WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dungeness River and Matriotti Creek Total Maximum Daily Load Study

Preliminary Data Results for November 1999 through October 2000

Abstract

As part of the Dungeness River and Matriotti Creek bacteria total maximum daily load (TMDL) study, the Washington State Department of Ecology (Ecology) conducted a series of surveys in 1999-2000. This interim report presents data collected during those surveys, including laboratory and field water quality data and flow data from instantaneous flow measurements.
A summary of the quality assurance and quality control analysis of the data is also provided. Ecology will use the data in this report to identify possible sources of bacteria to the shellfish beds and to recommend TMDL pollutant limitations for the lower Dungeness River basin and Matriotti Creek, to be published in a final report at a later date.

Background

In November 1999 Ecology began a year of monitoring as part of a water quality study of fecal coliform bacteria in the lower Dungeness River. The study area includes the lower Dungeness River, Hurd Creek, Matriotti Creek, Meadowbrook Creek, and Meadowbrook Slough (Figure 1). The purpose of the study is to:

1. Conduct a TMDL study for fecal coliform on Matriotti Creek.
2. Determine freshwater sources of fecal coliform that may be impacting Dungeness Bay.

In 1999 the Washington State Department of Health (DOH) reclassified a portion of Dungeness Bay from *Approved* for shellfish harvesting to *Prohibited*. The downgrade in classification is due to high levels of fecal coliform bacteria in the bay, which no longer meets DOH National Shellfish Sanitation Program water quality standards for an approved shellfish area.

Since late 1997 fecal coliform levels in Dungeness Bay have been increasing. In response, the Jamestown S'Klallam Tribe in cooperation with Clallam County began conducting water quality monitoring of tributaries adjacent to the bay. The monitoring program expanded to include more sites and additional tributaries of the Dungeness River. It became evident that poor water quality in the bay was due to a number of water quality problems in the basin. A comprehensive water quality study of the area was needed. In 1997 the Tribe and the Dungeness River Management Team requested Ecology's assistance with the study.

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January 2001
Publication No. 01-03-002
Waterbody Nos. WA-18-1010, WA-18-1012

Publication Information

This report is available on the Department of Ecology home page on the World Wide Web at http://www.ecy.wa.gov/biblio/0103002.html

For additional copies of this report, contact the Department of Ecology Publications Distribution Office and refer to publication number 01-03-002.

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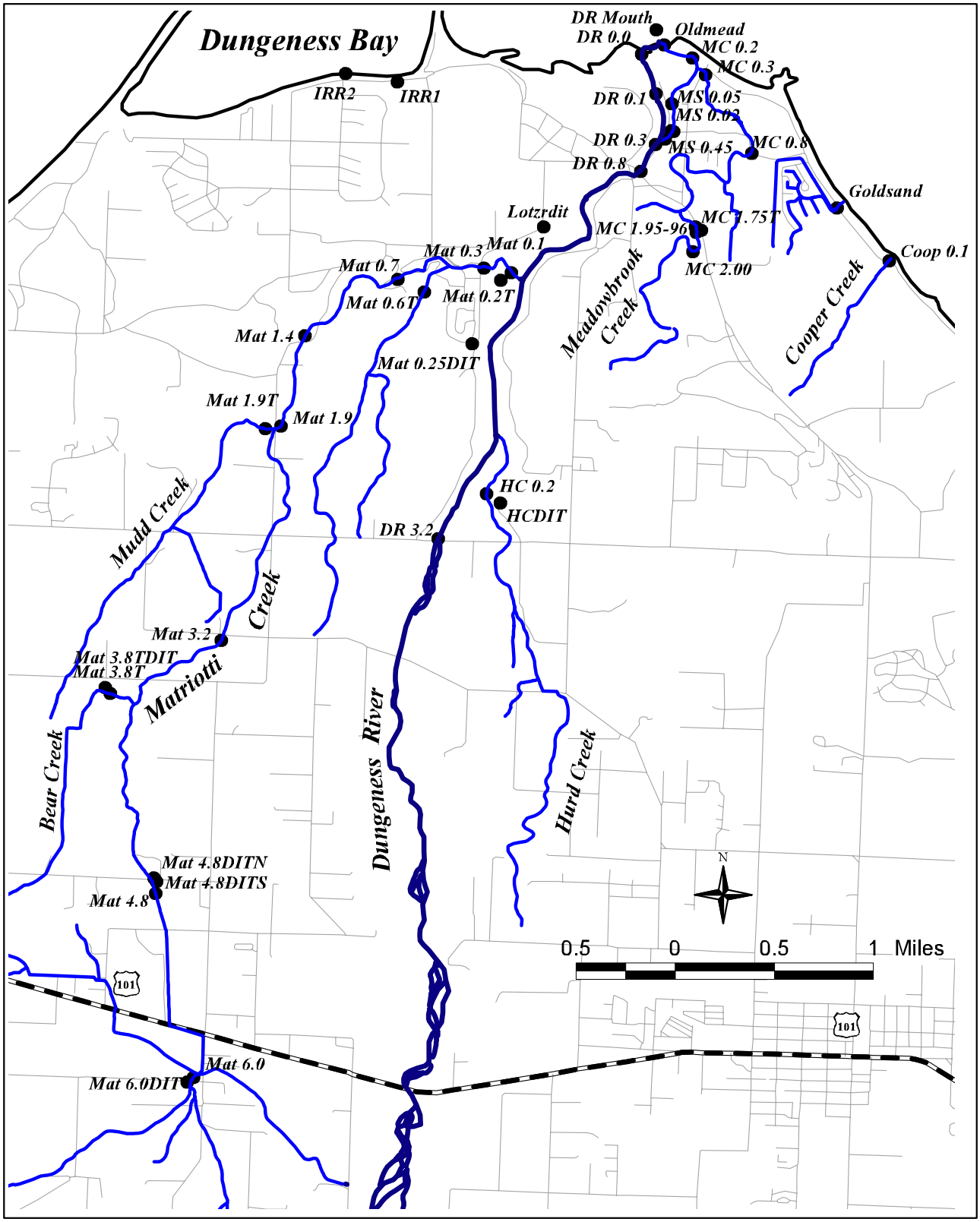

Figure 1. Dungeness River/ Matriotti Creek Water Quality Monitoring Sites.

In addition, Ecology is required to conduct a TMDL study on Matriotti Creek, a tributary to the lower Dungeness River. In 1996 Matriotti Creek was placed on Washington's 303(d) list of impaired waters because of fecal coliform bacteria violations. The 303(d) list (required by section 303(d) of the federal Clean Water Act) is a list of waterbodies that are not meeting water quality standards. Ecology is required by the Clean Water Act to conduct a TMDL evaluation for waterbodies on the 303(d) list. The evaluation begins with a water quality technical study.

This report presents preliminary results for water quality sampling of the lower Dungeness River, Matriotti Creek, Hurd Creek, and Meadowbrook Creek and Slough. In the interest of contributing to the Shellfish Closure Response Plan, Ecology is making this preliminary information available.

Study Area

The Dungeness River is located in the northeast corner of the Olympic Peninsula and is the major freshwater tributary to Dungeness Bay. The river is 32 miles long and drains 172,517 acres. The upper two-thirds of the watershed is national forest and national park. The lower 13-mile stretch of river flows through mostly private land. The Dungeness River emerges through the foothills at about river mile (RM) 10 to the relatively flat Dungeness valley. This study focuses on the Dungeness River and its tributaries below RM 3.2 (north of the Highway 101 bridge). Major tributaries in this stretch include Matriotti Creek and Hurd Creek. This study also includes Meadowbrook Creek, a small tributary that enters the bay to the east of the Dungeness River.

Land uses in the study area include residential, commercial, agricultural, and livestock, including a large animal park, the Olympic Game Farm, located near the mouth of Matriotti Creek. With increasing urbanization of the Sequim area, residential use is becoming a more predominant land use. While the city of Sequim is on sewer, residences and commercial establishments in the rural areas are on on-site sewage treatment systems. Matriotti, Hurd, and Meadowbrook creeks are used as a conveyance for the irrigation system.

The area climate is mild, because the area lies in the rain shadow of the Olympic Mountains and close to the Strait of Juan de Fuca and the Pacific Ocean. Precipitation varies from 15 inches near Sequim to 80 inches in the headwaters of the Dungeness River. Due to the low rainfall the lower Dungeness valley contains an extensive irrigation system to support agricultural crops in the valley. The irrigation land system begins with five diversions from the river between RM 11.1 and 6.7. There are more than 97 miles of irrigation ditches, with approximately 11,000 acres irrigated. Flows in both Matriotti and Meadowbrook Creeks are augmented as a result of irrigation and ditch leakage, and directly from ditch tailwater and stormwater.

Methods

Field personnel from Ecology, Jamestown S'Klallam Tribe, and Clallam County collected water quality data during a series of surveys. Surveys were conducted on the following 18 dates:

- November 16, 1999
- December 7, 1999
- December 21, 1999
- January 3, 2000
- January 26, 2000
- February 2, 2000
- February 23, 2000
- March 14, 2000
- April 24, 2000
- May 10, 2000
- June 6, 2000
- June 19, 2000
- July 6, 2000
- July 17, 2000
- August 9, 2000
- August 29, 2000
- September 19, 2000
- October 9, 2000

The study area was divided into two survey areas with a team of two people sampling all sites within an area. One survey area included the Meadowbrook Creek drainage, the Hurd Creek drainage, and the Dungeness River sites; the other survey area included Matriotti Creek and selected irrigation ditches west of Dungeness River. Field instruments were used by each team to collect pH, conductivity, dissolved oxygen, salinity, and temperature measurements. Laboratory parameters for each site are described in the Quality Assurance Project Plan (Sargeant, 1999), and methods are shown in Tables 1a and b.

Table 1a. Summary of field measurements, methods, and accuracy.

Parameter - Field Measurements	Method	Accuracy
Velocity	Current meter	± 0.1 f/s
Specific conductivity	Field meter	± 5%
pH	Field meter	± 0.2
Temperature	Red liquid thermometer	± 0.2 ºC
Dissolved oxygen	Winkler modified azide (EPA360.20 Field meter	± 0.1 mg/L ± 0.2 mg/L

Table 1b. Summary of laboratory measurements and methods.

Laboratory Parameters	Method
Fecal coliform – membrane filter (MF)	SM18 Membrane Filter 9222D
Fecal coliform – most probable number (MPN)	SM18 MPN 9221E (A-1 medium)
E-coli – membrane filter	EPA 1105
Turbidity	EPA 180.1
Total persulfate nitrogen	SM 4500 N C
Ammonia-nitrogen	EPA 350.1
Nitrite/nitrate nitrogen	EPA 353.2
Orthophosphate P	EPA 365.1
Total phosphorus	EPA 365.1

SM = Standard methods for the examination of waste and wastewater. Twentieth edition (1998). American Public Health Association, American Water Works Association, and Water Environment Federation. Washington, D.C.

EPA = Methods for the chemical analysis of water and wastes. Environmental Monitoring Supply Laboratory. U.S. Environmental Protection Agency. Cincinnati, OH. EPA-600/4-74-020. 1983.

On September 17, 2000 a tidal cycle monitoring study was conducted. Hourly membrane filter (MF) fecal coliform samples and field measurements were obtained at two Dungeness River sites. The upstream site was located at Dungeness RM 0.1 and the downstream site was located in the marine environment just off the mouth of the Dungeness River. At the upstream site a stream gauge was installed to determine river height and fluctuations. During sampling at both sites, field measurements for conductivity, salinity, and temperature were obtained.

Data Quality

Laboratory data

Laboratory samples were analyzed according to quality assurance and quality control procedures followed by Ecology's Manchester Environmental Laboratory (MEL) (Ecology, 1994). All general chemistry samples met holding time requirements. Microbiology samples were analyzed within 30 hours, which is standard procedure for MEL. Microbiology samples were not analyzed within the 6-hour window described in Standard Methods (APHA, 1992) because of the logistical challenges in collecting and transporting samples within the given time frame.

MEL was used for laboratory analysis of turbidity, nutrients, fecal coliform (MF), *E-coli*, and fecal coliform most probable number (MPN) analysis on December 21, 1999. The DOH laboratory in Seattle conducted all other MPN fecal coliform analysis following their standard protocols.

Duplicate field samples were used to estimate sampling precision, expressed as the coefficient of variation (CV). Duplicates are two field samples collected sequentially at the same site as close as possible in time. The percent CV is calculated by dividing the standard deviation by the mean of the duplicate pairs, and multiplying by 100. Field duplicates were collected for approximately 10% of all turbidity and nutrient samples, and 20% of all bacteria samples analyzed by MEL. Field duplicates were not obtained for DOH samples due to laboratory constraints.

Values below the detection limit were assumed to be the detection limit. Laboratory replicates were arithmetically averaged.

Precision for bacteria field duplicate results should not exceed 50% CV. At levels close to the method detection limit (less than 50 cfu/100 mL), a CV greater than 50% is acceptable.

The arithmetic average percent CV for bacterial results is presented in Table 2. Of 99 duplicate fecal coliform samples, 11 duplicates had a CV of greater than 50%. Of these 11, 10 duplicates had results of < 50 cfu/100 mL. Of concern is one fecal coliform sample and duplicate obtained on August 29, 2000 on the Dungeness River at Schoolhouse Road Bridge with a CV of 78%. The results were 130 and 450 cfu/100 mL. These values will be used with caution due to low precision. Fecal coliform duplicates obtained from other sites that day had an acceptable CV.

Table 2. Field precision for bacteria sampling.

	Average % CV for values ≤ 50 cfu/100 mL	Average % CV for values > 50 cfu/100 mL	Average % CV for all values
Fecal coliform	29%	15%	23%
E. coli	37%	15%	26%

For *E-coli*: of 52 duplicate pairs, 10 had a CV of greater that 50%. All 10 had one or both values below 50 cfu/100mL.

