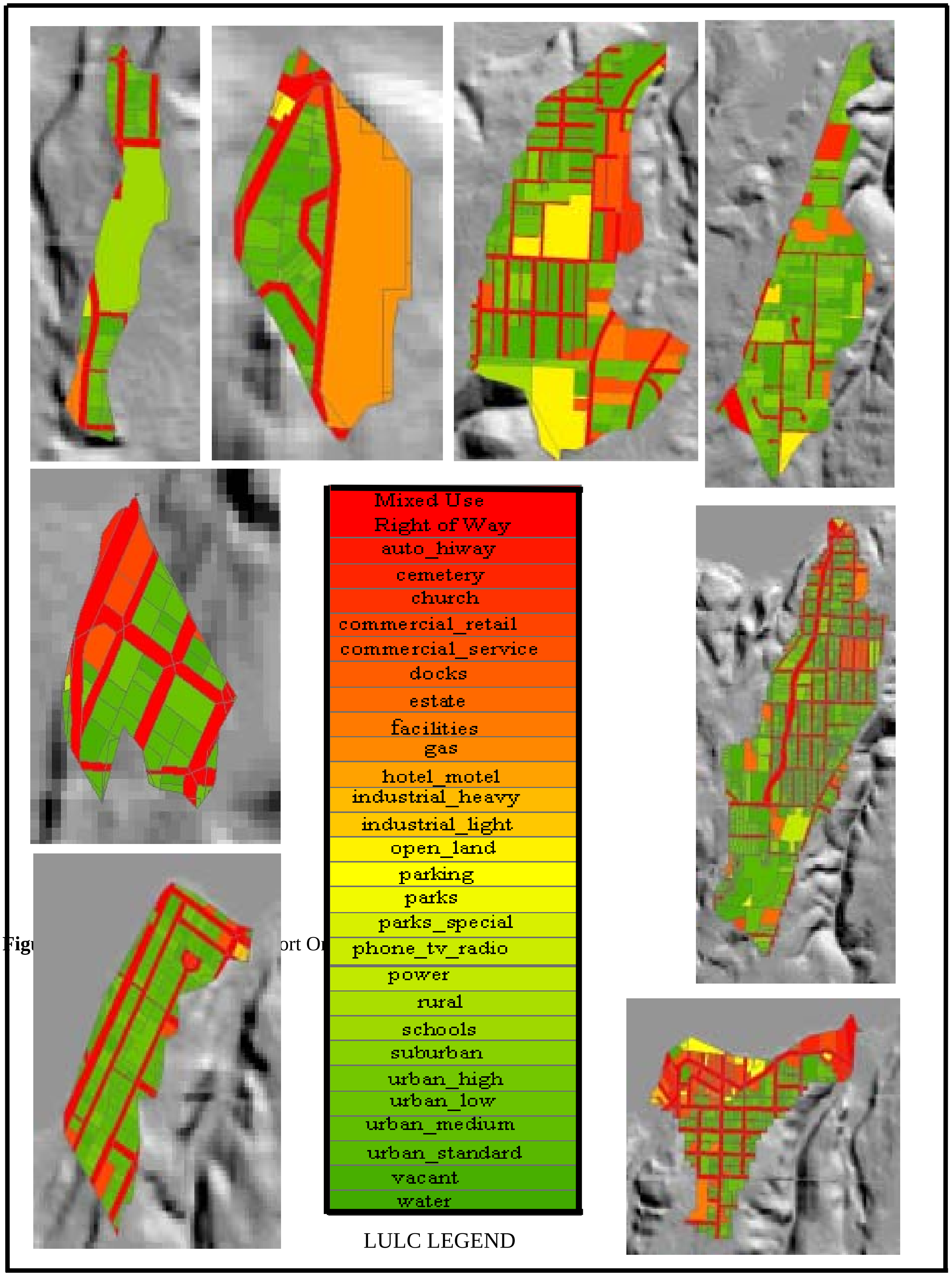


Figure 3. Port Orchard Piped Watersheds Land Use Land Code Parcels

Land Code	Percent Impervious	Area Sq. Feet	Impervious Area sq feet	% of Total Area	% TIA of Total Area
Mixed Use-Right of Way	0.443	17920614603.24	7938832269.23	21.78199%	9.64942%
Auto_Hiway	0.599	413991937.25	247981170.41	0.50320%	0.30141%
Cemetary	0.171	1832926247.33	313430388.29	2.22787%	0.38097%
Church	0.460	5062.52	2328.76	0.00001%	0.00000%
Commercial_Retail	0.595	954516060.44	567937055.96	1.16019%	0.69031%
Commercial_Service	0.551	2457992223.97	1354353715.41	2.98762%	1.64618%
Docks	0.213	46829047.77	9974587.18	0.05692%	0.01212%
Estate	0.208	545798000.71	113525984.15	0.66340%	0.13799%
hospital	0.664	71351280.00	47377249.92	0.08673%	0.05759%
Facilities	0.664	501099300.61	332729935.60	0.60907%	0.40442%
gas	0.543	162217440.00	88084069.92	0.19717%	0.10706%
hotel_motel	0.381	252996480.00	96391658.88	0.30751%	0.11716%
Industrial_Heavy	0.821	46853429.30	38466665.46	0.05695%	0.04676%
Industrial_Light	0.598	97339443.91	58208987.46	0.11831%	0.07075%
Open_Land	0.093	973310455.11	90225879.19	1.18303%	0.10967%
parking	0.514	163884576.03	84236672.08	0.19920%	0.10239%
Parks	0.184	59284.85	10908.41	0.00007%	0.00001%
Parks_Special	0.192	30749.33	5903.87	0.00004%	0.00001%
phone_tv_radio	0.039	10236600.00	399227.40	0.01244%	0.00049%
Power	0.057	94554822.29	5389624.87	0.11493%	0.00655%
rural	0.161	480205440.00	77313075.84	0.58368%	0.09397%
Schools	0.460	291633729.90	134151515.75	0.35447%	0.16306%
Suburban	0.389	2814325940.60	1094772790.89	3.42073%	1.33066%
Urban_High	0.259	1393297283.85	360863996.52	1.69351%	0.43862%
Urban_Low	0.382	15169958467.19	5794924134.47	18.43864%	7.04356%
Urban_Medium	0.356	2453622584.15	873489639.96	2.98231%	1.06170%
Urban_Standard	0.440	19038883496.51	8377108738.46	23.14121%	10.18213%
Vacant	0.114	13970062320.93	1592587104.59	16.98021%	1.93574%
water	0.092	114040080.08	10491687.37	0.13861%	0.01275%
Total Area Sq. Ft.		82272636387.85	29703266966.29		36.10346%
Acres		1888719.84	681893.18		

Table 1. Port Orchard Piped Area Land Use Land Code Data

MPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	Turb
02450553	PO-BAYST	POKC	07-Nov-02	FCOL(MF)		8.45			11.4	
02460553	PO-BAYST	POKC	12-Nov-02	FCOL(MF)		10.6	31000		11.4	
02460560	PO-BAYST	POKC	13-Nov-02	FCOL(MF)			400			
02460561	PO-BAYST	POKC	13-Nov-02	FCOL(MF)			330			
02470552	PO-BAYST	POKC	18-Nov-02	FCOL(MF)		8.41	1425		11.2	
02470560	PO-BAYST	POKC	20-Nov-02	FCOL(MF)		8.66	33		10.7	
02480552	PO-BAYST	POKC	25-Nov-02	FCOL(MF)		8.45	20		10.4	
02490552	PO-BAYST	POKC	04-Dec-02	FCOL(MF)		7.02	50		10.4	
02500553	PO-BAYST	POKC	09-Dec-02	FCOL(MF)		6.93	16		10.7	
02500561	PO-BAYST	POKC	10-Dec-02	FCOL(MF)		10.35	15000		9.3	
02500568	PO-BAYST	POKC	12-Dec-02	FCOL(MF)			4600			
02500569	PO-BAYST	POKC	12-Dec-02	FCOL(MF)			4500			
02510552	PO-BAYST	POKC	15-Dec-02	FCOL(MF)			425			
02510560	PO-BAYST	POKC	16-Dec-02	FCOL(MF)			77			
03030553	PO-BAYST	POKC	13-Jan-03	FCOL(MF)	6.74	11.4	867	156.14	9.34	2.71
03030559	PO-BAYST	POKC	14-Jan-03	FCOL(MF)			7590			
03040552	PO-BAYST	POKC	23-Jan-03	FCOL(MF)			380			
03040553	PO-BAYST	POKC	23-Jan-03	FCOL(MF)			670			
03040558	PO-BAYST	POKC	23-Jan-03	FCOL(MF)			1600			
02450554	PO-BETHEL	POKC	07-Nov-02	FCOL(MF)		10.32	252		12.3	
02460554	PO-BETHEL	POKC	12-Nov-02	FCOL(MF)		10.9	1100		11.6	
02460562	PO-BETHEL	POKC	13-Nov-02	FCOL(MF)			250			
02470553	PO-BETHEL	POKC	18-Nov-02	FCOL(MF)		10.9	500		11.8	
02470554	PO-BETHEL	POKC	18-Nov-02	FCOL(MF)		10.9	625		11.8	
02470561	PO-BETHEL	POKC	20-Nov-02	FCOL(MF)		10.48	10		12.7	
02480553	PO-BETHEL	POKC	25-Nov-02	FCOL(MF)		11.15	160		10.9	
02490553	PO-BETHEL	POKC	04-Dec-02	FCOL(MF)		10.7	40		10.9	
02500562	PO-BETHEL	POKC	10-Dec-02	FCOL(MF)		12.69	180		8.8	

Table 2. Fecal Coliform and Ancillary Data for Port Orchard Piped Area Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	Turb
02500570	PO-BETHEL	POKC	12-Dec-02	FCOL(MF)			31			
02510561	PO-BETHEL	POKC	16-Dec-02	FCOL(MF)			51			
02450552	PO-POBLVD	POKC	07-Nov-02	FCOL(MF)		9.93	264		9.4	
02460551	PO-POBLVD	POKC	12-Nov-02	FCOL(MF)		10.6	14000		11.3	
02460552	PO-POBLVD	POKC	12-Nov-02	FCOL(MF)		10.6	21000		11.3	
02460559	PO-POBLVD	POKC	13-Nov-02	FCOL(MF)			1200			
02470551	PO-POBLVD	POKC	18-Nov-02	FCOL(MF)		10.7	3000		10.2	
02470559	PO-POBLVD	POKC	20-Nov-02	FCOL(MF)		10.26	200		11.8	
02480551	PO-POBLVD	POKC	25-Nov-02	FCOL(MF)		11.22	130		8.8	
02490551	PO-POBLVD	POKC	04-Dec-02	FCOL(MF)		9.3	25		9.3	
02500552	PO-POBLVD	POKC	09-Dec-02	FCOL(MF)		11.18	28		8.2	
02500559	PO-POBLVD	POKC	10-Dec-02	FCOL(MF)		11.15	2200		8.6	
02500560	PO-POBLVD	POKC	10-Dec-02	FCOL(MF)		11.15	3000		8.6	
02500567	PO-POBLVD	POKC	12-Dec-02	FCOL(MF)			520			
02510551	PO-POBLVD	POKC	15-Dec-02	FCOL(MF)			290			
02510559	PO-POBLVD	POKC	16-Dec-02	FCOL(MF)			162			
03030552	PO-POBLVD	POKC	13-Jan-03	FCOL(MF)	7.1	11.14	1967	134.71	8.9	2.47
03030557	PO-POBLVD	POKC	14-Jan-03	FCOL(MF)			37			
03030558	PO-POBLVD	POKC	14-Jan-03	FCOL(MF)			20			
03040551	PO-POBLVD	POKC	23-Jan-03	FCOL(MF)			190			
03040557	PO-POBLVD	POKC	23-Jan-03	FCOL(MF)			220			
04171507	PO-POBLVD	TEC-STORM	19-Apr-04	FCOL(MF)	7.5		56	0.137	51.1	1.2
04171514	PO-POBLVD	TEC-STORM	19-Apr-04	FCOL(MF)	7.2		1700	0.108	50.92	49
04171515	PO-POBLVD	TEC-STORM	19-Apr-04	FCOL(MF)	7.2		1300	0.108	50.92	49
04171546	PO-POBLVD	TEC-STORM	20-Apr-04	FCOL(MF)	7.24		600	0.006	52.7	175
04171554	PO-POBLVD	TEC-STORM	20-Apr-04	FCOL(MF)			110			
02450550	PO-WILKENS	POKC	07-Nov-02	FCOL(MF)		10.5	86		10.1	
02450551	PO-WILKENS	POKC	07-Nov-02	FCOL(MF)		10.5	94		10.1	
02460550	PO-WILKENS	POKC	12-Nov-02	FCOL(MF)		10.3	380		10.8	

Table 2 cont. Fecal Coliform and Ancillary Data for Port Orchard Piped Area Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	Spec Cond	Temp C	Turb
02460558	PO-WILKENS	POKC	13-Nov-02	FCOL(MF)			38			
02470550	PO-WILKENS	POKC	18-Nov-02	FCOL(MF)		10.3	423		10.6	
02470558	PO-WILKENS	POKC	20-Nov-02	FCOL(MF)		10.16	10		10.8	
02480550	PO-WILKENS	POKC	25-Nov-02	FCOL(MF)		10.95	12		8.3	
02490550	PO-WILKENS	POKC	04-Dec-02	FCOL(MF)		9.36	14		9	
02500550	PO-WILKENS	POKC	09-Dec-02	FCOL(MF)		10.6	10		8.4	
02500551	PO-WILKENS	POKC	09-Dec-02	FCOL(MF)		10.6	7		8.4	
02500558	PO-WILKENS	POKC	10-Dec-02	FCOL(MF)		1.53	640		8.6	
02500566	PO-WILKENS	POKC	12-Dec-02	FCOL(MF)			92			
02510550	PO-WILKENS	POKC	15-Dec-02	FCOL(MF)			69			
02510558	PO-WILKENS	POKC	16-Dec-02	FCOL(MF)			39			
03030550	PO-WILKENS	POKC	13-Jan-03	FCOL(MF)	6.8	10.1	450	114.2	9.1	2.69
03030551	PO-WILKENS	POKC	13-Jan-03	FCOL(MF)	6.8	10.1	470	114.2	9.1	2.69
03030556	PO-WILKENS	POKC	14-Jan-03	FCOL(MF)			23			
03040550	PO-WILKENS	POKC	22-Jan-03	FCOL(MF)			38			
03040556	PO-WILKENS	POKC	23-Jan-03	FCOL(MF)			140			

Table 2 cont. Fecal Coliform and Ancillary Data for Port Orchard Piped Area Water Quality Sites

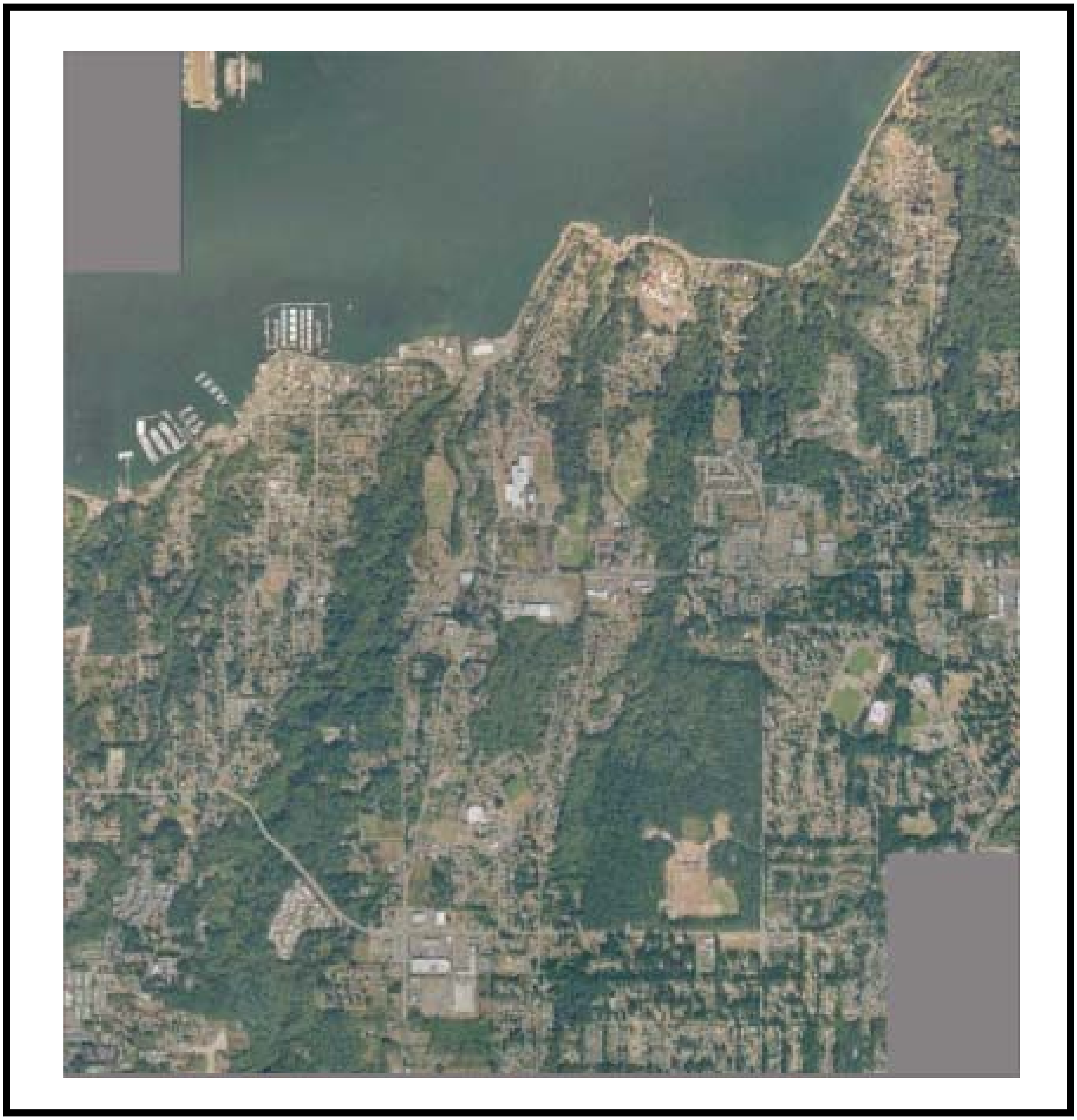


Figure 4 Aerial Photograph of Port Orchard Piped Area

WEST BREMERTON PIPED AREA

West Bremerton piped area consists of 21 catchments areas (Fig. 1). A shaded relief of the combined area and topography is shown in figure 2 (“Maps a la carte, Inc.”, 2004). The basin is over 37% in urban development with mostly urban standard and urban medium land use (Fig. 3). Approximately 39% of the piped area is impervious area (%TIA) (Table 1). An aerial photograph of the area is displayed in figure 4 (Landvoyager, 2004). Four storm water water quality sampling sites (B-ST26, LMK020, B-ST27, AND BST-28) are established in this basin (Fig. 2). The Fecal Coliform and ancillary data for these sites are listed in table 2.

Figure 1 West Bremerton Piped Area Watersheds

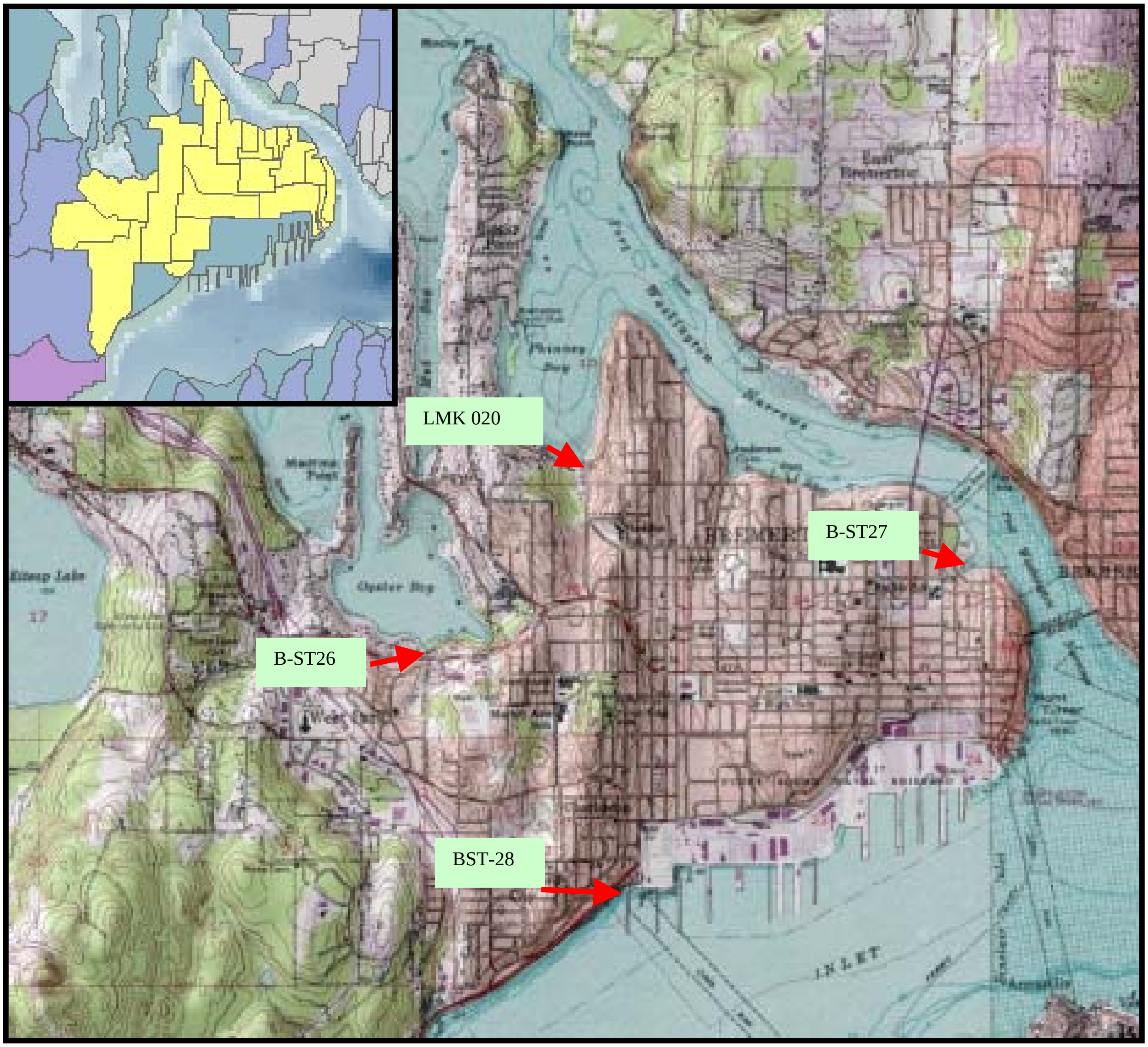
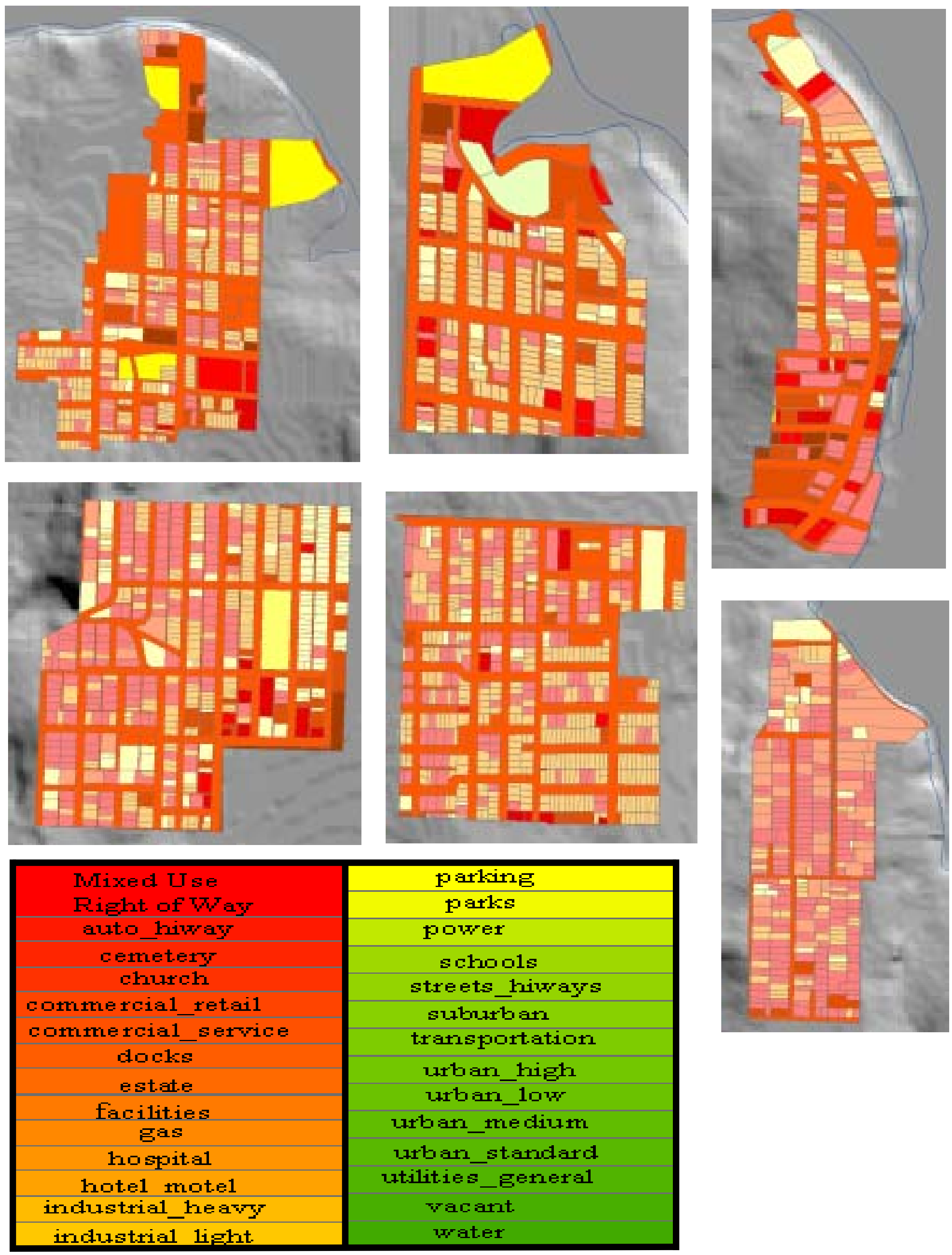


