

WATER QUALITY INVENTORY
OF THE
NITINAT RIVER
AND
SAN JUAN RIVER
WATERSHEDS
VANCOUVER ISLAND,
BRITISH COLUMBIA
1997

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Summary

To provide information on water resources in six major watersheds on the west coast of Vancouver Island, a water quality inventory was conducted between May and November, 1997. The project was designed to provide information on any limitations to drinking water or other potential water uses (*e.g.* recreation, fish habitat). The quantity aspects of water resources are being addressed in a separate report.

Sixty-one sites were identified and each sampled four times through the period, representing spring, summer, and fall. At each station, samples were collected for a wide variety of characteristics: *Giardia*, *Cryptosporidium*, fecal coliforms, and a wide range of water chemistry parameters.

In terms of suitability for drinking water, the majority of sites had limitations of some kind. An important result was the relatively high fecal coliform bacteria levels in many of the streams in this relatively uninhabited and undeveloped area. The periodic high bacteria levels would indicate the need for treatment beyond the normal disinfection typically used for drinking water supplies. High fecal coliforms appear to be somewhat associated with relatively high turbidity or non-filterable residue concentrations. Lake sites had some advantages over stream sites as potential drinking water sources because of low non-filterable residues and fecal coliforms compared to streams.

Concentrations of *Giardia* and *Cryptosporidium* were low but there were occurrences found throughout the study area at different times. Again this was an unexpected result in this area with a low human population and where the major activity is forestry harvesting. It appears that the most frequent presence was in the watershed with the highest human population (Nitinat) but these two protozoans can, on the results of this study, be expected to occur in all streams in the study area, even those which would otherwise be considered to be undisturbed or unaffected by human activity or presence.

The water chemistry characteristics that exceeded criteria for drinking water at some sites included color, iron, organic carbon, and some metals. These are important in some cases and of secondary consideration in other cases. There was a fairly wide variation in the levels of a number of characteristics that were measured - due primarily to fluctuations in stream flow.

There was considerable variation from the weather normals during this year. In general the summer was quite wet (stream flows were relatively high) and there was no marked autumn freshet brought on by fall storms as is usually the case.

This report provides a regional characterization of water quality that should provide a baseline for future sampling and a reference by which to judge any changes that might occur. The major constraints to use as drinking water are the protozoan pathogens, microbial pathogens that are indicated by the presence of fecal coliforms, suspended sediments (which affect disinfection efficiency and general appearance of the water), and dissolved organic carbon (which reacts with chlorine disinfectant to form trihalomethanes which are known carcinogens). There do not appear to be any major constraints to recreation due to water quality and no obvious effects on aquatic life that are due to the water quality parameters that were measured.

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Introduction

Water quality is an important issue in British Columbia. Land use planning depends on the quality of the water resource available. Water quality impacts land value and development potential, especially with regard to settlement, tourism, and recreation. Water quality surveys are important in identifying potential future uses and limitations for water resources. Information on drinking water suitability and sources of contamination may also be useful in treaty negotiations.

This study was conducted on Southwestern Vancouver Island between May and November, 1997. The region is in the Coastal Western Hemlock biogeoclimatic zone. The climate is characterized by warm and relatively dry summers, with mild and wet winters. The watersheds included in this study drain more than 1920 km² in total. Complete watershed information, including hydrology, instream flow requirements for fisheries resources, and present and projected water license demands is available in "San Juan River Water Allocation Plan - September 20, 1996" (Jackson and Blecic, 1996). Water quantity surveys for this area were conducted during the summer of 1997 by Ministry of Environment, Lands and Parks (MELP) staff in Nanaimo, B.C.

This study was funded by the Common Land Information Base (Aquatic Envelope Committee) funding initiative administered through the Land Use Co-ordination Office. The Pollution Prevention and Pesticide Branch in Nanaimo and the Water Management Branch in Victoria provided additional support.

The purpose of this study was to collect water quality data in treaty negotiation areas where little water quality data was previously available. This survey provides baseline information on water quality that can be used as a basis for: determining existing impacts, recognizing development potentials, identifying areas sensitive to disturbance, identifying limitations to drinking water or irrigation supply, identifying allocation related issues, and identifying land and water uses.

Methods

Sites

Sixty-one sites are included in this study, representing six major river systems and one lake area (Figures 1 and 2): Klanawa River, Little Nitinat River, Nitinat River, Mt. Rosander area, Caycuse River, Gordon River, and San Juan River. Most sites were sampled four times over the study period, three times during the spring and summer and once in the late fall of 1997. Carmanah Creek was sampled only once due to lengthy access time. Several sites were not sampled in late summer because the streams were either dry or flowing primarily subsurface.

Sampling sites were chosen to represent the range of stream and watershed conditions found in Dididaht and Pacheedaht treaty negotiation areas. Preliminary selection was made in consultation with the technical supervisor (Rick Nordin, Victoria), regional water quality and water quantity staff (John Deniseger and Bob Cook, Nanaimo), Ditidaht (Joe Thorn), and field staff (Cheryl Pehl and Barbara Lucas). Access to our sampling sites was primarily via

logging roads. Site selection, location, and access are detailed in the “Site Documentation and Access Manual for a Water Quality Inventory on the West Coast of Vancouver Island” (Pehl, 1997). Sites were geo-referenced using a Trimble GeoExplorer (Trimble Navigation Ltd., 1994). Site locations, field results, and laboratory results are available on the Environmental Monitoring System (EMS) information warehouse of the Ministry of Environment, Lands and Parks.

Parameters

Parameters were chosen that would provide information on water quality suitability for present and potential future uses. The most sensitive uses in this area are freshwater aquatic life and drinking water. The study area is used for recreational fishing, hunting, and camping. Commercial logging occurs throughout the area.

We tested field temperature, field dissolved oxygen (DO), true color, pH, total residue, filterable residue, non-filterable residue, turbidity, specific conductivity (SC), total hardness, total organic carbon (TOC), dissolved organic carbon (DOC), total inorganic carbon (TIC), dissolved inorganic carbon (DIC), total carbon, total phosphorus, dissolved phosphorus, total nitrogen, dissolved ammonia, nitrate + nitrite, nitrate, nitrite, total metals, fecal coliforms, *Giardia*, and *Cryptosporidium* (G/C).

All parameters were tested at each site during the first round of sampling. Sites deemed to be important or having results of concern were considered primary sites and continued to be tested for all parameters. The rest were considered secondary, and the following tests were omitted on subsequent samples: filterable residue, TOC, TIC, DOC, DIC, total carbon, and G/C. Since initial separate tests on nitrate and nitrite showed little nitrite was present, later samples were tested for nitrate + nitrite.

Nitrite, aluminum, cadmium, chromium, copper, lead and zinc are toxic to aquatic life in low concentrations. Toxic effects are usually increased at low pHs such as those on the coast (CCREM, 1987). Ammonia is toxic to aquatic life at low levels, and it can contribute to increased algal blooms that result in poor water quality for drinking water, aquatic life, and recreation. Temperature, pH, and hardness affect chemical solubility, influencing pollutant effects on aquatic life (Cavanagh *et al.*, 1998). Soft water may corrode metal plumbing. Specific conductivity (SC) is a measurement of the dissolved ions (metals and other dissolved solids) in the water.

Dissolved oxygen (DO) is required for most aquatic life, including fish and invertebrates. DO also influences availability of nutrients. Nitrate is a nitrogen source for plants. High levels can cause increased growth of plants and phytoplankton. Phosphorus is usually the limiting nutrient in fresh water systems because it is naturally low, yet essential to plant growth. Increased phosphorus levels can cause algal blooms and eutrophication. Carbon is an important requirement for aquatic biota. Inorganic carbon buffers aquatic systems and provides carbon for aquatic plant photosynthesis. High organic carbon levels can cause reduced DO concentrations and contribute the formation of carcinogenic trihalomethanes during chlorination of drinking water.

High temperature, color, and turbidity are aesthetically displeasing in drinking water. Warm waters are more suitable for recreation uses. Highly colored water can block light and impede photosynthesis. Turbidity can interfere with disinfection of drinking water, reduce light penetration, and increase surface area for bacterial growth. Non-filterable residue (suspended solids) increases turbidity. It can damage fish gills and clog spawning gravels.

Fecal coliforms are indicators of pathogenic gastrointestinal microorganisms. *Giardia* and *Cryptosporidium* are pathogenic protozoans that can cause mild to severe gastrointestinal diseases. These protozoans are not killed by chlorination of raw water for drinking.

Sampling

Water samples were collected according to Resource Inventory Committee approved protocols (Cavanagh *et al.*, 1994a, b). Water chemistry was analyzed by the Pacific Environmental Science Center, Vancouver, B.C. Fecal coliforms were tested by JR Laboratories Inc., Burnaby, B.C.

Protozoans samples were collected by filtering a minimum 100 L of raw water through a 1µ nominal pore string-wound filter cartridge. A complete report of the field sampling method used is available in “Field Methods for *Giardia* and *Cryptosporidium* Sample Collection” (Lucas, 1997). Filters were analyzed primarily by Hyperion Research, Medicine Hat, Alberta. Health Canada Occupational and Environmental Health Services, Prince George, B.C. examined quality control/quality assurance (QA/QC) replicates. The British Columbia Center for Disease Control, Vancouver, B.C. analyzed initial protozoan filter samples.

Field temperature and DO were measured with an Orion WTW Oxi 320 or a YSI Model 57 DO meter. Statistical analyses were performed using Microsoft Excel.

Quality Assurance/Quality Control

Four replicate water quality samples were collected at randomly selected sites, representing > 6% of the study sites. In addition, duplicate samples for fecal coliform analysis were collected at sites where high coliform measurements indicated potential fecal contamination.

Three sets of quality assurance/quality control (QA/QC) samples were collected for *Giardia* and *Cryptosporidium* (G/C) analysis, at sites that had previously tested positive for G/C. Split samples were collected in two filters at the same time by splitting the raw water intake through a “Y” valve into two separate collection devices (Lucas, 1997). The first set of split sample filters was sent “blind” to Hyperion for analysis. One each of the second set of split sample filters was sent to Hyperion and Health Canada. The third set included four filters, two split sample sets collected sequentially. Three filters were sent “blind” to Hyperion and one was sent to Health Canada.

Water Quality Guidelines

Practical guidelines for the most sensitive water use were determined for important parameters in this study (Table 1). These guidelines are based primarily on “Approved and Working Criteria for Water Quality” (Nagpal, 1995). For parameters where objectives have not been set, recommendations from “Guidelines for Interpreting Water Quality Data” (Cavanagh *et al.*, 1998) and expected maximum levels for coastal streams and lakes (Nordin, 1998) were used as guidelines.

Table 1. Water quality guidelines for protecting the most sensitive water use in the Nitinat watershed inventory study.

Parameter	MaxValue	Purpose	Reference
Temp	< 15	drinking water (aesthetics)	AWC, GIWQD
DO	> 8	aquatic life	AWC
Color	< 15	drinking water (aesthetics)	AWC, GIWQD
pH	6.5-8.5	drinking water	AWC
Res: Filt	100	normal coastal maximum (WQ criteria 500)	Nordin
Res: NF	10	level of concern for aquatic life	AWC
Turb	1	drinking water (health)	AWC, GIWQD
SC	100	expected coastal maximum (WQ criteria 700)	Nordin
T Hard	80-100	drinking water (optimal)	AWC, GIWQD
TOC	2	drinking water (to prevent trihalomethane formation)	AWC
DOC	2	drinking water (to prevent trihalomethane formation)	Nordin
P--T	0.010	drinking water, aquatic life 5 - 15	AWC, GIWQD
P T Diss	0.005	level of concern for aquatic life (excessive algal growth)	Nordin
Tot N	0.20	expected coastal maximum (no WQ criteria)	Nordin
NH4 Diss	0.005	expected coastal maximum	Nordin
NO3 + NO2	0.200	expected coastal maximum	Nordin
N-NO3	10	drinking water	AWC, GIWQD
N-NO2	0.020	freshwater aquatic life (average)	AWC, GIWQD
Al-T	0.10	freshwater aquatic life (dissolved @ pH>=6.5)	AWC, GIWQD
As-T	0.025	drinking water	AWC
Ca-T	20	expected coastal maximum	Nordin
Cd-T	0.00002	freshwater aquatic life (@ 30 mg/L hardness)	AWC, GIWQD
Cr-T	0.002	freshwater aquatic life (phyto- and zooplankton)	AWC
Cu-T	0.002	freshwater aquatic life (@ 50 mg/L hardness)	AWC, GIWQD
Fe-T	0.300	drinking water (aesthetics) + freshwater aquatic life	AWC
K--T	20	livestock (dairy sanitation)	AWC
Mg-T	100	taste threshold for sensitive people (dissolved)	AWC
Mn-T	0.050	drinking water (aesthetics)	AWC
Na-T	20	drinking water alert for very restricted diets	AWC
Ni-T	0.025	freshwater aquatic life	AWC
Pb-T	0.003	freshwater aquatic life (<= 8 mg/L hardness)	AWC, GIWQD
Zn-T	0.007	freshwater aquatic life (<= 90 mg/L hardness)	GIWQD
Fecals	0	no treatment, 10 disinfect, 100 partial treatment	AWC
Giardia	0	drinking water	Warrington
Crypto	0	drinking water	Warrington
AWC	Approved and Working Criteria for Water Quality - 1995		
GIWQD	Guidelines for Interpreting Water Quality Data - field test edition		
Nordin	Rick Nordin, Provincial Limnologist		
Warrington	Water Quality Criteria for Microbiological Indicators - Technical Appendix		

Results

Quality Assurance/Quality Control

Laboratory results for phosphorus and nitrogen were inconsistent. Total phosphorus concentrations were as much as 0.005 mg/L lower than dissolved phosphorus in 12% of samples tested. Total nitrogen measured was as much as 0.7 mg/L lower than nitrate + nitrite in 6% of samples.

Field replicates showed low variability for most parameters. Variability increased when values were close to the detection limits. Field blank contamination with chromium and iron coincided with variability in sample concentrations. Color, turbidity, and organic carbon were each variable in one of four replicates on one occasion

Measured concentrations in metals trip blanks were higher than detection limits for 13 of the 16 metals examined in this study (Table 2). Only aluminum, arsenic, and calcium levels were below detection limits in all trip blanks. Systematic contamination of metals may be from the container or preservative, or may have occurred during handling, transportation, or storage. When the levels of contamination in trip blanks are low relative to the level measured in the water samples there is little impact on the reliability of the sample results. Such was the case for iron, potassium, magnesium, manganese, sodium, sulfur, and silica. When the levels of contamination of trip blanks are higher than the levels measured in the water samples, the results may be artificially high and biased high toward false positives (Cavanagh *et al.*, 1998). This was the case for cadmium, copper, lead, nickel, and zinc.

Table 2. Contamination of metals trip blanks (mg/L).

Metal Species	Maximum Measured	Detection Limit	Contaminated Blanks	
			#/18	%
Cd	0.010	0.006	2	11
Cr	0.019	0.006	7	39
Cu	0.010	0.006	5	28
Fe	0.024	0.006	13	72
K	1.0	0.1	6	33
Mg	0.1	0.1	2	11
Mn	0.004	0.001	4	22
Na	1.2	0.1	2	11
Ni	0.03	0.02	2	11
Pb	0.10	0.06	1	6
S	0.06	0.06	1	6
Si	0.10	0.06	4	22
Zn	0.013	0.002	5	28

Fecal coliform concentrations were highly variable throughout the study area (Table 3). Both the percent relative standard deviation for quadruplicate samples and the percent mean difference for duplicate samples were usually higher than recommended criteria ($\leq 18\%$ and $\leq 25\%$, respectively; Cavanagh *et al.*, 1998). Though the results are imprecise, the presence of fecal coliforms is indicated at all sites. There is no temporal pattern in variability.

Table 3. Summary of replicates for fecal coliform samples.

Site#	Date	Fecal Coliforms/100 mL						Mean	SD	% Rel SD	% Mean Diff
197	3-Jun	8	2	10	14	8.5	5.00			59	
199	26-Aug	6	11	3	7	6.8	3.30			49	
207	13-Aug	< 1	2			1.5	0.71				67
	27-Aug	1	5			3.0	2.83				133
208	30-Jul	11	17	12	13	13.3	2.63			20	
214	26-Aug	13	46			29.5	23.33				112
	5-Nov	< 1	< 1	< 1	< 1	1.0	0.00			0	
216	13-Aug	5	4			4.5	0.71				22
	27-Aug	< 1	< 1			1.0	0.00				0
219	13-Aug	6	4			5.0	1.41				40
	2-Sep	3	4			3.5	0.71				29
	3-Nov	58	54	48	68	57.0	8.41			15	
221	12-Aug	2	< 1			1.5	0.71				67
	27-Aug	< 1	7			4.0	4.24				150
223	29-Jul	< 1	1	< 1	< 1	1.0	0.00			0	
	24-Aug	< 1	< 1			1.0	0.00				0
249	25-Jun	8	9	1	14	8.0	5.35			67	
	3-Sep	2	2	11		5.0	5.20			104	
255	25-Jun	1	1			1.0	0.00				0
228	13-Aug	< 1	< 1	< 1	< 1	1.0	0.00				0
234	3-Jul	< 1	< 1	< 1	< 1	1.0	0.00				0
240	8-Sep	3	2	2	1	2.0	0.82			41	
408	25-Nov	< 1	< 1	< 1	< 1	1.0	0.00			0	
560	16-Jul	5	7	6	7	6.3	0.96			15	

G/C replication showed good precision, considering the limitations of the methods and the heterogeneity of the source water (Table 4). One of the four sets of split samples (25%) found *Giardia* or *Cryptosporidium* in both filters. Two of the four samples (50%) collected on the same date from the Little Nitinat River detected *Giardia* and *Cryptosporidium* cysts. Cyst concentrations were very low, making detection of cysts in all samples difficult.

Table 4. G/C split sample replication results showing number of cysts found/100 mL. Hyperion Research Ltd. and Health Canada laboratories analyzed the filters.

Site	Date	Time	Filter	Protozoan	Hyperion	Health Canada
E226216 Nitinat River at One-Way West	Aug 27/97	15:05	A	<i>Giardia</i>		2
				<i>Cryptosporidium</i>		9
			B	<i>Giardia</i>	1.35	
				<i>Cryptosporidium</i>	0	
E226207 Little Nitinat River at Nitinat ML u/s Hatchery	Aug 27/97	9:10	A	<i>Giardia</i>		0
				<i>Cryptosporidium</i>		17
		11:07	B	<i>Giardia</i>	2.11	
				<i>Cryptosporidium</i>	1.06	
			C	<i>Giardia</i>	1.38	
				<i>Cryptosporidium</i>	0	
			D	<i>Giardia</i>	0	
				<i>Cryptosporidium</i>	0	
E226228 Lower Seven Mile Creek	Sep 15/97	16:22	A	<i>Giardia</i>	0	
				<i>Cryptosporidium</i>	0	
			B	<i>Giardia</i>	2.74	
				<i>Cryptosporidium</i>	0	

Region Wide Results

The water quality throughout the Nitinat River and San Juan River watersheds had a variety of common characteristics (Appendix). Water temperatures were cool (12.0°C mean) throughout the study period. DO was at or near saturation (10.2 mg/L mean) and sufficient to protect freshwater aquatic life during the sampling period. Color was generally low (10 TCU mean), usually meeting the criteria for drinking water aesthetics and the desirable criteria for recreation (Nagpal, 1995). The pH was near neutral (7.33 mean), dropping slightly below the guidelines in only a few samples. As a result, the study area had a low buffering capacity. Total residue, SC, and hardness were very low (42 mg/L, 52 µS/cm, and 20.9 mg/L CaCO₃ means, respectively). Non-filterable residue (6 mg/L mean) and turbidity (1.46 NTU mean) were low except following rain events. TOC was usually lower than drinking water criteria except during rain events (Nagpal, 1995). TIC averaged 4.8 mg/L. Inorganic carbon concentrations were generally higher than organic carbon concentrations. Both organic and inorganic carbon were present mostly in dissolved form.

Nutrient levels were low throughout the study area. Total and dissolved phosphorus were usually near or below guidelines for drinking water and within the acceptable range for aquatic life. Total nitrogen levels averaged 0.12 mg/L. There was rarely detectable ammonia (DL = 0.005 mg/L) or nitrite (DL = 0.002 mg/L). Most of the nitrogen was present as nitrate (0.043 mg/L mean), and was well below the criteria for drinking water (Nagpal, 1995).

The total concentrations for most metals were well below our guidelines. There was no detectable arsenic in any samples. Contamination of field blanks with copper, cadmium, chromium, and zinc confound the sample results for those metals. Pronounced increases in aluminum, iron, and magnesium concentrations were measured following heavy rain events, suggesting particulate input from soil in runoff. Manganese and silica showed the same trends, but to a lesser extent. Zinc and nickel concentrations peaked during dry periods.

Fecal coliforms were found at 50 of the 61 study sites, encompassing every watershed examined. Fecal coliform concentrations varied from low ($< 10/100$ mL) to moderate (11 - 100/100 mL) and high ($> 100/100$ mL). *Cryptosporidium* and *Giardia* were uncommon, but distributed throughout the study area. *Giardia* was detected in every monitoring area, whereas *Cryptosporidium* was detected in three of the seven monitoring areas. As the detection rate for this study was between 25 and 40 percent for *Giardia* and 15 percent for *Cryptosporidium*, negative results are not conclusive evidence that the protozoans are absent (Wallis, 1997).

The concentrations of filterable residue, ammonia, nitrite, arsenic, potassium, sulfur, silica, magnesium, and hardness measured in the study area give no cause for further concern. Some results provided by the ICP metals analysis package are not discussed in this report. The tests for these metals do not provide results that are pertinent to the water quality concerns in the study area: antimony, barium, beryllium, boron, cobalt, molybdenum, selenium, silver, strontium, titanium, and vanadium.

Turbidity was strongly correlated with non-filterable residue ($r = 0.971$). Conductivity was more strongly correlated with filterable residue ($r = 0.898$) than with total residue ($r = 0.789$). Turbidity was moderately correlated with the number of fecal coliforms/100 mL ($r = 0.415$), and slightly correlated with *Giardia* concentrations ($r = 0.212$). There were no correlations between turbidity and *Cryptosporidium* ($r = -0.031$), fecal coliforms and *Giardia* ($r = 0.055$), or fecal coliforms and *Cryptosporidium* ($r = -0.021$).

Klanawa River Monitoring Group

Most parameters measured relatively low values in the Klanawa River watershed. Mean residues, turbidity, SC, inorganic carbon, calcium, and pH were lower than the mean for the study area (Appendix). Chromium was high, but measurements are questionable due to field blank contamination. Color and concentrations of iron, zinc, and fecal coliforms were highly variable. Fecal coliforms were present at all sites, except where noted. No *Cryptosporidium* were found in the watershed. Only one site tested positive for *Giardia* on one occasion.

E226191 Gorge Mainline Creek at Gorge Mainline Bridge

In the Gorge Creek watershed, the following parameters were higher than our guidelines: non-filterable residue in October, dissolved phosphorus in August, and total nitrogen in May (Table 5). Fecal coliforms were low.

The water quality in October was different from the summer samples. Lower values for pH, SC, hardness, calcium, and sulfur were measured. Color and turbidity were slightly higher. Higher values for total aluminum and total iron were measured, probably due to soil particles in runoff following fall storms.

E226192 West Fork Klanawa River at Newstead Mainline Bridge

This site was uppermost of the Klanawa sites in our study. The following parameters were higher than our guidelines: turbidity, dissolved ammonia, and aluminum in October; and dissolved phosphorus in July and August (Table 6).

October samples had lower pH, SC, hardness, and calcium than in the summer. Turbidity, nitrogen, aluminum, and iron were higher. Low fecal coliform concentrations were found in the fall sample only.

E226193 Klanawa River at N400 on Newstead Mainline

At this site, the following parameters were higher than our guidelines: dissolved phosphorus in July and August; and non-filterable residue, turbidity (3.59 NTU), organic carbon, total phosphorus, total nitrogen, and aluminum in October (Table 7). Fecal coliforms were moderate in May. *Giardia* cysts (9.35/100 L) were found in October at this site.

This site had higher levels of color, non-filterable residue, turbidity, total phosphorus, nitrogen, aluminum, and iron in October samples. Lower levels of pH, hardness, calcium, and sodium were evident in the fall.

E226194 Dorothy Creek at Northfork Main

Dorothy Creek was sampled near the outlet of Dorothy Lake. The following parameters were higher than our guidelines: temperature was high in July and August, color was high in June and October, organic carbon was high in June, and aluminum was high in June and October (Table 8). pH was variable over the sample period. High fecal coliforms (80/100 mL) were present in August. This site showed no exceptional seasonal changes.

E226196 Klanawa River at Central South Main

Water quantity is the major limitation to drinking water and aquatic life at this site. Water flow was mostly subsurface in July and entirely subsurface in August. Therefore only June and October samples were taken. Color and organic carbon were higher than our guidelines in June, aluminum was higher in both samples, and total nitrogen was higher in October (Table 9). SC and pH were low in both samples. No fecal coliforms were found at this site.

E226197 Bagley Creek at Upper Klanawa Main

The following parameters were higher than our guidelines: color in October, organic carbon in June and October, total nitrogen (0.28 mg/L) in August, and aluminum in June and August (Table 10). Fecal coliform concentrations were moderate in June.

Dissolved organic carbon, aluminum, and iron were higher in October at this site. Calcium was slightly lower than in the summer. These concentrations probably result from higher flows in the fall. Higher zinc levels shown in June samples may be due to systematic errors in laboratory analysis, as the metals field blank for this trip measured 0.013 mg/L zinc.

E226198 East Klanawa River at Bridge between Upper Klanawa and Upper Klanawa Main

The pH at this site was below our guidelines in July (Table 11). Dissolved phosphorus was higher than our guidelines in August. Total nitrogen and aluminum were higher than our guidelines in October. Fecal coliform concentrations were low to moderate.

Fall samples at this site showed higher turbidity, nitrogen, nitrate + nitrite, aluminum, and iron.

Little Nitinat River Monitoring Group

The Little Nitinat River watershed had very low levels of non-filterable residue throughout the study period (Appendix). Fecal coliform concentrations (13.8/100 mL mean) were highly variable and indicate that at least partial treatment is required for drinking water purposes. Color, non-filterable residue, and turbidity were also variable.

E226199 Flora Lake at Nitinat

Temperatures in Flora Lake were elevated in July and August, suggesting suitability for recreational use (Table 12). Turbidity was higher than our guidelines in July. Fecal coliform concentrations were low to moderate. pH was lower than average in June and October, organic carbon was low in October, and nitrate and calcium were low in June. Total carbon and phosphorus were high in July.

E226201 Darlington Lake at Franklin South Main

Elevated temperatures in Darlington Lake in July and August make this lake suitable for recreational purposes (Table 13). Turbidity was higher than our guidelines in July. Fecal coliforms were low. Hardness was especially low in June.

E226202 Francis Lake at Franklin South Main Boat Ramp

Francis Lake temperatures in July and August indicate recreational suitability (Table 14). Organic carbon was higher than our guidelines in July and August. In June, total phosphorus was higher than our guidelines and higher than it was for the remainder of the study period. No fecal coliforms were found in Francis Lake.

E226203 Little Nitinat River at Nadira Main

This location on the Little Nitinat River had higher organic carbon than our guidelines in June, higher turbidity in July, and higher total nitrogen in August and October (Table 15). Fecal coliform levels were moderate. In July, turbidity, hardness, and calcium were above average for this site.

E226204 Little Nitinat River on East Side Franklin South Main

The following parameters were higher than our guidelines at this site: organic carbon in June and August, and color and total nitrogen in August (Table 16). *Giardia* was identified at this site in August. Calcium was low in June. Turbidity and nitrate + nitrite were high in August.

E226206 Little Nitinat River at Rock Cut

The following parameters were higher than our guidelines at this site: organic carbon in June and August, turbidity and total phosphorus in October, and aluminum in July and October (Table 17). Hardness, inorganic carbon, and calcium were elevated in July. Color was higher in August, nitrate + nitrite was higher in August and October, and iron was higher in October. The turbidity at this site in October (6.68 NTU) may be of concern for aquatic life. Fecal coliform concentrations were moderate at this site.

E226207 Little Nitinat River at Nitinat Mainline u/s Hatchery

Concentrations were higher at this site than our guidelines for turbidity in June and October, organic carbon in August, total phosphorus in June, and aluminum in June and August (Table 18). Hardness and calcium were high in July. Color and nitrate + nitrite were high and organic carbon was low in August. Very high concentrations of fecal coliforms were found in June (260/100 mL). This site tested positive for *Giardia* on three occasions and for *Cryptosporidium* once.

Nitinat River Monitoring Group

The Nitinat River watershed had very high mean values for several parameters: non-filterable residue, turbidity, aluminum, iron, and manganese (Appendix). High levels were measured for organic carbon, total phosphorus, and total nitrogen. Variation was very high for color, non-filterable residue, turbidity, total phosphorus, total nitrogen, aluminum, iron, and manganese. Fecal coliform counts were high and variable.

The watershed showed clear seasonal patterns of water quality changes during the sampling period. Color, particulate matter, phosphorus, nitrogen, aluminum and iron tended to be higher in June and November samples (Tables 19 - 28). pH, SC, hardness, and calcium tended towards lower values in June and November.

E226208 Nitinat River near Rift Creek

This site is the uppermost of our sites in the Nitinat River. Concentrations of aluminum were greater than our guidelines in June and November (Table 19). Color, non-filterable residue, turbidity, organic carbon, total and dissolved phosphorus, total nitrogen, ammonia, and iron were above our guidelines in November. Three of these parameters had values high enough to be a risk to aquatic life: non-filterable residue (29 mg/L), turbidity (18.3 NTU), and total iron (1.97 mg/L). Fecal coliform concentrations were consistently at or above levels requiring partial treatment for drinking water.

This site had the seasonal concentration patterns characteristic of the entire monitoring group. Filterable residue and inorganic carbon were also low in November. Organic carbon, nitrate + nitrite, iron, manganese, and silica were high in November.

E226211 Granite Creek at Carmanah Main

Granite Creek had total and dissolved phosphorus levels higher than our guidelines in June (Table 20). SC was above our guidelines in July and September. Turbidity, ammonia, and aluminum were above our guidelines in November. Fecal coliforms were moderate in June. Samples tested positive for *Giardia* at this site in September. Inorganic and total carbon were low in November.

E226214 Worthless Creek at Summit BR100

This site is the uppermost site in the Nitinat watershed, near the headwaters of Worthless Creek. Active logging was underway further upstream during our study period. Color, turbidity, total and dissolved phosphorus, total nitrogen, ammonia, nitrate + nitrite, and aluminum were higher than our guidelines in August (Table 21). Only organic carbon was higher than our guidelines in November. Fecal coliforms were high (170/100 mL) in June and August.

The August sample had elevated concentrations more typical of spring or fall.

Heavy runoff from a summer storm into the creek during sampling probably account for these unseasonal results.

E226215 Worthless Creek at BR60

Only organic carbon, in July and September, had concentrations above our guidelines at this site (Table 22). Field temperature and DO measurements taken in June are unreliable due to DO meter irregularities and should be disregarded. High fecal coliform concentrations were measured in June (124/100 mL). *Giardia* was detected (1.21/100 L) at this site in September. Inorganic and total carbon, sulfur, and silica were low in November.

E226216 Nitinat River at One-Way West

This site had concentrations higher than our study guidelines for the following parameters: color, non-filterable residue, total phosphorus, and iron in June and November; turbidity, organic carbon, and total nitrogen in June, August, and November; ammonia in August and November; and aluminum, manganese, and silica in November (Table 23). Fecal coliforms were very high in June (156/100 mL). Samples tested positive for *Giardia* in June and August and for *Cryptosporidium* in August. The very high levels of non-filterable residue, turbidity, and iron at this site in November may be detrimental to aquatic life. In addition to the seasonal variations described for the entire watershed, turbidity, nitrogen, and ammonia were higher in August.

E226217 Jasper Creek at One-Way West

The following parameters were higher than our guidelines at this site: color in June; turbidity, total and dissolved phosphorus, and aluminum in June and November; organic carbon in June, July, and September; and total nitrogen and ammonia in November (Table 24). Fecal coliform concentrations were moderate. Turbidity and iron are sufficiently high in June (6.7 NTU and 1.05 mg/L, respectively) to suggest negative impact on aquatic life. In contrast to Nitinat watershed seasonal patterns, non-filterable residue was not particularly high at this site at any time.

E226218 Upper Jasper Creek at Washout

Upper Jasper Creek water quality is similar to the previous site with slightly lower concentrations of most parameters (Table 25). Turbidity is only slightly lower (4.00 NTU in June). Phosphorus and nitrogen are below our guidelines in November.

E226219 Nitinat River at Carmanah Mainline

This site in the lower Nitinat River had concentrations higher than our guidelines for the following parameters: color, non-filterable residue, turbidity, total phosphorus, total nitrogen, aluminum, iron, and manganese in June and November; organic carbon in all samples; lead in September; and ammonia in November (Table 26). High fecal coliforms (128/100 mL) were measured in June. *Giardia* was detected in July. Non-filterable residue, turbidity and iron measurements at this site in June and November are much higher than water quality guidelines for aquatic life.

Seasonal patterns of water quality throughout the watershed are evident here. In addition, manganese and silica concentrations were high in June and November.

E226221 Nitinat River downstream of Hatchery

This lowermost site on the Nitinat River includes flows from the Little Nitinat River. The following parameters measured higher than our guidelines: color, non-filterable residue, dissolved phosphorus, iron, and manganese in November; turbidity and organic carbon in June, August, and November; total phosphorus and aluminum in June and November; and total nitrogen in August and November (Table 27). Fecal coliforms were high in June and November. Temperature was high enough to be considered for swimming (19.2 °C) in August, but fecal coliform concentrations found upstream are a cause for concern. Non-filterable residue, turbidity, and iron concentrations in November were high enough to potentially impact aquatic life. *Giardia* was detected in November (5.98/100L).

In addition to the seasonal patterns found throughout the Nitinat watershed, this site had high filterable residue, calcium, and sodium on August 12; variable carbon; high turbidity and total nitrogen on August 27, and high manganese in November.

E226223 Small Creek near Nitinat Gravel Quarry

This creek flows into the Nitinat River downstream of the Little Nitinat, flowing subsurface during part of the summer. The following parameters were higher than our guidelines at this site: color in June; turbidity, total phosphorus, and aluminum in June and November; organic carbon and total nitrogen in June, August, and November; nitrate + nitrite in August and November; and non-filterable residue and ammonia in November (Table 28). Fecal coliform concentrations in June (146/100 mL) were high. *Giardia* was found at this site in July (4.98/100 L) and November (1.85/100 L).

Seasonal changes were evident at this site as in the rest of the watershed. In contrast, color remained low in November, and non-filterable residue was low throughout the study period. High nitrate + nitrite increased total nitrogen levels in August. Carbon levels were variable.

Rosander Monitoring Group

Water quality in the Rosander area was excellent during the study period (Appendix). pH, residues, turbidity, SC, inorganic and total carbon, and calcium were all below the means for the entire study area. Color, iron, and fecal coliforms were variable. Non-filterable residue was consistently low throughout the area. Raw water would be suitable for drinking with only disinfection at most sites.

E226247 Rosander Creek at Rosander Main

Organic carbon, aluminum, and nickel concentrations were higher than our guidelines in June at this site (Table 29). Fecal coliform levels were moderate. Turbidity, total nitrogen, and nitrate + nitrite were elevated in November. Sodium was lower and aluminum and nickel were higher in June.

E226249 South Fork Marchand Creek at Rosander Main

The following parameters measured higher than our guidelines at this site: organic carbon and nitrate + nitrite in June, total phosphorus in June and August, dissolved phosphorus in August, ammonia in June and September, and zinc in September (Table 30). One sample in June had moderate fecal coliform levels (14/100 mL). Samples from this site tested positive for *Giardia* in August and September.

E226251 Doobah Creek downstream of Doobah Lake at Rosander Main

This site is located near the outlet of Doobah Lake. Elevated temperatures in June, August, and September suggest the lake may be suitable for recreational purposes in the summer (Table 31). The following parameters were higher than our guidelines: organic carbon throughout the study period; color in June and November; total phosphorus in August; ammonia in June, August, and November; and zinc in August. DO was slightly lower (7.6 mg/L) than our guidelines in August. No fecal coliforms were found. Some seasonal variation in measurements is evident. Color and iron were higher in June and November, turbidity was lower. Filterable residue and temperature were lower in November.

E226253 Sprise Lake near Nitinat

Sprise Lake temperatures were elevated into the range suitable for recreational use in June, August, and September (Table 32). DO was lower than our guidelines in August and September. The following parameters measured higher than our guidelines: color in June and November; turbidity, total phosphorus, and zinc in August; organic carbon in June; total nitrogen in June, August, and November; and ammonia in June and September. Aluminum concentrations were variable. Low fecal coliform concentrations were measured. Color was higher in June and November.

E226254 UnID'ed Creek #2 flowing into Cheewhat Lake at Rosander Main

This creek had no flow in August and September, so only two samples were taken (Table 33). In June, organic carbon, aluminum, and nickel were higher than our guidelines. In November, ammonia was higher than our guidelines. Fecal coliform concentrations were low.

E226255 UnID'ed Creek #3 near Cheewhat Lake at Rosander Main

The following parameters measured higher at this site than our guidelines: turbidity and organic carbon in June; total and dissolved phosphorus, nickel, and zinc in August (Table 34). Fecal coliform concentrations in August were moderate. Little seasonal variation was evident. Phosphorus, nitrogen, and iron were higher in August. Residues and calcium were low in November.

E226256 Carmanah Creek near Heaven's Grove

This site was tested only once, in July, during our study period (Table 35). Aluminum measured higher than our guidelines at that time. Fecal coliforms were not detected.

Caycuse River Monitoring Group

Water quality in the Caycuse River watershed was better than the entire study area means for several parameters: color, non-filterable residue, turbidity, and organic carbon (Appendix). Inorganic carbon was higher than average for the study area. pH, total residue, and fecal coliforms were variable.

E226225 Malachan Creek at Carmanah Mainline

Only ammonia, in November, was higher than our guidelines at this site (Table 36). Seasonal changes include lower hardness in November and higher total nitrogen and nitrate +

nitrite in September and November. Calcium was variable. Fecal coliforms were low.

E226225 Caycuse River near Nitinat Campsite

The following parameters were higher at this site than our guidelines: turbidity in September, hardness and calcium in July, aluminum in July and September, and ammonia in November (Table 37). DO was lower than our guidelines in September. Fecal coliform levels in September were moderate. Metal concentrations were higher in July than during the rest of the study period. Calcium, sulfur, and silica were much higher. Total nitrogen and nitrate + nitrite were higher in September and November.

E226227 Upper Seven Mile Creek at F1A

Only a few concentrations were higher at this site than our guidelines: SC in August, and total nitrogen and nitrate + nitrite in September (Table 38). Fecal coliforms were low. Some seasonal differences were evident at this site. pH, SC, hardness and calcium were lower, and iron was higher in November. Turbidity was higher in November and September. Total nitrogen and nitrate + nitrite were higher in September. Sodium was higher in August.

E226228 Lower Seven Mile Creek at Caycuse Mainline

The following parameters were higher at this site than our guidelines: color in one sample in August; turbidity in November; SC in July, August, and September; total nitrogen and nitrate + nitrite in September; and calcium in August (Table 39). Fecal coliforms were high in July. *Giardia* was found in June and September. *Cryptosporidium* was present in July. The November sample showed several variations from normal for this site. Turbidity, total nitrogen, and nitrate + nitrite were higher. Residues, SC, hardness, inorganic and total carbon, and calcium were lower. One replicate in August had very high color.

E226231 Caycuse River at Hatton Mainline

The following parameters were higher at this site than our guidelines: temperature, total and dissolved phosphorus, and zinc in August; and turbidity in November (Table 40). DO was lower than our guidelines in August. Fecal coliforms were moderate in July. Turbidity and iron were higher, and pH, SC, hardness, and calcium were lower in November than typical for this site. Total nitrogen was higher in August and September.