For all other parameters, precision for field duplicate measurements should not exceed 20% CV for results above the reporting limit. For results close to the reporting limit a higher CV may be acceptable. Table 3 presents average CV for nutrients and turbidity.

Table 3. Field precision for nutrient and turbidity sampling.

	Number of samples	Average % CV for values
Turbidity	18	9.0 %
Ammonia-nitrogen	17	10.3 %
Nitrite/Nitrate-nitrogen	17	2.2 %
Total Persulfate nitrogen	17	4.3 %
Ortho-phosphate	17	4.0 %
Total phosphorus	17	5.6 %

On November 16, 1999 turbidity and ammonia-nitrogen duplicates at the mouth of Meadowbrook Creek had a high CV of 50% and 36% respectively. At the time of sampling, salinity was high (27 ppt) indicating mixing with marine water. This mixing could produce high spatial variability, which may account for the differences in turbidity and ammonia-nitrogen duplicate values.

An ortho-phosphate (OP) blank was run with filtered distilled water at the end of every field sample day, except August 29 and October 9, 2000. Results are expected to be below detection limits for the field blank. Results were higher than detection limits on December 7, 1999 (0.008 mg/L OP), April 24, 2000 (0.089 mg/L OP), and July 6, 2000 (0.009 mg/L OP). For December 7, 1999 and July 6, 2000 results were close to detection limits, and OP results for these dates are acceptable. Due to the high blank result for OP on April 24, 2000, results for this day are qualified as an estimate.

Other than the exceptions noted above, all data are acceptable for use without qualification. Data variability will be taken into consideration in using the data for modeling and other analysis, and interpreting results.

Field data

Field instruments were calibrated according to manufacturer's instructions. The pH meters were pre- and post-checked against known standards. The dissolved oxygen meter was checked using the Winkler titration method at Ecology's headquarters laboratory in Lacey. Conductivity readings were compared with laboratory conductivity.

pH meter readings from the Matriotti survey area met pre- or post-check requirements (± 0.2 standard pH units) for all surveys except December 21, 1999, and June 6, July 17, August 29, and October 9, 2000. On February 2, 2000 the meter was recalibrated and functioning after 10:45 a.m. For the Meadowbrook/Dungeness River survey area pH pre- or post-checks did not meet requirements or the meter was not functioning on January 3 and 26, February 2 and 23, June 6 and 19, August 29, and September 19, 2000. Data were rejected for these dates.

Field conductivity was compared with laboratory conductivity for values below 1000 umhos/cm. The average CV is 8%, with values ranging from 0 to 23%. On December 21, 1999, and June 19, July 6 and 17, 2000 the conductivity meter for the Meadowbrook/Dungeness River survey area was not functioning properly. Data were rejected for these dates.

In Matriotti Creek a field meter was used to measure dissolved oxygen on June 6 and 19, and July 6 and 17, 2000. Field data compared favorably to the Winkler titrations for the Matriotti Creek sample area on June 6 and July 6, 2000. Data quality was unacceptable for the other areas and dates. Because the data quality from the meters was unpredictable, the method used for determining dissolved oxygen concentration was changed to Winkler titration after July 17 on

the Matriotti side and after July 6 on the Meadowbrook/Hurd and Dungeness side. Duplicate field samples were used to estimate sampling precision for the Winkler analysis; results were good with a CV of < 1%.

Several methods were used to determine flow discharge: instantaneous flow measurements, timed fill of a measured container, and flow estimate from the flow discharge-rating curve. Instantaneous flow measurements are the most accurate. Timed filling of a measured container tends to underestimate flow, because it is difficult to capture all the flow from the channel in a container.

Data Results

All data collected in this study are presented in Appendix A. In the data tables some results are qualified with symbols or codes. These symbols commonly referred to as qualifiers contain important information about that result. A list of data qualifiers is included in Appendix B.

Additional Reports

The Shellfish Closure Response Committee is currently working on a Closure Response Plan for Dungeness Bay. The plan contains recommendations to control bacterial sources that impact Dungeness Bay. Due to their need for information, Ecology will provide an analysis of possible sources of bacteria in the study area by February 28, 2001.

In addition to the TMDL study, the Jamestown S'Klallam Tribe is completing a circulation study of Dungeness Bay. The results of this study are due out by March 2001. Ecology has also recently completed a year of continuous flow monitoring on the Dungeness River at Schoolhouse Road Bridge and at the mouth of Matriotti Creek. Information from these two efforts will be incorporated in the final TMDL report.

References

APHA, 1992. Standard Methods for the Examination of Water and Wastewater, 18th Edition. American Public Health Association, Washington DC.

Ecology, 1994. Manchester Laboratory Quality Assurance Manual. Washington State Department of Ecology, Manchester, WA.

Sargeant, D., 1999. Quality Assurance Project Plan for Dungeness River/ Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study. Environmental Assessment Program, Washington State Department of Ecology, Olympia, WA.

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Appendix A

Water Quality Data

(paired results indicate field duplicates)

Table A-1. Cooper Creek

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm field	Conductivity umho/cm lab	Salinity ppt	Winkler D.O. mg/L	Flow cfs results	Flow cfs method	FC-mf #/100 mL	FC-mf #/100 mL	FC-MPN #/100 mL	FC-MPN #/100 mL
Cooper Creek mouth														
COOP 0.1	3/14/00	13:05	9.0				4			FND			13	
COOP 0.1	4/24/00	13:10	10.7	7.2	>1000	2860	1		4.2	IF	7	11	33	
COOP 0.1	5/10/00	11:40	11.0	7.4	>1000		7	8.9	8.9	IF	40		130	
COOP 0.1	6/6/00	14:36	12.3	7.2	>1000		7		5.6	IF	23		130	
COOP 0.1	6/19/00	8:05	12.7	7.0	*		5		6.3	IF	44		110	
COOP 0.1	7/6/00	9:50	12.2	8.4	*		6		5.6	IF	97		**	
COOP 0.1	7/17/00	10:05	14.4	8.0	*		5	9.5	5.3	IF	88	92	49	
COOP 0.1	8/9/00	12:20	13.5	7.9	>1000		2	11.0	3.4	IF	40		**	
COOP 0.1	8/29/00	9:35	12.5	*	>1000		5	8.8	5.7	IF	45		70	
COOP 0.1	9/19/00	9:15	11.2	*			1	9.4	3.0	IF	130		170	
COOP 0.1	10/9/00	10:15	10.0	6.5			1		3.5	IF	110		**	

Table A-2. Dungeness River - p.1

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL	Turbidity NTU	
Dungeness River at Woodcock Road Bridge (Right and Left Bank)															
DR 3.2 RB	11/16/99	11:14	7.8	7.5	99				4		2			15.5	
DR 3.2 LB	11/16/99	11:10							4		1			22	
DR 3.2 RB	12/7/99	12:45	6.0	8.6	102	118			1 U		NAF			5.0	
DR 3.2 LB	12/7/99	12:35	6.0	8.3	102				1 U		NAF			5.1	
DR 3.2 RB	12/21/99	12:45	5.6	8.0	*	120			2	5	2	5		8.4	
DR 3.2 LB	12/21/99	13:00	5.6	7.9	*	120			1		1			9.5	
DR 3.2 RB	1/3/00	10:35		*	120				5		5			0.6	
DR 3.2 LB	1/3/00	10:45	3.6	*	121				1 U		NAF			3.3	
DR 3.2 RB	1/26/00	12:05	4.3	*	115				1 U	1U	NAF	NAF		2.1	
DR 3.2 LB	1/26/00	12:15	4.4	*	117				1		1 U			2.4	
DR 3.2 RB	2/2/00	11:15	4.6	*	100				4		4			29	
DR 3.2 LB	2/2/00	11:20	4.4	*	102				6		6			29	
DR 3.2 RB	2/23/00	10:35	3.8	*	155				1		1			6.7	
DR 3.2 LB	2/23/00	10:38	3.8	*	142				2		1 U			7.1	
DR 3.2 RB	3/14/00	10:30	4.9	6.9	138				2		2			2.8	
DR 3.2 LB	3/14/00	10:40	4.9	7.0	161				1	1	1 U	1		2.7	
DR 3.2 RB	4/24/00	9:10	7.4	6.7	103				4		3			1.0	
DR 3.2 LB	4/24/00	9:20	4.9	6.9	139				5		5			2.0	
DR 3.2 RB	5/10/00	8:25	7.8	7.7	149	138			38	12	38	12		1 U	1 U
DR 3.2 LB	5/10/00	8:20	6.7	7.4	164				49		37			3.7	
DR 3.2 RB	6/6/00	11:25	9.0	*	95				6		6			10	
DR 3.2 LB	6/6/00	11:05	8.6	*	107			11.7	6	8	5	8		14	
DR 3.2 RB	6/19/00	14:20	10.9	*	*	86			9	7	8	6		7.8	8
DR 3.2 LB	6/19/00	14:00	10.2	*	*				5		5			13	
DR 3.2 RB	7/6/00	16:25	12.6	8.1	*	113			5		3			1.0	
DR 3.2 LB	7/6/00	16:15	12.9	8.7	*	105			4		1			2.5	
DR 3.2 RB	7/17/00	13:50	14.6	7.8	*	115		8.9	42		42			0.7	
DR 3.2 LB	7/17/00	13:45	14.3	8.0	*	101		10.3	4		4			2.7	
DR 3.2 RB	8/9/00	8:10	11.8	7.6	120	117		8.1	16					0.6	
DR 3.2 LB	8/9/00	8:00	11.7	7.7	112			10.0	25					1.6	
DR 3.2 RB	8/29/00	14:20	12.9	*	115			9.0	3					0.5	
DR 3.2 LB	8/29/00	14:15	12.9	*	165			10.8	10					0.7	
DR 3.2 RB	9/19/00	11:50	12.5	*	121	125		8.7	14					1.1	
DR 3.2 LB	9/19/00	11:50	12.5	*	122			11.0	3					0.5 U	
DR 3.2 RB	10/9/00	13:55	9.8	6.9	142				180 J					0.7	
DR 3.2 LB	10/9/00	14:05	10.3	7.3	152				9					0.7	

Table A-2. Dungeness River - p.2

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL	Turbidity NTU	
Dungeness River at Schoolhouse Road Bridge (Right and Left Bank)															
DR 0.8 RB	11/16/99	11:52	8.0	7.6	92				6		4		11	24	
DR 0.8 LB	11/16/99	11:49							8		7		7.8	21	
DR 0.8 RB	12/7/99	12:10	6.0	8.3	108				4		4		2	5.9	
DR 0.8 LB	12/7/99	11:55	6.0	8.4	103				4		4		1.8 U	5.4	
DR 0.8 RB	12/21/99	12:00	5.7	7.9	*	125			4		4		4.5	11	
DR 0.8 LB	12/21/99	12:15	5.7	7.7	*	124			4		4		4.5	11	
DR 0.8 RB	1/3/00	11:10	4.0	*	125				9		7		**	4.1	
DR 0.8 LB	1/3/00	11:20		*	112				9		9		**	4.2	
DR 0.8 RB	1/26/00	12:45	3.9	*	115				8		7		23	3.3	
DR 0.8 LB	1/26/00	12:50	3.9	*	117				7		7		9.2	3.9	
DR 0.8 RB	2/2/00	11:50	5.1	*	103				25		25		**	31	
DR 0.8 LB	2/2/00	12:00	4.9	*	105				25		25		23	30	
DR 0.8 RB	2/23/00	11:30	4.2	*	139		0		3		3		2.0	6.9	7.0
DR 0.8 LB	2/23/00	11:10	5.0	*	168		0		5		4		33	7.4	
DR 0.8 RB	3/14/00	9:55	5.2	6.9	149		0		4		4		14	2.8	
DR 0.8 LB	3/14/00	10:05	5.2	6.9	164		0		13		13		13	3.0	
DR 0.8 RB	4/24/00	11:15	6.5	7.9	110		0		12		6		11	2.0	
DR 0.8 LB	4/24/00	11:25	6.3	7.6	109	134	0		3	14	3	11	14	2.0	2.2
DR 0.8 RB	5/10/00	8:55	7.2	7.3	213		0		100		93		70	3.5	
DR 0.8 LB	5/10/00	9:00	7.2	7.9	231		0		110		97		170	5.9	
DR 0.8 RB	6/6/00	12:00	9.2	*	126		0	11.6	10		9		17	15	
DR 0.8 LB	6/6/00	12:10	8.8	*	121	87	0		10		8		21	15	
DR 0.8 RB	6/19/00	9:35		*	*		0		27		22		**	14	
DR 0.8 LB	6/19/00	9:30	8.9	*	*		0		19		17		**	15.0	
DR 0.8 RB	7/6/00	14:40	13.0	8.4	*	111	0	10.5	22	27	17	22	**	2.7	3.0
DR 0.8 LB	7/6/00	14:55	13.6	8.3	*	108	0		30		14		**	3.0	
DR 0.8 RB	7/17/00	14:25	14.8	7.8	*	106	0	10.6	11		9		31	2.6	
DR 0.8 LB	7/17/00	14:20	15.0	7.8	*	105	0	10.2	15	17	12	15	17	2.5	3.2
DR 0.8 RB	8/9/00	9:50	12.2	8.0	112		0	10.7	62				79	1.7	
DR 0.8 LB	8/9/00	10:05	12.2	8.1	114		0	10.6	63				49	1.5	
DR 0.8 RB	8/29/00	12:50	12.1	*	155		0	10.9	450	130			70	1.2	1.2
DR 0.8 LB	8/29/00	13:05	12.3	*	169	131	0	10.9	200				920	1.4	
DR 0.8 RB	9/19/00	11:25	12.3	*	123		0	10.5	54				70	1.3	
DR 0.8 LB	9/19/00	11:25	12.4	*	98		0	10.9	63				79	1.4	
DR 0.8 RB	10/9/00	13:20	9.9	7.4	152		0		34				33	1.1	
DR 0.8 LB	10/9/00	13:15	10.0	7.4	150	147	0		54				17	1.5	