Figure 2 Shaded Relief Map of West Bremerton Piped Area and Water Quality Sites



LULC LEGEND

Figure 3 West Bremerton Piped Area Land Use Land Code Parcels

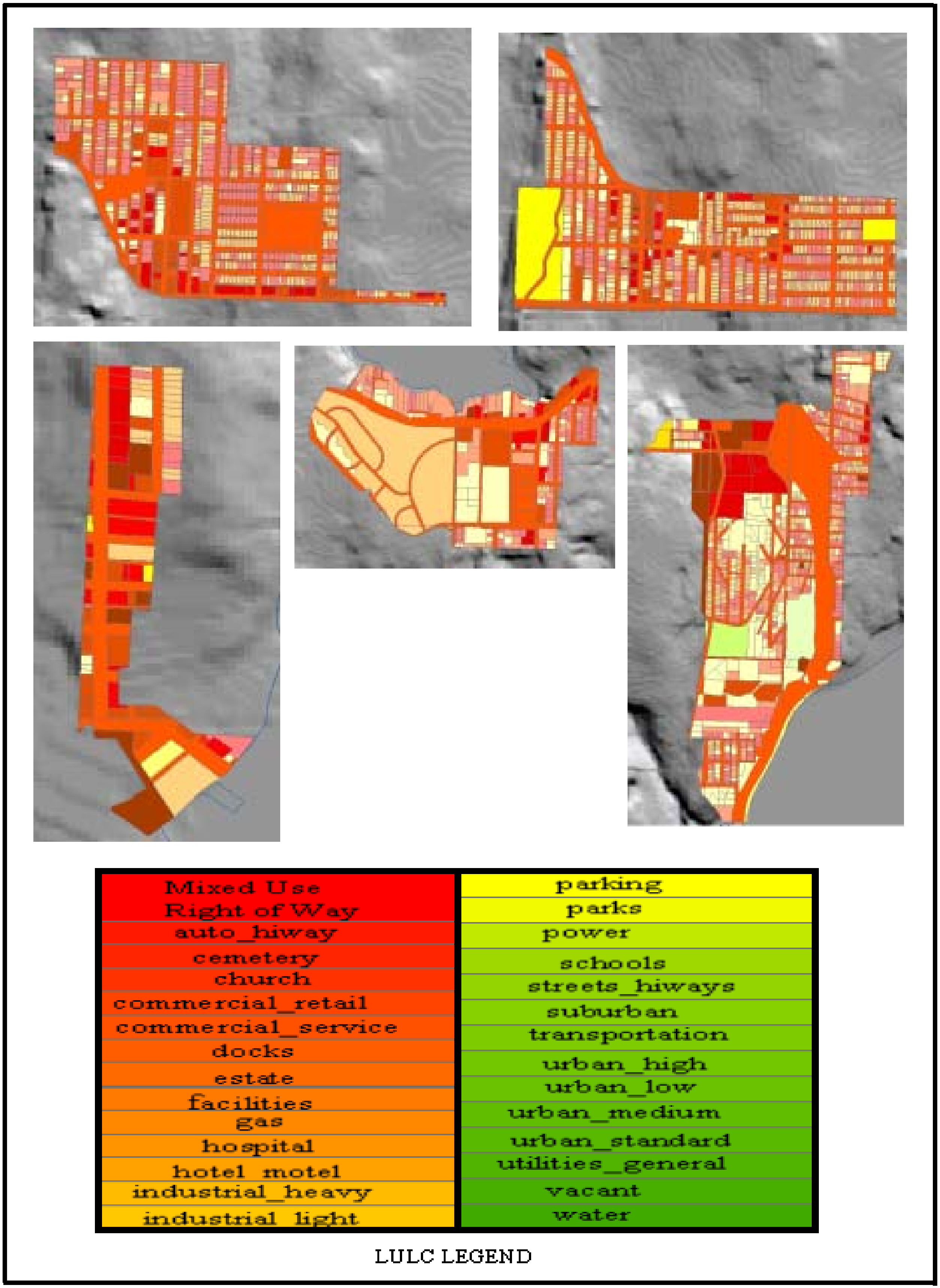


Figure 3 cont. West Bremerton Piped Area Land Use Land Code Parcels

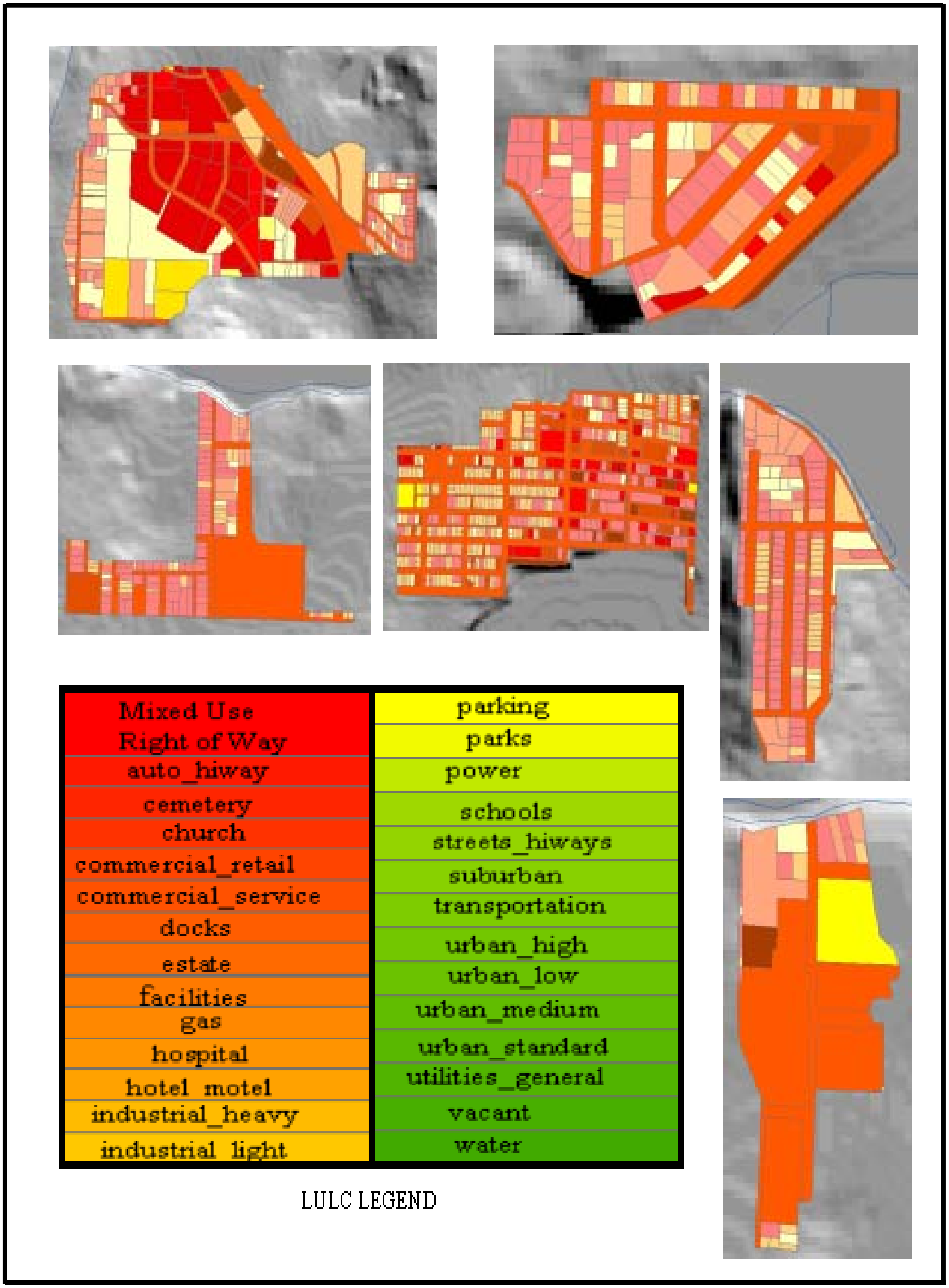


Figure 3 cont. West Bremerton Piped Area Land Use Land Code Parcels

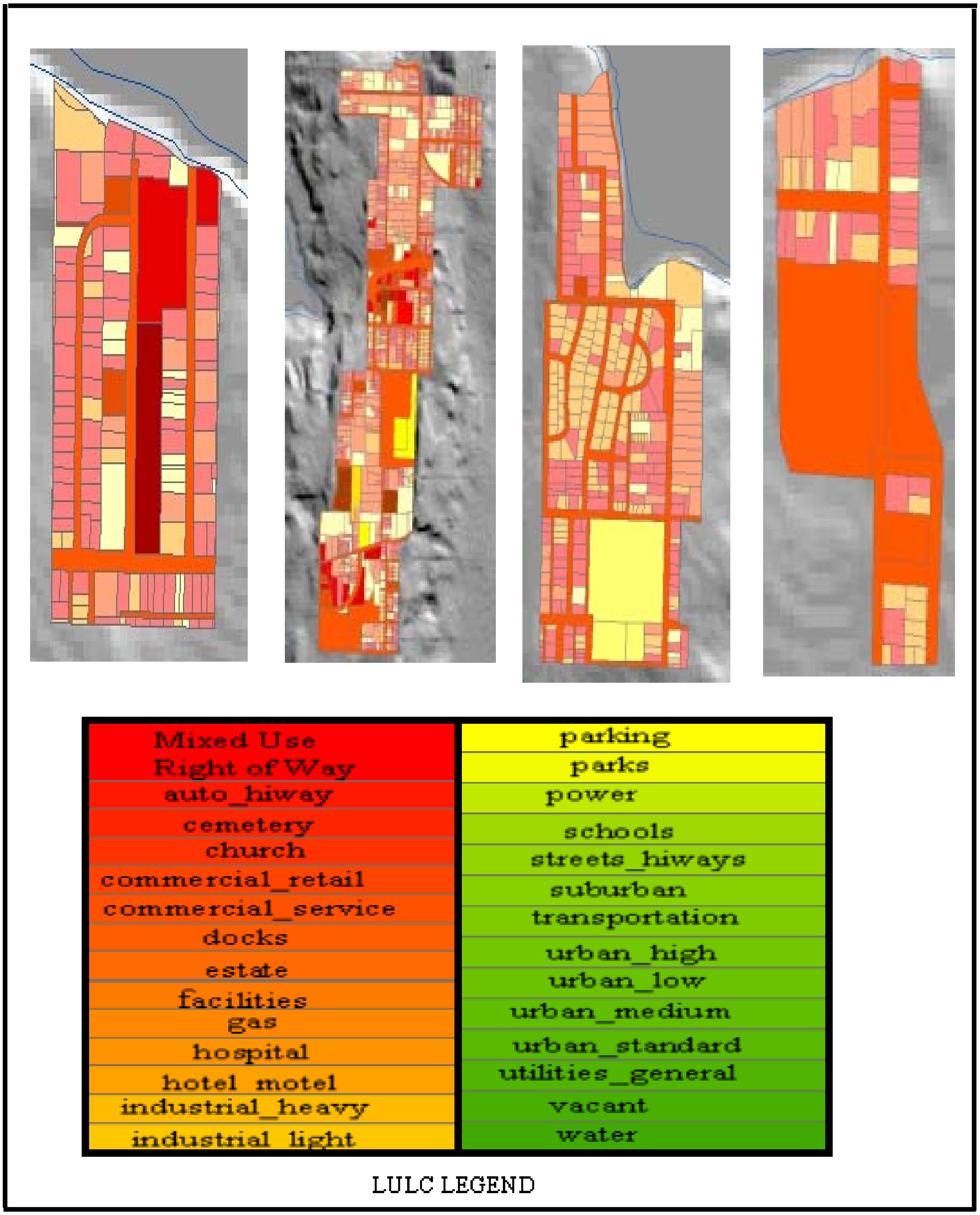


Figure 3 cont. West Bremerton Piped Area Land Use Land Code Parcels

Land Code	Percent Impervious	Area_Sq. Feet	Impervious Area sq feet	% of Total Area	% TIA of Total Area
Mixed Use-Right of Way	44.3%	25467719.22	11282199.62	26.004%	11.5196%
Auto_Hiway	59.9%	2610210.06	1563515.83	2.665%	1.5964%
Cemetary	17.1%	546980.20	93533.61	0.558%	0.0955%
Church	46.0%	464759.59	213789.41	0.475%	0.2183%
Commercial_Retail	59.5%	3875844.00	2306127.18	3.957%	2.3547%
Commercial_Service	55.1%	1650795.81	909588.49	1.686%	0.9287%
Docks	21.0%	55473.20	11649.37	0.057%	0.0119%
Estate	20.8%	757951.70	157653.95	0.774%	0.1610%
Facilities	66.4%	1781343.23	1182811.91	1.819%	1.2077%
Gas	54.3%	392955.47	213374.82	0.401%	0.2179%
Hospital	66.4%	148229.60	98424.46	0.151%	0.1005%
Hotel_Motel	38.1%	342458.70	130476.76	0.350%	0.1332%
Industrial_Heavy	82.1%	109115.07	89583.47	0.111%	0.0915%
Industrial_Light	59.8%	2025802.23	1211429.73	2.068%	1.2369%
Parking	51.4%	1369311.04	703825.87	1.398%	0.7186%
Parks	18.1%	1931457.27	349593.77	1.972%	0.3570%
Power	5.7%	360028.89	20521.65	0.368%	0.0210%
Schools	46.0%	3589780.11	1651298.85	3.665%	1.6861%
Streets_	49.9%	73391.15	36622.18	0.075%	0.0374%
Suburban	38.9%	1865811.48	725800.66	1.905%	0.7411%
Transportation	10.9%	394590.40	43010.35	0.403%	0.0439%
Urban_High	25.9%	3531678.46	914704.72	3.606%	0.9340%
Urban_Low	38.2%	7457870.02	2848906.35	7.615%	2.9089%
Urban_Medium	35.6%	10900786.97	3880680.16	11.130%	3.9623%
Urban_Standard	44.0%	14760141.68	6494462.34	15.071%	6.6311%
Utilities_General	2.1%	617037.68	12957.79	0.630%	0.0132%
Vacant	11.4%	10855563.92	1237534.29	11.084%	1.2636%
Water	9.2%	1799.81	165.58	0.002%	0.0002%
Total Area Sq. Ft.		97938886.94	38384243.18		39.1920%
Acres		2248.37	881.18		

Table 1 West Bremerton Piped Area Land Use Land Code Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Sal	Spec Cond	Temp C	Turb
02450499	B-ST26	BREM-SW	07-Nov-02	FCOL(MF)	7		800			85.2	12.1	171
02460496	B-ST26	BREM-SW	12-Nov-02	FCOL(MF)			830					
02460506	B-ST26	BREM-SW	13-Nov-02	FCOL(MF)	7.3		300			281.4	12.5	6.83
02460507	B-ST26	BREM-SW	13-Nov-02	FCOL(MF)	7.3		240			281.4	12.5	6.83
02470495	B-ST26	BREM-SW	18-Nov-02	FCOL(MF)	7.5		2000			61.9	11.5	55.3
02490498	B-ST26	BREM-SW	04-Dec-02	FCOL(MF)	7.5		1370			263.5	10.1	45.5
02500494	B-ST26	BREM-SW	10-Dec-02	FCOL(MF)	7.5		1400			50.1	9.3	7.21
02500507	B-ST26	BREM-SW	12-Dec-02	FCOL(MF)	7.3		870			53.5	11.1	84.1
02510496	B-ST26	BREM-SW	16-Dec-02	FCOL(MF)			85					
02510497	B-ST26	BREM-SW	16-Dec-02	FCOL(MF)			54					
03030497	B-ST26	BREM-SW	14-Jan-03	FCOL(MF)			210					
03040498	B-ST26	BREM-SW	22-Jan-03	FCOL(MF)	8		2200			15.2	9.4	20.8
03040506	B-ST26	BREM-SW	23-Jan-03	FCOL(MF)	8		1800			64.4	11	77.2
03040507	B-ST26	BREM-SW	23-Jan-03	FCOL(MF)	8		1600			64.4	11	77.2
02450493	B-ST27	BREM-SW	07-Nov-02	FCOL(MF)	7.4		4752			85.1	13.1	41.2
02460494	B-ST27	BREM-SW	12-Nov-02	FCOL(MF)			2200					
02490491	B-ST27	BREM-SW	04-Dec-02	FCOL(MF)	7.5		290			219.4	12.1	45.3
02500496	B-ST27	BREM-SW	10-Dec-02	FCOL(MF)	7.4		2100			53.3	8.4	48.1
02500505	B-ST27	BREM-SW	12-Dec-02	FCOL(MF)	7.8		1700			96.1	11.2	60.9
02510494	B-ST27	BREM-SW	16-Dec-02	FCOL(MF)			1300					
03030496	B-ST27	BREM-SW	14-Jan-03	FCOL(MF)			300					
03040495	B-ST27	BREM-SW	22-Jan-03	FCOL(MF)	8.4		650			14.7	8.4	20.6
03040505	B-ST27	BREM-SW	23-Jan-03	FCOL(MF)	7.8		2500			130.1	11.2	68.7
FC-200203-012	SW1/BST28	BREM-SW	11-Mar-02	TWISS 3409			158					
FC-200203-032	SW1/BST28	BREM-SW	13-Mar-02	TWISS 3409			30					
02450491	SW1/BST28	BREM-SW	07-Nov-02	FCOL(MF)	7.5		7260		0.1	132.8	11.9	70.3
02460495	SW1/BST28	BREM-SW	12-Nov-02	FCOL(MF)			2400					
02490497	SW1/BST28	BREM-SW	04-Dec-02	FCOL(MF)	7.4		32000			103.1	11.2	51.9

Table 2 Fecal Coliform and Ancillary Data for West Bremerton Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	Sal	Spec Cond	Temp C	Turb
02500497	SW1/BST28	BREM-SW	10-Dec-02	FCOL(MF)	7.5		2000			39.8	8.4	82.6
02500506	SW1/BST28	BREM-SW	12-Dec-02	FCOL(MF)	7.5		2600			94.6	10.9	82.5
02510495	SW1/BST28	BREM-SW	16-Dec-02	FCOL(MF)			400					
03030490	SW1/BST28	BREM-SW	14-Jan-03	FCOL(MF)			2225					
03040497	SW1/BST28	BREM-SW	22-Jan-03	FCOL(MF)	8.3		930			16.8	8.6	30.1
03040503	SW1/BST28	BREM-SW	23-Jan-03	FCOL(MF)	7.6		230			111.7	11.1	7.89
04171531	SW1/BST28	TEC-STORM	19-Apr-04	FCOL(MF)			2400					
04171536	SW1/BST28	TEC-STORM	19-Apr-04	FCOL(MF)			2700					
04171544	SW1/BST28	TEC-STORM	20-Apr-04	FCOL(MF)	7.2		320			0.006	52.7	175
02450607	LMK020	SSWM-SW	07-Nov-02	FCOL(MF)	6.9	12.5	3696	115	1	1987	11.5	
02460600	LMK020	SSWM-SW	12-Nov-02	FCOL(MF)	7.1	11.4	4000	102	0	59	10.5	
02460613	LMK020	SSWM-SW	13-Nov-02	FCOL(MF)	7	10.6	770	99.1	0.2	467	12.35	
02460614	LMK020	SSWM-SW	13-Nov-02	FCOL(MF)	7	10.7	1900	97.6	0.2	450	11.01	
02470600	LMK020	SSWM-SW	18-Nov-02	FCOL(MF)			5200					
02470622	LMK020	SSWM-SW	20-Nov-02	FCOL(MF)			69					
02470638	LMK020	SSWM-SW	21-Nov-02	FCOL(MF)			112					
02490600	LMK020	SSWM-SW	05-Dec-02	FCOL(MF)	6.4	10.1	1550	93.1	7.4	12890	9.82	3.35
02510603	LMK020	SSWM-SW	16-Dec-02	FCOL(MF)	6.9	11.4	2000	97.5	0.1	158	8.49	8.83
02510625	LMK020	SSWM-SW	18-Dec-02	FCOL(MF)	7	12.3	767	105	0.3	556	8.3	2.79
02510624	LMK020	SSWM-SW	18-Dec-02	FCOL(MF)	7.3	11.8	77	103	0.1	99	9.33	2.67
02510637	LMK020	SSWM-SW	19-Dec-02	FCOL(MF)	7.2	11.8	375	100	0.3	562	8.2	2.96
03030604	LMK020	SSWM-SW	13-Jan-03	FCOL(MF)	6.8	12	2800	101	0.1	142	8.01	12.1
03030613	LMK020	SSWM-SW	14-Jan-03	FCOL(MF)	6.5	11.2	3200	97	0.1	162	8.89	3.35
03030614	LMK020	SSWM-SW	14-Jan-03	FCOL(MF)	6.6	11.6	2800	98.2	0.1	165	8.11	3.35
03040601	LMK020	SSWM-SW	21-Jan-03	FCOL(MF)	6.2	11.4	2600	96.1	0.1	109	7.77	39
03040613	LMK020	SSWM-SW	22-Jan-03	FCOL(MF)	7.2	11.6	2700	97.2	0	48	7.77	38
03040634	LMK020	SSWM-SW	23-Jan-03	FCOL(MF)	7.3	11.1	1200	97.1	0.1	178	9.54	19.6
02500604	LMK020A	SSWM-SW	10-Dec-02	FCOL(MF)	7.1	11.3	17000	95.1	0.1	124	8.03	16
02500605	LMK020A	SSWM-SW	10-Dec-02	FCOL(MF)	7	11	19000	92.5	0.1	122	8	15.4
02500615	LMK020A	SSWM-SW	12-Dec-02	FCOL(MF)	7.2	10.9	2100	95.9	0.1	183	9.73	3.81

Table 2 cont. Fecal Coliform and Ancillary Data for West Bremerton Water Quality Sites

Figure 4 Aerial photograph of West Bremerton Piped Area

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A Summary of Landuse, Landcover, Stream Flow, and Water Quality Data for Watersheds of Streams, Piped Catchments, Open Watersheds, and Nearshore Areas Draining into Sinclair and Dyes Inlets

Section 3. Nearshore Areas

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October 2004

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Project ENVVEST

Section 3. Nearshore Areas

INDRODUCTION

This document was prepared as supporting information for **An Analysis of Microbial Pollution in the Sinclair-Dyes Inlet Watershed** the fecal coliform Total Maxium Daily Load study conducted for Sinclair and Dyes Inlets by PSNS Project ENVVEST. The data herein are from sampling during storm events of the project, supplied historical data, and monitoring records.

Methodology:

1. June 2004 is used as the cutoff date for ENVVEST storm water sampling data.
2. Stream flow data used is from Kitsap Public Utility District (KPUD) stream monitoring program. Gaps in flow data cause a skew in graphing the average flows for months and years. Graphing profiles are done for visual observation of general temporal flow characteristics.
3. Historical sampling data from Kitsap County Health District (KCHD) is presented as summations in graphical format.
4. 1998 Land Use Land Code data is used for presenting parcels in map format and for mathematical analysis of land areas.
5. Topographical map portions used to show basin areas are presented in shaded relief format for better representation and visualization of terrain.
6. Surficial hydrogeological information is from the United States Geological Survey (USGS) Surficial Hydrogeological map of the Kitsap Peninsula and surrounding area.
7. Aerial photographs of the ENVVEST project area are from Space Imaging and Land Voyage satellite imaging.

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BAINBRIDGE ISLAND WEST SHORELINE

Bainbridge Island West Shoreline is composed of 7 various sized basin areas (Fig. 1). A shaded relief map of the combined shoreline area topography is presented in (Fig. 2) ("Maps a la carte, Inc.". 2004). Twenty four percent of Bainbridge Island shoreline is in urban development (Fig. 3) with about 22% of the combined basin area in impervious surface (%TIA) (Table 1). Figure 4 shows the western shoreline in a series of aerial photographs (Ecology, 2004). The surficial hydrogeology of the western shoreline is till with a large area of Vashon advance outwash deposits in the middle basin and patches of nonglacial flood plain deposits scattered along the shoreline (Jones, et al, 1998). There are two water quality sites established by the ENVVEST project team for sampling, one nearshore and one stormwater (BI-FWNS, and BI-FWSW) (Fig.2). The Fecal Coliform and ancillary data for these sites are listed in table 2.

Figure 1 Location of Shoreline watersheds

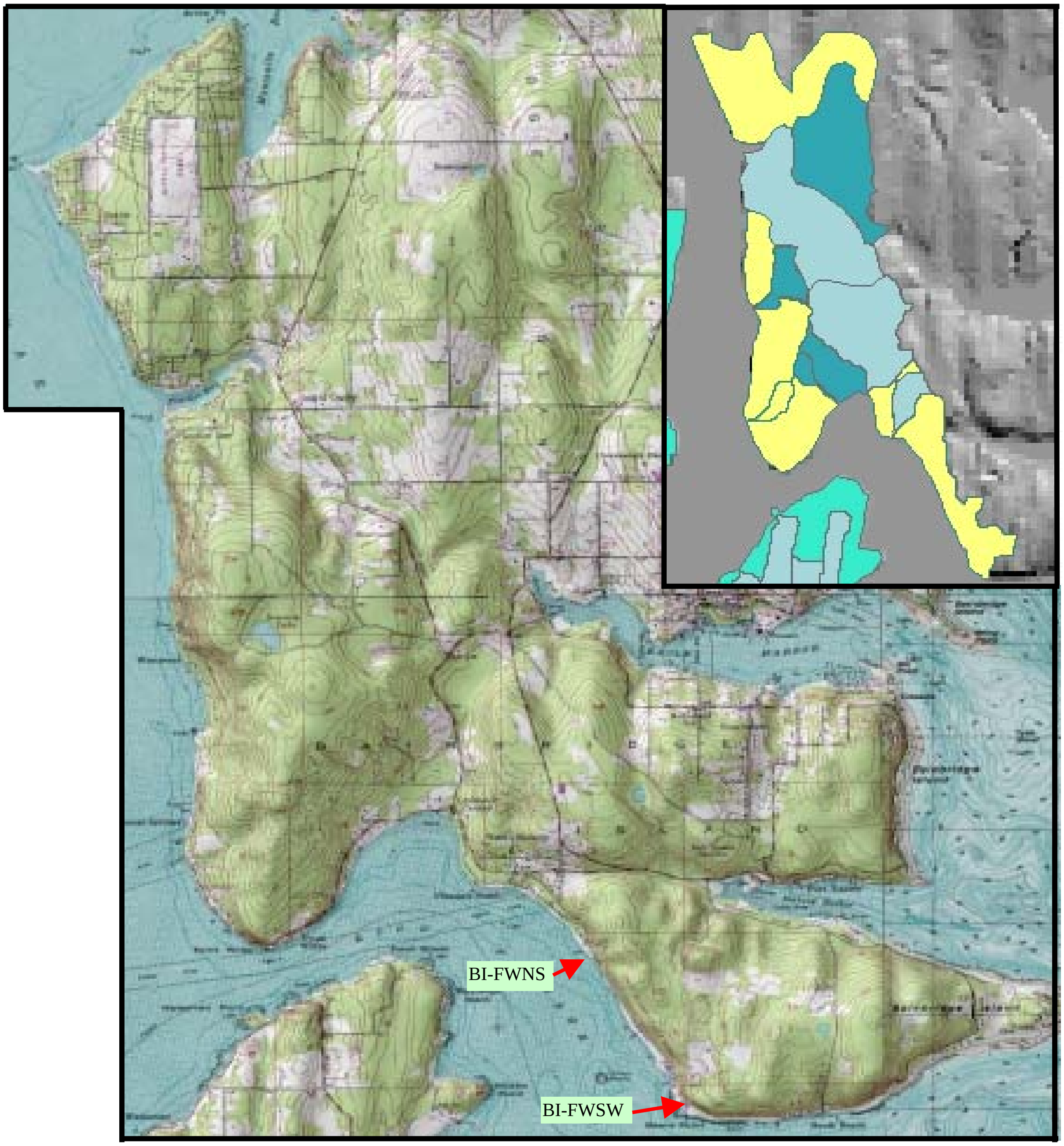


Figure 2 Shaded Relief Map of Bainbridge Island West Shoreline Watersheds

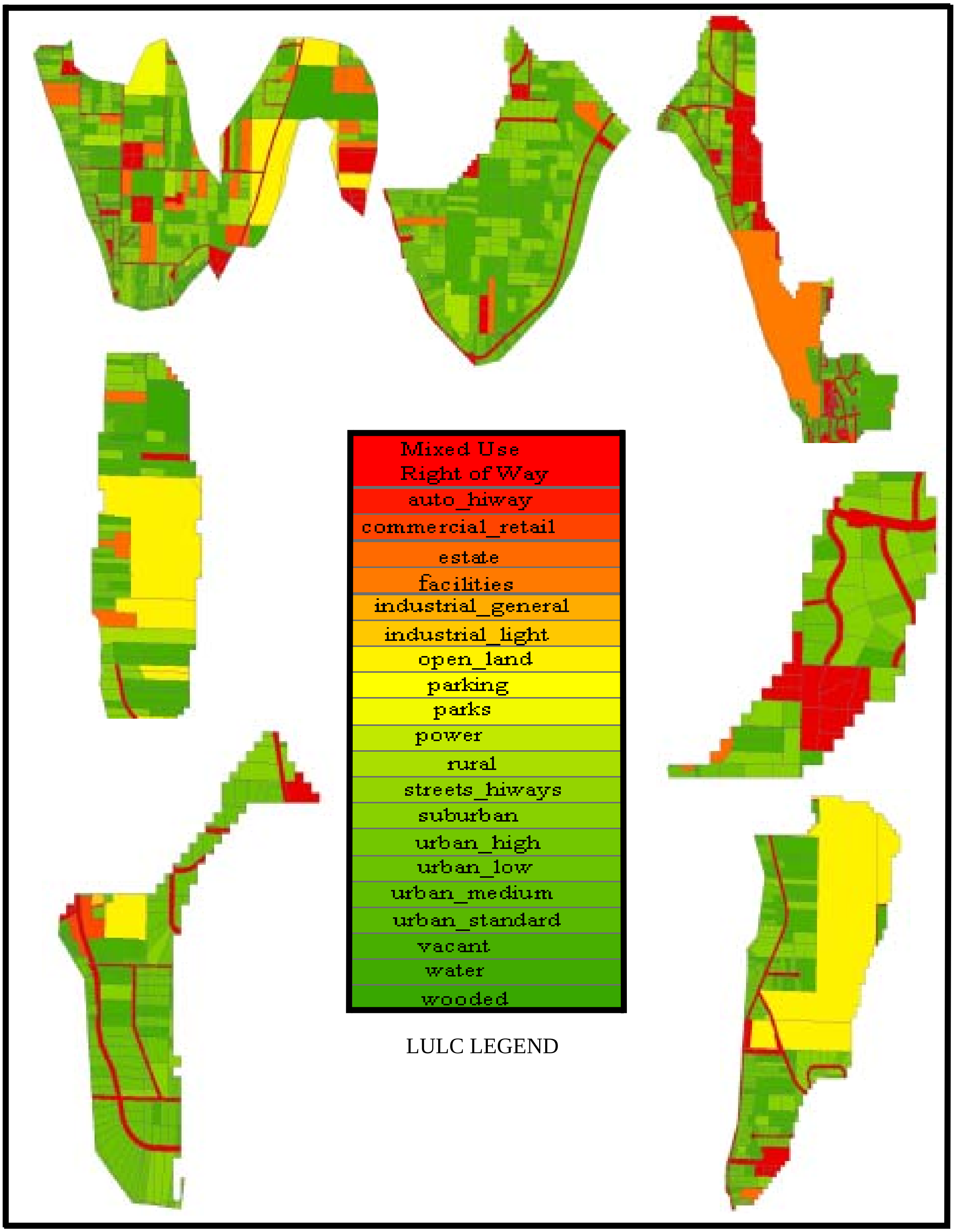


Figure 3 Bainbridge West Shoreline Land Use Land Cover Parcels

Land code	Percent Impervious	Area_Sq. Feet	Impervious Area sq feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	3777274.47	1673332.59	2.3063%	1.02168%
Auto_Hiway	59.9%	6210174.00	3719894.23	3.7917%	2.27124%
Commercial_Retail	59.5%	760202.97	452320.77	0.4642%	0.27617%
Estate	20.8%	7150600.34	1487324.87	4.3659%	0.90811%
Facilities	66.4%	5385260.00	3575812.64	3.2881%	2.18327%
Industrial_General	67.7%	26356.50	17843.35	0.0161%	0.01089%
Industrial_Light	59.8%	22128.98	13233.13	0.0135%	0.00808%
Open_Land	9.3%	54441633.03	5046739.38	33.2402%	3.08137%
Parking	51.4%	11135.82	5723.81	0.0068%	0.00349%
parks	18.1%	5935921.20	1074401.74	3.6243%	0.65599%
Power	5.7%	69006.00	3933.34	0.0421%	0.00240%
Rural	16.1%	4697823.27	756349.55	2.8683%	0.46180%
Streets_	49.9%	15999.11	7983.56	0.0098%	0.00487%
Suburban	38.9%	21440033.04	8340172.85	13.0906%	5.09223%
Urban_High	25.9%	5309.40	1375.13	0.0032%	0.00084%
Urban_Low	38.2%	17535437.68	6698537.19	10.7065%	4.08990%
Urban_Medium	35.6%	38549.41	13723.59	0.0235%	0.00838%
Urban_Standard	44.0%	1269419.35	558544.51	0.7751%	0.34103%
Vacant	11.4%	28459292.70	3244359.37	17.3763%	1.98090%
Water	9.3%	168.84	15.65	0.0001%	0.00001%
Wooded	4.2%	6530691.60	274289.05	3.9874%	0.16747%
Total Area Sq. Ft.		163782417.72	36965910.30		22.57013%
Acres		3759.93	848.62		

Table 1 Land Use Land Cover Data for Bainbridge Island West Shoreline Area

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02450587	BI-FWNS	BI-SW	07-Nov-02	FCOL(MF)	6.06	1330	19.49	11.8	8.5
02460584	BI-FWNS	BI-SW	13-Nov-02	FCOL(MF)	7.72	9	16.83	12	2.1
02470584	BI-FWNS	BI-SW	18-Nov-02	FCOL(MF)		25			
02510584	BI-FWNS	BI-SW	19-Dec-02	FCOL(MF)		13			
02450583	BI-FWSW	BI-SW	07-Nov-02	FCOL(MF)	7.75	10560	2.29	13.7	9.99
02460582	BI-FWSW	BI-SW	13-Nov-02	FCOL(MF)	9.17	1100	985	15.3	19.6
02470582	BI-FWSW	BI-SW	18-Nov-02	FCOL(MF)		300			
02510582	BI-FWSW	BI-SW	16-Dec-02	FCOL(MF)		4224			

Table 2 Fecal Coliform and Ancillary Data for Water Quality Sites (BI-FWNS, BI-FWSW)

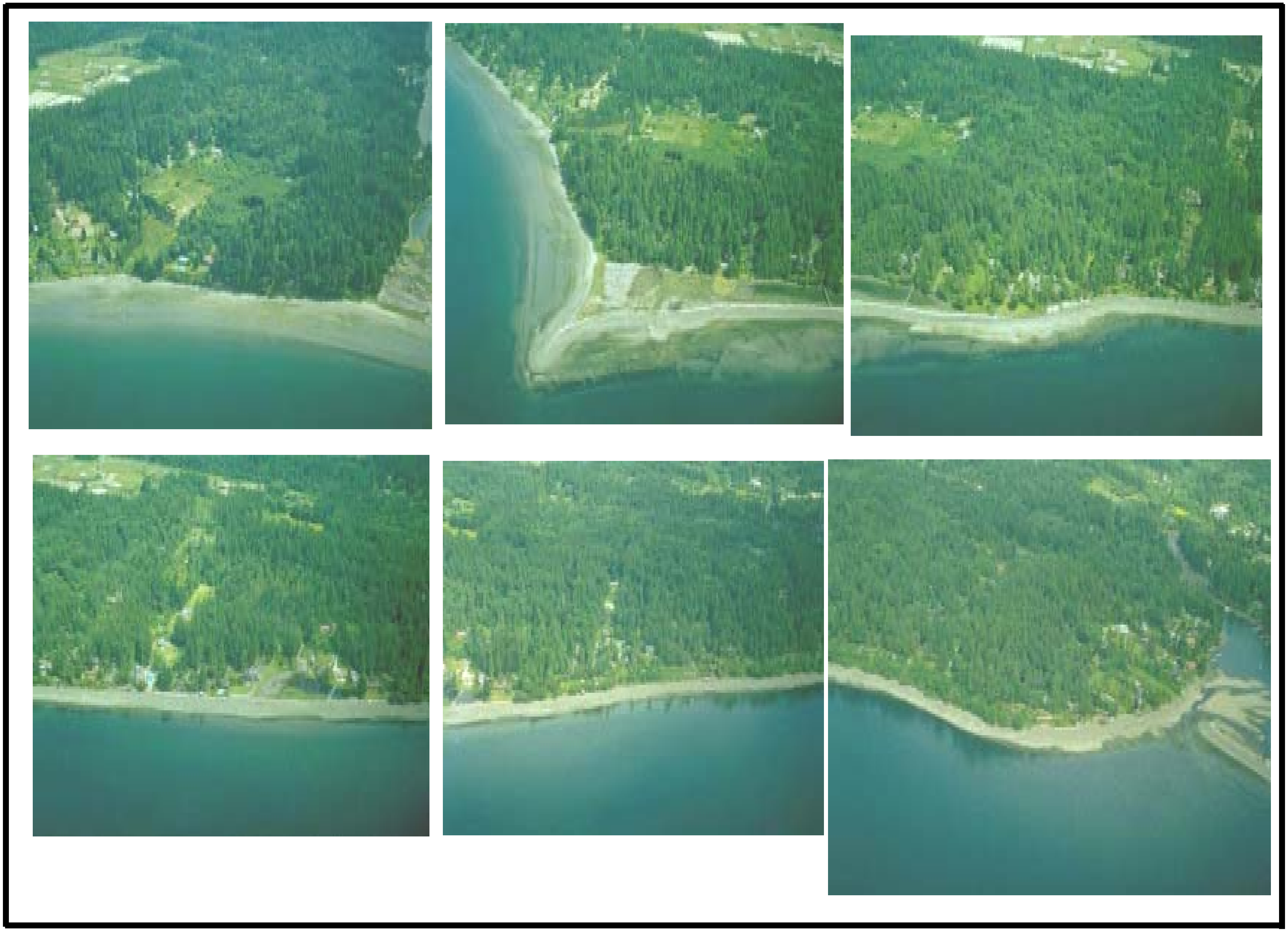


Figure 4 Bainbridge Island Shoreline Aerial Photographs going from north to south (top left to lower right)

Figure 4 cont. Bainbridge Island Shoreline Aerial Photographs going from north to south (top left to lower right)

Figure 4 cont. Bainbridge Island Shoreline Aerial Photographs going from north to south (top left to lower right)

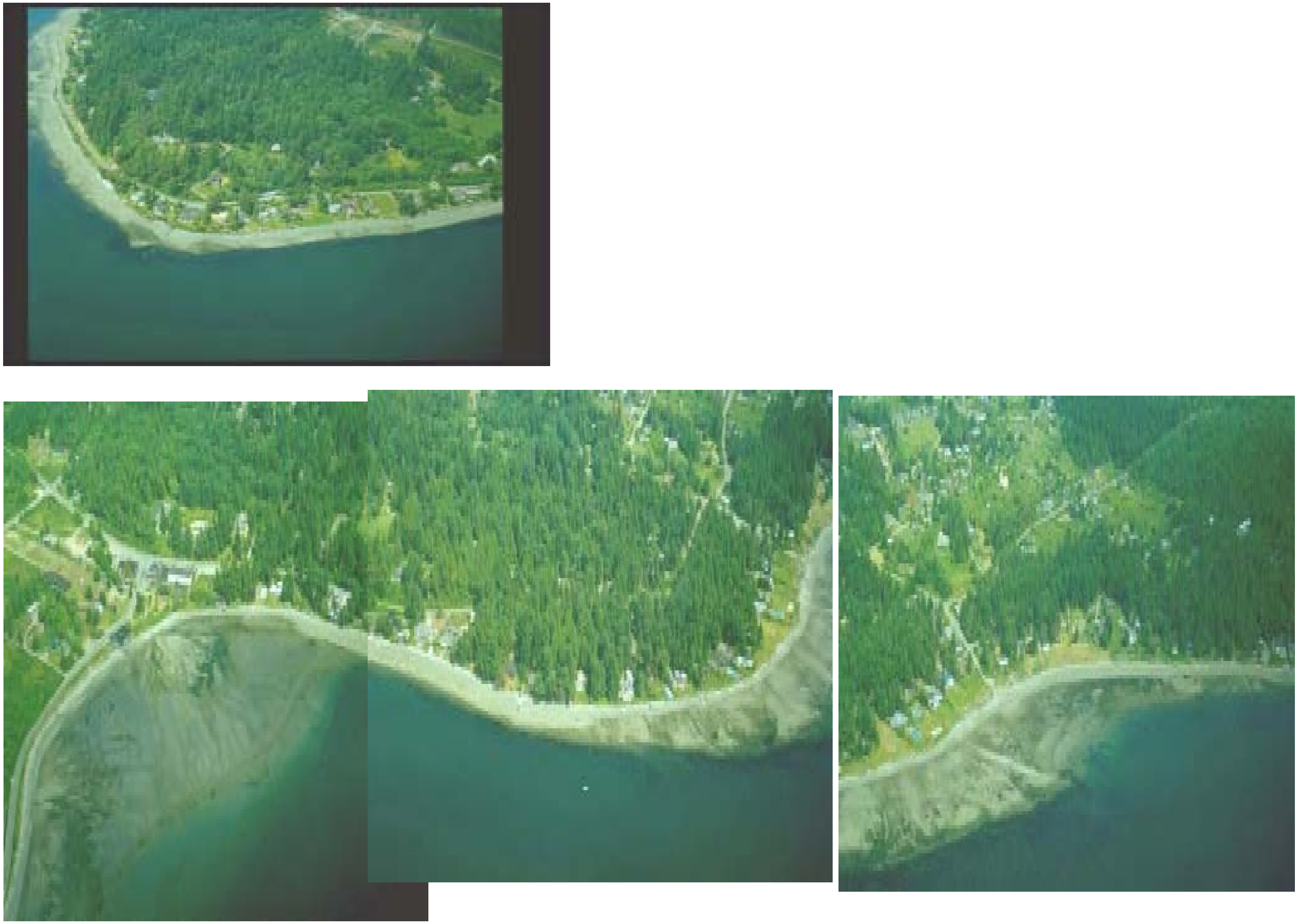


Figure 4 cont. Bainbridge Island Shoreline Aerial Photographs going from north to south (top left to lower right)

Figure 4 cont. Bainbridge Island Shoreline Aerial Photographs going from north to south (top left to lower right)

BREMERTON EAST SHORELINE

Bremerton East Shoreline is composed of 3 basin areas (Fig. 1). The topography of the area can be viewed in the shaded relief map of (Fig. 2) (”Maps a la carte, Inc.”, 2004). Approximately 38% of Bremerton East shoreline is in vacant, parks and open land (Fig. 3) with about 25% in impervious area (%TIA) (Table 1). A series of aerial photographs of the shoreline are shown in (Fig. 4) (Ecology, 2004). The southern surficial hydrogeology of Bremerton East shoreline is a small patch of Holocene alluvium, with fine recessional outwash extending to the north. A stretch of Vashon till is between the recessional outwash and nonglacial flood plain deposits to the north (Jones, et al, 1998). There are no water quality sites established by the ENVVEST project for this basin area.