E226232 Cedar Creek at Caycuse 9

The following parameters measured higher at this site than our guidelines: conductivity in August and September; and total and dissolved phosphorus, calcium, nickel, and zinc in August (Table 41). Fecal coliform concentrations in September were moderate. Seasonal changes in water quality include higher turbidity, and lower SC, hardness, and calcium in November. Total nitrogen was low in July. Calcium, nickel, and zinc were high in August.

E226234 Mistery Creek at McLure Mainline

The following parameters measured higher at this site than our guidelines: non-filterable residue in November; conductivity, total and dissolved phosphorus, nickel, and zinc in August; and total nitrogen and nitrate + nitrite in July (Table 42). Fecal coliform concentrations were moderate. Total nitrogen and nitrate levels were elevated in July. Total

phosphorus and zinc were high in August. Turbidity and iron were high, and SC, hardness, and calcium were low in November.

E226235 McLure River at McLure Mainline & M10

The following parameters measured higher at this site than our guidelines: turbidity and aluminum in July, September, and November; and total and dissolved phosphorus, nickel, and zinc in August (Table 43). Temperatures were above guidelines for drinking water, but within acceptable range for recreational use in July and August. Fecal coliforms were consistently low. Hardness and calcium were lower in July and November. Total nitrogen and nitrate were lower in July. Turbidity and aluminum were low and total and dissolved phosphorus were high in August. Iron was high in September and November.

E226236 McLure River at McLure Mainline Bridge

This site is located just downstream of the outlet of McLure Lake. Turbidity and aluminum in July, and nickel and zinc in August measured higher at this site than our guidelines (Table 44). DO was well below our guidelines in August. pH was slightly below our guidelines in November. Temperatures in July, August, and September indicated suitability for recreational use. No fecal coliforms were detected at this site. No clear seasonal trends were evident at this site. Turbidity and aluminum were higher in July. Total nitrogen and iron were higher in August.

E226237 Upper Hatton Creek at H500

Only aluminum on July 3, iron in September, and lead on July 23 were higher at this site than our guidelines (Table 45). DO in September and pH in November were slightly below our guidelines. Fecal coliform concentrations in September were moderate. *Cryptosporidium* was found at this site in July. Turbidity and aluminum were elevated in July. Total nitrogen and nitrate + nitrite were higher in November.

Gordon River Monitoring Group

The Gordon River watershed had lower mean values for color, non-filterable residue, and turbidity than the entire study area (Appendix). Color and non-filterable residue were consistently low. Inorganic carbon measurements were higher, on average. Fecal coliform concentrations were low, but highly variable. Seasonal trends evident in this watershed include increased turbidity, phosphorus, nitrogen, aluminum, and iron in July and November; decreased hardness and calcium in July and November; and higher sodium in August.

E226238 Gordon River u/s Gordon River Camp

This site had higher turbidity and aluminum in November, and iron in July and November than our guidelines (Table 46). Lead was detectable in August. Fecal coliform concentrations were consistently low. Seasonal changes described for this watershed were evident in November. Total nitrogen and nitrate + nitrite began to increase in September. Iron was slightly higher in July.

E226239 Upper Gordon River at Gordon River Mainline

Turbidity, aluminum, and zinc at this site were above our guidelines in November (Table 47). Fecal coliform counts were low. As for the previous site, seasonal trends were

evident in November, with nitrogen increasing in September. Manganese was slightly elevated in November.

E226240 Gordon River at TR4

Nickel and zinc concentrations were slightly higher than our guidelines in August at this site (Table 48). Fecal coliform levels in July were moderate. Seasonal variations typical in the watershed were evident at this site with the following exceptions: nitrogen and aluminum were stable throughout the study, and inorganic carbon was lower in July and November.

E226241 Gordon River at TR10

Turbidity in July and November, and total organic carbon and nickel in August were higher at this site than our guidelines (Table 49). Temperatures in August and September were high for drinking water, therefore suitable for recreational uses. Fecal coliform concentrations in July were moderate. In contrast to the seasonal trends found in the watershed, this site had no increased phosphorus, nitrogen, or aluminum in July and November.

E226242 Loup Creek at Gordon River Mainline

Organic carbon and total phosphorus in July, nickel in August, and zinc in November measured higher at this site than our guidelines (Table 50). Temperature in July was above drinking water guidelines and into acceptable range for recreational uses. Fecal coliforms were consistently low. Seasonal trends typical of the watershed were evident with the following exceptions: nitrogen and aluminum were consistent throughout the study, total phosphorus was not elevated in November but was slightly higher in August, and SC was lower in July and November.

E226244 Gordon River at Baird Creek

The following parameters were higher at this site than our guidelines: turbidity in July and November; organic carbon in July; ammonia, nitrate + nitrite, and aluminum in November; and lead in August (Table 51). Temperature in August was higher than our guidelines, indicating potential recreational use. Fecal coliform concentrations were moderate. This site showed typical seasonal trends for the watershed except that there was neither increased phosphorus in July and November, nor nitrogen in July. There was increased organic carbon in July and November.

E226246 Brown's Creek at Gordon River Mainline

Only two samples were taken of Brown's Creek because there was no flow in the summer (Table 52). Seasonal comparisons, therefore, are not possible. Organic carbon was higher than our guidelines in both July and November. Fecal coliforms were moderate. *Giardia* was found at this site in July.

San Juan River Monitoring Group

The San Juan River watershed had low mean values with little variation for color and non-filterable residue (Appendix). Turbidity was also low compared to the entire study area. Mean fecal coliform levels were low but variable. Seasonal changes in water quality varied

among creeks and will be discussed below.

E226190 Bavis Creek at Red Creek Mainline

The following parameters were higher at this site than our guidelines: color, turbidity, organic carbon, dissolved phosphorus, and aluminum in July and November; and non-filterable residue, total phosphorus, and iron in July (Table 53). Fecal coliforms were consistently moderate. *Giardia* and *Cryptosporidium* were present in November. Very high iron and aluminum concentration in July may be detrimental to aquatic life.

Seasonal changes evident in this creek include higher color, non-filterable residue, organic carbon, aluminum, and iron in July and November. pH, SC, hardness, calcium, sodium, sulfur, and silica were lower in July and November. Manganese was higher in July.

E226408 Fairy Creek at Harris Creek Mainline

Fairy Creek was sampled only twice during our study due to subsurface flow in the summer (Table 54). Color, turbidity, organic carbon, total and dissolved phosphorus, aluminum, iron, and lead were higher in July than our guidelines. Fecal coliforms in July were moderate. SC, hardness, and calcium were lower, and total carbon and manganese were higher in the July sample than in November.

E226410 Mosquito Creek at Red Creek Mainline

The following parameters measured higher at this site than our guidelines: color, organic carbon, and aluminum in July and November; turbidity and dissolved phosphorus in July, August, and November; total phosphorus in July and August; total nitrogen in July; and zinc in August (Table 55). Fecal coliforms were moderate. *Giardia* was found in September at this site.

Seasonal trends evident at this creek include higher color, turbidity, organic carbon, aluminum, and iron in July and November. pH, filterable residue, SC, hardness, calcium, sodium, and silica were lower in July and November.

E226548 Renfrew Creek at Harris Creek Mainline

The following parameters were higher at this site than our guidelines: color, turbidity, organic carbon, and aluminum in July and November; non-filterable residue, total phosphorus, and iron in July; and dissolved phosphorus and ammonia in August (Table 56). Temperature was higher than drinking water guidelines in August, therefore in the range suitable for recreational use. Fecal coliform levels were moderate.

Seasonal variations in water quality at this site include higher color, turbidity, organic carbon, aluminum, and iron in July and November. pH, filterable residue, SC, hardness, calcium, and sodium were lower in July and November. Non-filterable residue, total carbon, and total phosphorus were higher in July. Dissolved phosphorus and ammonia were higher in August.

E226549 Harris Creek at Harris Creek Mainline

Harris Creek water quality exceeded our guidelines for only three parameters, aluminum in July, and temperature and dissolved phosphorus in August (Table 57). pH, hardness and calcium levels decreased gradually from July to November. Turbidity was higher in November. Fecal coliform levels were low.

E226550 Upper Lens Creek at Lens Main West

This site had concentrations higher than our guidelines for aluminum in July, nitrate + nitrite and lead in August, and total and dissolved phosphorus in November (Table 58). DO was low (7.4 mg/L) in August and September. Fecal coliforms were low. Seasonal variation in water quality was as follows: high color and turbidity in July and November; low SC, hardness, calcium, and sodium in July and November; and low nitrate + nitrite and high iron in July.

E226551 Upper Lens Creek at Lens Main West & TR8

Upper Lens Creek had the following parameters higher than our guidelines: dissolved phosphorus in July and November, aluminum in July and August, lead in August, and zinc in July (Table 59). Fecal coliform levels were low. Seasonal highs for turbidity, and lows for SC occurred in July and November. Nitrate + nitrite was low and zinc was high in July. Hardness and calcium were low in November. Iron was lower and sodium was higher than average in August.

E226552 Lens Creek at Lens Mainline & Modeste Main

Samples taken at this site measured higher than our guidelines for aluminum in July and August, and for dissolved phosphorus in November (Table 60). Fecal coliform concentrations were low. Seasonal variation was minor in this creek. Sodium was low in July and November, turbidity was high in November, and hardness and calcium were low in November.

E226553 Lens Creek at Lens Mainline and Harris Creek Mainline

Temperature in August and dissolved phosphorus in November were higher at this site than our guidelines (Table 61). Fecal coliform concentrations were low. Seasonal changes in water quality were few. Turbidity was higher and calcium was lower in November. Nitrate + nitrite was higher in August.

E226554 San Juan River at San Juan River Bridge Campsite

Temperature was higher in August and September, dissolved phosphorus was higher in November, and aluminum was higher in August at this site than our guidelines (Table 62). Fecal coliforms were low. A few seasonal changes in water quality were evident. SC, hardness, calcium, and sodium were low in July and November; iron was high. Turbidity was high in November and aluminum was high in August.

E226556 Garbage Creek at Shawnigan Mainline

Garbage Creek was higher in dissolved phosphorus in July, August, and November; total phosphorus in August; ammonia in November; and zinc in August and September than our guidelines (Table 63). Fecal coliform levels were at or below detection limits (≤ 1). Seasonal decreases in SC, hardness, calcium, and iron were evident in July and November. pH and ammonia were also high in November. Total and dissolved phosphorus were high in August. Zinc was high in August and September.

E226560 San Juan River u/s Williams Creek

Dissolved phosphorus was the only parameter higher than our guidelines - in July,

August, and November (Table 64). Fecal coliforms were low. Some seasonal changes were evident in November. Non-filterable residue and iron were higher, pH, SC, hardness, and calcium were lower. Nitrate + nitrite was lower in July.

E226561 Fleet River at Fleet Mainline

Fleet River exceeded our water quality guidelines for organic carbon in July and November, and for dissolved phosphorus and aluminum in November (Table 65). Fecal coliform concentrations were moderate. Seasonal changes include higher turbidity and organic carbon in July and November, and lower pH, SC, and hardness in November.

Discussion

The water quality in the Nitinat River and San Juan River watersheds had few constraints to drinking water suitability for a raw water source, aquatic life, or recreation during the period of May to November 1997. The exceptions were usually associated with storm events. In addition to heavy spring and fall rains, frequent summer storms created substantial runoff, very quickly raising water levels throughout the region. Storm runoff was associated with increased particulates, nutrients, metals, and fecal coliforms. The parameters with concentrations of concern in this study were colour, turbidity, TOC, aluminum, fecal coliforms, *Giardia*, and *Cryptosporidium*.

In these naturally clear raw waters, the turbidity in 19% of our samples can create problems in drinking water (induced turbidity > 1 NTU; Singleton, 1995). The turbidity in 4% of our samples can be problematic to aquatic life (induced turbidity > 5 NTU; Singleton, 1995). Some of the highest turbidity levels were found in areas important to salmonids (*i.e.* Nitinat River). TOC in 38% of samples may result in trihalomethane formation in drinking water with chlorine disinfection (> 2 mg/L; Nagpal, 1995). Total aluminum concentrations in 25% of samples may be detrimental to freshwater aquatic life (> 0.1 mg/L maximum dissolved; Nagpal, 1995). Total aluminum in 14% of samples exceeded the criteria for recreation and aesthetics (> 0.2 mg/L dissolved maximum; Nagpal, 1995). The ratio of total:dissolved aluminum in these waters is not known.

Obvious seasonal changes in water chemistry were evident in the Nitinat River and Gordon River watersheds. The San Juan River watershed had a diverse range of water quality conditions. Throughout the study area, water chemistry in June reflected spring conditions. Concentrations were elevated, but not as high as in the fall. High aluminum concentrations were associated with wet periods in June, early July, late October, and November. Elevated particulates in spring and fall are a potential problem for both drinking water and aquatic life. Increased color and high fecal coliform levels in spring and fall reduce the quality of raw water as a drinking water source.

Warm and dry weather in August was associated with elevated conductivity, zinc, and nickel. Summer low flows restrict aquatic life and drinking water availability. Some creeks dry out entirely, or flow below the surface.

Although these results provide baseline data for the region, there are no pristine or undisturbed sites in the study. Water quality in the most nearly pristine site, Carmanah Creek, may have been affected by logging in the upper valley. The region has been an historically important timber supply area. Presently, several companies operate on private and public land in the region. Areas where there has been more human activity (*i.e.* Nitinat, Little Nitinat) seem to have poorer water quality than areas with less activity (*i.e.* Klanawa,

Rosander, Caycuse). In the areas with better water quality, remnants of old growth forests can be seen at high elevations and in parts of some valleys. This study did not investigate the cause of water quality deterioration, which could include vehicle traffic, roads, logging, wood debris, wild animals, or human activities.

Since several parameters were highly correlated in this study, results from some tests could be used to infer values for others. Turbidity and conductivity were good indicators of ambient water residues and could be effectively used as surrogate measures of non-filterable residue, filterable residue, and total residue. Turbidity was not a good predictor of fecal coliforms or *Giardia*. Increased fecal coliform concentrations were not indicative of *Giardia*. *Cryptosporidium* did not vary with either turbidity or fecal coliform concentrations.

All surface water used as a drinking water supply should be disinfected, according to the BC Ministry of Health (Warrington, 1988). Fecal coliform concentrations in 18% of samples (11-100/100mL) indicate partial treatment would also be required. Two percent of samples would require full treatment (> 100/100mL). A sample from the Little Nitinat River, upstream of a popular swimming spot, had concentrations that indicate primary-contact recreation may be risky (> 200/100mL; Warrington, 1994). Any *Giardia* or *Cryptosporidium* is a health hazard in raw water used for drinking purposes (Warrington, 1988). *Giardia* was detected in 14% of samples, *Cryptosporidium* in 4%. Full treatment, including flocculation, sedimentation, and slow or pressure filtration through a fine-pore media bed is required to ensure removal of these protozoans' cysts (Warrington, 1988).

Recommendations

Lakes and streams in the study area are generally clean and clear. The lakes are low in fecal coliforms and protozoans, and somewhat warmer during the summer. The region appears to have potential for increased tourism and recreational use and there seem to be few constraints in terms of water quality.

Fecal coliforms, *Giardia*, and *Cryptosporidium* are a problem in areas currently more heavily frequented by people (*i.e.* Little Nitinat and Nitinat Rivers). Less travelled areas have better water quality and fewer drinking water concerns (*i.e.* Klanawa River and Rosander area) but there are occasional levels of fecal coliforms, *Giardia*, and *Cryptosporidium* that are high enough to warrant concern. There are no parts of the study area where water should be used for domestic supply without treatment (disinfection is not likely sufficient and some form of treatment is likely needed at all locations). Studies to determine the sources of *Giardia* and *Cryptosporidium* contamination could lead to an identification of potential ways to reduce the health risk to people in this area.

Monitoring for long-term changes in water quality should be conducted in the region. This would allow the effects of watershed disturbance to be assessed. For example, areas of heavy logging (*i.e.* Nitinat River) should be compared to areas recently logged for the first time (*i.e.* Klanawa River) and to pristine areas. Such results could also be compared to those found in the long-term study of nearby Carnation Creek. For comprehensive land use planning, it would also be useful to know the water quality in the winter and how it relates to the spring, summer and fall conditions found in this study.

Measurement of filterable and non-filterable residues, ammonia, nitrate, and nitrite could be omitted in further studies. Conductivity can be used as a surrogate for filterable residue, and turbidity can be used as a surrogate for non-filterable residue. This will save analytical costs, shipping costs, and time. Levels of ammonia and nitrite in this study were

all near to or below the detection limit. Dissolved metals should be measured after storm events to see if elevated metal concentrations (especially aluminum and iron) are in dissolved and bioavailable form.

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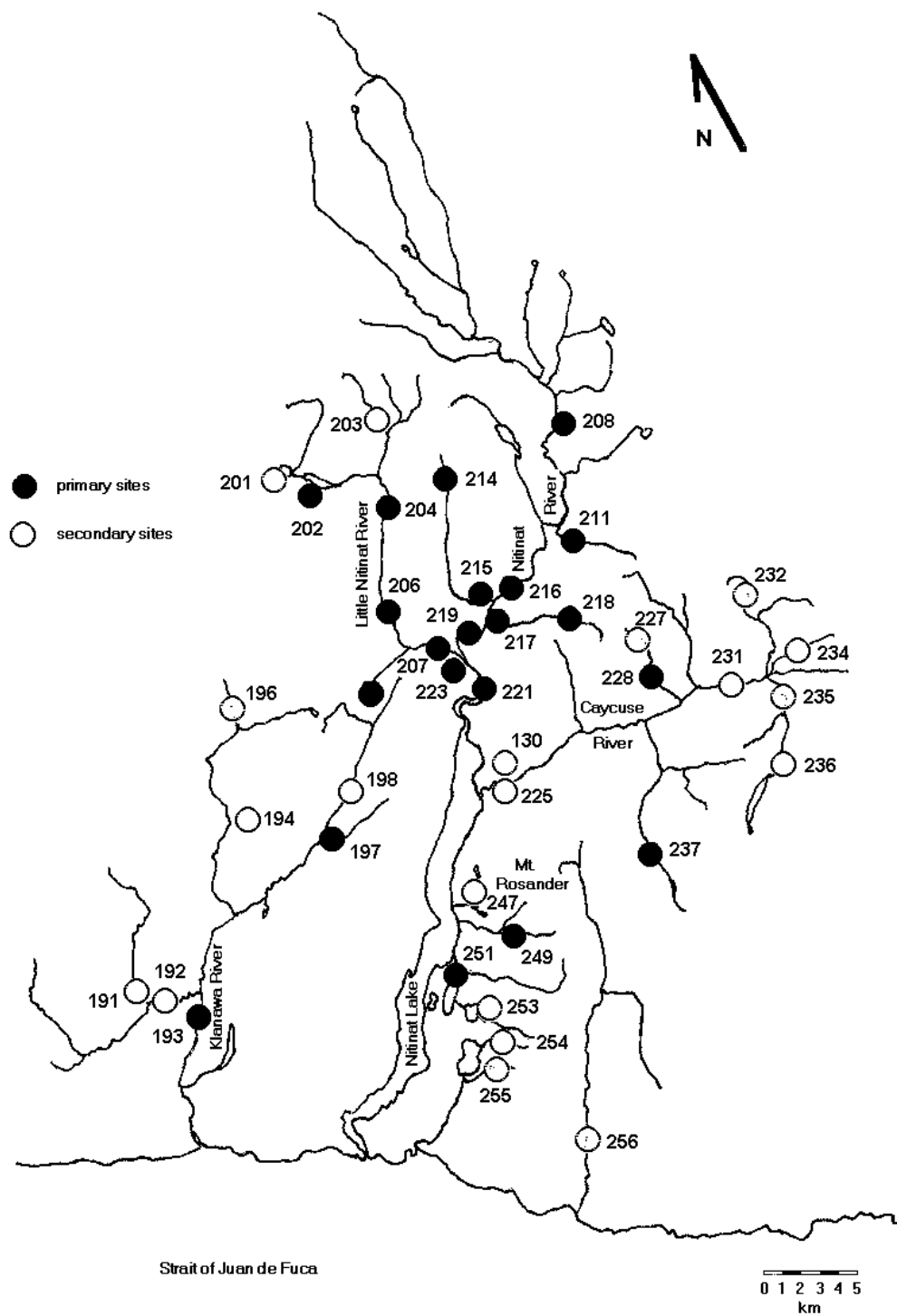


Figure 1. Klanawa River, Little Nitinat River, Nitinat River, Mt. Rosander area, and Caycuse River watersheds showing primary and secondary sites sampled May – November 1997.

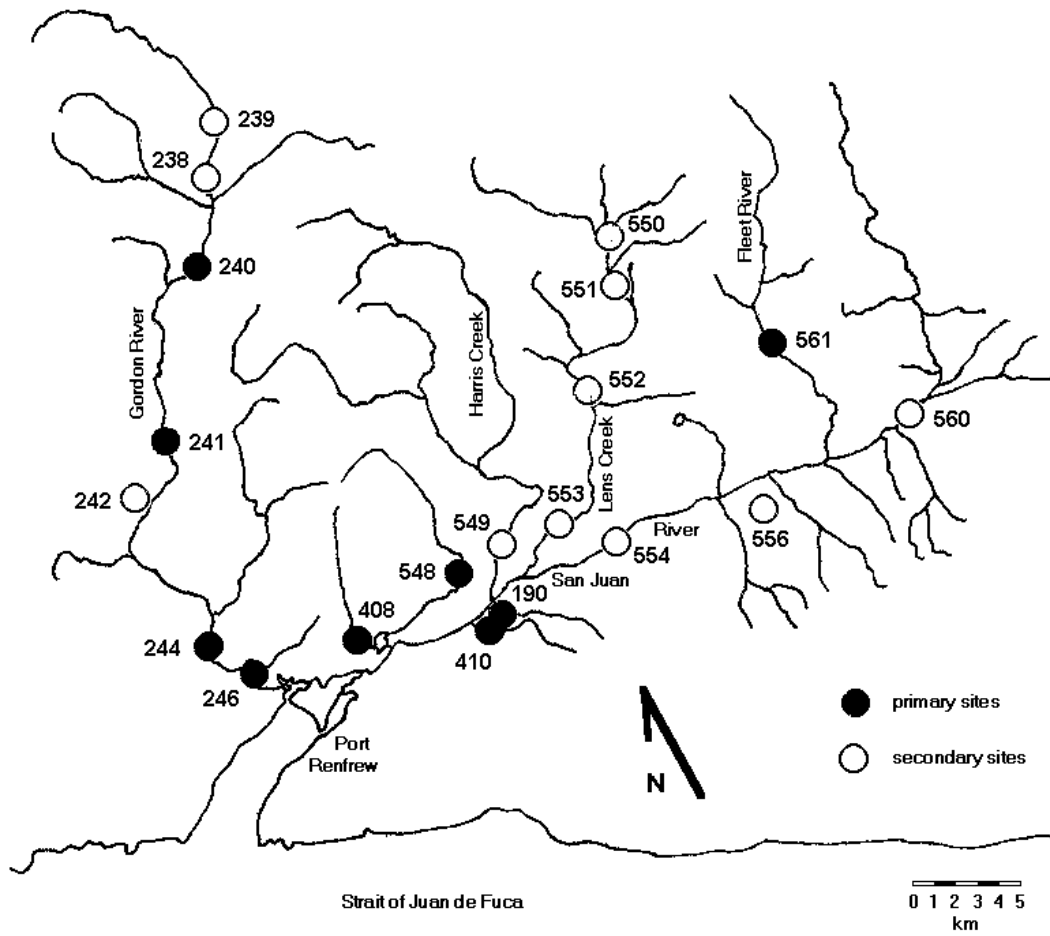


Figure 2. San Juan River watershed showing primary and secondary sites sampled May – November 1997.

Table 5. Ambient water quality data for site E226191 Gorge Mainline Creek at Gorge Mainline Bridge (May – November 1997).

LOCATION E226191 GORGE ML CREEK AT GORGE ML BRIDGE				
DATE	5/28/97 10:20	7/29/97 10:00	8/20/97 11:42	10/29/97 9:45
Field Temp	10.6	12.5	14.2	11.0
Field DO	8.7	10.0	9.8	10.4
Color True	< 5	< 5	5	15
pH	7.33	7.23	7.32	6.93
Res: Tot	< 45	< 45		
Res: Filt	40	40		
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.16	0.24	0.10	1.10
SC	42	44	48	26
Hardness	13.2	14.0	15.6	6.9
TOC	0.9	0.8		
DOC		0.8		
TIC	3.3	3.1		
DIC		3.0		
Tot C		3.8		
C--T	4.2	3.9		
P--T	0.005	0.004	0.008	0.007
P T Diss	0.004	0.003	0.008	0.003
Tot N	0.22	0.05	0.07	0.20
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.036	0.038	0.050	0.058
NO3	< 0.034	< 0.036		
NO2	< 0.002	< 0.002		
Al-T	< 0.06	< 0.06	< 0.06	0.25
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	4.3	4.6	5.1	2.1
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.013	0.010	0.008	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.007	0.010	0.031	0.122
K--T	< 0.1	0.2	0.4	0.3
Mg-T	0.6	0.6	0.7	0.4
Mn-T	0.002	< 0.001	< 0.001	0.006
Na-T	3.2	2.1	2.0	1.6
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	0.08
S--T	1.19	1.10	1.46	0.46
Si-T	2.43	2.48	2.64	1.43
Zn-T	< 0.002	< 0.002	0.008	< 0.002
Fecal coliforms	2	< 1		2
Giardia	0			
Cryptosporidium	0			

Table 6. Ambient water quality data for site E226192 West Fork Klanawa River at Newstead Mainline Bridge (May – November 1997).

LOCATION E226192 W. FORK KLANAWA R. AT NEWSTEAD M/L BR				
DATE	5/27/97 13:45	7/29/97 9:30	8/20/97 11:33	10/29/97 9:30
Field Temp	11.0	12.0	13.5	10.0
Field DO	10.9	12.8	11.8	9.8
Color True	< 5	< 5	< 5	15
pH	7.28	7.21	7.37	6.98
Res: Tot	< 35	< 45		
Res: Filt	30	40		
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.12	0.08	0.08	2.04
SC	50	51	53	33
Hardness	16.5	18.0	17.7	10.2
TOC	< 0.5	0.5		
DOC	< 0.5	< 0.5		
TIC	3.9	4.1		
DIC	3.9	3.9		
Tot C	< 4.4	< 4.4		
C--T	< 4.4	4.6		
P--T	0.007	0.007	0.010	0.009
P T Diss	0.005	0.006	0.009	0.003
Tot N	0.11	0.10	0.13	0.22
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.097	0.107	0.123	0.127
NO3	< 0.095	0.105		
NO2	< 0.002	0.002		
Al-T	0.06	< 0.06	< 0.06	0.33
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	5.3	5.9	5.6	3.1
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.013	0.008	< 0.006	0.006
Cu-T	< 0.006	< 0.006	0.006	< 0.006
Fe-T	< 0.006	< 0.006	< 0.006	0.193
K--T	0.2	0.2	0.4	0.2
Mg-T	0.8	0.8	0.9	0.6
Mn-T	< 0.001	< 0.001	0.002	0.005
Na-T	2.2	2.4	2.3	2.0
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.92	0.86	0.98	0.50
Si-T	3.26	3.15	3.42	2.23
Zn-T	< 0.002	< 0.002	0.014	< 0.002
Fecal coliforms	< 1	< 1		6
Giardia	0			
Cryptosporidium	0			

Table 7. Ambient water quality data for site E226193 Klanawa River at N400 on Newstead Mainline (May – November 1997).

LOCATION E226193 KLANAWA RIVER AT N400 ON NEWSTEAD ML					
Date	5/28/97 13:25	7/29/97 10:37	8/20/97 12:25	10/29/97 10:30	
Field Temp	10.7	12.8	13.5	9.5	
Field DO	8.2	9.9	8.1	9.2	
Color True	< 5	< 5	< 5	15	
pH	7.13	6.95	7.11	6.76	
Res: Tot	< 35	< 35	< 35	30	
Res: Filt	30	30	30	20	
Res: NF	< 5	< 5	< 5	10	
Turbidity	0.06	0.64	0.08	3.59	
SC	38	41	45	27	
Hardness	11.5	12.3	14.1	7.8	
TOC	< 0.5	< 0.5	< 0.5	4.2	
DOC		< 0.5	< 0.5	3.8	
TIC	3.3	3.4	3.3	1.6	
DIC		3.0	3.3	1.6	
Tot C		< 3.5	< 3.8	5.4	
C--T	< 3.8	< 3.9	< 3.8	5.8	
P--T	0.005	0.006	0.007	0.013	
P T Diss	0.004	0.006	0.008	0.004	
Tot N	0.10	0.09	0.19	0.24	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.089	0.093	0.107	0.115	
NO3	< 0.087	< 0.091			
NO2	< 0.002	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	0.59	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	3.8	4.1	4.5	2.3	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	< 0.006	0.007	< 0.006	
Cu-T	< 0.006	< 0.006	0.007	< 0.006	
Fe-T	0.008	0.007	0.010	0.338	
K--T	0.1	< 0.1	0.3	0.3	
Mg-T	0.5	0.5	0.7	0.5	
Mn-T	< 0.001	< 0.001	< 0.001	0.012	
Na-T	2.9	2.1	2.1	1.7	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	
S--T	0.81	0.78	0.91	0.44	
Si-T	2.47	2.61	2.89	2.14	
Zn-T	< 0.002	< 0.002	0.006	0.003	
Fecal coliforms	42	< 1	1	20	
Giardia	0	0	0	9.35	
Cryptosporidium	0	0	0	0	

Table 8. Ambient water quality data for site E226194 Dorothy Creek at Northfork Main (May – November 1997).

LOCATION E226194 DOROTHY CREEK AT NORTHFORK MAIN				
Date	6/4/97 9:22	7/29/97 13:30	8/20/97 15:09	10/28/97 15:10
Field Temp	11.6	20.0	19.6	8.0
Field DO	11.4	8.6	9.1	11.8
Color True	30	< 5	< 5	20
pH	6.58	7.19	7.24	6.66
Res: Tot	< 35	< 25		
Res: Filt	30	20		
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.30	0.26	0.33	0.33
SC	20	29	33	23
Hardness	4.7	8.6	9.7	5.6
TOC	5.8	1.8		
DOC	5.7	1.6		
TIC	1.1	2.2		
DIC	1.1	2.1		
Tot C	6.8	3.7		
C--T	6.9	4.0		
P--T	0.005	0.006	0.009	0.006
P T Diss	0.005	0.002	0.005	0.003
Tot N	0.10	0.07	0.16	0.14
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.021	0.006	0.015	0.028
NO3	< 0.019	< 0.004		
NO2	< 0.002	< 0.002		
Al-T	0.15	< 0.06	< 0.06	0.14
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	1.4	2.6	2.9	1.6
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.012	0.017	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	0.013	< 0.006
Fe-T	0.074	0.063	0.120	0.081
K--T	< 0.1	< 0.1	0.2	0.2
Mg-T	0.3	0.5	0.6	0.4
Mn-T	0.004	0.004	0.004	0.001
Na-T	1.5	1.7	1.6	1.5
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.35	0.41	0.42	0.35
Si-T	1.32	1.85	1.63	1.41
Zn-T	0.010	0.003	0.005	0.003
Fecal coliforms	5	1	80	6
Giardia	0			
Cryptosporidium	0			

Table 9. Ambient water quality data for site E226196 Klanawa River at Central South Main (May – November 1997).

LOCATION E226196 KLANAWA RIVER AT CENTRAL SOUTH MAIN			
Date	6/4/97 11:34	10/29/97 15:35	
Field Temp	9.9	8.0	
Field DO	11.9	11.0	
Color True	25	15	
pH	6.59	6.54	
Res: Tot	< 35		
Res: Filt	30		
Res: NF	< 5	< 5	
Turbidity	0.42	0.46	
SC	17	20	
Hardness	3.8	4.7	
TOC	5.2		
DOC	5.2		
TIC	0.7		
DIC	0.7		
Tot C	5.9		
C--T	5.9		
P--T	0.006	0.005	
P T Diss	0.004	0.002	
Tot N	0.09	0.22	
NH4 Diss	< 0.005	< 0.005	
NO3 + NO2	0.026	0.103	
NO3	< 0.024		
NO2	< 0.002		
Al-T	0.16	0.23	
As-T	< 0.06	< 0.06	
Ca-T	1.2	1.4	
Cd-T	< 0.006	< 0.006	
Cr-T	0.016	0.007	
Cu-T	< 0.006	< 0.006	
Fe-T	0.065	0.070	
K--T	0.1	0.3	
Mg-T	0.2	0.3	
Mn-T	0.002	0.003	
Na-T	1.2	1.3	
Ni-T	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	
S--T	0.31	0.36	
Si-T	1.14	1.27	
Zn-T	< 0.002	< 0.002	
Fecal coliforms	< 1	< 1	
Giardia	0		
Cryptosporidium	0		

Table 10. Ambient water quality data for site E226197 Bagley Creek at Upper Klanawa Main (May – November 1997).

LOCATION E226197 BAGLEY CREEK AT UPPER KLANAWA MAIN								
Date	6/3/97	6/3/97	6/3/97	6/3/97	7/29/97	8/20/97	10/29/97	
Field Temp	10.7	10			14.0	15.0	9.2	
Field DO	8.5	10			8.5	8.5	11.5	
Color True	10	10	15	10	5	< 5	20	
pH	6.84	6.80	6.75	6.76	6.62	6.67	6.55	
Res: Tot	< 25	< 25	< 15	< 25	< 35	< 45	< 25	
Res: Filt	20	20	10	20	30	40	20	
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Turbidity	0.20	0.18	0.21	0.19	0.28	0.55	0.52	
SC	22	22	22	21	35	41	20	
Hardness	5.5	4.8	5.2	5.2	10.0	12.5	4.7	
TOC	4.1	3.5	3.5	3.5	1.3	0.8	5.1	
DOC	3.4	3.3	3.4	3.5	1.3	0.8	4.8	
TIC	1.3	1.3	1.3	1.3	3.1	3.9	0.6	
DIC	1.2	1.3	1.3	1.1	2.5	3.4	0.6	
Tot C	4.6	4.6	4.7	4.6	3.8	4.2	5.4	
C--T	5.4	4.8	4.8	4.8	4.4	4.7	5.7	
P--T	0.003	0.004	0.004	0.003	0.006	0.007	0.006	
P T Diss	0.004	0.005	0.004	0.004	0.004	0.008	0.005	
Tot N	0.10	0.08	0.09	0.09	0.15	0.28	0.18	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.044	0.042	0.042	0.041	0.132	0.213	0.066	
NO3	< 0.042	< 0.040	< 0.040	< 0.039	< 0.130			
NO2	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002			
Al-T	0.10	0.10	0.16	0.16	< 0.06	< 0.06	0.27	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	1.7	1.6	1.6	1.6	3.2	4.0	1.4	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.023	0.029	0.028	0.029	0.060	0.110	0.166	
K--T	0.2	0.2	0.2	0.2	0.2	0.5	0.3	
Mg-T	0.3	0.2	0.3	0.3	0.5	0.6	0.3	
Mn-T	0.002	0.003	0.003	0.004	0.010	0.039	0.004	
Na-T	1.6	1.6	1.6	1.6	1.8	1.8	1.5	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
S--T	0.41	0.41	0.42	0.42	0.83	1.10	0.35	
Si-T	1.25	1.23	1.23	1.22	1.93	2.16	1.1	
Zn-T	0.008	0.011	0.012	0.027	< 0.002	< 0.002	0.003	
Fecal coliforms	8	2	10	14	< 1	1	2	
Giardia	0				0	0	0	
Cryptosporidium	0				0	0	0	

Table 11. Ambient water quality data for E226198 East Klanawa River at Bridge between Upper Klanawa and Upper Klanawa Main (May – November 1997).

LOCATION E226198 EAST KLANAWA RIVER AT BRIDGE				
DATE	6/3/97 10:50	7/29/97 12:39	8/20/97 14:30	10/29/97 14:30
Field Temp	9.4	9.8	10.0	9.0
Field DO	10.0	9.2	8.5	11.6
Color True	< 5	< 5	< 5	7
pH	6.56	6.37	6.56	6.52
Res: Tot	< 25	< 25		
Res: Filt	20	20		
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.06	0.11	0.07	0.43
SC	24	28	29	23
Hardness	5.8	7.9	8.4	5.7
TOC	1.4	0.5		
DOC	1.4	0.5		
TIC	1.8	3		
DIC	1.7	2.1		
Tot C	3.1	2.6		
C--T	3.2	3.5		
P--T	0.003	0.005	0.006	0.006
P T Diss	0.004	0.003	0.006	0.003
Tot N	0.09	0.11	0.13	0.21
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.066	0.106	0.103	0.132
NO3	< 0.064	< 0.104		
NO2	< 0.002	< 0.002		
Al-T	< 0.06	< 0.06	< 0.06	0.12
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	2.0	2.5	2.7	1.8
Cd-T	< 0.006	< 0.006	0.006	< 0.006
Cr-T	0.009	0.013	< 0.006	0.013
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	< 0.006	< 0.006	0.015	0.032
K--T	< 0.1	< 0.1	0.3	0.2
Mg-T	0.2	0.4	0.4	0.3
Mn-T	0.002	< 0.001	0.001	0.004
Na-T	1.5	1.5	1.5	1.4
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.57	0.56	0.61	0.45
Si-T	1.51	1.93	2.15	1.37
Zn-T	0.007	0.003	< 0.002	< 0.002
Fecal coliforms	8	< 1	11	< 1
Giardia	0			
Cryptosporidium	0			

Table 12. Ambient water quality data for site E226199 Flora Lake at Nitinat (May – November 1997).

LOCATION E226199 FLORA LAKE AT NITINAT							
DATE	06/04/97	07/28/97	08/26/97	08/26/97	08/26/97	08/26/97	10/29/97
Field Temp	14.9	23.0	18.5				9.0
Field DO	9.5	8.8	9.3				11.2
Color True	< 5	< 5	< 5	< 5	< 5	< 5	< 5
pH	7.06	7.21	7.27	7.34	7.34	7.34	6.97
Res: Tot	< 35	27	< 25	< 35	< 35	< 35	< 35
Res: Filt	30	20	20	30	30	30	30
Res: NF	< 5	7	< 5	< 5	< 5	< 5	< 5
Turbidity	0.34	1.40	0.65	0.46	0.36	0.40	0.65
SC	33	36	37	37	38	38	41
Hardness	11.0	13.1	13.8	13.4	14.2	13.1	14.0
TOC	1.2	1.8	1.4	1.3	1.3	1.3	0.9
DOC	1.2	1.6	1.3	1.3	1.3	1.3	0.7
TIC	3	3.3	3.4	3.3	3.3	3.3	3.8
DIC	3.0	3.2	3.3	3.3	3.3	3.3	3.8
Tot C	4.2	4.8	4.6	4.6	4.6	4.6	4.5
C--T	4.2	5.1	4.8	4.6	4.6	4.6	4.7
P--T	0.003	0.008	0.004	0.004	0.003	0.004	0.006
P T Diss	0.003	0.004	< 0.002	< 0.002	< 0.002	< 0.002	0.002
Tot N	0.09	0.11	0.15	0.13	0.11	0.10	0.20
NH4 Diss	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007
NO3 + NO2	0.038	0.022	0.014	0.008	0.004	0.005	0.140
NO3	< 0.036	0.020					
NO2	< 0.002	0.002					
Al-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	3.9	4.6	4.7	4.7	4.7	4.6	4.8
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.008	0.020	0.020	0.010	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	0.007	< 0.006	0.009	< 0.006	< 0.006
Fe-T	0.034	0.070	0.036	0.064	0.081	0.053	0.055
K--T	< 0.1	< 0.1	0.6	0.3	0.5	0.3	0.2
Mg-T	0.3	0.4	0.5	0.4	0.6	0.4	0.5
Mn-T	0.004	0.005	0.006	0.005	0.008	0.004	0.016
Na-T	1.4	1.3	1.0	1.3	1.2	1.3	1.4
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.47	0.43	0.41	0.42	0.45	0.41	0.49
Si-T	1.21	1.4	1.3	1.27	1.37	1.25	1.5
Zn-T	0.039	< 0.002	0.003	< 0.002	< 0.002	0.002	< 0.002
Fecal coliforms	< 1	< 1	6	11	3	7	< 1
Giardia		0	0				0
Cryptosporidium		0	0				0

Table 13. Ambient water quality data for site E226201 Darlington Lake at Franklin South Main (May – November 1997).