Table A-2. Dungeness River - p.3

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL	Turbidity NTU	
Dungeness River at Garinsky's															
DR 0.3 RB	11/16/99	12:21	7.9	8.0	93		0		7						
DR 0.3 RB	12/7/99	10:54	6.0	8.5	107		0		7						
DR 0.3 RB	12/21/99	11:00	5.4	7.7	*		0		2						
DR 0.3 RB	1/3/00	11:35	3.9	*	128		0		9	10					
DR 0.3 RB	1/26/00	10:03	3.0	*	149		0		3						
DR 0.3 RB	2/2/00	12:35	5.1	*	111		0		29						
DR 0.3 RB	2/23/00	12:00	4.5	*	137		0		5						
DR 0.3 RB	3/14/00	12:10	6.1	7.5	152		0		7						
DR 0.3(Mid)	4/24/00	12:10	6.3	7.5	102		0		8						
DR 0.3(Mid)	5/10/00	10:25	7.1	7.9	168		0		86						
DR 0.3(Mid)	6/6/00	13:25	8.6	*	111		0		11						
DR 0.3 RB	6/19/00	10:25	8.9	*	*		0	11.5	9						
DR 0.3(Mid)	7/6/00	13:40	12.3	8.4	*		0		4						
DR 0.3(Mid)	7/17/00	11:50	12.0	7.9	*	108	0	11.0	28						
DR 0.3(Mid)	8/9/00	10:30	12.2	7.9	116		0	10.7	69	53					
DR 0.3(Mid)	8/29/00	11:05	12.0	*	149		0	9.9	110						
DR 0.3(Mid)	9/19/00	10:35	12.2	*	140		0	11.1	64						
DR 0.3(Mid)	10/9/00	11:40	10.2	7.1	157		0		17						
Dungeness River at south end of Dungeness Conservation Farm															
DR 0.1 RB	11/16/99	13:36	8.2	7.7	96		0		19						
DR 0.1 RB	12/7/99	10:30	6.0	8.2	111		0		14						
DR 0.1 RB	12/21/99	10:00	5.6	7.8	*		0		6						
DR 0.1 RB	1/3/00	13:00	4.2	*	133		0		9						
DR 0.1 RB	1/26/00	13:15	4.0	*	145		0		5						
DR 0.1 RB	2/2/00	13:25	4.8	*	123		0		34						
DR 0.1 RB	2/23/00	13:25	5.2	*	259		0		3	2					
DR 0.1 RB	3/14/00	14:05	6.2	7.4	190		0		38						
DR 0.1(Mid)	4/24/00	14:10	8.3	7.7	115		0		3						
DR 0.1(Mid)	5/10/00	14:15	8.2	8.2	190		0		21						
DR 0.1(Mid)	6/6/00	16:15	8.2	*	209		0	11.6	12						
DR 0.1 RB	6/19/00	14:50	10.9	*	*		0		24						
DR 0.1(Mid)	7/6/00	12:45	11.4	8.2	*		0	11.0	10						
DR 0.1(Mid)	7/17/00	10:55	11.3	7.9	*	116	0	10.9	12						
DR 0.1(Mid)	8/9/00	13:45	14.6	8.1	123		0	10.3	23						
DR 0.1(Mid)	8/29/00	14:50	12.9	*	200		0	9.9	89						
DR 0.1(Mid)	9/19/00	13:00	13.2	*	150		0	11.1	41				46		
DR 0.1(Mid)	10/9/00	13:45	10.2	7.5	160		0		20						

Table A-2. Dungeness River - p.4

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL	Turbidity NTU	
Dungeness River at mouth															
DR 0.0	5/10/00	13:20	10.0	7.8	847		0		25				46		
DR 0.0	6/6/00	16:20	9.0	*			0		13		10		2		
DR 0.0	6/19/00	8:15	8.6	*	*		0	11.5	28		28		79		
DR 0.0	7/6/00	11:50	11.9	8.6	*		0	10.6	10		8		**		
DR 0.0	7/17/00	8:05	10.3	8.0	*	170	0	10.8	27		25		7.8		
DR 0.0	8/9/00	13:15	14.0	7.9	128		0	10.6	17				13		
DR 0.0	8/29/00	8:55	11.5	*			0	11.2	120				130		
DR 0.0	9/19/00	13:40	13.4	*	650		0	11.3	28				33-46		
DR 0.0	10/9/00	9:20	10.0		740		0		19				49		

Table A-2. Dungeness River - p.5

Station Name	Date	Time	NH3 mg/L		NO3-2 mg/L		Total Persulfate Nitrogen mg/L		Ortho-Phosphate mg/L		Total Phosphorus mg/L	
Dungeness River at Woodcock Road Bridge (Right and Left Bank)												
DR 3.2 RB	11/16/99	11:14	0.010 U		0.044		0.102		0.005		0.030	
DR 3.2 LB	11/16/99	11:10	0.010 U		0.039		0.097		0.005 U		0.052	
DR 3.2 RB	12/7/99	12:45	0.010 U		0.043		0.088		0.005 U		0.021	
DR 3.2 LB	12/7/99	12:35	0.010 U		0.043		0.089		0.005 U		0.018	
DR 3.2 RB	12/21/99	12:45	0.015		0.057		0.097		0.005		0.027	
DR 3.2 LB	12/21/99	13:00	0.010		0.058		0.108		0.005 U		0.027	
DR 3.2 RB	1/3/00	10:35	0.010 U		0.087		0.121		0.005 U		0.011	
DR 3.2 LB	1/3/00	10:45	0.010 U		0.044		0.077		0.005 U		0.014	
DR 3.2 RB	1/26/00	12:05	0.010 U		0.023		0.016		0.005 U		0.012	
DR 3.2 LB	1/26/00	12:15	0.010 U		0.024		0.061		0.005 U		0.013	
DR 3.2 RB	2/2/00	11:15	0.010 U		0.090		0.272		0.006		0.069	
DR 3.2 LB	2/2/00	11:20	0.010 U		0.089		0.186		0.006		0.067	
DR 3.2 RB	2/23/00	10:35	0.010 U		0.010 U		0.053		0.005 U		0.016	
DR 3.2 LB	2/23/00	10:38	0.010 U		0.010 U		0.066		0.005 U		0.014	
DR 3.2 RB	3/14/00	10:30	0.010 U		0.010 U		0.014		0.005		0.012	
DR 3.2 LB	3/14/00	10:40	0.010 U		0.010 U		0.022		0.005 U		0.011	
DR 3.2 RB	4/24/00	9:10	0.010 U		0.078		0.109		0.006 E		0.010 U	
DR 3.2 LB	4/24/00	9:20	0.010 U		0.045		0.069		0.025 E		0.029	
DR 3.2 RB	5/10/00	8:25	0.010 U	0.010 U	0.077	0.077	0.111	0.111	0.005 U	0.005 U	0.010 U	0.010 U
DR 3.2 LB	5/10/00	8:20	0.010 U		0.028		0.078		0.005		0.010 U	
DR 3.2 RB	6/6/00	11:25	0.010 U		0.034		0.114		0.005 U		0.013	
DR 3.2 LB	6/6/00	11:05	0.010 U	0.010 U	0.023	0.023	0.032	0.032	0.005 U	0.005 U	0.015	0.021
DR 3.2 RB	6/19/00	14:20	0.010 U	0.010 U	0.032	0.030	0.024	0.029	0.005 U	0.005 U	0.018	0.013
DR 3.2 LB	6/19/00	14:00	0.010 U		0.019		0.011		0.005 U		0.019	
DR 3.2 RB	7/6/00	16:25	0.010 U		0.058		0.082		0.024 J		0.010 UJ	
DR 3.2 LB	7/6/00	16:15	0.010 U		0.010 U		0.027		0.005 U		0.010 U	
DR 3.2 RB	7/17/00	13:50	0.010 U		0.059		0.075		0.005 U		0.010	
DR 3.2 LB	7/17/00	13:45	0.018		0.010 U		0.057		0.005 U		0.010 U	
DR 3.2 RB	8/9/00	8:10	0.010 U		0.048		0.069		0.005 U		0.011	
DR 3.2 LB	8/9/00	8:00	0.010 U		0.010 U		0.029		0.009		0.010 U	
DR 3.2 RB	8/29/00	14:20	0.010 U		0.049		0.081		0.005		0.010 U	
DR 3.2 LB	8/29/00	14:15	0.010 U		0.010 U		0.021		0.005 U		0.010 U	
DR 3.2 RB	9/19/00	11:50	0.010		0.010 U		0.010 U		0.005 U		0.015	
DR 3.2 LB	9/19/00	11:50	0.010 U		0.044		0.060		0.005 U		0.012	
DR 3.2 RB	10/9/00	13:55	0.010 U		0.066		0.085		0.009		0.016	
DR 3.2 LB	10/9/00	14:05	0.010 U		0.010 U		0.017		0.006		0.010 U	

Table A-2. Dungeness River - p.6

Station Name	Date	Time	NH3 mg/L		NO3-2 mg/L		Total Persulfate Nitrogen mg/L		Ortho-Phosphate mg/L		Total Phosphorus mg/L	
Dungeness River at Schoolhouse Road Bridge (Right and Left Bank)												
DR 0.8 RB	11/16/99	11:52	0.010 UJ		0.032 J		0.112 J		0.005		0.050 J	
DR 0.8 LB	11/16/99	11:49	0.010 U		0.052		0.114		0.005		0.053	
DR 0.8 RB	12/7/99	12:10	0.010 U		0.067		0.121		0.005		0.020	
DR 0.8 LB	12/7/99	11:55	0.010 U	0.010 U	0.068	0.068	0.121	0.123	0.005 U	0.005	0.021	0.020
DR 0.8 RB	12/21/99	12:00	0.012		0.085		0.138		0.008		0.027	
DR 0.8 LB	12/21/99	12:15	0.013		0.085		0.138		0.006		0.026	
DR 0.8 RB	1/3/00	11:10	0.010 U	0.010 U	0.098	0.098	0.144	0.145	0.005 U	0.005	0.017	0.017
DR 0.8 LB	1/3/00	11:20	0.010 U		0.098		0.145		0.005		0.020	
DR 0.8 RB	1/26/00	12:45	0.010 U		0.079		0.132		0.005 U		0.017	
DR 0.8 LB	1/26/00	12:50	0.010 U		0.086		0.136		0.005 U		0.018	
DR 0.8 RB	2/2/00	11:50	0.010 U		0.112		0.189		0.007		0.063	
DR 0.8 LB	2/2/00	12:00	0.020		0.115		0.202		0.007		0.065	
DR 0.8 RB	2/23/00	11:30	0.010 U	0.010 U	0.051	0.051	0.108	0.109	0.005 U	0.005 U	0.017	0.017
DR 0.8 LB	2/23/00	11:10	0.010 U		0.052		0.116		0.005 U		0.019	
DR 0.8 RB	3/14/00	9:55	0.010 U		0.049		0.083		0.007		0.014	
DR 0.8 LB	3/14/00	10:05	0.010 U		0.049		0.086		0.013		0.013	
DR 0.8 RB	4/24/00	11:15	0.010 U		0.063		0.092		0.005 E		0.010 U	
DR 0.8 LB	4/24/00	11:25	0.010 U		0.062		0.089		0.005 UE		0.010 U	
DR 0.8 RB	5/10/00	8:55	0.010 U		0.059		0.108		0.007		0.012	
DR 0.8 LB	5/10/00	9:00	0.010 U		0.058		0.121		0.005 U		0.013	
DR 0.8 RB	6/6/00	12:00	0.010 U		0.034		0.241		0.005		0.022	
DR 0.8 LB	6/6/00	12:10	0.010 U		0.032		0.096		0.005 U		0.015	
DR 0.8 RB	6/19/00	9:35	0.010 U		0.031		0.028		0.005 U		0.021	
DR 0.8 LB	6/19/00	9:30	0.010 U		0.031		0.030		0.005 U		0.021	
DR 0.8 RB	7/6/00	14:40	0.010 U	0.010 U	0.030	0.032	0.054	0.053	0.005 U	0.005 U	0.010	0.010 U
DR 0.8 LB	7/6/00	14:55	0.010 U		0.029		0.052		0.005 U		0.010 U	
DR 0.8 RB	7/17/00	14:25	0.010 U		0.030		0.062		0.005 U		0.013	
DR 0.8 LB	7/17/00	14:20	0.010 U	0.010 U	0.029	0.030	0.059	0.061	0.005 U	0.005	0.010 U	0.010
DR 0.8 RB	8/9/00	9:50	0.010 U		0.030		0.055		0.009		0.012	
DR 0.8 LB	8/9/00	10:05	0.010 U		0.029		0.040		0.005 U		0.013	
DR 0.8 RB	8/29/00	12:50	0.010 U	0.010 U	0.048	0.048	0.094	0.077	0.008	0.013	0.012	0.011
DR 0.8 LB	8/29/00	13:05	0.010 U		0.048		0.073		0.006		0.012	
DR 0.8 RB	9/19/00	11:25	0.010 U		0.044		0.042		0.005 U		0.018	
DR 0.8 LB	9/19/00	11:25	0.010 U		0.046		0.030		0.005 U		0.013	
DR 0.8 RB	10/9/00	13:20	0.010 U		0.067		0.070		0.006		0.010 U	
DR 0.8 LB	10/9/00	13:15	0.010 U		0.063		0.078		0.006		0.010 U	