Figure 1 Location of Bremerton East Shoreline Basins

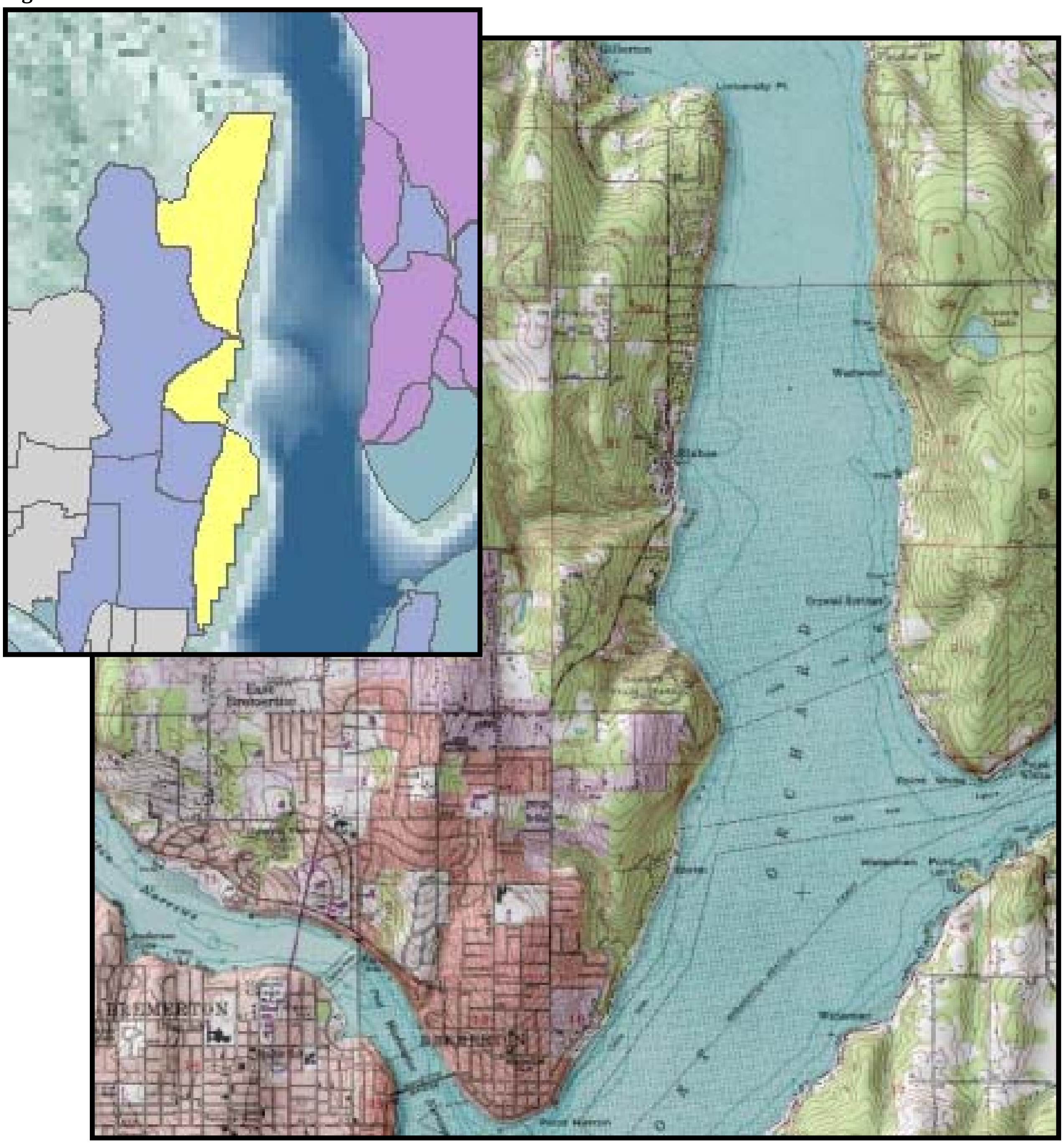


Figure 2 Shaded Relief Map of Bremerton East Shoreline Area

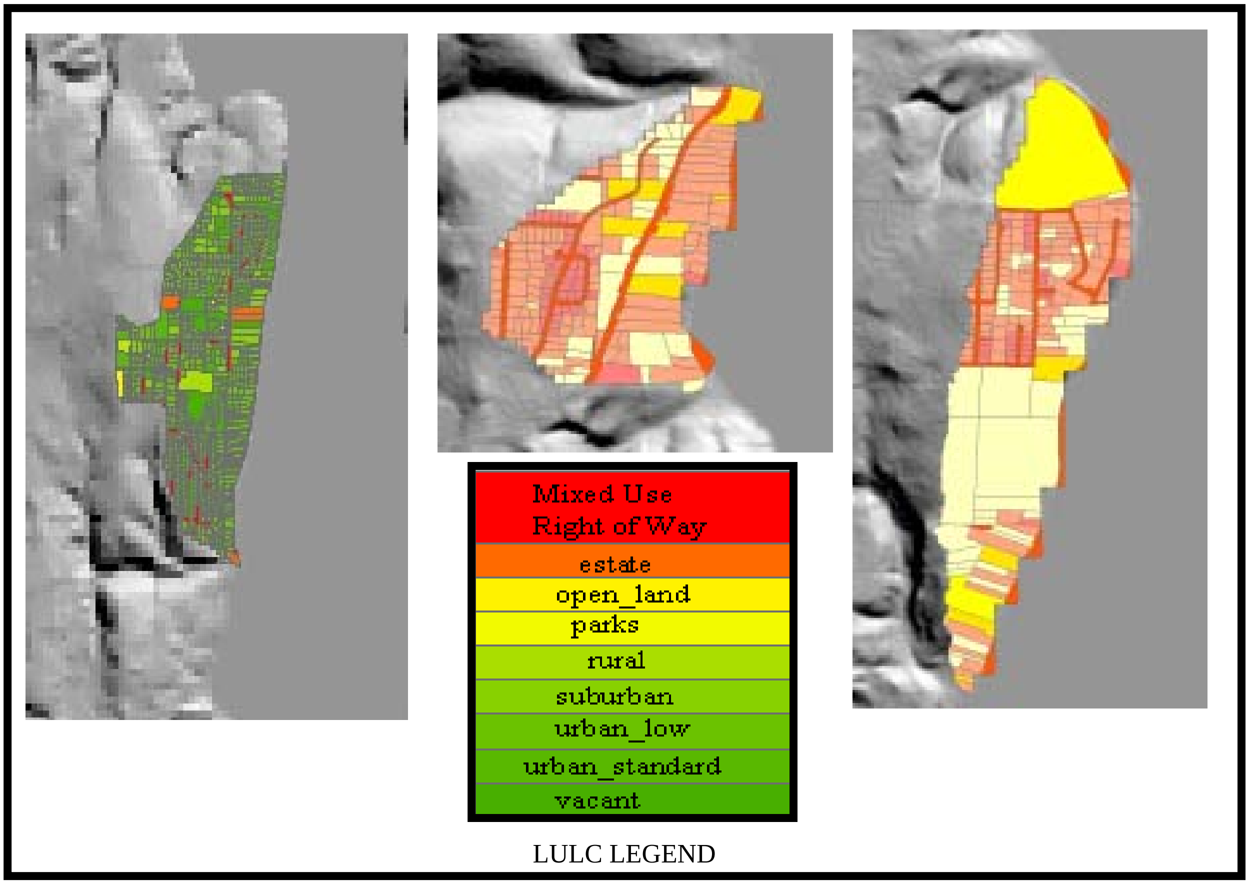


Figure 3 Land Use Land Cover Parcels of Bremerton East Shoreline Area

Land code	Percent impervious	Area_Sq. Feet	Impervious Area sq feet	% of total Area	% TIA of Total Area
Mixed Use-Right of Way	44.3%	2551458.92	1130296.30	9.74%	4.3%
Estate	20.8%	1372623.74	285505.74	5.24%	1.1%
Open_Land	9.3%	3326018.39	308321.90	12.69%	1.2%
Parks	18.1%	3458593.13	626005.36	13.20%	2.4%
Rural	16.1%	473000.82	76153.13	1.81%	0.3%
Suburban	38.9%	1925314.92	748947.50	7.35%	2.9%
Urban_Low	38.2%	5930619.35	2265496.59	22.63%	8.6%
Urban_Standard	44.0%	1347336.70	592828.15	5.14%	2.3%
Vacant	11.4%	5818729.09	663335.12	22.21%	2.5%
Total Area Sq. Ft.		26203695.06	6696889.79		25.6%
Acres		601.55	153.74		

Table 1 Bremerton East Shoreline Land Use Land Cover Data

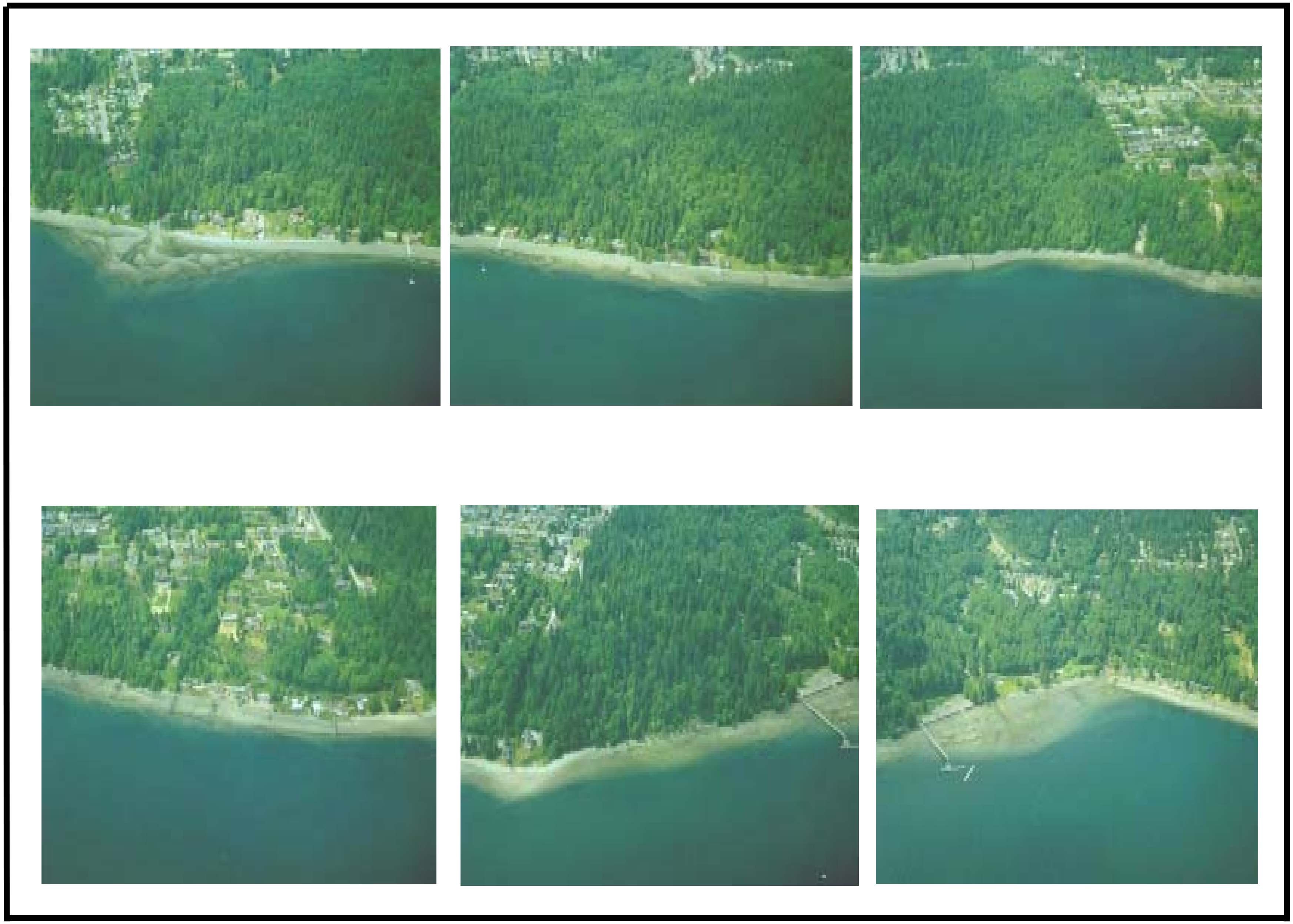


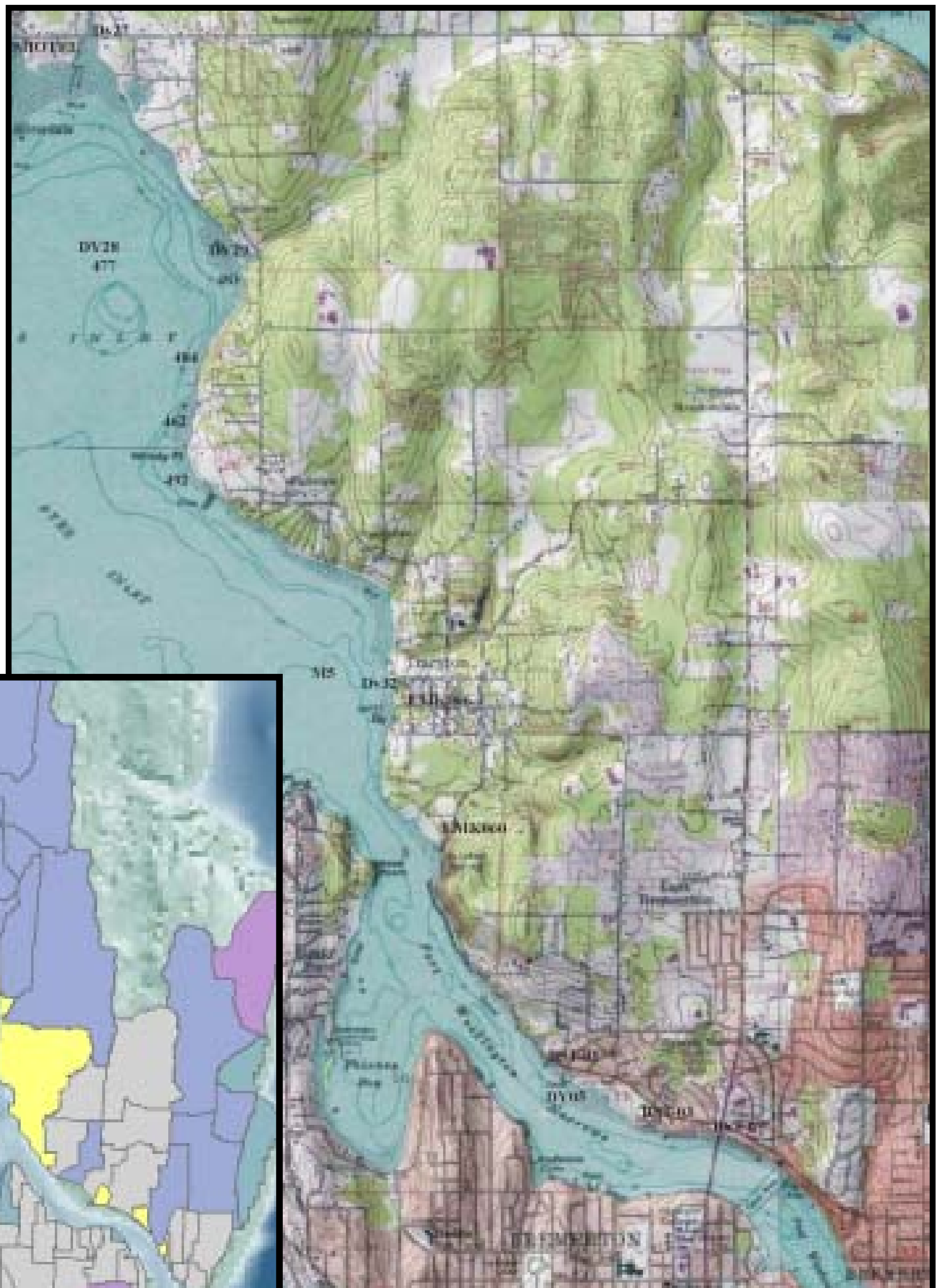
Figure 4 Bremerton East Shoreline Aerial Photographs South to North (upper left to lower right)

Figure 4 cont. Bremerton East Shoreline Aerial Photographs South to North (upper left to lower right)

DYES INLET EAST SHORELINE

Dyes Inlet East Shoreline is composed of 8 basin areas as seen in (Fig. 1). A shaded relief map of the combined area and topography is shown in (Fig. 2) ("Maps a la carte, Inc.", 2004). Twenty percent of the combined basins are in urban development (Fig. 3) with approximately 31% of the shoreline area in impervious area (%TIA) (Table 1). A series of aerial photographs of the shoreline area are displayed in (Fig. 4) (Ecology, 2004). The surficial hydrogeology of the shoreline is till in the northern section with a stripe of nonglacial floodplain deposits just south, followed by various sections of alternating alluvium, Tertiary igneous, and fine recessional outwash deposits (Jones, et al, 1998). There are 7 nearshore, 4 stormwater and 1 marine, water quality sites established by the ENVVEST project team for sampling (Fig.2). Water quality sites are (SHOTEL, DY27, DY29, DY28, DY32, DY05, DY01, M5, BST-01, BST-03, LMK066, LMK060). There are several nearshore water quality sites (numeric on map) established by Washington State Department of Health (WDOH) for monitoring Fecal Coliform. The Fecal Coliform and ancillary data for these sites are listed in table 2.

Figure 2 Shaded Relief Map of Dyes Inlet East shoreline



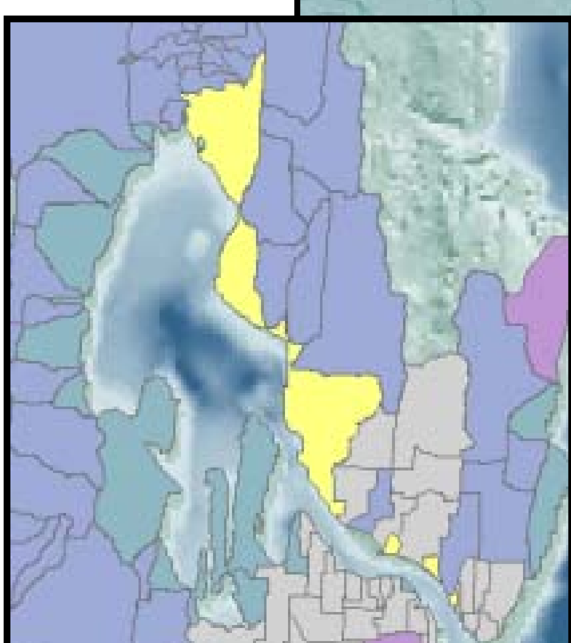


Figure 1 Location of Dyes Inlet East Shoreline Watersheds

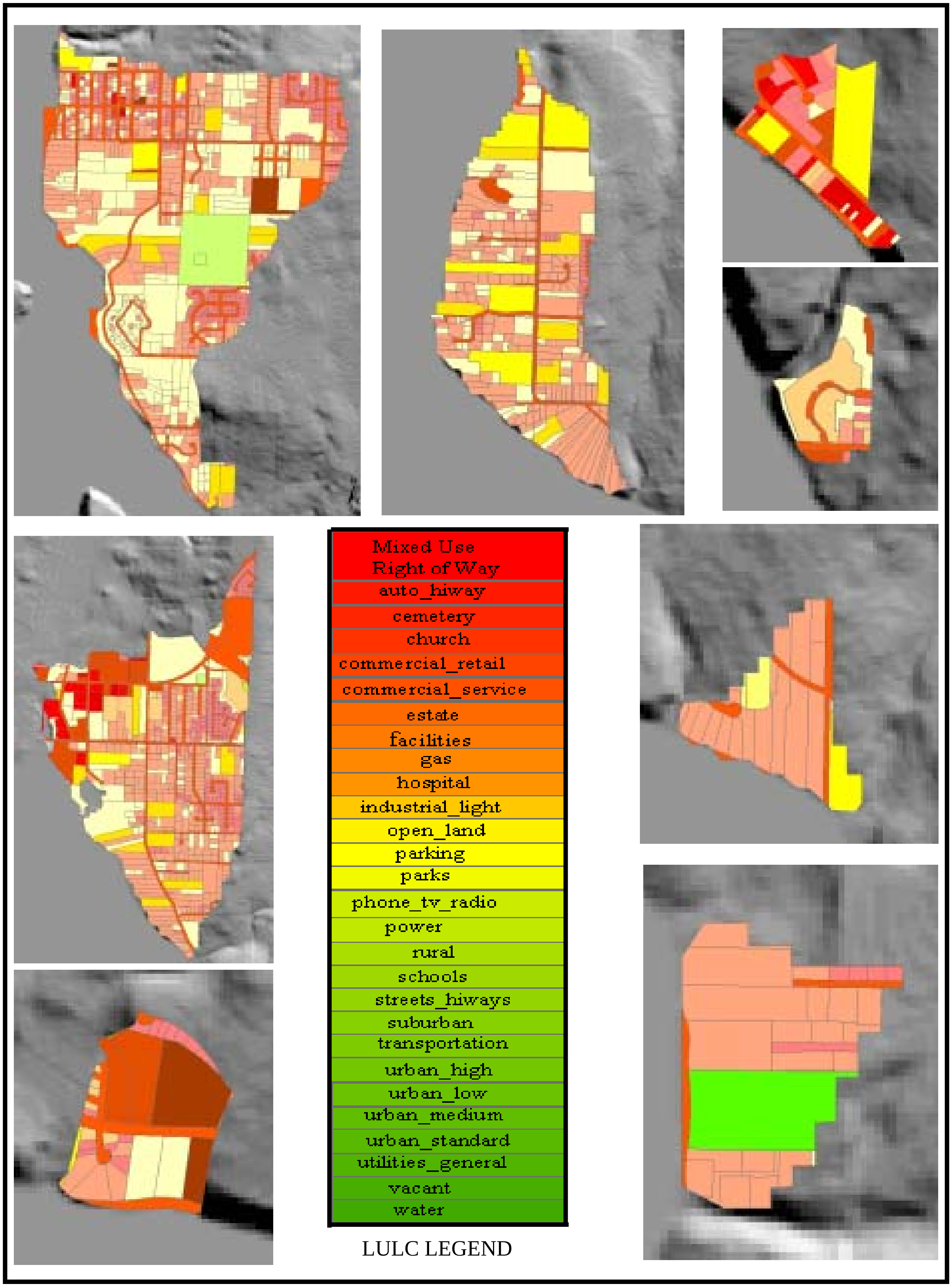


Figure 3 Dyes Inlet East Shoreline Land Use Land Cover Parcels

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
Mixed Use-Right of Way	44.30%	7477111.01	3312360.18	11.41%	5.054%
Auto_Hiway	59.90%	123745.10	74123.31	0.19%	0.113%
Cemetary	17.10%	53594.15	9164.60	0.08%	0.014%
Church	46.00%	180038.82	82817.86	0.27%	0.126%
Commercial_Retail	59.50%	1856388.46	1104551.13	2.83%	1.685%
Commercial_Service	55.10%	860853.67	474330.37	1.31%	0.724%
Estate	20.80%	3851382.81	801087.62	5.88%	1.222%
Facilities	66.40%	495806.43	329215.47	0.76%	0.502%
Gas	54.30%	62921.90	34166.59	0.10%	0.052%
Hospital	66.40%	198805.00	132006.52	0.30%	0.201%
Industrial_Light	59.80%	173837.55	103954.85	0.27%	0.159%
Open_Land	9.27%	4018834.76	372545.98	6.13%	0.568%
Parking	51.40%	208049.54	106937.46	0.32%	0.163%
Parks	18.10%	1291330.16	233730.76	1.97%	0.357%
Phone_TV_Radio	3.90%	11548.89	450.41	0.02%	0.001%
Power	5.70%	1817576.00	103601.83	2.77%	0.158%
Rural	16.10%	1667416.54	268454.06	2.54%	0.410%
Schools	46.00%	695284.36	319830.81	1.06%	0.488%
Streets_	49.90%	166557.26	83112.07	0.25%	0.127%
Suburban	38.90%	7352438.77	2860098.68	11.22%	4.364%
Transportation	10.90%	14686.30	1600.81	0.02%	0.002%
Urban_High	25.90%	960864.12	248863.81	1.47%	0.380%
Urban_Low	38.20%	13342642.28	5096889.35	20.36%	7.776%
Urban_Medium	35.60%	439223.67	156363.63	0.67%	0.239%
Urban_Standard	44.00%	5061801.49	2227192.65	7.72%	3.398%
Utilities_General	2.10%	21810.73	458.03	0.03%	0.001%
Vacant	11.40%	12874307.29	1467671.03	19.64%	2.239%
Water	9.20%	263381.43	24231.09	0.40%	0.037%
Total Area Sq. Ft.		65542238.44	20029810.96		30.560%
Acres		1504.64	459.82		

Table 1 Dyes East Shoreline Land Use Land Cover Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
110200DY05	DY05_KCHD	BKCHD	02-Nov-00	APAH 9221-E				2							
120700DY05	DY05_KCHD	BKCHD	07-Dec-00	APAH 9221-E				4							
030101DY05	DY05_KCHD	BKCHD	01-Mar-01	APAH 9221-E				1							
041901DY05	DY05_KCHD	BKCHD	19-Apr-01	APAH 9221-E				8							
062101DY05	DY05_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
080901DY05	DY05_KCHD	BKCHD	09-Aug-01	APAH 9221-E				1							
101101DY05	DY05_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		7.2	4				31.1	13	82.4	5.5
122001DY05	DY05_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.7		7.1	7				30.6	8.9	75.3	1.3
032802DY05	DY05_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.1		10.6	4				28	8.3	108	14.3
043002DY05	DY05_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
062702DY05	DY05_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.6		11.2	1				28.7	15.9	135	1.2
082202DY05	DY05_KCHD	KCHD	22-Aug-02	APAH 9221-E			13.4	2				29.9	17.2	166	10.1
101702DY05	DY05_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.8		6.9	1				31	12.7	78.9	0.9
02460713	DY05_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		5.8		8		29.01	5.8	44.8	10.77		
112002DY05	DY05_KCHD	KCHD	20-Nov-02	APAH 9221-E	8		7.5	7				31	11	84	
02510708	DY05_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		4		20		27.9	4	43.3	9.34		140
121702DY05	DY05_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		7.1	2				29.1	9.4	74.4	
03020708	DY05_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				6				44.9	8.92		
03030643	DY05	BKCHD	14-Jan-03	FCOL(MF)				8							
011403DY05	DY05_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7	13				29.6	8.6	71.8	2.1
03040708	DY05	PSNS-NS/M	24-Jan-03	FCOL(MF)				64				44.29	9.15		
032003DY05	DY05	KCHD	20-Mar-03	APAH 9221-E	8		6.7	1	93.7			27.5	9.8		2.6
041503DY05	DY05	KCHD	15-Apr-03	APAH 9221-E	8.4		11.6	1	126			28.9	10.5		0.6
052103DY05	DY05	KCHD	21-May-03	APAH 9221-E	8.3		10.2	2	115			28.1	12.9		0.6
061203DY05	DY05	KCHD	12-Jun-03	APAH 9221-E	8.4		11.7	1				28.2	15.2		0.6
072103DY05	DY05	KCHD	21-Jul-03	APAH 9221-E	8.2		10.3	1	137			28.8	16.2		
081903DY05	DY05	KCHD	19-Aug-03	APAH 9221-E	8.2		10.8	2	133			29.2	16.2		
091703DY05	DY05	KCHD	17-Sep-03	APAH 9221-E				2							
032003DY01	DY01	KCHD	20-Mar-03	APAH 9221-E	7.9		7.4	2	72.4			28.8	9.2		3.2

Table 2 Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
110200DY01	DY01_KCHD	BKCHD	02-Nov-00	APAH 9221-E				2							
120700DY01	DY01_KCHD	BKCHD	07-Dec-00	APAH 9221-E				13							
030101DY01	DY01_KCHD	BKCHD	01-Mar-01	APAH 9221-E				2							
041901DY01	DY01_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1							
062101DY01	DY01_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
080901DY01	DY01_KCHD	BKCHD	09-Aug-01	APAH 9221-E				1							
101101DY01	DY01_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		7	1				31	13	81.3	5.8
122001DY01	DY01_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.7		7	8				30.9	8.9	73.4	1
032802DY01	DY01_KCHD	KCHD	28-Mar-02	APAH 9221-E	7.9		9.7	2				28.3	7.9	97.2	14.6
043002DY01	DY01_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
062702DY01	DY01_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		10.8	2				28.6	15.2	129	1.1
082202DY01	DY01_KCHD	KCHD	22-Aug-02	APAH 9221-E			9.6	2				30	15.1	115	5
101702DY01	DY01_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.8		6.4	1				31	12.6	73.2	0.5
112002DY01	DY01_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9		6.8	1				31.3	10.7	75.2	
121702DY01	DY01_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		6.8	4				29.7	9.6	72.1	
011403DY01	DY01_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7.3	8				29.9	8.8	75.4	2
041503DY01	DY01	KCHD	15-Apr-03	APAH 9221-E	8.3		10.6	1	112			29.1	9.8		1
052103DY01	DY01	KCHD	21-May-03	APAH 9221-E	8.2		9	1	99.2			28.2	11.8		
061203DY01	DY01	KCHD	12-Jun-03	APAH 9221-E	8.2		9.8	1	113			28.3	14		
072103DY01	DY01	KCHD	21-Jul-03	APAH 9221-E	8.1		9.4	1	113			28.9	15.9		
081903DY01	DY01	KCHD	19-Aug-03	APAH 9221-E	8.2		9.6	2	115			29.3	15.3		
091703DY01	DY01	KCHD	17-Sep-03	APAH 9221-E				1							
03030702	DY27	BKCHD	14-Jan-03	FCOL(MF)				2							
03040711	DY27	PSNS-NS/M	24-Jan-03	FCOL(MF)				190				12.73	8.89		13.3
03040712	DY27	PSNS-NS/M	24-Jan-03	FCOL(MF)				190				12.73	8.89		13.3
032003DY27	DY27	KCHD	20-Mar-03	APAH 9221-E	8.1		6.5	30	64			18.3	9.5		11.6
041503DY27	DY27	KCHD	15-Apr-03	APAH 9221-E	8.6		11.2	23	120			22.2	12.5		3.2
052103DY27	DY27	KCHD	21-May-03	APAH 9221-E	8.3		10.2	1	119			27.9	14.3		11.6
061203DY27	DY27	KCHD	12-Jun-03	APAH 9221-E	8.2		8.9	17	107			27.4	16.3		8.5

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
110200DY27	DY27_KCHD	BKCHD	02-Nov-00	APAH 9221-E			17							
120700DY27	DY27_KCHD	BKCHD	07-Dec-00	APAH 9221-E			7							
030101DY27	DY27_KCHD	BKCHD	01-Mar-01	APAH 9221-E			8							
041901DY27	DY27_KCHD	BKCHD	19-Apr-01	APAH 9221-E			1							
062101DY27	DY27_KCHD	BKCHD	21-Jun-01	APAH 9221-E			2							
080901DY27	DY27_KCHD	BKCHD	09-Aug-01	APAH 9221-E			4							
101101DY27	DY27_KCHD	KCHD	11-Oct-01	APAH 9221-E	8.1	8.6	2				30.2	13.7	99.3	6.2
122001DY27	DY27_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.7	7.6	23				25.9	8.3	76.8	1.4
032802DY27	DY27_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.2	10.7	2				26.8	9.3	110	15.6
043002DY27	DY27_KCHD	KCHD	30-Apr-02	APAH 9221-E			8							
062702DY27	DY27_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.4	8.4	80				27.2	18.3	107	59.7
082202DY27	DY27_KCHD	KCHD	22-Aug-02	APAH 9221-E		9.4	8				29.4	19.4	122	6.4
101702DY27	DY27_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.8	7.4	1				30.5	14.3	85.9	0.6
02460708	DY27_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)			5		28.38	2.8	44.1	10.9		
112002DY27	DY27_KCHD	KCHD	20-Nov-02	APAH 9221-E	8	8	4				30.7	10.9	88.7	
02510711	DY27_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)			49		16.66	2	25.2	7.25		97
121702DY27	DY27_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.4	10.2	17				15.5	7	91.9	
03020712	DY27_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)			2				42.2	8.75		
011403DY27	DY27_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3	7.3	4				28.3	8.4	74.7	1.8
072103DY27	DY27	KCHD	21-Jul-03	APAH 9221-E	8.4	14.2	1	180			28.7	18.2		11.6
081903DY27	DY27	KCHD	19-Aug-03	APAH 9221-E	8.5	13	1	171			28.8	20.5		8.5
091703DY27	DY27	KCHD	17-Sep-03	APAH 9221-E			2							
04171600	DY27	PSNS-NS/M	20-Apr-04	FCOL(MF)			68				42.9	9.02		172
032003DY28	DY28	KCHD	20-Mar-03	APAH 9221-E	8.6	7.6	2	74.9			26.3	9.3		47
041503DY28	DY28	KCHD	15-Apr-03	APAH 9221-E	8.7	14.6	1	159			28.5	11		1.1
052103DY28	DY28	KCHD	21-May-03	APAH 9221-E	8.3	9.6	2	113			27.7	14.2		
061203DY28	DY28	KCHD	12-Jun-03	APAH 9221-E	8.5	12	1	143			28.1	15.8		
072103DY28	DY28	KCHD	21-Jul-03	APAH 9221-E	8.5	14.8	1	193			28.6	19.6		
081903DY28	DY28	KCHD	19-Aug-03	APAH 9221-E	8.7	16.7	1	200			29	19.6		