LOCATION E226201 DARLINGTON LAKE AT FRANKLIN SOUTH MAIN				
DATE	6/5/97 12:10	7/22/97 12:31	8/26/97 12:36	10/28/97 11:05
Field Temp		18.0	16.5	8.9
Field DO		8.7	8.2	9.1
Color True	< 5	< 5	< 5	< 5
pH	6.87	7.17	7.20	6.94
Res: Tot	< 45	< 35		
Res: Filt	40	30		
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.18	1.50	0.28	0.61
SC	42	46	48	49
Hardness	15.5	18.4	18.9	18.5
TOC	1.5	1.6		
DOC	1.4	1.6		
TIC	4.2	5		
DIC	4.2	4.4		
Tot C	5.6	6.0		
C--T	5.7	6.6		
P--T	0.004	0.006	0.004	0.006
P T Diss	0.006	0.003	0.002	0.005
Tot N	0.10	0.09	0.14	0.17
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.056	0.073	0.063	0.085
NO3	< 0.054	< 0.071		
NO2	< 0.002	< 0.002		
Al-T	< 0.06	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	5.4	6.2	6.4	6.4
Cd-T	< 0.006	0.006	< 0.006	< 0.006
Cr-T	0.014	0.017	0.008	0.008
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.073	0.044	0.038	0.048
K--T	0.1	< 0.1	0.8	0.2
Mg-T	0.5	0.7	0.7	0.6
Mn-T	0.005	0.003	0.003	0.001
Na-T	1.3	1.2	1.3	1.4
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.41	0.37	0.44	0.39
Si-T	1.76	1.89	1.91	2.03
Zn-T	0.010	0.003	0.005	0.005
Fecal coliforms	3	< 1	< 1	< 1
Giardia		0	0	
Cryptosporidium		0	0	

Table 14. Ambient water quality data for site E226202 Francis Lake at Franklin South Main Boat Ramp (May – November 1997).

LOCATION E226202 FRANCIS LK AT FRANKLIN S MAIN BOAT RAMP				
DATE	6/4/97 14:45	7/28/97 14:19	8/26/97 13:25	10/28/97 12:05
Field Temp	12.2	21.0	17.1	9.0
Field DO	10.3	8.8	9.2	8.7
Color True	7	7	7	5
pH	7.23	7.32	7.32	7.07
Res: Tot	< 35	< 45	< 45	< 45
Res: Filt	30	40	40	40
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.15	0.32	0.41	0.56
SC	35	41	41	40
Hardness	12.9	16.3	15.8	14.3
TOC	2	2.1	2.5	1.9
DOC	2	1.9	1.8	1.9
TIC	3.3	4.2	3.9	3.8
DIC	3.3	4.0	3.7	3.8
Tot C	5.3	5.9	5.5	5.7
C--T	5.3	6.3	6.4	5.7
P--T	0.016	0.004	0.005	0.005
P T Diss	0.002	< 0.002	< 0.002	0.002
Tot N	0.06	0.08	0.18	0.14
NH4 Diss	0.006	< 0.005	0.005	< 0.005
NO3 + NO2	0.019	0.031	0.037	0.052
NO3	< 0.017	0.029		
NO2	< 0.002	0.002		
Al-T	< 0.06	< 0.06	0.10	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	4.5	5.7	5.5	4.9
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.018	0.024	0.006	0.025
Cu-T	< 0.006	< 0.006	0.009	< 0.006
Fe-T	0.034	0.043	0.076	0.049
K--T	< 0.1	< 0.1	0.2	0.2
Mg-T	0.4	0.5	0.5	0.5
Mn-T	0.004	0.004	0.007	0.005
Na-T	1.0	1.0	1.0	1.2
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.30	0.34	0.35	0.34
Si-T	1.3	1.52	1.57	1.51
Zn-T	0.014	0.004	0.003	0.002
Fecal coliforms	< 1	< 1	< 1	< 1
Giardia		0	0	0
Cryptosporidium		0	0	0

Table 15. Ambient water quality data for site E226203 Little Nitinat River at Nadira Main (May – November 1997).

LOCATION E226203 LITTLE NITINAT RIVER AT NADIRA MAIN				
DATE	6/5/97 11:15	7/22/97 13:18	8/26/97 14:10	10/27/97 16:25
Field Temp	8.1	11.2	11.1	8.5
Field DO	12.2	10.5	11.6	10.4
Color True	5	< 5	15	5
pH	7.12	7.30	7.12	7.23
Res: Tot	< 35	< 45		
Res: Filt	30	40		
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.05	1.50	0.15	0.06
SC	25	42	29	35
Hardness	8.6	15.4	11.4	11.5
TOC	2.3	0.9		
DOC	2.3	0.8		
TIC	2.2	4		
DIC	2.2	3.9		
Tot C	4.5	4.7		
C--T	4.5	4.9		
P--T	0.002	0.003	0.007	0.003
P T Diss	0.004	0.003	0.004	0.003
Tot N	0.07	0.07	0.32	0.23
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.036	0.075	0.198	0.119
NO3	< 0.034	< 0.073		
NO2	< 0.002	< 0.002		
Al-T	< 0.06	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	3.1	5.5	3.9	4.1
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.009	0.014	< 0.006	0.009
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.006	0.020	0.008	0.010
K--T	0.1	< 0.1	0.8	0.2
Mg-T	0.2	0.4	0.4	0.3
Mn-T	0.002	0.003	< 0.001	0.002
Na-T	0.9	1.3	0.8	1.3
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.28	0.45	0.28	0.41
Si-T	1.1	1.6	1.29	1.41
Zn-T	< 0.002	< 0.002	< 0.002	0.004
Fecal coliforms	3	2	13	< 1
Giardia		0		
Cryptosporidium		0		

Table 16. Ambient water quality data for site E226204 Little Nitinat River on East Side Franklin South Main (May – November 1997).

LOCATION E226204 LITTLE NITINAT R ON E SIDE FRANKLIN S MN					
DATE	6/5/97 10:17	7/22/97 14:15	8/26/97 11:39	10/27/97 17:10	
Field Temp	10.1	15.0	14.0	9.0	
Field DO	10.8	9.5	9.9	11.5	
Color True	5	< 5	20	< 5	
pH	7.19	7.32	7.26	7.24	
Res: Tot	< 35	< 25	< 45	< 35	
Res: Filt	30	20	40	30	
Res: NF	< 5	< 5	< 5	< 5	
Turbidity	0.18	0.12	0.53	0.26	
SC	34	45	37	41	
Hardness	12.5	17.0	14.4	15.3	
TOC	2.1	1.2	3.7	1.7	
DOC	2.1	1.2	3.5	0.7	
TIC	3.1	4.5	3.2	3.7	
DIC	3.1	4.4	3.2	3.6	
Tot C	5.2	5.6	6.7	4.3	
C--T	5.2	5.7	6.9	5.4	
P--T	0.002	0.005	0.006	0.002	
P T Diss	0.003	0.004	0.003	0.002	
Tot N	0.10	0.09	0.32	0.19	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.042	0.077	0.157	0.104	
NO3	< 0.040	< 0.075			
NO2	< 0.002	< 0.002			
Al-T	< 0.06	0.10	< 0.06	< 0.06	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	4.5	6.0	5.1	5.3	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	0.014	0.010	< 0.006	0.012	
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.040	0.048	0.041	0.026	
K--T	0.2	< 0.1	0.5	0.3	
Mg-T	0.3	0.5	0.4	0.5	
Mn-T	0.004	0.001	< 0.001	< 0.001	
Na-T	1.0	1.2	0.9	1.2	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	
S--T	0.37	0.41	0.34	0.43	
Si-T	1.35	1.77	1.47	1.58	
Zn-T	0.006	< 0.002	< 0.002	0.002	
Fecal coliforms	2	5	8	< 1	
Giardia		0.71	0	0	
Cryptosporidium		0	0	0	

Table 17. Ambient water quality data for site E226206 Little Nitinat River at Rock Cut (May – November 1997).

LOCATION E226206 LITTLE NITINAT RIVER AT ROCK CUT					
DATE	6/5/97 8:52	7/23/97 8:48	8/26/97 10:54	10/28/97 13:10	
Field Temp	9.4	13.0	13.9	9.0	
Field DO	11.3	10.2	10.2	9.8	
Color True	5	5	15	7	
pH	7.29	7.49	7.29	7.37	
Res: Tot	< 35	< 25	< 45	< 35	
Res: Filt	30	20	40	30	
Res: NF	< 5	< 5	< 5	< 5	
Turbidity	0.24	0.14	0.92	6.68	
SC	32	45	35	40	
Hardness	11.2	17.5	13.5	14.3	
TOC	2.1	1.1	4.1	1.5	
DOC	2.1	1.1	4	1.5	
TIC	2.8	4.1	2.7	3.2	
DIC	2.8	4.0	2.7	3.2	
Tot C	4.9	5.1	6.7	4.7	
C--T	4.9	5.2	6.8	4.7	
P--T	0.003	0.005	0.007	0.014	
P T Diss	0.003	0.002	0.004	0.003	
Tot N	0.07	0.07	0.32	0.19	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.047	0.071	0.178	0.107	
NO3	< 0.045	< 0.069			
NO2	< 0.002	< 0.002			
Al-T	0.10	0.24	0.08	0.35	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	4.0	6.0	4.6	4.9	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	0.037	< 0.006	< 0.006	
Cu-T	0.007	0.010	0.006	0.006	
Fe-T	0.120	0.095	0.072	0.226	
K--T	< 0.1	0.3	0.7	0.3	
Mg-T	0.3	0.6	0.5	0.5	
Mn-T	< 0.001	0.003	0.003	0.006	
Na-T	1.0	1.3	1.0	1.4	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	
S--T	0.43	0.72	0.46	0.61	
Si-T	1.44	2.19	1.57	2.06	
Zn-T	0.005	0.004	< 0.002	0.003	
Fecal coliforms	17	6	45	< 1	
Giardia		0	0	0	
Cryptosporidium		0	0	0	

Table 18. Ambient water quality data for site E226207 Little Nitinat River at Nitinat Mainline upstream Hatchery (May – November 1997).

LOCATION E226207 LITTLE NITINAT RIVER AT NITINAT ML U/S HATCHERY								
DATE	06/16/97	07/29/97	08/13/97	08/13/97	08/27/97	08/27/97	10/28/97	
Field Temp	13.0				13.0		8.5	
Field DO	10.5				10.7		8.4	
Color True	7	< 5			15		5	
pH	7.52	7.63			7.36		7.52	
Res: Tot	37	< 35			< 35		< 35	
Res: Filt	30	30			30		30	
Res: NF	7	< 5			< 5		< 5	
Turbidity	4.90	0.14			0.94		2.29	
SC	47	56			35		44	
Hardness	19.6	22.7			13.6		16.5	
TOC	1.3	1.1			4		1.3	
DOC	1.3	1.1			4		1.3	
TIC	4.3	5.3			2.8		3.8	
DIC	4.2	5.3			2.8		3.8	
Tot C	5.5	6.4			6.8		5.1	
C--T	5.6	6.4			6.8		5.1	
P--T	0.012	0.003			0.007		0.006	
P T Diss	0.004	0.002			0.003		0.003	
Tot N	0.10	0.09			0.26		0.19	
NH4 Diss	< 0.005	< 0.005			< 0.005		< 0.005	
NO3 + NO2	0.051	0.076			0.152		0.114	
NO3	< 0.049	0.074						
NO2	< 0.002	0.002						
Al-T	0.22	< 0.06			0.15		0.10	
As-T	< 0.06	< 0.06			< 0.06		< 0.06	
Ca-T	6.7	8.1			4.8		5.8	
Cd-T	< 0.006	< 0.006			< 0.006		< 0.006	
Cr-T	< 0.006	< 0.006			< 0.006		< 0.006	
Cu-T	< 0.006	0.006			< 0.006		< 0.006	
Fe-T	0.215	0.016			0.153		0.110	
K--T	0.2	0.3			0.3		0.3	
Mg-T	0.7	0.6			0.4		0.5	
Mn-T	0.009	0.003			0.002		0.005	
Na-T	1.3	1.6			1.0		1.6	
Ni-T	< 0.02	< 0.02			< 0.02		< 0.02	
Pb-T	< 0.06	< 0.06			< 0.06		< 0.06	
S--T	0.67	0.80			0.43		0.65	
Si-T	1.92	1.85			1.59		1.76	
Zn-T	< 0.002	< 0.002			0.005		0.002	
Fecal coliforms	260	< 1	< 1	2	< 1	5	9	
Giardia		2.94			0 2.11	1.38	0	0
Cryptosporidium		0			17 1.06	0	0	0

Table 19. Ambient water quality data for site E226208 Nitinat River near Rift Creek (May – November 1997).

LOCATION E226208 NITINAT RIVER NEAR RIFT CREEK								
DATE	06/23/97	07/30/97	07/30/97	07/30/97	07/30/97	09/02/97	11/03/97	
Field Temp	8.8	14.5				14.5	9.1	
Field DO	12.0	10.2				9.4	10.6	
Color True	5	< 5	< 5	< 5	< 5	< 5	20	
pH	7.63	7.83	7.85	7.84	7.81	7.84	7.46	
Res: Tot	< 45	< 55	< 55	< 65	< 45	< 55	59	
Res: Filt	40	50	50	60	40	50	30	
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	29	
Turbidity	0.20	0.12	0.12	0.11	0.12	0.09	18.30	
SC	62	88	88	88	87	89	37	
Hardness	27.1	40.8	41.1	42.6	41.3	38.8	21.2	
TOC	1	0.7	0.5	0.8	0.8	2.5	3.4	
DOC	1	0.7	0.5	0.8	0.8	1.6	3.4	
TIC	6.8	9.9	9.9	10	9.9	9.6	3.1	
DIC	6.7	9.9	9.9	10.0	9.9	9.4	3.1	
Tot C	7.7	10.6	10.4	10.8	10.7	11.0	6.5	
C--T	7.8	10.6	10.4	10.8	10.7	12.1	6.5	
P--T	0.005	0.003	0.004	0.004	0.004	< 0.002	0.043	
P T Diss	0.004	0.002	< 0.002	0.003	0.002	< 0.002	0.006	
Tot N	0.05	0.08	0.07	0.07	0.09	0.15	0.32	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.010	
NO3 + NO2	0.037	0.061	0.060	0.059	0.060	0.109	0.172	
NO3	< 0.035	0.059	< 0.058	< 0.057	< 0.058			
NO2	< 0.002	0.002	< 0.002	< 0.002	< 0.002			
Al-T	0.23	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	2.06	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	9.7	14.7	14.8	15.4	14.9	13.9	6.0	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	< 0.006	0.019	0.006	0.009	< 0.006	0.008	
Cu-T	0.006	0.008	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.030	0.021	0.019	< 0.006	0.006	0.018	1.970	
K--T	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	
Mg-T	0.7	1	1	1	1	1	1.5	
Mn-T	0.002	0.002	0.001	0.001	0.003	0.003	0.054	
Na-T	< 0.1	1.0	0.9	1.0	0.9	1.2	0.9	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06	< 0.06	
S--T	0.32	0.56	0.55	0.59	0.60	0.60	0.28	
Si-T	1.34	1.72	1.76	1.77	1.73	1.77	4.45	
Zn-T	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.003	0.005	
Fecal coliforms	10	11	17	12	13	11	74	
Giardia	0	0				0	0	
Cryptosporidium	0	0				0	0	

Table 20. Ambient water quality data for site E226211 Granite Creek at Carmanah Main (May – November 1997).

LOCATION E226211 GRANITE CREEK AT CARMANAH MAIN				
DATE	6/18/97 11:25	7/30/97 14:30	9/2/97 15:03	11/3/97 14:05
Field Temp	9.1	12.5	14.0	9.5
Field DO	12.2	10.2	11.0	10.4
Color True	5	< 5	< 5	7
pH	7.71	7.86	7.89	7.71
Res: Tot	< 45	< 65	< 65	< 45
Res: Filt	40	60	60	40
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.33	0.21	0.09	2.87
SC	65	102	106	56
Hardness	26.6	44.6	45.1	23.3
TOC	1.4	0.6	2.2	1.3
DOC	1.4	0.6	2.2	1.3
TIC	6.1	9.7	9.4	5
DIC	6.1	9.7	9.4	4.6
Tot C	7.5	10.3	11.6	5.9
C--T	7.5	10.3	11.6	6.3
P--T	0.020	0.005	0.002	0.009
P T Diss	0.007	0.004	< 0.002	0.005
Tot N	0.08	0.05	0.10	0.18
NH4 Diss	< 0.005	< 0.005	< 0.005	0.013
NO3 + NO2	0.038	0.027	0.054	0.091
NO3	< 0.036	< 0.025		
NO2	< 0.002	< 0.002		
Al-T	< 0.06	< 0.06	< 0.06	0.28
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	10.0	16.7	16.9	8.5
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	< 0.006	< 0.006	0.022
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.029	0.016	< 0.006	0.244
K--T	0.1	0.3	0.1	0.4
Mg-T	0.4	0.7	0.7	0.5
Mn-T	< 0.001	0.004	< 0.001	0.007
Na-T	1.2	1.5	1.4	1.4
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	1.46	2.51	2.71	1.00
Si-T	1.84	2.27	2.28	2.03
Zn-T	< 0.002	< 0.002	0.003	0.004
Fecal coliforms	23	9	3	2
Giardia	0	0	1.21	0
Cryptosporidium	0	0	0	0

Table 21. Ambient water quality data for site E226214 Worthless Creek at Summit BR100 (May – November 1997).

LOCATION E226214 WORTHLESS CREEK AT SUMMIT BR100								
DATE	06/16/97	07/28/97	08/26/97	08/26/97	11/05/97	11/05/97	11/05/97	11/05/97
Field Temp	11.3	15.7	12.2		8.5			
Field DO	9.9	9.0	9.8		10.6			
Color True	7	5	45		10	10	10	10
pH	7.62	7.65	7.44		7.09	7.11	7.07	7.10
Res: Tot	< 45	< 55	< 55		< 25	< 25	< 25	< 15
Res: Filt	40	50	50		20	20	20	< 10
Res: NF	< 5	< 5	< 5		< 5	< 5	< 5	< 5
Turbidity	0.36	0.23	2.87		0.24	0.25	0.23	0.26
SC	64	82	46		27	27	27	28
Hardness	27.9	37.6	19.8		9.3	8.9	9.3	9.3
TOC	2	1.4	8.6		2.8	2.8	2.7	2.7
DOC	2	1.4	8.3		2.8	2.8	2.7	2.7
TIC	6.9	9.3	3.8		1.7	1.6	1.6	1.7
DIC	6.8	9.0	3.7		1.7	1.6	1.6	1.6
Tot C	8.8	10.4	12.0		4.5	4.4	4.3	4.3
C--T	8.9	10.7	12.4		4.5	4.4	4.3	4.4
P--T	0.006	0.007	0.013		0.003	0.003	0.003	0.003
P T Diss	0.004	< 0.002	0.007		0.002	0.002	< 0.002	0.002
Tot N	0.07	0.04	0.45		0.06	0.05	0.05	0.05
NH4 Diss	< 0.005	< 0.005	0.007		< 0.005	0.007	< 0.005	< 0.005
NO3 + NO2	0.022	0.017	0.237		0.019	0.019	0.015	0.016
NO3	< 0.020	0.015						
NO2	< 0.002	0.002						
Al-T	< 0.06	< 0.06	0.25		0.10	0.12	0.14	0.09
As-T	< 0.06	< 0.06	< 0.06		< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	10.0	13.9	7.1		2.9	2.9	2.9	2.9
Cd-T	< 0.006	< 0.006	< 0.006		< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.011	< 0.006	< 0.006		< 0.006	< 0.006	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006		< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.038	0.015	0.122		0.019	0.025	0.031	0.021
K--T	0.4	0.2	0.4		0.2	0.2	0.3	0.2
Mg-T	0.7	0.7	0.5		0.5	0.4	0.5	0.5
Mn-T	0.001	< 0.001	0.006		< 0.001	0.003	< 0.001	0.003
Na-T	1.2	1.5	1.0		1.0	1.0	1.0	1.0
Ni-T	< 0.02	< 0.02	< 0.02		< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06		< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.51	0.52	0.37		0.55	0.54	0.52	0.55
Si-T	1.61	1.69	1.55		1.59	1.62	1.62	1.63
Zn-T	0.003	0.003	0.005		< 0.002	0.003	0.004	< 0.002
Fecal coliforms	170	< 1	13	46	< 1	< 1	< 1	< 1
Giardia	0	0	0		0			
Cryptosporidium	0	0	0		0			

Table 22. Ambient water quality data for site E226215 Worthless Creek at BR60 (May – November 1997).

LOCATION E226215 WORTHLESS CREEK AT BR60				
DATE	6/16/97 15:47	7/30/97 13:45	9/3/97 8:45	11/5/97 11:00
Field Temp	33.3	15.2	15.3	9.8
Field DO	7.0	9.6	9.7	10.8
Color True	5	< 5	< 5	7
pH	7.49	7.50	7.59	7.22
Res: Tot	< 45	< 55	< 45	< 45
Res: Filt	40	50	40	40
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.12	0.09	0.07	0.28
SC	59	71	67	40
Hardness	23.1	27.9	25.2	14.0
TOC	1.3	3.8	4.8	1.7
DOC	1.3	1.4	2.1	1.7
TIC	4.9	5.9	5.3	2.8
DIC	4.9	5.9	5.2	2.8
Tot C	6.2	7.3	7.3	4.5
C--T	6.2	9.7	10.1	4.5
P--T	0.005	0.003	0.002	0.003
P T Diss	0.003	0.005	< 0.002	0.002
Tot N	0.05	0.03	0.06	0.08
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.003	0.007	0.019	0.027
NO3	< 0.001	< 0.005		
NO2	< 0.002	< 0.002		
Al-T	< 0.06	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	8.1	10.0	9.1	4.8
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.015	< 0.006	< 0.006	0.012
Cu-T	< 0.006	0.033	0.007	< 0.006
Fe-T	0.035	0.031	0.038	0.048
K--T	0.3	0.5	0.3	0.4
Mg-T	0.7	0.7	0.6	0.5
Mn-T	< 0.001	0.003	< 0.001	0.002
Na-T	1.5	2.0	1.8	1.3
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	1.88	2.64	1.96	0.76
Si-T	2.01	2.13	2.13	1.63
Zn-T	< 0.002	0.017	0.002	< 0.002
Fecal coliforms	124	6	8	2
Giardia	0	0	1.21	0
Cryptosporidium	0	0	0	0

Table 23. Ambient water quality data for site E226216 Nitinat River at One-Way West (May – November 1997).

LOCATION E226216 NITINAT RIVER AT ONE-WAY WEST								
DATE	06/17/97	07/22/97	08/13/97	08/13/97	08/27/97	08/27/97	11/03/97	
Field Temp	11.0	13.5			13.5		9.7	
Field DO	11.2	10.0			9.8		10.1	
Color True	20	< 5			10		25	
pH	7.47	7.72			7.65		7.53	
Res: Tot	45	< 45			< 55		79	
Res: Filt	30	40			50		30	
Res: NF	15	< 5			< 5		49	
Turbidity	11.00	0.22			1.41		36.90	
SC	44	86			65		43	
Hardness	21.8	38.1			30.8		27.4	
TOC	4.3	0.7			2.8		3.1	
DOC	4.3	0.7			2.8		2.7	
TIC	4.5	9.4			6.7		3.8	
DIC	4.5	9.4			6.6		3.8	
Tot C	8.8	10.1			9.4		6.5	
C--T	8.8	10.1			9.5		6.9	
P--T	0.034	0.004			0.007		0.102	
P T Diss	0.004	0.003			0.003		0.005	
Tot N	0.21	0.06			0.27		0.31	
NH4 Diss	< 0.005	< 0.005			0.006		0.013	
NO3 + NO2	0.070	0.054			0.135		0.092	
NO3	< 0.068	< 0.052						
NO2	< 0.002	< 0.002						
Al-T	0.99	< 0.06			0.10		3.52	
As-T	< 0.06	< 0.06			< 0.06		< 0.06	
Ca-T	7.1	13.6			11.0		7.5	
Cd-T	< 0.006	< 0.006			< 0.006		< 0.006	
Cr-T	0.011	0.017			0.025		< 0.006	
Cu-T	< 0.006	< 0.006			< 0.006		0.009	
Fe-T	0.988	0.033			0.094		3.390	
K--T	0.3	0.2			0.1		0.6	
Mg-T	1	1			0.8		2.1	
Mn-T	0.032	0.004			0.006		0.093	
Na-T	0.6	1.2			0.9		1.3	
Ni-T	< 0.02	< 0.02			< 0.02		< 0.02	
Pb-T	< 0.06	0.06			< 0.06		< 0.06	
S--T	0.33	0.66			0.49		0.31	
Si-T	2.65	1.82			1.59		6.7	
Zn-T	0.004	0.003			< 0.002		0.006	
Fecal coliforms	156	6	5	4	< 1	< 1	48	
Giardia	> 3	0			1.35	2	0	
Cryptosporidium	0	0			0	9	0	

Table 24. Ambient water quality data for site E226217 Jasper Creek at One-Way West (May – November 1997).

LOCATION E226217 JASPER CREEK AT ONE-WAY WEST				
DATE	6/17/97 15:35	7/30/97 10:30	9/2/97 16:05	11/5/97 12:10
Field Temp	10.5	11.5	15.0	9.5
Field DO	10.8	10.4	13.5	10.2
Color True	25	< 5	< 5	5
pH	7.34	7.59	7.69	7.29
Res: Tot	39	< 45	< 45	< 35
Res: Filt	30	40	40	30
Res: NF	9	< 5	< 5	< 5
Turbidity	6.70	0.16	0.33	2.44
SC	41	69	73	51
Hardness	18.2	26.3	26.6	18.9
TOC	4	2.1	2.5	1
DOC	4	2.1	2.5	1
TIC	3.7	6	6.2	4.4
DIC	3.7	6.0	6.2	4.3
Tot C	7.7	8.1	8.7	5.3
C--T	7.7	8.1	8.7	5.4
P--T	0.026	0.006	0.005	0.019
P T Diss	0.007	0.004	0.002	0.012
Tot N	0.16	0.04	0.07	0.27
NH4 Diss	0.005	< 0.005	< 0.005	0.068
NO3 + NO2	0.050	0.021	0.032	0.104
NO3	< 0.048	< 0.019		
NO2	< 0.002	< 0.002		
Al-T	1.32	< 0.06	< 0.06	0.26
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	5.8	9.2	9.5	6.4
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.012	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	0.009	< 0.006
Fe-T	1.050	< 0.006	0.028	0.175
K--T	0.4	0.4	0.4	0.4
Mg-T	0.9	0.8	0.7	0.7
Mn-T	0.033	0.004	< 0.001	0.007
Na-T	1.2	2.4	2.3	1.6
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.68	1.64	1.61	0.82
Si-T	3.75	3.1	2.91	2.56
Zn-T	0.007	< 0.002	< 0.002	< 0.002
Fecal coliforms	56	7	5	16
Giardia	0	0	0	0
Cryptosporidium	0	0	0	0

Table 25. Ambient water quality data for site E226218 Upper Jasper Creek at Washout (May – November 1997).

LOCATION E226218 UPPER JASPER CREEK AT WASHOUT				
DATE	6/17/97 13:15	7/30/97 11:24	9/3/97 9:50	11/5/97 14:15
Field Temp	10.0	13.0	12.3	9.2
Field DO	10.5	9.6	9.7	10.9
Color True	15	< 5	< 5	5
pH	7.54	7.80	7.87	7.59
Res: Tot	51	< 55	< 55	< 35
Res: Filt	40	50	50	30
Res: NF	11	< 5	< 5	< 5
Turbidity	4.00	0.35	0.28	1.42
SC	50	92	88	57
Hardness	21.7	40.3	35.1	23.0
TOC	3.1	2.7	2.9	0.7
DOC	3.1	2.7	1.1	0.7
TIC	5	9.4	8.7	5.3
DIC	5.0	9.4	8.5	5.1
Tot C	8.1	12.1	9.6	5.8
C--T	8.1	12.1	11.6	6.0
P--T	0.017	0.006	0.004	0.007
P T Diss	0.007	0.008	< 0.002	0.004
Tot N	0.11	0.03	0.03	0.07
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.029	< 0.002	0.008	0.028
NO3	< 0.027			
NO2	< 0.002	< 0.002		
Al-T	0.63	< 0.06	< 0.06	0.16
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	7.2	14.0	12.4	7.9
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.010	< 0.006	< 0.006	0.006
Cu-T	< 0.006	0.009	0.014	< 0.006
Fe-T	0.457	0.023	0.052	0.097
K--T	0.4	0.7	0.5	0.4
Mg-T	0.9	1.3	1	0.8
Mn-T	0.014	0.003	< 0.001	0.005
Na-T	1.3	2.2	2.1	1.6
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	0.08	< 0.06
S--T	0.60	1.82	1.59	0.65
Si-T	2.93	2.92	2.73	2.58
Zn-T	0.004	0.004	< 0.002	< 0.002
Fecal coliforms	32	< 1	5	< 1
Giardia	0	0	0	0
Cryptosporidium	0	0	0	0

Table 26. Ambient water quality data for site E226219 Nitinat River at Carmanah Mainline (May – November 1997).

LOCATION E226219 NITINAT RIVER AT CARMANAH MAINLINE									
DATE	6/17/97	7/30/97	8/13/97	8/13/97	9/2/97	9/2/97	11/3/97	11/3/97	11/3/97
Field Temp	10.5	13.5			17.0		9.5		
Field DO	11.3	9.6			10.0		10.4		
Color True	35	< 5			< 5		25	25	25
pH	7.42	7.64			7.82		7.47	7.49	7.44
Res: Tot	66	< 55			< 55		71	65	69
Res: Filt	30	50			50		30	20	30
Res: NF	36	< 5			< 5		41	45	39
Turbidity	17.00	0.23			0.46		29.70	28.70	27.10
SC	40	86			87		43	43	43
Hardness	21.3	38.7			37.9		24.1	24.9	25.1
TOC	4.9	4.9			8.5		2.7	2.7	2.7
DOC	4.9	4.9			5.2		2.7	2.7	2.7
TIC	4	9.5			8.7		3.6	3.7	3.7
DIC	3.9	9.5			8.7		3.9	3.7	3.7
Tot C	8.8	14.4			13.9		6.6	6.4	6.4
C--T	8.9	14.4			17.2		6.3	6.4	6.4
P--T	0.046	0.004			0.002		0.067	0.069	0.063
P T Diss	0.005	0.003			< 0.002		0.004	0.004	0.004
Tot N	0.25	0.07			0.10		0.27	0.26	0.25
NH4 Diss	< 0.005	< 0.005			< 0.005		0.015	0.016	0.016
NO3 + NO2	0.058	0.052			0.066		0.095	0.096	0.097
NO3	< 0.056	< 0.050							
NO2	< 0.002	< 0.002							
Al-T	1.88	< 0.06			< 0.06		2.91	2.87	2.90
As-T	< 0.06	< 0.06			< 0.06		< 0.06	< 0.06	< 0.06
Ca-T	6.4	14.0			13.7		6.7	7.0	7.1
Cd-T	< 0.006	< 0.006			< 0.006		< 0.006	< 0.006	< 0.006
Cr-T	0.006	< 0.006			< 0.006		0.019	0.019	0.009
Cu-T	0.010	< 0.006			0.010		< 0.006	0.007	0.009
Fe-T	1.790	< 0.006			0.032		2.720	2.620	2.680
K--T	0.3	0.3			0.4		0.5	0.4	0.6
Mg-T	1.3	0.9			0.9		1.8	1.8	1.8
Mn-T	0.065	0.005			0.003		0.072	0.068	0.067
Na-T	0.8	1.4			1.6		1.2	1.3	1.2
Ni-T	< 0.02	< 0.02			< 0.02		< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06			0.07		< 0.06	< 0.06	0.07
S--T	0.40	0.80			0.84		0.32	0.35	0.33
Si-T	3.83	1.97			1.92		5.9	5.79	5.95
Zn-T	0.004	< 0.002			0.002		0.008	0.006	0.005
Fecal coliforms	128	< 1	6	4	3	4	58	54	48
Giardia	0	1.23			0		0		
Cryptosporidium	0	0			0		0		

Table 27. Ambient water quality data for site E226221 Nitinat River downstream of Hatchery (May – November 1997).

LOCATION E226221		NITINAT RIVER DOWNSTREAM OF HATCHERY					
DATE	06/18/97	08/12/97	08/12/97	08/27/97	08/27/97	11/03/97	
Field Temp	10.0	19.2		14.0		9.8	
Field DO	10.6	8.9		10.4		9.6	
Color True	10	< 5		10		20	
pH	7.47	7.68		7.53		7.44	
Res: Tot	< 35	< 75		< 45		93	
Res: Filt	30	70		40		30	
Res: NF	< 5	< 5		< 5		63	
Turbidity	1.90	0.22		1.38		32.80	
SC	50	81		52		42	
Hardness	20.4	33.4		22.1		25.5	
TOC	2.2	1.2		3.2		2.8	
DOC	2.1	1		3.2		2.7	
TIC	5.3	8.1		4.9		3.6	
DIC	5.2	8.1		4.8		3.6	
Tot C	7.3	9.1		8.0		6.3	
C--T	7.5	9.3		8.1		6.4	
P--T	0.019	0.009		0.007		0.099	
P T Diss	< 0.002	< 0.002		0.003		0.008	
Tot N	0.10	0.08		0.27		0.39	
NH4 Diss	< 0.005	< 0.005		< 0.005		0.028	
NO3 + NO2	0.061	0.055		0.136		0.088	
NO3	< 0.059						
NO2	< 0.002						
Al-T	0.15	< 0.06		< 0.06		3.25	
As-T	< 0.06	< 0.06		< 0.06		< 0.06	
Ca-T	7.2	11.9		7.7		6.9	
Cd-T	< 0.006	< 0.006		0.006		< 0.006	
Cr-T	< 0.006	< 0.006		0.032		< 0.006	
Cu-T	0.008	0.009		< 0.006		< 0.006	
Fe-T	0.131	0.053		0.081		3.110	
K--T	0.3	1.2		2.2		0.6	
Mg-T	0.6	0.9		0.7		2	
Mn-T	0.004	0.005		0.006		0.089	
Na-T	1.0	3.1		1.2		1.2	
Ni-T	< 0.02	0.02		< 0.02		< 0.02	
Pb-T	< 0.06	0.07		< 0.06		< 0.06	
S--T	0.45	0.76		0.54		0.31	
Si-T	1.54	1.94		1.58		6.68	
Zn-T	0.005	0.008		0.003		0.005	
Fecal coliforms	36	2	< 1	< 1	7	80	
Giardia	0	0		0		5.95	
Cryptosporidium	0	0		0		0	

Table 28. Ambient water quality data for site E226223 Small Creek near Nitinat Gravel Quarry (May – November 1997).

LOCATION E226223 SMALL CREEK NEAR NITINAT GRAVEL QUARRY								
DATE	6/17/97	7/29/97	7/29/97	7/29/97	7/29/97	8/27/97	8/27/97	10/29/97
Field Temp	11.1					14.0		9.0
Field DO	10.6					9.7		11.8
Color True	25	< 5	< 5	< 5	< 5	15		10
pH	7.20	7.62	7.65	7.64	7.57	7.37		7.12
Res: Tot	25	< 45	< 45	< 55	< 55	< 45		< 35
Res: Filt	20	40	40	50	50	40		30
Res: NF	5	< 5	< 5	< 5	< 5	< 5		< 5
Turbidity	2.20	0.10	0.11	0.09	0.13	0.49		1.50
SC	26	68	68	68	68	44		33
Hardness	9.9	27.9	28.3	27.9	27.9	15.6		10.6
TOC	5.5	1.2	1.3	1.2	1.2	4		2.8
DOC	5.5	1.2	1.2	1.2	1.1	3.9		2.6
TIC	2	6.8	6.8	6.8	6.8	3.4		2.5
DIC	2.0	6.8	6.8	6.8	6.8	3.4		2.4
Tot C	7.5	8.0	8.0	8.0	7.9			5.0
C--T	7.5	8.0	8.1	8.0	8.0			5.3
P--T	0.019	0.004	0.004	0.004	0.004	0.006		0.013
P T Diss	0.006	0.005	0.003	0.005	0.005	0.004		0.005
Tot N	0.28	0.08	0.08	0.07	0.07	0.58		0.37
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.024
NO3 + NO2	0.131	0.060	0.059	0.061	0.059	0.398		0.230
NO3	< 0.129	0.058	< 0.057	0.059	< 0.057			
NO2	< 0.002	0.002	< 0.002	0.002	< 0.002			
Al-T	0.40	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06		0.18
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06		< 0.06
Ca-T	3.3	10.0	10.0	10.0	10.0	5.6		3.6
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006		< 0.006
Cr-T	< 0.006	< 0.006	0.009	0.025	< 0.006	0.006		< 0.006
Cu-T	0.007	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006		< 0.006
Fe-T	0.262	0.010	0.008	0.007	0.010	0.047		0.110
K--T	0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.7		0.3
Mg-T	0.4	0.7	0.8	0.7	0.7	0.4		0.4
Mn-T	0.018	0.003	0.002	0.003	0.004	0.001		0.004
Na-T	1.0	1.8	1.8	1.8	1.6	1.4		1.4
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06		< 0.06
S--T	0.34	0.78	0.78	0.79	0.79	0.49		0.37
Si-T	1.48	2.26	2.3	2.25	2.26	1.66		1.3
Zn-T	0.006	< 0.002	< 0.002	0.003	< 0.002	0.003		< 0.002
Fecal coliforms	146	< 1	1	< 1	< 1	< 1	< 1	
Giardia	0	4.98				0		1.85
Cryptosporidium	0	0				0		0

Table 29. Ambient water quality data for site E226247 Rosander Creek at Rosander Main (May – November 1997).

LOCATION E226247 ROSANDER CREEK AT ROSANDER MAIN				
DATE	6/24/97 9:25	9/16/97 15:40	11/4/97 9:30	
Field Temp	12.0	14.5	9.2	
Field DO	10.8	9.2	9.8	
Color True	15	15	15	
pH	7.10	7.09	7.15	
Res: Tot	< 25		< 25	
Res: Filt	20		20	
Res: NF	< 5	< 5	< 5	
Turbidity	0.20	0.18	0.30	
SC	30	31	32	
Hardness	8.4	9.1	9.1	
TOC	3.6			
DOC	3.6			
TIC	1.7			
DIC	1.7			
Tot C	5.3			
C--T	5.3			
P--T	0.005	0.004	0.003	
P T Diss	0.003	0.003	0.002	
Tot N	0.08	0.09	0.12	
NH4 Diss	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.011	0.020	0.032	
NO3	< 0.009			
NO2	< 0.002			
Al-T	0.28	0.09	0.09	
As-T	< 0.06	< 0.06	< 0.06	
Ca-T	2.7	3.0	2.8	
Cd-T	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	< 0.006	< 0.006	
Cu-T	0.008	< 0.006	< 0.006	
Fe-T	0.044	0.062	0.031	
K--T	< 0.1	0.1	0.4	
Mg-T	0.4	0.4	0.5	
Mn-T	< 0.001	< 0.001	< 0.001	
Na-T	< 0.1	1.6	1.9	
Ni-T	0.03	< 0.02	< 0.02	
Pb-T	0.06	< 0.06	< 0.06	
S--T	0.42	0.66	0.45	
Si-T	1.24	1.41	1.28	
Zn-T	< 0.002	0.005	0.007	
Fecal coliforms	2	26	6	
Giardia	0			
Cryptosporidium	0			

Table 30. Ambient water quality data for site E226249 South Fork Marchand Creek at Rosander Main (May – November 1997).