Table A-3. Dungeness River - Hourly Tidal Cycle Sampling on September 17, 2000

Dungeness River at south end of Northern Conservation Farm								**Dungeness River outflow just off mouth of river**					
Gauge in ft.	***Temp in °C***	***Cond umho/cm***	***Salinity ppt***	***Upstream Site***	***Time***	***FC***	***Tide at 1/2 hr in ft.***	***FC***	***Time***	***Downsteam Site***	***Salinity ppt***	***Temp in °C***	***Notes***
0.12	10.9	142	0	DR 0.1	6:30	**74**	6.2	**77**	6:45	DR mouth	0.1	11.1	300 birds U/S
0.08	10.9	144	0	DR 0.1	7:30	**80**	6.1	**64**	7:45	DR mouth	6.8	11.1	320 birds U/S
0.04	10.9	144	0	DR 0.1	8:30	**49**	5.4	**40**	8:45	DR mouth	11.0	11.3	>1000 birds U/S
0.00	11.0	145	0	DR 0.1	9:30	**67**	4.5	**13**	9:45	DR mouth	30.2	11.3	>1000 birds U/S
0.00	11.2	115	0	DR 0.1	10:30	**48**	3.6	**5**	10:45	DR mouth	31.0	12.1	>1000 birds U/S
0.00	11.6	112	0	DR 0.1	11:30	**37**	2.9	**<1**	11:45	DR mouth	30.0	12.6	>1000 birds U/S
0.00	12.2	140	0	DR 0.1	12:30	**22**	2.8	**5**	12:45	DR mouth	11.7	13.6	2000 birds U/S
0.00	12.8	138	0	DR 0.1	13:30	**27**	3.2	**6**	13:45	DR mouth	11.9	13.1	3000 birds U/S
0.00	13.4	140	0	DR 0.1	14:30	**28**	4.0	**5**	14:45	DR mouth	9.7	14.0	3000 birds U/S
0.00	13.9	139	0	DR 0.1	15:30	**64**	4.9	**13**	15:45	DR mouth	21.9	14.0	1500 birds U/S
0.08	14.2	140	0	DR 0.1	16:30	**80**	5.9	**6**	16:45	DR mouth	27.0	13.2	300 birds U/S
0.48	14.3	140	0	DR 0.1	17:30	**80**	6.6	**36**	17:45	DR mouth	10.2	14.0	250 birds U/S
0.68	14.3	140	0	DR 0.1	18:30	**49**	7.0						
0.59	14.2	140	0	DR 0.1	19:30	**59**	6.6						

Table A-4. Hurd Creek - p.1

Station Name	Date	Time	Temp in °C	pH std units	Conductivity Field umho/cm	Conductivity Lab umho/cm	Winkler D.O. mg/L	Flow cfs results	Flow cfs method	FC-mf #/100 mL		E-coli #/100 mL		FC-MPN #/100 mL		Turbidity NTU	
Hurd Creek near mouth																	
HC 0.2	11/16/99	10:35	9.6	7.3	145			6.3	IF	17	9	13	5	33	11	1.0	
HC 0.2	12/7/99	11:50	8.0	7.4	150			7.2	IF	6		4		2.0		0.7	
HC 0.2	12/21/99	13:15	8.7	7.6	163			6.5	IF	7		7		4.5		0.5 U	
HC 0.2	1/3/00	11:15	8.3	7.4	130			5.9	IF	2		2		**		1.1	
HC 0.2	1/26/00	11:35	8.2	*	126			4.5	IF	1		1		1.8 U		1.4	
HC 0.2	2/2/00	10:35	8.4	*	152	163		6.5	IF	3		3		4.5		1.4	
HC 0.2	2/23/00	10:05	8.2	*	140			4.9	IF	3		1 U		4.5		3.5	
HC 0.2	3/14/00	11:00	8.7	7.2	148	164		5.3	IF	1		1		1.8 U		0.5 U	
HC 0.2	4/24/00	10:00	8.5	7.0	123			4.8	IF	3	8	2	7	2		0.5 U	
HC 0.2	5/10/00	11:57	9.0	7.6	165	163		6.6	IF	26		25		33		1.0 U	
HC 0.2	6/6/00	9:55	9.1	*	147	157		6.2	IF	34		26		21		0.5	
HC 0.2	6/19/00	13:30	10.4	*	*			7.8	IF	36		31		22		0.5	
HC 0.2	7/6/00	15:42	10.7	7.4	*	161	9.0	6.6	IF	26		24		**		0.7	
HC 0.2	7/17/00	13:05	10.8	7.4	*	163	9.6	7.0	IF	560 J	420 J	560 J	420 J	350		0.5 U	
HC 0.2	8/9/00	8:45	9.8	7.3	168		9.5	6.8	IF	26				33		0.5 U	
HC 0.2	8/29/00	13:45	10.4	*	210	161	11.0	6.2	IF	32				49		0.5 U	
HC 0.2	9/19/00	12:25	10.5	*	154		9.3	6.8	IF	24				110		0.5 U	
HC 0.2	10/9/00	12:30	9.7	6.6	168			5.7	IF	110				220		0.5	

Table A-4. Hurd Creek - p.2

Station Name	Date	Time	NH3 mg/L		NO3-2 mg/L		Total Persulfate Nitrogen mg/L		Ortho-Phosphate mg/L		Total Phosphorus mg/L	
Hurd Creek near mouth												
HC 0.2	11/16/99	10:35	0.058		0.238		0.375		0.015		0.031	
HC 0.2	12/7/99	11:50	0.049		0.274		0.388		0.018		0.035	
HC 0.2	12/21/99	13:15	0.053		0.323		0.438		0.012		0.053	
HC 0.2	1/3/00	11:15	0.026		0.335		0.431		0.015		0.028	
HC 0.2	1/26/00	11:35	0.040		0.334		0.437		0.017		0.039	
HC 0.2	2/2/00	10:35	0.042		0.337		0.429		0.020		0.045	
HC 0.2	2/23/00	10:05	0.058		0.322		0.487		0.016		0.048	
HC 0.2	3/14/00	11:00	0.051		0.292		0.398		0.018		0.035	
HC 0.2	4/24/00	10:00	0.010 U	0.020	0.258	0.260	0.314	0.307	0.016 E	0.016 E	0.026	0.024
HC 0.2	5/10/00	11:57	0.050		0.262		0.368		0.021		0.030	
HC 0.2	6/6/00	9:55	0.048		0.224		0.306		0.012		0.016	
HC 0.2	6/19/00	13:30	0.010 U		0.221		0.268		0.012		0.021	
HC 0.2	7/6/00	15:42	0.013		0.238		0.288		0.013		0.012	
HC 0.2	7/17/00	13:05	0.011		0.247		0.296		0.009		0.018	
HC 0.2	8/9/00	8:45	0.016		0.239		0.244		0.010		0.022	
HC 0.2	8/29/00	13:45	0.022		0.218		0.281		0.014		0.023	
HC 0.2	9/19/00	12:25	0.025		0.223		0.206		0.014		0.026	
HC 0.2	10/9/00	12:30	0.010 U		0.205		0.213		0.012		0.028	

Table A-5. Irrigation Ditches - page 1

Station Name	Date	Time	Temp in °C	Salinity ppt	Flow - cfs results	method	FC-mf #/100 mL		FC-MPN #/100 mL
Golden Sands Ditch, south side of road.									
GOLDSAND	12/7/99	11:20	6.0	5		FNP			110
GOLDSAND	12/21/99	9:10		7		FNP			49
GOLDSAND	1/26/00	10:20	6.0	30		FNP			33
GOLDSAND	2/2/00	7:58	8.0	28		FNP			79
GOLDSAND	3/14/00	11:30	10.0	28		FNP			4.5
GOLDSAND	4/24/00	13:30	16.2	11		FNP			240
GOLDSAND	5/10/00	11:35	12.5	20		FNP			350
GOLDSAND	6/6/00	14:20	16.0	25		FNP			540
GOLDSAND	6/19/00	8:40	12.7	13		FNP			540
GOLDSAND	7/6/00	10:10	15.7	24		FNP			**
GOLDSAND	7/17/00	10:00	20.0	26		FNP			130
GOLDSAND	8/9/00	12:10	20.5	25		FNP			170
GOLDSAND	8/29/00	11:30				FNP			33
GOLDSAND	9/19/00	9:12	15.7	22		FNP			170
GOLDSAND	10/9/00	10:30	13.3			FNP			170
Irrigation ditch at 495 Marine Drive Road, south side of road.									
IRR1	6/6/00	17:24	12.6		< 0.1	IF	92	80	
IRR1	6/19/00	8:50	13.4		0.5	IF	320		
IRR1	7/6/00	16:08	19.8	freshwater	0.4	BF	200		
IRR1	7/17/00	14:10	17.5		0.2	BF	110		
IRR1	8/9/00	13:15	15.8		0.3	BF	150		
IRR1	8/29/00	13:57	14.6		0.2	BF	160	92	
IRR1	9/19/00					DD			
IRR1	10/9/00					DD			
Irrigation ditch on beach close to 182 Marine Drive Road.									
IRR2	6/6/00	17:05	13.2		0.06	BF	100		
IRR2	6/19/00	9:05	13.3		0.2	BF	33	27	
IRR2	7/6/00	16:28	15.3		0.001	BF	39		
IRR2	7/17/00			freshwater		DD			
IRR2	8/9/00	13:30	17.0		0.006	BF	560 J		
IRR2	8/29/00					DD			
IRR2	9/19/00					DD			
IRR2	10/9/00	9:05	12.3		0.01	BF	1300 J		
Irrigation ditch on east Lotzgazell Road, east side of road.									
LOTZRDIT	6/6/00	15:45	11.7		0.7	IF	200		
LOTZRDIT	6/19/00	9:20	12.7		0.5	IF	60		
LOTZRDIT	7/6/00	16:34	15.9		0.09	BF	35		
LOTZRDIT	7/17/00	14:05	20.0	freshwater	0.1	BF	24		
LOTZRDIT	8/9/00	13:05	18.4		0.1	BF	150 J	160	
LOTZRDIT	8/29/00	13:50	15.0		0.3	BF	170		
LOTZRDIT	9/19/00	13:54	18.5		0.04	BF	100		
LOTZRDIT	10/9/00					DD			

Table A-5. Irrigation Ditches - page 2

Station Name	Date	Time	Temp in °C	Salinity ppt	Flow - cfs results	Flow - cfs method	FC-mf #/100 mL		FC-MPN #/100 mL
Fascola Road Irrigation Ditch, Dungeness District									
HCDIT	4/24/00	9:50		freshwater		FND	59		
HCDIT	5/10/00	11:40				FND	150	J	
HCDIT	6/6/00	10:35	9.6		1.2	IF	230		210
HCDIT	6/19/00	13:45	12.9			FND	51		
HCDIT	7/6/00	15:25	13.8		0.9	IF	56		
HCDIT	7/17/00	12:55	13.0		1.7	IF	110		
HCDIT	8/9/00	8:30	12.7		1.0	IF	250		
HCDIT	8/29/00	13:30	12.4		1.0	IF	160		
HCDIT	9/19/00	12:10	14.0		0.3	IF	69		

Table A-6. Matriotti Creek and Tributaries - p. 1

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Matriotti Creek Ditch along south side of Atterbury Road																		
MAT 6.0DIT	11/16/99	8:10								FND	3							
MAT 6.0DIT	12/7/99	9:10							0.002	BF	11							
MAT 6.0DIT	12/21/99	8:38								FND	14							
MAT 6.0DIT	1/3/00	8:30							0.03	BF	52							
MAT 6.0DIT	1/26/00	8:55							0.004	BF	4							
MAT 6.0DIT	2/2/00	9:10							0.1	BF	2500	J						
MAT 6.0DIT	2/23/00	9:00								FND	9							
MAT 6.0DIT	3/14/00	14:15							0.006	BF	1		2					
MAT 6.0DIT	4/24/00	13:55	12.8						0.004	BF	16							
MAT 6.0DIT	5/10/00	13:30							0.07	BF	46							
MAT 6.0DIT	6/6/00	10:13	12.9						0.07	BF	580							
MAT 6.0DIT	6/19/00	14:25	15.3						0.3	IF	11		14					
MAT 6.0DIT	7/6/00	10:20	13.0						0.04	BF	8							
MAT 6.0DIT	7/17/00	8:15	14.7						0.001	BF	51							
MAT 6.0DIT	8/9/00	8:18	14.1						0.1	BF	9							
MAT 6.0DIT	8/29/00	8:30	12.6						0.05	BF	4							
MAT 6.0DIT	9/19/00	8:40	14.1						0.07	BF	19							
MAT 6.0DIT	10/9/00	9:49	10.8						0.2	BF	10							
Matriotti Creek north of Atterbury Road																		
MAT 6.0	11/16/99	8:07	8.3	7.9	272	293			0.3	IF	2		4	2			1.2	
MAT 6.0	12/7/99	9:05	4.0	6.7	278				1.8	IF	14			14			2.8	
MAT 6.0	12/21/99	8:32	4.2	*	170				2.1	IF	14			14			4.4	
MAT 6.0	1/3/00	8:30	3.2	8.0	204				2.8	IF	13			13			4.9	4.6
MAT 6.0	1/26/00	8:55	2.4	7.7	250				1.0	IF	140			140			2.9	
MAT 6.0	2/2/00	9:00	4.1	*	243				6.6	IF	130		87	100		85	14	
MAT 6.0	2/23/00	9:00	3.5	7.9	255				0.9	IF	14			12			3.5	
MAT 6.0	3/14/00	14:15	6.3	8.0	245				0.6	IF	13			12			2.8	
MAT 6.0	4/24/00	13:55	8.8	7.8	220	216			0.8	IF	210	J		190	J		4.5	
MAT 6.0	5/10/00	13:30	8.4	7.7	260				1.4	IF	66			60			7.5	
MAT 6.0	6/6/00	10:00	12.4	*	195		10.0	9.9	0.1	IF	355		360	290		220	13	13
MAT 6.0	6/19/00	14:15	14.1	8.0	184		*		0.4	IF	210			200			3.2	
MAT 6.0	7/6/00	9:48	12.6	8.1	168	142	9.5	10.0	0.4	IF	92			88			2.0	
MAT 6.0	7/17/00	8:05	12.4	*	168		*		0.2	IF	440			370			4.3	
MAT 6.0	8/9/00	8:08	14.7	8.8	111	129		9.6	0.8	IF	84						6.6	
MAT 6.0	8/29/00	8:10	12.7	*	140	149		9.9	0.5	IF	100						4.2	
MAT 6.0	9/19/00	8:30	14.2	7.7	150			9.2	0.3	e	32						4.1	
MAT 6.0	10/9/00	9:35	10.3	*	190				0.7	IF	37						4.0	