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
110200DY28	DY28_KCHD	BKCHD	02-Nov-00	APAH 9221-E			1							
120700DY28	DY28_KCHD	BKCHD	07-Dec-00	APAH 9221-E			2							
030101DY28	DY28_KCHD	BKCHD	01-Mar-01	APAH 9221-E			1							
041901DY28	DY28_KCHD	BKCHD	19-Apr-01	APAH 9221-E			1							
062101DY28	DY28_KCHD	BKCHD	21-Jun-01	APAH 9221-E			1							
080901DY28	DY28_KCHD	BKCHD	09-Aug-01	APAH 9221-E			1							
101101DY28	DY28_KCHD	KCHD	11-Oct-01	APAH 9221-E	8.2	10	1				30.8	14	119	5.6
122001DY28	DY28_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8	7.4	30				30	8.6	76.5	1
032802DY28	DY28_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.2	11.7	4				27.7	9.1	122	14.7
043002DY28	DY28_KCHD	KCHD	30-Apr-02	APAH 9221-E			1							
062702DY28	DY28_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5	11.8	1				28.7	16.5	144	2.7
082202DY28	DY28_KCHD	KCHD	22-Aug-02	APAH 9221-E		12.1	1				29.6	19.9	159	5.6
101702DY28	DY28_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9	7.8	1				30.8	14.5	91.3	0.2
112002DY28	DY28_KCHD	KCHD	20-Nov-02	APAH 9221-E	8	8.1	1				30.8	10.9	90.4	
121702DY28	DY28_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3	8	2				28.2	8.8	82.8	
011403DY28	DY28_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3	8	8				28.1	8.3	80.2	2
091703DY28	DY28	KCHD	17-Sep-03	APAH 9221-E			1							
04171603	DY28	PSNS-NS/M	20-Apr-04	FCOL(MF)			1					9.93		
03030703	DY29	BKCHD	14-Jan-03	FCOL(MF)			1							
03040710	DY29	PSNS-NS/M	24-Jan-03	FCOL(MF)			24				42.1	8.89		5.6
032003DY29	DY29	KCHD	20-Mar-03	APAH 9221-E	8.1	6.9	2	66.7			26.6	9.4		9.4
041503DY29	DY29	KCHD	15-Apr-03	APAH 9221-E	8.7	14	1	153			28.5	11.1		1.1
052103DY29	DY29	KCHD	21-May-03	APAH 9221-E	8.3	10.5	1	66.7			27.9	14.8		9.4
061203DY29	DY29	KCHD	12-Jun-03	APAH 9221-E	16	8.3	1	124			10.3	1		28.2
072103DY29	DY29	KCHD	21-Jul-03	APAH 9221-E	8.4	13.9	1	178			28.7	18		
081903DY29	DY29	KCHD	19-Aug-03	APAH 9221-E	8.5	14.4	1	185			29	19.1		
091703DY29	DY29	KCHD	17-Sep-03	APAH 9221-E			1							
04171598	DY29	PSNS-NS/M	20-Apr-04	FCOL(MF)			1				42.28	11.11		177
03020710	DY29_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)			10				43.2	8.6		

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
110200DY29	DY29_KCHD	BKCHD	02-Nov-00	APAH 9221-E				8						
120700DY29	DY29_KCHD	BKCHD	07-Dec-00	APAH 9221-E				4						
030101DY29	DY29_KCHD	BKCHD	01-Mar-01	APAH 9221-E				1						
041901DY29	DY29_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1						
062101DY29	DY29_KCHD	BKCHD	21-Jun-01	APAH 9221-E				4						
080901DY29	DY29_KCHD	BKCHD	09-Aug-01	APAH 9221-E				1						
101101DY29	DY29_KCHD	KCHD	11-Oct-01	APAH 9221-E	8.1		9.4	1			30.9	13.9	109	5.5
122001DY29	DY29_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		7.3	30			29.7	8.4	75.1	1.3
032802DY29	DY29_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.1		10.8	4			27.5	9.5	113	15.1
043002DY29	DY29_KCHD	KCHD	30-Apr-02	APAH 9221-E				1						
062702DY29	DY29_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.6		10.9	2			28.6	16.2	133	1.7
082202DY29	DY29_KCHD	KCHD	22-Aug-02	APAH 9221-E			12.4	1			29.8	18.9	161	9.9
101702DY29	DY29_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.8		7.3	1			30.7	14.3	85.9	0.5
02460709	DY29_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		3.9		1	28.79		44.5	10.93		20
02460710	DY29_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		3.9		7	28.79	3.9	44.5	10.93		20
112002DY29	DY29_KCHD	KCHD	20-Nov-02	APAH 9221-E	8		7.7	1			30.8	11	85.6	
02510710	DY29_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		4.67		11	25.34	4.67	39.9	8.27		77
121702DY29	DY29_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.4		8.6	4			26.3	8.2	86.3	
03020711	DY29_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				5			43.2	8.6		
011403DY29	DY29_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7.3	1			28.4	8.4	74	2.1
04171591	DY32	PSNS-NS/M	20-Apr-04	FCOL(MF)				1			42.4	8.9		182
110200DY32	DY32_KCHD	BKCHD	02-Nov-00	APAH 9221-E				1						
120700DY32	DY32_KCHD	BKCHD	07-Dec-00	APAH 9221-E				14						
030101DY32	DY32_KCHD	BKCHD	01-Mar-01	APAH 9221-E				13						
041901DY32	DY32_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1						
062101DY32	DY32_KCHD	BKCHD	21-Jun-01	APAH 9221-E				2						
080901DY32	DY32_KCHD	BKCHD	09-Aug-01	APAH 9221-E				2						
101101DY32	DY32_KCHD	KCHD	11-Oct-01	APAH 9221-E	8.1		8.4	4			30.8	13.7	99.4	5.8
122001DY32	DY32_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		8.2	13			26.4	7.5	81.3	3.7

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
032802DY32	DY32_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.1		11.1	1				27.8	8.5	113	14.5
043002DY32	DY32_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
062702DY32	DY32_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		11.2	2				28.7	15.6	137	2.5
082202DY32	DY32_KCHD	KCHD	22-Aug-02	APAH 9221-E			13.4	1				29.9	18.1	172	10.3
FC-200203-023	M5	PSNS-NS/M	12-Mar-02	APAH -MPN				0							
FC-200203-043	M5	PSNS-NS/M	13-Mar-02	APAH -MPN				0							
02460643	M5_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		73.7		1		29.15	28	45	10.79		
02510644	M5_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		79.7		4		27.73	19	43	9.1		2
03020644	M5_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)		58.3		3		28.16	16	43.6	8.63		
03030645	M5	BKCHD	14-Jan-03	FCOL(MF)				6							
03040642	M5	PSNS-NS/M	24-Jan-03	FCOL(MF)				3		28.67	15	44.31	8.85		3.09
04171592	M5	PSNS-NS/M	20-Apr-04	FCOL(MF)				1				42.5	11.69		244
02460701	SHOTEL_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		3.1		69		28.1	3.1	43.5	10.92		
02510712	SHOTEL_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		3.6		750		27.51	1.6	13.96	6.5		241
03020713	SHOTEL_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				1				43.1	8.79		
03040713	SHOTEL	PSNS-NS/M	24-Jan-03	FCOL(MF)				200				3.9	8.85		
04171601	SHOTEL	PSNS-NS/M	20-Apr-04	FCOL(MF)				52				43.2	9.53		900
462-10/00-10:29	WDOH-462	WDOH	04-Oct-00	APAH -MPN				1.7		30			13		
462-10/00-13:26	WDOH-462	WDOH	04-Oct-00	APAH -MPN				1.7		32			13		
462-11/00-9:00	WDOH-462	WDOH	02-Nov-00	APAH -MPN				9.2		30			11		
462-11/00-10:04	WDOH-462	WDOH	20-Nov-00	APAH -MPN				2		30			9		
462-12/00-10:46	WDOH-462	WDOH	05-Dec-00	APAH -MPN				4.5		28			9		
462-01/01-9:54	WDOH-462	WDOH	16-Jan-01	APAH -MPN				4.5		28			8		
462-02/01-9:06	WDOH-462	WDOH	15-Feb-01	APAH -MPN				7.8		29			7		
462-03/01-13:17	WDOH-462	WDOH	28-Mar-01	APAH -MPN				1.7		28			9		
462-04/01-10:10	WDOH-462	WDOH	23-Apr-01	APAH -MPN				1.7		30			10		
462-05/01-12:09	WDOH-462	WDOH	16-May-01	APAH -MPN				4		30			12		
462-06/01-11:16	WDOH-462	WDOH	07-Jun-01	APAH -MPN				1.7		30			14		

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Spec Cond	Temp C	Turb
462-07/01-12:39	WDOH-462	WDOH	16-Jul-01	APAH -MPN	1.7	30		16	
462-08/01-8:59	WDOH-462	WDOH	13-Aug-01	APAH -MPN	1.7	30		16	
462-09/01-13:07	WDOH-462	WDOH	17-Sep-01	APAH -MPN	2	30		15	
462-10/01-10:42	WDOH-462	WDOH	17-Oct-01	APAH -MPN	4.5	29		12	
462-11/01-10:34	WDOH-462	WDOH	01-Nov-01	APAH -MPN	4	30		11	
462-12/01-10:48	WDOH-462	WDOH	12-Dec-01	APAH -MPN	2	26		8	
462-01/02-12:43	WDOH-462	WDOH	29-Jan-02	APAH -MPN	1.8	26		7	
462-02/02-10:32	WDOH-462	WDOH	20-Feb-02	APAH -MPN	1.7	30		8	
462-03/02-12:29	WDOH-462	WDOH	13-Mar-02	APAH -MPN	1.7	25		8	
462-04/02-12:37	WDOH-462	WDOH	17-Apr-02	APAH -MPN	1.7	26		10	
462-05/02-12:40	WDOH-462	WDOH	07-May-02	APAH -MPN	3.15	28		10	
462-07/02-13:14	WDOH-462	WDOH	24-Jul-02	APAH -MPN	1.7	28		19	
208259	WDOH-462	WDOH	16-Sep-02	APAH -MPN	17				
462-09/02-12:36	WDOH-462	WDOH	16-Sep-02	APAH -MPN	17	30		16	
462-11/02-13:04	WDOH-462	WDOH	05-Nov-02	APAH -MPN	2	29		10	
462-02/03-10:01	WDOH-462	WDOH	20-Feb-03	APAH -MPN	2	27		9	
04171594	WDOH-462	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		32.4	9	553
477-10/00-10:16	WDOH-477	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
477-10/00-13:21	WDOH-477	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
477-11/00-8:50	WDOH-477	WDOH	02-Nov-00	APAH -MPN	7.8	30		11	
477-11/00-9:53	WDOH-477	WDOH	20-Nov-00	APAH -MPN	1.7	29		9	
477-12/00-10:37	WDOH-477	WDOH	05-Dec-00	APAH -MPN	79	28		9	
477-01/01-9:49	WDOH-477	WDOH	16-Jan-01	APAH -MPN	2	29		8	
477-02/01-8:57	WDOH-477	WDOH	15-Feb-01	APAH -MPN	1.7	28		7	
477-03/01-13:12	WDOH-477	WDOH	28-Mar-01	APAH -MPN	13	26		9	
477-04/01-10:15	WDOH-477	WDOH	23-Apr-01	APAH -MPN	1.7	30		10	
477-05/01-12:04	WDOH-477	WDOH	16-May-01	APAH -MPN	1.7	30		12	
477-06/01-11:21	WDOH-477	WDOH	07-Jun-01	APAH -MPN	1.7	30		16	
477-07/01-12:34	WDOH-477	WDOH	16-Jul-01	APAH -MPN	1.7	30		16	

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Spec Cond	Temp C	Turb
477-08/01-8:55	WDOH-477	WDOH	13-Aug-01	APAH -MPN	1.7	30		16	
477-09/01-13:01	WDOH-477	WDOH	17-Sep-01	APAH -MPN	2	30		15	
477-10/01-10:36	WDOH-477	WDOH	17-Oct-01	APAH -MPN	2	29		12	
477-11/01-10:39	WDOH-477	WDOH	01-Nov-01	APAH -MPN	1.7	30		11	
477-12/01-10:43	WDOH-477	WDOH	12-Dec-01	APAH -MPN	2	25		8	
477-01/02-12:39	WDOH-477	WDOH	29-Jan-02	APAH -MPN	2	26		6	
477-02/02-10:27	WDOH-477	WDOH	20-Feb-02	APAH -MPN	1.7	30		8	
477-03/02-12:25	WDOH-477	WDOH	13-Mar-02	APAH -MPN	1.7	25		8	
477-04/02-12:34	WDOH-477	WDOH	17-Apr-02	APAH -MPN	1.7	24		10	
477-05/02-12:36	WDOH-477	WDOH	07-May-02	APAH -MPN	1.7	28		10	
477-07/02-13:09	WDOH-477	WDOH	24-Jul-02	APAH -MPN	1.7	29		21	
208257	WDOH-477	WDOH	16-Sep-02	APAH -MPN	1.8				
477-09/02-12:31	WDOH-477	WDOH	16-Sep-02	APAH -MPN	1.7	30		16	
477-11/02-13:00	WDOH-477	WDOH	05-Nov-02	APAH -MPN	1.7	29		10	
477-02/03-10:07	WDOH-477	WDOH	20-Feb-03	APAH -MPN	1.7	27		8	
477-04/03-13:37	WDOH-477	WDOH	29-Apr-03	APAH -MPN	1.7				
477-06/03-09:36	WDOH-477	WDOH	16-Jun-03	APAH -MPN	2				
477-08/03-10:47	WDOH-477	WDOH	12-Aug-03	APAH -MPN	1.7				
477-10/03-15:46	WDOH-477	WDOH	14-Oct-03	APAH -MPN	1.7				
477-11/03-09:36	WDOH-477	WDOH	17-Nov-03	APAH -MPN	49				
477-12/03-14:04	WDOH-477	WDOH	16-Dec-03	APAH -MPN	2				
04171596	WDOH-477	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		42.7	9.86	171
483-10/00-10:11	WDOH-483	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
483-10/00-13:18	WDOH-483	WDOH	04-Oct-00	APAH -MPN	11	29		13	
483-11/00-8:46	WDOH-483	WDOH	02-Nov-00	APAH -MPN	1.7	30		11	
483-11/00-9:49	WDOH-483	WDOH	20-Nov-00	APAH -MPN	2	29		9	
483-12/00-10:32	WDOH-483	WDOH	05-Dec-00	APAH -MPN	4.5	30		9	
483-01/01-9:46	WDOH-483	WDOH	16-Jan-01	APAH -MPN	4.5	28		7	
483-02/01-8:53	WDOH-483	WDOH	15-Feb-01	APAH -MPN	13	28		7	

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C	Turb
483-03/01-13:10	WDOH-483	WDOH	28-Mar-01	APAH -MPN	1.7	26	9	
483-04/01-10:18	WDOH-483	WDOH	23-Apr-01	APAH -MPN	1.7	28	10	
483-05/01-12:01	WDOH-483	WDOH	16-May-01	APAH -MPN	13	30	12	
483-06/01-11:24	WDOH-483	WDOH	07-Jun-01	APAH -MPN	4.5	30	16	
483-07/01-12:31	WDOH-483	WDOH	16-Jul-01	APAH -MPN	4	30	16	
483-08/01-8:51	WDOH-483	WDOH	13-Aug-01	APAH -MPN	4.5	30	16	
483-09/01-12:58	WDOH-483	WDOH	17-Sep-01	APAH -MPN	14	30	15	
483-10/01-10:34	WDOH-483	WDOH	17-Oct-01	APAH -MPN	22	18	12	
483-11/01-10:42	WDOH-483	WDOH	01-Nov-01	APAH -MPN	1.7	30	11	
483-12/01-10:41	WDOH-483	WDOH	12-Dec-01	APAH -MPN	1.7	25	9	
483-01/02-12:37	WDOH-483	WDOH	29-Jan-02	APAH -MPN	2	26	6	
483-02/02-10:25	WDOH-483	WDOH	20-Feb-02	APAH -MPN	1.7	30	8	
483-03/02-12:24	WDOH-483	WDOH	13-Mar-02	APAH -MPN	1.8	23	8	
483-04/02-12:31	WDOH-483	WDOH	17-Apr-02	APAH -MPN	1.7	24	10	
483-05/02-12:34	WDOH-483	WDOH	07-May-02	APAH -MPN	1.7	28	10	
483-07/02-13:06	WDOH-483	WDOH	24-Jul-02	APAH -MPN	1.7	25	21	
208256	WDOH-483	WDOH	16-Sep-02	APAH -MPN	1.8			
483-09/02-12:29	WDOH-483	WDOH	16-Sep-02	APAH -MPN	1.8	30	16	
483-11/02-12:59	WDOH-483	WDOH	05-Nov-02	APAH -MPN	1.7	30	10	
483-02/03-10:11	WDOH-483	WDOH	20-Feb-03	APAH -MPN	1.7	26	8	
483-04/03-13:34	WDOH-483	WDOH	29-Apr-03	APAH -MPN	1.7			
483-06/03-09:33	WDOH-483	WDOH	16-Jun-03	APAH -MPN	1.7			
483-08/03-10:44	WDOH-483	WDOH	12-Aug-03	APAH -MPN	1.7			
483-10/03-16:04	WDOH-483	WDOH	14-Oct-03	APAH -MPN	1.8			
483-11/03-09:39	WDOH-483	WDOH	17-Nov-03	APAH -MPN	22			
483-12/03-14:10	WDOH-483	WDOH	16-Dec-03	APAH -MPN	2			
04171621	WDOH-483	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		8.67	246
484-10/00-10:22	WDOH-484	WDOH	04-Oct-00	APAH -MPN	2	22	13	
484-10/00-13:24	WDOH-484	WDOH	04-Oct-00	APAH -MPN	2	30	13	

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
484-11/00-8:55	WDOH-484	WDOH	02-Nov-00	APAH -MPN	9.3	30	11
484-11/00-10:00	WDOH-484	WDOH	20-Nov-00	APAH -MPN	4.5	30	9
484-12/00-10:42	WDOH-484	WDOH	05-Dec-00	APAH -MPN	7.8	28	9
484-01/01-9:52	WDOH-484	WDOH	16-Jan-01	APAH -MPN	2	29	8
484-02/01-9:03	WDOH-484	WDOH	15-Feb-01	APAH -MPN	1.7	28	7
484-03/01-13:14	WDOH-484	WDOH	28-Mar-01	APAH -MPN	4.5	28	9
484-04/01-10:12	WDOH-484	WDOH	23-Apr-01	APAH -MPN	2	29	10
484-05/01-12:07	WDOH-484	WDOH	16-May-01	APAH -MPN	11	30	12
484-06/01-11:18	WDOH-484	WDOH	07-Jun-01	APAH -MPN	1.7	30	16
484-07/01-12:37	WDOH-484	WDOH	16-Jul-01	APAH -MPN	1.7	30	16
484-08/01-8:57	WDOH-484	WDOH	13-Aug-01	APAH -MPN	1.7	30	16
484-09/01-13:04	WDOH-484	WDOH	17-Sep-01	APAH -MPN	23	30	15
484-10/01-10:40	WDOH-484	WDOH	17-Oct-01	APAH -MPN	11	24	12
484-11/01-10:36	WDOH-484	WDOH	01-Nov-01	APAH -MPN	6.8	30	11
484-12/01-10:46	WDOH-484	WDOH	12-Dec-01	APAH -MPN	4.5	26	8
484-01/02-12:41	WDOH-484	WDOH	29-Jan-02	APAH -MPN	2	26	7
484-02/02-10:29	WDOH-484	WDOH	20-Feb-02	APAH -MPN	2	29	8
484-03/02-12:27	WDOH-484	WDOH	13-Mar-02	APAH -MPN	1.7	25	8
484-04/02-12:36	WDOH-484	WDOH	17-Apr-02	APAH -MPN	2	25	10
484-05/02-12:38	WDOH-484	WDOH	07-May-02	APAH -MPN	1.7	28	10
484-07/02-13:12	WDOH-484	WDOH	24-Jul-02	APAH -MPN	1.7	29	20
208258	WDOH-484	WDOH	16-Sep-02	APAH -MPN	33		
484-09/02-12:34	WDOH-484	WDOH	16-Sep-02	APAH -MPN	33	30	16
484-11/02-13:02	WDOH-484	WDOH	05-Nov-02	APAH -MPN	2	30	10
484-02/03-10:04	WDOH-484	WDOH	20-Feb-03	APAH -MPN	1.7	26	9
484-04/03-13:39	WDOH-484	WDOH	29-Apr-03	APAH -MPN	2		
484-06/03-09:38	WDOH-484	WDOH	16-Jun-03	APAH -MPN	1.7		
484-08/03-10:50	WDOH-484	WDOH	12-Aug-03	APAH -MPN	2		
484-10/03-15:59	WDOH-484	WDOH	14-Oct-03	APAH -MPN	4.5		

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Spec Cond	Temp C	Turb
484-11/03-09:42	WDOH-484	WDOH	17-Nov-03	APAH -MPN	17				
484-12/03-14:14	WDOH-484	WDOH	16-Dec-03	APAH -MPN	23				
04171595	WDOH-484	PSNS-NS/M	20-Apr-04	FCOL(MF)	10		42.5	9.11	171
492-10/00-10:36	WDOH-492	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
492-10/00-13:29	WDOH-492	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
492-11/00-9:05	WDOH-492	WDOH	02-Nov-00	APAH -MPN	4.5	30		11	
492-11/00-10:10	WDOH-492	WDOH	20-Nov-00	APAH -MPN	1.7	30		9	
492-12/00-10:50	WDOH-492	WDOH	05-Dec-00	APAH -MPN	4.5	28		9	
492-01/01-9:58	WDOH-492	WDOH	16-Jan-01	APAH -MPN	2	28		8	
492-02/01-9:14	WDOH-492	WDOH	15-Feb-01	APAH -MPN	2	29		7	
492-03/01-13:20	WDOH-492	WDOH	28-Mar-01	APAH -MPN	1.7	28		9	
492-04/01-10:08	WDOH-492	WDOH	23-Apr-01	APAH -MPN	1.7	30		10	
492-05/01-12:12	WDOH-492	WDOH	16-May-01	APAH -MPN	2	30		12	
492-06/01-11:14	WDOH-492	WDOH	07-Jun-01	APAH -MPN	2	30		14	
492-07/01-12:41	WDOH-492	WDOH	16-Jul-01	APAH -MPN	2	28		16	
492-08/01-9:02	WDOH-492	WDOH	13-Aug-01	APAH -MPN	4	30		16	
492-09/01-13:09	WDOH-492	WDOH	17-Sep-01	APAH -MPN	1.7	30		15	
492-10/01-10:44	WDOH-492	WDOH	17-Oct-01	APAH -MPN	2	30		12	
492-11/01-10:32	WDOH-492	WDOH	01-Nov-01	APAH -MPN	2	29		11	
492-12/01-10:50	WDOH-492	WDOH	12-Dec-01	APAH -MPN	4.5	26		8	
492-01/02-12:45	WDOH-492	WDOH	29-Jan-02	APAH -MPN	1.7	26		7	
492-02/02-10:34	WDOH-492	WDOH	20-Feb-02	APAH -MPN	1.7	29		8	
492-03/02-12:31	WDOH-492	WDOH	13-Mar-02	APAH -MPN	1.7	25		8	
492-04/02-12:39	WDOH-492	WDOH	17-Apr-02	APAH -MPN	1.7	25		10	
492-05/02-12:41	WDOH-492	WDOH	07-May-02	APAH -MPN	1.7	27		11	
492-07/02-13:16	WDOH-492	WDOH	24-Jul-02	APAH -MPN	1.7	29		19	
208260	WDOH-492	WDOH	16-Sep-02	APAH -MPN	1.8				
492-09/02-12:38	WDOH-492	WDOH	16-Sep-02	APAH -MPN	1.7	30		16	
492-11/02-13:05	WDOH-492	WDOH	05-Nov-02	APAH -MPN	1.7	30		10	

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	SALINITY	Spec Cond	Temp C	Turb
492-02/03-9:57	WDOH-492	WDOH	20-Feb-03	APAH -MPN			1.7		26		9	
492-06/03-09:42	WDOH-492	WDOH	16-Jun-03	APAH -MPN			4.5					
492-08/03-10:55	WDOH-492	WDOH	12-Aug-03	APAH -MPN			22					
492-10/03-15:52	WDOH-492	WDOH	14-Oct-03	APAH -MPN			1.7					
492-12/03-14:22	WDOH-492	WDOH	16-Dec-03	APAH -MPN			2					
04171593	WDOH-492	PSNS-NS/M	20-Apr-04	FCOL(MF)			1			25.6	9.89	188
04171617	WDOH-492	PSNS-NS/M	20-Apr-04	FCOL(MF)			1			25.6	9.89	188
02450601	LMK060	SSWM-SW	07-Nov-02	FCOL(MF)	7.82	14.63	114	128.6		210	9.65	
02460610	LMK060	SSWM-SW	12-Nov-02	FCOL(MF)	7.62	11.27	530	101.9		197	10.84	
02460622	LMK060	SSWM-SW	13-Nov-02	FCOL(MF)	7.89	11.49	23	103.7		214	10.76	
02470611	LMK060	SSWM-SW	18-Nov-02	FCOL(MF)			10					
02470624	LMK060	SSWM-SW	20-Nov-02	FCOL(MF)			13					
02470625	LMK060	SSWM-SW	20-Nov-02	FCOL(MF)			19					
02470628	LMK060	SSWM-SW	21-Nov-02	FCOL(MF)			9					
02490604	LMK060	SSWM-SW	05-Dec-02	FCOL(MF)	7.84	13.24	8	111.9		219	8	0.71
02500611	LMK060	SSWM-SW	10-Dec-02	FCOL(MF)	7.92	12.11	87	102.4		201	8	3.64
02500622	LMK060	SSWM-SW	12-Dec-02	FCOL(MF)	7.66	11.69	84	102.2		191	9.45	6.53
02510610	LMK060	SSWM-SW	16-Dec-02	FCOL(MF)	7.48	11.73	290	100.9		132	8.79	9.91
02510611	LMK060	SSWM-SW	16-Dec-02	FCOL(MF)	7.39	11.3	268	97.1		132	8.71	9.26
02510614	LMK060	SSWM-SW	18-Dec-02	FCOL(MF)	7.03	13.5	8	111.7		182	7.15	2.86
02510627	LMK060	SSWM-SW	19-Dec-02	FCOL(MF)	7.77	13.32	8	109.8		183	7.03	3.49
03030611	LMK060	SSWM-SW	13-Jan-03	FCOL(MF)	7.69	12.49	78	105		156	7.8	5.43
03030624	LMK060	SSWM-SW	14-Jan-03	FCOL(MF)	7.78	12.84	79	108.4		160	7.98	6.07
03040604	LMK060	SSWM-SW	21-Jan-03	FCOL(MF)	7.18	12.18	84	102.2		156	7.75	11.9
03040616	LMK060	SSWM-SW	22-Jan-03	FCOL(MF)	7.07	11.95	980	100.5		91	7.85	23.9
03040617	LMK060	SSWM-SW	22-Jan-03	FCOL(MF)	7.07	11.51	860	96.3		90	7.65	21.8
03040627	LMK060	SSWM-SW	23-Jan-03	FCOL(MF)	7.43	11.61	120	99.9		128	8.79	9.68
FC-200203-010	SW3/BST01	BREM-SW	11-Mar-02	TWISS 3409			206					
FC-200203-030	SW3/BST01	BREM-SW	13-Mar-02	TWISS 3409			63					

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	TDS	Turb
FC-200203-050	SW3/BST01	BREM-SW	14-Mar-02	TWISS 3409		37				
02450498	SW3/BST01	BREM-SW	07-Nov-02	FCOL(MF)	7.43	2376	64.7	12.2		25.8
02460497	SW3/BST01	BREM-SW	12-Nov-02	FCOL(MF)		2300				
02460498	SW3/BST01	BREM-SW	12-Nov-02	FCOL(MF)		2700				
02460502	SW3/BST01	BREM-SW	13-Nov-02	FCOL(MF)	7.65	75	97.1	12.6		3.78
02470494	SW3/BST01	BREM-SW	18-Nov-02	FCOL(MF)	7.3	79200	105	11.9		37.1
02470498	SW3/BST01	BREM-SW	20-Nov-02	FCOL(MF)	7.45	231	153.8	13.2		3.85
02490496	SW3/BST01	BREM-SW	04-Dec-02	FCOL(MF)	7.64	1714	64.2	10.4		30.1
02500498	SW3/BST01	BREM-SW	10-Dec-02	FCOL(MF)	7.17	1700	29.1	8.5		42.3
02500501	SW3/BST01	BREM-SW	12-Dec-02	FCOL(MF)	7.72	600	27.66	11.4		17.5
02510493	SW3/BST01	BREM-SW	16-Dec-02	FCOL(MF)		310				
02510502	SW3/BST01	BREM-SW	18-Dec-02	FCOL(MF)		108				
03030495	SW3/BST01	BREM-SW	14-Jan-03	FCOL(MF)		46				
03040494	SW3/BST01	BREM-SW	22-Jan-03	FCOL(MF)	8.23	1100	46.4	7.7		23.3
03040502	SW3/BST01	BREM-SW	23-Jan-03	FCOL(MF)	7.54	410	119.5	9.4		8.06
04171512	SW3/BST01	TEC-STORM	19-Apr-04	FCOL(MF)	7.48	2200	0.039	56.9		167.4
FC-200203-009	SW5/BST03	BREM-SW	11-Mar-02	TWISS 3409		1760				
FC-200203-029	SW5/BST03	BREM-SW	13-Mar-02	TWISS 3409		580				
FC-200203-049	SW5/BST03	BREM-SW	14-Mar-02	TWISS 3409		155				
02450496	SW5/BST03	BREM-SW	07-Nov-02	FCOL(MF)	7.42	3168	75	11.2		21.4
02450497	SW5/BST03	BREM-SW	07-Nov-02	FCOL(MF)	7.42	2904	75	11.2		21.4
02460492	SW5/BST03	BREM-SW	12-Nov-02	FCOL(MF)		3800				
02460501	SW5/BST03	BREM-SW	13-Nov-02	FCOL(MF)	7.5	130	184.8	11.3		0.95
02470492	SW5/BST03	BREM-SW	18-Nov-02	FCOL(MF)	7.61	1075	175.8	11.1		7.4
02470493	SW5/BST03	BREM-SW	18-Nov-02	FCOL(MF)	7.61	1325	175.8	11.1		7.4
02470497	SW5/BST03	BREM-SW	20-Nov-02	FCOL(MF)	7.35	100	256.7	11.9		0.79
02490494	SW5/BST03	BREM-SW	04-Dec-02	FCOL(MF)	7.44	2050	155.2	9.7		11.4
02490495	SW5/BST03	BREM-SW	04-Dec-02	FCOL(MF)	7.44	320	155.2	9.7		11.4
02500493	SW5/BST03	BREM-SW	10-Dec-02	FCOL(MF)	7.62	250	117.2	8.8		3.76

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	FC	Spec Cond	Temp C	Turb
02500502	SW5/BST03	BREM-SW	12-Dec-02	FCOL(MF)	8.01	680	327.9	11.2	16.9
02510492	SW5/BST03	BREM-SW	16-Dec-02	FCOL(MF)		908			
02510501	SW5/BST03	BREM-SW	18-Dec-02	FCOL(MF)		100			
03030493	SW5/BST03	BREM-SW	14-Jan-03	FCOL(MF)		420			
03030494	SW5/BST03	BREM-SW	14-Jan-03	FCOL(MF)		370			
03040493	SW5/BST03	BREM-SW	22-Jan-03	FCOL(MF)	8.28	1000	21.5	7.8	29.9
03040501	SW5/BST03	BREM-SW	23-Jan-03	FCOL(MF)	7.35	1400	128	9.6	4.47

Table 2 cont. Dyes Inlet East Shoreline Fecal Coliform and Ancillary Data

e **4** Dyes Inlet East Shoreline Aerial Photographs North to south (upper left to lower right)

re 4 cont. Dyes Inlet East Shoreline Aerial Photographs North to south (upper left to lower right)

e **4 cont.** Dyes Inlet East Shoreline Aerial Photographs North to south (upper left to lower right)

e 4 cont. Dyes Inlet East Shoreline Aerial Photographs North to south (upper left to lower right)

DYES INLET WEST SHORELINE

Dyes Inlet West Shoreline has multiple small bays and inlets and is composed of 13 basin areas (Fig. 1). A shaded relief map of the combined area and topography can be seen in (Fig. 2) ("Maps a la carte, Inc.", 2004). Approximately 99% of Dyes Inlet west shoreline is in urban development (Fig. 3) with about 38% in impervious area (%TIA) (Table 1). A series of aerial photographs of the shoreline are shown in (Fig. 4) (Ecology, 2004). The surficial hydrogeology of the western shoreline is till with a large area of Vashon advance outwash deposits in the most northern basin. Chico shoreline area has combined areas of Vashon recessional gravels and Holocene alluvium. Rocky Point area is composed of Tertiary igneous rocks and the southern tip of Phinnnie Bay and the western shoreline of Port Washington Narrows are nonglacial floodplain deposits (Jones, et al, 1998). There are 7 nearshore and 3 marine water quality sites established by the ENVVEST project team for sampling (Fig.2). Water quality sites are (DY24, DY20, JACKPK, DY15, DY07, ANCOVE, EVGPK, M7, M8, M6). There are several nearshore water quality sites (numeric on map) established by Washington State Department of Health (WDOH) for monitoring Fecal Coliform. The Fecal Coliform and ancillary data for these sites are listed in table 2.