LOCATION E226249 SOUTH FORK OF MARCHAND CREEK AT ROSANDER MAIN										
DATE	6/25/97	6/25/97	6/25/97	6/25/97	8/12/97	9/3/97	9/3/97	9/3/97	9/3/97	11/4/97
Field Temp	9.0				11.0	14.0				9.0
Field DO	11.2				10.2	9.5				11.8
Color True	7	7	7	7	< 5	7	7	7	< 5	7
pH	7.33	6.99	6.92	6.91	6.82	7.07	6.99	7.00	6.94	6.93
Res: Tot	< 35	< 35	< 25	< 25	< 25	< 25	< 25	< 15	< 25	< 25
Res: Filt	30	30	20	20	20	20	20	10	20	20
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Turbidity	0.07	0.08	0.08	< 0.10	0.09	0.08	0.10	0.10	0.09	0.17
SC	29	29	29	28	30	31	30	30	30	29
Hardness	7.4	7.4	7.4	7.4	8.1	7.4	7.4	7.4	7.1	7.6
TOC	2.1	1.7	1.7	1.9	0.8	1.3	1.5	1.9	1.4	1.8
DOC	1.8	1.7	1.7	1.8	0.8	1.3	1.5	1.4	1.4	1.8
TIC	2.2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.8
DIC	1.9	1.9	1.9	1.9	1.6	1.8	1.8	1.8	1.8	1.3
Tot C	3.7	3.6	3.6	3.7	2.4	3.1	3.3	3.2	3.2	3.1
C-T	4.3	3.7	3.6	3.8	2.7	3.2	3.4	3.8	3.3	5.6
P-T	0.005	0.014	0.005	0.006	0.019	0.002	0.003	0.003	0.002	0.002
P T Diss	0.006	0.003	0.004	0.005	0.008	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Tot N	0.08	0.09	0.09	0.10	0.28	0.17	0.18	0.18	0.19	0.15
NH4 Diss	0.020	0.008	< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	0.007	< 0.005
NO3 + NO2	0.066	0.070	0.066	0.068	0.199	0.141	0.143	0.145	0.146	0.080
NO3	< 0.064	< 0.068	< 0.064	< 0.066						
NO2	< 0.002	< 0.002	< 0.002	< 0.002						
Al-T	< 0.06	0.07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.08
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	< 0.006	< 0.006	0.007	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	0.008	0.010	0.009	< 0.006	0.008	< 0.006
Fe-T	0.019	0.023	0.019	0.016	< 0.006	0.027	0.015	0.025	0.021	0.019
K-T	3.1	1.0	0.9	0.7	< 0.1	0.3	0.4	0.2	0.3	0.2
Mg-T	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5
Mn-T	< 0.001	0.001	< 0.001	< 0.001	0.004	0.003	< 0.001	< 0.001	< 0.001	< 0.001
Na-T	2.2	1.9	1.9	1.7	1.2	2.0	2.2	2.0	2.0	2.0
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.09	< 0.06	< 0.06	< 0.06	< 0.06
S-T	0.45	0.46	0.46	0.45	0.39	0.46	0.48	0.47	0.45	0.34
Si-T	1.91	2.00	1.88	1.86	2.35	2.22	2.27	2.26	2.17	1.63
Zn-T	0.003	< 0.002	< 0.002	< 0.002	0.032	< 0.002	0.004	< 0.002	< 0.002	< 0.002
Fecal coliforms	8	9	1	14	1	2	2	1	1	< 1
Giardia	0				0.84	1.21				0
Cryptosporidium	0				0	0				0

Table 31. Ambient water quality data for site E226251 Doobah Creek downstream Doobah Lake at Rosander Main (May – November 1997).

LOCATION E226251 DOOBAH CREEK AT ROSANDER MAIN					
DATE	6/25/97 12:24	8/12/97 10:57	9/3/97 14:40	11/4/97 11:15	
Field Temp	17.0	22.8	22.5	11.0	
Field DO	19.5	7.6	8.1	10.8	
Color True	20	< 5	15	25	
pH	6.73	6.79	6.86	6.67	
Res: Tot	< 25	< 35	< 25	< 15	
Res: Filt	20	30	20	10	
Res: NF	< 5	< 5	< 5	< 5	
Turbidity	0.33	0.42	0.61	0.35	
SC	24	25	25	24	
Hardness	5.6	5.5	5.2	6.1	
TOC	3.5	3.9	3.7	3.9	
DOC	3.4	3.9	3.5	3.8	
TIC	1.1	1.2	1.3	1.2	
DIC	1.1	1.1	1.1	1.2	
Tot C	4.5	5.0	4.6	5.0	
C--T	4.6	5.1	5.0	5.1	
P--T	0.008	0.011	0.003	0.003	
P T Diss	< 0.002	0.003	< 0.002	0.004	
Tot N	0.09	0.18	0.11	0.16	
NH4 Diss	0.007	0.007	0.005	0.012	
NO3 + NO2	0.015	0.003	0.003	0.039	
NO3	< 0.013				
NO2	< 0.002				
Al-T	< 0.06	< 0.06	< 0.06	0.10	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	1.6	1.7	1.6	1.6	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	0.010	< 0.006	0.012	
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.047	0.029	0.028	0.059	
K--T	0.6	< 0.1	0.3	0.3	
Mg-T	0.4	0.3	0.3	0.5	
Mn-T	< 0.001	0.004	0.002	0.003	
Na-T	1.7	1.0	1.7	1.8	
Ni-T	< 0.02	0.03	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	
S--T	0.38	0.33	0.37	0.35	
Si-T	1.10	0.99	1.00	1.20	
Zn-T	< 0.002	0.030	< 0.002	0.007	
Fecal coliforms	1	1	1	< 1	
Giardia	0	0	0	0	
Cryptosporidium	0	0	0	0	

Table 32. Ambient water quality data for site E226253 Sprise Lake near Nitinat (May – November 1997).

LOCATION E226253 SPRISE LAKE NEAR NITINAT				
DATE	6/24/97 13:50	8/12/97 9:50	9/3/97 14:05	11/4/97 11:50
Field Temp	17.0	21.5	20.5	11.5
Field DO	9.4	6.4	7.1	10.4
Color True	25	15	10	20
pH	6.78	6.72	6.97	6.76
Res: Tot	< 25	29		< 25
Res: Filt	20	20		20
Res: NF	< 5	9	< 5	< 5
Turbidity	0.46	3.10	0.47	0.44
SC	25	26	27	27
Hardness	7.9	6.6	6.6	
TOC	3.9			
DOC	3.9			
TIC	1.4			
DIC	1.4			
Tot C	5.3			
C--T	5.3			
P--T	0.007	0.026	0.005	0.006
P T Diss	0.005	0.003	< 0.002	0.005
Tot N	0.22	0.32	0.17	0.21
NH4 Diss	0.009	< 0.005	0.011	0.005
NO3 + NO2	0.007	< 0.002	< 0.002	0.095
NO3	< 0.005			
NO2	< 0.002			
Al-T	0.34	0.18	< 0.06	
As-T	< 0.06	< 0.06	< 0.06	
Ca-T	2.5	2.0	2.0	
Cd-T	< 0.006	< 0.006	< 0.006	
Cr-T	0.010	< 0.006	0.007	
Cu-T	< 0.006	< 0.006	< 0.006	
Fe-T	0.138	0.292	0.136	
K--T	< 0.1	< 0.1	0.2	
Mg-T	0.4	0.4	0.4	
Mn-T	0.014	0.023	0.010	
Na-T	< 0.1	1.0	1.8	
Ni-T	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	
S--T	0.32	0.33	0.37	
Si-T	1.22	1.35	1.19	
Zn-T	0.002	0.033	0.004	
Fecal coliforms	< 1	< 1	< 1	2
Giardia	0			
Cryptosporidium	0			

Table 33. Ambient water quality data for site E226254 UnID'ed Creek #2 flowing into Cheewhat Lake at Rosander Main (May – November 1997).

LOCATION E226254 UNID'ED CREEK #2 INTO CHEEWHAT LAKE			
DATE	6/24/97 11:20	11/4/97 14:30	
Field Temp	10.0	8.9	
Field DO	10.5	11.8	
Color True	10	7	
pH	6.99	6.88	
Res: Tot	< 25	< 25	
Res: Filt	20	20	
Res: NF	< 5	< 5	
Turbidity	0.18	0.18	
SC	27	30	
Hardness	6.6	7.0	
TOC	3		
DOC	3		
TIC	1.4		
DIC	1.3		
Tot C	4.3		
C--T	4.4		
P--T	0.006	0.003	
P T Diss	0.005	0.002	
Tot N	0.07	0.10	
NH4 Diss	< 0.005	0.008	
NO3 + NO2	0.018	0.036	
NO3	< 0.016		
NO2	< 0.002		
Al-T	0.29	0.08	
As-T	< 0.06	< 0.06	
Ca-T	1.8	1.8	
Cd-T	< 0.006	< 0.006	
Cr-T	< 0.006	0.006	
Cu-T	0.009	< 0.006	
Fe-T	0.024	0.027	
K--T	0.1	0.5	
Mg-T	0.5	0.6	
Mn-T	< 0.001	0.002	
Na-T	< 0.1	2.3	
Ni-T	0.04	< 0.02	
Pb-T	< 0.06	< 0.06	
S--T	0.41	0.37	
Si-T	1.81	1.63	
Zn-T	0.004	< 0.002	
Fecal coliforms	6	2	
Giardia	0		
Cryptosporidium	0		

Table 34. Ambient water quality data for site E226255 UnID'ed Creek #3 near Cheewhat Lake at Rosander Main (May – November 1997).

LOCATION E226255 UNID'ED CREEK #3 NEAR CHEEWAT LK AT ROSANDER ML								
DATE	6/25/97	6/25/97	6/25/97	6/25/97	8/12/97	9/3/97	11/4/97	
Field Temp	10.0				14.8	15.5	9.2	
Field DO	11.5				8.4	9.1	11.5	
Color True	10	7	15	15	10	10	10	
pH	7.09	7.08	7.08	7.10	7.11	7.18	7.10	
Res: Tot	< 35	< 35	< 45	< 45			< 25	
Res: Filt	30	30	40	40			20	
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Turbidity	2.40	0.19	0.31	0.23	1.00	0.46	0.19	
SC	39	39	38	38	46	43	38	
Hardness	11.4	11.0		11.4	13.4	12.9	10.0	
TOC	2.3	2.4	2.4	2.3				
DOC	2.3	2.4	2.3	2.3				
TIC	2.8	2.8	2.6	2.8				
DIC	2.8	2.7	2.6	2.8				
Tot C	5.1	5.1	4.9	5.1				
C--T	5.1	5.2	5.0	5.1				
P--T	0.009	0.008	0.009	0.010	0.029	0.007	0.003	
P T Diss	0.005	0.005	0.004	0.006	0.013	< 0.002	0.003	
Tot N	0.06	0.05	0.05	0.05	0.19	0.10	0.08	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.021	0.021	0.021	0.021	0.059	0.047	0.027	
NO3	< 0.019	< 0.019	< 0.019	< 0.019				
NO2	< 0.002	< 0.002	< 0.002	< 0.002				
Al-T	< 0.06	< 0.06		0.08	0.08	0.09	0.10	
As-T	< 0.06	< 0.06		< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	3.1	3.1		3.1	3.7	3.5	2.7	
Cd-T	< 0.006	< 0.006		< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	< 0.006		< 0.006	< 0.006	< 0.006	< 0.006	
Cu-T	0.007	< 0.006		< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.079	0.069		0.084	0.238	0.132	0.041	
K--T	0.8	0.6		0.7	< 0.1	0.4	0.3	
Mg-T	0.9	0.8		0.9	1.0	1.0	0.8	
Mn-T	< 0.001	< 0.001		0.003	0.008	0.004	< 0.001	
Na-T	2.2	2.1		2.1	2.0	2.6	2.4	
Ni-T	< 0.02	< 0.02		0.02	0.04	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06		< 0.06	< 0.06	< 0.06	< 0.06	
S--T	0.49	0.48		0.48	0.49	0.56	0.37	
Si-T	2.73	2.71		2.75	3.29	3.17	2.24	
Zn-T	< 0.002	< 0.002		< 0.002	0.026	< 0.002	< 0.002	
Fecal coliforms	< 1	1	1	1	13	4	< 1	
Giardia	0							
Cryptosporidium	0							

Table 35. Ambient water quality data for site E226256 Carmanah Creek near Heaven's Grove (May – November 1997).

LOCATION E226256 CARMANAH CK NEAR HEAVEN'S GROVE		
DATE	7/2/97 12:36	
Field Temp		10.2
Field DO		11.0
Color True		5
pH		6.77
Res: Tot	<	15
Res: Filt	<	10
Res: NF	<	5
Turbidity		0.08
SC		26
Hardness		8.1
TOC		1.2
DOC		1.1
TIC		2.1
DIC		2.0
Tot C		3.1
C--T		3.3
P--T		0.004
P T Diss		0.002
Tot N		0.04
NH4 Diss	<	0.005
NO3 + NO2		0.026
NO3	<	0.024
NO2	<	0.002
Al-T		0.37
As-T	<	0.06
Ca-T		2.4
Cd-T	<	0.006
Cr-T		0.007
Cu-T	<	0.006
Fe-T		0.020
K--T		0.1
Mg-T		0.5
Mn-T		0.002
Na-T		1.6
Ni-T	<	0.02
Pb-T	<	0.06
S--T		0.39
Si-T		1.81
Zn-T		0.003
Fecal coliforms	<	1
Giardia		0
Cryptosporidium		0

Table 36. Ambient water quality data for site E226130 Malachan Creek at Carmanah Mainline (May – November 1997).

LOCATION E226130 MALACHAN CK AT CARMANAH ML				
DATE	7/7/97 14:25	9/16/97 17:00	11/6/97 9:30	
Field Temp	11.2	13.0	9.9	
Field DO	10.1	9.2	9.9	
Color True	< 5	10	7	
pH	7.27	7.36	7.27	
Res: Tot	< 35			
Res: Filt	30			
Res: NF	< 5	< 5	< 5	
Turbidity	0.27	0.20	0.21	
SC	48	54	39	
Hardness	16.8	20.4	12.9	
TOC	1.1			
DOC	1			
TIC	4.9			
DIC	4.8			
Tot C	5.8			
C--T	6.0			
P--T	0.005	0.004	0.003	
P T Diss	0.004	0.006	0.002	
Tot N	< 0.02	0.17	0.11	
NH4 Diss	< 0.005	< 0.005	0.007	
NO3 + NO2	0.008	0.139	0.063	
NO3	< 0.006			
NO2	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	
As-T	< 0.06	< 0.06	< 0.06	
Ca-T	5.9	7.2	4.5	
Cd-T	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	0.006	< 0.006	
Cu-T	< 0.006	< 0.006	< 0.006	
Fe-T	0.010	0.014	0.007	
K--T	0.4	0.2	0.2	
Mg-T	0.5	0.6	0.4	
Mn-T	< 0.001	< 0.001	0.003	
Na-T	1.8	1.8	1.6	
Ni-T	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	
S--T	0.38	0.46	0.26	
Si-T	1.59	1.80	1.47	
Zn-T	< 0.002	< 0.002	< 0.002	
Fecal coliforms	1	10	< 1	
Giardia	0			
Cryptosporidium	0			

Table 37. Ambient water quality data for site E226225 Caycuse River near Nitinat Campsite (May – November 1997).

LOCATION E226225 CAYCUSE RIVER NEAR NITINAT CAMPSITE				
DATE	7/2/97 17:38	9/16/97 16:35	11/6/97 9:15	
Field Temp	11.5	13.5	10.1	
Field DO	9.9	7.4	9.2	
Color True	5	10	5	
pH	7.17	7.36	7.29	
Res: Tot	< 25			
Res: Filt	20			
Res: NF	< 5	< 5	< 5	
Turbidity	0.13	3.34	0.31	
SC	44	53	38	
Hardness	157.1	19.6	12.9	
TOC	0.9			
DOC	0.8			
TIC	4.6			
DIC	4.5			
Tot C	5.3			
C--T	5.5			
P--T	0.004	0.009	0.004	
P T Diss	0.004	0.005	0.003	
Tot N	0.02	0.18	0.12	
NH4 Diss	< 0.005	< 0.005	0.006	
NO3 + NO2	0.007	0.140	0.061	
NO3	< 0.005			
NO2	< 0.002			
Al-T	0.91	0.24	< 0.06	
As-T	< 0.06	< 0.06	< 0.06	
Ca-T	55.5	6.7	4.5	
Cd-T	< 0.006	< 0.006	< 0.006	
Cr-T	0.037	0.015	0.010	
Cu-T	0.008	< 0.006	< 0.006	
Fe-T	0.233	0.191	0.025	
K--T	1	0.2	0.3	
Mg-T	4.5	0.7	0.4	
Mn-T	0.008	0.003	0.003	
Na-T	3.6	1.8	1.6	
Ni-T	< 0.02	0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	
S--T	21.30	0.43	0.32	
Si-T	10	2.13	1.49	
Zn-T	0.006	0.003	< 0.002	
Fecal coliforms	3	28	< 1	
Giardia	0			
Cryptosporidium	0			

Table 38. Ambient water quality data for site E226227 Upper Seven Mile Creek at F1A (May – November 1997).

LOCATION E226227 UPPER SEVEN MILE CREEK AT F1A				
DATE	7/22/97 9:18	8/13/97 10:30	9/16/97 9:40	11/5/97 15:10
Field Temp	10.2	13.0	11.0	8.5
Field DO	10.6	10.0	11.4	10.8
Color True	< 5	< 5	7	5
pH	7.84	7.72	7.73	7.58
Res: Tot	< 55			
Res: Filt	50			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.18	0.21	0.76	0.97
SC	91	114	94	63
Hardness	40.1	49.3	39.6	26.2
TOC	0.8			
DOC	0.8			
TIC	9.9			
DIC	9.9			
Tot C	10.7			
C--T	10.7			
P--T	0.008	0.010	0.004	0.005
P T Diss	0.002	< 0.002	0.004	0.004
Tot N	0.03	0.09	0.28	0.16
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.035	0.066	0.256	0.096
NO3	< 0.033			
NO2	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	0.12
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	14.4	18.1	14.2	9.5
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.010	0.008	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.026	0.034	0.026	0.074
K--T	0.1	1.0	0.3	0.2
Mg-T	1.0	1.0	1.0	0.6
Mn-T	0.002	0.002	< 0.001	0.005
Na-T	1.7	3.5	1.7	1.5
Ni-T	< 0.02	0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.67	1.10	0.84	0.37
Si-T	1.96	2.1	2	1.87
Zn-T	< 0.002	0.009	< 0.002	0.003
Fecal coliforms	5	< 1	2	1
Giardia	0			
Cryptosporidium	0			

Table 39. Ambient water quality data for site E226228 Lower Seven Mile Creek at Caycuse Mainline (May – November 1997).

LOCATION E226228 LOWER SEVEN MILE CREEK AT CAYCUSE ML								
DATE	7/21/97	8/13/97	8/13/97	8/13/97	8/13/97	9/15/97	11/5/97	
Field Temp	11.8	14.0				14.0	9.0	
Field DO	11.6	9.3				9.5	10.8	
Color True	5	50	< 5	< 5	< 5	7	5	
pH	7.89	7.95	7.98	8.00	7.99	8.04	7.68	
Res: Tot	< 65	< 75	< 95	< 95	< 95	< 85	< 45	
Res: Filt	60	70	90	90	90	80	40	
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Turbidity	0.18	0.16	0.12	0.22	0.15	0.24	1.02	
SC	104	131	132	132	132	112	71	
Hardness	46.2	59.8	59.1	59.3	58.8	50.1	29.9	
TOC	1.2	0.8	0.7	0.7	0.7	1.7	0.5	
DOC	1.1	0.8	< 0.5	< 0.5	0.6	1.1	0.5	
TIC	10.9	14.3	14.3	14.3	14.3	11.3	7.1	
DIC	10.9	14.3	14.3	14.3	14.3	11.3	7.1	
Tot C	12.0	15.1	< 14.8	< 14.8	14.9	12.4	7.6	
C--T	12.1	15.1	15.0	15.0	15.0	13.0	7.6	
P--T	0.006	0.008	0.009	0.010	0.010	0.004	0.004	
P T Diss	0.004	0.003	0.003	0.003	0.003	0.005	0.004	
Tot N	0.03	0.08	0.08	0.08	0.08	0.23	0.15	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.018	0.062	0.066	0.067	0.065	0.201	0.099	
NO3	< 0.016							
NO2	< 0.002							
Al-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.07	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	17.0	22.3	22.0	22.1	21.9	18.4	11.0	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	0.017	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.032	0.025	< 0.006	0.012	0.012	0.016	0.053	
K--T	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.3	
Mg-T	0.9	1.0	1.0	1.0	1.0	1.0	0.6	
Mn-T	0.002	0.002	< 0.001	0.002	< 0.001	< 0.001	< 0.001	
Na-T	1.8	1.9	1.9	2.0	2.1	1.9	1.5	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
S--T	1.10	1.80	1.78	1.74	1.73	1.47	0.54	
Si-T	2.03	2.25	2.17	2.17	2.16	2.17	1.9	
Zn-T	< 0.002	0.006	0.003	0.002	< 0.002	< 0.002	< 0.002	
Fecal coliforms	108	< 1	< 1	< 1	< 1	2	< 1	
Giardia	1.65	0	0	0	0	0 2.74	0	
Cryptosporidium	0.82	0	0	0	0	0 0	0	

Table 40. Ambient water quality data for site E226231 Caycuse River at Hatton Mainline (May – November 1997).

LOCATION E226231 CAYCUSE RIVER AT HATTON ML				
DATE	7/21/97 13:53	8/11/97 16:55	9/15/97 15:20	11/24/97 15:10
Field Temp	13.0	17.8	12.0	6.9
Field DO	10.0	7.7	10.0	11.9
Color True	< 5	< 5	10	7
pH	7.79	7.91	7.85	7.41
Res: Tot	< 45			
Res: Filt	40			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.26	0.12	0.44	1.64
SC	72	89	70	44
Hardness	31.2	38.6	28.3	17.7
TOC	0.9			
DOC	0.9			
TIC	7.4			
DIC	7.4			
Tot C	8.3			
C--T	8.3			
P--T	0.004	0.016	0.004	0.006
P T Diss	0.003	0.008	0.004	0.002
Tot N	< 0.02	0.13	0.13	0.05
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.011	0.030	0.083	0.071
NO3	< 0.009			
NO2	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	0.08
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	11.0	13.8	10.0	6.1
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.006	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.039	0.014	0.046	0.119
K--T	0.2	< 0.1	< 0.1	0.2
Mg-T	0.9	1.0	0.8	0.6
Mn-T	< 0.001	0.002	< 0.001	0.002
Na-T	1.3	1.5	1.5	1.0
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.61	0.80	0.66	0.35
Si-T	1.91	2.1	1.99	1.78
Zn-T	< 0.002	0.041	< 0.002	< 0.002
Fecal coliforms	32	3	8	4
Giardia	0			
Cryptosporidium	0			

Table 41. Ambient water quality data for site E226232 Cedar Creek at Caycuse 9 (May – November 1997).

LOCATION E226232 CEDAR CREEK AT CAYCUSE 9				
DATE	7/3/97 15:40	8/11/97 15:55	9/15/97 14:20	11/24/97 15:40
Field Temp	8.5	11.5	9.5	4.9
Field DO	10.9	10.5	11.4	12.4
Color True	5	< 5	5	< 5
pH	7.86	8.00	8.07	7.77
Res: Tot	< 65			
Res: Filt	60			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.11	0.17	0.10	0.29
SC	93	122	107	69
Hardness	42.5	57.8	47.4	29.9
TOC	< 0.5			
DOC	< 0.5			
TIC	11			
DIC	11.0			
Tot C	< 11.5			
C--T	< 11.5			
P--T	0.003	0.015	0.005	0.003
P T Diss	0.003	0.007	0.004	0.002
Tot N	0.03	0.13	0.14	0.19
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.018	0.044	0.112	0.057
NO3	< 0.016			
NO2	< 0.002			
Al-T	0.08	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	15.7	21.5	17.5	11.0
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.016	0.007	0.036	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.026	< 0.006	0.023	0.021
K--T	< 0.1	< 0.1	< 0.1	< 0.1
Mg-T	0.8	1.0	0.9	0.6
Mn-T	0.003	< 0.001	< 0.001	< 0.001
Na-T	1.4	1.0	1.4	1.0
Ni-T	< 0.02	0.04	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.34	0.39	0.35	0.26
Si-T	1.6	1.81	1.62	1.42
Zn-T	< 0.002	0.037	0.002	< 0.002
Fecal coliforms	1	< 1	17	< 1
Giardia	0			
Cryptosporidium	0			

Table 42. Ambient water quality data for site E226234 Mystery Creek at McLure Mainline (May – November 1997).

LOCATION E226234 MISTERY CREEK AT MCLURE MAINLINE								
DATE	7/3/97	7/3/97	7/3/97	7/3/97	8/11/97	9/16/97	11/24/97	
Field Temp	11.0				14.5	10.5	5.8	
Field DO	10.1				10.7	10.7	12.4	
Color True	5	5	5	5	< 5	10	7	
pH	7.67	7.87	7.86	7.87	7.89	7.92	7.63	
Res: Tot	< 55	< 55	< 65	< 65				
Res: Filt	50	50	60	60				
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Turbidity	0.35	0.22	0.16	0.21	0.14	0.35	1.15	
SC	86	86	87	87	104	88	59	
Hardness		37.3	39.2	38.9	48.0	38.7	26.0	
TOC	0.6	< 0.5	< 0.5	< 0.5				
DOC	0.5	< 0.5	< 0.5	< 0.5				
TIC	9.8	9.8	9.8	9.8				
DIC	9.6	9.6	9.6	9.7				
Tot C	10.1	< 10.1	< 10.1	< 10.2				
C--T	10.4	< 10.3	< 10.3	< 10.3				
P--T	0.005	0.004	0.004	0.005	0.020	0.005	0.004	
P T Diss	0.005	0.003	0.003	0.004	0.008	0.002	0.003	
Tot N	0.34	0.03	0.03	0.03	0.13	0.11	< 0.02	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.367	0.014	0.014	0.014	0.027	0.047	0.033	
NO3	< 0.365	< 0.012	< 0.012	< 0.012				
NO2	< 0.002	< 0.002	< 0.002	< 0.002				
Al-T	NT	0.07	0.06	< 0.06	< 0.06	< 0.06	0.09	
As-T		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T		13.3	13.7	13.6	16.9	13.5	9.1	
Cd-T		< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T		< 0.006	< 0.006	0.008	< 0.006	0.016	< 0.006	
Cu-T		< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.006	
Fe-T		0.020	0.019	0.027	0.006	0.046	0.140	
K--T		< 0.1	< 0.1	0.7	< 0.1	0.3	0.1	
Mg-T		1	1.2	1.2	1.4	1.2	0.8	
Mn-T		0.004	0.006	0.003	0.004	< 0.001	0.005	
Na-T		1.3	1.4	1.3	1.0	1.4	1.0	
Ni-T		< 0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	
Pb-T		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
S--T		0.38	0.41	0.41	0.37	0.40	0.32	
Si-T		2.18	2.26	2.27	2.72	2.11	1.94	
Zn-T		< 0.002	< 0.002	< 0.002	0.034	0.007	< 0.002	
Fecal coliforms	< 1	< 1	< 1	< 1	< 1	27	8	
Giardia	0							
Cryptosporidium	0							

Table 43. Ambient water quality data for site E226235 McLure River at McLure Mainline and M10 (May – November 1997).

LOCATION E226235 MCLURE RIVER AT MCLURE MAINLINE & M10				
DATE	7/3/97 12:25	8/11/97 14:45	9/16/97 12:15	11/24/97 14:15
Field Temp	16.0	16.5	12.0	6.8
Field DO	10.2	8.4	10.7	12.2
Color True	5	< 5	7	7
pH	7.03	7.37	7.29	7.01
Res: Tot	< 15			
Res: Filt	< 10			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	1.20	0.50	1.68	2.86
SC	23	34	32	24
Hardness	7.9	14.2	11.0	7.1
TOC	1.3			
DOC	1.1			
TIC	1.9			
DIC	1.9			
Tot C	3.0			
C--T	3.2			
P--T	0.005	0.016	0.010	0.007
P T Diss	0.003	0.007	0.004	< 0.002
Tot N	0.04	0.16	0.12	0.11
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.011	0.067	0.071	0.069
NO3	< 0.009			
NO2	< 0.002			
Al-T	0.14	< 0.06	0.28	0.30
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	2.5	4.7	3.4	2.2
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	< 0.006	0.012	0.010
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.086	0.027	0.222	0.234
K--T	< 0.1	< 0.1	0.2	0.3
Mg-T	0.4	0.6	0.6	0.4
Mn-T	0.004	0.004	0.005	0.010
Na-T	1.2	1.0	1.3	1.0
Ni-T	< 0.02	0.03	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.50	0.79	0.59	0.37
Si-T	1.59	1.99	2.18	1.90
Zn-T	< 0.002	0.036	< 0.002	0.003
Fecal coliforms	< 1	< 1	8	< 1
Giardia	0			
Cryptosporidium	0			

Table 44. Ambient water quality data for site E226236 McLure River at McLure Mainline Bridge (May – November 1997).

LOCATION E226236 MCLURE RIVER AT MCLURE MAINLINE BRIDGE				
DATE	7/3/97 11:25	8/11/97 13:59	9/16/97 1:30	11/24/97 13:50
Field Temp	16.0	24.0	16.2	7.1
Field DO	8.1	5.5	8.8	12.1
Color True	5	< 5	5	5
pH	6.56	6.57	6.64	6.43
Res: Tot	< 25			
Res: Filt	20			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	1.50	0.40	0.22	0.43
SC	18	20	20	21
Hardness	5.1	5.0	4.7	5.9
TOC	1.6			
DOC	1.5			
TIC	1.6			
DIC	1.4			
Tot C	2.9			
C--T	3.2			
P--T	0.004	0.009	0.003	0.003
P T Diss	< 0.002	0.004	0.002	0.004
Tot N	0.06	0.18	0.05	< 0.02
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	< 0.002	0.003	< 0.002	0.030
NO3				
NO2	< 0.002			
Al-T	0.16	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	1.4	1.5	1.4	1.7
Cd-T	< 0.006	< 0.006	0.007	< 0.006
Cr-T	< 0.006	< 0.006	0.022	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.100	0.197	0.091	0.110
K--T	< 0.1	< 0.1	< 0.1	0.3
Mg-T	0.4	0.3	0.3	0.4
Mn-T	0.016	0.020	0.009	0.022
Na-T	1.2	0.4	1.0	1.1
Ni-T	< 0.02	0.03	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.28	0.25	0.27	0.29
Si-T	1.10	0.82	1.00	1.62
Zn-T	0.004	0.032	< 0.002	0.007
Fecal coliforms	< 1	< 1	< 1	< 1
Giardia	0			
Cryptosporidium	0			

Table 45. Ambient water quality data for site E226237 Upper Hatton Creek at H500 (May – November 1997).

LOCATION E226237 UPPER HADDON CREEK AT H500				
DATE	7/3/97 9:32	7/23/97 10:54	9/16/97 14:24	11/6/97 11:50
Field Temp	9.5	12.0	12.5	10.0
Field DO	10.0	8.0	7.9	9.3
Color True	5	< 5	< 5	7
pH	6.51	6.70	6.68	6.32
Res: Tot	< 15	< 25	< 25	< 15
Res: Filt	10	20	20	10
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.62	0.12	0.26	0.19
SC	25	26	27	25
Hardness	7.2	7.1	7.0	6.4
TOC	0.9	0.6	1.3	1.6
DOC	0.9	0.6	1	1.5
TIC	2.8	3.1	3	2.5
DIC	2.5	2.3	3.0	2.5
Tot C	3.4	2.9	4.0	4.0
C--T	3.7	3.7	4.3	4.1
P--T	0.003	0.005	0.004	0.004
P T Diss	0.002	0.002	0.002	0.002
Tot N	0.03	0.02	0.06	0.09
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.010	0.013	0.009	0.036
NO3	< 0.008	< 0.011		
NO2	< 0.002	< 0.002		
Al-T	0.19	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	2.4	2.2	2.3	1.9
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.020	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.026	0.024	0.032	0.030
K--T	< 0.1	0.3	0.2	0.3
Mg-T	0.3	0.4	0.3	0.4
Mn-T	0.006	0.003	< 0.001	0.002
Na-T	1.3	1.3	1.4	1.3
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	0.08	< 0.06	< 0.06
S--T	0.38	0.32	0.36	0.29
Si-T	1.44	1.46	1.28	1.33
Zn-T	0.003	< 0.002	< 0.002	< 0.002
Fecal coliforms	< 1	< 1	32	2
Giardia	0	0	0	0
Cryptosporidium	0.90	0	0	0

**Table 46. Ambient water quality data for site E226238 Gordon River upstream
Gordon River Camp (May – November 1997).**

LOCATION E226238 GORDON RIVER U/S GORDON RIVER CAMP				
DATE	7/16/97 16:03	8/18/97 15:06	9/8/97 12:30	11/24/97 12:10
Field Temp	11.0	15.0	10.5	6.5
Field DO	11.2	9.0	10.8	11.8
Color True	< 5	< 5	< 5	< 5
pH	7.62	7.80	7.62	7.35
Res: Tot	< 45			
Res: Filt	40			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.51	0.14	0.36	3.86
SC	60	74	74	46
Hardness	24.6	28.7	31.2	18.5
TOC	0.5			
DOC	0.5			
TIC	5.8			
DIC	5.7			
Tot C	6.2			
C--T	6.3			
P--T	0.004	0.004	0.003	0.009
P T Diss	0.004	0.003	< 0.002	0.003
Tot N	0.05	0.07	0.16	0.17
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.059	0.058	0.132	0.181
NO3	< 0.057			
NO2	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	0.28
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	8.7	10.0	11.0	6.4
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.011	0.006	0.012	< 0.006
Cu-T	< 0.006	0.007	0.007	< 0.006
Fe-T	0.034	0.009	0.019	0.266
K--T	0.2	0.4	0.3	0.3
Mg-T	0.7	0.9	0.9	0.6
Mn-T	0.002	0.006	0.003	0.005
Na-T	1.4	2.1	1.6	1.0
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	0.07	< 0.06	< 0.06
S--T	0.90	1.10	1.21	0.55
Si-T	2.05	2.17	2.18	2.11
Zn-T	< 0.002	0.003	0.006	< 0.002
Fecal coliforms	6	4	1	4
Giardia	0			
Cryptosporidium	0			

Table 47. Ambient water quality data for site E226239 Upper Gordon River at Gordon River Mainline (May – November 1997).

LOCATION E226239 UPPER GORDON RIVER AT GORDON R ML				
DATE	7/16/97 16:55	8/18/97 14:28	9/8/97 12:00	11/24/97 11:55
Field Temp	10.8	15.0	10.5	6.5
Field DO	10.6	10.0	9.0	12.1
Color True	< 5	< 5	< 5	5
pH	7.59	7.73	7.61	7.25
Res: Tot	< 35			
Res: Filt	30			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.23	0.18	0.41	4.53
SC	58	70	70	45
Hardness	23.7	27.8	28.3	18.7
TOC	0.5			
DOC	< 0.5			
TIC	5.7			
DIC	5.6			
Tot C	< 6.1			
C--T	6.2			
P--T	0.005	0.005	0.003	0.009
P T Diss	0.004	0.003	< 0.002	0.003
Tot N	0.06	0.07	0.17	0.18
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.063	0.057	0.141	0.189
NO3	< 0.061			
NO2	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	0.33
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	8.5	9.8	10.0	6.5
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	< 0.006	< 0.006	0.009
Cu-T	< 0.006	0.009	< 0.006	< 0.006
Fe-T	0.030	0.028	0.032	0.336
K--T	0.2	0.3	0.2	0.1
Mg-T	0.6	0.8	0.8	0.6
Mn-T	< 0.001	0.003	0.001	0.008
Na-T	1.3	2.3	1.5	1.0
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.94	1.19	1.25	0.58
Si-T	2.02	2.25	2.17	2.15
Zn-T	< 0.002	0.005	0.003	0.012
Fecal coliforms	4	< 1	6	2
Giardia	0			
Cryptosporidium	0			

Table 48. Ambient water quality data for site E226240 Gordon River at TR4 (May – November 1997).

LOCATION E226240 GORDON RIVER AT TR4							
DATE	7/9/97	8/13/97	9/8/97	9/8/97	9/8/97	9/8/97	11/25/97
Field Temp	9.0	15.0	12.0				6.0
Field DO	11.2	10.0	10.1				12.2
Color True	< 5	< 5	< 5	< 5	< 5	< 5	< 5
pH	7.64	7.93	7.85	7.87	7.86	7.86	7.55
Res: Tot	< 45	< 75	< 65	< 65	< 65	< 65	< 45
Res: Filt	40	70	60	60	60	60	40
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Turbidity	0.57	0.12	0.20	0.14	0.26	0.14	0.98
SC	62	100	96	95	95	94	61
Hardness	25.2	44.1	41.9	41.4	41.8	41.2	26.4
TOC	1.3	0.6	< 0.5	< 0.5	< 0.5	< 0.5	0.8
DOC	1.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6
TIC	6.5	10.7	9.6	9.5	9.5	9.4	6.3
DIC	6.5	10.6	9.5	9.5	9.4	9.4	6.2
Tot C	7.8	< 11.1	< 10.0	< 10.0	< 9.9	< 9.9	6.8
C--T	7.8	11.3	< 10.1	< 10.0	< 10.0	< 9.9	7.1
P--T	0.009	0.010	0.003	0.003	0.003	0.003	0.003
P T Diss	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.004
Tot N	0.09	0.05	0.10	0.09	0.09	0.09	0.13
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.065	0.031	0.070	0.068	0.068	0.067	0.116
NO3	< 0.063						
NO2	< 0.002						
Al-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	9.1	16.0	15.3	15.1	15.1	15.0	9.6
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.020	0.010	0.008	0.019	< 0.006	< 0.006
Cu-T	< 0.006	0.008	0.006	< 0.006	0.008	< 0.006	< 0.006
Fe-T	0.067	0.018	< 0.006	0.013	0.009	0.007	0.080
K--T	< 0.1	1.0	< 0.1	< 0.1	0.2	0.1	0.2
Mg-T	0.6	1.0	0.9	0.9	1.0	0.9	0.6
Mn-T	0.002	0.005	0.003	0.004	0.003	0.004	0.006
Na-T	0.9	3.6	1.6	1.7	1.7	1.8	1.0
Ni-T	< 0.02	0.04	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.45	0.71	0.85	0.84	0.84	0.84	0.49
Si-T	1.84	2.15	2.17	2.13	2.13	2.13	1.93
Zn-T	0.003	0.008	< 0.002	0.003	0.006	0.005	0.004
Fecal coliforms	18	< 1	3	2	2	1	2
Giardia	0	0	0				0
Cryptosporidium	0	0	0				0

Table 49. Ambient water quality data for site E226241 Gordon River at TR10 (May – November 1997).

LOCATION E226241 GORDON RIVER AT TR10					
DATE	7/9/97 13:46	8/13/97 15:24	9/8/97 15:30	11/25/97 9:50	
Field Temp	9.0	19.2	16.0	6.0	
Field DO	11.3	8.9	9.8	12.3	
Color True	< 5	< 5	< 5	< 5	
pH	7.62	7.93	7.89	7.56	
Res: Tot	< 55	< 65	< 55	< 45	
Res: Filt	50	60	50	40	
Res: NF	< 5	< 5	< 5	< 5	
Turbidity	1.10	0.13	0.16	1.60	
SC	62	100	94	62	
Hardness	25.2	44.0	42.4	26.7	
TOC	1.6	5.5	< 0.5	0.7	
DOC	1.6	< 0.5	< 0.5	0.7	
TIC	6.5	10.7	9.4	6.2	
DIC	6.5	10.6	9.4	6.1	
Tot C	8.1	< 11.1	< 9.9	6.8	
C--T	8.1	16.2	< 9.9	6.9	
P--T	0.008	0.008	0.003	0.004	
P T Diss	0.003	< 0.002	< 0.002	0.003	
Tot N	0.09	0.03	0.08	0.09	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.057	0.015	0.051	0.103	
NO3	< 0.055				
NO2	< 0.002				
Al-T	0.10	< 0.06	< 0.06	0.09	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	9.1	16.3	15.5	9.7	
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006	
Cr-T	< 0.006	0.017	0.014	< 0.006	
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.110	0.024	0.007	0.119	
K--T	0.2	1.0	< 0.1	< 0.1	
Mg-T	0.6	0.8	0.9	0.6	
Mn-T	< 0.001	0.002	< 0.001	0.005	
Na-T	1.0	3.3	1.7	1.0	
Ni-T	< 0.02	0.04	< 0.02	< 0.02	
Pb-T	< 0.06	0.06	< 0.06	< 0.06	
S--T	0.45	0.76	0.88	0.48	
Si-T	1.86	2.0	2.09	1.96	
Zn-T	< 0.002	0.006	< 0.002	0.004	
Fecal coliforms	16	< 1	7	< 1	
Giardia	0	0	0	0	
Cryptosporidium	0	0	0	0	

Table 50. Ambient water quality data for site E226242 Loup Creek at Gordon River Mainline (May – November 1997).