Table A-6. Matriotti Creek and Tributaries - p. 2

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Matriotti Creek north of Spath Road																		
MAT 4.8	11/16/99	8:34	8.6	8.0	271				0.5	IF	1		1 U					
MAT 4.8	12/7/99	9:45	4.1	7.1	259				2.3	IF	7		7					
MAT 4.8	12/21/99	8:47	5.1	*	192				2.1	IF	3	5	3	5				
MAT 4.8	1/3/00	9:15	3.2	8.0	238				3.0	IF	5		5					
MAT 4.8	1/26/00	9:20	2.4	8.0	255	236			1.1	IF	54		54					
MAT 4.8	2/2/00	9:30	4.2	*	218				6.2	IF	75		75					
MAT 4.8	2/23/00	9:17	4.0	8.1	230				1.0	IF	130		84					
MAT 4.8	3/14/00	14:00	7.0	8.2	225				0.8	IF	1 U		NAF					
MAT 4.8	4/24/00	13:25	11.5	8.0	212				0.8	IF	31	28	31	28				
MAT 4.8	5/10/00	13:00	9.4	7.6	225				1.8	IF	130		130					
MAT 4.8	6/6/00	10:35	12.8	*	157		11.3	11.2	0.3	IF	88		88					
MAT 4.8	6/19/00	13:50	17.1	8.3	165	159	*	10.1	0.4	IF	79		74					
MAT 4.8	7/6/00	10:35	13.0	6.8	108		9.6		0.6	IF	74	92	70	84				
MAT 4.8	7/17/00	8:45	12.6	*	132	113	*	9.9	0.8	IF	100		100					
MAT 4.8	8/9/00	8:35	14.0	8.1	118			8.6	1.5	IF	16							
MAT 4.8	8/29/00	8:45	12.8	*	125			8.8	0.5	IF	14							
MAT 4.8	9/19/00	9:20	14.6	7.4	155			8.6	0.5	e	9							
MAT 4.8	10/9/00	10:00	10.4	*	178				0.4	IF	18							
Irrigation Ditch south side of Spath Road																		
MAT 4.8DITS	4/24/00	13:25	11.1						0.02	BF	17							
MAT 4.8DITS	5/10/00	13:00	10.4						0.02	BF	92							
MAT 4.8DITS	6/6/00									DD								
MAT 4.8DITS	6/19/00									DD								
MAT 4.8DITS	8/9/00									FND	900							
MAT 4.8DITS	8/29/00	8:45	13.2						0.002	BF	5400 J							
MAT 4.8DITS	9/19/00									DD								
MAT 4.8DITS	10/9/00									DD								

Table A-6. Matriotti Creek and Tributaries - p. 3

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Irrigation Ditch north side of Spath Road																		
MAT 4.8DITN	1/26/00	9:30	3.0						0.2	IF	480	J						
MAT 4.8DITN	2/2/00	9:30	4.5						0.3	IF	21							
MAT 4.8DITN	2/23/00	9:15	3.6						0.3	IF	8							
MAT 4.8DITN	3/14/00	14:00							0.01	BF	2							
MAT 4.8DITN	4/24/00	13:25	9.2						0.2	BF	90							
MAT 4.8DITN	5/10/00	13:00	8.4						0.2	BF	160							
MAT 4.8DITN	6/6/00	10:40	9.4						0.3	BF	1800							
MAT 4.8DITN	6/19/00	13:55	12.0						0.7	IF	510							
MAT 4.8DITN	7/6/00	10:45	10.4						0.7	BF	77							
MAT 4.8DITN	7/17/00	8:55	11.0						0.4	BF	480		440					
MAT 4.8DITN	8/9/00	8:50	12.0						0.5	BF	970							
MAT 4.8DITN	8/29/00	8:40	10.5						0.3	BF	800							
MAT 4.8DITN	9/19/00	9:25							0.1	BF	870							
MAT 4.8DITN	10/9/00									DD								
Ditch that enters Bear Creek just above Bear Creek sample site																		
MAT 3.8TDIT	11/16/99	9:00								FND	50							
MAT 3.8TDIT	12/7/99	10:05								FND	11							
MAT 3.8TDIT	12/21/99	9:14							0.001	BF	4							
MAT 3.8TDIT	1/3/00	9:40							0.06	IF	55							
MAT 3.8TDIT	1/26/00	9:40	2.7							FND	48							
MAT 3.8TDIT	2/2/00	9:50	5.4						0.07	IF	39							
MAT 3.8TDIT	2/23/00	9:44							0.009	BF	10	J	6					
MAT 3.8TDIT	3/14/00	13:45							0.004	BF	8							
No water flow observed at MAT 3.8TDIT between 3/14 - 10/9/00.																		

Table A-6. Matriotti Creek and Tributaries - p. 4

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Bear Creek at the airport.																		
MAT 3.8T	11/16/99	9:00	8.6	7.8	211				1.1	IF	22							
MAT 3.8T	12/7/99	10:05	4.5	7.8	211				3.1	IF	18	16						
MAT 3.8T	12/21/99	9:14	5.7	*	182				3.1	IF	15							
MAT 3.8T	1/3/00	9:42	3.6	8.0	203				3.2	IF	70							
MAT 3.8T	1/26/00	9:40	3.2	7.7	250				1.3	IF	5							
MAT 3.8T	2/2/00	9:45	4.9	*	185				7.1	IF	190							
MAT 3.8T	2/23/00	9:44	5.8	7.9	245				1.0	IF	6							
MAT 3.8T	3/14/00	13:45	7.8	7.8	245				1.0	IF	1 U							
MAT 3.8T	4/24/00	13:05	11.5	7.6	192				1.3	IF	9	11						
MAT 3.8T	5/10/00	12:40	11.5	7.6	180				2.0	IF	42							
MAT 3.8T	6/6/00	12:45	14.8	*	148		9.7	9.6	1.2	IF	22	28						
MAT 3.8T	6/19/00	13:30	17.7	8.2	130		*		1.7	IF	86							
MAT 3.8T	7/6/00	11:00	17.9	6.9	111		9.6	9.8	1.8	IF	110							
MAT 3.8T	7/17/00	9:10	16.1	*	125		*		0.7	IF	330							
MAT 3.8T	8/9/00	9:06	16.8	7.7	125				1.0	IF	100	160						
MAT 3.8T	8/29/00	9:10	13.4	*	149				0.9	IF	20							
MAT 3.8T	9/19/00	9:45	15.1	7.3	160			7.6	1.3	e	16							
MAT 3.8T	10/9/00	10:15	10.9	*	160				0.8	IF	110							
Matriotti Creek at Macleay Road																		
MAT 3.2	11/16/99	9:20	9.0	7.8	231				1.6	IF	13		11					
MAT 3.2	12/7/99	10:25	4.5	7.8	217				5.9	IF	21	19	21	19				
MAT 3.2	12/21/99	9:38	5.7	*	210				5.6	IF	19		19					
MAT 3.2	1/3/00	10:12	3.8	8.0	217				7.7	IF	48		48					
MAT 3.2	1/26/00	9:55	3.7	7.7	240				3.7	IF	46	55	46	54				
MAT 3.2	2/2/00	10:05	4.8	*	170				13.5	IF	120		120					
MAT 3.2	2/23/00	10:06	5.4	7.9	195				3.2	IF	14		11					
MAT 3.2	3/14/00	13:25	7.4	8.0	255				3.1	IF	13		12					
MAT 3.2	4/24/00	12:50	8.3	7.6	195				2.6	IF	33		32					
MAT 3.2	5/10/00	12:20	9.6	7.6	200	202			5.7	IF	97	100	97	100				
MAT 3.2	6/6/00	11:45	12.7	*	145		9.3	9.17	2.2	IF	480		440					
MAT 3.2	6/19/00	13:10	14.5	8.2	160		*		3.0	IF	330	380	240	290				
MAT 3.2	7/6/00	11:50	13.1	7.0	160		9.0		2.6	IF	260		260					
MAT 3.2	7/17/00	9:35	13.2	*	145		*		2.2	IF	300		290					
MAT 3.2	8/9/00	9:30	14.3	7.7				8.55	3.4	IF	46							
MAT 3.2	8/29/00	9:30	13.5	*	185	190		8.43	1.8	IF	210	275						
MAT 3.2	9/19/00	10:05	14.0	7.4	200			8.09	2.2	e	130							
MAT 3.2	10/9/00	10:30	10.7	*	218				1.5	IF	370							

Table A-6. Matriotti Creek and Tributaries - p. 5

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Mudd Creek mouth near Cays Road																		
MAT 1.95T	11/16/99	10:00	9.1	7.7	258				0.2	IF	22							
MAT 1.95T	12/7/99	10:55	5.0	7.7	276				0.9	IF	230 J							
MAT 1.95T	12/21/99	10:05	6.4	*	305				0.8	IF	40							
MAT 1.95T	1/3/00	10:35	4.2	8.0	289				1.3	IF	200							
MAT 1.95T	1/26/00	10:10	3.9	7.9	340				0.6	IF	17							
MAT 1.95T	2/2/00	10:26	5.6	*	239				1.7	IF	1400							
MAT 1.95T	2/23/00	10:26	5.8	8.0	230				0.6	IF	40							
MAT 1.95T	3/14/00	12:50	8.1	8.0	315				0.4	IF	450							
MAT 1.95T	4/24/00	12:20	8.3	7.7	210				0.4	IF	52	61						
MAT 1.95T	5/10/00	11:20	8.3	7.6	168				1.6	IF	2100 J							
MAT 1.95T	6/6/00	12:15	12.4	*	172		10.9	10.8	0.4	IF	280							
MAT 1.95T	6/19/00	12:50	14.1	8.2	165		*		0.4	IF	130							
MAT 1.95T	7/6/00	12:15	13.3	7.0	180		10.5		0.6	IF	390	460						
MAT 1.95T	7/17/00	10:00	13.1	*	158		*		0.6	IF	310							
MAT 1.95T	8/9/00	9:55	13.2	7.5	170				0.7	IF	1100							
MAT 1.95T	8/29/00	9:47	12.7	*	225				0.3	IF	650							
MAT 1.95T	9/19/00	10:15	13.9	7.5	200			8.7	0.1	BF	730							
MAT 1.95T	10/9/00	10:50	10.4	*	198				0.3	IF	1300							
Matriotti Creek at Cays Road																		
MAT 1.9	11/16/99	9:45	9.5	7.8	261				3.6	IF	23		21					
MAT 1.9	12/7/99	11:10	5.2	7.8	248				8.1	IF	54		54					
MAT 1.9	12/21/99	10:17	6.5	*	195				9.6	IF	20		20					
MAT 1.9	1/3/00	10:45	4.5	7.9	237				10.7	IF	160 J	120	160	120				
MAT 1.9	1/26/00	10:20	4.3	7.8	250				5.3	IF	80		80					
MAT 1.9	2/2/00	10:38	5.4	8.0	189				18.5	IF	260		260					
MAT 1.9	2/23/00	10:52	6.4	7.8	275				4.7	IF	40	27	40	27				
MAT 1.9	3/14/00	13:05	8.0	8.0	275				4.0	IF	28		23					
MAT 1.9	4/24/00	12:00	8.8	7.6	225				4.6	IF	37		28					
MAT 1.9	5/10/00	11:10	9.1	7.3	170				6.6	IF	640 J	640 J	640 J	620 J				
MAT 1.9	6/6/00	12:05	12.8	*	212	216	10.2	10.1	3.3	IF	140		100					
MAT 1.9	6/19/00	12:30	14.1	8.4	200		*	9.9	4.6	IF	200		170					
MAT 1.9	7/6/00	12:40	13.8	6.4	198		10.2	10.4	4.0	IF	260		260					
MAT 1.9	7/17/00	10:20	14.3	*	198	200	*		3.8	IF	250	370	230	350				
MAT 1.9	8/9/00	10:02	14.1	7.6	180			7.5	4.7	IF	130							
MAT 1.9	8/29/00	10:00	13.5	*	230			9.6	3.4	IF	210							
MAT 1.9	9/19/00	10:26	14.0	7.7	200			9.5	3.7	e	2100 J							
MAT 1.9	10/9/00	11:00	10.8	*	255				2.9	IF	220							