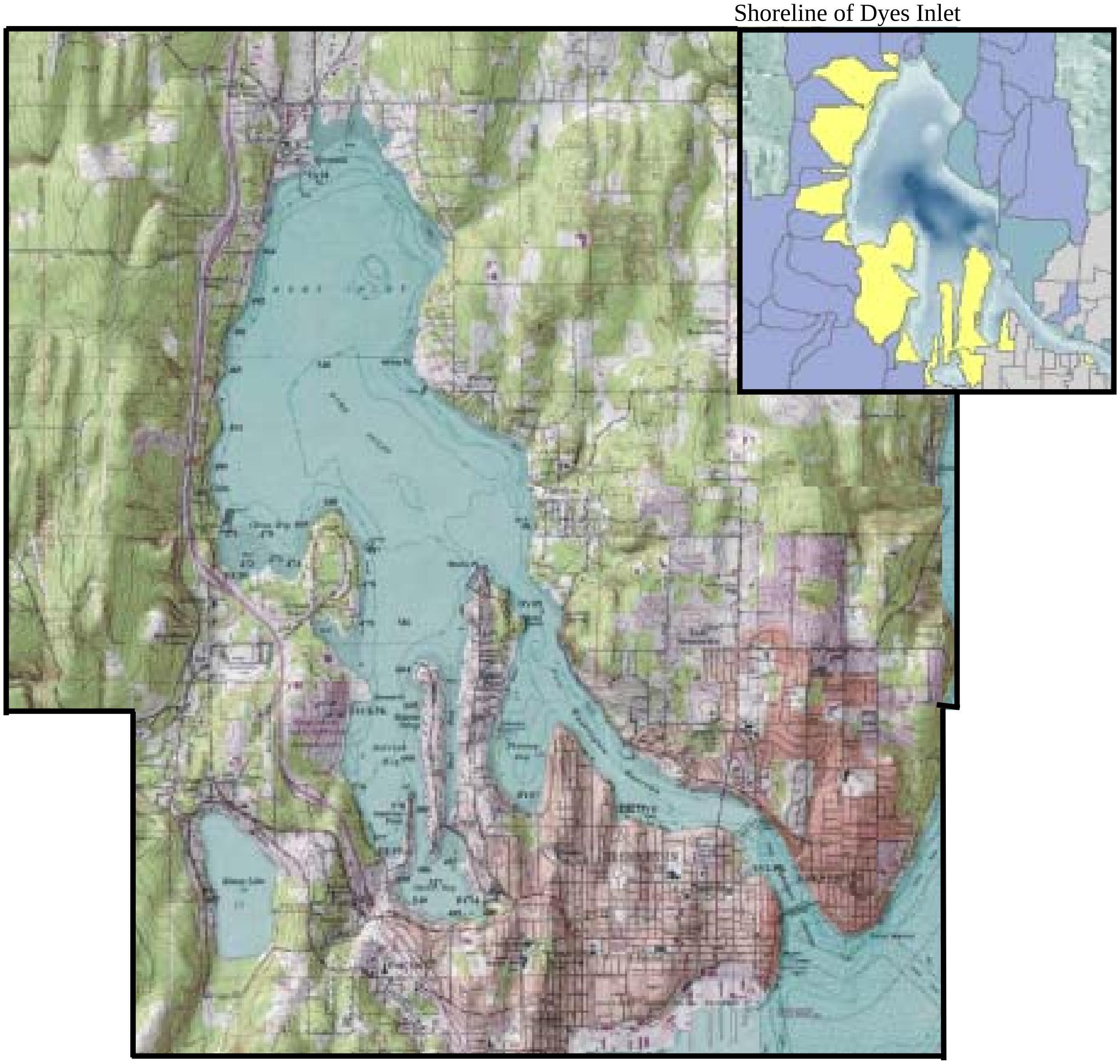


Figure 1 Location of Basins for the West Shoreline of Dyes Inlet

Figure 2 Shaded Relief Map of the Western Shoreline of Dyes Inlet and the Associated Nearshore and Marine Water Quality Sites

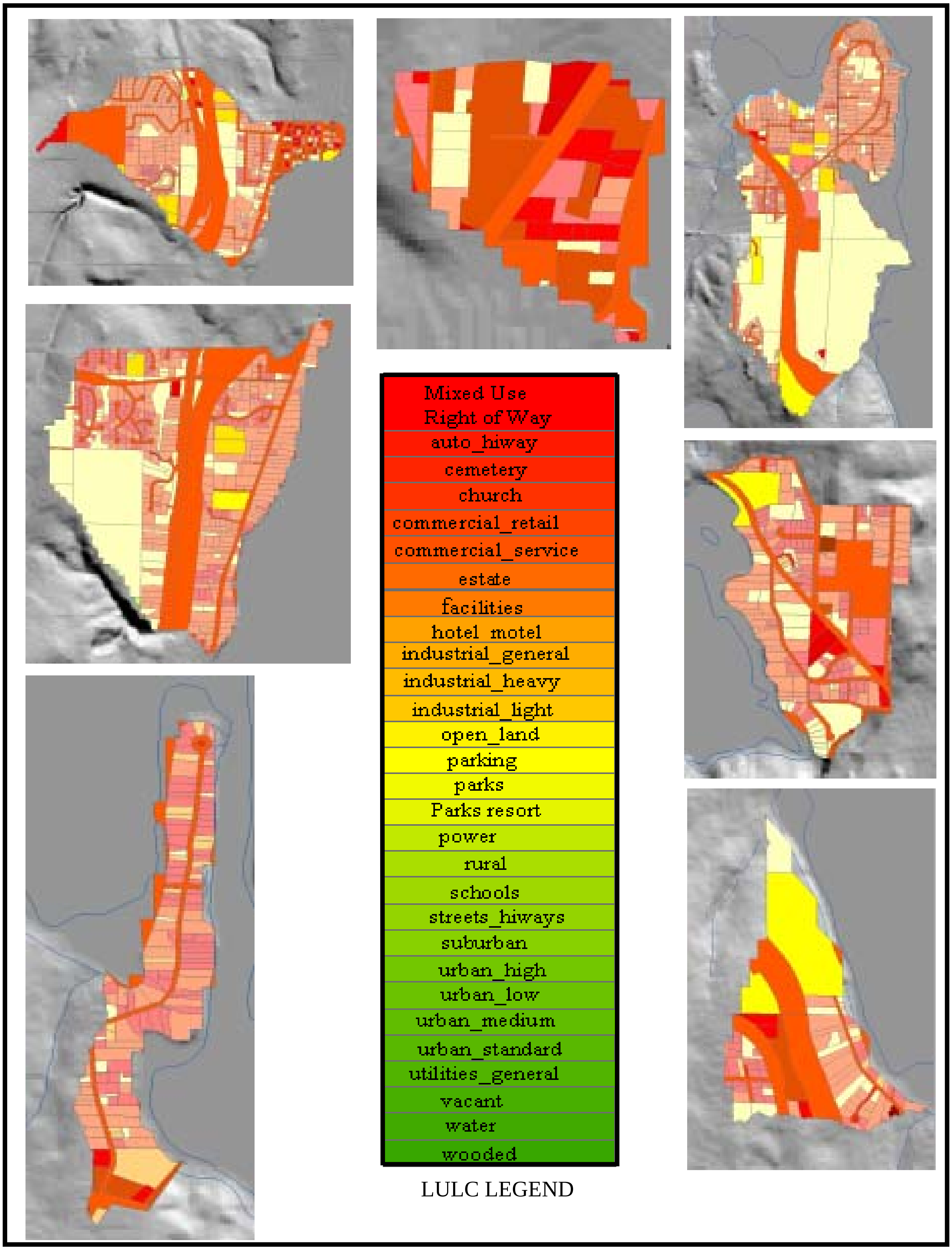


Figure 3 Dyes Inlet West Shoreline Land Use Land Cover Parcels

Figure 3 cont Dyes Inlet West Shoreline Land Use Land Cover Parcels

Land Code	Percent impervious	Area Sq. Feet	Impervious Area Sq Feet	% of total Area	% TIA of Total Area
Mixed Use-Right of Way	0.443	24913122.69	11036513.35	0.23700%	0.1050%
Auto_Hiway	0.559	120068.4031	67118.23733	0.00114%	0.0006%
Cemetary	0.171	30698.10	5249.374929	0.00029%	0.0000%
Church	0.460	183465.17	84393.97912	0.00175%	0.0008%
Commercial_Retail	0.595	1016814.25	605004.4815	0.00967%	0.0058%
Commercial_Service	0.551	1002261.51	552246.0898	0.00953%	0.0053%
Estate	0.210	1694144.27	355770.2959	0.01612%	0.0034%
Facilities	0.664	51103.66	33932.82692	0.00049%	0.0003%
Hotel_Motel	0.381	21386.41	8148.220305	0.00020%	0.0001%
Industrial_General	0.677	10418.72	7053.472086	0.00010%	0.0001%
Industrial_Heavy	0.821	4253.95	3492.49295	0.00004%	0.0000%
Industrial_Light	0.598	164735.50	98511.82601	0.00157%	0.0009%
Open_Land	0.093	18419605.55	1707497.434	0.17523%	0.0162%
Parking	0.514	263382.09	135378.3963	0.00251%	0.0013%
Parks	0.181	2349174.64	425200.6106	0.02235%	0.0040%
Parks_Special	0.192	18929.60	3634.483008	0.00018%	0.0000%
Power	0.057	490613.05	27964.94408	0.00467%	0.0003%
Rural	0.161	674093.35	108529.0294	0.00641%	0.0010%
Schools	0.460	2235032.03	1028114.736	0.02126%	0.0098%
Streets_	0.499	128202.25	63972.92175	0.00122%	0.0006%
Suburban	0.389	6933161.28	2696999.738	0.06596%	0.0257%
Urban_High	0.259	222337.98	57585.53578	0.00212%	0.0005%
Urban_Low	0.382	10428904468.55	3983841507	99.21043%	37.8984%
Urban_Medium	0.356	725041.16	258114.6522	0.00690%	0.0025%
Urban_Standard	0.440	9869037.30	4342376.41	0.09388%	0.0413%
Utilities_General	0.021	1860.33	39.06693	0.00002%	0.0000%
Vacant	0.114	11100597.06	1265468.065	0.10560%	0.0120%
Water	0.092	156181.33	14368.68264	0.00149%	0.0001%
Wooded	0.042	198738.06	8346.998646	0.00189%	0.0001%
Total Area Sq. Ft.		10511902928.23	4008842533.34		38.1362%
Acres		241320.09	92030.36		

Table 1 Land Use Land Cover Data for Dyes Inlet West Shoreline

Figure 4 Aerial Photographs of Dyes Inlet West Shoreline going south to north (upper left to Lower right).

Figure 4 cont. Aerial Photographs of Dyes Inlet West Shoreline going south to north (upper left to Lower right).

Figure 4 cont. Aerial Photographs of Dyes Inlet West Shoreline going south to north (upper left to Lower right).

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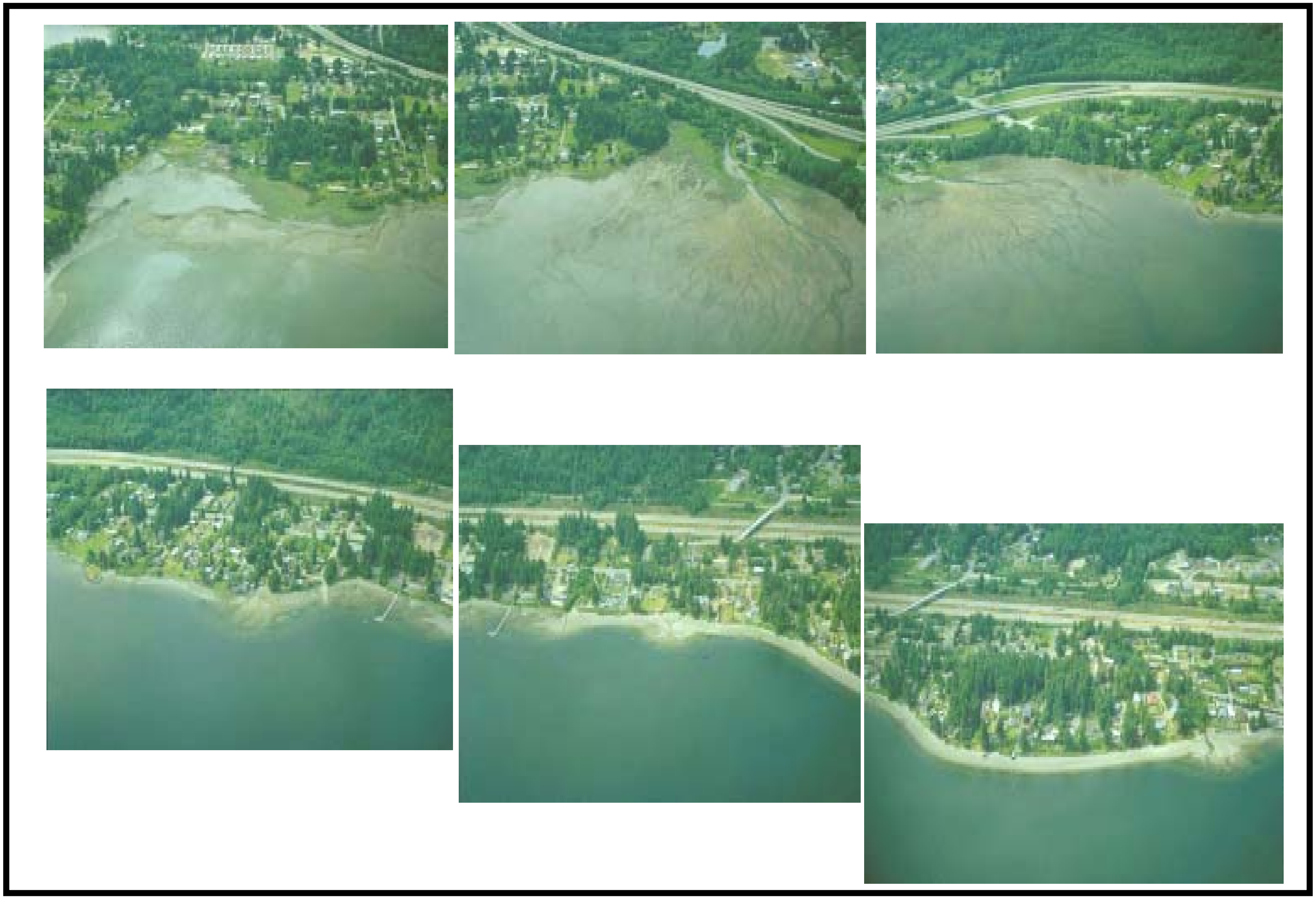


Figure 4 cont. Aerial Photographs of Dyes Inlet West Shoreline going south to north (upper left to Lower right).

Figure 4 cont. Aerial Photographs of Dyes Inlet West Shoreline going south to north (upper left to Lower right).

PLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	% O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
00DY07	DY07_KCHD	BKCHD	02-Nov-00	APAH 9221-E				1							
00DY07	DY07_KCHD	BKCHD	07-Dec-00	APAH 9221-E				4							
01DY07	DY07_KCHD	BKCHD	01-Mar-01	APAH 9221-E				2							
01DY07	DY07_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1							
01DY07	DY07_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
01DY07	DY07_KCHD	BKCHD	09-Aug-01	APAH 9221-E				17							
01DY07	DY07_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		7.3	8				30.9	13.5	83.1	5.9
01DY07	DY07_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		8.9	70				21.1	6	84.7	3.1
02DY07	DY07_KCHD	KCHD	28-Mar-02	APAH 9221-E	8		10.5	2				28.2	8.2	105.3	45.2
02DY07	DY07_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
02DY07	DY07_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.3		9.4	50				28.8	14.2	110.2	1
02DY07	DY07_KCHD	KCHD	22-Aug-02	APAH 9221-E			7.7	4				30.2	18.6	99.1	6.5
02DY07	DY07_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.8		6.6	1				30.9	13.8	76.6	0.5
0714	ANCOVE_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		5.9		2		29.09	5.9	44.9	10.8		
0712	DY07_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		3.8		4		29.11	3.8	45	10.76		
02DY07	DY07_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9		7	1				31	11.4	78.6	
0707	ANCOVE_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		8.8		2000		28.41	8.8	44	9.44		
0709	DY07_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		5.5		9		28.38	5.5	43	9.54		22
02DY07	DY07_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.2		6.9	13				29.4	9.5	73.2	
0707	ANCOVE_14nov02	PSNS-NS/M	07-Jan-03	FCOL(MF)				5				44.4	9.03		
0709	DY07_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				9				42.3	8.43		
0642	ANCOVE	BKCHD	14-Jan-03	FCOL(MF)				50							
0644	DY07	BKCHD	14-Jan-03	FCOL(MF)				10							
03DY07	DY07_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7	4				29.7	8.7	71.7	2.2
0707	ANCOVE	PSNS-NS/M	24-Jan-03	FCOL(MF)				33				45.06	9.17		
0709	DY07	PSNS-NS/M	24-Jan-03	FCOL(MF)				7				43.62	9.22		
03DY07	DY07	KCHD	20-Mar-03	APAH 9221-E	8.1		6.6	2	69.1			29	9.8		
03DY07	DY07	KCHD	15-Apr-03	APAH 9221-E	8.4		11.2	1	121.9			29	10.5		0.8
03DY07	DY07	KCHD	21-May-03	APAH 9221-E	8.3		10.5	1	117.6			28.2	12.3		
03DY07	DY07	KCHD	12-Jun-03	APAH 9221-E	8.2		9.8	1	113			28.3	13.8		
03DY07	DY07	KCHD	21-Jul-03	APAH 9221-E	8.3		10.6	1	137.1			28.8	19.7		

e **2** Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	% O2	Spec Cond	Temp C	TDS	Turb
081903DY07	DY07	KCHD	19-Aug-03	APAH 9221-E	8.5		13.8	4	170.3	29.1	17.3		
091703DY07	DY07	KCHD	17-Sep-03	APAH 9221-E				4					
030200DY14	DY14_KCHD	BKCHD	02-Mar-00	APAH 9221-E				1					
042600DY14	DY14_KCHD	BKCHD	26-Apr-00	APAH 9221-E				1					
071900DY14	DY14_KCHD	BKCHD	19-Jul-00	APAH 9221-E				4					
110200DY14	DY14_KCHD	BKCHD	02-Nov-00	APAH 9221-E				2					
120700DY14	DY14_KCHD	BKCHD	07-Dec-00	APAH 9221-E				1					
030101DY14	DY14_KCHD	BKCHD	01-Mar-01	APAH 9221-E				8					
041901DY14	DY14_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1					
062101DY14	DY14_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1					
080901DY14	DY14_KCHD	BKCHD	09-Aug-01	APAH 9221-E				4					
101101DY14	DY14_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		8.2	1		30.1	14	95.8	5.6
032003DY14	DY14	KCHD	20-Mar-03	APAH 9221-E	8		5.7	8	58.9	28.3	9.6		
041503DY14	DY14	KCHD	15-Apr-03	APAH 9221-E	8.5		12.5	1	137.7	28.2	11.3		1.2
052103DY14	DY14	KCHD	21-May-03	APAH 9221-E	8.3		9.9	1	113.7	27.4	13.2		
061203DY14	DY14	KCHD	12-Jun-03	APAH 9221-E	8.3		10.8	1	128	28.1	15.4		
072103DY14	DY14	KCHD	21-Jul-03	APAH 9221-E	8.3		11.6	1	154	28.2	19.9		
081903DY14	DY14	KCHD	19-Aug-03	APAH 9221-E	8.4		12.6	2	165.9	28.7	19		
091703DY14	DY14	KCHD	17-Sep-03	APAH 9221-E				8					
122001DY14	DY14_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		8.1	9		27.6	7.3	80.8	3
032802DY14	DY14_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.1		11.2	2		27.6	8.9	115.1	14.5
043002DY14	DY14_KCHD	KCHD	30-Apr-02	APAH 9221-E				1					
062702DY14	DY14_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		11.3	2		28.5	17.6	140.5	2.4
082202DY14	DY14_KCHD	KCHD	22-Aug-02	APAH 9221-E			11.8	1		28.5	18.2	146	7.7
101702DY14	DY14_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9		7.9	1		30.6	13.7	90.9	1.1
112002DY14	DY14_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9		7.6	1		30.6	11.2	84.3	
121702DY14	DY14_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		7.3	4		28.9	8.7	75.3	
011403DY14	DY14_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		6.9	13		28.3	8.2	68.7	2.5
110200DY15	DY15_KCHD	BKCHD	02-Nov-00	APAH 9221-E				2					
120700DY15	DY15_KCHD	BKCHD	07-Dec-00	APAH 9221-E				13					
030101DY15	DY15_KCHD	BKCHD	01-Mar-01	APAH 9221-E				2					

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

PLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	% O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Turb
01DY15	DY15_KCHD	BKCHD	19-Apr-01	APAH 9221-E				2							
01DY15	DY15_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
01DY15	DY15_KCHD	BKCHD	09-Aug-01	APAH 9221-E				2							
01DY15	DY15_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		7.3	8				30.8	14	84.9	6.6
01DY15	DY15_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		8.8	30				25.7	6.4	83.2	14.1
02DY15	DY15_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.1		11.2	1				27.9	8.6	114.4	14.1
02DY15	DY15_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
02DY15	DY15_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.3		9.3	2				28.8	14.6	109.7	3.4
02DY15	DY15_KCHD	KCHD	22-Aug-02	APAH 9221-E			13.3	1				29.8	21.2	178	13.1
02DY15	DY15_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9		7.8	1				30.7	15.1	93.8	0.8
02DY15	DY15_KCHD	KCHD	20-Nov-02	APAH 9221-E	8		7.6	1				30.7	11.3	84.7	
02DY15	DY15_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		7.2	1				28.9	9.1	75.3	
0717	DY15_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				3				42.5	8.4		
0719	DY15_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				4				42.5	8.4		
0648	DY15	BKCHD	14-Jan-03	FCOL(MF)				7							
03DY15	DY15_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7	23				29.5	8.6	68.8	1.7
0717	DY15	PSNS-NS/M	24-Jan-03	FCOL(MF)				18				44.7	9.74		42.6
0718	DY15	PSNS-NS/M	24-Jan-03	FCOL(MF)				8				44.7	9.74		42.6
03DY15	DY15	KCHD	20-Mar-03	APAH 9221-E	8		5.6	1	58.3			28.6	9.7		0.3
03DY15	DY15	KCHD	15-Apr-03	APAH 9221-E	8.4		11.7	1	126.7			28.8	10.5		1.2
03DY15	DY15	KCHD	21-May-03	APAH 9221-E	8.3		10	1	115.5			28	14		
03DY15	DY15	KCHD	12-Jun-03	APAH 9221-E	8.2		9.7	1	113.3			28.3	14.7		
03DY15	DY15	KCHD	21-Jul-03	APAH 9221-E	8.4		11.6	1	163.2			28.4	24.6		
03DY15	DY15	KCHD	19-Aug-03	APAH 9221-E	8.2		10.3	1	133.5			29	9.2		
03DY15	DY15	KCHD	17-Sep-03	APAH 9221-E				2							
0702	DY20_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)				9		28.6			10.75		
0703	DY20_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		5.3		19		28.6	5.3	43	10.75		
0715	DY20_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				13				43.2	9		
0700	DY20	BKCHD	14-Jan-03	FCOL(MF)				5							
0715	DY20	PSNS-NS/M	24-Jan-03	FCOL(MF)				20				38.94	9.09		12.33
03DY20	DY20	KCHD	20-Mar-03	APAH 9221-E	8		6.3	4	61.1			26.1	9.6		0.3

2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

PLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	% O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	T
03DY20	DY20	KCHD	15-Apr-03	APAH 9221-E	8.5		12.6	1	131.6			26.3	11.2		1
03DY20	DY20	KCHD	21-May-03	APAH 9221-E	8.3		9.3	1	110.6			26.5	15.3		
03DY20	DY20	KCHD	12-Jun-03	APAH 9221-E	8.6		11.6	1	135.2			28.2	14.8		
03DY20	DY20	KCHD	21-Jul-03	APAH 9221-E	8.4		12.8	1	166.5			28.5	21.4		
03DY20	DY20	KCHD	19-Aug-03	APAH 9221-E			19.3	1	200			29	20.4		
03DY20	DY20	KCHD	17-Sep-03	APAH 9221-E				2							
1613	DY20	PSNS-NS/M	20-Apr-04	FCOL(MF)				1					10.66		
00DY20	DY20_KCHD	BKCHD	02-Nov-00	APAH 9221-E				8							
00DY20	DY20_KCHD	BKCHD	07-Dec-00	APAH 9221-E				300							
01DY20	DY20_KCHD	BKCHD	01-Mar-01	APAH 9221-E				13							
01DY20	DY20_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1							
01DY20	DY20_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
01DY20	DY20_KCHD	BKCHD	09-Aug-01	APAH 9221-E				1							
01DY20	DY20_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		8.2	1				30.7	13.8	94.4	6
01DY20	DY20_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		10.2	170				23.7	5.6	88.5	8
02DY20	DY20_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.2		12	1				26.7	8.5	121.5	1
02DY20	DY20_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
02DY20	DY20_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.2		8.9	1				28.7	14.2	102.7	2
02DY20	DY20_KCHD	KCHD	22-Aug-02	APAH 9221-E			12.9	13				29	18.5	163.8	18
02DY20	DY20_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.8		7.3	1				30.6	13.9	84.4	0
02DY20	DY20_KCHD	KCHD	20-Nov-02	APAH 9221-E	8		8	23				25	11.4	86.3	
0714	DY20_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		7.5		11		27.5	7.5	42.7	9.35		1
02DY20	DY20_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		7.5	80				28.6	9.3	78	
03DY20	DY20_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7.9	17				26.6	8.1	78.3	2
00DY24	DY24_KCHD	BKCHD	02-Mar-00	APAH 9221-E				4							
00DY24	DY24_KCHD	BKCHD	26-Apr-00	APAH 9221-E				1							
00DY24	DY24_KCHD	BKCHD	19-Jul-00	APAH 9221-E				1							
00DY24	DY24_KCHD	BKCHD	02-Nov-00	APAH 9221-E				7							
00DY24	DY24_KCHD	BKCHD	07-Dec-00	APAH 9221-E				8							
01DY24	DY24_KCHD	BKCHD	01-Mar-01	APAH 9221-E				2							
01DY24	DY24_KCHD	BKCHD	19-Apr-01	APAH 9221-E				1							

2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

PLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	% O2	SALINITY	SECCI DISH	Spec Cond	Temp C	TDS	Tu
01DY24	DY24_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
01DY24	DY24_KCHD	BKCHD	09-Aug-01	APAH 9221-E				2							
01DY24	DY24_KCHD	KCHD	11-Oct-01	APAH 9221-E	8.1		8.6	1				30.5	14	100.9	6
01DY24	DY24_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.7		7.1	22				29.2	8.6	73.4	7
02DY24	DY24_KCHD	KCHD	28-Mar-02	APAH 9221-E	8.1		10.9	1				27.2	9.2	112.1	14
02DY24	DY24_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		11	2				28.6	16.6	135.3	3
02DY24	DY24_KCHD	KCHD	22-Aug-02	APAH 9221-E			11.9	2				29.3	20	152.6	
02DY24	DY24_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9		8.6	1				30.8	14.6	99.5	0
0707	DY24_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		20		1		28.19	13	43.7	10		
02DY24	DY24_KCHD	KCHD	20-Nov-02	APAH 9221-E	8		8.1	2				30.4	10.9	90.3	
0713	DY24_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		11.3		31		19.95	3.5	30.6	7.02		
02DY24	DY24_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.4		9.2	17				24.2	7.6	89.2	
0714	DY24_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				1				41.5	7.4		
0701	DY24	BKCHD	14-Jan-03	FCOL(MF)				4							
03DY24	DY24_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7.1	8				28.2	8.4	72.6	1
0714	DY24	PSNS-NS/M	24-Jan-03	FCOL(MF)				170				24.16	8.99		
03DY24	DY24	KCHD	20-Mar-03	APAH 9221-E	8.1		6.1	4	60.8			22.9	9.3		3
03DY24	DY24	KCHD	15-Apr-03	APAH 9221-E	8.7		12.3	2	133.8			26.6	11.7		1
03DY24	DY24	KCHD	21-May-03	APAH 9221-E	8.1		7.8	1	92.1			27.4	15.3		
03DY24	DY24	KCHD	12-Jun-03	APAH 9221-E	8.3		9.9	1	119.3			28	16.1		
03DY24	DY24	KCHD	21-Jul-03	APAH 9221-E	8.3		12.2	17	159.1			27.9	21		
03DY24	DY24	KCHD	19-Aug-03	APAH 9221-E			17.9	2	200			28.4	21.8		
03DY24	DY24	KCHD	17-Sep-03	APAH 9221-E				2							
1602	DY24	PSNS-NS/M	20-Apr-04	FCOL(MF)				1				43	8.91		
1618	DY24	PSNS-NS/M	20-Apr-04	FCOL(MF)				1				43	8.91		
0/00-12:04	WDOH-464	WDOH	04-Oct-00	APAH -MPN				2		30			13		
0/00-14:42	WDOH-464	WDOH	04-Oct-00	APAH -MPN				1.7		32			14		
1/00-10:38	WDOH-464	WDOH	02-Nov-00	APAH -MPN				2		10			11		
1/00-11:35	WDOH-464	WDOH	20-Nov-00	APAH -MPN				1.7		15			9		

e 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Spec Cond	Temp C	Turb
464-12/00-12:03	WDOH-464	WDOH	05-Dec-00	APAH -MPN	1.7	29		9	
464-01/01-11:15	WDOH-464	WDOH	16-Jan-01	APAH -MPN	2	21		7	
464-02/01-10:42	WDOH-464	WDOH	15-Feb-01	APAH -MPN	13	18		7	
464-03/01-13:02	WDOH-464	WDOH	28-Mar-01	APAH -MPN	4.5	10		8	
464-04/01-10:31	WDOH-464	WDOH	23-Apr-01	APAH -MPN	1.7	29		11	
464-05/01-11:49	WDOH-464	WDOH	16-May-01	APAH -MPN	4.5	30		12	
464-06/01-11:56	WDOH-464	WDOH	07-Jun-01	APAH -MPN	2	25		16	
464-07/01-12:13	WDOH-464	WDOH	16-Jul-01	APAH -MPN	1.7	17		16	
464-08/01-10:23	WDOH-464	WDOH	13-Aug-01	APAH -MPN	6.8	20		18	
464-09/01-12:49	WDOH-464	WDOH	17-Sep-01	APAH -MPN	1.7	26		15	
464-10/01-10:10	WDOH-464	WDOH	17-Oct-01	APAH -MPN	23	20		12	
464-11/01-10:58	WDOH-464	WDOH	01-Nov-01	APAH -MPN	7.8	30		10	
464-12/01-10:32	WDOH-464	WDOH	12-Dec-01	APAH -MPN	13	26		9	
464-01/02-12:30	WDOH-464	WDOH	29-Jan-02	APAH -MPN	23	18		6	
464-02/02-10:15	WDOH-464	WDOH	20-Feb-02	APAH -MPN	2	17		7	
464-03/02-12:14	WDOH-464	WDOH	13-Mar-02	APAH -MPN	1.7	24		8	
464-04/02-12:24	WDOH-464	WDOH	17-Apr-02	APAH -MPN	9.3	14		10	
464-05/02-12:17	WDOH-464	WDOH	07-May-02	APAH -MPN	2	27		11	
464-07/02-12:42	WDOH-464	WDOH	24-Jul-02	APAH -MPN	7.8	25		21	
208253	WDOH-464	WDOH	16-Sep-02	APAH -MPN	1.8				
464-09/02-12:18	WDOH-464	WDOH	16-Sep-02	APAH -MPN	1.7	30		15	
464-11/02-12:50	WDOH-464	WDOH	05-Nov-02	APAH -MPN	1.7	22		10	
464-02/03-10:27	WDOH-464	WDOH	20-Feb-03	APAH -MPN	1.7	27		7	
04171604	WDOH-464	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		42.7	11.09	30
468-10/00-11:42	WDOH-468	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
468-10/00-14:13	WDOH-468	WDOH	04-Oct-00	APAH -MPN	1.7	30		14	
468-11/00-9:56	WDOH-468	WDOH	02-Nov-00	APAH -MPN	1.7	15		11	
468-11/00-10:58	WDOH-468	WDOH	20-Nov-00	APAH -MPN	2	29		9	
468-12/00-11:32	WDOH-468	WDOH	05-Dec-00	APAH -MPN	1.7	30		8	