LOCATION E226242 LOUP CREEK AT GORDON RIVER MAINLINE				
DATE	7/9/97 0:00	8/13/97 14:15	9/8/97 16:20	11/25/97 11:40
Field Temp		17.0	14.0	6.5
Field DO		9.5	9.6	12.2
Color True	10	< 5	< 5	5
pH	7.36	7.74	7.64	7.39
Res: Tot	< 25			
Res: Filt	20			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.89	0.11	0.18	0.67
SC	34	62	56	37
Hardness	12.4	24.9	23.3	14.5
TOC	2.5			
DOC	2.5			
TIC	3.1			
DIC	3.1			
Tot C	5.6			
C--T	5.6			
P--T	0.011	0.010	0.003	0.003
P T Diss	< 0.002	< 0.002	< 0.002	0.003
Tot N	0.07	0.05	0.09	0.08
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.033	0.040	0.069	0.095
NO3	< 0.031			
NO2	< 0.002			
Al-T	0.10	< 0.06	< 0.06	0.09
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	4.3	8.8	8.0	5.0
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.007	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.067	0.013	0.008	0.053
K--T	< 0.1	0.9	0.2	0.1
Mg-T	0.4	0.7	0.8	0.5
Mn-T	0.001	0.003	0.003	< 0.001
Na-T	1.0	3.1	1.4	1.0
Ni-T	< 0.02	0.03	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.33	0.89	0.87	0.40
Si-T	1.65	2.34	2.32	1.74
Zn-T	< 0.002	0.007	0.002	0.009
Fecal coliforms	9	< 1	5	< 1
Giardia	0			
Cryptosporidium	0			

Table 51. Ambient water quality data for site E226244 Gordon River at Baird Creek (May – November 1997).

LOCATION E226244 GORDON RIVER AT BAIRD CREEK				
DATE	7/9/97 10:35	8/18/97 16:23	9/9/97 8:50	11/25/97 12:30
Field Temp	9.8	18.0	14.5	6.7
Field DO	11.4	9.8	10.4	12.3
Color True	10	< 5	< 5	< 5
pH	7.44	7.89	7.75	7.52
Res: Tot	< 35	< 55	< 55	< 35
Res: Filt	30	50	50	30
Res: NF	< 5	< 5	< 5	< 5
Turbidity	2.20	0.39	0.30	1.50
SC	45	82	75	51
Hardness	18.5	33.8	30.8	20.2
TOC	2.5	< 0.5	0.6	1.7
DOC	2.4	< 0.5	0.6	1.7
TIC	4.5	8.1	7.2	5.4
DIC	4.5	7.9	7.2	5.4
Tot C	6.9	< 8.4	7.8	
C--T	7.0	< 8.6	7.8	
P--T	0.007	0.004	0.003	0.005
P T Diss	0.003	0.003	< 0.002	0.002
Tot N	0.10	0.05	0.09	0.17
NH4 Diss	< 0.005	< 0.005	< 0.005	0.009
NO3 + NO2	0.044	0.043	0.056	0.870
NO3	< 0.042			
NO2	< 0.002			
Al-T	0.23	< 0.06	< 0.06	0.15
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	6.4	11.9	11.0	7.1
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.021	0.007	< 0.006	< 0.006
Cu-T	< 0.006	0.014	0.009	< 0.006
Fe-T	0.174	0.021	< 0.006	0.110
K--T	0.3	0.4	0.2	0.3
Mg-T	0.6	1.0	0.8	0.6
Mn-T	0.004	0.004	< 0.001	< 0.001
Na-T	1.0	2.2	1.6	1.4
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	0.07	< 0.06	< 0.06
S--T	0.38	0.89	0.78	0.45
Si-T	1.93	2.1	2.08	1.83
Zn-T	< 0.002	< 0.002	< 0.002	0.008
Fecal coliforms	30	16	3	2
Giardia	0	0	0	0
Cryptosporidium	0	0	0	0

Table 52. Ambient water quality data for site E226246 Brown's Creek at Gordon River Mainline (May – November 1997).

LOCATION E226246 BROWN'S CREEK AT GORDON RIVER ML			
DATE	7/9/97 9:05	11/25/97 14:50	
Field Temp	11.0	8.2	
Field DO	10.8	11.2	
Color True	10	7	
pH	6.86	6.90	
Res: Tot	< 15	< 25	
Res: Filt	< 10	20	
Res: NF	< 5	< 5	
Turbidity	0.27	0.13	
SC	20	26	
Hardness	4.1	5.3	
TOC	3.5	2.1	
DOC	3.4	2.1	
TIC	0.8	1	
DIC	0.8	1.0	
Tot C	4.2	3.1	
C--T	4.3	3.1	
P--T	0.005	< 0.002	
P T Diss	0.004	0.006	
Tot N	0.08	0.06	
NH4 Diss	< 0.005	< 0.005	
NO3 + NO2	0.028	0.042	
NO3	< 0.026		
NO2	< 0.002		
Al-T	0.09	< 0.06	
As-T	< 0.06	< 0.06	
Ca-T	1.0	1.3	
Cd-T	< 0.006	< 0.006	
Cr-T	0.008	< 0.006	
Cu-T	< 0.006	< 0.006	
Fe-T	0.028	0.019	
K--T	0.4	0.1	
Mg-T	0.4	0.5	
Mn-T	< 0.001	< 0.001	
Na-T	1.4	2.1	
Ni-T	< 0.02	< 0.02	
Pb-T	< 0.06	< 0.06	
S--T	0.34	0.32	
Si-T	1.39	1.5	
Zn-T	< 0.002	0.003	
Fecal coliforms	37	< 1	
Giardia	0.72	0	
Cryptosporidium	0	0	

Table 53. Ambient water quality data for site E226190 Bavis Creek at Red Creek Mainline (May – November 1997).

LOCATION E226190 BAVIS CREEK AT RED CREEK ML				
DATE	7/8/97 9:20	8/18/97 17:44	9/10/97 9:37	11/27/97 12:15
Field Temp	11.0	14.5	12.5	7.1
Field DO	11.4	9.6	10.5	11.2
Color True	140	7	7	60
pH	6.51	7.48	7.44	6.66
Res: Tot	45	< 35	< 45	< 35
Res: Filt	30	30	40	30
Res: NF	15	< 5	< 5	< 5
Turbidity	4.50	0.18	0.20	1.25
SC	18	49	50	24
Hardness	6.1	14.4	15.7	5.7
TOC	14.6	1.2	1.6	8.3
DOC	14.4	0.9	1.6	8.1
TIC	0.6	3.6	3.7	0.8
DIC	0.6	3.5	3.6	0.8
Tot C	15.0	4.4	5.2	8.9
C--T	15.2	4.8	5.3	9.1
P--T	0.029	0.008	0.007	0.007
P T Diss	0.009	0.006	0.005	0.008
Tot N	0.18	0.07	0.09	0.09
NH4 Diss	< 0.005	< 0.005	< 0.005	0.008
NO3 + NO2	0.004	0.059	0.058	0.006
NO3	< 0.002			
NO2	< 0.002			
Al-T	0.99	0.10	< 0.06	0.25
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	1.6	4.3	4.8	1.8
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	< 0.006	0.014	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.838	0.013	0.055	0.180
K--T	0.7	1.0	0.8	0.2
Mg-T	0.5	0.9	0.9	0.3
Mn-T	0.023	0.004	0.005	0.001
Na-T	1.4	3.1	2.6	1.7
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.32	1.10	1.10	0.39
Si-T	2.28	4.03	4.0	1.7
Zn-T	< 0.002	< 0.002	< 0.002	< 0.002
Fecal coliforms	90	13	18	26
Giardia	0	0	0	1.45
Cryptosporidium	0	0	0	1.45

Table 54. Ambient water quality data for site E226408 Fairy Creek at Harris Creek Mainline (May – November 1997).

LOCATION E226408 FAIRY CREEK AT HARRIS CREEK ML						
DATE	7/8/97	11/25/97	11/25/97	11/25/97	11/25/97	11/25/97
Field Temp	9.5	6.9				
Field DO	13.8	11.8				
Color True	25	5	5	5	5	
pH	7.00	7.22	7.23	7.25	7.28	
Res: Tot	38	< 35	< 35	< 25	< 25	
Res: Filt	30	30	30	20	20	
Res: NF	8	< 5	< 5	< 5	< 5	
Turbidity	3.90	0.12	0.12	0.14	0.18	
SC	22	37	37	37	38	
Hardness	7.8	12.7	12.7	12.2	12.7	
TOC	4.5	1.3	1.1	1.1	1.1	
DOC	4.5	1.2	1.1	1.1	1.2	
TIC	1.6	2.7	2.7	2.7	2.5	
DIC	1.6	2.7	2.7	2.7	2.5	
Tot C	6.1	3.9	3.8	3.8	3.7	
C--T	6.1	4.0	3.8	3.8	3.6	
P--T	0.017	< 0.002	< 0.002	0.006	0.009	
P T Diss	0.006	0.004	0.005	0.005	0.004	
Tot N	0.07	< 0.02	< 0.02	0.09	0.05	
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
NO3 + NO2	0.015	0.022	0.024	0.023	0.024	
NO3	< 0.013					
NO2	< 0.002					
Al-T	0.55	< 0.06	< 0.06	< 0.06	< 0.06	
As-T	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	
Ca-T	2.3	4.1	4.1	3.9	4.1	
Cd-T	< 0.006	< 0.006	0.006	< 0.006	< 0.006	
Cr-T	< 0.006	0.006	0.015	< 0.006	< 0.006	
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	
Fe-T	0.356	0.017	< 0.006	< 0.006	< 0.006	
K--T	0.3	0.2	< 0.1	0.2	0.2	
Mg-T	0.5	0.6	0.6	0.6	0.6	
Mn-T	0.010	< 0.001	< 0.001	0.002	< 0.001	
Na-T	1.3	1.9	1.8	1.7	1.7	
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	
Pb-T	0.07	< 0.06	0.06	< 0.06	0.07	
S--T	0.31	0.43	0.45	0.43	0.43	
Si-T	2.02	1.86	1.84	1.79	1.91	
Zn-T	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
Fecal coliforms	41	< 1	< 1	< 1	< 1	
Giardia	0	0				
Cryptosporidium	0	0				

Table 55. Ambient water quality data for site E226410 Mosquito Creek at Red Creek Mainline (May – November 1997).

LOCATION E226410 MOSQUITO CREEK AT RED CREEK ML				
DATE	7/8/97 8:15	8/18/97 16:35	9/10/97 10:55	11/27/97 12:55
Field Temp	11.2	13.8	13.0	7.2
Field DO	11.2	10.0	9.8	11.2
Color True	90	7	7	45
pH	6.68	7.55	7.40	6.82
Res: Tot	< 35	< 55	< 55	< 35
Res: Filt	30	50	50	30
Res: NF	< 5	< 5	< 5	< 5
Turbidity	1.60	1.12	0.55	1.36
SC	21	59	58	28
Hardness	6.6	19.8	18.8	7.4
TOC	12.7	0.9	1.6	6.6
DOC	12.6	0.7	1.6	6.6
TIC	0.8	4.4	4.3	1.2
DIC	0.8	4.3	4.2	1.2
Tot C	13.4	5.0	5.8	7.8
C--T	13.5	5.3	5.9	7.8
P--T	0.013	0.014	0.005	0.005
P T Diss	0.009	0.009	0.002	0.007
Tot N	0.21	0.12	0.14	0.16
NH4 Diss	< 0.005	< 0.005	< 0.005	0.005
NO3 + NO2	0.045	0.098	0.089	0.064
NO3	< 0.043			
NO2	< 0.002			
Al-T	0.45	0.06	< 0.06	0.22
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	2.0	6.6	6.2	2.3
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	< 0.006	0.016	0.027	< 0.006
Cu-T	< 0.006	< 0.006	0.008	< 0.006
Fe-T	0.290	0.033	0.025	0.150
K--T	0.6	0.9	0.8	0.4
Mg-T	0.4	0.8	0.8	0.4
Mn-T	0.008	0.003	0.005	0.003
Na-T	1.6	2.4	2.6	1.8
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	0.06	< 0.06	< 0.06
S--T	0.46	1.65	1.51	0.58
Si-T	1.61	3.95	3.67	1.74
Zn-T	< 0.002	0.018	< 0.002	< 0.002
Fecal coliforms	< 1	9	10	14
Giardia	0	0	1.5	0
Cryptosporidium	0	0	0	0

Table 56. Ambient water quality data for site E226548 Renfrew Creek at Harris Creek Mainline (May – November 1997).

LOCATION E226548 RENFREW CREEK AT HARRIS CREEK ML				
DATE	7/8/97 13:02	8/19/97 14:02	9/10/97 12:30	11/27/97 11:00
Field Temp	10.0	16.0	14.0	7.0
Field DO	11.3	9.3	9.8	11.4
Color True	40	< 5	< 5	25
pH	7.17	7.48	7.56	7.14
Res: Tot	43	< 45	< 45	< 35
Res: Filt	30	40	40	30
Res: NF	13	< 5	< 5	< 5
Turbidity	3.50	0.08	0.34	1.43
SC	24	62	58	26
Hardness	10.9		20.6	8.6
TOC	6.5	0.5	0.7	3.6
DOC	6.4	0.5	0.7	3.6
TIC	2	4.7	4.8	1.8
DIC	2.0	4.5	4.7	1.7
Tot C	8.4	5.0	5.4	5.3
C--T	8.5	5.2	5.5	5.4
P--T	0.024	0.010	0.004	0.005
P T Diss	0.005	0.008	0.003	0.003
Tot N	0.10	0.15	0.11	0.06
NH4 Diss	< 0.005	0.026	< 0.005	< 0.005
NO3 + NO2	0.026	0.122	0.088	0.024
NO3	< 0.024			
NO2	< 0.002			
Al-T	0.91		< 0.06	0.32
As-T	< 0.06		< 0.06	< 0.06
Ca-T	3.2		6.6	2.6
Cd-T	0.007		< 0.006	< 0.006
Cr-T	< 0.006		0.009	< 0.006
Cu-T	< 0.006		< 0.006	0.008
Fe-T	0.529		0.013	0.110
K--T	0.7		0.5	0.2
Mg-T	0.7		1.0	0.5
Mn-T	0.012		0.003	< 0.001
Na-T	1.3		2.3	1.3
Ni-T	< 0.02		< 0.02	< 0.02
Pb-T	< 0.06		< 0.06	< 0.06
S--T	0.22		0.65	0.24
Si-T	2.74		2.49	1.55
Zn-T	0.002		< 0.002	0.004
Fecal coliforms	25	< 1	1	18
Giardia	0	0	0	0
Cryptosporidium	0	0	0	0

Table 57. Ambient water quality data for site E226549 Harris Creek at Harris Creek ML (May – November 1997).

LOCATION E226549 HARRIS CREEK AT HARRIS CREEK ML				
DATE	7/15/97 9:03	8/19/97 19:00	9/10/97 13:21	11/26/97 16:25
Field Temp	12.2	16.0	15.0	7.1
Field DO	9.8	8.9	10.8	10.4
Color True	< 5	< 5	< 5	5
pH	7.63	7.57	7.41	7.41
Res: Tot	< 55			
Res: Filt	50			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.13	0.09	0.14	0.39
SC	78	84	79	66
Hardness	37.3	36.9	32.4	26.8
TOC	0.8			
DOC	0.8			
TIC	8.6			
DIC	8.6			
Tot C	9.4			
C--T	9.4			
P--T	0.003	0.007	0.003	0.004
P T Diss	0.003	0.006	< 0.002	0.004
Tot N	0.03	0.07	0.09	0.12
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.029	0.050	0.062	0.115
NO3	< 0.027			
NO2	< 0.002			
Al-T	0.39	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	13.3	12.8	11.0	9.4
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006
Cr-T	0.021	0.017	0.018	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.050	0.030	0.042	0.046
K--T	0.1	0.2	0.3	0.2
Mg-T	1.0	1.2	1.2	0.8
Mn-T	< 0.001	< 0.001	0.005	0.003
Na-T	1.4	1.5	1.5	1.5
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.55	0.71	0.66	0.42
Si-T	2.42	2.63	2.65	2.01
Zn-T	< 0.002	0.006	< 0.002	0.003
Fecal coliforms	< 1	5	3	2
Giardia	0			
Cryptosporidium	0			

Table 58. Ambient water quality data for site E226550 Upper Lens Creek at Lens Main West (May – November 1997).

LOCATION E226550 UPPER LENS CREEK AT LENS MAIN WEST				
DATE	7/14/97 12:45	8/19/97 11:33	9/9/97 12:10	11/26/97 12:20
Field Temp	13.0	9.1	10.0	6.6
Field DO	9.0	7.4	7.4	9.2
Color True	10	< 5	< 5	10
pH	6.95	6.98	6.80	6.92
Res: Tot	< 45			
Res: Filt	40			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.39	0.16	0.36	0.66
SC	44	73	75	39
Hardness	16.5	28.2		13.1
TOC	1.9			
DOC	1.8			
TIC	5.3			
DIC	4.7			
Tot C	6.5			
C--T	7.2			
P--T	0.009	0.006	0.005	0.004
P T Diss	0.009	0.004	0.002	0.007
Tot N	0.14	0.20	0.19	0.24
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.096	0.215	0.165	0.165
NO3	< 0.094			
NO2	< 0.002			
Al-T	0.24	< 0.06		0.06
As-T	< 0.06	< 0.06		< 0.06
Ca-T	5.3	9.3		4.1
Cd-T	< 0.006	< 0.006		0.007
Cr-T	0.020	0.018		0.007
Cu-T	< 0.006	0.020		< 0.006
Fe-T	0.093	0.063		0.064
K--T	0.1	0.5		0.2
Mg-T	0.8	1.2		0.7
Mn-T	0.005	0.004		< 0.001
Na-T	1.9	2.7		1.7
Ni-T	< 0.02	< 0.02		< 0.02
Pb-T	< 0.06	0.07		< 0.06
S--T	0.41	0.52		0.38
Si-T	2.93	3.24		2.77
Zn-T	< 0.002	0.006		0.003
Fecal coliforms	< 1	1	1	4
Giardia	0			
Cryptosporidium	0			

Table 59. Ambient water quality data for site E226551 Upper Lens Creek at Lens Main West and TR8 (May – November 1997).

LOCATION E226551 UPPER LENS CREEK AT LENS MAIN W & TR8				
DATE	7/14/97 13:53	8/19/97 12:03	9/9/97 12:35	11/26/97 12:40
Field Temp	11.5	10.2	10.3	6.2
Field DO	10.0	9.6	9.4	11.5
Color True	5	5	< 5	5
pH	7.29	7.37	7.26	7.37
Res: Tot	< 55			
Res: Filt	50			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.33	0.11	0.14	0.52
SC	68	76	81	59
Hardness	28.7	31.1	31.6	22.9
TOC	1.2			
DOC	1			
TIC	7.8			
DIC	7.5			
Tot C	8.5			
C--T	9.0			
P--T	0.009	0.005	0.004	0.003
P T Diss	0.009	0.003	< 0.002	0.007
Tot N	0.12	0.13	0.13	0.17
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.084	0.132	0.112	0.126
NO3	< 0.082			
NO2	< 0.002			
Al-T	0.15	0.19	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	10.0	10.0	11.0	8.0
Cd-T	< 0.006	0.010	< 0.006	< 0.006
Cr-T	0.016	< 0.006	< 0.006	0.016
Cu-T	0.008	< 0.006	0.007	< 0.006
Fe-T	0.066	< 0.006	0.049	0.056
K--T	0.2	0.7	0.3	< 0.1
Mg-T	0.9	1.5	1.0	0.7
Mn-T	0.004	0.003	0.004	0.003
Na-T	1.9	2.7	1.7	1.5
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	0.15	0.06	< 0.06
S--T	0.48	0.51	0.52	0.39
Si-T	2.75	3.19	3.22	2.43
Zn-T	0.008	< 0.002	0.003	0.003
Fecal coliforms	2	< 1	1	4
Giardia	0			
Cryptosporidium	0			

Table 60. Ambient water quality data for site E226552 Lens Creek at Lens Mainline and Modeste Main (May – November 1997).

LOCATION E226552 LENS CREEK AT LENS ML & MODESTE MAIN				
DATE	7/14/97 15:00	8/19/97 12:41	9/9/97 13:20	11/26/97 14:05
Field Temp	13.5	15.0	15.0	6.5
Field DO	10.5	9.7	9.8	11.6
Color True	< 5	< 5	< 5	5
pH	7.68	7.78	7.77	7.55
Res: Tot	< 45			
Res: Filt	40			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.25	0.32	0.14	0.69
SC	63	69	73	55
Hardness	26.0	28.3		21.4
TOC	1.1			
DOC	1.1			
TIC	6.5			
DIC	6.5			
Tot C	7.6			
C--T	7.6			
P--T	0.004	0.005	0.005	0.003
P T Diss	0.004	0.003	< 0.002	0.007
Tot N	0.08	0.07	0.09	0.08
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.057	0.064	0.067	0.095
NO3	< 0.055			
NO2	< 0.002			
Al-T	0.25	0.13		< 0.06
As-T	< 0.06	< 0.06		< 0.06
Ca-T	9.1	9.2		7.4
Cd-T	< 0.006	< 0.006		< 0.006
Cr-T	0.016	< 0.006		< 0.006
Cu-T	0.010	< 0.006		0.006
Fe-T	0.126	< 0.006		0.057
K--T	0.2	0.6		0.2
Mg-T	0.8	1.3		0.7
Mn-T	0.003	0.002		< 0.001
Na-T	1.7	2.2		1.5
Ni-T	< 0.02	< 0.02		< 0.02
Pb-T	< 0.06	< 0.06		< 0.06
S--T	0.47	0.53		0.40
Si-T	2.78	2.88		2.25
Zn-T	< 0.002	< 0.002		0.003
Fecal coliforms	2	1	3	< 1
Giardia	0			
Cryptosporidium	0			

Table 61. Ambient water quality data for site E226553 Lens Creek at Lens Mainline and Harris Creek Mainline (May – November 1997).

LOCATION E226553 LENS CREEK AT LENS ML & HARRIS CK ML				
DATE	7/14/97 16:36	8/19/97 13:27	9/10/97 13:45	11/26/97 14:40
Field Temp		16.5	14.0	6.8
Field DO		9.9	10.8	11.2
Color True	< 5	< 5	< 5	5
pH	7.65	7.56	7.55	7.50
Res: Tot	< 45			
Res: Filt	40			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.22	0.23	0.40	0.78
SC	59	64	68	52
Hardness	24.0		27.3	19.5
TOC	1.2			
DOC	1			
TIC	6			
DIC	5.9			
Tot C	6.9			
C--T	7.2			
P--T	0.003	0.005	0.003	0.002
P T Diss	0.003	0.003	< 0.002	0.007
Tot N	0.07	0.11	0.08	0.09
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.051	0.105	0.059	0.085
NO3	< 0.049			
NO2	< 0.002			
Al-T	< 0.06		< 0.06	< 0.06
As-T	< 0.06		< 0.06	< 0.06
Ca-T	8.3		9.3	6.8
Cd-T	< 0.006		< 0.006	< 0.006
Cr-T	0.027		0.009	< 0.006
Cu-T	< 0.006		0.006	< 0.006
Fe-T	0.040		0.015	0.036
K--T	0.4		0.2	0.2
Mg-T	0.8		1.0	0.6
Mn-T	0.002		0.005	< 0.001
Na-T	1.7		2.0	1.5
Ni-T	< 0.02		< 0.02	< 0.02
Pb-T	< 0.06		< 0.06	< 0.06
S--T	0.46		0.55	0.42
Si-T	2.47		2.81	2.17
Zn-T	< 0.002		< 0.002	0.004
Fecal coliforms	< 1	3	4	< 1
Giardia	0			
Cryptosporidium	0			

Table 62. Ambient water quality data for site E226554 San Juan River at San Juan River Bridge Campsite (May – November 1997).

LOCATION E226554 SAN JUAN RIVER AT CAMPSITE				
DATE	7/15/97 10:35	8/19/97 17:17	9/10/97 14:55	11/26/97 15:50
Field Temp	14.0	18.5	15.5	6.2
Field DO	9.6	8.8	9.8	11.4
Color True	< 5	< 5	< 5	10
pH	7.46	7.62	7.62	7.34
Res: Tot	< 45			
Res: Filt	40			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.17	0.08	0.11	0.83
SC	50	80	83	41
Hardness	19.3	31.6	31.6	14.7
TOC	1.6			
DOC	1.4			
TIC	4.8			
DIC	4.7			
Tot C	6.1			
C--T	6.4			
P--T	0.007	0.010	0.004	0.004
P T Diss	0.007	0.009	0.002	0.007
Tot N	0.04	0.08	0.08	0.05
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.019	0.044	0.042	0.045
NO3	< 0.017			
NO2	< 0.002			
Al-T	0.09	0.33	< 0.06	0.10
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	6.4	11.0	11.0	4.9
Cd-T	< 0.006	< 0.006	< 0.006	0.008
Cr-T	< 0.006	< 0.006	< 0.006	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006
Fe-T	0.050	0.010	< 0.006	0.067
K--T	0.6	0.7	0.6	0.3
Mg-T	0.8	1.0	1.0	0.6
Mn-T	0.001	0.002	0.003	< 0.001
Na-T	1.8	2.2	2.1	1.7
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.83	1.51	1.46	0.62
Si-T	2.93	3.17	2.91	2.41
Zn-T	< 0.002	0.005	< 0.002	0.004
Fecal coliforms	< 1	2	1	< 1
Giardia	0			
Cryptosporidium	0			

Table 63. Ambient water quality data for site E226556 Garbage Creek at Shawnigan Mainline (May – November 1997).

LOCATION E226556 GARBAGE CREEK AT SHAWNIGAN MAIN LINE				
DATE	7/15/97 12:22	8/19/97 16:35	9/10/97 14:23	11/26/97 15:20
Field Temp	10.9	13.5	14.0	5.8
Field DO	10.7	10.5	9.9	11.8
Color True	< 5	7	< 5	7
pH	7.23	7.45	7.51	7.08
Res: Tot	< 25			
Res: Filt	20			
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.14	0.16	0.22	0.53
SC	30	47	51	27
Hardness	8.6	14.1	16.2	6.2
TOC	1.8			
DOC	1.6			
TIC	2.3			
DIC	2.3			
Tot C	3.9			
C--T	4.1			
P--T	0.009	0.018	0.008	0.005
P T Diss	0.009	0.016	0.005	0.008
Tot N	0.06	0.10	0.09	0.10
NH4 Diss	< 0.005	< 0.005	< 0.005	0.012
NO3 + NO2	0.038	0.056	0.046	0.069
NO3	< 0.036			
NO2	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	< 0.06
As-T	< 0.06	< 0.06	< 0.06	< 0.06
Ca-T	2.6	4.5	5.0	2.0
Cd-T	< 0.006	< 0.006	< 0.006	0.010
Cr-T	0.015	< 0.006	0.030	< 0.006
Cu-T	< 0.006	< 0.006	0.009	< 0.006
Fe-T	0.037	0.068	0.068	0.034
K--T	0.7	0.7	0.9	0.5
Mg-T	0.5	0.7	0.9	0.3
Mn-T	0.003	0.002	0.003	< 0.001
Na-T	2.0	2.4	2.7	2.0
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06
S--T	0.67	0.81	0.84	0.55
Si-T	3.37	4.77	4.69	2.61
Zn-T	< 0.002	0.009	0.012	0.003
Fecal coliforms	< 1	< 1	1	< 1
Giardia	0			
Cryptosporidium	0			

Table 64. Ambient water quality data for site E226560 San Juan River upstream Williams Creek (May – November 1997).

LOCATION E226560 SAN JUAN RIVER U/S WILLIAMS CREEK							
DATE	7/16/97	7/16/97	7/16/97	7/16/97	8/19/97	9/9/97	11/26/97
Field Temp	12.0				13.1	12.0	5.8
Field DO	10.8				10.4	10.4	12.5
Color True	< 5	< 5	< 5	< 5	< 5	< 5	7
pH	7.71	7.72	7.73	7.75	7.90	7.70	7.46
Res: Tot	< 45	< 55	< 45	< 55			
Res: Filt	40	50	40	50			
Res: NF	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Turbidity	0.14	0.14	0.15	0.15	0.09	0.16	0.65
SC	69	68	69	69	91	92	52
Hardness	29.1	28.6	29.1	28.3		39.7	19.4
TOC	1.4	1.5	1.4	1.4			
DOC	1.2	1.3	1.4	1.4			
TIC	7.3	7.2	7.2	7.2			
DIC	7.2	7.2	7.1	7.1			
Tot C	8.4	8.5	8.5	8.5			
C--T	8.7	8.7	8.6	8.6			
P--T	0.007	0.007	0.008	0.007	0.008	0.006	0.006
P T Diss	0.007	0.007	0.006	0.008	0.006	0.004	0.008
Tot N	< 0.02	< 0.02	0.02	< 0.02	0.03	0.06	0.03
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.007	0.007	0.014	0.007	0.029	0.028	0.037
NO3	< 0.005	< 0.005	< 0.012	< 0.005			
NO2	< 0.002	< 0.002	< 0.002	< 0.002			
Al-T	< 0.06	< 0.06	< 0.06	< 0.06		< 0.06	0.07
As-T	< 0.06	< 0.06	< 0.06	< 0.06		< 0.06	< 0.06
Ca-T	10.0	9.8	10.0	9.7		13.6	6.6
Cd-T	< 0.006	< 0.006	< 0.006	< 0.006		< 0.006	0.006
Cr-T	0.014	0.021	0.022	< 0.006		0.025	< 0.006
Cu-T	< 0.006	< 0.006	< 0.006	< 0.006		< 0.006	< 0.006
Fe-T	0.012	0.019	0.014	0.008		< 0.006	0.046
K--T	0.3	0.3	0.2	0.3		0.4	0.2
Mg-T	1.0	1.0	1.0	1.0		1.4	0.7
Mn-T	< 0.001	< 0.001	< 0.001	0.003		< 0.001	< 0.001
Na-T	1.9	1.9	1.9	1.8		2.1	1.7
Ni-T	< 0.02	< 0.02	< 0.02	< 0.02		< 0.02	< 0.02
Pb-T	< 0.06	< 0.06	< 0.06	< 0.06		< 0.06	< 0.06
S--T	0.86	0.86	0.87	0.83		1.17	0.65
Si-T	2.76	2.74	2.76	2.68		2.86	2.43
Zn-T	< 0.002	< 0.002	< 0.002	< 0.002		0.006	< 0.002
Fecal coliforms	5	7	6	7	1	3	< 1
Giardia	0						
Cryptosporidium	0						

Table 65. Ambient water quality data for site E226561 Fleet River at Fleet River Mainline (May – November 1997).

LOCATION E226561 FLEET RIVER AT FLEET ML				
DATE	7/16/97 14:05	8/19/97 10:34	9/9/97 11:35	11/26/97 11:30
Field Temp	13.8	13.5	12.5	5.3
Field DO	10.2	10.2	9.9	12.0
Color True	< 5	5	< 5	10
pH	7.36	7.50	7.44	7.00
Res: Tot	< 35	< 35	< 35	< 35
Res: Filt	30	30	30	30
Res: NF	< 5	< 5	< 5	< 5
Turbidity	0.19	0.11	0.09	0.28
SC	35	47	47	28
Hardness	12.6		17.1	9.1
TOC	2.1	0.9		3.1
DOC	2.1	0.6		3.1
TIC	3.3	3.8		2
DIC	3.1	3.6		1.9
Tot C	5.2	4.2		5.0
C--T	5.4	4.7		5.1
P--T	0.005	0.004	0.003	< 0.002
P T Diss	0.005	0.003	< 0.002	0.006
Tot N	0.03	0.09	0.11	< 0.02
NH4 Diss	< 0.005	< 0.005	< 0.005	< 0.005
NO3 + NO2	0.004	0.084	0.059	0.007
NO3	< 0.002			
NO2	< 0.002			
Al-T	< 0.06		< 0.06	0.12
As-T	< 0.06		< 0.06	< 0.06
Ca-T	3.9		5.2	2.8
Cd-T	< 0.006		< 0.006	0.006
Cr-T	0.007		0.014	< 0.006
Cu-T	< 0.006		0.012	< 0.006
Fe-T	0.025		0.032	0.044
K--T	0.2		0.4	< 0.1
Mg-T	0.7		1.0	0.5
Mn-T	< 0.001		< 0.001	< 0.001
Na-T	1.5		1.4	1.4
Ni-T	< 0.02		< 0.02	< 0.02
Pb-T	< 0.06		< 0.06	< 0.06
S--T	0.38		0.53	0.32
Si-T	2.55		2.78	2.12
Zn-T	< 0.002		0.004	< 0.002
Fecal coliforms	28	2	3	< 1
Giardia	0	0		0
Cryptosporidium	0	0		0

Appendix

EMS ID	DATE	Temp deg C	DO mg/L	True Color Rel U	pH Rel U	Res: Tot mg/L	Res: Filt mg/L	Res: NF mg/L	Turb NTU	SC uS/cm	T Hard mg/L	TOC mg/L	DOC mg/L	TIC mg/L	DIC mg/L	Tot C mg/L	C-T mg/L	P-T mg/L	P-T mg/L	P T Diss mg/L	Tot N mg/L	NH4 Diss mg/L	N03 + N02 mg/L	N-N03 mg/L	N-N02 mg/L
KLANAWA RIVER MONITORING GROUP																									
E26191	05/28/87 10:20	10.6	8.7	< 5	7.33	< 45	40	< 5	0.16	42	13.2	0.9		3.3			4.2	0.005	0.004	0.22	< 0.005	0.036	< 0.034	< 0.002	
E26191	07/29/87 10:00	12.5	10.0	< 5	7.23	< 45	40	< 5	0.24	44	14.0	0.8	0.8	3.1	3.0	3.8	3.9	0.004	0.003	0.05	< 0.005	0.038	< 0.036	< 0.002	
E26191	08/20/87 11:42	14.2	9.8	< 5	7.32	< 45	< 5	0.10	48	15.6								0.008	0.003	0.07	< 0.005	0.050			
E26191	10/29/87 9:45	11.0	10.4	15	6.93	< 30	< 5	1.10	26	6.9								0.007	0.008	0.20	< 0.005	0.058			
E26192	05/27/87 13:45	11.0	10.9	< 5	7.28	< 35	30	< 5	0.12	50	16.5	< 0.5	< 0.5	3.9	3.9	4.4	4.4	0.007	0.005	0.11	< 0.005	0.097	< 0.095	< 0.002	
E26192	07/29/87 9:30	12.0	12.8	< 5	7.21	< 45	40	< 5	0.08	51	18.0	0.5	< 0.5	4.1	3.9	4.4	4.6	0.007	0.006	0.10	< 0.005	0.107	< 0.105	< 0.002	
E26192	08/20/87 11:33	13.5	11.8	< 5	7.37	< 45	< 5	0.08	53	17.7								0.010	0.009	0.13	< 0.005	0.123			
E26192	10/29/87 9:30	10.0	9.8	15	6.98	< 35	< 5	2.04	33	10.2								0.009	0.003	0.22	< 0.005	0.127			
E26193	05/28/87 13:25	10.7	8.2	< 5	7.13	< 35	30	< 5	0.06	38	11.5	< 0.5		3.3		< 3.8		0.005	0.004	0.10	< 0.005	0.069	< 0.087	< 0.002	
E26193	07/29/87 10:37	12.8	9.9	< 5	6.95	< 35	30	< 5	0.64	41	12.3	< 0.5	< 0.5	3.4	3.0	< 3.5	3.9	0.006	0.006	0.09	< 0.005	0.093	< 0.091	< 0.002	
E26193	08/20/87 12:25	13.5	8.1	< 5	7.11	< 35	30	< 5	0.08	45	14.1	< 0.5	< 0.5	3.3	3.3	< 3.8	3.8	0.007	0.008	0.19	< 0.005	0.107			
E26193	10/29/87 10:30	9.5	9.2	15	6.76	< 30	< 5	0.39	27	7.8	4.2	3.8	1.6	1.6	5.4	5.8	0.013	0.004	0.24	< 0.005	0.115				
E26194	06/04/87 9:22	11.6	11.4	30	6.58	< 35	30	< 5	0.30	20	4.7	5.8	5.7	1.1	1.1	6.8	6.9	0.005	0.005	0.10	< 0.005	0.021	< 0.019	< 0.002	
E26194	07/29/87 13:30	20.0	8.6	< 5	7.19	< 25	20	< 5	0.26	29	8.6	1.8	1.6	2.2	2.1	3.7	4.0	0.006	0.002	0.07	< 0.005	0.006	< 0.004	< 0.002	
E26194	08/20/87 15:09	19.6	9.1	< 5	7.24	< 35	< 5	0.33	33	9.7								0.009	0.005	0.16	< 0.005	0.015			
E26194	10/28/87 15:10	8.0	11.8	20	6.66	< 35	< 5	0.33	23	5.6								0.006	0.003	0.14	< 0.005	0.028			
E26196	06/04/87 11:34	9.9	11.9	25	6.59	< 35	30	< 5	0.42	17	3.8	5.2	5.2	0.7	0.7	5.9	5.9	0.006	0.004	0.09	< 0.005	0.026	< 0.024	< 0.002	
E26196	10/29/87 15:35	8.0	11.0	15	6.54	< 35	< 5	0.46	20	4.7								0.005	0.002	0.22	< 0.005	0.103			
E26197	06/03/87 13:20	10.7	8.5	10	6.84	< 25	20	< 5	0.20	22	5.5	4.1	3.4	1.3	1.2	4.6	5.4	0.004	0.004	0.10	< 0.005	0.044	< 0.042	< 0.002	
E26197	06/03/87 13:45			10	6.80	< 25	20	< 5	0.18	22	4.8	3.5	3.3	1.3	1.3	4.6	4.8	0.004	0.005	0.08	< 0.005	0.042	< 0.040	< 0.002	
E26197	06/03/87 14:00			15	6.75	< 15	20	< 5	0.21	22	5.2	3.5	3.4	1.3	1.3	4.7	4.8	0.004	0.004	0.09	< 0.005	0.042	< 0.040	< 0.002	
E26197	06/03/87 14:15			10	6.76	< 15	20	< 5	0.19	21	5.2	3.5	3.5	1.3	1.1	4.6	4.8	0.003	0.004	0.09	< 0.005	0.041	< 0.039	< 0.002	
E26197	07/29/87 11:45	14.0	8.5	10	6.62	< 35	30	< 5	0.28	35	10.0	1.3	1.3	3.1	2.5	3.8	4.4	0.006	0.004	0.15	< 0.005	0.132	< 0.130	< 0.002	
E26197	08/20/87 13:44	15.0	8.5	< 5	6.67	< 45	40	< 5	0.55	41	12.5	0.8	0.8	3.9	3.4	4.2	4.7	0.007	0.008	0.28	< 0.005	0.213			
E26197	10/29/87 10:45	9.2	11.5	20	6.55	< 25	20	< 5	0.52	20	4.7	5.1	4.8	0.6	0.6	5.4	5.7	0.006	0.005	0.18	< 0.005	0.066	< 0.064	< 0.002	
E26198	06/03/87 10:50	9.4	10.0	< 5	6.56	< 25	20	< 5	0.06	24	5.8	1.4	1.4	1.8	1.7	3.1	3.2	0.003	0.004	0.09	< 0.005	0.066	< 0.064	< 0.002	
E26198	07/29/87 12:39	9.8	9.2	< 5	6.37	< 25	20	< 5	0.11	28	7.9	0.5	0.5	3	2.1	2.6	3.5	0.005	0.003	0.11	< 0.005	0.106	< 0.104	< 0.002	
E26198	08/20/87 14:30	10.0	8.5	< 5	6.56	< 35	< 5	0.07	29	8.4								0.006	0.006	0.13	< 0.005	0.103			
E26198	10/29/87 14:30	9.0	11.6	7	6.52	< 35	< 5	0.43	23	5.7								0.006	0.003	0.21	< 0.005	0.132			
E26198	Klanawa mean	11.8	10.0	10	6.88	32	27	9	0.45	32	9.3	2.2	2.3	2.4	2.1	4.4	4.6	0.006	0.005	0.14	0.005	0.077	0.060	0.002	
E26198	Klanawa SD	3.0	1.4	7	0.30	9	1	1	0.72	11	4.4	1.9	1.8	1.2	1.1	1.0	0.9	0.002	0.002	0.06	0.000	0.047	0.037	0.000	
LITTLE TITINAT RIVER MONITORING GROUP																									
E26199	06/04/87 13:11	14.9	9.5	< 5	7.06	< 35	30	< 5	0.34	33	11.0	1.2	1.2	3	3.0	4.2	4.2	0.003	0.003	0.09	< 0.006	0.038	< 0.036	< 0.002	
E26199	07/28/87 16:37	23.0	8.8	< 5	7.21	< 27	20	< 5	1.40	36	13.1	1.8	1.6	3.3	3.2	4.8	5.1	0.008	0.004	0.11	< 0.005	0.022	< 0.020	< 0.002	
E26199	08/26/87 9:05	18.5	9.3	< 5	7.27	< 25	20	< 5	0.65	37	13.8	1.4	1.3	3.4	3.3	4.6	4.8	0.004	< 0.002	0.15	< 0.005	0.014			
E26199	08/26/87 9:15			< 5	7.34	< 35	30	< 5	0.46	37	13.4	1.3	1.3	3.3	3.3	4.6	4.6	0.004	< 0.002	0.13	< 0.005	0.008			
E26199	08/26/87 9:20			< 5	7.34	< 35	30	< 5	0.36	38	14.2	1.3	1.3	3.3	3.3	4.6	4.6	0.003	< 0.002	0.11	< 0.005	0.004			
E26199	08/26/87 9:30			< 5	7.34	< 35	30	< 5	0.40	38	13.1	1.3	1.3	3.3	3.3	4.6	4.6	0.004	< 0.002	0.10	< 0.005	0.005			
E26199	10/29/87 16:15	9.0	11.2	< 5	6.97	< 35	30	< 5	0.65	41	14.0	0.9	0.7	3.8	3.8	4.5	4.7	0.006	0.002	0.20	< 0.007	0.140	< 0.054	< 0.002	
E26201	06/05/87 12:10			< 5	6.87	< 45	40	< 5	0.18	42	15.5	1.5	1.4	4.2	4.2	5.6	5.7	0.004	0.006	0.10	< 0.005	0.056	< 0.054	< 0.002	
E26201	07/22/87 12:31	18.0	8.7	< 5	7.17	< 35	30	< 5	1.50	46	18.4	1.6	1.6	5	4.4	6.0	6.6	0.006	0.003	0.09	< 0.005	0.073	< 0.071	< 0.002	
E26201	08/26/87 12:36	16.5	8.5	< 5	7.20	< 35	< 5	0.28	48	18.9								0.004	0.002	0.14	< 0.005	0.063			
E26201	10/28/87 11:05	8.9	9.1	< 5	6.94	< 35	< 5	0.61	49	18.5								0.006	0.005	0.17	< 0.005	0.085			
E26202	06/04/87 14:45	12.2	10.3	7	7.23	< 35	30	< 5	0.15	35	12.9	2.0	2.0	3.3	3.3	5.3	5.3	0.016	0.002	0.06	< 0.006	0.019	< 0.017	< 0.002	
E26202	07/28/87 14:19	21.0	8.8	7	7.32	< 45	40	< 5	0.32	41	16.3	2.1	1.9	4.2	4.0	5.9	6.3	0.004	< 0.002	0.08	< 0.005	0.031	< 0.029	< 0.002	
E26202	08/26/87 13:25	17.1	9.2	7	7.32	< 45	40	< 5	0.41	41	15.8	2.5	1.8	3.9	3.7	5.5	6.4	0.005	0.002	0.18	< 0.005	0.037			
E26202	10/28/87 12:05	9.0	8.7	< 5																					