Table A-6. Matriotti Creek and Tributaries - p. 6

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Matriotti Creek at Lamar Lane																		
MAT 1.4	11/16/99	10:16	9.7	7.7	261				3.4	IF	28		9					
MAT 1.4	12/7/99	12:22	5.6	7.6	237	268			7.7	IF	32		32					
MAT 1.4	12/21/99	10:48	6.6	*	198	272			7.9	IF	12	14	9	14				
MAT 1.4	1/3/00	12:00	4.6	7.5	237				8.7	IF	110		110					
MAT 1.4	1/26/00	10:40	4.3	7.8	275				5.4	IF	92		92					
MAT 1.4	2/2/00	11:57	5.3	7.7	227				16.6	IF	340		280					
MAT 1.4	2/23/00	11:12	6.3	7.9	275	285			4.5	IF	100		66					
MAT 1.4	3/14/00	12:35	8.2	8.0	280				3.8	IF	160	130	88	102				
MAT 1.4	4/24/00	11:45	9.0	7.6	230				4.3	IF	63		23					
MAT 1.4	5/10/00	10:50	9.4	7.5	200				8.0	IF	1000 J	1500 J	1000 J	1500 J				
MAT 1.4	6/6/00	13:00	13.0	*	228		10.5	10.4	3.5	IF	250 J		140					
MAT 1.4	6/19/00	12:11	15.1	8.2	200		*		4.0	IF	120		120					
MAT 1.4	7/6/00	13:05	14.0	6.7	155		11.6		4.0	IF	120		120					
MAT 1.4	7/17/00	10:40	14.5	*	215		*	11.1	3.8	IF	280		270					
MAT 1.4	8/9/00	10:20	14.2	7.7	185			10.0	4.4	IF	160	160						
MAT 1.4	8/29/00	10:25	13.5	*	212	227		10.3	2.6	IF	110	100						
MAT 1.4	9/19/00	10:40	14.0	7.8	199			9.9	3.5	e	1200							
MAT 1.4	10/9/00	11:15	10.8	*	265				3.0	IF	100							
Matriotti Creek at Northern Conservation Farm and Olympic Game Farm property boundary																		
MAT 0.7	11/16/99	11:55	9.4	7.8	268				3.6	IF	250		20					
MAT 0.7	12/7/99	12:45	5.5	7.7	240				7.8	IF	46	26	46	26				
MAT 0.7	12/21/99	11:30	6.7	*	240				9.1	IF	16		14					
MAT 0.7	1/3/00	12:30	4.6	7.9	230				9.9	IF	87 J		87					
MAT 0.7	1/26/00	11:05	4.6	7.8	275				4.7	IF	12		12					
MAT 0.7	2/2/00	11:25	5.3	7.8	216				16.2	IF	280		280					
MAT 0.7	2/23/00	12:09	6.8	8.0					4.6	IF	20		16					
MAT 0.7	3/14/00	12:05	7.8	8.0	258	283			3.4	IF	44		40					
MAT 0.7	4/24/00	11:15	8.3	7.6	220				4.0	IF	32		27					
MAT 0.7	5/10/00	10:05	9.4	7.6	205				8.0	IF	680 J		670 J					
MAT 0.7	6/6/00	13:47	12.8	*	220		10.1	10.0	2.6	IF	340 J		120					
MAT 0.7	6/19/00	11:15	13.8	8.3	220	194	*		3.9	IF	440		350				4.4	
MAT 0.7	7/6/00	13:50	14.9	7.0	198		10.2		3.6	IF	110		96				3.2	
MAT 0.7	7/17/00	11:40	15.0	*	199		*		3.3	IF	120		120				3.3	
MAT 0.7	8/9/00	11:15	14.6	7.8	135			9.9	3.6	IF	190						4.4	
MAT 0.7	8/29/00	11:15	13.7	*	230			10.0	2.7	IF	120						2.9	
MAT 0.7	9/19/00	11:22	15.0	7.9	189	225		9.8	2.8	e	910						3.0	
MAT 0.7	10/9/00	11:50	10.8	*	260				2.5	IF	350						3.0	

Table A-6. Matriotti Creek and Tributaries - p. 7

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Lotzgesell Creek (Twin Creek) at Northern Conservation Farm																		
MAT 0.6T	11/16/99	11:20	9.7	7.6	242				5.2	IF	28							
MAT 0.6T	12/7/99	13:05	7.6	7.5	245				6.0	IF	4							
MAT 0.6T	12/21/99	11:07	8.5	*	230				5.0	IF	15							
MAT 0.6T	1/3/00	12:50	7.4	7.7	219				5.6	IF	96							
MAT 0.6T	1/26/00	11:20	6.9	7.8	205				4.2	IF	76	77						
MAT 0.6T	2/2/00	11:55	8.1	7.6	255				5.6	IF	1300 J							
MAT 0.6T	2/23/00	11:40	8.0	7.9	215				3.7	IF	31 J							
MAT 0.6T	3/14/00	11:45	9.0	8.1	223				2.6	IF	2	7						
MAT 0.6T	4/24/00	11:00	8.8	7.4	215				3.9	IF	27							
MAT 0.6T	5/10/00	9:50	9.8	7.6	222				4.2	IF	100							
MAT 0.6T	6/6/00	13:30	11.8	*	202		10.2	10.1	4.2	IF	320							
MAT 0.6T	6/19/00	11:40	13.0	8.2	230		*		3.8	IF	37							
MAT 0.6T	7/6/00	13:30	13.8	7.2	223		11.2		2.6	IF	22							
MAT 0.6T	7/17/00	11:15	13.5	*	212		*		2.8	IF	67							
MAT 0.6T	8/9/00	10:48	13.2	7.6	185				4.3	IF	71							
MAT 0.6T	8/29/00	10:50	12.8	*	240				2.9	IF	27							
MAT 0.6T	9/19/00	11:10	13.4	7.4	250			9.6	4.4	ea	23							
MAT 0.6T	10/9/00	11:35	11.1	*	255				0.6	IF	33							
Matriotti Creek at Ward Road																		
MAT 0.3	11/16/99	12:15	9.6	7.7	245				8.7	IF	340		170					
MAT 0.3	12/7/99	13:40	6.3	7.6	272				11.2	IF	600	610	600	600				
MAT 0.3	12/21/99	12:13	7.3	*	235				14.5	IF	160 J		160					
MAT 0.3	1/3/00	13:15	5.6	7.9	256				14.3	IF	140 J		140					
MAT 0.3	1/26/00	11:45	5.6	7.8	215				9.2	IF	180		170					
MAT 0.3	2/2/00	12:25	6.2	7.8	236				21.2	IF	670	550	670	550				
MAT 0.3	2/23/00	12:38	7.9	7.9	280				9.7	IF	320	200	240	120				
MAT 0.3	3/14/00	10:40	8.5	7.8	280				6.7	IF	86		74					
MAT 0.3	4/24/00	10:10	8.5	7.5	235	230			7.6	IF	290		240					
MAT 0.3	5/10/00	9:20	9.4	7.6	172				14.3	IF	920		830					
MAT 0.3	6/6/00	14:28	12.5	*	228	216	10.4	10.3	8.6	IF	830	870	430	600				
MAT 0.3	6/19/00	10:50	13.7	8.3	225		*	10.1	8.5	IF	1700		1400				3.9	
MAT 0.3	7/6/00	14:29	15.8	7.2	200	206	10.4		9.5	IF	1900		1900				4.4	
MAT 0.3	7/17/00	12:10	16.0	*	210		*	10.5	6.2	IF	1100		870				3.6	
MAT 0.3	8/9/00	11:40	15.0	7.6	195	206		9.5	8.4	IF	1000						5.3	
MAT 0.3	8/29/00	11:45	13.8	*	200			9.9	5.6	IF	1900						6.2	
MAT 0.3	9/19/00	13:05	14.3	7.8	245			10.1	7.8	e	1800						6.5	
MAT 0.3	10/9/00	12:07	11.0	*	260	255			3.7	IF	3200						15	

Table A-6. Matriotti Creek and Tributaries - p. 8

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Irrigation ditch adjacent to Ward Road, at southern boundary of Olympic Game Farm																		
MAT 0.25DIT	4/24/00	10:30	8.9	7.4	155	194			0.3	BF	470							
MAT 0.25DIT	5/10/00	9:00	11.0	7.6	190				0.3	BF	320							
MAT 0.25DIT	6/6/00	14:15	13.8	*	195				0.3	BF	280							
MAT 0.25DIT	6/19/00	10:35	13.9						0.2	BF	130	130						
MAT 0.25DIT	7/6/00	14:55	16.0						0.3	BF	270							
MAT 0.25DIT	7/17/00	12:50	15.9	*					0.2	BF	270							
MAT 0.25DIT	8/9/00	12:07	14.8						0.2	BF	86							
MAT 0.25DIT	8/29/00	12:43	13.9	*					0.1	BF	140							
MAT 0.25DIT	9/19/00	12:53	14.8	7.2	205					FND	120							
MAT 0.25DIT	10/9/00	13:17	11.0	*	200				0.2	BF	740							
Beebe Creek																		
MAT 0.2T	12/7/99	14:30	7.5	7.7	160				5.9	IF	22							
MAT 0.2T	12/21/99	12:30	7.4	*	119				5.4	IF	7	3						
MAT 0.2T	1/3/00	14:10	6.8	7.6	146				4.9	IF	28	26						
MAT 0.2T	1/26/00	12:00	6.7	7.8	155				3.1	IF	11	7						
MAT 0.2T	2/2/00	12:40	7.1	7.7	154				6.0	IF	6							
MAT 0.2T	2/23/00	12:56	7.3	7.7	178				3.1	IF	2							
MAT 0.2T	3/14/00	11:00	7.4	8.0	165				3.0	IF	29							
MAT 0.2T	4/24/00	9:50	7.0	7.5	145				4.6	IF	88							
MAT 0.2T	5/10/00	8:30	7.9	7.7	160	160			4.5	IF	80							
MAT 0.2T	6/6/00	14:52	9.1	*	150		10.1	10.0	4.2	IF	120							
MAT 0.2T	6/19/00	10:15	9.0	8.1	150		*		5.8	IF	56							
MAT 0.2T	7/6/00	15:20	10.9	7.1	145		9.2		4.0	IF	43	32						
MAT 0.2T	7/17/00	13:05	10.6	*	147		*		4.5	IF	110							
MAT 0.2T	8/9/00	12:18	11.3	7.7	140				4.7	IF	100							
MAT 0.2T	8/29/00	12:55	11.5	*	150				3.6	IF	80							
MAT 0.2T	9/19/00	13:10	12.0	7.5	180			8.5	3.9	ea	200							
MAT 0.2T	10/9/00	12:55	10.7	*	165				4.0	IF	640							

Table A-6. Matriotti Creek and Tributaries - p. 9

Station Name	Date	Time	Temp in °C	pH Std units	Conductivity umho/cm		Dissolved Oxygen mg/L		Flow cfs		FC-mf #/100 mL		E-coli #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab	Meter	Winkler	Results	Method								
Matriotti Creek near mouth																		
MAT 0.1	11/16/99	12:45	9.4	7.7	179	205			18.5	IF	92	120	56	84	79		5.4	
MAT 0.1	12/7/99	14:00	6.9	7.6	231				23.4	IF	130 J		130		170		5.9	5.5
MAT 0.1	12/21/99	13:00	7.4	*	190	225			21.2	IF	170 J		170		170		9.5	
MAT 0.1	1/3/00	13:40	5.8	8.0	224				23.5	IF	160 J		160		**		14	
MAT 0.1	1/26/00	12:20	5.9	7.8	220				14.4	IF	88		84		130		10	
MAT 0.1	2/2/00	13:00	6.5	7.8	209				32.9	IF	440		420		350		20	
MAT 0.1	2/23/00	13:18	7.6	7.9	190				13.2	IF	110		100		130		8.9	
MAT 0.1	3/14/00	10:15	7.0	7.7	178	227			11.5	IF	120		120		120		5.8	
MAT 0.1	4/24/00	9:15	6.7	7.7	155				14.3	IF	520		500		920		2.9	
MAT 0.1	5/10/00	8:10	8.7	8.6	200				14.5	IF	900		470		920		3.2	
MAT 0.1	6/6/00	15:15	11.1	*	185		9.0	8.9	17.2	IF	400		370		240		2.4	
MAT 0.1	6/19/00	9:40	10.3	8.0	190		*	9.0	19.1	IF	410		370		540		2.0	
MAT 0.1	7/6/00	15:35	13.2	7.2	182	173	9.6		13.6	IF	460	450	410	410	**		2.2	2.2
MAT 0.1	7/17/00	13:35	13.5	*	180		*	9.4	14.3	IF	220		180		240		3.2	
MAT 0.1	8/9/00	12:39	13.0	7.5	175	174		8.9	19.2	IF	290				350		3.4	
MAT 0.1	8/29/00	13:20	12.8	*	175			8.8	10.8	IF	1300				1600		2.7	
MAT 0.1	9/19/00	13:35	13.3	7.5	205			9.0	12.8	IF	900	705			920		3.5	3.0
MAT 0.1	10/9/00	12:40	10.9	*	205				9.3	IF	230				170		3.2	

Table A-6. Matriotti Creek and Tributaries - p. 10

Station Name	Date	Time	NH3 mg/L			NO3-2 mg/L		Total Persulfate Nitrogen mg/L		Ortho-Phosphate mg/L		Total Phosphorus mg/L	
Matriotti Creek near mouth													
MAT 0.1	11/16/99	12:45	0.048			0.580		0.822		0.020		0.051	
MAT 0.1	12/7/99	14:00	0.053			0.599		0.868		0.019		0.056	
MAT 0.1	12/21/99	13:00	0.060			0.708		1.02		0.020		0.060	
MAT 0.1	1/3/00	13:40	0.040			0.749		0.911		0.021		0.069	
MAT 0.1	1/26/00	12:20	0.038			0.734		0.950		0.015		0.060	
MAT 0.1	2/2/00	13:00	0.103			0.602		1.09		0.031		0.113	
MAT 0.1	2/23/00	13:18	0.022			0.697		0.935		0.015		0.047	
MAT 0.1	3/14/00	10:15	0.020			0.622		0.767		0.013		0.040	
MAT 0.1	4/24/00	9:15	0.010	U		0.481		0.612		0.012	E	0.030	
MAT 0.1	5/10/00	8:10	0.022			0.410		0.575		0.014		0.035	
MAT 0.1	6/6/00	15:15	0.016			0.417		0.534		0.017		0.033	
MAT 0.1	6/19/00	9:40	0.010			0.422		0.514		0.015		0.033	
MAT 0.1	7/6/00	15:35	0.011		0.012	0.436	0.440	0.541	0.527	0.015	0.015	0.025	0.023
MAT 0.1	7/17/00	13:35	0.010	U		0.429		0.513		0.014		0.030	
MAT 0.1	8/9/00	12:39	0.010	U		0.420		0.550		0.017		0.036	
MAT 0.1	8/29/00	13:20	0.019			0.481		0.580		0.016		0.035	
MAT 0.1	9/19/00	13:35	0.010		0.014	0.565	0.568	0.614	0.608	0.020	0.019	0.045	0.040
MAT 0.1	10/9/00	12:40	0.010	U		0.534		0.597		0.023		0.036	