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
468-01/01-10:37	WDOH-468	WDOH	16-Jan-01	APAH -MPN	13	28	8
468-02/01-10:04	WDOH-468	WDOH	15-Feb-01	APAH -MPN	2	30	7
468-03/01-12:30	WDOH-468	WDOH	28-Mar-01	APAH -MPN	33	14	8
468-04/01-9:35	WDOH-468	WDOH	23-Apr-01	APAH -MPN	1.7	29	11
468-05/01-11:25	WDOH-468	WDOH	16-May-01	APAH -MPN	9.3	30	12
468-06/01-12:20	WDOH-468	WDOH	07-Jun-01	APAH -MPN	1.7	30	17
468-07/01-11:43	WDOH-468	WDOH	16-Jul-01	APAH -MPN	2	28	16
468-08/01-9:47	WDOH-468	WDOH	13-Aug-01	APAH -MPN	1.7	30	17
468-09/01-12:26	WDOH-468	WDOH	17-Sep-01	APAH -MPN	1.7	30	15
468-10/01-9:38	WDOH-468	WDOH	17-Oct-01	APAH -MPN	2	28	12
468-11/01-11:24	WDOH-468	WDOH	01-Nov-01	APAH -MPN	2	30	11
468-12/01-10:07	WDOH-468	WDOH	12-Dec-01	APAH -MPN	2	26	9
468-01/02-12:12	WDOH-468	WDOH	29-Jan-02	APAH -MPN	2	27	7
468-02/02-9:46	WDOH-468	WDOH	20-Feb-02	APAH -MPN	1.7	25	8
468-03/02-11:55	WDOH-468	WDOH	13-Mar-02	APAH -MPN	1.7	26	8
468-04/02-12:04	WDOH-468	WDOH	17-Apr-02	APAH -MPN	2	26	9
468-05/02-11:55	WDOH-468	WDOH	07-May-02	APAH -MPN	1.7	28	10
468-07/02-12:14	WDOH-468	WDOH	24-Jul-02	APAH -MPN	1.7	28	19
208241	WDOH-468	WDOH	16-Sep-02	APAH -MPN	1.8		
468-09/02-11:53	WDOH-468	WDOH	16-Sep-02	APAH -MPN	1.7	30	14
468-11/02-12:28	WDOH-468	WDOH	05-Nov-02	APAH -MPN	4.5	30	10
468-02/03-11:07	WDOH-468	WDOH	20-Feb-03	APAH -MPN	4.5	27	8
04171615	WDOH-468	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		12.32
469-10/00-11:43	WDOH-469	WDOH	04-Oct-00	APAH -MPN	1.7	31	13
469-10/00-14:15	WDOH-469	WDOH	04-Oct-00	APAH -MPN	1.7	30	14
469-11/00-9:59	WDOH-469	WDOH	02-Nov-00	APAH -MPN	1.7	11	11
469-11/00-11:01	WDOH-469	WDOH	20-Nov-00	APAH -MPN	1.7	29	9
469-12/00-11:34	WDOH-469	WDOH	05-Dec-00	APAH -MPN	2	30	8
469-01/01-10:40	WDOH-469	WDOH	16-Jan-01	APAH -MPN	2	27	8
469-02/01-10:07	WDOH-469	WDOH	15-Feb-01	APAH -MPN	2	30	7

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
469-03/01-12:32	WDOH-469	WDOH	28-Mar-01	APAH -MPN	14	4	8
469-04/01-9:33	WDOH-469	WDOH	23-Apr-01	APAH -MPN	2	30	11
469-05/01-11:29	WDOH-469	WDOH	16-May-01	APAH -MPN	1.7	30	12
469-06/01-12:18	WDOH-469	WDOH	07-Jun-01	APAH -MPN	1.7	30	17
469-07/01-11:45	WDOH-469	WDOH	16-Jul-01	APAH -MPN	1.7	28	16
469-08/01-9:50	WDOH-469	WDOH	13-Aug-01	APAH -MPN	1.7	30	17
469-09/01-12:28	WDOH-469	WDOH	17-Sep-01	APAH -MPN	14	30	15
469-10/01-9:40	WDOH-469	WDOH	17-Oct-01	APAH -MPN	17	28	12
469-11/01-11:22	WDOH-469	WDOH	01-Nov-01	APAH -MPN	2	30	11
469-12/01-10:09	WDOH-469	WDOH	12-Dec-01	APAH -MPN	4.5	26	9
469-01/02-12:15	WDOH-469	WDOH	29-Jan-02	APAH -MPN	2	26	7
469-02/02-9:48	WDOH-469	WDOH	20-Feb-02	APAH -MPN	1.8	21	8
469-03/02-11:56	WDOH-469	WDOH	13-Mar-02	APAH -MPN	1.7	27	8
469-04/02-12:05	WDOH-469	WDOH	17-Apr-02	APAH -MPN	1.7	26	9
469-05/02-11:56	WDOH-469	WDOH	07-May-02	APAH -MPN	1.7	28	10
469-07/02-12:17	WDOH-469	WDOH	24-Jul-02	APAH -MPN	2	29	19
208242	WDOH-469	WDOH	16-Sep-02	APAH -MPN	1.8		
469-09/02-11:55	WDOH-469	WDOH	16-Sep-02	APAH -MPN	1.7	30	15
469-11/02-12:34	WDOH-469	WDOH	05-Nov-02	APAH -MPN	1.7	30	10
469-02/03-11:04	WDOH-469	WDOH	20-Feb-03	APAH -MPN	1.7	27	8
04171614	WDOH-469	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		11.6
470-10/00-11:49	WDOH-470	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
470-10/00-14:25	WDOH-470	WDOH	04-Oct-00	APAH -MPN	1.7	32	14
470-11/00-10:12	WDOH-470	WDOH	02-Nov-00	APAH -MPN	2	26	11
470-11/00-11:11	WDOH-470	WDOH	20-Nov-00	APAH -MPN	1.7	28	9
470-12/00-11:44	WDOH-470	WDOH	05-Dec-00	APAH -MPN	1.7	30	8
470-01/01-10:53	WDOH-470	WDOH	16-Jan-01	APAH -MPN	7.8	27	7
470-02/01-10:20	WDOH-470	WDOH	15-Feb-01	APAH -MPN	13	27	6
470-03/01-12:40	WDOH-470	WDOH	28-Mar-01	APAH -MPN	6.1	27	9

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
470-04/01-9:31	WDOH-470	WDOH	23-Apr-01	APAH -MPN	1.7	29	11
470-05/01-11:37	WDOH-470	WDOH	16-May-01	APAH -MPN	1.7	31	12
470-06/01-12:10	WDOH-470	WDOH	07-Jun-01	APAH -MPN	1.7	30	17
470-07/01-11:53	WDOH-470	WDOH	16-Jul-01	APAH -MPN	1.7	28	16
470-08/01-10:01	WDOH-470	WDOH	13-Aug-01	APAH -MPN	1.7	30	18
470-09/01-12:34	WDOH-470	WDOH	17-Sep-01	APAH -MPN	1.7	30	15
470-10/01-9:50	WDOH-470	WDOH	17-Oct-01	APAH -MPN	33	28	12
470-11/01-11:13	WDOH-470	WDOH	01-Nov-01	APAH -MPN	4.5	28	11
470-12/01-10:20	WDOH-470	WDOH	12-Dec-01	APAH -MPN	4.5	26	9
470-01/02-12:20	WDOH-470	WDOH	29-Jan-02	APAH -MPN	7.8	19	7
470-02/02-9:56	WDOH-470	WDOH	20-Feb-02	APAH -MPN	23	22	7
470-03/02-12:03	WDOH-470	WDOH	13-Mar-02	APAH -MPN	1.7	23	8
470-04/02-12:12	WDOH-470	WDOH	17-Apr-02	APAH -MPN	2	23	10
470-05/02-12:03	WDOH-470	WDOH	07-May-02	APAH -MPN	1.7	27	11
470-07/02-12:24	WDOH-470	WDOH	24-Jul-02	APAH -MPN	1.7	29	19
208246	WDOH-470	WDOH	16-Sep-02	APAH -MPN	1.8		
470-09/02-12:04	WDOH-470	WDOH	16-Sep-02	APAH -MPN	1.7	30	14
470-11/02-12:40	WDOH-470	WDOH	05-Nov-02	APAH -MPN	1.7	30	10
470-02/03-11:01	WDOH-470	WDOH	20-Feb-03	APAH -MPN	1.7	27	8
04171612	WDOH-470	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		11.3
471-10/00-11:51	WDOH-471	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
471-10/00-14:26	WDOH-471	WDOH	04-Oct-00	APAH -MPN	1.7	31	14
471-11/00-10:15	WDOH-471	WDOH	02-Nov-00	APAH -MPN	2	28	11
471-11/00-11:14	WDOH-471	WDOH	20-Nov-00	APAH -MPN	2	30	9
471-12/00-11:48	WDOH-471	WDOH	05-Dec-00	APAH -MPN	1.7	30	8
471-01/01-10:57	WDOH-471	WDOH	16-Jan-01	APAH -MPN	2	27	7
471-02/01-10:22	WDOH-471	WDOH	15-Feb-01	APAH -MPN	17	18	6
471-03/01-12:45	WDOH-471	WDOH	28-Mar-01	APAH -MPN	4.5	26	8
471-04/01-9:22	WDOH-471	WDOH	23-Apr-01	APAH -MPN	7.8	30	12

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
471-05/01-11:35	WDOH-471	WDOH	16-May-01	APAH -MPN	1.7	30	12
471-06/01-12:08	WDOH-471	WDOH	07-Jun-01	APAH -MPN	2	26	17
471-07/01-11:57	WDOH-471	WDOH	16-Jul-01	APAH -MPN	1.7	26	16
471-08/01-10:03	WDOH-471	WDOH	13-Aug-01	APAH -MPN	4	30	18
471-09/01-12:37	WDOH-471	WDOH	17-Sep-01	APAH -MPN	2	26	15
471-10/01-9:56	WDOH-471	WDOH	17-Oct-01	APAH -MPN	6.8	28	12
471-11/01-11:11	WDOH-471	WDOH	01-Nov-01	APAH -MPN	13	28	11
471-12/01-10:21	WDOH-471	WDOH	12-Dec-01	APAH -MPN	7.8	25	9
471-01/02-12:22	WDOH-471	WDOH	29-Jan-02	APAH -MPN	4.5	23	7
471-02/02-9:57	WDOH-471	WDOH	20-Feb-02	APAH -MPN	13	26	7
471-03/02-12:05	WDOH-471	WDOH	13-Mar-02	APAH -MPN	2	25	8
471-04/02-12:13	WDOH-471	WDOH	17-Apr-02	APAH -MPN	13	11	10
471-05/02-12:04	WDOH-471	WDOH	07-May-02	APAH -MPN	2	25	11
471-07/02-12:27	WDOH-471	WDOH	24-Jul-02	APAH -MPN	31	24	19
208247	WDOH-471	WDOH	16-Sep-02	APAH -MPN	2		
471-09/02-12:08	WDOH-471	WDOH	16-Sep-02	APAH -MPN	2	30	14
471-11/02-12:41	WDOH-471	WDOH	05-Nov-02	APAH -MPN	2	30	10
471-02/03-10:47	WDOH-471	WDOH	20-Feb-03	APAH -MPN	4.5	27	8
471-04/03-13:04	WDOH-471	WDOH	29-Apr-03	APAH -MPN	1.7		
471-06/03-08:55	WDOH-471	WDOH	16-Jun-03	APAH -MPN	7.8		
471-08/03-10:12	WDOH-471	WDOH	12-Aug-03	APAH -MPN	1.7		
471-10/03-14:59	WDOH-471	WDOH	14-Oct-03	APAH -MPN	21		
471-12/03-13:15	WDOH-471	WDOH	16-Dec-03	APAH -MPN	49		
04171611	WDOH-471	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		11.5
477-10/00-10:16	WDOH-477	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
477-10/00-13:21	WDOH-477	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
477-11/00-8:50	WDOH-477	WDOH	02-Nov-00	APAH -MPN	7.8	30	11
477-11/00-9:53	WDOH-477	WDOH	20-Nov-00	APAH -MPN	1.7	29	9
477-12/00-10:37	WDOH-477	WDOH	05-Dec-00	APAH -MPN	79	28	9

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
477-01/01-9:49	WDOH-477	WDOH	16-Jan-01	APAH -MPN	2	29	8
477-02/01-8:57	WDOH-477	WDOH	15-Feb-01	APAH -MPN	1.7	28	7
477-03/01-13:12	WDOH-477	WDOH	28-Mar-01	APAH -MPN	13	26	9
477-04/01-10:15	WDOH-477	WDOH	23-Apr-01	APAH -MPN	1.7	30	10
477-05/01-12:04	WDOH-477	WDOH	16-May-01	APAH -MPN	1.7	30	12
477-06/01-11:21	WDOH-477	WDOH	07-Jun-01	APAH -MPN	1.7	30	16
477-07/01-12:34	WDOH-477	WDOH	16-Jul-01	APAH -MPN	1.7	30	16
477-08/01-8:55	WDOH-477	WDOH	13-Aug-01	APAH -MPN	1.7	30	16
477-09/01-13:01	WDOH-477	WDOH	17-Sep-01	APAH -MPN	2	30	15
477-10/01-10:36	WDOH-477	WDOH	17-Oct-01	APAH -MPN	2	29	12
477-11/01-10:39	WDOH-477	WDOH	01-Nov-01	APAH -MPN	1.7	30	11
477-12/01-10:43	WDOH-477	WDOH	12-Dec-01	APAH -MPN	2	25	8
477-01/02-12:39	WDOH-477	WDOH	29-Jan-02	APAH -MPN	2	26	6
477-02/02-10:27	WDOH-477	WDOH	20-Feb-02	APAH -MPN	1.7	30	8
477-03/02-12:25	WDOH-477	WDOH	13-Mar-02	APAH -MPN	1.7	25	8
477-04/02-12:34	WDOH-477	WDOH	17-Apr-02	APAH -MPN	1.7	24	10
477-05/02-12:36	WDOH-477	WDOH	07-May-02	APAH -MPN	1.7	28	10
477-07/02-13:09	WDOH-477	WDOH	24-Jul-02	APAH -MPN	1.7	29	21
208257	WDOH-477	WDOH	16-Sep-02	APAH -MPN	1.8		
477-09/02-12:31	WDOH-477	WDOH	16-Sep-02	APAH -MPN	1.7	30	16
477-11/02-13:00	WDOH-477	WDOH	05-Nov-02	APAH -MPN	1.7	29	10
477-02/03-10:07	WDOH-477	WDOH	20-Feb-03	APAH -MPN	1.7	27	8
477-04/03-13:37	WDOH-477	WDOH	29-Apr-03	APAH -MPN	1.7		
477-06/03-09:36	WDOH-477	WDOH	16-Jun-03	APAH -MPN	2		
477-08/03-10:47	WDOH-477	WDOH	12-Aug-03	APAH -MPN	1.7		
477-10/03-15:46	WDOH-477	WDOH	14-Oct-03	APAH -MPN	1.7		
477-11/03-09:36	WDOH-477	WDOH	17-Nov-03	APAH -MPN	49		
477-12/03-14:04	WDOH-477	WDOH	16-Dec-03	APAH -MPN	2		
04171596	WDOH-477	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		9.86

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
480-10/00-11:52	WDOH-480	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
480-10/00-14:28	WDOH-480	WDOH	04-Oct-00	APAH -MPN	1.7	30	14
480-11/00-10:17	WDOH-480	WDOH	02-Nov-00	APAH -MPN	23	26	11
480-11/00-11:16	WDOH-480	WDOH	20-Nov-00	APAH -MPN	1.7	30	9
480-12/00-11:50	WDOH-480	WDOH	05-Dec-00	APAH -MPN	1.7	31	8
480-01/01-11:01	WDOH-480	WDOH	16-Jan-01	APAH -MPN	2	27	7
480-02/01-10:24	WDOH-480	WDOH	15-Feb-01	APAH -MPN	7.8	27	6
480-03/01-12:49	WDOH-480	WDOH	28-Mar-01	APAH -MPN	7.8	26	8
480-04/01-10:42	WDOH-480	WDOH	23-Apr-01	APAH -MPN	6.8	29	11
480-05/01-11:39	WDOH-480	WDOH	16-May-01	APAH -MPN	1.7	29	12
480-06/01-12:07	WDOH-480	WDOH	07-Jun-01	APAH -MPN	17	28	16
480-07/01-11:59	WDOH-480	WDOH	16-Jul-01	APAH -MPN	2	27	16
480-08/01-10:07	WDOH-480	WDOH	13-Aug-01	APAH -MPN	17	31	18
480-09/01-12:38	WDOH-480	WDOH	17-Sep-01	APAH -MPN	1.7	25	15
480-10/01-9:59	WDOH-480	WDOH	17-Oct-01	APAH -MPN	7.8	27	12
480-11/01-11:09	WDOH-480	WDOH	01-Nov-01	APAH -MPN	2	28	11
480-12/01-10:23	WDOH-480	WDOH	12-Dec-01	APAH -MPN	2	26	9
480-01/02-12:23	WDOH-480	WDOH	29-Jan-02	APAH -MPN	4	25	7
480-02/02-9:59	WDOH-480	WDOH	20-Feb-02	APAH -MPN	2	27	7
480-03/02-12:07	WDOH-480	WDOH	13-Mar-02	APAH -MPN	1.7	21	8
480-04/02-12:15	WDOH-480	WDOH	17-Apr-02	APAH -MPN	2	9	10
480-05/02-12:05	WDOH-480	WDOH	07-May-02	APAH -MPN	2	22	11
480-07/02-12:30	WDOH-480	WDOH	24-Jul-02	APAH -MPN	23	26	19
208248	WDOH-480	WDOH	16-Sep-02	APAH -MPN	1.8		
480-09/02-12:10	WDOH-480	WDOH	16-Sep-02	APAH -MPN	1.7	30	14
480-11/02-12:42	WDOH-480	WDOH	05-Nov-02	APAH -MPN	2	30	10
480-02/03-10:44	WDOH-480	WDOH	20-Feb-03	APAH -MPN	2	26	8
480-04/03-13:06	WDOH-480	WDOH	29-Apr-03	APAH -MPN	1.7		
480-06/03-08:57	WDOH-480	WDOH	16-Jun-03	APAH -MPN	1.7		

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
480-10/00-11:52	WDOH-480	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
480-10/00-14:28	WDOH-480	WDOH	04-Oct-00	APAH -MPN	1.7	30	14
480-11/00-10:17	WDOH-480	WDOH	02-Nov-00	APAH -MPN	23	26	11
480-11/00-11:16	WDOH-480	WDOH	20-Nov-00	APAH -MPN	1.7	30	9
480-12/00-11:50	WDOH-480	WDOH	05-Dec-00	APAH -MPN	1.7	31	8
480-01/01-11:01	WDOH-480	WDOH	16-Jan-01	APAH -MPN	2	27	7
480-02/01-10:24	WDOH-480	WDOH	15-Feb-01	APAH -MPN	7.8	27	6
480-03/01-12:49	WDOH-480	WDOH	28-Mar-01	APAH -MPN	7.8	26	8
480-04/01-10:42	WDOH-480	WDOH	23-Apr-01	APAH -MPN	6.8	29	11
480-05/01-11:39	WDOH-480	WDOH	16-May-01	APAH -MPN	1.7	29	12
480-06/01-12:07	WDOH-480	WDOH	07-Jun-01	APAH -MPN	17	28	16
480-07/01-11:59	WDOH-480	WDOH	16-Jul-01	APAH -MPN	2	27	16
480-08/01-10:07	WDOH-480	WDOH	13-Aug-01	APAH -MPN	17	31	18
480-09/01-12:38	WDOH-480	WDOH	17-Sep-01	APAH -MPN	1.7	25	15
480-10/01-9:59	WDOH-480	WDOH	17-Oct-01	APAH -MPN	7.8	27	12
480-11/01-11:09	WDOH-480	WDOH	01-Nov-01	APAH -MPN	2	28	11
480-12/01-10:23	WDOH-480	WDOH	12-Dec-01	APAH -MPN	2	26	9
480-01/02-12:23	WDOH-480	WDOH	29-Jan-02	APAH -MPN	4	25	7
480-02/02-9:59	WDOH-480	WDOH	20-Feb-02	APAH -MPN	2	27	7
480-03/02-12:07	WDOH-480	WDOH	13-Mar-02	APAH -MPN	1.7	21	8
480-04/02-12:15	WDOH-480	WDOH	17-Apr-02	APAH -MPN	2	9	10
480-05/02-12:05	WDOH-480	WDOH	07-May-02	APAH -MPN	2	22	11
480-07/02-12:30	WDOH-480	WDOH	24-Jul-02	APAH -MPN	23	26	19
208248	WDOH-480	WDOH	16-Sep-02	APAH -MPN	1.8		
480-09/02-12:10	WDOH-480	WDOH	16-Sep-02	APAH -MPN	1.7	30	14
480-11/02-12:42	WDOH-480	WDOH	05-Nov-02	APAH -MPN	2	30	10
480-02/03-10:44	WDOH-480	WDOH	20-Feb-03	APAH -MPN	2	26	8
480-04/03-13:06	WDOH-480	WDOH	29-Apr-03	APAH -MPN	1.7		
480-06/03-08:57	WDOH-480	WDOH	16-Jun-03	APAH -MPN	1.7		

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Temp C
480-08/03-10:15	WDOH-480	WDOH	12-Aug-03	APAH -MPN	4.5		
480-10/03-15:07	WDOH-480	WDOH	14-Oct-03	APAH -MPN	1.8		
480-11/03-09:24	WDOH-480	WDOH	17-Nov-03	APAH -MPN	4.5		
480-12/03-13:36	WDOH-480	WDOH	16-Dec-03	APAH -MPN	4.5		
04171610	WDOH-480	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		11.34
481-10/00-11:59	WDOH-481	WDOH	04-Oct-00	APAH -MPN	1.7	30	13
481-10/00-14:37	WDOH-481	WDOH	04-Oct-00	APAH -MPN	1.7	30	14
481-11/00-10:30	WDOH-481	WDOH	02-Nov-00	APAH -MPN	17	26	11
481-11/00-11:28	WDOH-481	WDOH	20-Nov-00	APAH -MPN	11	30	9
481-12/00-11:58	WDOH-481	WDOH	05-Dec-00	APAH -MPN	1.7	29	9
481-01/01-11:10	WDOH-481	WDOH	16-Jan-01	APAH -MPN	2	25	7
481-02/01-10:33	WDOH-481	WDOH	15-Feb-01	APAH -MPN	2	8	7
481-03/01-12:57	WDOH-481	WDOH	28-Mar-01	APAH -MPN	2	16	8
481-04/01-10:35	WDOH-481	WDOH	23-Apr-01	APAH -MPN	1.7	28	11
481-05/01-11:45	WDOH-481	WDOH	16-May-01	APAH -MPN	1.7	29	12
481-06/01-12:00	WDOH-481	WDOH	07-Jun-01	APAH -MPN	1.7	24	16
481-07/01-12:08	WDOH-481	WDOH	16-Jul-01	APAH -MPN	13	24	16
481-08/01-10:17	WDOH-481	WDOH	13-Aug-01	APAH -MPN	2	18	18
481-09/01-12:44	WDOH-481	WDOH	17-Sep-01	APAH -MPN	1.7	27	15
481-10/01-10:06	WDOH-481	WDOH	17-Oct-01	APAH -MPN	4.5	25	12
481-11/01-11:03	WDOH-481	WDOH	01-Nov-01	APAH -MPN	2	29	10
481-12/01-10:28	WDOH-481	WDOH	12-Dec-01	APAH -MPN	2	26	9
481-01/02-12:27	WDOH-481	WDOH	29-Jan-02	APAH -MPN	4.5	23	7
481-02/02-10:10	WDOH-481	WDOH	20-Feb-02	APAH -MPN	1.7	28	7
481-03/02-12:11	WDOH-481	WDOH	13-Mar-02	APAH -MPN	1.7	24	8
481-04/02-12:20	WDOH-481	WDOH	17-Apr-02	APAH -MPN	1.7	16	10
481-05/02-12:13	WDOH-481	WDOH	07-May-02	APAH -MPN	1.7	28	11
481-07/02-12:37	WDOH-481	WDOH	24-Jul-02	APAH -MPN	13	14	19
208251	WDOH-481	WDOH	16-Sep-02	APAH -MPN	23		

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Spec Cond	Temp C	Turb
481-09/02-12:15	WDOH-481	WDOH	16-Sep-02	APAH -MPN	23	29		14	
481-11/02-12:46	WDOH-481	WDOH	05-Nov-02	APAH -MPN	2	20		10	
481-02/03-10:34	WDOH-481	WDOH	20-Feb-03	APAH -MPN	2	27		8	
481-04/03-13:12	WDOH-481	WDOH	29-Apr-03	APAH -MPN	1.7				
481-06/03-09:03	WDOH-481	WDOH	16-Jun-03	APAH -MPN	1.7				
481-08/03-10:24	WDOH-481	WDOH	12-Aug-03	APAH -MPN	1.7				
481-10/03-15:19	WDOH-481	WDOH	14-Oct-03	APAH -MPN	1.7				
481-11/03-09:29	WDOH-481	WDOH	17-Nov-03	APAH -MPN	2				
481-12/03-13:45	WDOH-481	WDOH	16-Dec-03	APAH -MPN	7.8				
04171606	WDOH-481	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		42	10.86	2
482-10/00-12:01	WDOH-482	WDOH	04-Oct-00	APAH -MPN	1.7	30		13	
482-10/00-14:39	WDOH-482	WDOH	04-Oct-00	APAH -MPN	1.7	30		14	
482-11/00-10:34	WDOH-482	WDOH	02-Nov-00	APAH -MPN	6.8	30		11	
482-11/00-11:31	WDOH-482	WDOH	20-Nov-00	APAH -MPN	1.7	30		9	
482-12/00-12:00	WDOH-482	WDOH	05-Dec-00	APAH -MPN	4.5	29		9	
482-01/01-11:12	WDOH-482	WDOH	16-Jan-01	APAH -MPN	4	28		7	
482-02/01-10:39	WDOH-482	WDOH	15-Feb-01	APAH -MPN	7.8	27		7	
482-03/01-12:59	WDOH-482	WDOH	28-Mar-01	APAH -MPN	4.5	21		8	
482-04/01-10:33	WDOH-482	WDOH	23-Apr-01	APAH -MPN	7.8	28		11	
482-05/01-11:47	WDOH-482	WDOH	16-May-01	APAH -MPN	2	29		12	
482-06/01-11:58	WDOH-482	WDOH	07-Jun-01	APAH -MPN	1.7	30		16	
482-07/01-12:10	WDOH-482	WDOH	16-Jul-01	APAH -MPN	1.7	28		16	
482-08/01-10:21	WDOH-482	WDOH	13-Aug-01	APAH -MPN	6.1	28		18	
482-09/01-12:47	WDOH-482	WDOH	17-Sep-01	APAH -MPN	2	30		15	
482-10/01-10:08	WDOH-482	WDOH	17-Oct-01	APAH -MPN	2	28		12	
482-11/01-11:01	WDOH-482	WDOH	01-Nov-01	APAH -MPN	1.7	30		10	
482-12/01-10:30	WDOH-482	WDOH	12-Dec-01	APAH -MPN	13	26		9	
482-01/02-12:29	WDOH-482	WDOH	29-Jan-02	APAH -MPN	13	14		7	
482-02/02-10:12	WDOH-482	WDOH	20-Feb-02	APAH -MPN	2	28		7	

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	FC	SALINITY	Spec Cond	Temp C	Turb
482-03/02-12:12	WDOH-482	WDOH	13-Mar-02	APAH -MPN	2	25		8	
482-04/02-12:22	WDOH-482	WDOH	17-Apr-02	APAH -MPN	4.5	19		10	
482-05/02-12:15	WDOH-482	WDOH	07-May-02	APAH -MPN	1.7	25		11	
482-07/02-12:39	WDOH-482	WDOH	24-Jul-02	APAH -MPN	2	27		19	
208252	WDOH-482	WDOH	16-Sep-02	APAH -MPN	1.8				
482-09/02-12:16	WDOH-482	WDOH	16-Sep-02	APAH -MPN	1.7	29		15	
482-11/02-12:48	WDOH-482	WDOH	05-Nov-02	APAH -MPN	1.7	30		10	
482-02/03-10:31	WDOH-482	WDOH	20-Feb-03	APAH -MPN	1.7	27		8	
482-04/03-13:14	WDOH-482	WDOH	29-Apr-03	APAH -MPN	4.5				
482-06/03-09:05	WDOH-482	WDOH	16-Jun-03	APAH -MPN	1.7				
482-08/03-10:27	WDOH-482	WDOH	12-Aug-03	APAH -MPN	6.8				
482-10/03-15:23	WDOH-482	WDOH	14-Oct-03	APAH -MPN	1.7				
482-11/03-09:31	WDOH-482	WDOH	17-Nov-03	APAH -MPN	22				
482-12/03-13:48	WDOH-482	WDOH	16-Dec-03	APAH -MPN	2				
04171605	WDOH-482	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		42.7	9.62	2
04171619	WDOH-482	PSNS-NS/M	20-Apr-04	FCOL(MF)	1		42.7	9.62	2
491-10/00-11:54	WDOH-491	WDOH	04-Oct-00	APAH -MPN	2	29		13	
491-10/00-14:31	WDOH-491	WDOH	04-Oct-00	APAH -MPN	33	30		14	
491-11/00-10:22	WDOH-491	WDOH	02-Nov-00	APAH -MPN	49	25		11	
491-11/00-11:20	WDOH-491	WDOH	20-Nov-00	APAH -MPN	33	30		9	
491-12/00-11:53	WDOH-491	WDOH	05-Dec-00	APAH -MPN	2	29		9	
491-01/01-11:03	WDOH-491	WDOH	16-Jan-01	APAH -MPN	2	27		7	
491-02/01-10:27	WDOH-491	WDOH	15-Feb-01	APAH -MPN	23	28		6	
491-03/01-12:52	WDOH-491	WDOH	28-Mar-01	APAH -MPN	4.5	20		8	
491-04/01-10:40	WDOH-491	WDOH	23-Apr-01	APAH -MPN	1.7	29		11	
491-05/01-11:41	WDOH-491	WDOH	16-May-01	APAH -MPN	1.7	30		12	
491-06/01-12:05	WDOH-491	WDOH	07-Jun-01	APAH -MPN	1.7	29		16	
491-07/01-12:00	WDOH-491	WDOH	16-Jul-01	APAH -MPN	7.8	27		16	
491-08/01-10:11	WDOH-491	WDOH	13-Aug-01	APAH -MPN	23	29		18	

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	FC	SALINITY	SECCI DISH	Spec Cond	Temp C	Turb
491-09/01-12:40	WDOH-491	WDOH	17-Sep-01	APAH -MPN			1.7	23			15	
491-10/01-10:01	WDOH-491	WDOH	17-Oct-01	APAH -MPN			1.7	30			12	
491-11/01-11:07	WDOH-491	WDOH	01-Nov-01	APAH -MPN			4	30			11	
491-12/01-10:24	WDOH-491	WDOH	12-Dec-01	APAH -MPN			4.5	26			9	
491-01/02-12:24	WDOH-491	WDOH	29-Jan-02	APAH -MPN			4.5	21			7	
491-02/02-10:01	WDOH-491	WDOH	20-Feb-02	APAH -MPN			2	28			7	
491-03/02-12:08	WDOH-491	WDOH	13-Mar-02	APAH -MPN			1.7	25			8	
491-04/02-12:17	WDOH-491	WDOH	17-Apr-02	APAH -MPN			4	11			10	
491-05/02-12:07	WDOH-491	WDOH	07-May-02	APAH -MPN			1.7	22			11	
491-07/02-12:32	WDOH-491	WDOH	24-Jul-02	APAH -MPN			33	25			19	
208249	WDOH-491	WDOH	16-Sep-02	APAH -MPN			1.8					
491-09/02-12:11	WDOH-491	WDOH	16-Sep-02	APAH -MPN			1.7	29			14	
491-11/02-12:43	WDOH-491	WDOH	05-Nov-02	APAH -MPN			1.7	30			10	
491-02/03-10:41	WDOH-491	WDOH	20-Feb-03	APAH -MPN			2	27			8	
491-04/03-13:08	WDOH-491	WDOH	29-Apr-03	APAH -MPN			1.7					
491-06/03-08:59	WDOH-491	WDOH	16-Jun-03	APAH -MPN			1.7					
491-08/03-10:17	WDOH-491	WDOH	12-Aug-03	APAH -MPN			7.8					
491-10/03-15:11	WDOH-491	WDOH	14-Oct-03	APAH -MPN			1.7					
491-11/03-09:25	WDOH-491	WDOH	17-Nov-03	APAH -MPN			1.7					
04171609	WDOH-491	PSNS-NS/M	20-Apr-04	FCOL(MF)			1			43.2	11.17	720
FC-200203-006	M6	PSNS-NS/M	10-Mar-02	APAH -MPN			0					
FC-200203-024	M6	PSNS-NS/M	12-Mar-02	APAH -MPN			0					
FC-200203-044	M6	PSNS-NS/M	13-Mar-02	APAH -MPN			0					
02460644	M6_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		35.6	1	29.2	10	45	10.81	
02510645	M6_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		72.3	4	26.73	21	43.2	8.66	34
03020646	M6	BKCHD	07-Jan-03	FCOL(MF)		34	1	27.38		47.5	8.15	
03020645	M6_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)		34	2	27.38	14	47.5	8.15	
03030646	M6	BKCHD	14-Jan-03	FCOL(MF)	7		1		5.5	29.1	8.3	1.8
03040644	M6	PSNS-NS/M	24-Jan-03	FCOL(MF)			1	28.32	17	43.83	9.23	

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

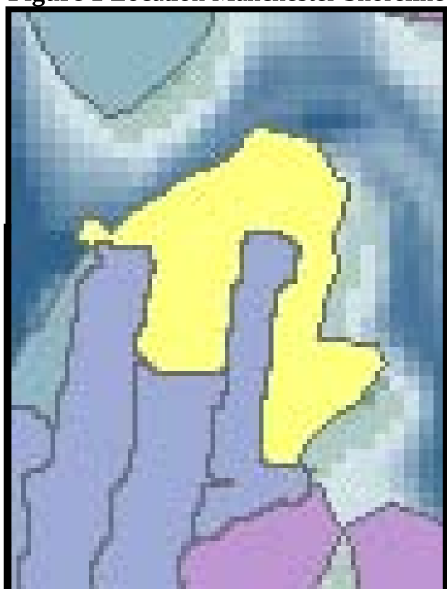
SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	Depth	FC	SALINITY	SECCI DISH	Spec Cond	Temp C	Turb
03040645	M6	PSNS-NS/M	24-Jan-03	FCOL(MF)		2	28.32		43.83	9.23	
FC-200203-007	M7	PSNS-NS/M	10-Mar-02	APAH -MPN		2					
FC-200203-025	M7	PSNS-NS/M	12-Mar-02	APAH -MPN		0					
FC-200203-045	M7	PSNS-NS/M	13-Mar-02	APAH -MPN		2					
02460648	M7_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	71.7	1	28.17	15	43.6	10.81	
02510646	M7_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)	42	6	28	26	43.3	9.23	120
03020647	M7_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)	83.4	1	27.29	19	42.1	8.21	
03030647	M7	BKCHD	14-Jan-03	FCOL(MF)		2					
03040643	M7	PSNS-NS/M	24-Jan-03	FCOL(MF)		1	28.69	17	44.6	9.01	1.56
04171607	M7	PSNS-NS/M	20-Apr-04	FCOL(MF)		1			42.34	10.16	187
FC-200203-008	M8	PSNS-NS/M	10-Mar-02	APAH -MPN		2					
FC-200203-026	M8	PSNS-NS/M	12-Mar-02	APAH -MPN		0					
FC-200203-046	M8	PSNS-NS/M	13-Mar-02	APAH -MPN		0					
02460645	M8_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	71.7	1	28.64	15	44.3	10	15
02510647	M8_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)	21.7	3	27.79	14	41.4	8.8	56
02510719	M8_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		4					
03020648	M8_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)	18.5	1	27.2	13	42.3	8.3	
03030704	M8	BKCHD	14-Jan-03	FCOL(MF)		5					
03040646	M8	PSNS-NS/M	24-Jan-03	FCOL(MF)		2	28.11	16	43.53	9.26	8

Table 2 cont. Fecal Coliform and Ancillary Data For Dyes Inlet West Shoreline Water Quality Sites

MANCHESTER SHORELINE AREA

Bremerton East Shoreline is composed of immediate shoreline near the Ecology Laboratory south around to Waterman Point (Fig. 1). The topography of the area can be viewed in the shaded relief map of (Fig. 2) (“Maps a la carte, Inc.”, 2004). Over 58% of Manchester shoreline is in open land (Fig. 3) with about 38% in impervious area (%TIA) (Table 1). A series of aerial photographs of the shoreline are shown in (Fig. 4) (Ecology, 2004). The surficial hydrogeology of Manchester shoreline is mainly Tertiary igneous rock (Jones, et al, 1998). One water quality monitoring site, (Clam Bay) was established by the ENVVEST team. The Fecal Coliform and ancillary data for this site are found in table 2.