EMS ID	DATE	Temp deg C	DO mg/L	True Color Rel U	pH Rel U	Res: Tot mg/L	Res: Filt mg/L	Res: NF mg/L	Turb NTU	SC uS/cm	T Hard mg/L	TOC mg/L	DOC mg/L	TIC mg/L	DIC mg/L	Tot C mg/L	C-T mg/L	P-T mg/L	P T Diss mg/L	Tot N mg/L	NH4 Diss mg/L	N03 + NO2 mg/L	N-N03 mg/L	N-N02 mg/L
	WQ criteria	>15	8	15	6.5-8.5		100	10	100	100	80-100	20	20					0.10	0.005	0.20	0.005	0.200	10	0.020
E26206	06/05/97 8:52	9.4	11.3	5	7.29	< 36	30	< 5	0.24	32	11.2	2.1	2.1	2.1	2.8	4.9	4.9	0.003	0.003	0.07	< 0.005	0.047	< 0.045	< 0.002
E26206	07/23/97 8:48	13.0	10.2	5	7.49	< 25	20	< 5	0.14	45	17.5	1.1	1.1	4.1	4.0	5.1	5.2	0.005	0.002	0.07	< 0.005	0.071	< 0.069	< 0.002
E26206	08/26/97 10:54	13.9	10.2	15	7.29	< 45	40	< 5	0.92	35	13.5	4.1	4.0	2.7	2.7	6.7	6.8	0.007	0.004	0.32	< 0.005	0.178	< 0.069	< 0.002
E26206	10/28/97 13:10	9.0	9.8	7	7.37	< 36	30	< 5	6.68	40	14.3	1.5	1.5	3.2	3.2	4.7	4.7	0.014	0.003	0.19	< 0.005	0.107	< 0.069	< 0.002
E26207	06/16/97 17:35	13.0	10.5	7	7.52	< 37	30	< 7	4.90	47	19.6	1.3	1.3	4.3	4.2	5.5	5.6	0.012	0.004	0.10	< 0.005	0.051	< 0.049	< 0.002
E26207	07/29/97 16:10			< 5	7.63	< 36	30	< 5	0.14	56	22.7	1.1	1.1	5.3	5.3	6.4	6.4	0.003	0.002	0.09	< 0.005	0.076	< 0.074	< 0.002
E26207	08/13/97 8:55																							
E26207	08/13/97 9:00																							
E26207	08/27/97 9:10	13.0	10.7	15	7.36	< 35	30	< 5	0.94	35	13.6	4.0	4.0	2.8	2.8	6.8	6.8	0.007	0.003	0.26	< 0.005	0.152		
E26207	08/27/97 9:20																							
E26207	08/27/97 9:20																							
E26207	10/28/97 14:10	8.5	8.4	5	7.52	< 36	30	< 5	2.29	44	16.5	1.3	1.3	3.8	3.8	5.1	5.1	0.006	0.003	0.19	< 0.005	0.114		
E26207	Little Nitinat mean	12.1	10.1	7	7.26	37	32	5	0.93	40	15.1	1.9	1.8	3.7	3.6	5.4	5.6	0.006	0.003	0.15	0.005	0.093	0.053	0.002
E26207	Little Nitinat SD	3.6	1.1	4	0.18	6	6	0	1.55	7	3.1	0.9	0.9	0.8	0.7	0.8	0.8	0.003	0.001	0.08	0.000	0.050	0.020	0.000
NITINAT RIVER MONITORING GROUP																								
E26208	06/23/97 14:43	8.8	12.0	5	7.63	< 45	40	< 5	0.20	62	27.1	1.0	1.0	6.8	6.7	7.7	7.8	0.005	0.004	0.05	< 0.005	0.037	< 0.035	< 0.002
E26208	07/30/97 15:30	14.5	10.2	< 5	7.83	< 55	50	< 5	0.12	88	40.8	0.7	0.7	9.9	9.9	10.6	10.6	0.003	0.002	0.08	< 0.005	0.061	< 0.059	< 0.002
E26208	07/30/97 15:40			< 5	7.85	< 55	50	< 5	0.12	88	41.1	0.5	0.5	9.9	9.9	10.4	10.4	0.004	< 0.002	0.07	< 0.005	0.060	< 0.058	< 0.002
E26208	07/30/97 15:50			< 5	7.84	< 65	60	< 5	0.11	88	42.6	0.8	0.8	10.0	10.0	10.8	10.8	0.004	0.003	0.07	< 0.005	0.060	< 0.057	< 0.002
E26208	07/30/97 16:00			< 5	7.81	< 45	40	< 5	0.12	87	41.3	0.8	0.8	9.9	9.9	10.7	10.7	0.004	0.002	0.09	< 0.005	0.060	< 0.058	< 0.002
E26208	09/02/97 13:25	14.5	9.4	< 5	7.84	< 55	50	< 5	0.09	89	38.8	2.5	1.6	9.6	9.4	11.0	12.1	< 0.002	< 0.002	0.15	< 0.005	0.109	< 0.058	< 0.002
E26208	11/03/97 12:24	9.1	10.6	20	7.46	< 59	30	< 29	18.30	37	21.2	3.4	3.4	3.1	3.1	6.5	6.5	0.043	0.006	0.32	< 0.010	0.172	< 0.036	< 0.002
E26211	06/18/97 11:25	9.1	12.2	5	7.71	< 45	40	< 5	0.33	65	26.6	1.4	1.4	6.1	6.1	7.5	7.5	0.020	0.007	0.08	< 0.005	0.038	< 0.036	< 0.002
E26211	07/30/97 14:30	12.5	10.2	< 5	7.86	< 65	60	< 5	0.21	102	44.6	0.6	0.6	9.7	9.7	10.3	10.3	0.005	0.004	0.05	< 0.005	0.027	< 0.025	< 0.002
E26211	09/02/97 15:03	14.0	11.0	< 5	7.89	< 65	60	< 5	0.09	106	45.1	2.2	2.2	9.4	9.4	11.6	11.6	0.002	< 0.002	0.10	< 0.005	0.054		
E26211	11/03/97 14:05	9.5	10.4	7	7.71	< 45	40	< 5	0.36	64	27.9	2.0	2.0	6.9	6.8	8.8	8.9	0.009	0.005	0.18	< 0.013	0.091		
E26214	06/16/97 13:47	11.3	9.9	7	7.62	< 45	40	< 5	0.36	64	27.9	2.0	2.0	6.9	6.8	8.8	8.9	0.006	0.004	0.07	< 0.005	0.022	< 0.020	< 0.002
E26214	07/28/97 15:25	15.7	9.0	5	7.65	< 55	50	< 5	0.23	82	37.6	1.4	1.4	9.3	9.0	10.4	10.7	0.007	< 0.002	0.04	< 0.005	0.017	< 0.015	< 0.002
E26214	08/26/97 17:30	12.2	9.8	45	7.44	< 55	50	< 5	2.67	46	19.8	8.6	8.3	3.8	3.7	12.0	12.4	0.013	0.007	0.45	< 0.007	0.237		
E26214	08/26/97 17:35																							
E26214	11/05/97 9:10	8.5	10.6	10	7.09	< 25	20	< 5	0.24	27	9.3	2.8	2.8	1.7	1.7	4.5	4.5	0.003	0.002	0.06	< 0.005	0.019		
E26214	11/05/97 9:00			10	7.11	< 25	20	< 5	0.25	27	8.9	2.8	2.8	1.6	1.6	4.4	4.4	0.003	0.002	0.05	< 0.007	0.019		
E26214	11/05/97 9:30			10	7.07	< 25	20	< 5	0.23	27	9.3	2.7	2.7	1.6	1.6	4.3	4.3	0.003	< 0.002	0.05	< 0.005	0.015		
E26214	11/05/97 9:20			10	7.10	< 15	< 10	< 5	0.26	28	9.3	2.7	2.7	1.7	1.6	4.3	4.4	0.003	0.002	0.05	< 0.005	0.016		
E26215	06/16/97 15:47	33.3	7.0	5	7.49	< 45	40	< 5	0.12	59	23.1	1.3	1.3	4.9	4.9	6.2	6.2	0.005	0.003	0.05	< 0.005	0.003	< 0.001	< 0.002
E26215	07/30/97 13:45	15.2	9.6	< 5	7.50	< 55	50	< 5	0.09	71	27.9	3.8	1.4	5.9	5.9	7.3	9.7	0.003	0.005	0.03	< 0.005	0.007	< 0.005	< 0.002
E26215	09/03/97 8:45	15.3	9.7	< 5	7.59	< 45	40	< 5	0.07	67	25.2	4.8	2.1	5.3	5.2	7.3	10.1	0.002	< 0.002	0.06	< 0.005	0.019		
E26215	11/05/97 11:00	9.8	10.8	7	7.22	< 45	40	< 5	0.28	40	14.0	1.7	1.7	2.8	2.8	4.5	4.5	0.003	0.002	0.08	< 0.005	0.027		
E26216	06/17/97 13:39	11.0	11.2	20	7.47	< 45	30	< 15	11.00	44	21.8	4.3	4.3	4.5	4.5	8.8	8.8	0.034	0.004	0.21	< 0.005	0.070	< 0.068	< 0.002
E26216	07/22/97 11:04	13.5	10.0	< 5	7.72	< 45	40	< 5	0.22	86	38.1	0.7	0.7	9.4	9.4	10.1	10.1	0.004	0.003	0.06	< 0.005	0.054	< 0.052	< 0.002
E26216	08/13/97 9:50																							
E26216	08/13/97 9:55																							
E26216	08/27/97 15:05	13.5	9.8	10	7.65	< 55	50	< 5	1.41	66	30.8	2.8	2.8	6.7	6.6	9.4	9.5	0.007	0.003	0.27	< 0.006	0.135		
E26216	08/27/97 15:10																							
E26216	11/03/97 14:55	9.7	10.1	25	7.53	< 79	30	< 49	36.90	43	27.4	3.1	2.7	3.8	3.8	6.5	6.9	0.102	0.005	0.31	0.013	0.092	< 0.048	< 0.002
E26217	06/17/97 15:35	10.5	10.8	25	7.34	< 39	30	< 9	6.70	41	18.2	4.0	4.0	3.7	3.7	7.7	7.7	0.026	0.007	0.16	0.005	0.050	< 0.048	< 0.002
E26217	07/30/97 10:30	11.5	10.4	< 5	7.59	< 45	40	< 5	0.16	69	26.3	2.1	2.1	6.0	6.0	8.1	8.1	0.006	0.004	0.04	< 0.005	0.021	< 0.019	< 0.002
E26217	09/02/97 16:05	10.0	13.5	< 5	7.69	< 45	40	< 5	0.33	73	26.6	2.5	2.5	6.2	6.2	8.7	8.7	0.005	0.002	0.07	< 0.005	0.032		
E26217	11/05/97 12:10	9.5	10.2	5	7.29	< 35	30	< 5	2.44	51	18.9	1.0	1.0	4.4	4.3	5.3	5.4	0.019	0.012	0.27	< 0.068	0.104		
E26218	06/17/97 13:15	10.0	10.5	15	7.54	< 51	40	< 11	4.00	50	21.7	3.1	3.1	5.0	5.0	8.1	8.1	0.017	0.007	0.11	< 0.005	0.029	< 0.027	< 0.002
E26218	07/30/97 11:24	13.0	9.6	< 5	7.80	< 55	50	< 5	0.36	92	40.3	2.7	2.7	9.4	9.4	12.1	12.1	0.006	0.008	0.03	< 0.005	< 0.002	< 0.002	
E26218	09/03/97 9:50	12.3	9.7	< 5	7.87	< 55	50	< 5	0.28	88	35.1	2.9	1.1	8.7	8.5	9.6	11.6	0.004	< 0.002	0.03	< 0.005	0.008		
E26218	11/05/97 14:15	9.2	10.9	< 5	7.59	< 35	30	< 5	1.42	57	23.0	0.7	0.7	5.3	5.1	5.8	6.0	0.007	0.004	0.07	< 0.005	0.028	< 0.056	< 0.002
E26219	06/17/97 10:34	10.5	11.3	35	7.42	< 66	30	< 36	17.00	40	21.3	4.9	4.9	4.9	4.9	8.9	8.9	0.046	0.005</					

EMS ID	DATE	Temp deg C	DO mg/L	True Color Rel U	pH Rel U	Res: Tot mg/L	Res: Filt mg/L	Res: NF mg/L	Turb NTU	SC uS/cm	T Hard mg/L	TOC mg/L	DOC mg/L	TIC mg/L	DIC mg/L	Tot C mg/L	C-T mg/L	P-T mg/L	P T Diss mg/L	Tot N mg/L	NH4 Diss mg/L	N03 + N02 mg/L	N N03 mg/L	N N02 mg/L
	WQ criteria	>15	8	15	5.5-8.5		100	10	1.00	100	80-100	20	2.0					0.010	0.005	0.20	0.005	0.200	10	0.020
E262619	08/13/97 9:30	17.0	10.0	5	7.82	55	50	5	0.46	87	37.9	8.5	5.2	8.7	8.7	13.9	17.2	0.002	<	0.10	<	0.066		
E262619	09/02/97 17:10	9.5	10.4	25	7.47	71	30	41	29.70	43	24.1	2.7	2.7	3.6	3.9	6.6	6.3	0.067	0.004	0.27	0.015	0.095		
E262619	11/03/97 16:20			25	7.49	66	20	45	28.70	43	24.9	2.7	2.7	3.7	3.7	6.4	6.4	0.069	0.004	0.26	0.016	0.096		
E262619	11/03/97 16:30			25	7.44	69	30	39	27.10	43	25.1	2.7	2.7	3.7	3.7	6.4	6.4	0.063	0.004	0.25	0.016	0.097		
E262619	11/03/97 16:50			20	7.41	75	30	45	27.80	43	24.5	4.7	4.7	3.2	3.2	7.9	7.9	0.062	0.005	0.31	0.016	0.097		
E262621	06/18/97 14:25	10.0	10.6	10	7.47	36	30	5	1.90	50	20.4	2.2	2.1	5.3	5.2	7.3	7.5	0.019	<	0.10	<	0.061	<	0.002
E262621	08/12/97 16:10	19.2	8.9	5	7.68	75	70	5	0.22	81	33.4	1.2	1.0	8.1	8.1	9.1	9.3	0.009	<	0.08	<	0.055		
E262621	08/12/97 16:15																							
E262621	08/27/97 14:10	14.0	10.4	10	7.53	45	40	5	1.38	52	22.1	3.2	3.2	4.9	4.8	8.0	8.1	0.007	0.003	0.27	<	0.136		
E262621	08/27/97 14:20																							
E262621	11/03/97 15:45	9.8	9.6	20	7.44	93	30	63	32.80	42	25.5	2.8	2.7	3.6	3.6	6.3	6.4	0.099	0.008	0.39	0.028	0.088		
E262623	06/17/97 9:30	11.1	10.6	25	7.20	25	20	5	2.20	26	9.9	5.5	5.5	2	2.0	7.5	7.5	0.019	0.006	0.28	<	0.131	<	0.002
E262623	07/29/97 5:00			<	5 7.62	45	40	5	0.11	68	27.9	1.2	1.2	6.8	6.8	8.0	8.0	0.004	0.005	0.08	<	0.060	<	0.002
E262623	07/29/97 5:10			<	5 7.65	45	40	5	0.11	68	28.3	1.3	1.2	6.8	6.8	8.0	8.1	0.004	0.003	0.08	<	0.059	<	0.002
E262623	07/29/97 5:20			<	5 7.64	55	50	5	0.09	68	27.9	1.2	1.2	6.8	6.8	8.0	8.0	0.004	0.005	0.07	<	0.061	<	0.002
E262623	07/29/97 5:30			<	5 7.57	55	50	5	0.13	68	27.9	1.2	1.1	6.8	6.8	7.9	8.0	0.004	0.005	0.07	<	0.059	<	0.002
E262623	08/27/97 11:55	14.0	9.7	15	7.37	45	40	5	0.49	44	15.6	4.0	3.9	3.4	3.4			0.006	0.004	0.58	<	0.398		
E262623	08/27/97 12:00																							
E262623	10/29/97 17:25	9.0	11.8	10	7.12	36	30	5	1.50	33	10.6	2.8	2.6	2.5	2.4	5.0	5.3	0.013	0.005	0.37	0.024	0.230		
	<i>Nilinet mean</i>	13	10.2	13	7.52	54	38	16	7.84	58	25.4	3.0	2.7	5.5	5.5	8.2	8.5	0.024	0.005	0.19	0.011	0.090	0.061	0.002
	<i>Nilinet SD</i>	3.0	0.7	9	0.19	16	12	18	12.06	19	8.0	1.8	1.5	2.3	2.3	2.5	2.9	0.028	0.002	0.14	0.014	0.082	0.027	0.000
ROSANDER AREA MONITORING GROUP																								
E262647	06/24/97 9:25	12.0	10.8	15	7.10	25	20	5	0.20	30	8.4	3.6	3.6	1.7	1.7	5.3	5.3	0.005	0.003	0.08	<	0.011	<	0.002
E262647	08/16/97 15:40	14.5	9.2	15	7.09	25	20	5	0.18	31	9.1							0.004	0.003	0.09	<	0.005	<	0.002
E262647	11/04/97 9:30	9.2	9.8	15	7.15	25	20	5	0.30	32	9.1							0.003	0.002	0.12	<	0.035	<	0.002
E262649	06/25/97 14:30	9.0	11.2	7	7.33	36	30	5	0.07	29	7.4	2.1	1.8	2.2	1.9	3.7	4.3	0.005	0.006	0.08	<	0.020	<	0.064
E262649	06/25/97 14:40			7	6.99	35	30	5	0.08	29	7.4	1.7	1.7	2	1.9	3.6	3.7	0.014	0.003	0.09	0.008	0.070	<	0.002
E262649	06/25/97 14:50			7	6.92	25	20	5	0.08	29	7.4	1.7	1.7	1.9	1.9	3.6	3.6	0.006	0.005	0.09	<	0.066	<	0.002
E262649	06/25/97 15:00			7	6.91	25	20	5	0.10	28	7.4	1.9	1.8	1.9	1.9	3.7	3.8	0.006	0.005	0.10	<	0.068	<	0.002
E262649	08/12/97 13:15	11.0	10.2	5	6.82	25	20	5	0.09	30	8.1	0.8	0.8	1.9	1.6	2.4	2.7	0.019	0.008	0.28	<	0.199	<	0.002
E262649	09/03/97 15:40	14.0	9.5	7	7.07	25	20	5	0.08	31	7.4	1.3	1.3	1.9	1.8	3.1	3.2	0.002	<	0.17	0.007	0.141		
E262649	09/03/97 16:00			7	6.99	25	20	5	0.10	30	7.4	1.5	1.5	1.9	1.8	3.3	3.4	0.003	<	0.18	<	0.143		
E262649	09/03/97 16:10			7	7.00	15	10	5	0.10	30	7.4	1.9	1.4	1.9	1.8	3.2	3.8	0.003	<	0.18	<	0.145		
E262649	11/04/97 10:30	9.0	11.8	<	5 6.94	25	20	5	0.09	30	7.1	1.4	1.4	1.9	1.8	3.2	3.3	0.002	<	0.19	0.007	0.146		
E262651	06/25/97 12:24	17.0	19.5	20	6.73	25	20	5	0.17	29	7.6	1.8	1.8	3.8	1.3	3.1	5.6	0.008	<	0.15	<	0.080	<	0.002
E262651	06/25/97 12:30			20	6.79	36	30	5	0.33	24	5.6	3.5	3.4	1.1	1.1	4.5	4.6	0.008	<	0.09	0.007	0.015	<	0.013
E262651	08/12/97 10:57	22.8	7.6	5	6.79	25	20	5	0.42	25	5.5	3.9	3.9	1.2	1.1	5.0	5.1	0.011	0.003	0.18	0.007	0.003		
E262651	09/03/97 14:40	22.5	8.1	15	6.86	25	20	5	0.61	25	5.2	3.7	3.5	1.3	1.1	4.6	5.0	0.003	<	0.11	0.005	0.003		
E262651	11/04/97 11:15	11.0	10.8	25	6.67	15	10	5	0.36	24	6.1	3.9	3.8	1.2	1.2	5.0	5.1	0.003	0.004	0.16	0.012	0.039		
E262653	06/24/97 13:50	17.0	9.4	25	6.78	25	20	5	0.46	25	7.9	3.9	3.9	1.4	1.4	5.3	5.3	0.007	0.005	0.22	0.009	0.007	<	0.002
E262653	08/12/97 9:50	21.5	6.4	15	6.72	29	20	9	3.10	26	6.6							0.026	0.003	0.32	<	0.005	<	0.002
E262653	09/03/97 14:05	20.5	7.1	10	6.97	25	20	5	0.47	27	6.6							0.005	<	0.02	0.011	<	0.002	
E262653	11/04/97 11:50	11.5	10.4	20	6.76	25	20	5	0.44	27	6.6							0.006	0.005	0.21	0.005	0.095		
E262654	06/24/97 11:20	10.0	10.5	10	6.99	25	20	5	0.18	27	6.6	3.0	3.0	1.4	1.3	4.3	4.4	0.006	0.005	0.07	<	0.005	<	0.002
E262654	11/04/97 14:30	8.9	11.8	7	6.88	25	20	5	0.18	30	7.0							0.003	0.002	0.10	0.008	0.036	<	0.002
E262655	06/25/97 9:25	10.0	11.5	10	7.09	36	30	5	2.40	39	11.4	2.3	2.3	2.8	2.8	5.1	5.1	0.009	0.005	0.06	<	0.005	<	0.002
E262655	06/25/97 9:35			7	7.08	36	30	5	0.19	39	11.0	2.4	2.4	2.8	2.7	5.1	5.2	0.008	0.005	0.05	<	0.005	<	0.002
E262655	06/25/97 9:45			15	7.03	45	40	5	0.31	38		2.4	2.3	2.6	2.6	4.9	5.0	0.009	0.004	0.05	<	0.005	<	0.002
E262655	06/25/97 9:55			15	7.10	45	40	5	0.23	38	11.4	2.3	2.3	2.8	2.8	5.1	5.1	0.010	0.006	0.05	<	0.005	<	0.002
E262655	08/12/97 8:55	14.8	8.4	10	7.11	45	40	5	1.00	46	13.4							0.029	0.013	0.19	<	0.005	<	0.002
E262655	08/12/97 8:55			10	7.18	45	40	5	0.46	43	12.9							0.007	<	0.10	<	0.005	<	0.002
E262655	09/03/97 13:15	15.5	9.1	10	7.18	25	20	5	0.19	38	10.0							0.003	0.003	0.08	<	0.005	<	0.002
E262655	11/04/97 13:45	9.2	11.5	10	7.10	25	20	5	0.19	38	10.0							0.004	0.002	0.04	<	0.005	<	0.002
E262656	07/02/97 12:36	10.2	11.0	5	6.77	15	10	5	0.08	26	8.1	1.2	1.1	2.1	2.0	3.1	3.3	0.008	0.004	0.00	<	0.005	<	0.002
	<i>Rosander mean</i>	13.7	10.3	11	6.96	27	22	5	0.44	31	8.1	2.3	2.2	2.0	1.8	4.0	4.3	0.008	0.004	0.13	0.007	0.056	0.033	0.002
	<i>Rosander SD</i>	4.9	2.7	6	0.16	8	8	1	0.68	6	2.2	1.0	1.0	0.7	0.6	0.9	0.9							

EMS ID	DATE	Temp deg C	DO mg/L	True Color Rel U	pH Rel U	Res: Tot mg/L	Res: Filt mg/L	Res: NF mg/L	Turb NTU	SC uS/cm	T Hard mg/L	TOC mg/L	DOC mg/L	TIC mg/L	DIC mg/L	Tot C mg/L	C-T mg/L	P-T mg/L	P T Diss mg/L	Tot N mg/L	NH4 Diss mg/L	N03 + N02 mg/L	N N03 mg/L	N N02 mg/L
	WQ criteria	>15	8	15	5.5-8.5		100	10	1.00	100	80-100	2.0	2.0					0.010	0.005	0.20	0.005			0.020
CAYCUSE RIVER MONITORING GROUP																								
E26130	07/07/97 14:25	11.2	10.1	5	7.27	35	30	5	0.27	48	16.8	1.1	1.0	4.9	4.8	5.8	6.0	0.005	0.004	0.02	0.005		0.008	0.002
E26130	09/16/97 17:00	13.0	9.2	10	7.36			5	0.20	54	20.4							0.004	0.006	0.17	0.005	0.139	0.006	0.002
E26130	11/06/97 9:30	9.9	9.9	7	7.27			5	0.21	39	12.9							0.003	0.002	0.11	0.007	0.063	0.002	0.002
E26225	07/02/97 17:38	11.5	9.9	7	7.17	25	20		0.13	44	157.1	0.9	0.8	4.6	4.5	5.3	5.5	0.004	0.004	0.02	0.005	0.007	0.005	0.002
E26225	09/16/97 16:35	13.5	7.4	10	7.36			5	3.34	53	19.6							0.009	0.005	0.16	0.005	0.140		
E26225	11/06/97 9:15	10.1	9.2	5	7.29			5	0.31	38	12.9							0.004	0.003	0.12	0.006	0.061		
E26227	07/22/97 9:18	10.2	10.6	5	7.84	55	50	5	0.18	91	40.1	0.8	0.8	9.9	9.9	10.7	10.7	0.008	0.002	0.03	0.005	0.035	0.033	0.002
E26227	08/13/97 10:30	13.0	10.0	5	7.72			5	0.21	114	49.3							0.010	0.002	0.09	0.005	0.066		
E26227	09/16/97 9:40	11.0	11.4	7	7.73			5	0.76	94	39.6							0.004	0.004	0.28	0.005	0.256		
E26227	11/05/97 15:10	8.5	10.8	5	7.68			5	0.97	63	26.2							0.005	0.004	0.16	0.005	0.096		
E26228	07/21/97 15:57	11.8	11.6	5	7.89	65	60	5	0.18	104	46.2	1.2	1.1	10.9	10.9	12.0	12.1	0.006	0.004	0.03	0.005	0.018	0.016	0.002
E26228	08/13/97 11:00	14.0	9.3	50	7.95	75	70	5	0.16	131	59.8	0.8	0.8	14.3	14.3	15.1	15.1	0.008	0.003	0.08	0.005	0.062		
E26228	08/13/97 11:10			5	7.98	95	90	5	0.12	132	59.3	0.7	0.7	0.5	14.3	14.3	14.8	0.009	0.003	0.08	0.005	0.066		
E26228	08/13/97 11:20			5	8.00	95	90	5	0.22	132	59.3	0.7	0.7	0.5	14.3	14.3	14.8	0.010	0.003	0.08	0.005	0.067		
E26228	08/13/97 11:30			5	7.99	95	90	5	0.16	132	58.8	0.7	0.6	14.3	14.3	14.9	15.0	0.010	0.003	0.08	0.005	0.065		
E26228	09/15/97 16:22	14.0	9.5	7	8.04	85	80	5	0.24	112	50.1	1.7	1.1	11.3	11.3	12.4	13.0	0.004	0.005	0.23	0.005	0.201		
E26228	09/15/97 16:22																							
E26228	11/05/97 16:10	9.0	10.8	5	7.68	45	40	5	1.02	71	29.9	0.5	0.5	7.1	7.1	7.6	7.6	0.004	0.004	0.15	0.005	0.099		
E26231	07/21/97 13:53	13.0	10.0	5	7.79	45	40	5	0.26	72	31.2	0.9	0.9	7.4	7.4	8.3	8.3	0.004	0.003	0.02	0.005	0.011	0.009	0.002
E26231	08/11/97 16:55	17.8	7.7		7.91			5	0.12	89	38.6							0.016	0.008	0.13	0.005	0.030		
E26231	09/15/97 15:20	12.0	10.0	10	7.85			5	0.44	70	28.3							0.004	0.004	0.04	0.005	0.083		
E26231	11/24/97 15:10	6.9	11.9	7	7.41			5	1.64	44	17.7							0.006	0.002	0.05	0.005	0.071		
E26232	07/03/97 15:40	8.5	10.9	5	7.86	65	60	5	0.11	93	42.5	0.5	0.5	11	11.0	11.5	11.5	0.003	0.003	0.03	0.005	0.018	0.016	0.002
E26232	08/11/97 16:55	11.5	10.5	5	8.00			5	0.17	122	57.8							0.015	0.007	0.13	0.005	0.044		
E26232	09/15/97 14:20	9.5	11.4	5	8.07			5	0.20	107	47.4							0.005	0.004	0.14	0.005	0.112		
E26234	11/24/97 15:40	4.9	12.4	5	7.77			5	0.29	89	29.9							0.003	0.002	0.19	0.005	0.057		
E26234	07/03/97 1:40	11.0	10.1	5	7.67	55	50	5	0.36	86		0.6	0.5	9.8	9.6	10.1	10.4	0.005	0.005	0.34	0.005	0.367	0.365	0.002
E26234	07/03/97 1:50			5	7.87	55	50	5	0.22	86	37.3	0.5	0.5	9.8	9.6	10.1	10.3	0.004	0.003	0.03	0.005	0.014	0.012	0.002
E26234	07/03/97 2:00			5	7.86	65	60	5	0.16	87	39.2	0.5	0.5	9.8	9.6	10.1	10.3	0.004	0.003	0.03	0.005	0.014	0.012	0.002
E26234	07/03/97 2:10			5	7.87	65	60	5	0.21	87	38.9	0.5	0.5	9.8	9.7	10.2	10.3	0.005	0.004	0.03	0.005	0.014	0.012	0.002
E26234	08/11/97 15:10	14.5	10.7	5	7.89			5	0.14	104	48.0							0.020	0.008	0.13	0.005	0.027		
E26234	09/16/97 11:00	10.5	10.7	10	7.92			5	0.35	86	38.7							0.005	0.002	0.11	0.005	0.047		
E26234	11/24/97 14:30	5.8	12.4	7	7.63			5	1.20	59	26.0							0.004	0.003	0.02	0.005	0.033		
E26235	07/03/97 12:25	16.0	10.2	5	7.03	15	10	5	0.50	34	14.2	1.3	1.1	1.9	1.9	3.0	3.2	0.005	0.003	0.04	0.005	0.011	0.009	0.002
E26235	08/11/97 14:45	16.5	8.4	5	7.37			5	0.50	34	14.2							0.016	0.007	0.16	0.005	0.067		
E26235	09/16/97 12:15	12.0	10.7	7	7.29			5	1.68	32	11.0							0.010	0.004	0.12	0.005	0.071		
E26235	11/24/97 14:15	6.8	12.2	7	7.01			5	2.86	24	7.1							0.007	0.002	0.11	0.005	0.069		
E26236	07/03/97 11:25	16.0	8.1	5	6.56	25	20	5	1.50	18	5.1	1.6	1.5	1.6	1.4	2.9	3.2	0.004	0.002	0.06	0.005	0.002		0.002
E26236	08/11/97 13:59	24.0	5.5	5	6.57			5	0.40	20	5.0							0.009	0.004	0.18	0.005	0.003		
E26236	09/16/97 1:30	16.2	8.8	5	6.64			5	0.22	20	4.7							0.003	0.002	0.05	0.005	0.002		
E26236	11/24/97 13:50	7.1	12.1	5	6.43			5	0.43	21	5.9							0.003	0.004	0.02	0.005	0.030		
E26237	07/03/97 9:32	9.5	10.0	5	6.51	15	10	5	0.62	25	7.2	0.9	0.9	2.8	2.5	3.4	3.7	0.003	0.002	0.03	0.005	0.010	0.008	0.002
E26237	07/23/97 10:54	12.0	8.0	5	6.70	25	20	5	0.12	26	7.1	0.6	0.6	3.1	2.3	2.9	3.7	0.005	0.002	0.02	0.005	0.013	0.011	0.002
E26237	09/16/97 14:24	12.5	7.9	5	6.68	25	20	5	0.26	27	7.0	1.3	1.0	3	3.0	4.0	4.3	0.004	0.002	0.06	0.005	0.009		
E26237	11/06/97 11:50	10.0	9.3	7	6.32	15	10	5	0.19	25	6.4	1.6	1.5	2.5	2.5	4.0	4.1	0.004	0.002	0.09	0.005	0.036		
E26237	Caycuse mean	11.3	10.0	6	7.39	43	38	5	0.58	30	24.6	0.9	0.8	6.5	6.4	7.2	7.4	0.006	0.004	0.10	0.005	0.054	0.050	0.002
	Caycuse SD	4.3	1.7	1	0.59	23	23	0	0.4	3.8	17.1	0.5	0.4	3.8	3.8	3.6	3.6	0.005	0.002	0.08	0.000	0.074	0.118	0.000
GORDON RIVER MONITORING GROUP																								
E26238	07/16/97 16:03	11.0	11.2	5	7.62	45	40	5	0.51	60	24.6	0.5	0.5	5.8	5.7	6.2	6.3	0.004	0.004	0.05	0.005	0.059	0.057	0.002
E26238	08/18/97 15:06	15.0	9.0	5	7.80			5	0.14	74	28.7							0.004	0.003	0.07	0.005	0.058		
E26238	09/08/97 12:30	10.5	10.8	5	7.62			5	0.36	74	31.2							0.003	0.002	0.16	0.005	0.132		
E26238	11/24/97 12:10	6.5	11.8	5	7.35			5	0.86	46	18.5							0.009	0.003	0.17	0.005	0.181		
E26239	07/16/97 16:55	10.8	10.6	5	7.59	35	30	5	0.23	58	23.7	0.5	0.5	5.7	5.6	6.1	6.2	0.005	0.004	0.06	0.005	0.063	0.061	0.002
E26239	08/18/97 14:28	15.0	10.0	5	7.73			5	0.18	70	27.8							0.005	0.003	0.07	0.005	0.057		
E26239	09/08/97 12:00	10.5	9.0	5	7.61			5	0.41	70	28.3							0.003	0.002	0.17	0.005	0.141		