Table A-7. Meadowbrook Creek - p. 1

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	Flow cfs Results	Flow cfs Method	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
Meadowbrook Creek																		
MC 2.00	5/10/00	9:25	9.0								150	J						
MC 2.00	6/6/00	12:35	11.0	*	200						110							
MC 2.00	6/19/00	12:45	12.8	*	*			8.7			92		63	80	62			
MC 2.00	7/6/00	14:20	13.6	7.8	*						170			160				
MC 2.00	7/17/00	12:20	12.9	7.6	*			8.8			84			76				
MC 2.00	8/9/00	9:40	12.2	7.5	200			8.4			100							
MC 2.00	8/29/00	12:20	12.2	*	209			8.6			380		275					
MC 2.00	9/19/00	11:05	12.1	*	200			7.8			80							
MC 2.00	10/9/00	12:05	10.2	6.9	202						1900	J						
Meadowbrook Creek west of Sequim Dungeness Way																		
MC 1.96	8/29/00	12:15									120							
MC 1.96	9/19/00	11:01	12.3		205						130							
MC 1.96	10/9/00	12:10	10.2	6.9	202						690							
Meadowbrook Creek west of Sequim Dungeness Way																		
MC 1.95	11/16/99	9:56	9.7	7.3	177				2.7	IF	35		27	19	24		1.4	
MC 1.95	12/7/99	11:15	8.0	8.1	152				3.0	IF	73			73			1.3	
MC 1.95	12/21/99	11:30	7.8	7.6	*	200			3.5	IF	16			15			1.6	
MC 1.95	1/3/00	10:00	6.5	*	155				3.0	IF	155	J		155			2.3	
MC 1.95	1/26/00	10:45	6.2	*	168				3.0	IF	100		110	100	110		4.5	
MC 1.95	2/2/00	10:05	7.7	*	182				2.8	IF	23		26	23	23		1.9	
MC 1.95	2/23/00	9:30	6.7	*	173				1.7	IF	32	J		28			10	
MC 1.95	3/14/00	11:25	8.8	7.1	212				3.0	IF	160			160			4.3	
MC 1.95	4/24/00	10:40	8.5	7.1	170				2.2	IF	270			60			8.6	
MC 1.95	5/10/00	9:30	8.1	7.7	219			8.8	2.2	IF	300			290			2.3	
MC 1.95	6/6/00	12:40	10.8	*	229				2.0	IF	220			150			2.7	
MC 1.95	6/19/00	12:30	13.8	*	*				3.0	IF	46		90	34	76		1.8	1.6
MC 1.95	7/6/00	14:05	13.4	8.0	*	195			4.0	IF	130			110			2.5	
MC 1.95	7/17/00	12:05	13.3	7.6	*	193		8.5	2.5	IF	220			180			2.5	
MC 1.95	8/9/00	9:25	12.2	7.5	198			7.3	2.3	IF	480						2.3	
MC 1.95	8/29/00	12:00	12.1	*	210			7.8	2.6	IF	170						2.0	
MC 1.95	9/19/00	10:50	12.2	*	175			7.9	2.1	IF	240						2.1	
MC 1.95	10/9/00	12:00	10.2	6.8	200				2.4	IF	900						2.8	

Table A-7. Meadowbrook Creek - p. 2

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm		Salinity ppt	Winkler D.O. mg/L	Flow cfs		FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
					Field	Lab			Results	Method								
Meadowbrook Creek Ditch east of Sequim Dungeness Way																		
MC 1.75T	11/16/99	10:07	9.5	7.1	179				0.001	BF	1 U							
MC 1.75T	12/7/99	11:27	6.0	7.7	162	201				&	1 U							
MC 1.75T	12/21/99	11:20	6.1	7.5	*					FND	2	3						
MC 1.75T	1/3/00	10:20	4.5	*	195					FND	36							
MC 1.75T	1/26/00	10:35	2.7	*	182					FND	1							
MC 1.75T	2/2/00	9:50	5.3	*	120				0.1	IF	640 J							
MC 1.75T	2/23/00			*						DD								
MC 1.75T	3/14/00									DD								
MC 1.75T	4/24/00	11:10	9.6	7.4	110				0.2	IF	160							
MC 1.75T	5/10/00	9:50	8.6	7.6	199				0.4	IF	270							
MC 1.75T	6/6/00	13:00	11.7	*	141				0.4	IF	250							
MC 1.75T	6/19/00	12:50	18.3	*	*					FND	170							
MC 1.75T	7/6/00	13:55	18.6	8.9	*				0.1	IF	100	100						
MC 1.75T	7/17/00	12:00	12.9	7.6	*				0.2	IF	69							
MC 1.75T	8/9/00	9:15	14.3	8.0	111				0.2	IF	190							
MC 1.75T	8/29/00	11:20	15.5	*					< 0.1	IF	77							
MC 1.75T	9/19/00	11:11	16.8	*					< 0.1	IF	1500 J							
MC 1.75T	10/9/00	11:55	10.7							&	770							
Meadowbrook Creek at Pettit Farm																		
MC 0.8	11/16/99	8:54	9.7	7.2	205				2.9	IF	13		13					
MC 0.8	12/7/99	9:44	7.0	7.7	190				4.3	IF	32		32					
MC 0.8	12/21/99	9:30	7.6	7.6	*				4.5	IF	5		5					
MC 0.8	1/3/00	9:00	5.6	*	186				4.6	IF	25	24	16	24				
MC 0.8	1/26/00	8:43	5.2	*	154				4.1	IF	28		27					
MC 0.8	2/2/00	9:05	7.2	*	195				4.0	IF	16		16					
MC 0.8	2/23/00	9:10	6.2	*	190				3.6	IF	33	38	32	34				
MC 0.8	3/14/00	12:45	8.4	7.3	208				3.8	IF	150		150					
MC 0.8	4/24/00	13:40	9.2	7.7	174				3.5	IF	23		23					
MC 0.8	5/10/00	11:10	9.4	7.8	222			9.0	3.8	IF	130	120	120	120				
MC 0.8	6/6/00	14:00	11.3	*	166				3.5	IF	220		51					
MC 0.8	6/19/00	8:50	12.9	*	*	171		7.9	5.9	IF	83		74					
MC 0.8	7/6/00	10:20	12.4	8.4	*				3.7	IF	86	96	72	82				
MC 0.8	7/17/00	9:40	12.7	7.6	*	183		7.5	3.6	IF	65		65					
MC 0.8	8/9/00	12:40	13.6	7.3	245			8.2	3.7	IF	50							
MC 0.8	8/29/00	9:55	12.3	*	230	187		7.1	3.6	IF	140							
MC 0.8	9/19/00	9:40	12.6	*	200			6.4	3.9	IF	240							
MC 0.8	10/9/00	10:45	10.4	6.3	240				3.5	IF	370							

Table A-7. Meadowbrook Creek - p. 3

Station Name	Date	Time	Temp in °C	pH std units	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	Flow cfs Results	Flow cfs Method	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
Meadowbrook Creek at Three Crabs Road																		
MC 0.3	11/16/99	8:15	9.6	7.0	>1000		0			FNP	31		24		**		4.5	
MC 0.3	12/7/99	8:25	4.5	5.9	>1000		2		6.8	IF	19	10	19		**		4.6	
MC 0.3	12/21/99	8:30	7.3	7.3	*		2		5.1	IF	20		20		7.8		8.1	
MC 0.3	1/3/00	8:25	5.2	*	404		0		5.4	IF	21		21		**		4.1	
MC 0.3	1/26/00	14:00	6.1	*	>1000		3		4.7	IF	43		43		33		20	
MC 0.3	2/2/00	8:10	6.9	*	625		1.5		4.3	IF	38		38		33		4.3	
MC 0.3	2/23/00	13:00	8.1	*	>1000		2		5.2	IF	4		2		33		3.7	
MC 0.3	3/14/00	13:15	8.9	7.3	389		0		3.4	IF	3	3	3	3	13		2.2	2.1
MC 0.3	4/24/00	12:20	9.4	7.4	171	212	0		3.0	IF	17	19	17	19	49		1.7	
MC 0.3	5/10/00	12:15	10.4	7.9	817		0	9.8	4.0	IF	46		45		49		2.4	
MC 0.3	6/6/00	15:00	12.3	*	537		0	9.9	3.5	IF	140		130		130		2.0	
MC 0.3	6/19/00	11:35	14.9	*	*		0		3.0	IF	66		62		79		2.0	
MC 0.3	7/6/00	10:40	12.6	8.4	*	897	0	9.1	3.0	IF	120		110		**		2.3	
MC 0.3	7/17/00	9:10	14.6	7.7	*	255	0	7.2	2.9	IF	74		63		64		2.6	
MC 0.3	8/9/00	11:15	14.8	7.5	300		0	8.6	3.0	IF	50				110		2.7	
MC 0.3	8/29/00	8:30	13.3	*	>1000	1635	0	7.2	3.1	IF	330				170		3.0	
MC 0.3	9/19/00	8:45	13.3	*	215	215	0	6.7	3.8	IF	140				110		2.0	
MC 0.3	10/9/00	10:00	10.5	5.9	233		0		4.1	IF	210				350		2.6	
Meadowbrook Creek mouth																		
MC 0.2	11/16/99	7:46	9.7	6.8	>1000		27			FNP	900		670		70		38	80
MC 0.2	12/7/99	9:08	6.0	6.7	>1000		5			FNP	3 U		NAF		23		7.3	
MC 0.2	12/21/99	8:00	6.9	7.0	*	3260	3		7.0	IF	14		14		17		9.8	
MC 0.2	1/3/00	7:45	5.0	*	>1000		2		5.4	IF	36		36		**		6.1	
MC 0.2	1/26/00	13:45	6.4	*	>1000	10370	7		7.4	IF	12		12		17		9.2	
MC 0.2	2/2/00	7:55	7.8	*	>1000		5			FNP	29		29		46		4.3	
MC 0.2	2/23/00	12:35	8.4	*	>1000		9		7.2	IF	2		2		13		5.5	
MC 0.2	3/14/00	13:45	9.0	7.1	>1000	8150	4.5		6.0	IF	10		10		33		3.7	
MC 0.2	4/24/00	12:40	10.5	7.6	>1000		0		7.3	IF	8	7	8	6	13		2.3	
MC 0.2	5/10/00	12:50	11.9	7.5	>1000		5	8.4	5.2	IF	30		29		79		5.5	
MC 0.2	6/6/00	15:30	12.5	*	>1000	3810	2		5.6	IF	110	96	99	80	540		3.0	
MC 0.2	6/19/00	12:00	16.7	*	*		0		5.3	IF	28		27		79		4.7	
MC 0.2	7/6/00	11:00	14.2	8.2	*	4990	4	6.6	3.8	IF	28		25		**		4.3	
MC 0.2	7/17/00	8:40	14.8	7.4	*	1630	0	5.5	4.2	IF	74		72		79		2.2	
MC 0.2	8/9/00	11:40	15.5	7.6	>1000	1240	1	8.9	7.3	IF	41	29			79		3.7	2.8
MC 0.2	8/29/00	8:05	12.8	*	>1000	6665	3	6.6	5.3	IF	420				130		2.8	
MC 0.2	9/19/00	13:25	17.1	*	>1000		0.5	8.2	5.5	IF	120				170-220		4.5	
MC 0.2	10/9/00	9:30	10.4	5.9	590		0		3.8	IF	96				170		2.5	

Table A-7. Meadowbrook Creek - p. 4

Station Name	Date	Time	Temp in °C	pH	Conductivity umho/cm Field	Conductivity umho/cm Lab	Salinity ppt	Winkler D.O. mg/L	Flow cfs Results	Flow cfs Method	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
Meadowbrook Creek remnant creek channel																		
OLDMEAD	7/17/00	8:10	17.4	7.4	*		24				12							
OLDMEAD	8/29/00	8:50		*							45							
OLDMEAD	9/19/00	13:25	14.7	*	>1000		26				1							

Table A-7. Meadowbrook Creek - p. 5

Station Name	Date	Time	NH3 mg/L		NO3-2 mg/L		Total Persulfate Nitrogen mg/L		Ortho-Phosphate mg/L		Total Phosphorus mg/L	
Meadowbrook Creek at Three Crabs Road												
MC 0.3	11/16/99	8:15	0.069		0.085		0.479		0.043		0.078	
MC 0.3	12/7/99	8:25	0.046		0.122		0.440		0.028		0.063	
MC 0.3	12/21/99	8:30	0.064		0.176		0.538		0.032		0.076	
MC 0.3	1/3/00	8:25	0.036		0.199		0.399		0.027		0.057	
MC 0.3	1/26/00	14:00	0.046		0.195		0.380		0.015		0.068 J	
MC 0.3	2/2/00	8:10	0.041		0.194		0.339		0.017		0.060	
MC 0.3	2/23/00	13:00	0.016		0.151		0.303		0.013		0.010 UJ	
MC 0.3	3/14/00	13:15	0.010 U	0.010 U	0.124	0.135	0.201	0.204	0.015	0.015	0.040	0.041
MC 0.3	4/24/00	12:20	0.010 U		0.040		0.117		0.011 E		0.029	
MC 0.3	5/10/00	12:15	0.011		0.035		0.177		0.012		0.033	
MC 0.3	6/6/00	15:00	0.010 U		0.023		0.096		0.012		0.026	
MC 0.3	6/19/00	11:35	0.010 U		0.018		0.105		0.012		0.035	
MC 0.3	7/6/00	10:40	0.010 U		0.041		0.141		0.016		0.026	
MC 0.3	7/17/00	9:10	0.017		0.032		0.171		0.014		0.033	
MC 0.3	8/9/00	11:15	0.018		0.012		0.084		0.013		0.037	
MC 0.3	8/29/00	8:30	0.010 U		0.022		0.148		0.012		0.022	
MC 0.3	9/19/00	8:45	0.010 U		0.043		0.133		0.018		0.042	
MC 0.3	10/9/00	10:00	0.011		0.071		0.173		0.020 E		0.035	
Meadowbrook Creek mouth												
MC 0.2	11/16/99	7:46\7:55	0.556	0.329	0.185	0.220	1.40	1.74	0.081	0.064	0.055 J	0.054 J
MC 0.2	12/7/99	9:08	0.165		0.104		0.328		0.068		0.013 J	
MC 0.2	12/21/99	8:00	0.187		0.152		0.401		0.078		0.018 J	
MC 0.2	1/3/00	7:45	0.153		0.162		0.495		0.041		0.013 J	
MC 0.2	1/26/00	13:45	0.161		0.201		0.479		0.035		0.017 J	
MC 0.2	2/2/00	7:55	0.091		0.185		0.351		0.022		0.010 J	
MC 0.2	2/23/00	12:35	0.088		0.155		0.406		0.025		0.018 J	
MC 0.2	3/14/00	13:45	0.076		0.083		0.268		0.017		0.012 J	
MC 0.2	4/24/00	12:40	0.015	0.020	0.034	0.033	0.124	0.119	0.012 E	0.011 E	0.028	0.027
MC 0.2	5/10/00	12:50	0.098		0.034		0.255		0.017		0.014 J	
MC 0.2	6/6/00	15:30	0.050		0.028		0.139		0.012		0.010 UJ	
MC 0.2	6/19/00	12:00	0.118		0.017		0.290		0.028		0.057	
MC 0.2	7/6/00	11:00	0.167		0.042		0.309		0.024		0.011 J	
MC 0.2	7/17/00	8:40	0.120		0.029		0.245		0.021		0.037	
MC 0.2	8/9/00	11:40	0.064	0.063	0.021	0.020	0.133	0.134	0.014	0.013	0.025	0.029
MC 0.2	10/9/00	9:30	0.038		0.074		0.161		0.026 E		0.037	