Figure 1 Location Manchester Shoreline Basin



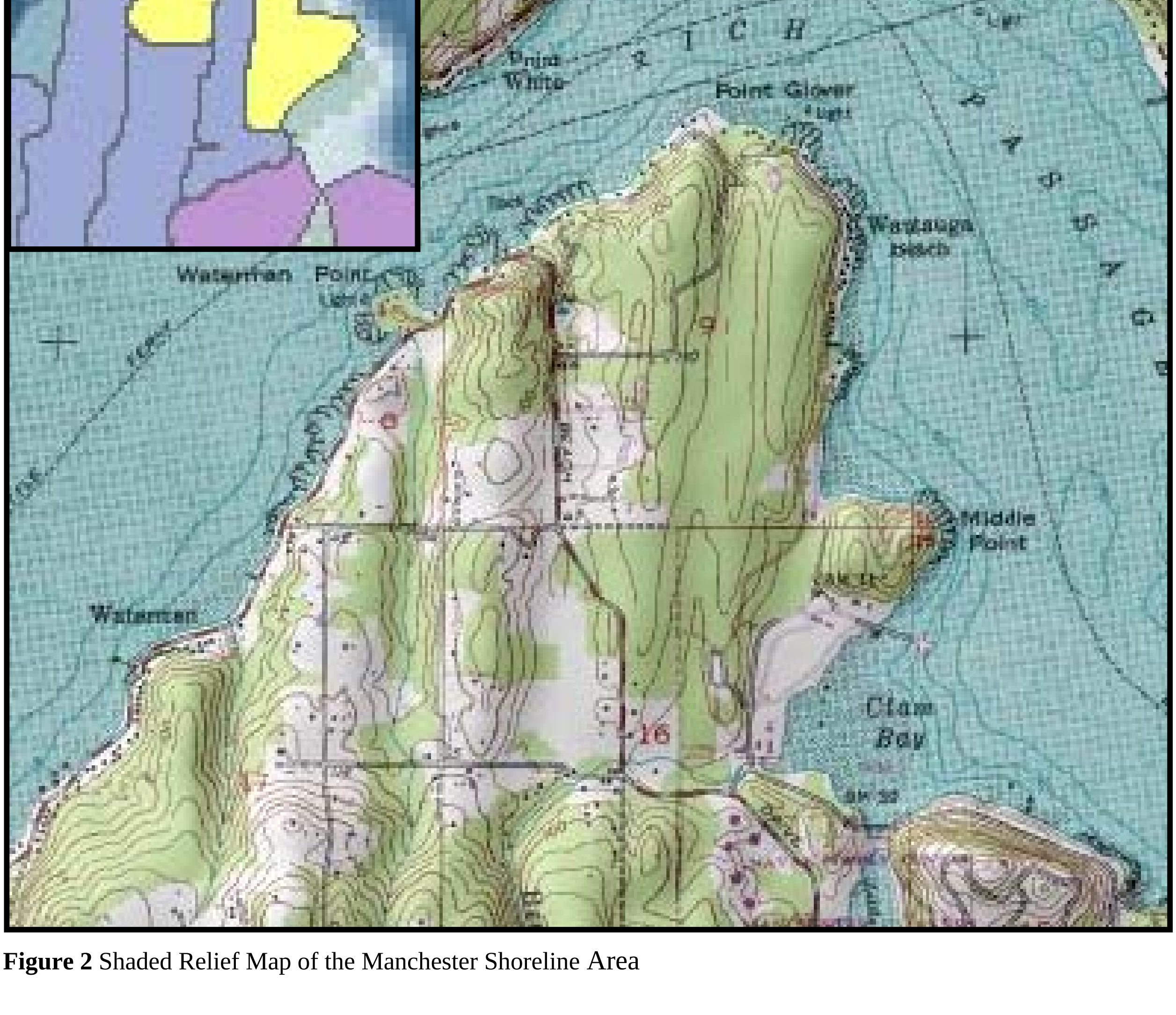
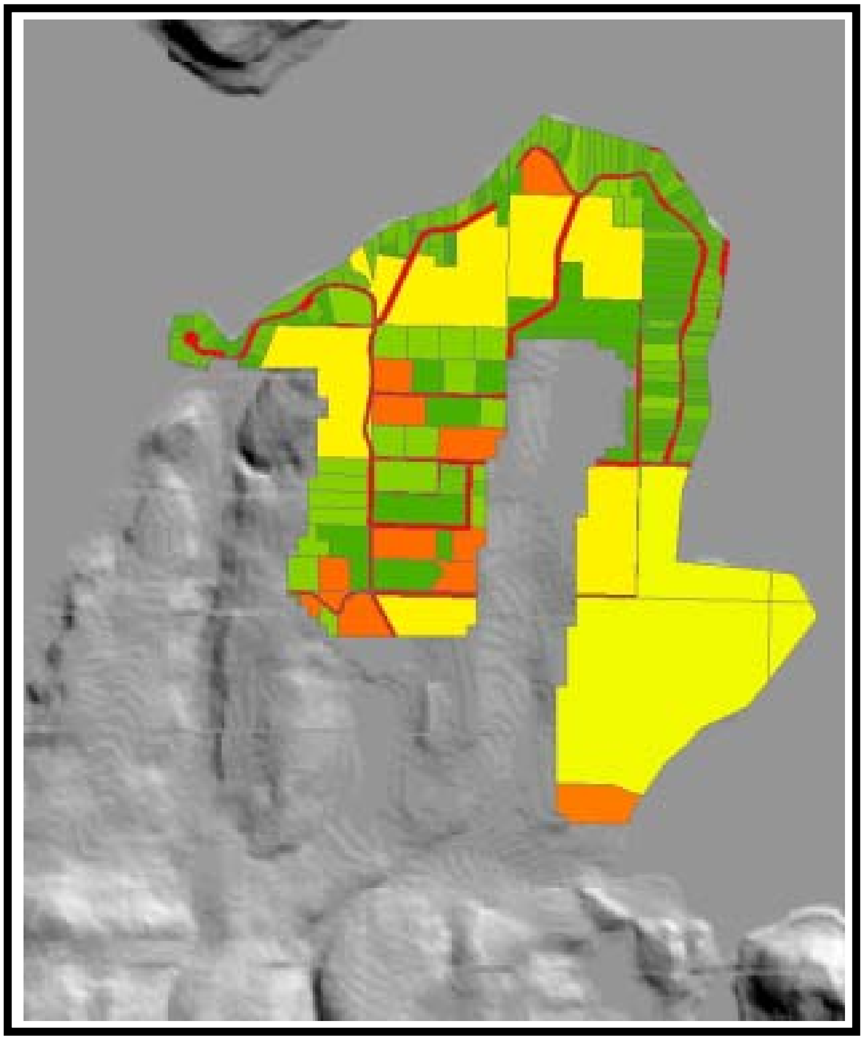
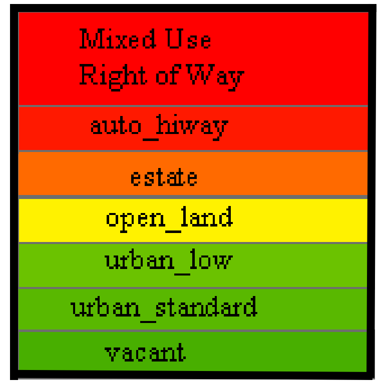


Figure 2 Shaded Relief Map of the Manchester Shoreline Area





LULC LEGEND

Figure 3 Manchester Shoreline Area Land Use Land Cover Parcels

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.30	147670.28	10995.47	7.45%	0.55%
Auto_Hiway	59.90	299517.00	45234.58	15.10%	2.28%
Estate	20.80	136779.17	9433.39	6.90%	0.48%
Open_Land	9.27	1164500.00	683764.61	58.72%	34.48%
Urban_Low	38.20	135254.01	9224.18	6.82%	0.47%
Urban_Standard	44.00	16583.89	138.68	0.84%	0.01%
Vacant	11.40	82922.37	3467.14	4.18%	0.17%
Total		1983226.73	762258.05		38.44%
Acres		45.53	17.50		

Table 1 Manchester Shoreline Area Land Use Land Cover Data

SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	Depth	FC	SALINITY	SECCI DISH	Spec Cond	Temp C	Turbididy
CLAMBAY	BKCHD	14-Jan-03	FCOL(MF)		4					
CLAMBAY	BKCHD	14-Jan-03	FCOL(MF)		6					
CLAMBAY	PSNS-NS/M	24-Jan-03	FCOL(MF)		22			45.3	9.47	
CLAMBAY_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)		5			44.8	9.29	
CLAMBAY_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	5	12	29.6	5	44.4	11.01	25
CLAMBAY_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		11			44.4	10.06	47
CLAMBAY_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)	6.3	9	28.74	6.3	44.4	10.06	247

Table 2 Fecal Coliform and Ancillary Data for Manchester Shoreline Site (Clam Bay)

Figure 4 Aerial Photograph of Manchester Shoreline Area north to south (upper left to lower right).

Figure 4 cont. Aerial Photograph of Manchester Shoreline Area north to south (upper left to lower right)

SINCLAIR NORTH SHORELINE AREA

The Sinclair North Shoreline Area is composed of 3 watersheds, two adjacent to each other and one near Naval Base Kitsap (Fig. 1). The topography of the area can be viewed in the shaded relief map of (Fig. 2) ("Maps a la carte, Inc.", 2004). Over 26 % of Sinclair North Shoreline area is vacant land (Fig. 3) with approximately 24% in impervious area (%TIA) (Table 1). A series of aerial photographs of the shoreline are shown in (Fig. 4) (Ecology, 2004). The eastern most basin has a surficial hydrogeology of Vashon till in the immediate interior, and rimed with nonglacial floodplain deposits on the shore side. The western two watersheds of Sinclair North shoreline are mainly Tertiary igneous rock with a patch of till (Jones, et al, 1998). There are 3 stormwater and one nearshore water quality monitoring sites, (SN03, LMK164, LMK122, BST-28) used by the ENVVEST team. The Fecal Coliform and ancillary data for these sites are found in table 2.

Figure 1 Location of Sinclair North Shoreline

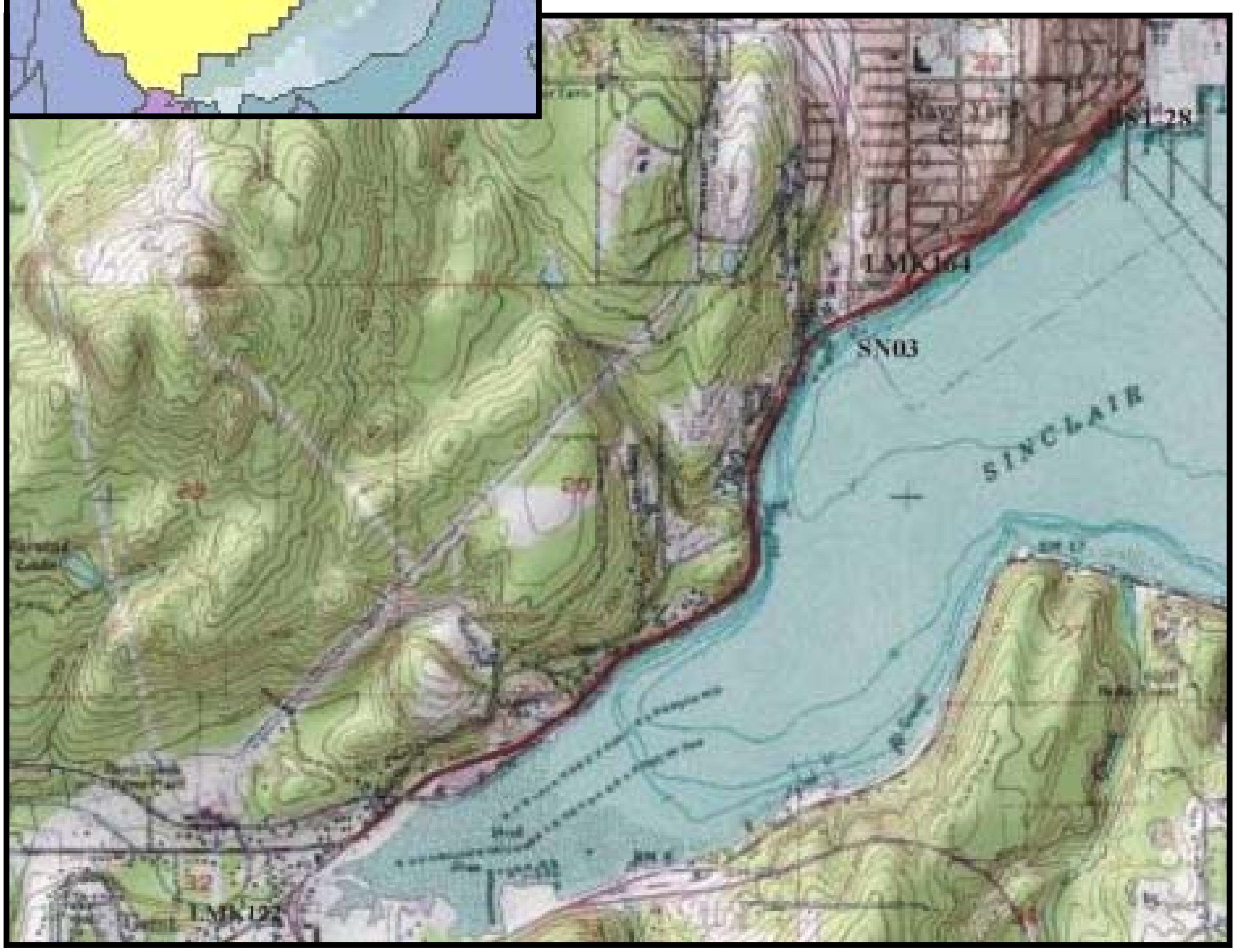


Figure 2 Shaded Relief Map of Sinclair North shoreline with Water Quality Sites

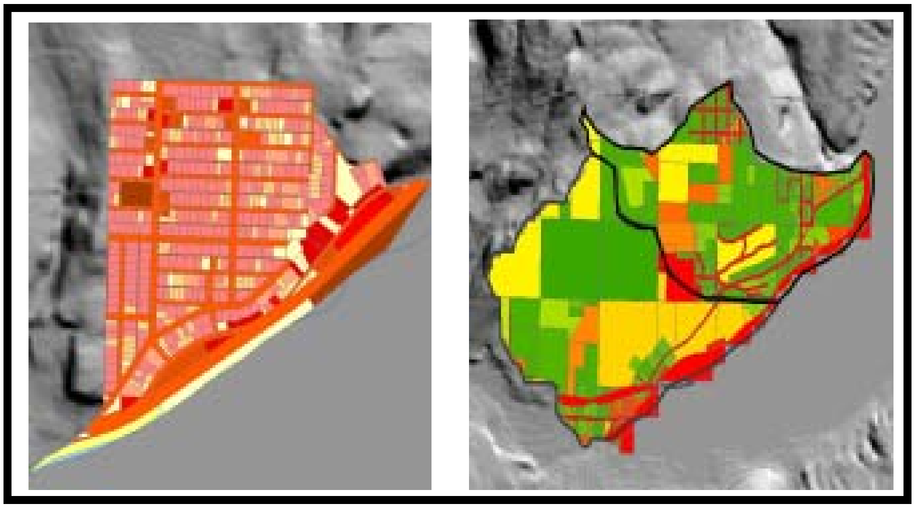
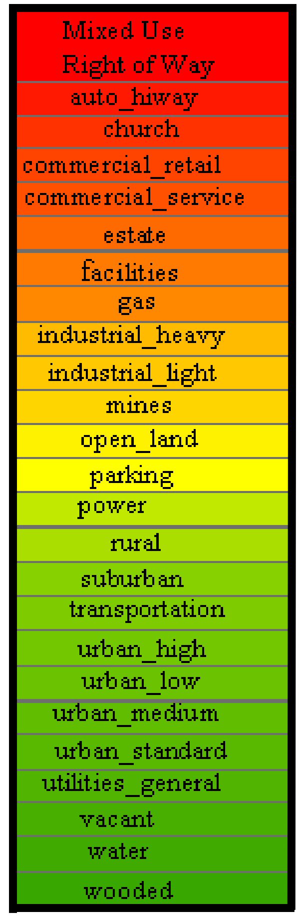


Figure 3 Sinclair North Shoreline Land Use Land Cover Parcels



LULC LEGEND

LandCode	Percent impervious	Area_sq. feet	Impervious Area sq feet	% of total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	2943519.57	1303979.17	13.0617%	5.78632%
Auto_Hiway	59.9%	164878.61	98762.29	0.7316%	0.43825%
Church	46.0%	26733.87	12297.58	0.1186%	0.05457%
Commercial_Retail	59.5%	449844.84	267657.68	1.9962%	1.18771%
Commercial_Service	55.1%	157528.91	86798.43	0.6990%	0.38516%
Estate	20.8%	654796.85	136197.74	2.9056%	0.60437%
Facilities	66.4%	190743.10	126653.42	0.8464%	0.56202%
Gas	54.3%	612999.87	332858.93	2.7201%	1.47704%
Industrial_Heavy	82.1%	27320.60	22430.21	0.1212%	0.09953%
Industrial_Light	59.8%	109756.40	65634.32	0.4870%	0.29125%
Mines	4.8%	3080562.84	147867.02	13.6698%	0.65615%
Open_Land	9.3%	1072143.09	99387.66	4.7576%	0.44103%
Parking	51.4%	5606.84	2881.92	0.0249%	0.01279%
Power	5.7%	31.11	1.77	0.0001%	0.00001%
Rural	16.1%	718832.00	115731.95	3.1898%	0.51355%
Suburban	38.9%	752041.50	292544.14	3.3371%	1.29814%
Transportation	10.9%	98070.19	10689.65	0.4352%	0.04743%
Urban_High	25.9%	170427.19	44140.64	0.7563%	0.19587%
Urban_Low	38.2%	1234572.70	471606.77	5.4783%	2.09272%
Urban_Medium	35.6%	321095.81	114310.11	1.4248%	0.50724%
Urban_Standard	44.0%	2029321.59	892901.50	9.0050%	3.96219%
Utilities_General	2.1%	27271.75	572.71	0.1210%	0.00254%
Vacant	11.4%	5931404.70	676180.14	26.3202%	3.00050%
Water	9.2%	21046.70	1936.30	0.0934%	0.00859%
Wooded	4.2%	1735020.00	72870.84	7.6990%	0.32336%
Total Area Sq. Ft.		22535570.61	5396892.89		23.94833%
Acres		517.35	123.90		

Table 1 Sinclair North Shoreline Land Use Land Cover Data

Figure 4 Sinclair Inlet North shoreline west to east ((upper left to lower right)

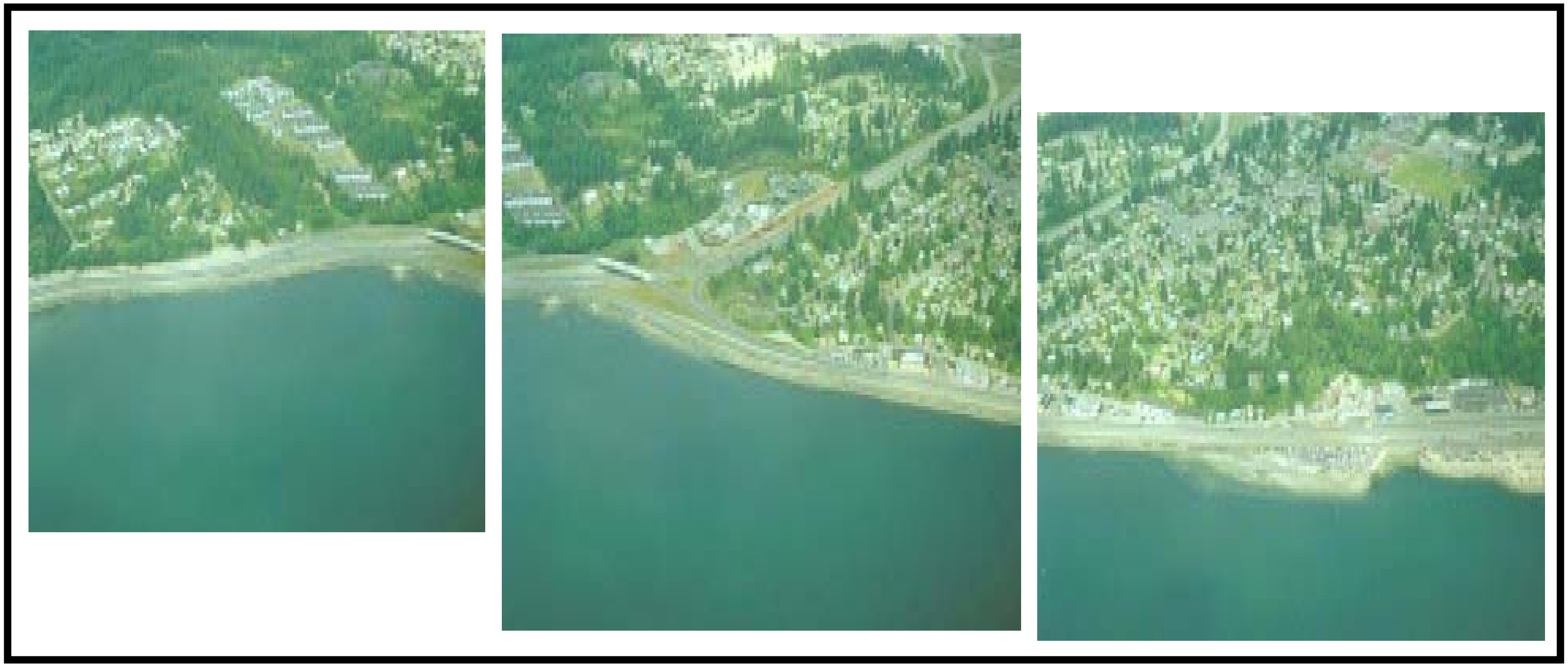


Figure 4 cont. Sinclair Inlet North shoreline west to east ((upper left to lower right)

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	SALINITY	Spec Cond	Temp C	Turb
FC-200203-012	SW1/BST-28	BREM-SW	11-Mar-02	TWISS 3409			158					
FC-200203-032	SW1/BST-28	BREM-SW	13-Mar-02	TWISS 3409			30					
02450491	SW1/BST-28	BREM-SW	07-Nov-02	FCOL(MF)	7.53		7260		0.1	132.8	11.9	70.3
02460495	SW1/BST-28	BREM-SW	12-Nov-02	FCOL(MF)			2400					
02490497	SW1/BST-28	BREM-SW	04-Dec-02	FCOL(MF)	7.35		32000			103.1	11.2	51.9
02500497	SW1/BST-28	BREM-SW	10-Dec-02	FCOL(MF)	7.46		2000			39.8	8.4	82.6
02500506	SW1/BST-28	BREM-SW	12-Dec-02	FCOL(MF)	7.5		2600			94.6	10.9	82.5
02510495	SW1/BST-28	BREM-SW	16-Dec-02	FCOL(MF)			400					
03030490	SW1/BST-28	BREM-SW	14-Jan-03	FCOL(MF)			2225					
03040497	SW1/BST-28	BREM-SW	22-Jan-03	FCOL(MF)	8.25		930			16.8	8.6	30.1
03040503	SW1/BST-28	BREM-SW	23-Jan-03	FCOL(MF)	7.61		230			111.7	11.1	7.89
04171531	SW1/BST-28	TEC-STORM	19-Apr-04	FCOL(MF)			2400					
04171536	SW1/BST-28	TEC-STORM	19-Apr-04	FCOL(MF)			2700					
04171544	SW1/BST-28	TEC-STORM	20-Apr-04	FCOL(MF)	7.24		320			0.006	52.7	175
02460718	SN03	PSNS-NS/M	14-Nov-02	FCOL(MF)	7.24		5		29.11	44.9	10.03	
03030705	SN03	BKCHD	14-Jan-03	FCOL(MF)			1					
03040700	SN03	PSNS-NS/M	24-Jan-03	FCOL(MF)			25			39.15	8.71	
032003SN03	SN03	KCHD	20-Mar-03	APAH 9221-E	7.9	7.2	1			28.8	9.3	3.9
041503SN03	SN03	KCHD	15-Apr-03	APAH 9221-E	8.3	10.7	1	114.3		28.8	10	1
052103SN03	SN03	KCHD	21-May-03	APAH 9221-E	8.2	7.8	1			27.9	12.8	
061203SN03	SN03	KCHD	12-Jun-03	APAH 9221-E	8.1	8.7	1	98.2		28.1	13.3	
072103SN03	SN03	KCHD	21-Jul-03	APAH 9221-E	8.5	13.9	1	85.3		28.3	21.4	
081903SN03	SN03	KCHD	19-Aug-03	APAH 9221-E	8.8	18.1	1	200		28.6	20.8	
091703SN03	SN03	KCHD	17-Sep-03	APAH 9221-E			2					
03020700	SN03_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)			2			43	8.73	
02510700	SN03_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)			4		38.25	43.7	9.56	3
110100SN03	SN03_KCHD	BKCHD	01-Nov-00	APAH 9221-E			4					
120700SN03	SN03_KCHD	BKCHD	07-Dec-00	APAH 9221-E			17					
030101SN03	SN03_KCHD	BKCHD	01-Mar-01	APAH 9221-E			1					

Table 2 Fecal Coliform and Ancillary Data for Sinclair North Shoreline Water Quality Sites

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	SALINITY	Spec Cond	Temp C	Turb
042001SN03	SN03_KCHD	BKCHD	20-Apr-01	APAH 9221-E			1					
062101SN03	SN03_KCHD	BKCHD	21-Jun-01	APAH 9221-E			1					
080901SN03	SN03_KCHD	BKCHD	09-Aug-01	APAH 9221-E			2					
101101SN03	SN03_KCHD	KCHD	11-Oct-01	APAH 9221-E	7.9	6.6	2			30.8	13.2	10.6
122001SN03	SN03_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.7	6.9	17			30.4	9	1.5
032802SN03	SN03_KCHD	KCHD	28-Mar-02	APAH 9221-E	7.9	9.4	1			27.9	8	14.8
043002SN03	SN03_KCHD	KCHD	30-Apr-02	APAH 9221-E			1					
062702SN03	SN03_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.3	10.1	1			28.6	14.5	1.4
082202SN03	SN03_KCHD	KCHD	22-Aug-02	APAH 9221-E		10.9	4			29.5	17.2	5.7
101702SN03	SN03_KCHD	KCHD	17-Oct-02	APAH 9221-E	8	8.4	4			30.2	13.9	1.1
112002SN03	SN03_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9	6.5	2			30.1	10.7	
121702SN03	SN03_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3	6.8	8			29.4	9.6	
011403SN03	SN03_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3	6.5	2			29.6	9.1	2.4
02450610	LMK122	SSWM-SW	07-Nov-02	FCOL(MF)	6.99	9.13	132	82.6	1.13	2196	10.62	
02450611	LMK122	SSWM-SW	07-Nov-02	FCOL(MF)	7.17	9.58	180	86	1.14	2220	10.29	
02460601	LMK122	SSWM-SW	12-Nov-02	FCOL(MF)	6.85	10.22	2100	90.9	0.15	309	10.13	
02460615	LMK122	SSWM-SW	13-Nov-02	FCOL(MF)	7.13	9.89	100	89.6	0.34	685	10.88	
02470602	LMK122	SSWM-SW	18-Nov-02	FCOL(MF)			261					
02470618	LMK122	SSWM-SW	20-Nov-02	FCOL(MF)			31					
02470636	LMK122	SSWM-SW	21-Nov-02	FCOL(MF)			43					
02490609	LMK122	SSWM-SW	05-Dec-02	FCOL(MF)	7.33	9.41	108	82.4	1.32	2550	9.19	3.06
02490610	LMK122	SSWM-SW	05-Dec-02	FCOL(MF)	7.29	10.21	89	89	1.31	2537	9	2.61
02500600	LMK122	SSWM-SW	10-Dec-02	FCOL(MF)	7.33	9.46	1000	82.2	0.28	581	9.13	18
02500613	LMK122	SSWM-SW	12-Dec-02	FCOL(MF)	7.01	11.56	420	100.3	0.2	413	9.06	6.46
02510600	LMK122	SSWM-SW	16-Dec-02	FCOL(MF)	7.5	11.36	575	96.6	0.09	179	8.24	28.9
02510621	LMK122	SSWM-SW	18-Dec-02	FCOL(MF)	7.53	12.21	54	102.8	0.17	352	7.83	5.68
02510634	LMK122	SSWM-SW	19-Dec-02	FCOL(MF)	7.54	11.56	14	97.7	0.2	414	7.99	4.7
02510635	LMK122	SSWM-SW	19-Dec-02	FCOL(MF)	7.45	11.36	34	95.4	0.2	412	7.71	4.59
03030600	LMK122	SSWM-SW	13-Jan-03	FCOL(MF)	6.83	12.48	26	103.4	0.07	142	7.21	13.7

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair North Shoreline Water Quality Sites

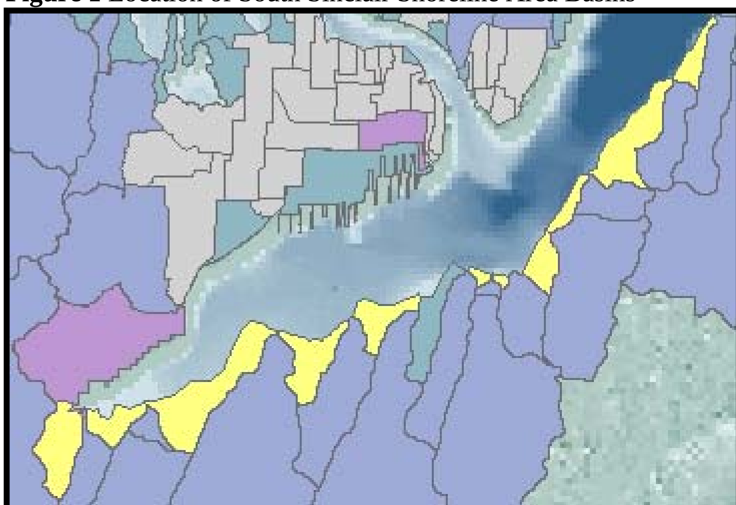
SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	DO	FC	%O2	SALINITY	Spec Cond	Temp C	Turb
03030616	LMK122	SSWM-SW	14-Jan-03	FCOL(MF)	6.92	12.33	24	102.9	0.07	145	7.51	12.2
03040611	LMK122	SSWM-SW	21-Jan-03	FCOL(MF)	7.1	12	91	100.8	0.09	180	7.77	16.5
03040624	LMK122	SSWM-SW	22-Jan-03	FCOL(MF)	7.13	11.81	1100	99.5	0.05	106	7.92	40.7
03040637	LMK122	SSWM-SW	23-Jan-03	FCOL(MF)	7.04	11.5	92	99.6	0.06	119	9.03	26.4
04171506	LMK122	TEC-STORM	19-Apr-04	FCOL(MF)			3			0.311	50	1.3
04171513	LMK122	TEC-STORM	19-Apr-04	FCOL(MF)	10.1		77			9.024	52.7	136
04171545	LMK122	TEC-STORM	20-Apr-04	FCOL(MF)	9.1		100			0.235	48.9	9.1
04171553	LMK122	TEC-STORM	20-Apr-04	FCOL(MF)			120			0.594	48.2	4.3
02450608	LMK164	SSWM-SW	07-Nov-02	FCOL(MF)	7.41	13.29	2904	124	0.02	51	12.23	
02450609	LMK164	SSWM-SW	07-Nov-02	FCOL(MF)	7.3		2508	10.63	0.02	47	11.82	
02460612	LMK164	SSWM-SW	12-Nov-02	FCOL(MF)	7.3		930	10.86	0.01	28	12.59	
02470601	LMK164	SSWM-SW	18-Nov-02	FCOL(MF)			377					
02500603	LMK164	SSWM-SW	10-Dec-02	FCOL(MF)	7.85	11.61	1200	99.7	0.01	31	8.7	17.2
02500625	LMK164	SSWM-SW	12-Dec-02	FCOL(MF)	8.04	11.42	11000	100.7	0.01	21	9.79	48.4
02510602	LMK164	SSWM-SW	16-Dec-02	FCOL(MF)	7.24	11.49	320	100.1	0.03	70	9.27	3.38
02510623	LMK164	SSWM-SW	18-Dec-02	FCOL(MF)	7.54	12.83	60	111.6	0.05	99	9.22	2.74
02510624	LMK164	SSWM-SW	18-Dec-02	FCOL(MF)	7.33	11.77	77	102.6	0.05	99	9.33	2.67
03030603	LMK164	SSWM-SW	13-Jan-03	FCOL(MF)	7.12	11.63	510	99.8	0.03	60	8.66	13.8
03030615	LMK164	SSWM-SW	14-Jan-03	FCOL(MF)	6.74	11.94	23	102.8	0.05	96	8.82	0.71
03040600	LMK164	SSWM-SW	21-Jan-03	FCOL(MF)	5.91	11.6	720	97.8	0	13	7.9	29.2
03040614	LMK164	SSWM-SW	22-Jan-03	FCOL(MF)	7.35	11.56	220	97.2	0	9	7.81	19.9
03040635	LMK164	SSWM-SW	23-Jan-03	FCOL(MF)	7.05	11.24	1600	99.7	0.03	67	10.05	15.7
03040636	LMK164	SSWM-SW	23-Jan-03	FCOL(MF)	6.68	10.87	1700	96.1	0.03	63	9.89	17.9

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair North Shoreline Water Quality Sites

SINCLAIR SOUTH SHORELINE AREA

The Sinclair North Shoreline Area is composed of 10 watersheds (Fig. 1). The topography of the shoreline area can be viewed in the shaded relief map of (Fig. 2) ("Maps a la carte, Inc.", 2004). Approximately 28 % of Sinclair South Shoreline area is vacant land (Fig. 3) with a little over 28% in impervious area (%TIA) (Table 1). A series of aerial photographs of the south shoreline are shown in (Fig. 4) (Ecology, 2004). Surficial hydrogeology of the shoreline area is a mixture of Vashon till with advanced outwash deposits rimed on the bay side with nonglacial floodplain deposits (Jones, et al, 1998). 5 nearshore, 2 marine and 2 stormwater water quality monitoring sites (SN05, SN10, SN12, SN13, BJ-EST, LMK128, LMK155, M3, M4) are established on the southern shoreline and used by the ENVVEST team. The Fecal Coliform and ancillary data for these sites are found in table 2.