EMS ID	DATE	Temp deg C	DO mg/L	True Color Rel U	pH Rel U	Res: Tot mg/L	Res: Filt mg/L	Res: NF mg/L	Turb NTU	SC uS/cm	T Hard mg/L	TOC mg/L	DOC mg/L	TIC mg/L	DIC mg/L	Tot C mg/L	C-T mg/L	P-T mg/L	P T Diss mg/L	Tot N mg/L	NH4 Diss mg/L	N03 + N02 mg/L	N-N03 mg/L	N-N02 mg/L
	WQ criteria	>15	8	15	6.5-8.5		100	10	5	4.53	45	18-100	2.0	2.0				0.010	0.005	0.20	0.005	0.200	10	0.020
E262639	11/24/97 11:55	6.5	12.1	5	7.25	<	<	5	4.53	45	18.7	1.3	1.3	6.5	6.5	7.8	7.8	0.009	0.003	0.18	<	0.189	<	<
E262640	07/09/97 14:58	9.0	11.2	5	7.64	<	45	40	5	0.57	62	25.2	0.6	0.5	10.7	10.6	11.1	0.009	0.003	0.09	<	0.005	<	0.002
E262640	08/13/97 16:23	15.0	10.0	5	7.93	<	75	70	5	0.12	100	44.1	0.6	0.5	9.6	9.5	10.1	0.010	<	0.05	<	0.005	<	<
E262640	09/08/97 13:00	12.0	10.1	5	7.85	<	65	60	5	0.20	96	41.9	0.5	0.5	9.6	9.5	10.0	0.003	<	0.10	<	0.005	<	<
E262640	09/08/97 13:10			5	7.87	<	85	60	5	0.14	95	41.4	0.5	0.5	9.5	9.4	10.0	0.003	<	0.09	<	0.005	<	<
E262640	09/08/97 13:20			5	7.86	<	85	60	5	0.26	95	41.8	0.5	0.5	9.5	9.4	9.9	0.003	<	0.09	<	0.005	<	<
E262640	09/08/97 13:30			5	7.86	<	65	60	5	0.14	94	41.2	0.5	0.5	9.4	9.4	9.9	0.003	<	0.09	<	0.005	<	<
E262640	09/08/97 13:40	6.0	12.2	5	7.55	<	45	40	5	0.98	61	26.4	0.8	0.6	6.3	6.2	6.8	0.003	0.004	0.13	<	0.116	<	<
E262641	07/09/97 13:46	9.0	11.3	5	7.62	<	55	50	5	1.10	62	25.2	1.6	1.6	6.5	6.5	8.1	0.008	0.003	0.09	<	0.057	<	0.002
E262641	08/13/97 15:24	19.2	8.9	5	7.93	<	65	60	5	0.13	100	44.0	0.5	0.5	10.7	10.6	11.1	0.008	<	0.03	<	0.005	<	<
E262641	09/08/97 15:30	16.0	9.8	5	7.89	<	55	50	5	0.16	94	42.4	0.5	0.5	9.4	9.4	9.9	0.003	<	0.08	<	0.005	<	<
E262641	11/25/97 9:50	6.0	12.3	5	7.56	<	40	<	5	1.60	62	26.7	0.7	0.7	6.2	6.1	6.8	0.004	0.003	0.09	<	0.103	<	<
E262642	07/09/97 0:00			10	7.36	<	25	20	5	0.89	34	12.4	2.5	2.5	3.1	3.1	5.6	0.011	<	0.07	<	0.005	<	0.002
E262642	06/13/97 14:15	17.0	9.5	<	5	7.74	<	<	5	0.11	62	24.9						0.010	<	0.05	<	0.040	<	<
E262642	09/08/97 16:20	14.0	9.6	5	7.64	<	<	<	5	0.18	56	23.3						0.003	<	0.09	<	0.005	<	<
E262642	11/25/97 11:40	6.5	12.2	5	7.39	<	<	5	0.67	37	14.5							0.003	0.003	0.08	<	0.005	<	<
E262644	07/09/97 10:35	9.8	11.4	10	7.44	<	35	30	5	2.20	45	18.5	2.5	2.4	4.5	4.5	6.9	0.007	0.003	0.10	<	0.005	<	0.002
E262644	08/18/97 16:23	18.0	9.8	5	7.89	<	55	50	5	0.39	82	33.8	0.5	0.5	8.1	7.9	8.4	0.004	0.003	0.05	<	0.043	<	<
E262644	09/09/97 8:50	14.5	10.4	5	7.75	<	50	50	5	0.30	75	30.8	0.6	0.6	7.2	7.2	7.8	0.003	<	0.09	<	0.005	<	<
E262644	11/25/97 12:30	6.7	12.3	5	7.52	<	35	30	5	1.50	51	20.2	1.7	1.7	5.4	5.4		0.002	0.002	0.17	<	0.009	<	<
E262646	07/09/97 9:05	11.0	10.8	10	6.86	<	15	<	5	0.27	20	4.1	3.5	3.4	0.8	0.8	4.2	0.005	0.004	0.08	<	0.005	<	0.002
E262646	11/25/97 14:50	8.2	11.2	7	6.90	<	25	20	5	0.13	26	5.3	2.1	2.1	1	1	3.1	0.002	0.006	0.06	<	0.042	<	<
Gordon mean	11.3	10.7	6	7.61	49	44	5	0.77	66	21.2	1.4	1.1	6.8	6.7	7.9	8.2	2.9	0.005	0.003	0.09	0.005	0.100	0.048	0.002
Gordon SD	4.0	1.1	2	0.28	16	16	0	1.09	23	11.0	1.3	0.9	2.9	2.9	2.3	2.3	2.9	0.003	0.001	0.04	0.001	0.154	0.015	0.000
SAN JUAN RIVER MONITORING GROUP																								
E2626190	07/08/97 9:20	11.0	11.4	140	6.51	45	30	15	4.50	18	6.1	14.6	14.4	0.6	0.6	15.0	15.2	0.029	0.009	0.18	<	0.005	<	0.002
E2626190	08/18/97 17:44	14.5	9.6	7	7.48	<	35	30	5	0.18	49	14.4	1.2	0.9	3.6	3.5	4.4	0.008	0.006	0.07	<	0.005	<	<
E2626190	09/10/97 9:37	12.5	10.5	7	7.44	<	45	40	5	0.20	50	15.7	1.6	1.6	3.7	3.6	5.2	0.007	0.005	0.09	<	0.005	<	<
E2626190	11/27/97 12:15	7.1	11.2	60	6.66	<	35	30	5	1.25	24	5.7	8.3	8.1	0.8	0.8	8.9	0.007	0.008	0.09	<	0.008	<	<
E2626408	07/08/97 12:06	9.5	13.8	25	7.00	38	30	8	3.90	22	7.8	4.5	4.5	1.6	1.6	6.1	6.1	0.017	0.006	0.07	<	0.005	<	0.002
E2626408	11/25/97 15:40	6.9	11.8	5	7.22	<	35	30	5	0.12	37	12.7	1.3	1.2	2.7	2.7	3.9	0.002	0.004	0.02	<	0.005	<	<
E2626408	11/25/97 15:50			5	7.23	<	35	30	5	0.14	37	12.7	1.1	1.1	2.7	2.7	3.8	0.002	0.005	0.02	<	0.005	<	<
E2626408	11/25/97 16:00			5	7.25	<	25	20	5	0.12	37	12.2	1.1	1.1	2.7	2.7	3.8	0.006	0.005	0.09	<	0.005	<	<
E2626408	11/25/97 16:10			5	7.28	<	25	20	5	0.18	38	12.7	1.1	1.2	2.5	2.5	3.7	0.009	0.004	0.05	<	0.005	<	<
E2626410	07/08/97 8:15	11.2	11.2	90	6.68	<	35	30	5	1.60	21	6.6	12.7	12.6	0.8	0.8	13.4	0.013	0.009	0.21	<	0.005	<	0.002
E2626410	08/18/97 16:35	13.8	10.0	7	7.55	<	55	50	5	1.12	59	19.8	0.9	0.7	4.4	4.3	5.0	0.014	0.009	0.12	<	0.005	<	<
E2626410	09/10/97 10:55	13.0	9.8	7	7.40	<	55	50	5	0.55	58	18.8	1.6	1.6	4.3	4.2	5.8	0.005	0.002	0.14	<	0.005	<	<
E2626410	11/27/97 12:55	7.2	11.2	45	6.82	<	35	30	5	1.36	28	7.4	6.6	6.6	1.2	1.2	7.8	0.005	0.007	0.16	<	0.005	<	<
E2626548	07/08/97 13:02	10.0	11.3	40	7.17	43	30	13	3.50	24	10.9	6.5	6.4	2	2.0	8.4	8.5	0.024	0.005	0.10	<	0.005	<	0.002
E2626548	08/19/97 14:02	16.0	9.3	5	7.48	<	45	40	5	0.08	62	0.5	0.5	4.7	4.5	5.0	5.2	0.010	0.008	0.15	<	0.006	<	<
E2626548	09/10/97 12:30	14.0	9.8	5	7.56	<	45	40	5	0.34	58	20.6	0.7	0.7	4.8	4.7	5.4	0.004	0.003	0.11	<	0.005	<	<
E2626548	11/27/97 11:00	7.0	11.4	25	7.14	<	35	30	5	1.43	26	8.6	3.6	3.6	1.8	1.7	5.3	0.005	0.003	0.06	<	0.005	<	<
E2626549	07/15/97 9:03	12.2	9.8	<	5	7.63	<	55	50	5	0.13	78	37.3	0.8	0.8	8.6	9.4	0.003	0.003	0.03	<	0.005	<	0.002
E2626549	08/19/97 19:00	16.0	8.9	<	5	7.57	<	<	5	0.09	84	36.9						0.007	0.006	0.07	<	0.005	<	<
E2626549	09/10/97 13:21	15.0	10.8	<	5	7.41	<	<	5	0.14	79	32.4						0.003	<	0.09	<	0.005	<	<
E2626549	11/26/97 16:25	7.1	10.4	5	7.41			<	5	0.39	66	26.8						0.004	0.004	0.12	<	0.005	<	<
E2626550	07/14/97 12:45	13.0	9.0	10	6.95	<	45	40	5	0.39	44	16.5	1.9	1.8	5.3	4.7	6.5	0.009	0.009	0.14	<	0.005	<	0.002
E2626550	08/19/97 11:33	9.1	7.4	5	6.98	<	<	5	0.16	73	28.2							0.006	0.004	0.20	<	0.005	<	<
E2626550	09/09/97 12:10	10.0	7.4	<	5	6.80	<	<	5	0.36	75							0.005	0.002	0.19	<	0.005	<	<
E262655																								

EMS ID	DATE	Temp deg C	DO mg/L	True Color Rel U	pH Rel U	Res: Tot mg/L	Res: Filt mg/L	Res: NF mg/L	Turb NTU	SC uS/cm	T Hard mg/L	TOC mg/L	DOC mg/L	TIC mg/L	DIC mg/L	Tot C mg/L	C-T mg/L	P-T mg/L	P T Diss mg/L	Tot N mg/L	NH4 Diss mg/L	N03 + N02 mg/L	N-N03 mg/L	N-N02 mg/L
E226552	WQ criteria	>15	8	15	6.5-8.5		100	10	1.00	100	80-100	2.0	2.0					0.010	0.005	0.20	0.005	0.200	10	0.020
E226552	07/12/97 14:05	6.5	11.6	5	7.55	<	<	5	0.89	55	21.4							0.003	0.007	0.08	<	0.095		
E226553	07/14/97 16:36			<	7.65	45	40	5	0.22	59	24.0	1.2	1.0	6	5.9	6.9	7.2	0.003	0.003	0.07	<	0.005	0.051	<
E226553	08/19/97 13:27	16.5	9.9	<	7.56			<	5	0.23	64							0.005	0.003	0.11	<	0.005	0.105	
E226553	09/10/97 13:45	14.0	10.8	<	7.55			<	5	0.40	68	27.3						0.003	<	0.08	<	0.005	0.059	
E226553	11/26/97 14:40	6.8	11.2	5	7.50			<	5	0.78	52	19.5						0.002	0.007	0.09	<	0.005	0.085	
E226554	07/15/97 10:35	14.0	9.6	<	7.46	45	40	5	0.17	50	19.3	1.6	1.4	4.8	4.7	6.1	6.4	0.007	0.007	0.04	<	0.005	0.019	<
E226554	08/19/97 17:17	18.5	8.8	<	7.62			<	5	0.08	80	31.6						0.010	0.009	0.08	<	0.005	0.044	
E226554	09/10/97 14:55	15.5	9.8	<	7.62			<	5	0.11	83	31.6						0.004	0.002	0.08	<	0.005	0.042	
E226554	11/26/97 15:00	6.2	11.4	10	7.34			<	5	0.83	41	14.7						0.004	0.007	0.05	<	0.005	0.045	
E226556	07/15/97 12:22	10.9	10.7	<	7.23	25	20	5	0.14	30	8.6	1.8	1.6	2.3	2.3	3.9	4.1	0.009	0.009	0.06	<	0.005	0.038	<
E226556	08/19/97 16:35	13.5	10.5	7	7.45			<	5	0.16	47	14.1						0.018	0.016	0.10	<	0.005	0.056	
E226556	09/10/97 14:23	14.0	9.9	<	7.51			<	5	0.22	51	16.2						0.008	0.005	0.09	<	0.005	0.046	
E226556	11/26/97 15:20	5.8	11.8	7	7.08			<	5	0.53	27	6.2						0.005	0.008	0.10	0.012	0.069		
E226560	07/16/97 12:00	12.0	10.8	<	7.71	45	40	5	0.14	69	29.1	1.4	1.2	7.3	7.2	8.4	8.7	0.007	0.007	0.02	<	0.005	0.007	<
E226560	07/16/97 12:10			<	7.72	55	50	5	0.14	68	28.6	1.5	1.3	7.2	7.2	8.5	8.7	0.007	0.007	0.02	<	0.005	0.007	<
E226560	07/16/97 12:20			<	7.73	45	40	5	0.15	69	29.1	1.4	1.4	7.2	7.1	8.5	8.6	0.008	0.006	0.02	<	0.005	0.014	<
E226560	07/16/97 12:30			<	7.75	55	50	5	0.15	68	28.3	1.4	1.4	7.2	7.1	8.5	8.6	0.007	0.008	0.02	<	0.005	0.007	<
E226560	08/19/97 9:31	13.1	10.4	<	7.90			<	5	0.09	91							0.008	0.006	0.03	<	0.005	0.029	
E226560	09/09/97 11:00	12.0	10.4	<	7.70			<	5	0.16	92	39.7						0.006	0.004	0.06	<	0.005	0.028	
E226560	11/26/97 10:40	5.8	12.5	7	7.46			<	5	0.65	52	19.4						0.006	0.008	0.03	<	0.005	0.037	
E226561	07/16/97 14:05	13.8	10.2	<	7.36	35	30	5	0.19	35	12.6	2.1	2.1	3.3	3.1	5.2	5.4	0.005	0.005	0.03	<	0.005	0.004	<
E226561	08/19/97 10:34	13.5	10.2	5	7.50	35	30	5	0.11	47		0.9	0.6	3.8	3.6	4.2	4.7	0.004	0.003	0.09	<	0.005	0.084	
E226561	09/09/97 11:35	12.5	9.9	<	7.44	35	30	5	0.09	47	17.1							0.003	<	0.02	0.11	<	0.005	0.059
E226561	11/26/97 11:30	5.3	12.0	10	7.00	35	30	5	0.28	28	9.1	3.1	3.1	2	1.9	5.0	5.1	<	0.002	0.006	<	0.005	0.007	
E226561	San Juan mean	11.6	10.5	6	7.53	42	37	5	0.28	59	22.2	1.6	1.5	5.2	5.1	6.6	6.8	0.006	0.006	0.07	0.005	0.050	0.021	0.002
	San Juan SD	3.9	0.9	1	0.21	9	9	0	0.22	18	8.5	0.6	0.7	2.1	2.1	1.8	1.8	0.003	0.003	0.04	0.001	0.033	0.021	0.000
	study area mean	12.0	10.2	10	7.33	42	35	6	1.46	52	20.9	2.2	2.0	4.8	4.7	6.7	7.0	0.008	0.004	0.12	0.006	0.069	0.043	0.002
	study area SD	3.7	1.4	12	0.39	16	15	7	4.78	25	15.3	2.0	1.9	3.1	3.1	2.9	3.0	0.072	0.002	0.08	0.005	0.075	0.043	0.000

EMS ID	DATE	AL-T mg/L	As-T mg/L	Ca-T mg/L	Cd-T mg/L	Cr-T mg/L	Cu-T mg/L	Fe-T mg/L	K-T mg/L	Mg-T mg/L	Mn-T mg/L	Na-T mg/L	Ni-T mg/L	Pb-T mg/L	S-T mg/L	Si-T mg/L	Zn-T mg/L	Fecals CFU/100mL	Giardia Cysts/100 mL	Crypto 0
KLANAWA RIVER MONITORING GROUP																				
E226191	05/26/97 10:20	< 0.06	< 0.06	4.3	< 0.006	0.013	< 0.006	0.007	< 0.1	0.6	0.002	3.2	< 0.02	< 0.06	1.19	2.43	< 0.002	<	2	0
E226191	07/29/97 10:00	< 0.06	< 0.06	4.6	< 0.006	0.010	< 0.006	0.010	0.2	0.6	< 0.001	2.1	< 0.02	< 0.06	1.10	2.48	< 0.002	<	1	
E226191	08/20/97 11:42	< 0.06	< 0.06	5.1	< 0.006	0.008	< 0.006	0.031	0.4	0.7	< 0.001	2.0	< 0.02	< 0.06	1.46	2.64	0.008			
E226191	10/29/97 9:45	0.25	< 0.06	2.1	< 0.006	< 0.006	< 0.006	0.122	0.3	0.4	0.006	1.6	< 0.02	< 0.06	0.46	1.43	< 0.002	2	0	0
E226192	05/27/97 13:45	0.06	< 0.06	5.3	< 0.006	0.013	< 0.006	0.066	0.2	0.8	< 0.001	2.2	< 0.02	< 0.06	0.92	3.26	< 0.002	<	1	
E226192	07/29/97 9:30	< 0.06	< 0.06	5.9	< 0.006	0.008	< 0.006	< 0.006	0.2	0.8	< 0.001	2.4	< 0.02	< 0.06	0.86	3.15	< 0.002	<	1	
E226192	08/20/97 11:33	< 0.06	< 0.06	5.6	< 0.006	< 0.006	< 0.006	< 0.006	0.4	0.9	0.002	2.3	< 0.02	< 0.06	0.98	3.42	0.014			
E226192	10/29/97 9:30	0.33	< 0.06	3.1	< 0.006	< 0.006	< 0.006	0.193	0.2	0.6	0.005	2.0	< 0.02	< 0.06	0.50	2.23	< 0.002	6		
E226193	05/26/97 13:25	< 0.06	< 0.06	3.8	< 0.006	< 0.006	< 0.006	0.008	0.1	0.5	< 0.001	2.9	< 0.02	< 0.06	0.81	2.47	< 0.002	42	0	0
E226193	07/29/97 10:37	< 0.06	< 0.06	4.1	< 0.006	< 0.006	< 0.006	0.007	< 0.1	0.5	< 0.001	2.1	< 0.02	< 0.06	0.78	2.61	< 0.002	<	1	0
E226193	08/20/97 12:25	< 0.06	< 0.06	4.5	< 0.006	0.007	< 0.006	0.010	0.3	0.7	< 0.001	2.1	< 0.02	< 0.06	0.91	2.89	0.006	1	0	0
E226193	10/29/97 10:30	0.59	< 0.06	2.3	< 0.006	< 0.006	< 0.006	0.338	0.3	0.5	0.012	1.7	< 0.02	< 0.06	0.44	2.14	0.003	20	9.35	0
E226194	06/04/97 9:22	0.15	< 0.06	1.4	< 0.006	0.012	< 0.006	0.074	< 0.1	0.3	0.004	1.5	< 0.02	< 0.06	0.35	1.32	0.010	5	0	0
E226194	07/29/97 13:30	< 0.06	< 0.06	2.6	< 0.006	0.017	< 0.006	0.063	< 0.1	0.5	0.004	1.7	< 0.02	< 0.06	0.41	1.85	0.003	1		
E226194	08/20/97 15:09	< 0.06	< 0.06	2.9	< 0.006	< 0.006	< 0.006	0.103	0.2	0.6	0.004	1.6	< 0.02	< 0.06	0.42	1.63	0.005	80		
E226194	10/26/97 15:10	0.14	< 0.06	1.6	< 0.006	< 0.006	< 0.006	0.081	0.2	0.4	0.001	1.5	< 0.02	< 0.06	0.35	1.41	0.003	6		
E226196	06/04/97 11:34	0.16	< 0.06	1.2	< 0.006	0.016	< 0.006	0.065	0.1	0.2	0.002	1.2	< 0.02	< 0.06	0.31	1.14	< 0.002	<	1	0
E226196	10/29/97 15:35	0.23	< 0.06	1.4	< 0.006	0.007	< 0.006	0.070	0.3	0.3	0.003	1.3	< 0.02	< 0.06	0.36	1.27	< 0.002	<	1	
E226197	06/03/97 13:20	0.10	< 0.06	1.7	< 0.006	< 0.006	< 0.006	0.023	0.2	0.3	0.002	1.6	< 0.02	< 0.06	0.41	1.25	0.008	8	0	0
E226197	06/03/97 13:45	0.10	< 0.06	1.6	< 0.006	< 0.006	< 0.006	0.029	0.2	0.2	0.003	1.6	< 0.02	< 0.06	0.41	1.23	0.011	2		
E226197	06/03/97 14:00	0.16	< 0.06	1.6	< 0.006	< 0.006	< 0.006	0.028	0.2	0.3	0.003	1.6	< 0.02	< 0.06	0.42	1.23	0.012	10		
E226197	06/03/97 14:15	0.16	< 0.06	1.6	< 0.006	< 0.006	< 0.006	0.029	0.2	0.3	0.004	1.6	< 0.02	< 0.06	0.42	1.22	0.027	14		
E226197	07/29/97 11:45	< 0.06	< 0.06	3.2	< 0.006	< 0.006	< 0.006	0.060	0.2	0.5	0.010	1.8	< 0.02	< 0.06	0.83	1.93	< 0.002	<	1	0
E226197	08/20/97 13:44	< 0.06	< 0.06	4.0	< 0.006	< 0.006	< 0.006	0.110	0.5	0.6	0.039	1.8	< 0.02	< 0.06	1.10	2.16	< 0.002	1	0	0
E226197	10/29/97 10:45	0.27	< 0.06	1.4	< 0.006	< 0.006	< 0.006	0.168	0.3	0.3	0.004	1.5	< 0.02	< 0.06	0.35	1.1	0.003	2	0	0
E226198	06/03/97 10:50	< 0.06	< 0.06	2.0	< 0.006	0.009	< 0.006	< 0.006	< 0.1	0.2	0.002	1.5	< 0.02	< 0.06	0.57	1.51	0.007	8	0	0
E226198	07/29/97 12:39	< 0.06	< 0.06	2.5	< 0.006	0.013	< 0.006	< 0.006	< 0.1	0.4	< 0.001	1.5	< 0.02	< 0.06	0.56	1.93	0.003	<	1	
E226198	08/20/97 14:30	< 0.06	< 0.06	2.7	< 0.006	< 0.006	< 0.006	0.015	0.3	0.4	0.001	1.5	< 0.02	< 0.06	0.61	2.15	< 0.002	11		
E226198	10/29/97 14:30	0.12	< 0.06	1.8	< 0.006	0.013	< 0.006	0.032	0.2	0.3	0.004	1.4	< 0.02	< 0.06	0.45	1.37	< 0.002	<	1	
Klanawa mean		0.13	0.06	3.0	0.006	0.008	0.006	0.059	0.2	0.5	0.004	1.8	0.02	0.06	0.65	1.96	0.005	8.5	0.7	0.0
Klanawa SD		0.12	0.00	7.5	0.000	0.003	0.001	0.074	0.1	0.2	0.007	0.5	0.00	0.00	0.37	0.70	0.005	16.7	2.6	0.0
LITTLE NITINAT RIVER MONITORING GROUP																				
E226199	06/04/97 13:11	< 0.06	< 0.06	3.9	< 0.006	< 0.006	< 0.006	0.034	< 0.1	0.3	0.004	1.4	< 0.02	< 0.06	0.47	1.21	0.039	<	1	
E226199	07/26/97 16:37	< 0.06	< 0.06	4.6	< 0.006	0.008	< 0.006	0.070	< 0.1	0.4	0.005	1.3	< 0.02	< 0.06	0.43	1.4	< 0.002	<	1	0
E226199	08/26/97 9:05	< 0.06	< 0.06	4.7	< 0.006	0.020	0.007	0.036	0.6	0.5	0.006	1.0	< 0.02	< 0.06	0.41	1.3	0.003	6	0	0
E226199	08/26/97 9:15	< 0.06	< 0.06	4.7	< 0.006	0.020	< 0.006	0.064	0.3	0.4	0.005	1.3	< 0.02	< 0.06	0.42	1.27	< 0.002	11		
E226199	08/26/97 9:20	< 0.06	< 0.06	4.7	< 0.006	0.010	0.009	0.081	0.5	0.6	0.008	1.2	< 0.02	< 0.06	0.45	1.37	< 0.002	3		
E226199	08/26/97 9:30	< 0.06	< 0.06	4.6	< 0.006	< 0.006	< 0.006	0.053	0.3	0.4	0.004	1.3	< 0.02	< 0.06	0.41	1.25	0.002	7		
E226199	10/29/97 16:15	< 0.06	< 0.06	4.8	< 0.006	< 0.006	< 0.006	0.055	0.2	0.5	0.016	1.4	< 0.02	< 0.06	0.49	1.5	< 0.002	<	1	0
E226201	06/05/97 12:10	< 0.06	< 0.06	5.4	< 0.006	0.014	< 0.006	0.073	0.1	0.5	0.005	1.3	< 0.02	< 0.06	0.41	1.76	0.010	3		
E226201	07/22/97 12:31	< 0.06	< 0.06	6.2	< 0.006	0.017	< 0.006	0.044	< 0.1	0.7	0.003	1.2	< 0.02	< 0.06	0.37	1.89	0.003	<	1	0
E226201	08/26/97 12:36	< 0.06	< 0.06	6.4	< 0.006	0.008	< 0.006	0.038	0.8	0.7	0.003	1.3	< 0.02	< 0.06	0.44	1.91	0.005	<	1	0
E226201	10/26/97 11:05	< 0.06	< 0.06	6.4	< 0.006	0.008	< 0.006	0.048	0.2	0.6	0.001	1.4	< 0.02	< 0.06	0.39	2.03	0.005	<	1	0
E226202	06/04/97 14:45	< 0.06	< 0.06	4.5	< 0.006	0.018	< 0.006	0.034	< 0.1	0.4	0.004	1.0	< 0.02	< 0.06	0.30	1.3	0.014	<	1	
E226202	07/26/97 14:19	< 0.06	< 0.06	5.7	< 0.006	0.024	< 0.006	0.043	< 0.1	0.5	0.004	1.0	< 0.02	< 0.06	0.34	1.52	0.004	<	1	0
E226202	08/26/97 13:25	< 0.06	< 0.06	5.5	< 0.006	< 0.006	0.009	0.076	0.2	0.5	0.007	1.0	< 0.02	< 0.06	0.35	1.57	0.003	<	1	0
E226202	10/26/97 12:05	< 0.06	< 0.06	4.9	< 0.006	0.025	< 0.006	0.049	0.2	0.5	0.005	1.2	< 0.02	< 0.06	0.34	1.51	0.002	<	1	0
E226203	06/05/97 11:15	< 0.06	< 0.06	3.1	< 0.006	0.009	< 0.006	0.006	0.1	0.2	0.002	0.9	< 0.02	< 0.06	0.28	1.1	< 0.002	3		
E226203	07/22/97 13:18	< 0.06	< 0.06	5.5	< 0.006	0.014	< 0.006	0.020	< 0.1	0.4	0.003	1.3	< 0.02	< 0.06	0.45	1.6	< 0.002	2	0	0
E226203	08/26/97 14:10	< 0.0																		

EMS ID	DATE	AL-T	As-T	Ca-T	Cd-T	Cr-T	Cu-T	Fe-T	K-T	Mg-T	Mn-T	Na-T	Ni-T	Pb-T	S-T	Si-T	Zn-T	Fecals	Giardia Crypto
	WG criteria	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	CFU/100mL	cysts/100 mL
E26206	06/05/97 8:52	0.10 <	0.06 <	4.0 <	0.006 <	0.006 <	0.007	0.120 <	0.1 <	0.3 <	0.001	1.0 <	0.02 <	0.06 <	0.43	1.44	0.005	17	0
E26206	07/23/97 8:48	0.24 <	0.06 <	6.0 <	0.006 <	0.037	0.010	0.095	0.3 <	0.6 <	0.003	1.3 <	0.02 <	0.06 <	0.72	2.19	0.004	6	0
E26206	08/26/97 10:54	0.08 <	0.06 <	4.6 <	0.006 <	0.006	0.006	0.072	0.7 <	0.5 <	0.003	1.0 <	0.02 <	0.06 <	0.46	1.57 <	0.002	45	0
E26206	10/28/97 13:10	0.35 <	0.06 <	4.9 <	0.006 <	0.006	0.006	0.226	0.3 <	0.5 <	0.006	1.4 <	0.02 <	0.06 <	0.61	2.06	0.003	1	0
E26207	06/16/97 17:35	0.22 <	0.06 <	6.7 <	0.006 <	0.006 <	0.006	0.215	0.2 <	0.7 <	0.009	1.3 <	0.02 <	0.06 <	0.67	1.92 <	0.002	260	0
E26207	07/29/97 16:10 <	0.06 <	0.06 <	8.1 <	0.006 <	0.006	0.006	0.016	0.3 <	0.6 <	0.003	1.6 <	0.02 <	0.06 <	0.80	1.85 <	0.002 <	1	2.94
E26207	08/13/97 8:55																		1
E26207	08/13/97 9:00																		2
E26207	08/27/97 9:10	0.15 <	0.06 <	4.8 <	0.006 <	0.006 <	0.006	0.153	0.3 <	0.4 <	0.002	1.0 <	0.02 <	0.06 <	0.43	1.59	0.005 <	1	2.11
E26207	08/27/97 9:10																		17
E26207	08/27/97 9:20																		5
E26207	08/27/97 9:20																		0
E26207	10/26/97 14:10	0.10 <	0.06 <	5.8 <	0.006 <	0.006 <	0.006	0.110	0.3 <	0.5 <	0.005	1.6 <	0.02 <	0.06 <	0.65	1.76	0.002	9	0
E26207	Little Nitinat mean	0.09	0.06	5.3	0.006	0.071	0.006	0.066	0.3	0.5	0.004	1.2	0.02	0.06	0.45	1.62	0.004	13.8	0.4
E26207	Little Nitinat SD	0.07	0.00	1.0	0.000	0.003	0.001	0.053	0.2	0.1	0.003	0.2	0.00	0.00	0.14	0.27	0.003	48.1	0.3
E26207																			3.8
NITINAT RIVER MONITORING GROUP																			
E26208	06/23/97 14:43	0.23 <	0.06 <	9.7 <	0.006 <	0.006	0.006	0.030	0.1 <	0.7 <	0.002 <	0.1 <	0.02 <	0.06 <	0.32	1.34 <	0.002	10	0
E26208	07/30/97 15:30 <	0.06 <	0.06 <	14.7 <	0.006 <	0.006	0.006	0.021	0.1 <	1.0	0.002	1.0 <	0.02 <	0.06 <	0.56	1.72 <	0.002	11	0
E26208	07/30/97 15:40 <	0.06 <	0.06 <	14.8 <	0.006	0.019 <	0.006	0.019	0.1 <	1.0	0.001	0.9 <	0.02 <	0.06 <	0.55	1.76 <	0.002	17	0
E26208	07/30/97 15:50 <	0.06 <	0.06 <	15.4 <	0.006 <	0.006 <	0.006	0.006	0.1 <	1.0	0.001	1.0 <	0.02 <	0.06 <	0.59	1.77 <	0.002	12	0
E26208	07/30/97 16:00 <	0.06 <	0.06 <	14.9 <	0.006	0.009 <	0.006	0.006	0.1 <	1.0	0.003	0.9 <	0.02 <	0.06 <	0.60	1.73 <	0.002	13	0
E26208	09/02/97 13:25 <	0.06 <	0.06 <	13.9 <	0.006 <	0.006 <	0.006	0.018	0.1 <	1.0	0.003	1.2 <	0.02	0.06	0.60	1.77	0.003	11	0
E26208	11/03/97 12:24	2.06 <	0.06 <	6.0 <	0.006	0.008 <	0.006	1.970	0.5 <	1.5	0.054	0.9 <	0.02 <	0.06 <	0.28	4.45	0.005	74	0
E26208	06/18/97 11:25	0.06 <	0.06 <	10.0 <	0.006 <	0.006 <	0.006	0.029	0.1 <	0.4 <	0.001	1.2 <	0.02 <	0.06 <	1.46	1.84	0.002	23	0
E26211	07/30/97 14:30 <	0.06 <	0.06 <	16.7 <	0.006 <	0.006 <	0.006	0.016	0.3 <	0.7 <	0.004	1.5 <	0.02 <	0.06 <	2.51	2.27 <	0.002	9	0
E26211	09/02/97 15:03 <	0.06 <	0.06 <	16.9 <	0.006 <	0.006 <	0.006	0.006	0.1 <	0.7 <	0.001	1.4 <	0.02 <	0.06 <	2.71	2.28	0.003	3	1.21
E26211	11/03/97 14:05	0.28 <	0.06 <	8.5 <	0.006	0.022 <	0.006	0.244	0.4 <	0.5	0.007	1.4 <	0.02 <	0.06 <	1.00	2.03	0.004	2	0
E26214	06/16/97 13:47 <	0.06 <	0.06 <	10.0 <	0.006	0.011 <	0.006	0.038	0.4 <	0.7 <	0.001	1.2 <	0.02 <	0.06 <	0.51	1.61	0.003	170	0
E26214	07/28/97 15:25 <	0.06 <	0.06 <	13.9 <	0.006 <	0.006 <	0.006	0.015	0.2 <	0.7 <	0.001	1.5 <	0.02 <	0.06 <	0.52	1.69	0.003	1	0
E26214	08/26/97 17:30	0.25 <	0.06 <	7.1 <	0.006 <	0.006 <	0.006	0.122	0.4 <	0.5	0.006	1.0 <	0.02 <	0.06 <	0.37	1.55	0.005	13	0
E26214	08/26/97 17:35																		46
E26214	11/05/97 9:10	0.10 <	0.06 <	2.9 <	0.006 <	0.006 <	0.006	0.019	0.2 <	0.5 <	0.001	1.0 <	0.02 <	0.06 <	0.55	1.59 <	0.002 <	1	0
E26214	11/05/97 9:00	0.12 <	0.06 <	2.9 <	0.006 <	0.006 <	0.006	0.025	0.2 <	0.4 <	0.003	1.0 <	0.02 <	0.06 <	0.54	1.62	0.003 <	1	0
E26214	11/05/97 9:30	0.14 <	0.06 <	2.9 <	0.006 <	0.006 <	0.006	0.031	0.3 <	0.5 <	0.001	1.0 <	0.02 <	0.06 <	0.52	1.62	0.004 <	1	0
E26214	11/05/97 9:20	0.09 <	0.06 <	2.9 <	0.006 <	0.006 <	0.006	0.021	0.2 <	0.5 <	0.003	1.0 <	0.02 <	0.06 <	0.55	1.63 <	0.002 <	1	0
E26215	06/16/97 15:47 <	0.06 <	0.06 <	8.1 <	0.006	0.015 <	0.006	0.036	0.3 <	0.7 <	0.001	1.5 <	0.02 <	0.06 <	1.88	2.01 <	0.002	124	0
E26215	07/30/97 13:45 <	0.06 <	0.06 <	10.0 <	0.006 <	0.006 <	0.003	0.031	0.5 <	0.7 <	0.003	2.0 <	0.02 <	0.06 <	2.64	2.13	0.017	6	0
E26215	09/03/97 8:45 <	0.06 <	0.06 <	9.1 <	0.006 <	0.006 <	0.007	0.038	0.3 <	0.6 <	0.001	1.8 <	0.02 <	0.06 <	1.96	2.13	0.002	8	1.21
E26215	11/05/97 11:00 <	0.06 <	0.06 <	4.8 <	0.006	0.012 <	0.006	0.048	0.4 <	0.5	0.002	1.3 <	0.02 <	0.06 <	0.76	1.63 <	0.002	2	0
E26216	06/17/97 13:39	0.99 <	0.06 <	7.1 <	0.006	0.011 <	0.006	0.988	0.3 <	1.0	0.032	0.6 <	0.02 <	0.06 <	0.33	2.65	0.004	156	>3
E26216	07/22/97 11:04 <	0.06 <	0.06 <	13.6 <	0.006	0.017 <	0.006	0.033	0.2 <	1.0	0.004	1.2 <	0.02	0.06	0.66	1.82	0.003	6	0
E26216	08/13/97 9:50																		5
E26216	08/13/97 9:55																		4
E26216	08/27/97 15:05	0.10 <	0.06 <	11.0 <	0.006	0.025 <	0.006	0.094	0.1 <	0.8	0.006	0.9 <	0.02 <	0.06 <	0.49	1.59 <	0.002 <	1	1.35
E26216	08/27/97 15:10																		1
E26216	11/03/97 14:55	3.52 <	0.06 <	7.5 <	0.006 <	0.006	0.009	3.390	0.6 <	2.1	0.093	1.3 <	0.02 <	0.06 <	0.31	6.7	0.006	48	0
E26217	06/17/97 15:35	1.32 <	0.06 <	5.8 <	0.006 <	0.006 <	0.006	1.050	0.4 <	0.9	0.033	1.2 <	0.02 <	0.06 <	0.68	3.75	0.007	56	0
E26217	07/30/97 10:30 <	0.06 <	0.06 <	9.2 <	0.006	0.012 <	0.006	0.028	0.4 <	0.7 <	0.004	2.3 <	0.02 <	0.06 <	1.64	3.1 <	0.002	7	0
E26217	09/02/97 16:05 <	0.06 <	0.06 <	9.5 <	0.006 <	0.006	0.009	0.026	0.4 <	0.8 <	0.001	2.4 <	0.02 <	0.06 <	1.61	2.91 <	0.002	5	0
E26217	11/05/97 12:10	0.26 <	0.06 <	6.4 <	0.006 <	0.006 <	0.006	0.175	0.4 <	0.7 <	0.007	1.6 <	0.02 <	0.06 <	0.82	2.56 <	0.002	16	0
E26218	06/17/97 13:15	0.63 <	0.06 <	7.2 <	0.006	0.010 <	0.006	0.457	0.4 <	0.9	0.014	1.3 <	0.02 <	0.06 <	0.60	2.93	0.004	32	0
E26218	07/30/97 11:24 <	0.06 <	0.06 <	14.0 <	0.006 <	0.006	0.009	0.023	0.7 <	1.3	0.003	2.2 <	0.02 <	0.06 <	1.82	2.92	0.004	1	0
E26218	09/03/97 9:50 <	0.06 <	0.06 <	12.4 <	0.006 <	0.006 <	0.014	0.052	0.5 <	1.0	0.001	2.1 <	0.02	0.06	1.59	2.73 <	0.002	5	0
E26218	11/05/97 14:15	0.16 <	0.06 <	7.9 <	0.006	0.006 <	0.006	0.097	0.4 <	0.8	0.005	1.6 <	0.02 <	0.06 <	0.65	2.58 <	0.002	1	0
E26219	06/17/97 10:34	1.88 <	0.06 <	6.4 <	0.006	0.006	0.010	1.790	0.3 <	1.3	0.065	0.8 <	0.02 <	0.06 <	0.40	3.83	0.004	128	0
E26219	07/30/97 9:35 <	0.06 <	0.06 <	14.0 <	0.006 <	0.006 <	0.006	0.006	0.3 <	0.9	0.005	1.4 <	0.02 <	0.06 <	0.80	1.97 <	0.002 <	1	1.23
E26219	08/13/97 9:25																		6