Table A-8. Meadowbrook Slough - p. 1

Station Name	Date	Time	Temp in °C	pH std units	Conductivity Field umho/cm	Conductivity Lab umho/cm	Salinity ppt	Winkler D.O. mg/L	Flow cfs results	Flow cfs method	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
Meadowbrook Slough at Dungeness River Intake																		
MS 0.45	11/16/99	12:14	8.4	7.1	124				< 0.1	IF	21							
MS 0.45	12/7/99	10:57	6.0	7.9	110				< 0.1	IF	3							
MS 0.45	12/21/99	10:50	5.5	7.6	*	129			< 0.1	IF	9							
MS 0.45	1/3/00	11:35	4.7	*	145				< 0.1	IF	12	14						
MS 0.45	1/26/00	10:15	4.4	*	147				< 0.1	IF	1							
MS 0.45	2/2/00	12:25	4.5	*	102				< 0.1	IF	11							
MS 0.45	2/23/00	11:50	4.6	*	168				0.2	IF	4							
MS 0.45	3/14/00	11:50	6.2	7.6	172				1.1	IF	1	4						
MS 0.45	4/24/00	11:55	6.6	7.5	116				2.9	IF	7							
MS 0.45	5/10/00	10:15	7.4	7.9	184				0.1	IF	68							
MS 0.45	6/6/00	13:10	8.6	*	144				0.1	IF	12							
MS 0.45	6/19/00	10:15	6.5	*	*				0.2	IF	21	12						
MS 0.45	7/6/00	13:24	11.6	8.5	*			8.1	< 0.1	IF	14							
MS 0.45	7/17/00	11:35	11.7	7.9	*	110		10.5	0.1	IF	22							
MS 0.45	8/9/00	10:20	12.5	7.9	116			10.7	3.6	IF	48							
MS 0.45	8/29/00	10:55	11.9	*	190			10.9	1.2	IF	59	62						
MS 0.45	9/19/00	10:25	12.2	*	141			11.0	2.0	IF	37							
MS 0.45	10/9/00	11:30	10.5	6.4	160				< 0.1	IF	46							
Meadowbrook Slough at Palmer Road, right (east) tributary.																		
MS 0.02R	11/16/99	12:36	9.2	7.5	124						28							
MS 0.02R	12/7/99	13:19	8.0	8.1	135						26							
MS 0.02R	12/21/99	10:20	6.8	7.5	*						17							
MS 0.02R	1/3/00	12:00	4.7	*	145						9							
MS 0.02R	1/26/00	9:29	5.3	*							140							
MS 0.02R	2/2/00	12:50	5.8	*	124						13							
MS 0.02R	2/23/00	12:15	5.2	*	128						1 U	3						
MS 0.02R	3/14/00	12:15	6.3	7.7	179						2							
MS 0.02R	4/24/00	14:20	8.7	7.7	125						4							
MS 0.02R	5/10/00	10:50	7.9	7.9	267						90							
MS 0.02R	6/6/00	13:35	8.7	*	168						12							
MS 0.02R	6/19/00	10:50	9.4	*	*						12							
MS 0.02R	7/6/00	13:00	11.3	8.3	*						17							
MS 0.02R	7/17/00	11:15	11.4	7.6	*	117					73							
MS 0.02R	8/9/00	10:50	12.6	7.9	114						59							
MS 0.02R	8/29/00	10:25	11.9	*	148						47							
MS 0.02R	9/19/00	10:05	12.3	*	145						56							
MS 0.02R	10/9/00	11:20	10.6	6.2	160						34							

Table A-8. Meadowbrook Slough - p. 2

Station Name	Date	Time	Temp in °C	pH std units	Conductivity Field umho/cm	Conductivity Lab umho/cm	Salinity ppt	Winkler D.O. mg/L	Flow cfs results	Flow cfs method	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
Meadowbrook Slough at Palmer Road, left (west) tributary.																		
MS 0.02L	11/16/99	12:38	9.4	7.6	120						170							
MS 0.02L	12/7/99	13:30	8.0	8.3	116						23	28						
MS 0.02L	12/21/99	10:20	6.5	7.7	*						65							
MS 0.02L	1/3/00	12:02	6.4	*	175						1 U							
MS 0.02L	1/26/00	9:30	6.0	*	162						1 U							
MS 0.02L	2/2/00	12:52	5.0	*	134						1 U							
MS 0.02L	2/23/00	12:20	5.3	*	159						44							
MS 0.02L	3/14/00	12:20	6.0	7.3	167						12							
MS 0.02L	4/24/00	14:25	7.5	7.6	117						13	12						
MS 0.02L	5/10/00	10:40	7.4	7.8	169						5							
MS 0.02L	6/6/00	13:40	8.5	*	157						18							
MS 0.02L	6/19/00	10:55	9.4	*	*						150							
MS 0.02L	7/6/00	13:05	10.0	8.4	*						13							
MS 0.02L	7/17/00	11:17	10.4	7.4	*	109					150 J							
MS 0.02L	8/9/00	10:45	11.5	7.5	120						27	20						
MS 0.02L	8/29/00	10:35	11.9	*	122						590							
MS 0.02L	9/19/00	10:10	12.7	*	150						630							
MS 0.02L	10/9/00	11:15	11.3	6.2	165						5700							
Meadowbrook Slough at Palmer Road, below confluence of tributaries																		
MS 0.02	11/16/99	12:36							0.3	IF								
MS 0.02	12/7/99	13:19							0.2	IF								
MS 0.02	12/21/99	10:20							0.2	IF								
MS 0.02	1/3/00	12:00							0.1	IF								
MS 0.02	1/26/00	9:29							0.2	IF								
MS 0.02	2/2/00	12:50							0.2	IF								
MS 0.02	2/23/00	12:15							0.2	IF								
MS 0.02	3/14/00	12:15							1.1	IF								
MS 0.02	4/24/00	14:25							2.4	IF								
MS 0.02	5/10/00	10:40							0.3	IF								
MS 0.02	6/6/00	13:40							0.4	IF								
MS 0.02	6/19/00	10:55							0.5	IF								
MS 0.02	7/6/00	13:05							0.2	IF								
MS 0.02	7/17/00	11:17						7.3	0.2	IF								
MS 0.02	8/9/00	10:45						10.4	3.7	IF								
MS 0.02	8/29/00	10:35						3.6	1.9	IF								
MS 0.02	9/19/00	10:10						10.2	1.9	IF								
MS 0.02	10/9/00	11:15							0.1	IF								

Table A-8. Meadowbrook Slough - p. 3

Station Name	Date	Time	Temp in °C	pH std units	Conductivity Field umho/cm	Conductivity Lab umho/cm	Salinity ppt	Winkler D.O. mg/L	Flow cfs results	Flow cfs method	FC-mf #/100 mL		*E-coli* #/100mL		FC-MPN #/100mL		Turbidity NTU	
Meadowbrook Slough at Abernathy Road.																		
MS 0.05	11/16/99	13:26	9.3	6.0	>1000		15				60		29		130		31	
MS 0.05	12/7/99	10:35	8.0	7.3	>1000		7				56		55		170		10	
MS 0.05	12/21/99	9:45	6.5	7.5	*	8860	1				28	6	28	6	7.8	17	2.1	2.3
MS 0.05	1/3/00	12:45	6.1	*	>1000		2				19	45	19	45	**		7.4	
MS 0.05	1/26/00	13:25	6.4	*	>1000	38800	26				9	11	9	11	7.8		2.7	
MS 0.05	2/2/00	13:35	6.5	*	>1000		4				6		5		7.8		3.0	
MS 0.05	2/23/00	11:50	4.6	*	168		1				1 U				7.8		2.0	
MS 0.05	3/14/00	14:05	6.8	7.6	506		0.3				1 U		NAF		1.8U		2.3	
MS 0.05	4/24/00	14:00	8.3	7.7	179		0				3		3		4.5		1.8	
MS 0.05	5/10/00	13:45	11.5	7.8	>1000	20400	2	8.8			1 U	2	2	NAF	4.5		2.3	
MS 0.05	6/6/00	16:00	10.6	*	>1000	23000	1	6.5			14		11		17		2.4	
MS 0.05	6/19/00	15:30	14.6	*	*		0				9		9		13		3.0	
MS 0.05	7/6/00	12:25	13.6	7.8	*	33700	14				24		22		**		2.4	
MS 0.05	7/17/00	10:35	14.9	7.1	*	10300		3.6			140		135		70		3.1	
MS 0.05	8/9/00	13:40	14.7	7.7	725		0	9.4			19				33		2.2	
MS 0.05	8/29/00	14:40	12.6	*	>1000		0	11.1			120				49		1.4	
MS 0.05	9/19/00	13:00	13.8	*	198	208	0	9.6			40				110		1.6	
MS 0.05	10/9/00	13:40	11.4	6.7	>1000		0				150	210			350		2.8	2.1

Table A-8. Meadowbrook Slough - p. 4

Station Name	Date	Time	NH3 mg/L		NO3-2 mg/L		Total Persulfate Nitrogen mg/L		Ortho-Phosphate mg/L		Total Phosphorus mg/L	
Meadowbrook Slough at Abernathy Road.												
MS 0.05	11/16/99	13:26	0.424		0.066		0.807		0.015 J		0.017 J	
MS 0.05	12/7/99	10:35	0.065		0.074		0.193		0.031 J		0.011 J	
MS 0.05	12/21/99	9:45	0.065		0.111		0.237		0.014		0.011 J	
MS 0.05	1/3/00	12:45	0.093		0.101		0.246		0.022		0.011 J	
MS 0.05	1/26/00	13:25	0.207		0.231		0.515		0.057		0.039 J	
MS 0.05	2/2/00	13:35	0.025		0.121		0.206		0.019		0.010 UJ	
MS 0.05	2/23/00	11:50	0.011		0.084		0.185		0.011		0.010 UJ	
MS 0.05	3/14/00	14:05	0.010 U		0.055		0.103		0.009		0.023	
MS 0.05	4/24/00	14:00	0.010 U		0.057		0.094		0.012 E		0.013	
MS 0.05	5/10/00	13:45	0.222		0.041		0.378		0.032		0.042 J	
MS 0.05	6/6/00	16:00	0.067		0.050		0.168		0.011		0.013 J	
MS 0.05	6/19/00	15:30	0.022		0.033		0.122		0.025		0.044	
MS 0.05	7/6/00	12:25	0.116		0.055		0.309		0.026		0.029 J	
MS 0.05	7/17/00	10:35	0.013		0.028		0.196		0.032		0.010 UJ	
MS 0.05	8/9/00	13:40	0.018		0.026		0.080		0.008		0.016	
MS 0.05	8/29/00	14:40	0.010 U		0.043		0.083		0.008		0.010 U	
MS 0.05	9/19/00	13:00	0.010 U		0.046		0.065		0.009		0.019	
MS 0.05	10/9/00	13:40	0.045	0.025	0.095	0.094	0.205	0.162	0.026 E	0.027	0.040	0.042

Appendix B

Data Qualifiers

Laboratory Data Qualifiers	
U	Indicates that the analyte was not detected at or above the reporting limit.
E	This result is an estimate. The ortho-phosphate blank was not within acceptable quality assurance requirements.
J	This result is an estimate. For bacteria, true value may be greater than or equal to the reported results. For total phosphorus, the sample was brackish and considerable matrix effects were observed.
NAF	Not analyzed for. These plates had no growth on the fecal plates; therefore, they were not processed for *E. coli*
**	Most probable number fecal coliform analysis not done.
Field Data Qualifiers	
*	pH, conductivity, and D.O. did not meet quality control requirements or meter was not functioning.
RB	Right bank
LB	Left bank
&	Not enough water to do flows.
DD	No water in ditch.
FNP	Flows not possible due to tidal influence.
FND	Flows not done.
IF	Flows were calculated using instantaneous flow measurements. Flows are calculated to one decimal place due to the method.
BF	Flows were calculated by averaging 3 readings from a timing device and a measured container (i.e., 5-gallon bucket or a 500-mL container). These data should be used with caution. Timed filling of a measured container tends to underestimate flow because it is difficult to capture all the flow from the channel in a container. Flows are calculated to one significant figure due to the method.
e	Flows were estimated using a flow discharge-rating curve. The correlation coefficient was good with an r^2=0.70-0.99.
ea	Flows were estimated using a flow discharge-rating curve. The correlation coefficient was moderate to weak with an r^2=0.50-0.69. Use these data with caution.