Figure 1 Location of South Sinclair Shoreline Area Basins



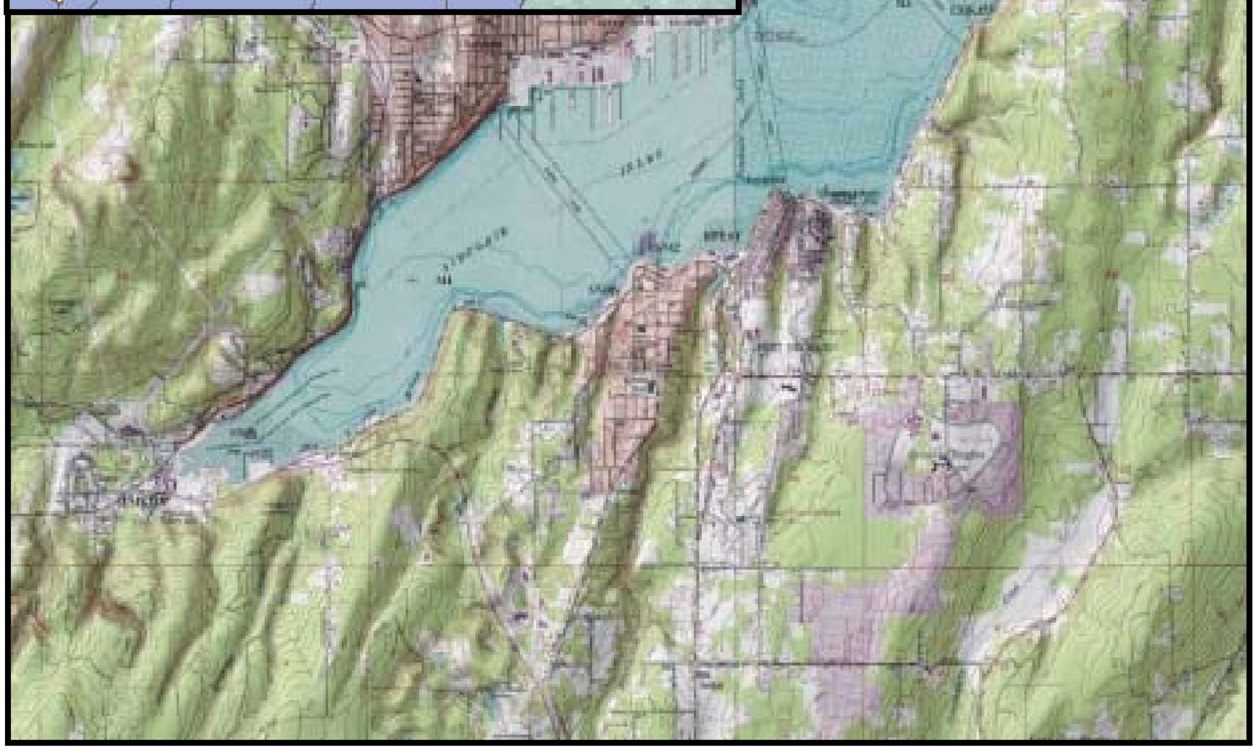


Figure 2 Shaded Relief Map of South Sinclair Shoreline Area

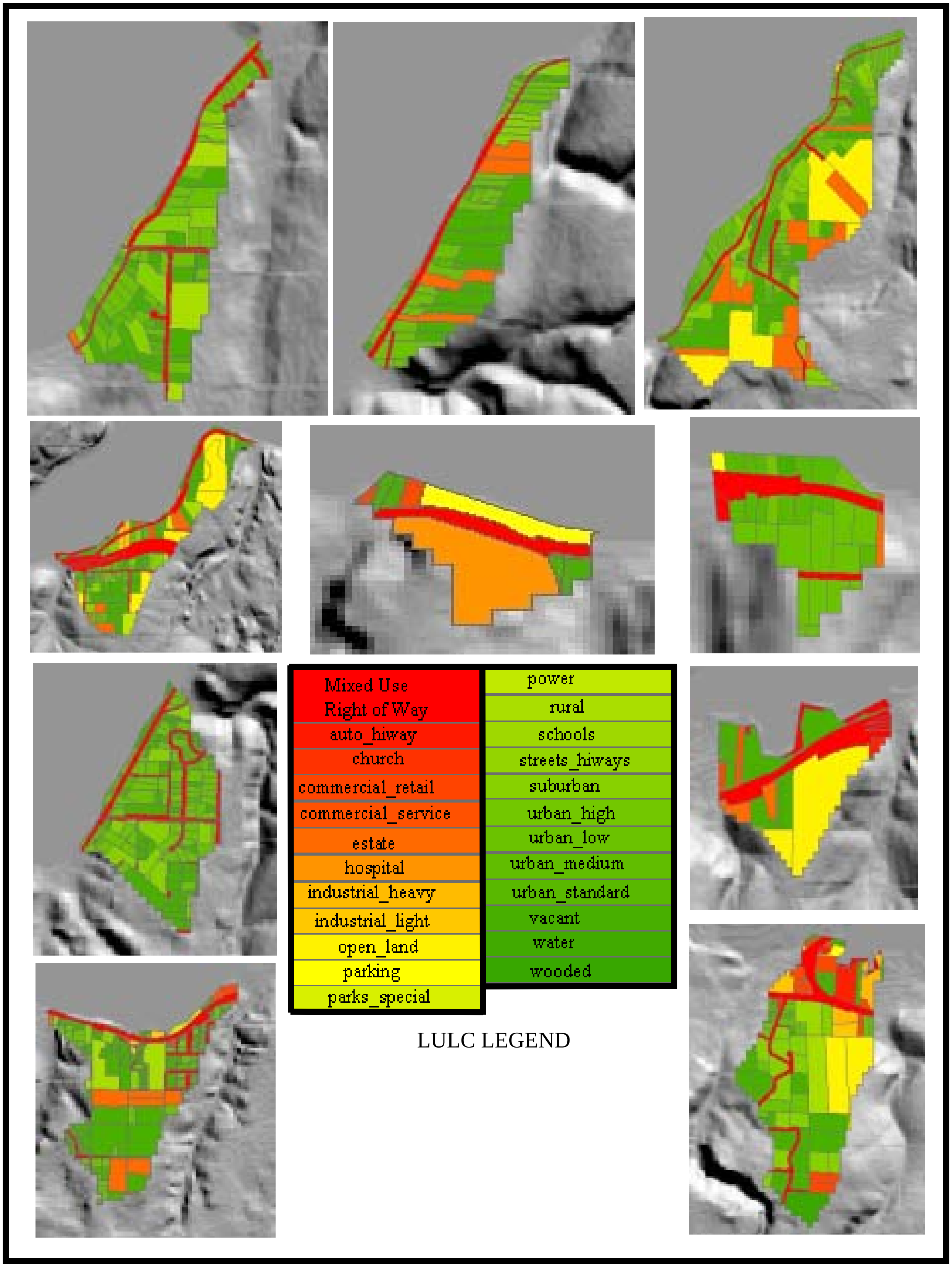


Figure 3 Land Use Land Cover Parcels for Sinclair South

LandCode	Percent Impervious	Area Sq. Feet	Impervious Area Sq Feet	% of Total Area	%TIA of Total Area
Mixed Use-Right of Way	44.3%	7454534.67	3302358.86	15.20%	6.73%
Auto_Hiway	55.9%	291229.50	162797.29	0.59%	0.33%
Church	46.0%	14165.40	6516.08	0.03%	0.01%
Commercial_Retail	59.5%	615102.15	365985.78	1.25%	0.75%
Commercial_Service	55.1%	232820.99	128284.37	0.47%	0.26%
Estate	20.8%	2084124.54	433497.90	4.25%	0.88%
Hospital	66.4%	292864.00	194461.70	0.60%	0.40%
Industrial_Heavy	82.1%	1775406.48	1457608.72	3.62%	2.97%
Industrial_Light	59.8%	455180.85	272198.15	0.93%	0.56%
Open_Land	9.3%	6657444.69	617145.12	13.57%	1.26%
Parking	51.4%	148859.21	76513.63	0.30%	0.16%
Parks_Special	19.2%	165291.94	31736.05	0.34%	0.06%
Power	5.7%	258162.00	14715.23	0.53%	0.03%
Rural	16.1%	1756697.80	282828.35	3.58%	0.58%
Schools	46.0%	240133.00	110461.18	0.49%	0.23%
Streets_	49.9%	14677.35	7324.00	0.03%	0.01%
Suburban	38.9%	4341951.32	1689019.06	8.85%	3.44%
Urban_High	25.9%	22534.45	5836.42	0.05%	0.01%
Urban_Low	38.2%	6505802.76	2485216.65	13.27%	5.07%
Urban_Medium	35.6%	101391.04	36095.21	0.21%	0.07%
Urban_Standard	44.0%	1427873.02	628264.13	2.91%	1.28%
Vacant	11.4%	13682131.29	1559762.97	27.90%	3.18%
Water	9.2%	168766.91	15526.56	0.34%	0.03%
Wooded	4.2%	336095.60	14116.02	0.69%	0.03%
Total Area Sq. Ft.		49043240.94	13898269.43		28.34%
Acres		1125.88	319.06		

Table 1 Sinclair South Shoreline Land Use Land Cover Data

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	Salinity	Secci Dish	Spec cond	Temp C	TDS	Turb
03030710	BJ-EST	BKCHD	14-Jan-03	FCOL(MF)				13							
03040704	BJ-EST	PSNS-NS/M	24-Jan-03	FCOL(MF)				80				44.08	8.97		
03020704	BJ-EST_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				45				43.4	8.13		
02460711	BJ-EST_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		2.7		21			2.7				
02510704	BJ-EST_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		4		43		29.12	4	43.5	9.25		100
080701LMK128	LMK128	SSWM	07-Aug-01	Methods 9060 A & B	6.9			44				128.5	14.5		12
02450612	LMK128	SSWM-SW	07-Nov-02	FCOL(MF)	7.4		10.7	1540	96.9	0.04		95	10.94		
02460602	LMK128	SSWM-SW	12-Nov-02	FCOL(MF)	7.4		11.5	2900	102	0.04		93	10.28		
02460616	LMK128	SSWM-SW	13-Nov-02	FCOL(MF)	7.5		11.4	1600	102	0.07		143	10.51		
02470603	LMK128	SSWM-SW	18-Nov-02	FCOL(MF)				833							
02470604	LMK128	SSWM-SW	18-Nov-02	FCOL(MF)	7.4			600				123	9.7		14.2
02470619	LMK128	SSWM-SW	20-Nov-02	FCOL(MF)				350							
02470637	LMK128	SSWM-SW	21-Nov-02	FCOL(MF)				2075							
02490611	LMK128	SSWM-SW	05-Dec-02	FCOL(MF)	7.7		12	325	103	0.1		216	8.47		11
02500601	LMK128	SSWM-SW	10-Dec-02	FCOL(MF)	7.7		11.9	63	101	0.06		119	7.96		13.5
02500602	LMK128	SSWM-SW	10-Dec-02	FCOL(MF)	7.6		11.9	84	99.1	0.06		117	7.57		13.2
02500614	LMK128	SSWM-SW	12-Dec-02	FCOL(MF)	7.6		11.7	180	103	0.06		129	9.43		7.66
02510601	LMK128	SSWM-SW	16-Dec-02	FCOL(MF)	7.6		12.3	124	105	0.05		113	8.31		14
02510622	LMK128	SSWM-SW	18-Dec-02	FCOL(MF)	7.6		13.1	284	109	0.08		169	7.53		5.92
02510636	LMK128	SSWM-SW	19-Dec-02	FCOL(MF)	7.7		12.7	49	106	0.08		169	7.69		5.43
03030601	LMK128	SSWM-SW	13-Jan-03	FCOL(MF)	7.3		12.2	124	102	0.05		107	7.62		7.55
03030602	LMK128	SSWM-SW	13-Jan-03	FCOL(MF)	7.2		12.1	124	101	0.05		107	7.59		8.04
03030617	LMK128	SSWM-SW	14-Jan-03	FCOL(MF)	7.3		12.3	168	103	0.05		110	7.73		5.93
03040612	LMK128	SSWM-SW	21-Jan-03	FCOL(MF)	7.3		12.3	240	104	0.05		107	7.98		22.7
03040625	LMK128	SSWM-SW	22-Jan-03	FCOL(MF)	7.3		11.7	340	99.8	0.03		61	8.39		35
03040638	LMK128	SSWM-SW	23-Jan-03	FCOL(MF)	7.3		11.8	230	102	0.05		116	9.04		12.3
02450557	LMK155	POKC	07-Nov-02	FCOL(MF)			10.7	120					10.1		
02460557	LMK155	POKC	12-Nov-02	FCOL(MF)			10.2	140					11.9		

Table 2 Fecal Coliform and Ancillary Data for Sinclair South Shoreline Area

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	Salinity	Secci Dish	Spec cond	Temp C	Turb
02460565	LMK155	POKC	13-Nov-02	FCOL(MF)				55					
02470557	LMK155	POKC	18-Nov-02	FCOL(MF)			10.7	38				10.6	
02470565	LMK155	POKC	20-Nov-02	FCOL(MF)			10.4	8				11.3	
02480557	LMK155	POKC	04-Dec-02	FCOL(MF)			11.4	16				8.2	
02490556	LMK155	POKC	04-Dec-02	FCOL(MF)			11.2	4				8.3	
02490557	LMK155	POKC	04-Dec-02	FCOL(MF)			11.2	4				8.3	
02500557	LMK155	POKC	09-Dec-02	FCOL(MF)			10.6	5				10	
02500565	LMK155	POKC	10-Dec-02	FCOL(MF)			11.4	560				7.8	
02500573	LMK155	POKC	12-Dec-02	FCOL(MF)				34					
02510557	LMK155	POKC	15-Dec-02	FCOL(MF)				47					
02510565	LMK155	POKC	16-Dec-02	FCOL(MF)				10					
03030555	LMK155	POKC	13-Jan-03	FCOL(MF)	6.9		10.2	83			107.39	9.4	1.45
03030561	LMK155	POKC	14-Jan-03	FCOL(MF)				11					
03040555	LMK155	POKC	23-Jan-03	FCOL(MF)				20					
03040561	LMK155	POKC	23-Jan-03	FCOL(MF)				28					
FC-200203-003	M3	PSNS-NS/M	10-Mar-02	APAH -MPN				4.5					
FC-200203-021	M3	PSNS-NS/M	12-Mar-02	APAH -MPN				0					
FC-200203-041	M3	PSNS-NS/M	13-Mar-02	APAH -MPN				7.8					
03030713	M3	BKCHD	14-Jan-03	FCOL(MF)				8					
03040641	M3	PSNS-NS/M	24-Jan-03	FCOL(MF)				2	28.86	17	44.56	9.07	20.6
03020642	M3_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)		104		3	28.76	16	44.4	8.99	
02460641	M3_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	7.4	89.9		4	29.16	19	45	10.2	
02510642	M3_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		96		4	28.3	20	43.8	9.4	100
FC-200203-004	M4	PSNS-NS/M	10-Mar-02	APAH -MPN				0					
FC-200203-022	M4	PSNS-NS/M	12-Mar-02	APAH -MPN				0					
FC-200203-042	M4	PSNS-NS/M	13-Mar-02	APAH -MPN				2					
03030708	M4	BKCHD	14-Jan-03	FCOL(MF)				6					
03040640	M4	PSNS-NS/M	21-Jan-03	FCOL(MF)				19	27.91		43.06	8.62	6.29
03020643	M4_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)		40.7		3	29.97	14	43.3	8.29	

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair South Shoreline Area

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	Salinity	Secci Dish	Spec cond	Temp C	TDS	Turb
02460640	M4_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	7.5	34.3		8		28.95	14	44.5	10.56		
02510643	M4_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		40		4		28.18	0	43.2	9.14		10
03030706	SN05	BKCHD	14-Jan-03	FCOL(MF)				1							
03030707	SN05	BKCHD	14-Jan-03	FCOL(MF)		2.9		1		29.26					
03040701	SN05	PSNS-NS/M	24-Jan-03	FCOL(MF)				14				44.3	9.05		
032003SN05	SN05	KCHD	20-Mar-03	APAH 9221-E	8		7.3	2				27.5	9.6		0.5
041503SN05	SN05	KCHD	15-Apr-03	APAH 9221-E	8.4		11.1	1				27.9	10.7		1
052103SN05	SN05	KCHD	21-May-03	APAH 9221-E	7.8		5.6	2	62.2			26.2	14.3		
061203SN05	SN05	KCHD	12-Jun-03	APAH 9221-E	8.2		9.2	30				28.3	13.5		
072103SN05	SN05	KCHD	21-Jul-03	APAH 9221-E	8.5		13.4	4				27.6	21.8		
081903SN05	SN05	KCHD	19-Aug-03	APAH 9221-E	8.6		13.7	2	186			28	21.5		
091703SN05	SN05	KCHD	17-Sep-03	APAH 9221-E				1							
03020701	SN05_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				1				43.8	8.98		
02460700	SN05_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	7.4	2.9		5		29.26	2.9	45.1	10.91		
02510701	SN05_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		27.75		3		27.96	27.75	42.3	9.45		27
110100SN05	SN05_KCHD	BKCHD	01-Nov-00	APAH 9221-E				23							
120700SN05	SN05_KCHD	BKCHD	07-Dec-00	APAH 9221-E				2							
030101SN05	SN05_KCHD	BKCHD	01-Mar-01	APAH 9221-E				4							
042001SN05	SN05_KCHD	BKCHD	20-Apr-01	APAH 9221-E				1							
062101SN05	SN05_KCHD	BKCHD	21-Jun-01	APAH 9221-E				8							
080901SN05	SN05_KCHD	BKCHD	09-Aug-01	APAH 9221-E				7							
101101SN05	SN05_KCHD	KCHD	11-Oct-01	APAH 9221-E	7.8		5.4	1				30.8	13.6	61.5	5.6
122001SN05	SN05_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		9.6	80				12.8	5.8	84.7	17.3
032802SN05	SN05_KCHD	KCHD	28-Mar-02	APAH 9221-E	7.9		9.5	1				27.1	8.6	96.3	15.2
043002SN05	SN05_KCHD	KCHD	30-Apr-02	APAH 9221-E				17							
062702SN05	SN05_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.1		7.5	1				28.8	13.2	90.4	3.4
082202SN05	SN05_KCHD	KCHD	22-Aug-02	APAH 9221-E			7.4	23				29.3	17.5	93.3	8.9
101702SN05	SN05_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9		8.8	8				29.6	14.3	103	2
112002SN05	SN05_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9		7.1	1				30.1	11	79.4	

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair South Shoreline Area

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	Salinity	Secci Dish	Spec cond	Temp C	TDS	Turb
121702SN05	SN05_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.2		6.4	7				29	9.5	68.3	
011403SN05	SN05_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		6.8	1				29.8	9	69.8	1.6
03030709	SN10	BKCHD	14-Jan-03	FCOL(MF)				5							
03040702	SN10	PSNS-NS/M	24-Jan-03	FCOL(MF)				40				43.5	8.99		
032003SN10	SN10	KCHD	20-Mar-03	APAH 9221-E	8		7.3	1	75.9			28.7	9.6		
041503SN10	SN10	KCHD	15-Apr-03	APAH 9221-E	8.5		12.7	1	138			28.8	10.9		0.8
052103SN10	SN10	KCHD	21-May-03	APAH 9221-E	8.3		9	2	103			27.7	13.4		
061203SN10	SN10	KCHD	12-Jun-03	APAH 9221-E	8.1		8.9	1	103			27.9	14.5		
072103SN10	SN10	KCHD	21-Jul-03	APAH 9221-E	8.5		13.6	4	176			28.2	20		
081903SN10	SN10	KCHD	19-Aug-03	APAH 9221-E	8.9		18.3	11	200			28	21.2		4.4
091703SN10	SN10	KCHD	17-Sep-03	APAH 9221-E				1							
03020702	SN10_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				10				43	7.78		20
02460719	SN10_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	7.5	31.4		2		28.97	19	44.7	10.68		
02510702	SN10_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		38		14		27.96	20	43.3	9.02		100
110100SN10	SN10_KCHD	BKCHD	01-Nov-00	APAH 9221-E				13							
120700SN10	SN10_KCHD	BKCHD	07-Dec-00	APAH 9221-E				8							
030101SN10	SN10_KCHD	BKCHD	01-Mar-01	APAH 9221-E				8							
042001SN10	SN10_KCHD	BKCHD	20-Apr-01	APAH 9221-E				1							
062101SN10	SN10_KCHD	BKCHD	21-Jun-01	APAH 9221-E				11							
080901SN10	SN10_KCHD	BKCHD	09-Aug-01	APAH 9221-E				30							
101101SN10	SN10_KCHD	KCHD	11-Oct-01	APAH 9221-E	7.9		7.1	50				30.7	13.4	84.5	5.5
122001SN10	SN10_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.7		7.9	30				26.8	7.3	78.1	1.7
032802SN10	SN10_KCHD	KCHD	28-Mar-02	APAH 9221-E	8		10.7	4				27.7	8.5	103	14.2
043002SN10	SN10_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
062702SN10	SN10_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		12.1	80				28.5	16.6	148	3.1
082202SN10	SN10_KCHD	KCHD	22-Aug-02	APAH 9221-E			11.6	7				29.4	17.8	145	6.7
101702SN10	SN10_KCHD	KCHD	17-Oct-02	APAH 9221-E	8		9	2				29.6	13.3	104	0.9
112002SN10	SN10_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9			23				30.6	11.1	73.5	
121702SN10	SN10_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		7.3	17				29.1	9	75.7	

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair South Shoreline Area

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	Salinity	Secci Dish	Spec cond	Temp C	TDS	Turb
011403SN10	SN10_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		6.9	4				28.7	8.6	70.3	2.3
03030711	SN12	BKCHD	14-Jan-03	FCOL(MF)				1							
03040703	SN12	PSNS-NS/M	24-Jan-03	FCOL(MF)				5				43.51	9		
032003SN12	SN12	KCHD	20-Mar-03	APAH 9221-E	8		7.7	1	79.2			28.9	9.5		
041503SN12	SN12	KCHD	15-Apr-03	APAH 9221-E	8.6		14	1	151			28.8	10.7		0.9
052103SN12	SN12	KCHD	21-May-03	APAH 9221-E	8.4		10.1	1				27.1	13.7		
061203SN12	SN12	KCHD	12-Jun-03	APAH 9221-E	8.2		9.3	13	107			27.8	14.2		
072103SN12	SN12	KCHD	21-Jul-03	APAH 9221-E	8.5		14	1	182			28.4	19.8		
081903SN12	SN12	KCHD	19-Aug-03	APAH 9221-E	8.8		18.8	2				28.4	20.5		
091703SN12	SN12	KCHD	17-Sep-03	APAH 9221-E				1							
03020703	SN12_07Jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				10				43.6	8.39		
02460717	SN12_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)	7.5	7.5		5		29.06	7.5	44.9	10.6		
02510703	SN12_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		7.9		29		28.14	7.9	43.6	9.39		100
110100SN12	SN12_KCHD	BKCHD	01-Nov-00	APAH 9221-E				17							
120700SN12	SN12_KCHD	BKCHD	07-Dec-00	APAH 9221-E				80							
030101SN12	SN12_KCHD	BKCHD	01-Mar-01	APAH 9221-E				1							
042001SN12	SN12_KCHD	BKCHD	20-Apr-01	APAH 9221-E				1							
062101SN12	SN12_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
080901SN12	SN12_KCHD	BKCHD	09-Aug-01	APAH 9221-E				1							
101101SN12	SN12_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		7.8	4				30.8	13.2	90.7	6.1
122001SN12	SN12_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		9.1	110				17.9	6.6	82.4	9.4
032802SN12	SN12_KCHD	KCHD	28-Mar-02	APAH 9221-E	8		10.3	1				28.1	8.4	105	14.3
043002SN12	SN12_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
062702SN12	SN12_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		11.8	2				27.8	17	144	3
082202SN12	SN12_KCHD	KCHD	22-Aug-02	APAH 9221-E			9.4	2				29.9	15.4	113	20.2
101702SN12	SN12_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9		9	1				29.9	13.6	104	0.5
112002SN12	SN12_KCHD	KCHD	20-Nov-02	APAH 9221-E	7.9		7.3	4				31	10.9	80.7	
121702SN12	SN12_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		7.3	27				29.2	8.9	73.9	
011403SN12	SN12_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7.4	2				28.4	8.5	74.9	2

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair South Shoreline Area

SAMPLE_LABEL	SITE_LABEL	COLLECTOR_ORG	SAMPLE_DATE	METHOD_LABEL	pH	Depth	DO	FC	%O2	Salinity	Secci Dish	Spec cond	Temp C	TDS	Turb
03030712	SN13	BKCHD	14-Jan-03	FCOL(MF)				9							
03040705	SN13	PSNS-NS/M	24-Jan-03	FCOL(MF)				32				44.62	8.97		7.08
032003SN13	SN13	KCHD	20-Mar-03	APAH 9221-E	7.9		7.6	9				29	9.2		
041503SN13	SN13	KCHD	15-Apr-03	APAH 9221-E	8.4		11.2	2	120			28.9	10.1		0.9
052103SN13	SN13	KCHD	21-May-03	APAH 9221-E	8.4		10.6	1	121			27.8	13.3		
061203SN13	SN13	KCHD	12-Jun-03	APAH 9221-E	8.2		9.5	1				28.2	13.9		
072103SN13	SN13	KCHD	21-Jul-03	APAH 9221-E	8.3		11.3	1	140			28.4	17.7		
081903SN13	SN13	KCHD	19-Aug-03	APAH 9221-E	8.8		17	1	200			28.4	19.6		
091703SN13	SN13	KCHD	17-Sep-03	APAH 9221-E				1							
03020705	SN13_07jan03	PSNS-NS/M	07-Jan-03	FCOL(MF)				88				43.8	8.47		
02460716	SN13_14nov02	PSNS-NS/M	14-Nov-02	FCOL(MF)		3.5		120			3.5	24.9	9.6		
02510705	SN13_17dec02	PSNS-NS/M	17-Dec-02	FCOL(MF)		7.5		40		28.1	7.5	43.5	9.3		100
110100SN13	SN13_KCHD	BKCHD	01-Nov-00	APAH 9221-E				23							
120700SN13	SN13_KCHD	BKCHD	07-Dec-00	APAH 9221-E				130							
030101SN13	SN13_KCHD	BKCHD	01-Mar-01	APAH 9221-E				1							
042001SN13	SN13_KCHD	BKCHD	20-Apr-01	APAH 9221-E				1							
062101SN13	SN13_KCHD	BKCHD	21-Jun-01	APAH 9221-E				1							
080901SN13	SN13_KCHD	BKCHD	09-Aug-01	APAH 9221-E				1							
101101SN13	SN13_KCHD	KCHD	11-Oct-01	APAH 9221-E	8		7.8	1				30.8	13.4	90.2	7
122001SN13	SN13_KCHD	KCHD	20-Dec-01	APAH 9221-E	7.8		7.9	23				22.7	7.9	78.6	7.5
032802SN13	SN13_KCHD	KCHD	28-Mar-02	APAH 9221-E	8		10.2	2				28.3	8.1	103	14.6
043002SN13	SN13_KCHD	KCHD	30-Apr-02	APAH 9221-E				1							
062702SN13	SN13_KCHD	KCHD	27-Jun-02	APAH 9221-E	8.5		12.1	4				28.5	15.2	119	2.9
082202SN13	SN13_KCHD	KCHD	22-Aug-02	APAH 9221-E			12	2				29.9	16.2	146	13.4
101702SN13	SN13_KCHD	KCHD	17-Oct-02	APAH 9221-E	7.9		8.2	4				30.7	15.2	95.2	3
112002SN13	SN13_KCHD	KCHD	20-Nov-02	APAH 9221-E	8		7.4	4				31.1	10.8	82.7	
121702SN13	SN13_KCHD	KCHD	17-Dec-02	APAH 9221-E	8.3		6.9	17				29.3	9.5	72.2	
011403SN13	SN13_KCHD	KCHD	14-Jan-03	APAH 9221-E	7.3		7.3	11				28.6	8.6	74.9	2.3

Table 2 cont. Fecal Coliform and Ancillary Data for Sinclair South Shoreline Area

Figure 4 Sinclair Inlet southern shoreline east to west (upper left to lower right)

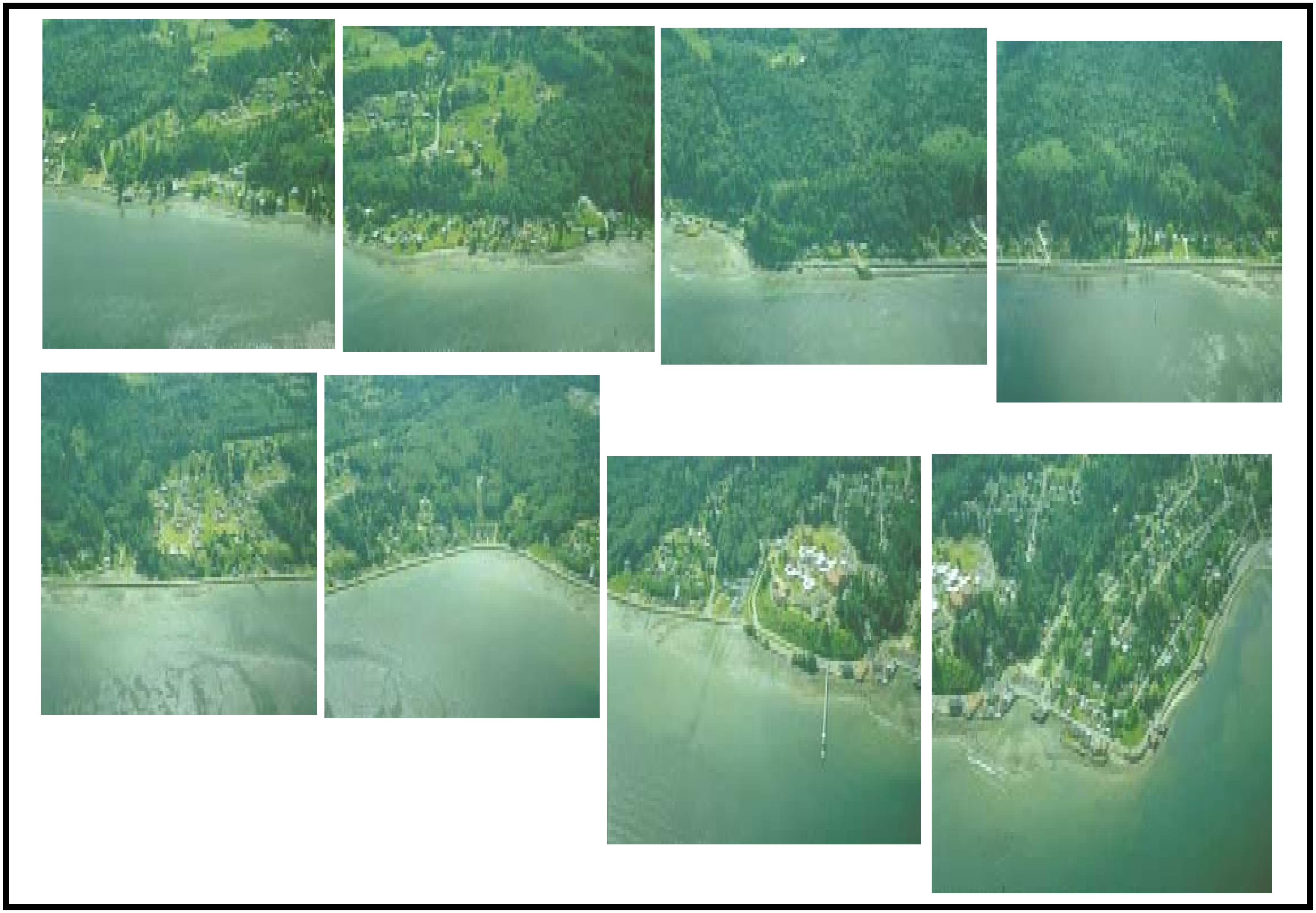


Figure 4 cont. Sinclair Inlet southern shoreline east to west (upper left to lower right)

Figure 4 cont. Sinclair Inlet southern shoreline east to west (upper left to lower right)

Figure 4 cont. Sinclair Inlet southern shoreline east to west (upper left to lower right)

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