EMS ID	DATE	ALT mg/L	As-T mg/L	Cd-T mg/L	Cr-T mg/L	Cu-T mg/L	Fe-T mg/L	K-T mg/L	Mg-T mg/L	Mn-T mg/L	Na-T mg/L	Ni-T mg/L	Pb-T mg/L	S-T mg/L	Si-T mg/L	Zn-T mg/L	Fecals CFU/100mL	Giardia Crypto cysts/100 mL
	WG criteria	0.10	0.025	2 E-5	0.002	0.002	0.300	20	100	0.050	20	0.025	0.003			0.007	0	0
E2b219	08/13/97 9:30																	4
E2b219	09/02/97 17:10	< 0.06	< 0.06	< 0.006	< 0.006	0.010	0.032	0.4	0.9	0.003	1.6	< 0.02	0.07	0.84	1.92	< 0.002	3	0
E2b219	09/02/97 17:15																	4
E2b219	11/03/97 16:20	2.91	< 0.06	< 0.006	0.019	< 0.006	2.720	0.5	1.8	0.072	1.2	< 0.02	< 0.06	0.32	5.9	0.008	58	0
E2b219	11/03/97 16:30	2.87	< 0.06	< 0.006	0.019	0.007	2.620	0.4	1.8	0.068	1.3	< 0.02	< 0.06	0.35	5.79	0.006	54	
E2b219	11/03/97 16:40	2.90	< 0.06	< 0.006	0.009	0.009	2.680	0.6	1.8	0.067	1.2	< 0.02	0.07	0.33	5.95	0.005	48	
E2b219	11/03/97 16:50	2.93	< 0.06	< 0.006	0.034	0.007	2.600	0.6	1.7	0.072	1.2	< 0.02	0.06	0.33	5.68	0.008	68	
E2b221	06/18/97 14:25	0.15	< 0.06	< 0.006	< 0.006	0.008	0.131	0.3	0.6	0.004	1.0	< 0.02	< 0.06	0.45	1.54	0.005	36	0
E2b221	08/12/97 16:10	< 0.06	< 0.06	< 0.006	< 0.006	0.009	0.053	1.2	0.9	0.005	3.1	0.02	0.07	0.76	1.94	0.008	2	0
E2b221	08/12/97 16:15																< 1	
E2b221	08/27/97 14:10	< 0.06	< 0.06	< 0.006	0.032	< 0.006	0.081	2.2	0.7	0.006	1.2	< 0.02	< 0.06	0.54	1.58	0.003	< 1	0
E2b221	08/27/97 14:20																7	
E2b221	11/03/97 15:45	3.25	< 0.06	< 0.006	< 0.006	< 0.006	3.110	0.6	2.0	0.089	1.2	< 0.02	< 0.06	0.31	6.68	0.005	80	5.98
E2b223	06/17/97 9:30	0.40	< 0.06	< 0.006	< 0.006	0.007	0.262	0.1	0.4	0.018	1.0	< 0.02	< 0.06	0.34	1.48	0.006	146	0
E2b223	07/29/97 5:00	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.010	< 0.1	0.7	0.003	1.8	< 0.02	< 0.06	0.78	2.26	< 0.002	< 1	4.98
E2b223	07/29/97 5:10	< 0.06	< 0.06	< 0.006	0.009	< 0.006	0.008	< 0.1	0.8	0.002	1.8	< 0.02	< 0.06	0.78	2.3	< 0.002	< 1	
E2b223	07/29/97 5:20	< 0.06	< 0.06	< 0.006	0.025	< 0.006	0.007	< 0.1	0.7	0.003	1.8	< 0.02	< 0.06	0.79	2.25	< 0.003	< 1	
E2b223	07/29/97 5:30	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.010	< 0.1	0.7	0.004	1.6	< 0.02	< 0.06	0.79	2.26	< 0.002	< 1	
E2b223	08/27/97 11:55	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.047	1.7	0.4	0.001	1.4	< 0.02	< 0.06	0.49	1.66	0.003	< 1	0
E2b223	08/27/97 12:00																< 1	
E2b223	10/29/97 17:25	0.18	< 0.06	< 0.006	< 0.006	< 0.006	0.110	0.3	0.4	0.004	1.4	< 0.02	< 0.06	0.37	1.3	< 0.002	< 1	1.85
	Nitrate mean	0.83	0.06	0.006	0.011	0.007	0.743	0.5	1.0	0.023	1.5	0.02	0.06	0.66	3.05	0.004	25.3	0.8
	Nitrate SD	1.22	0.00	0.000	0.009	0.002	1.143	0.5	0.5	0.031	0.5	0.00	0.01	0.38	1.71	0.002	39.5	1.8
																		0.0
ROSANDER AREA MONITORING GROUP																		
E2b247	06/24/97 9:25	0.28	< 0.06	< 0.006	< 0.006	0.008	0.044	< 0.1	0.4	< 0.001	< 0.1	0.03	0.06	0.42	1.24	< 0.002	2	0
E2b247	09/16/97 15:40	0.09	< 0.06	< 0.006	< 0.006	< 0.006	0.062	0.1	0.4	< 0.001	1.6	< 0.02	< 0.06	0.66	1.41	0.005	26	
E2b247	11/04/97 9:30	0.09	< 0.06	< 0.006	< 0.006	< 0.006	0.031	0.4	0.5	< 0.001	1.9	< 0.02	< 0.06	0.45	1.28	0.007	6	
E2b249	06/25/97 14:30	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.019	3.1	0.4	< 0.001	2.2	< 0.02	< 0.06	0.45	1.91	0.003	8	0
E2b249	06/25/97 14:40	0.07	< 0.06	< 0.006	< 0.006	< 0.006	0.023	1	0.4	< 0.001	1.9	< 0.02	< 0.06	0.46	2	< 0.002	9	
E2b249	06/25/97 14:50	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.019	0.9	0.4	< 0.001	1.9	< 0.02	< 0.06	0.46	1.88	< 0.002	1	
E2b249	06/25/97 15:00	< 0.06	< 0.06	< 0.006	< 0.007	< 0.006	0.016	0.7	0.4	< 0.001	1.7	< 0.02	< 0.06	0.45	1.86	< 0.002	14	
E2b249	08/12/97 13:15	< 0.06	< 0.06	< 0.006	< 0.006	0.008	< 0.006	< 0.1	0.5	0.004	1.2	0.03	< 0.06	0.39	2.35	0.032	1	0.84
E2b249	09/03/97 15:40	< 0.06	< 0.06	< 0.006	< 0.006	0.010	0.027	0.3	0.4	0.003	2.0	< 0.02	< 0.06	0.48	2.22	< 0.002	2	1.21
E2b249	09/03/97 15:50	< 0.06	< 0.06	< 0.006	< 0.006	0.009	0.015	0.4	0.4	< 0.001	2.2	< 0.02	< 0.06	0.48	2.27	0.004	2	
E2b249	09/03/97 16:00	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.025	0.2	0.4	< 0.001	2.0	< 0.02	< 0.06	0.47	2.26	< 0.002	1	
E2b249	09/03/97 16:10	< 0.06	< 0.06	< 0.006	< 0.006	0.008	0.021	0.3	0.4	< 0.001	2.0	< 0.02	< 0.06	0.45	2.17	< 0.002	1	
E2b249	11/04/97 10:30	0.08	< 0.06	< 0.006	< 0.006	< 0.006	0.019	0.2	0.5	< 0.001	2.0	< 0.02	< 0.06	0.34	1.63	< 0.002	< 1	0
E2b251	06/25/97 12:24	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.047	0.6	0.4	< 0.001	1.7	< 0.02	< 0.06	0.38	1.1	< 0.002	1	0
E2b251	08/12/97 10:57	< 0.06	< 0.06	< 0.006	0.010	< 0.006	0.029	< 0.1	0.3	0.004	1.0	0.03	< 0.06	0.33	0.99	0.030	1	0
E2b251	09/03/97 14:40	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.028	0.3	0.3	0.002	1.7	< 0.02	< 0.06	0.37	1	< 0.002	1	0
E2b251	11/04/97 11:15	0.10	< 0.06	< 0.006	0.012	< 0.006	0.059	0.3	0.5	0.003	1.8	< 0.02	< 0.06	0.35	1.2	0.007	< 1	0
E2b253	06/24/97 13:50	0.34	< 0.06	< 0.006	0.010	< 0.006	0.136	< 0.1	0.4	0.014	< 0.1	< 0.02	< 0.06	0.32	1.22	0.002	< 1	0
E2b253	08/12/97 9:50	0.18	< 0.06	< 0.006	< 0.006	< 0.006	0.292	< 0.1	0.4	0.023	1.0	< 0.02	< 0.06	0.33	1.35	0.033	< 1	
E2b253	09/03/97 14:05	< 0.06	< 0.06	< 0.006	< 0.007	< 0.006	0.136	0.2	0.4	0.010	1.8	< 0.02	< 0.06	0.37	1.19	0.004	< 1	
E2b253	11/04/97 11:50																2	
E2b254	06/24/97 11:20	0.29	< 0.06	< 0.006	< 0.006	0.009	0.024	0.1	0.5	< 0.001	< 0.1	0.04	< 0.06	0.41	1.81	0.004	6	0
E2b254	11/04/97 14:30	0.08	< 0.06	< 0.006	< 0.006	< 0.006	0.027	0.5	0.6	0.002	2.3	< 0.02	< 0.06	0.37	1.63	< 0.002	2	
E2b255	06/25/97 9:25	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.079	0.8	0.9	< 0.001	2.2	< 0.02	< 0.06	0.48	2.73	< 0.002	< 1	0
E2b255	06/25/97 9:35	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.069	0.6	0.8	< 0.001	2.1	< 0.02	< 0.06	0.49	2.71	< 0.002	< 1	
E2b255	06/25/97 9:45																1	
E2b255	06/25/97 9:55	0.08	< 0.06	< 0.006	< 0.006	< 0.006	0.084	0.7	0.9	0.003	2.1	< 0.02	< 0.06	0.48	2.75	< 0.002	< 1	
E2b255	08/12/97 8:55	0.08	< 0.06	< 0.006	< 0.006	< 0.006	0.236	< 0.1	1.0	0.008	2.0	0.04	< 0.06	0.49	3.29	0.026	13	
E2b255	09/03/97 13:15	0.09	< 0.06	< 0.006	< 0.006	< 0.006	0.132	0.4	1.0	0.004	2.6	< 0.02	< 0.06	0.56	3.17	< 0.002	4	
E2b255	11/04/97 13:45	0.10	< 0.06	< 0.006	< 0.006	< 0.006	0.041	0.3	0.8	< 0.001	2.4	< 0.02	< 0.06	0.37	2.24	< 0.002	< 1	
E2b256	07/02/97 12:36	0.37	< 0.06	< 0.006	0.007	< 0.006	0.020	0.1	0.5	0.002	1.6	< 0.02	< 0.06	0.39	1.81	0.003	< 1	0
	Rosander mean	0.10	0.06	2.4	0.006	0.007	0.062	0.5	0.5	0.004	1.8	0.02	0.06	0.42	1.93	0.007	3.0	0.2
	Rosander SD	0.09	0.00	0.6	0.002	0.001	0.070	0.6	0.2	0.005	0.6	0.01	0.01	0.06	0.65	0.010	3.7	0.4

EMS ID	DATE	AL-T	As-T	Ca-T	Cd-T	Cr-T	Cu-T	Fe-T	K-T	Mg-T	Mn-T	Na-T	Ni-T	Pb-T	S-T	Si-T	Zn-T	Fecals	Giardia Crypto
	WQ criteria	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	CFU/100mL	cysts/100 mL
CAYCUSE RIVER MONITORING GROUP																			
E26130	07/07/97 14:25	< 0.06	< 0.06	5.9	< 0.006	< 0.006	< 0.006	0.010	0.4	0.5	< 0.001	1.8	< 0.02	< 0.06	0.38	1.59	< 0.002	1	0
E26130	09/16/97 17:00	< 0.06	< 0.06	7.2	< 0.006	< 0.006	< 0.006	0.014	0.2	0.6	< 0.001	1.8	< 0.02	< 0.06	0.46	1.8	< 0.002	10	
E26130	11/06/97 9:30	< 0.06	< 0.06	4.5	< 0.006	< 0.006	< 0.006	0.007	0.2	0.4	< 0.003	1.6	< 0.02	< 0.06	0.26	1.47	< 0.002	< 1	
E26225	07/02/97 17:38	0.91	< 0.06	55.5	< 0.006	0.037	< 0.006	0.233	1	4.5	0.008	3.6	< 0.02	< 0.06	21.30	10	0.006	3	
E26225	09/16/97 16:36	0.24	< 0.06	6.7	< 0.006	0.015	< 0.006	0.191	0.2	0.7	0.003	1.8	< 0.02	< 0.06	0.43	2.13	0.003	28	0
E26225	11/06/97 9:15	< 0.06	< 0.06	4.5	< 0.006	0.010	< 0.006	0.025	0.3	0.4	0.003	1.6	< 0.02	< 0.06	0.32	1.49	< 0.002	< 1	
E26227	07/22/97 9:18	< 0.06	< 0.06	14.4	< 0.006	0.010	< 0.006	0.026	0.1	1.0	0.002	1.7	< 0.02	< 0.06	0.67	1.96	< 0.002	5	0
E26227	08/13/97 10:30	< 0.06	< 0.06	18.1	< 0.006	0.008	< 0.006	0.034	1	1.0	0.002	3.5	< 0.02	< 0.06	1.10	2.1	0.009	< 1	
E26227	09/16/97 9:40	< 0.06	< 0.06	14.2	< 0.006	< 0.006	< 0.006	0.026	0.3	1.0	< 0.001	1.7	< 0.02	< 0.06	0.84	2	< 0.002	2	
E26227	11/05/97 15:10	0.12	< 0.06	9.5	< 0.006	< 0.006	< 0.006	0.074	0.2	0.6	0.005	1.5	< 0.02	< 0.06	0.37	1.87	0.003	< 1	
E26228	07/21/97 15:57	< 0.06	< 0.06	17.0	< 0.006	0.017	< 0.006	0.032	< 0.1	0.9	0.002	1.8	< 0.02	< 0.06	1.10	2.03	< 0.002	108	1.65
E26228	08/13/97 11:00	< 0.06	< 0.06	22.3	< 0.006	< 0.006	< 0.006	0.025	< 0.1	1.0	0.002	1.9	< 0.02	< 0.06	1.80	2.25	0.006	< 1	0
E26228	08/13/97 11:10	< 0.06	< 0.06	22.0	< 0.006	< 0.006	< 0.006	0.006	< 0.1	1.0	< 0.001	1.9	< 0.02	< 0.06	1.78	2.17	0.003	< 1	
E26228	08/13/97 11:20	< 0.06	< 0.06	22.1	< 0.006	< 0.006	< 0.006	0.012	< 0.1	1.0	0.002	2.0	< 0.02	< 0.06	1.74	2.17	0.002	< 1	
E26228	08/13/97 11:30	< 0.06	< 0.06	21.9	< 0.006	< 0.006	< 0.006	0.012	< 0.1	1.0	< 0.001	2.1	< 0.02	< 0.06	1.73	2.16	< 0.002	< 1	
E26228	09/15/97 16:22	< 0.06	< 0.06	18.4	< 0.006	< 0.006	< 0.006	0.016	0.3	1.0	< 0.001	1.9	< 0.02	< 0.06	1.47	2.17	< 0.002	2	0
E26228	09/15/97 16:22																	274	0
E26228	11/05/97 16:10	0.07	< 0.06	11.0	< 0.006	< 0.006	< 0.006	0.053	0.3	0.6	< 0.001	1.5	< 0.02	< 0.06	0.54	1.9	< 0.002	< 1	0
E26231	07/21/97 13:53	< 0.06	< 0.06	13.7	< 0.006	< 0.006	< 0.006	0.039	0.2	0.9	< 0.001	1.3	< 0.02	< 0.06	0.61	1.91	< 0.002	32	0
E26231	08/11/97 16:55	< 0.06	< 0.06	13.8	< 0.006	< 0.006	< 0.006	0.014	< 0.1	1.0	0.002	1.5	< 0.02	< 0.06	0.80	2.1	0.041	< 3	
E26231	09/15/97 15:20	< 0.06	< 0.06	10.0	< 0.006	< 0.006	< 0.006	0.046	< 0.1	0.8	< 0.001	1.5	< 0.02	< 0.06	0.66	1.99	< 0.002	8	
E26231	11/24/97 15:10	0.08	< 0.06	6.1	< 0.006	< 0.006	< 0.006	0.119	0.2	0.6	0.002	1.0	< 0.02	< 0.06	0.35	1.78	< 0.002	4	
E26232	07/03/97 15:40	0.08	< 0.06	15.7	< 0.006	0.016	< 0.006	0.026	< 0.1	0.8	0.003	1.4	< 0.02	< 0.06	0.34	1.6	< 0.002	< 1	0
E26232	08/11/97 15:55	< 0.06	< 0.06	21.5	< 0.006	0.007	< 0.006	0.006	< 0.1	1.0	< 0.001	1.0	< 0.04	< 0.06	0.39	1.81	0.037	< 1	
E26232	09/15/97 14:20	< 0.06	< 0.06	17.5	< 0.006	0.036	< 0.006	0.023	< 0.1	0.9	< 0.001	1.4	< 0.02	< 0.06	0.35	1.62	0.002	17	
E26232	11/24/97 15:40	< 0.06	< 0.06	11.0	< 0.006	< 0.006	< 0.006	0.021	< 0.1	0.6	< 0.001	1.0	< 0.02	< 0.06	0.26	1.42	< 0.002	< 1	0
E26234	07/03/97 1:40																		
E26234	07/03/97 1:50	0.07	< 0.06	13.3	< 0.006	< 0.006	< 0.006	0.020	< 0.1	1.0	0.004	1.3	< 0.02	< 0.06	0.38	2.18	< 0.002	< 1	0
E26234	07/03/97 2:00	< 0.06	< 0.06	13.7	< 0.006	< 0.006	< 0.006	0.019	< 0.1	1.2	0.006	1.4	< 0.02	< 0.06	0.41	2.26	< 0.002	< 1	
E26234	07/03/97 2:10	< 0.06	< 0.06	13.6	< 0.006	< 0.006	< 0.006	0.027	0.7	1.2	0.003	1.3	< 0.02	< 0.06	0.41	2.27	< 0.002	< 1	
E26234	08/11/97 15:10	< 0.06	< 0.06	16.9	< 0.006	< 0.006	< 0.006	0.006	< 0.1	1.4	0.004	1.0	0.03	< 0.06	0.37	2.72	0.034	< 1	
E26234	09/16/97 11:00	< 0.06	< 0.06	13.5	< 0.006	0.016	< 0.006	0.046	0.3	1.2	< 0.001	1.4	< 0.02	< 0.06	0.40	2.11	0.007	27	
E26235	11/24/97 14:30	0.09	< 0.06	9.1	< 0.006	< 0.006	< 0.006	0.140	0.1	0.8	0.005	1.0	< 0.02	< 0.06	0.32	1.94	< 0.002	8	
E26235	07/03/97 12:25	0.14	< 0.06	2.5	< 0.006	< 0.006	< 0.006	0.066	< 0.1	0.4	0.004	1.2	< 0.02	< 0.06	0.50	1.59	< 0.002	< 1	0
E26235	08/11/97 14:45	< 0.06	< 0.06	4.7	< 0.006	< 0.006	< 0.006	0.027	< 0.1	0.6	0.004	1.0	0.03	< 0.06	0.79	1.99	0.036	< 1	
E26235	09/16/97 12:15	0.28	< 0.06	3.4	< 0.006	0.012	< 0.006	0.222	0.2	0.6	0.005	1.3	< 0.02	< 0.06	0.59	2.18	< 0.002	8	
E26235	11/24/97 14:15	0.30	< 0.06	2.2	< 0.006	0.010	< 0.006	0.234	0.3	0.4	0.010	1.0	< 0.02	< 0.06	0.37	1.9	0.003	< 1	
E26236	07/03/97 11:25	0.16	< 0.06	1.4	< 0.006	< 0.006	< 0.006	0.100	< 0.1	0.4	0.016	1.2	< 0.02	< 0.06	0.28	1.1	0.004	< 1	0
E26236	08/11/97 13:59	< 0.06	< 0.06	1.5	< 0.006	< 0.006	< 0.006	0.197	< 0.1	0.3	0.020	0.4	0.03	< 0.06	0.25	0.82	0.032	< 1	
E26236	09/16/97 1:30	< 0.06	< 0.06	1.4	0.007	0.022	< 0.006	0.091	< 0.1	0.3	0.009	1.0	< 0.02	< 0.06	0.27	1	< 0.002	< 1	
E26236	11/24/97 13:50	< 0.06	< 0.06	1.7	< 0.006	< 0.006	< 0.006	0.110	0.3	0.4	0.022	1.1	< 0.02	< 0.06	0.29	1.62	0.007	< 1	
E26237	07/03/97 9:32	0.19	< 0.06	2.4	< 0.006	< 0.006	< 0.006	0.026	< 0.1	0.3	0.006	1.3	< 0.02	< 0.06	0.38	1.44	0.003	< 1	0
E26237	07/23/97 10:54	< 0.06	< 0.06	2.2	< 0.006	0.020	< 0.006	0.024	0.3	0.4	0.003	1.3	< 0.02	< 0.06	0.32	1.46	< 0.002	< 1	0
E26237	09/16/97 14:24	< 0.06	< 0.06	2.3	< 0.006	< 0.006	< 0.006	0.032	0.2	0.3	< 0.001	1.4	< 0.02	< 0.06	0.36	1.28	< 0.002	32	0
E26237	11/06/97 11:50	< 0.06	< 0.06	1.9	< 0.006	< 0.006	< 0.006	0.030	0.3	0.4	0.002	1.3	< 0.02	< 0.06	0.29	1.33	< 0.002	2	0
E26237																			
	Caycuse mean	0.09	0.06	8.7	0.006	0.009	0.006	0.064	0.2	0.7	0.005	1.2	0.02	0.06	0.46	1.77	0.009	5.6	0.2
	Caycuse SD	0.07	0.00	6.4	0.000	0.007	0.000	0.065	0.1	0.3	0.006	0.3	0.00	0.00	0.25	0.43	0.073	9.3	0.3
GORDON RIVER MONITORING GROUP																			
E26238	07/16/97 16:03	< 0.06	< 0.06	8.7	< 0.006	0.011	< 0.006	0.034	0.2	0.7	0.002	1.4	< 0.02	< 0.06	0.90	2.06	< 0.002	6	0
E26238	08/18/97 15:06	< 0.06	< 0.06	10.0	< 0.006	< 0.006	0.007	0.009	0.4	0.9	0.006	2.1	< 0.02	< 0.07	1.10	2.17	0.003	4	
E26238	09/08/97 12:30	< 0.06	< 0.06	11.0	< 0.006	0.012	< 0.006	0.019	0.3	0.9	0.003	1.6	< 0.02	< 0.06	1.21	2.18	0.006	< 1	
E26238	11/24/97 12:10	0.28	< 0.06	6.4	< 0.006	< 0.006	< 0.006	0.266	0.3	0.6	0.005	1.0	< 0.02	< 0.06	0.55	2.11	< 0.002	4	
E26239	07/16/97 16:55	< 0.06	< 0.06	8.5	< 0.006	< 0.006	< 0.006	0.030	0.2	0.6	< 0.001	1.3	< 0.02	< 0.06	0.94	2.02	< 0.002	4	0
E26239	08/18/97 14:28	< 0.06	< 0.06	9.8	< 0.006	< 0.006	< 0.006	0.028	0.3	0.8	0.003	2.3	< 0.02	< 0.06	1.19	2.26	0.005	< 1	
E26239	09/08/97 12:00	< 0.06	< 0.06	10.0	< 0.006	< 0.006	< 0.006	0.032	0.2	0.8	< 0.001	1.5	< 0.02	< 0.06	1.25	2.17	0.003	6	

EMS ID	DATE	ALT mg/L	As-T mg/L	Cd-T mg/L	Cr-T mg/L	Cu-T mg/L	Fe-T mg/L	K-T mg/L	Mg-T mg/L	Mn-T mg/L	Na-T mg/L	Ni-T mg/L	Pb-T mg/L	S-T mg/L	Si-T mg/L	Zn-T mg/L	Fecals CFU/100mL	Giardia Crypto cysts/100 mL
	WQ criteria	0.10	0.025	2 E-5	0.002	0.002	0.300	20	100	0.050	20	0.025	0.003			0.007	0	0
E26239	11/24/97 11:55	0.33 < 0.06	6.5 < 0.06		0.009 < 0.006	0.006	0.336	0.1	0.6	0.008	1.0 < 0.02	0.02 < 0.06	0.06	0.58	2.15	0.012		2
E26240	07/09/97 14:50	0.06 < 0.06	9.1 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.067 < 0.1	0.6	0.002	0.002	0.9 < 0.02	0.02 < 0.06	0.06	0.45	1.84	0.003	18	0
E26240	08/13/97 16:23	0.06 < 0.06	16.0 < 0.06	0.006 < 0.006	0.020 < 0.008	0.008	0.018	1	1.0	0.005	3.6 < 0.04	0.04 < 0.06	0.06	0.71	2.15	0.008	<	1
E26240	09/08/97 13:00	0.06 < 0.06	15.3 < 0.06	0.006 < 0.006	0.010 < 0.006	0.006	0.006 < 0.006	0.1	0.9	0.003	1.6 < 0.02	0.02 < 0.06	0.06	0.85	2.17	0.002	3	0
E26240	09/08/97 13:10	0.06 < 0.06	15.1 < 0.06	0.006 < 0.006	0.008 < 0.006	0.006	0.013 < 0.1	0.9	0.004	0.004	1.7 < 0.02	0.02 < 0.06	0.06	0.84	2.13	0.003	2	
E26240	09/08/97 13:20	0.06 < 0.06	15.1 < 0.06	0.006 < 0.006	0.019 < 0.006	0.006	0.009	0.2	1.0	0.003	1.7 < 0.02	0.02 < 0.06	0.06	0.84	2.13	0.006	2	
E26240	09/08/97 13:30	0.06 < 0.06	15.0 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.007	0.1	0.9	0.004	1.8 < 0.02	0.02 < 0.06	0.06	0.84	2.13	0.005	1	
E26240	11/25/97 10:50	0.06 < 0.06	9.6 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.080	0.2	0.6	0.006	1.0 < 0.02	0.02 < 0.06	0.06	0.49	1.93	0.004	2	0
E26241	07/09/97 13:46	0.10 < 0.06	9.1 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.110	0.2	0.6	0.001	1.0 < 0.02	0.02 < 0.06	0.06	0.45	1.86	0.002	16	0
E26241	08/13/97 15:24	0.06 < 0.06	16.3 < 0.06	0.006 < 0.006	0.017 < 0.006	0.006	0.024	1	0.8	0.002	3.3 < 0.04	0.04 < 0.06	0.06	0.76	2	0.006	<	1
E26241	09/08/97 15:30	0.06 < 0.06	15.5 < 0.06	0.006 < 0.006	0.014 < 0.006	0.006	0.007 < 0.1	0.9	0.001	0.001	1.7 < 0.02	0.02 < 0.06	0.06	0.88	2.09	0.002	7	0
E26241	11/25/97 9:50	0.09 < 0.06	9.7 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.119 < 0.1	0.6	0.005	0.005	1.0 < 0.02	0.02 < 0.06	0.06	0.48	1.96	0.004	<	1
E26242	07/09/97 0:00	0.10 < 0.06	4.3 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.067 < 0.1	0.4	0.001	0.001	1.0 < 0.02	0.02 < 0.06	0.06	0.33	1.65	0.002	9	0
E26242	08/13/97 14:15	0.06 < 0.06	8.8 < 0.06	0.006 < 0.006	0.007 < 0.006	0.006	0.013	0.9	0.7	0.003	3.1 < 0.02	0.02 < 0.06	0.06	0.89	2.34	0.007	<	1
E26242	09/08/97 16:20	0.06 < 0.06	8.0 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.008	0.2	0.8	0.003	1.4 < 0.02	0.02 < 0.06	0.06	0.87	2.32	0.002	5	
E26242	11/25/97 11:40	0.09 < 0.06	5.0 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.053	0.1	0.5	0.001	1.0 < 0.02	0.02 < 0.06	0.06	0.40	1.74	0.009	<	1
E26244	07/09/97 10:35	0.23 < 0.06	6.4 < 0.06	0.006 < 0.006	0.021 < 0.006	0.006	0.174	0.3	0.6	0.004	1.0 < 0.02	0.02 < 0.06	0.06	0.38	1.93	0.002	30	0
E26244	08/18/97 16:23	0.06 < 0.06	11.9 < 0.06	0.006 < 0.006	0.007 < 0.014	0.014	0.021	0.4	1.0	0.004	2.2 < 0.02	0.02 < 0.06	0.07	0.89	2.1	0.002	16	0
E26244	09/09/97 8:50	0.06 < 0.06	11.0 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.006 < 0.006	0.2	0.8	0.001	1.6 < 0.02	0.02 < 0.06	0.06	0.78	2.08	0.002	3	0
E26244	11/25/97 12:30	0.15 < 0.06	7.1 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.110	0.3	0.6	0.001	1.4 < 0.02	0.02 < 0.06	0.06	0.45	1.83	0.008	2	0
E26246	07/09/97 9:05	0.09 < 0.06	1.0 < 0.06	0.006 < 0.006	0.008 < 0.006	0.006	0.028	0.4	0.4	0.001	1.4 < 0.02	0.02 < 0.06	0.06	0.34	1.39	0.002	37	0.72
E26246	11/25/97 14:50	0.06 < 0.06	1.3 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.019	0.1	0.5	0.001	2.1 < 0.02	0.02 < 0.06	0.06	0.32	1.5	0.003	<	1
	Gordon mean	0.09	0.06	0.006	0.009	0.007	0.059	0.3	0.7	0.003	1.6	0.02	0.06	0.72	2.01	0.004	6.4	0.0
	Gordon SD	0.07	0.00	0.000	0.005	0.002	0.079	0.3	0.2	0.002	0.7	0.01	0.00	0.28	0.23	0.003	8.9	0.2
																		0.0
SAN JUAN RIVER MONITORING GROUP																		
E26190	07/09/97 9:20	0.99 < 0.06	1.6 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.838	0.7	0.5	0.023	1.4 < 0.02	0.02 < 0.06	0.06	0.32	2.26	0.002	90	0
E26190	08/18/97 17:44	0.10 < 0.06	4.3 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.013	1	0.9	0.004	3.1 < 0.02	0.02 < 0.06	0.06	1.10	4.03	0.002	13	0
E26190	09/10/97 9:37	0.06 < 0.06	4.8 < 0.06	0.006 < 0.006	0.014 < 0.006	0.006	0.055	0.8	0.9	0.005	2.6 < 0.02	0.02 < 0.06	0.06	1.10	4	0.002	18	0
E26190	11/27/97 12:15	0.25 < 0.06	1.8 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.180	0.2	0.3	0.001	1.7 < 0.02	0.02 < 0.06	0.06	0.39	1.7	0.002	26	1.45
E26408	07/08/97 12:06	0.55 < 0.06	2.3 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.356	0.3	0.5	0.010	1.3 < 0.02	0.02 < 0.06	0.06	0.31	2.02	0.002	41	0
E26408	11/25/97 15:40	0.06 < 0.06	4.1 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.017	0.2	0.6	0.001	1.9 < 0.02	0.02 < 0.06	0.06	0.43	1.86	0.002	<	1
E26408	11/25/97 15:50	0.06 < 0.06	4.1 < 0.06	0.006 < 0.006	0.015 < 0.006	0.006	0.006 < 0.006	0.1	0.6	0.001	1.8 < 0.02	0.02 < 0.06	0.06	0.45	1.84	0.002	<	1
E26408	11/25/97 16:00	0.06 < 0.06	3.9 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.006	0.2	0.6	0.002	1.7 < 0.02	0.02 < 0.06	0.06	0.43	1.79	0.002	<	1
E26408	11/25/97 16:10	0.06 < 0.06	4.1 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.006 < 0.006	0.2	0.6	0.001	1.7 < 0.02	0.02 < 0.06	0.06	0.43	1.91	0.002	<	1
E26410	07/08/97 8:15	0.45 < 0.06	2.0 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.290	0.6	0.4	0.008	1.6 < 0.02	0.02 < 0.06	0.06	0.46	1.61	0.002	<	1
E26410	08/18/97 16:35	0.06 < 0.06	6.6 < 0.06	0.006 < 0.006	0.016 < 0.006	0.006	0.033	0.9	0.8	0.003	2.4 < 0.02	0.02 < 0.06	0.06	1.65	3.95	0.018	9	0
E26410	09/10/97 10:55	0.06 < 0.06	6.2 < 0.06	0.006 < 0.006	0.027 < 0.008	0.008	0.025	0.8	0.8	0.005	2.6 < 0.02	0.02 < 0.06	0.06	1.51	3.67	0.002	10	1.5
E26410	11/27/97 12:55	0.22 < 0.06	2.3 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.150	0.4	0.4	0.003	1.8 < 0.02	0.02 < 0.06	0.06	0.58	1.74	0.002	14	0
E26548	07/08/97 13:02	0.91 < 0.06	3.2 < 0.06	0.007 < 0.006	0.006 < 0.006	0.006	0.529	0.7	0.7	0.012	1.3 < 0.02	0.02 < 0.06	0.06	0.22	2.74	0.002	25	0
E26548	08/19/97 14:02																<	1
E26548	09/10/97 12:30	0.06 < 0.06	6.6 < 0.06	0.006 < 0.006	0.009 < 0.006	0.006	0.013	0.5	1.0	0.003	2.3 < 0.02	0.02 < 0.06	0.06	0.65	2.49	0.002	1	0
E26548	11/27/97 11:00	0.32 < 0.06	2.6 < 0.06	0.006 < 0.006	0.006 < 0.006	0.008	0.110	0.2	0.5	0.001	1.3 < 0.02	0.02 < 0.06	0.06	0.24	1.55	0.004	18	0
E26549	07/15/97 9:03	0.39 < 0.06	13.3 < 0.06	0.006 < 0.006	0.021 < 0.006	0.006	0.050	0.1	1.0	0.001	1.4 < 0.02	0.02 < 0.06	0.06	0.55	2.42	0.002	<	1
E26549	08/19/97 19:00	0.06 < 0.06	12.8 < 0.06	0.006 < 0.006	0.017 < 0.006	0.006	0.030	0.2	1.2	0.001	1.5 < 0.02	0.02 < 0.06	0.06	0.71	2.63	0.006	5	0
E26549	09/10/97 13:21	0.06 < 0.06	11.0 < 0.06	0.006 < 0.006	0.018 < 0.006	0.006	0.042	0.3	1.2	0.005	1.5 < 0.02	0.02 < 0.06	0.06	0.66	2.65	0.002	3	
E26549	11/26/97 16:25	0.06 < 0.06	9.4 < 0.06	0.006 < 0.006	0.006 < 0.006	0.006	0.046	0.2	0.8	0.003	1.5 < 0.02	0.02 < 0.06	0.06	0.42	2.01	0.003	2	
E26550	07/14/97 12:45	0.24 < 0.06	5.3 < 0.06	0.006 < 0.006	0.020 < 0.006	0.006	0.093	0.1	0.8	0.005	1.9 < 0.02	0.02 < 0.06	0.06	0.41	2.93	0.002	<	1
E26550	08/19/97 11:33	0.06 < 0.06	9.3 < 0.06	0.006 < 0.006	0.018 < 0.006	0.020	0.063	0.5	1.2	0.004	2.7 < 0.02	0.02 < 0.06	0.07	0.52	3.24	0.006	1	
E26550	09/09/97 12:10																1	
E26550	11/26/97 12:20	0.06 < 0.06	4.1 < 0.06	0.007 < 0.006	0.007 < 0.006	0.006	0.064	0.2	0.7	0.001	1.7 < 0.02	0.02 < 0.06	0.06	0.38	2.77	0.003	4	
E26551	07/14/97 13:53	0.15 < 0.06	10.0 < 0.06	0.006 < 0.006	0.016 < 0.006	0.006	0.066	0.2	0.9	0.004	1.9 < 0.02	0.02 < 0.06	0.06	0.48	2.75	0.008	2	
E26551	08/19/97 12:03	0.19 < 0.06	10.0 < 0.06	0.010 < 0.006	0.006 < 0.006	0.006	0.066	0.7	1.5	0.003	2.7 < 0.02	0.02 < 0.06	0.15	0.51	3.19	0.002	<	1
E26551	09/09/97 12:35	0.06 < 0.06	11.0 < 0.06	0.006 < 0.006	0.006 < 0.006	0.0												

EMS ID	DATE	Al-T	As-T	Ca-T	Cd-T	Cr-T	Cu-T	Fe-T	K-T	Mg-T	Mn-T	Na-T	Ni-T	Pb-T	S-T	Si-T	Zn-T	Fecals	Giardia Crypto
	WQ criteria	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	CFU/100mL	cysts/100 mL
E226552	11/26/97 14:05	< 0.10	< 0.06	< 0.06	< 0.006	< 0.006	< 0.006	0.057	0.4	0.7	< 0.001	1.5	< 0.02	< 0.06	0.40	2.25	< 0.003	< 1	0
E226553	07/14/97 16:36	< 0.06	< 0.06	8.3	< 0.006	0.027	< 0.006	0.040	0.4	0.8	0.002	1.7	< 0.02	< 0.06	0.46	2.47	< 0.002	< 1	0
E226553	08/19/97 13:27																		
E226553	09/10/97 13:45	< 0.06	< 0.06	9.3	< 0.006	0.009	< 0.006	0.015	0.2	1.0	0.005	2.0	< 0.02	< 0.06	0.55	2.81	< 0.002	3	0
E226553	11/26/97 14:40	< 0.06	< 0.06	6.8	< 0.006	< 0.006	< 0.006	0.036	0.2	0.6	< 0.001	1.5	< 0.02	< 0.06	0.42	2.17	< 0.004	4	
E226554	07/15/97 10:35	0.09	< 0.06	6.4	< 0.006	< 0.006	< 0.006	0.050	0.6	0.8	0.001	1.8	< 0.02	< 0.06	0.83	2.93	< 0.002	1	0
E226554	08/19/97 17:17	0.33	< 0.06	11.0	< 0.006	< 0.006	< 0.006	0.010	0.7	1.0	0.002	2.2	< 0.02	< 0.06	1.51	3.17	< 0.005	2	
E226554	09/10/97 14:55	< 0.06	< 0.06	11.0	< 0.006	< 0.006	< 0.006	0.006	0.6	1.0	0.003	2.1	< 0.02	< 0.06	1.46	2.91	< 0.002	1	
E226554	11/26/97 15:50	0.10	< 0.06	4.9	0.008	< 0.006	< 0.006	0.067	0.3	0.6	< 0.001	1.7	< 0.02	< 0.06	0.62	2.41	< 0.004	1	
E226556	07/15/97 12:22	< 0.06	< 0.06	2.6	< 0.006	0.015	< 0.006	0.037	0.7	0.5	0.003	2.0	< 0.02	< 0.06	0.67	3.37	< 0.002	1	0
E226556	08/19/97 16:35	< 0.06	< 0.06	4.5	< 0.006	< 0.006	< 0.006	0.068	0.7	0.7	0.002	2.4	< 0.02	< 0.06	0.81	4.77	< 0.009	1	
E226556	09/10/97 14:23	< 0.06	< 0.06	5.0	< 0.006	0.030	0.009	0.068	0.9	0.9	0.003	2.7	< 0.02	< 0.06	0.84	4.69	0.012	1	
E226556	11/26/97 15:20	< 0.06	< 0.06	2.0	0.010	< 0.006	< 0.006	0.034	0.5	0.3	< 0.001	2.0	< 0.02	< 0.06	0.55	2.61	< 0.003	1	
E226560	07/16/97 12:00	< 0.06	< 0.06	10.0	< 0.006	0.014	< 0.006	0.012	0.3	1.0	< 0.001	1.9	< 0.02	< 0.06	0.86	2.76	< 0.002	5	0
E226560	07/16/97 12:10	< 0.06	< 0.06	9.8	< 0.006	0.021	< 0.006	0.019	0.3	1.0	< 0.001	1.9	< 0.02	< 0.06	0.86	2.74	< 0.002	7	
E226560	07/16/97 12:20	< 0.06	< 0.06	10.0	< 0.006	0.022	< 0.006	0.014	0.2	1.0	< 0.001	1.9	< 0.02	< 0.06	0.87	2.76	< 0.002	6	
E226560	07/16/97 12:30	< 0.06	< 0.06	9.7	< 0.006	< 0.006	< 0.006	0.008	0.3	1.0	0.003	1.8	< 0.02	< 0.06	0.83	2.68	< 0.002	7	
E226560	08/19/97 9:31																	1	
E226560	09/09/97 11:00	< 0.06	< 0.06	13.6	< 0.006	0.025	< 0.006	0.006	0.4	1.4	< 0.001	2.1	< 0.02	< 0.06	1.17	2.86	0.006	3	
E226560	11/26/97 10:40	0.07	< 0.06	6.6	0.006	< 0.006	< 0.006	0.046	0.2	0.7	< 0.001	1.7	< 0.02	< 0.06	0.65	2.43	< 0.002	1	
E226561	07/16/97 14:05	< 0.06	< 0.06	3.9	< 0.006	0.007	< 0.006	0.025	0.2	0.7	< 0.001	1.5	< 0.02	< 0.06	0.38	2.55	< 0.002	28	0
E226561	08/19/97 10:34																	2	0
E226561	09/09/97 11:35	< 0.06	< 0.06	5.2	< 0.006	0.014	0.012	0.032	0.4	1.0	< 0.001	1.4	< 0.02	< 0.06	0.53	2.78	0.004	3	
E226561	11/26/97 11:30	0.12	< 0.06	2.8	0.006	< 0.006	< 0.006	0.044	< 0.1	0.5	< 0.001	1.4	< 0.02	< 0.06	0.32	2.12	< 0.002	1	0
San Juan mean		0.09	0.06	7.5	0.006	0.012	0.007	0.037	0.4	0.8	0.002	1.9	0.02	0.06	0.70	2.86	0.003	3.2	0.0
San Juan SD		0.07	0.00	3.1	0.001	0.008	0.002	0.028	0.2	0.3	0.001	0.3	0.00	0.00	0.31	0.64	0.002	5.1	0.0
study area mean		0.21	0.06	7.2	0.006	0.010	0.007	0.149	0.3	0.7	0.006	1.6	0.02	0.06	0.72	2.19	0.005	11.4	0.3
study area SD		0.49	0.00	5.6	0.000	0.006	0.002	0.462	0.3	0.4	0.013	0.6	0.00	0.07	1.34	1.02	0.007	28.0	1.1